

**Success of Mergers and Acquisitions in the Insurance Industry:  
What Can We Learn From Previous Empirical Research?**

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## List of Abbreviations

€	Euro
#	Number
%	Percent
\$	United States dollar
A	Acquirer
AMEX	American Stock Exchange
AR	Abnormal return
AT	Austria
AU	Australia
avg.	Average
B	Benchmark
BE	Belgium
BHAR	Buy-and-hold abnormal return
BM	Bermuda
bn	Billion
BR	Brazil
CAAR	Cumulative average abnormal return
CAPM	Capital asset pricing model
CAR	Cumulative abnormal return
CBA	Cross-border acquisition
CDF	Cumulative distribution function
CEO	Chief executive officer
CER	Combined entity return
CH	Switzerland
cf.	Confer
Col	Country of incorporation
CRSP	Center for Research in Security Prices
CTA	Calendar-time (portfolio) approach
CTAR	Calendar-time abnormal return
CTR	Calendar-time return

D	Day
DAX	Deutscher Aktienindex (“German stock index”)
DE	Germany
DEA	Data envelopment analysis
DK	Denmark
EDF	Empirical distribution function
e.g.	Exempli gratia
ES	Spain
et al.	Et alia
EU	European Union
EUR	Euro
FI	Finland
FR	France
GAAP	General accepted accounting principles
GB	Great Britain
GDP	Gross domestic product
GICS	Global Industry Classification Standard
H	Hypothesis
HGB	Handelsgesetzbuch (German GAAP)
ICB	Industry Classification Benchmark
i.e.	Id est
IE	Ireland
IFRS	International Financial Reporting Standards
IPO	Initial public offering
ISIN	International Securities Identification Number
IT	Italy
JE	Jersey
KS	Kolmogorov-Smirnov
LBO	Leveraged buyout
LOF	Liabilities of foreignness
L-t	Long-term
LU	Luxembourg
M&A	Mergers and acquisitions
max.	Maximum



min.	Minimum
mn	Million
M-V	Mean-variance
MV	Market value
n.a.	Not available
NAIC	National Association of Insurance Commissioners
NASDAQ	National Association of Securities Dealers Automated Quotations
NL	Netherlands
NO	Norway
NYSE	New York Stock Exchange
OECD	Organization for Economic Cooperation and Development
p.	Page
p.a.	Per annum
PH	Philippines
p.m.	Per month
pp.	Pages
P&C	Property and casualty
P/L	Property-liability
R	Return
RE	Reinsurance
RO	Romania
ROA	Return on assets
ROE	Return on equity
RQ	Research question
SD	Stochastic dominance
SD1	First-order stochastic dominance
SD2	Second-order stochastic dominance
SDC	Security Data Company (by Thomson Financial)
SE	Sweden
SFA	Stochastic frontier analysis
SIC	Standard Industrial Classification
S&P	Standard & Poor's
S-t	Short-term

TRS	Total return to shareholders
UK	United Kingdom
US	United States
USD	United States Dollar
VaR	Value at risk
vs.	Versus
WACAR	Weighted-average cumulative abnormal return
Y	Year

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# 1 Introduction

## 1.1 History of the Consolidation Process and Relevance of the Topic

Similar to the general trend of increasing corporate expansion, the financial services industry, the insurance industry in particular, has experienced an unprecedented wave of mergers and acquisitions (hereafter, M&A) in the last 50 years.<sup>1</sup> This ongoing transformation process can be attributed to several factors, such as improvements in computing and communication technology, changes in risk and interest rates, insurance premium deregulation, market saturation, and economic forces (Swiss Re, 1999, 2000; OECD, 2000; CEA, 2013b; Okura & Yanase, 2013). Moreover, the standardization of accounting rules (IFRS 4), the development of EU-wide solvency standards (Solvency II), the implementation of the euro, and the European Union's Third Generation Insurance Directives in 1994, which deregulated the European insurance market, led to a rising number of cross-border EU transactions (transactions across national boundaries).<sup>2</sup>

Regulatory changes in the form of the EU's Second Banking Coordination Directive of 1993 and later amendments, as well as the Gramm-Leach-Bliley Act in the US (1999), also helped push forward the integration of the financial services industry, resulting in an increasing amount of cross-industry transactions (deals involving companies of different industries, e.g., banks and insurers).<sup>3</sup> As a result of this consolidation process, the number of financial services firms has declined substantially in recent years, although the number of insurance companies has remained fairly constant.<sup>4</sup> This suggests that the restructuring process in the insurance sector was primarily conducted for

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<sup>1</sup> In this context, Fustec and Faroult (2011) provide the examples of the brilliant expansion of the French insurer AXA and the disastrous undertaking of Allianz buying Dresdner Bank.

<sup>2</sup> See, e.g., Klumpes (2006 p. 2), Schertzing (2008, p. 36), and Farny (2011, p. 168).

<sup>3</sup> See, e.g., Group of Ten (2001), Cummins and Rubio-Misas (2003, p. 323), Fields, Fraser, and Kolari (2005, p. 777), and Focarelli and Pozzolo (2008, p. 1).

<sup>4</sup> For example in the European insurance industry, the CEA reported that slightly more than 5,300 insurance companies were operating in Europe in 2012. Almost the same number (i.e., 5,391) was reported in the year 1997 (see CEA, 2013 and 1998, respectively). See also Schertzing (2008, p. 16).

strategic purposes, such as to focus on a core business or geographical expansion into new regions, instead of consolidations in which the acquired insurer merged with the acquirer.<sup>5</sup> In summary, corporate expansion through mergers and acquisitions has become an increasingly popular means of restructuring and repositioning in the global market; as such, M&A activity has become an important dynamic in the insurance landscape.

## 1.2 Problem Statement and Research Gaps

In light of the enormous economic importance and the high level of global M&A activity in the financial services, and in the insurance sector in particular, a plethora of research has addressed the economic justifications and effects of these M&A deals. From a theoretical standpoint, various academic arguments and rationales for value creation in M&A, as well as motives for insurance M&A, are addressed in the existing literature.<sup>6</sup> Interestingly, in spite of this theoretical logic and the drastic increase in M&A activity in recent decades, there has been little empirical evidence of positive wealth effects and the success of M&A in the insurance sector as well as in the financial services industry. A plethora of research on M&A transactions in the banking industry regularly doubts value creation or even detects value destruction through this form of external restructuring.<sup>7</sup>

Likewise, empirical studies focusing on the insurance industry obtain inconsistent results regarding the success of M&A activity; therefore, the overall effect of such corporate activity remains controversial and inconclusive. According to various authors,<sup>8</sup> the vast majority of M&A transactions do not lead

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<sup>5</sup> See, e.g., Cummins, Tennyson, and Weiss (1998, p. 7) and Klumpes (2006, p. 19). In addition to this brief history of the consolidation process in the insurance industry, the subject has been more thoroughly discussed in the recent work of Schertzing (2008).

<sup>6</sup> For detailed information on drivers and hurdles as well as motives for M&A, see, for example, Pilloff and Santomero (1998, p. 61), BarNiv and Hathorn (1997, p. 105), Achleitner (2002, p. 142), Beitel (2002, p. 14), Sudarsanam (2010, p. 124), Cummins and Weiss (2004, p. 5), Cummins and Xie (2005, p. 6), Subramanyam (2005, p. 762), Boubakri, Dionne, and Triki (2006, p. 56), Klumpes (2006, p. 17), Cummins and Xie (2008, p. 32), Schertzing (2008, p. 23), and DeYoung, Evanoff, and Molyneux (2009, p. 95).

<sup>7</sup> See, e.g., the literature review of Young, Douglas, and Molyneux (2009) and cited references.

<sup>8</sup> E.g., Marks (1988), Copeland, Koller, and Murrin (1990), Marks and Mirvis (1998), Chaigneau (1999), Sudarsanam and Mahate (2006), and The Boston Consulting Group (2009a).



to the desired increase in value and hence cannot be seen as successful. Habeck, Kroeger, and Traem (2000) hence conclude that “[w]hile value creation might be the credo, value destruction is often the fact” (p. 3). In view of the constant rise in M&A activity over recent decades, this unfavorable finding leads to a paradox and consequently to the following questions being raised repeatedly in previous research<sup>9</sup>: (a) If M&A transactions in general are not successful, then why do companies continue to engage in M&A? (b) If M&A transactions on average are successful, then why have these positive effects not been revealed in prior M&A research? (c) Which determinants increase (or decrease) the probability of success in insurance M&A?

To answer these questions, one must first clearly define “success” and how it is measured. In general, there are various ways of measuring the success of M&A transactions. Major differences exist with regard to the choice of the success metric, the dimension of success, the timeframe for measuring success, the construction of the benchmark, and the perspective from which success is evaluated.<sup>10</sup> According to numerous authors, these differences—in particular, the analysis from differing success perspectives (Meglio & Risberg, 2010), the widespread use of alternative success and performance metrics (Schoenberg, 2006), and differences in the timeframe of the studies (Schertzinger, 2008)—may have held back knowledge development and may have at least been partly responsible for the mixed and contradictory findings of previous research.<sup>11</sup> However, even if the same perspective is taken, the same methodology and measurement of success are applied, and the same time horizon is chosen, inconsistent findings between publications are the rule rather than the exception. For example, most capital market research on the success of insurance M&A has focused on the short-term effects of such corporate activity, however, yielding ambiguous results with respect to the average wealth effect of

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<sup>9</sup> E.g., Lubatkin (1983), Gregory (1997), Martynova, Oosting, and Renneboog (2006), Schertzinger (2008), among others.

<sup>10</sup> Gerpott (1993, p. 190) and Wuebben (2007, p. 12). See section 2.3.1 for a further discussion on these various matrices and criteria.

<sup>11</sup> E.g., Larsson (2004, p. 5), Schoenberg (2006, p. 2), Meglio and Risberg (2010, p. 89), and the references therein.

the acquirer.<sup>12</sup> Also, the long-term effects of insurance M&A remain controversial, with only two capital market investigations, that is, Boubakri, Dionne, and Triki (2006) and Schertzing (2008), finding contrasting results. Boubakri, Dionne, and Triki (2006) provide empirical evidence for a strong positive relationship between M&A engagement and the financial success of acquiring insurance companies over a three-year post-M&A horizon. This contradicts the recent results of Schertzing (2008), who finds the opposite relationship between insurance M&A transactions and long-term success. Consequently, while general conclusions and recommendations for acquiring insurance companies cannot be made on the basis of findings from the extant insurance M&A literature, such information would be of great value for the decision making of managers, investors, and even regulators, as pointed out by Schertzing (2008). In view of the controversial results in the published literature, some authors go even further by stating that no two M&A transactions are alike, thereby questioning the existence of general principles of success in M&A transactions.<sup>13</sup> Haspeslagh and Jemison (1987) exaggerate the point by stating that “[n]othing can be said or learned about acquisitions in general” (p. 53).

Notwithstanding the problem of conflict regarding the average overall success of insurance M&A, the extant literature has identified a second problem area, namely the meaningfulness of the average overall result. One common finding is that in many cases, the average effect does not convey the substantial variation that exists between various M&A.<sup>14</sup> Due to this great variety in M&A outcomes, the average value does not say much about the success of individual transactions. Consequently, in addition to the analysis of the overall effect of

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<sup>12</sup> For example, Cybo-Ottone and Murgia (2000), Fields, Fraser, and Kolari (2007), and Staikouras (2009) detect strong positive CARs for mergers of banks and insurance companies. Moreover, a positive short-term market reaction of insurance acquirers upon the announcement of pure insurance deals is found in the studies of Akhigbe and Madura (2001), Floreani and Rigamonti (2001), and Cummins and Xie (2005, 2009). In contrast, Cummins and Weiss (2004), Elango (2006), Schertzing (2008), and Staikouras (2009) attain negative abnormal returns following the announcement of an M&A transaction.

<sup>13</sup> See, e.g., Kitching (1973), Schubert (1981), Kusewitt (1985), Lubatkin (1987), and Bower (2001).

<sup>14</sup> E.g., Merchant and Schendel (2000, p. 724), Akhigbe and Madura (2001, p. 496), and Schertzing (2008, p. 98 & p. 133).

insurance M&A, earlier studies also investigate potential determinants of insurance transaction success that might help to explain the observed variations and differences in M&A outcomes. Unfortunately, a significant proportion of the extant literature does not include important influencing factors in the analysis or does not even conduct an analysis of the major influencing factors at all. Moreover, previous research on this topic has not produced a consistent set of findings related to these influencing factors; hence, research has provided few insights into the significant correlations between the individual determinants and M&A success in the insurance industry. For example, the influence of the determinant “acquirer’s pre-merger participation in the target” is found to have a significant positive relationship to an acquirer’s post-merger performance in Cummins and Xie’s (2009) paper; however, their earlier work found a small negative relationship (Cummins & Xie, 2005). To summarize, it can be stated that little empirical evidence has addressed the potential influencing variables of M&A success in the insurance industry, and the available results have not given us many answers on how to increase the success rate of insurance M&A. Against this backdrop and the results on the overall effect of insurance M&A, previous authors state that “research to this topic area shows a significant industry-specific gap,”<sup>15</sup> and they postulate the need for further research on this topic, especially considering the huge practical relevance of M&A in the insurance industry.<sup>16</sup>

### **1.3 Research Objectives and Development of Research Questions**

As portrayed above, despite decades of research, there are still many open questions regarding the success and the valuation effects of M&A transactions in the insurance industry. The most fundamental questions are whether M&A transactions in the insurance industry create value and which factors lead to value generation in insurance M&A, or in other words:

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<sup>15</sup> Schertzing (2008, p. V). See also Merchant and Schendel (2000, p. 725), Javidan et al. (2004, p. 257), Meglio and Risberg (2010, p. 88), and Antoniou, Arbour, and Zhao (2011, p. 18).

<sup>16</sup> E.g., Merchant and Schendel (2000), Schertzing (2008), and Cooper and Finkelstein (2010.)

- (i) How successful are M&A transactions in the insurance industry?***
- (ii) Which factors increase the success of insurance M&A transactions?***

Our work aims at answering these two fundamental questions or at least providing valuable insights into the overall success and the variables that potentially influence the M&A success of the acquiring insurance company. To achieve this, we break down these two fundamental questions into four research questions that allow for a better overview and that go as follows:

- ***RQ 1: What is the definition of M&A success and how can it be measured?***
- ***RQ 2: Is it possible to develop a research cluster for the insurance M&A literature that is helpful in categorizing the findings of previous studies?***
- ***RQ 3: How successful are insurance companies in conducting M&A transactions?***
- ***RQ 4: Which factors lead to successful M&A transactions in the insurance industry?***

In order to provide an answer to these research questions, we first have to understand how M&A success can be defined and how it can be quantified and measured. This understanding is a necessary prerequisite for analyzing the effects of M&A transactions on the involved companies. Next, having gained the understanding of the term *success* and defined its use in this work, we ask the question: What does the previous empirical literature tell us about the success in insurance M&A and its influencing factors? However, in order to be able to give answers to this question and grasp the complexity inherent in the evaluation task, we have to structure the existing literature on the effects of insurance M&A. Accordingly, in a second step, we aim to develop a research cluster to categorize and structure the various findings of previous studies on M&A activity in the insurance industry. The third question concerns the overall success of insurance M&A transactions. Previous research on this topic has not come up with consistent answers regarding the average success rates, neither

in the announcement period nor in the medium- and long-term period. Our work therefore attempts to structure the diverse findings of recent insurance M&A research and thereby aims at understanding these seemingly contradicting results. Fourthly, we identify the potential influencing factors of M&A success that have been studied by the extant literature and outline the influences of these factors on the success of insurance M&A. The aim is to analyze why some insurance transactions succeed while others fail. Or, to put it in another way, this work investigates whether specific factors can explain the huge variations in the outcomes of individual M&A transactions and aims at identifying conditions under which M&A success in the insurance industry is increased or decreased. To further investigate the overall effect of insurance M&A and identify whether specific factors have a decisive influence on the success of these corporate undertakings, an empirical analysis of the relationship between M&A activity in the European insurance market and the financial success of these firms is conducted in the second major part of the book. By this we aim at testing the reliability and validity of the findings of previous research on the success of insurance M&A. This procedure—that is, first reviewing previous empirical literature and then conducting an own empirical analysis—enables us to approach research questions 3 and 4 in general<sup>17</sup> and later on for a sample of 102 European insurance M&A transactions in particular.<sup>18</sup>

This work makes the following contributions relative to prior research on the success of insurance M&A:

First, even though various literature reviews on the performance and success of M&A transactions in the financial services industry (and in particular in the banking industry) exist, the work of Schertzingler (2008) is the first and so far only literature review that exclusively focuses on the success of M&A

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<sup>17</sup> For example, research question 3, in a modified form, is therefore: How successful are insurance companies in conducting M&A transactions in general?

<sup>18</sup> Similarly, the modified research question 3 is thus: How successful have European insurance companies been in conducting M&A transactions during the period from 1993 to 2009?

transactions in the insurance sector. This existing insurance sector-specific literature review is not only extended by the inclusion of studies that were published after Schertzinger's paper, but also by the supplemental analysis of numerous additional factors influencing the outcome of a transaction. Moreover, our work aims at identifying research clusters that may help to explain the mixed findings across studies.

Second, besides investigating the short-term market reaction following the announcement of an M&A transaction, our empirical study also explores the long-term success of insurance M&A and its influencing factors. The current capital market literature on the success of insurance M&A seems to be dominated by short-term investigations, and empirical evidence on the long-term success of insurance M&A transactions is virtually non-existent. To the best of our knowledge, the capital market research in this field only comprises two recent studies that produce opposite results. Hence, our work is only the third analysis that examines long-term performance based on stock market performance following M&A of insurance firms (and only the second that restricts its analysis to transactions of European insurance firms).

Third, so far, all capital market studies that analyze the success of M&A transactions in the insurance industry have used the standard event study procedure. However, as argued by Javidan et al. (2004) and many others, "the conflicting findings and the theoretical shortcomings in this approach point to the need for new and innovative thinking and methodologies" (p. 257). Consequently, instead of adopting this traditional event study approach, we apply a fairly new approach to this problem and study the capital market reaction following the announcement of insurance M&A by using tests of stochastic dominance (SD). In this context, it is important to note that our work does not place particular emphasis on the statistical power of the SD test applied. Instead, our empirical study uses the SD approach to introduce an alternative measure for success evaluation.

## 1.4 Organization of the Study

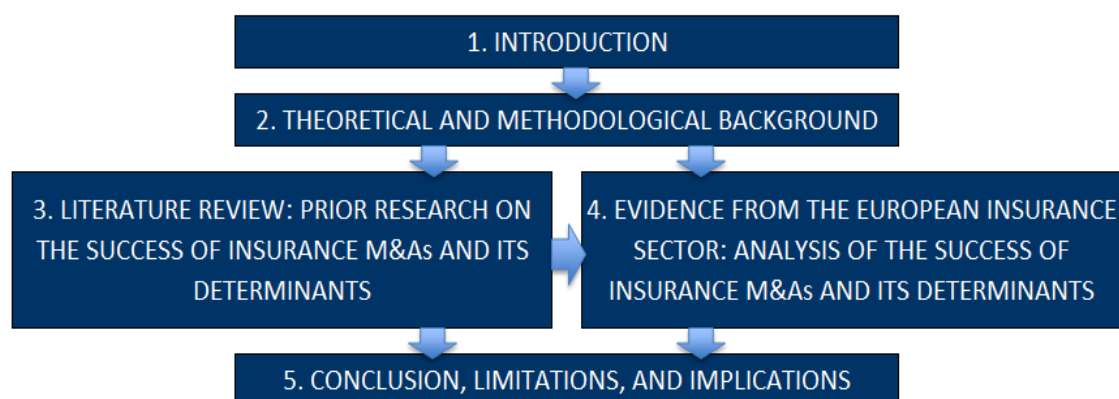
The research structure of this study is directly derived from the above research questions. First, theoretical and methodological foundations for the analysis of success in insurance M&A are laid in order to enable a complete understanding of the investigated topic. Instead of producing another work on the theoretical justifications and rationales of insurance M&A activity,<sup>19</sup> we directly deal with research question 1 about how success can be defined and measured. In this second chapter, we furthermore give particular attention to the various approaches for investigating M&A success. Following this, Chapter 3 presents a comprehensive overview of prior research on the success of insurance M&A activity and thereby seeks to provide at least some basis for tentative answers to research questions 2 to 4. This chapter contains a description of the literature review method that is used in our work. Afterwards, we develop research clusters to categorize the existing literature on the success of M&A deals (RQ 2), which is followed by a summary of the findings of earlier studies on insurance M&A by cluster. We examine the status quo (December 2013) of academic literature published in this field of research by bringing together the various findings of previous studies on the success of insurance M&A in a systematic way. The main purpose of this literature review is to brighten the picture by structuring the diverse findings and thereby helping to find potential explanations for the conflicting results of previous studies regarding M&A success. This comprehensive literature review is intended to help identify broad patterns in the insurance M&A literature and provide a solid perspective on the average success of an insurance transaction and then reveal particular specifics of individual transactions (RQ 3 and RQ 4). Moreover, this literature review serves as a foundation for the second major part of this book. In Chapter 4, we conduct an analysis on the success and the effects of M&A in the European insurance market and thereby provide supplemental evidence on this complex topic. In this way, we test the general findings from previous literature regarding the success of insurance M&A (RQ 3) and its influencing factors (RQ

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<sup>19</sup> This means that background information on the reasons for M&A activity in general and in the insurance industry in particular, as well as information on the relevant theories for explaining M&A activity, are not given herein. For this, the reader is instead referred to Boeckli (2003), Settnik (2006), Wirtz (2006), Wuebben (2007), Jansen (2008), and Boesecke (2009).

4) against a sample of European insurance transactions that were announced during the years 1993 to 2009. Lastly, in Chapter 5, we present the conclusions, highlight several important limitations, and discuss some of the implications of our results.

Figure 1 graphically depicts the structure of this work.



**Figure 1: Research structure**



## **2 Theoretical and Methodological Background**

### **2.1 Overview**

This chapter provides the conceptual and methodological framework for understanding and analyzing the success of M&A in the insurance industry. First, the theoretical foundations are laid. We display basic growth options for companies, provide the terminological basis, summarize the several types of M&A transactions, and then illustrate the typical transaction process. As there is already a rich academic literature that extensively elaborates on the manifold motives for conducting M&A transactions and the underlying economic theories for explaining these deals,<sup>20</sup> we will not cover these general issues in length herein, but these are taken into account when presenting and interpreting the results of our stochastic dominance analysis. Second, this study concentrates on the methodological prerequisites for evaluating the success in insurance M&A. A definition of value creation and success in M&A transactions is presented and differences in success perspectives, which could help to explain varying methodologies and results, are outlined. The various approaches and measures for evaluating and quantifying the success of insurance transactions are described in the final section of this chapter.

### **2.2 Theoretical Foundations**

#### **2.2.1 Growth Options of Insurance Companies**

Corporate growth can occur in very different ways, as outlined, for example, in the academic papers of Hax and Majluff (1991), Canals (2000), Bausch (2003), and Boesecke (2009). In general, it can be achieved through both internal and external resources.<sup>21</sup> In many cases, internal development will be considered

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<sup>20</sup> However, as highlighted by several authors (e.g., Weidenbaum & Chilton, 1988; Seth, Song, & Pettit, 2002), the understanding of the various motives as well as advantages and disadvantages of M&A is a basic prerequisite for understanding and evaluating the success of M&A transactions. For a reader without the required background knowledge of the economic rationales behind M&A transactions in general and in insurance M&A in particular, we recommend the works of Cook (1988, p. 2), Albrecht (1994b, p. 5 & p. 27), Kerler (1999, p. 33), Weston, Mitchell, and Mulherin (2004, p. 130), Settnik (2006, p. 73), Schertzingler (2008, p. 23), Boesecke (2009, p. 15), and Eisenbarth (2013, p. 85).

<sup>21</sup> See, e.g., Canals (2000), Schweizer (2002), Bausch (2003), and Boesecke (2009).

the preferred path, since it provides a cheap way for growth-seeking firms without involving substantial higher risks and uncertainty.<sup>22</sup> When internal resources are scarce or particular growth targets can be achieved more quickly, growth can also be achieved externally through different forms of expansion, such as mergers and acquisitions and cooperative arrangements in which internal and external resources are used. Even though these external forms of corporate expansion pose formidable challenges for acquiring firms, they simultaneously offer effective opportunities that allow the respective acquirers to instantly expand business activities without having the need to build a complex organization internally. Further advantages of the external development route may comprise opportunities to enhance the capabilities of the respective firms, as well as opportunities for cost reduction and scale economies, financial and managerial synergy effects (from combining the two firms and running them more effectively), and tax advantages.<sup>23</sup>

In the subsequent section, we will first define the ominous term *mergers and acquisitions* in order to enhance the understanding of the various external growth opportunities—especially M&A as a specific form of external growth—and then turn to the structure of a typical M&A process.

### **2.2.2 Definition of the Term *Mergers and Acquisitions***

Since the first takeover wave swept the United States in the beginning of the 20th century, the terms *merger*, *acquisition* and *takeover* are frequently used to describe the process of two separate companies coming together to form one bigger organization. As these terms are regularly used together or interchangeably in the finance literature and among practitioners dealing with this part of corporate finance,<sup>24</sup> they are often incorporated under the generic

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<sup>22</sup> Weston, Mitchell, and Mulherin (2004, p. 137) and Jansen (2008, p. 171). See also Hayes and Garvin (1982, p. 5), who give several arguments against the path of external growth and for internal development.

<sup>23</sup> E.g., Lubatkin (1983, p. 218), Kerler (1999, p. 38), Weston, Mitchell, and Mulherin (2004, p. 132), Weston, Chung, and Hoang (2007, p. 74), and Boesecke (2009, p. 1), and Farny (2011, p. 627).

<sup>24</sup> See, e.g., Ansoff and Weston (1962, p. 56), Napier et al. (1989, p. 105), Floreani and Rigamonti (2001, p. 4), Wirtz (2003, p. 10), King et al. (2004, p. 187), Weston, Mitchell, and Mulherin (2004, p. 6), Jansen (2008, p. 91), and Cusatis, Miles, and Woolridge (2011, p. 529).

term *mergers and acquisitions* (or abbreviated as M&A).<sup>25</sup> Consequently, it might seem that they all have the same meaning, but in fact, as pointed out by several authors,<sup>26</sup> there are important differences between the words *merger*, *acquisition*, *conglomerate*, *joint venture*, *takeover*, and *amalgamation*. In order to clearly present the relationships between corporate expansion through M&A and financial performance and to meaningfully compare results of previous empirical research, it is however necessary to provide a precise definition of the terminology *merger and acquisition* and an understanding of the involved terms.

In absence of a consistent terminology, various attempts have been made to clearly specify these terms, resulting in a variety of definitions.<sup>27</sup> In general, we can distinguish two groups of definitions based upon the range of corporate activities: Mergers and acquisitions (M&A) in a broad Anglo-American sense and M&A in a narrower Western sense. The broader definition includes a range of different transactions: “[t]he traditional subject of M&A has been expanded to include takeovers and related issues of corporate restructurings, corporate control, and changes in the ownership structure of firms.”<sup>28,29</sup> Within Western M&A literature, “the term M&A is strictly confined to strategically motivated business combinations, i.e. transactions that result in the transfer of ownership as well as management and control rights from one company (the “target”) to another (the “acquirer”)”<sup>30</sup>. Further, Achleitner (2002) points out that under the narrow definition, all transactions conducted solely for financial investment purposes are excluded.

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<sup>25</sup> See, e.g. Brealey and Myers (1991 p. 817) and Wuebben (2007, p. 5).

<sup>26</sup> E.g., Buono and Bowditch (1989, p. 60), Cartwright and Cooper (1992, p. 30), Epstein (2005, p. 37), Subramanyam (2005, p. 773), and Weston, Chung, and Hoag (2007, p. 3).

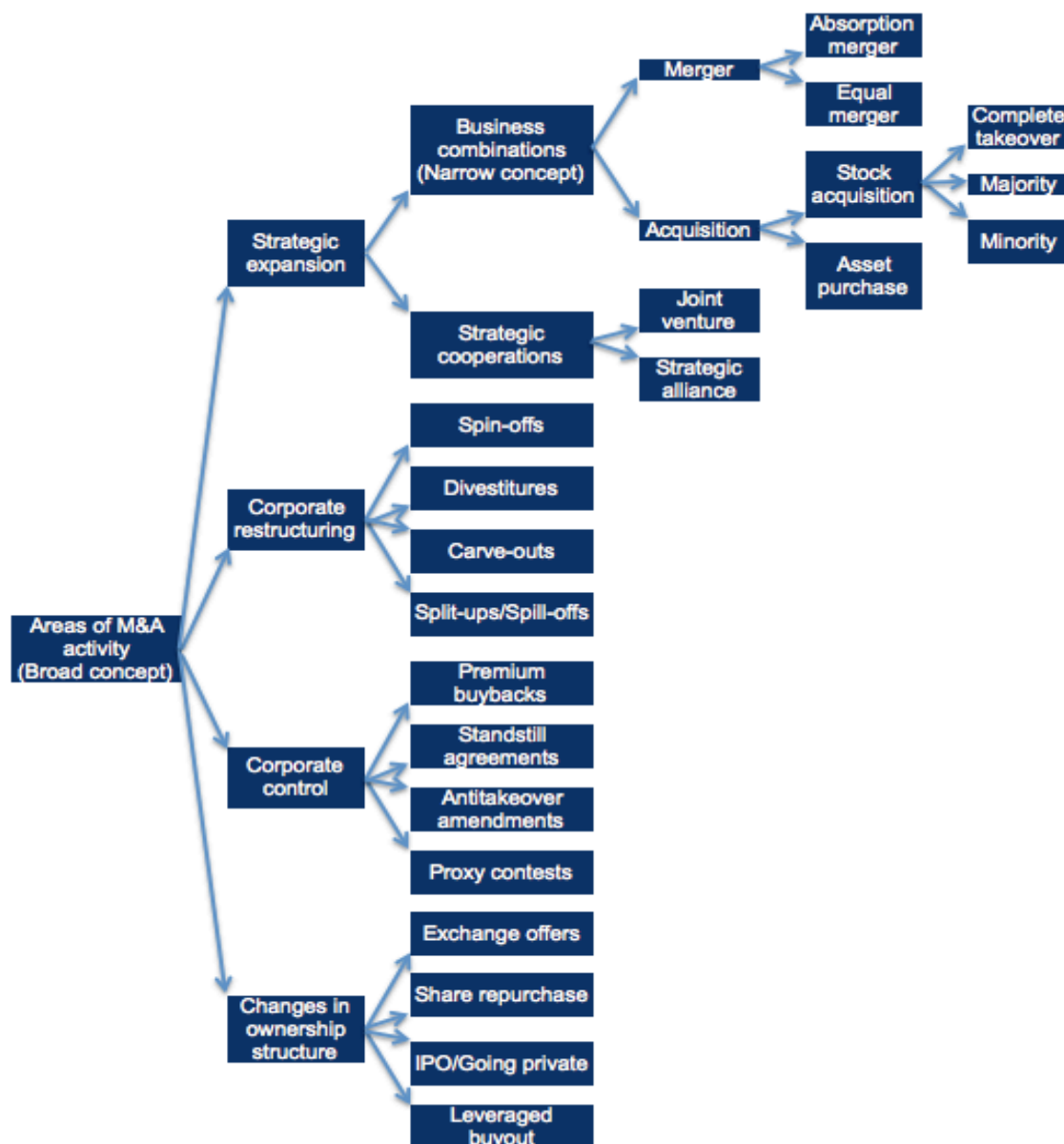
<sup>27</sup> For example, Achleitner (2002, p. 141) states: “The term M&A refers to transactions in the market for companies, portfolios of companies’ assets, shares in companies and participations, and to the business segment of professional services firms or banks who consult transaction parties”. Sudarsanam (2010, p. 1), in contrast, defines M&A as deals “by which two companies are combined to achieve certain strategic and business objectives”.

<sup>28</sup> Copeland and Weston (1988, p. 676). See also Herzel and Shepro (1990, p. 3), Hooke (1997, p. 1), Gaughan (2002, p. 7), and Weston, Mitchell, and Mulherin (2004, p. 5). An even wider definition is suggested by Sudarsanam (1995), who defines M&A as a “means of corporate expansion and growth” (p. 1).

<sup>29</sup> See, e.g., Achleitner (2002, p. 141).

<sup>30</sup> Wuebben (2007, p. 6). See also Wirtz (2003, p. 12), Lucks and Meckel (2002, p. 23), Mueller-Stewens, Spickers, and Deiss (1999, p. 1), and Vogel (2002, p. 5). Picot (2002, p. 15) extends the narrow focus of M&A by also including corporate events such as alliances, cooperations, and joint ventures.

To further illustrate the diverse areas that can be derived from the broad definition of M&A, as well as to outline the classification of M&A in a narrower sense, we adopt a model based partially on Copeland and Weston (1988) and partially on Nakamura (2005).<sup>31</sup>



**Figure 2: The definition of M&A in a broad and narrow sense<sup>32</sup>**

<sup>31</sup> For differentiating the various types of M&A, we follow Wuebben (2007, p. 5), who adopts the perspective of companies using M&A as a strategy for growth rather than concentrating on the perspective of service providers, such as investment banks that provide advisory and other financial services for M&A transactions. For the latter, see Beitel (2004, p. 32).

<sup>32</sup> Source: Adapted from Copeland and Weston (1988, p. 677), Gaughan (2002, p. 7), Nakamura (2005, p. 18), and Wuebben (2007, p. 6).

In this thesis, we do not present a detailed description of each individual area of M&A activity.<sup>33</sup> Instead, we concentrate on the specific forms of M&A that will be used in this study.

If the term *M&A* is understood in the broad sense, it comprises manifold forms ranging from simple mergers and joint ventures to various types of corporate restructuring and changes in ownership structure. Hence, in the context of the previous M&A finance literature, using the broad definition of M&A activity could often lead to confusion and even misunderstanding, as argued by Nakamura (2005, p. 17). Consequently, we will look at M&A from the narrow perspective, considering only companies as acquirers.

The early definition of the OECD (1993), which characterizes a merger as “an amalgamation or joining of two or more firms into an existing firm or to form a new firm,” shall serve as a starting point.<sup>34</sup> Technically, such a combination of operations can be done either through a “merger by absorption” or through a “merger by establishment.”<sup>35</sup> Merger by establishment is a situation in which two or even more entities (typically of similar size) are dissolved and merged into a completely new created company (e.g., JPMorgan Chase and DaimlerChrysler).<sup>36</sup> According to Gaughan (2002), a consolidation, in which the target and acquiring firms become a new firm, can be considered to imply a merger by establishment. In an absorption merger, however, all assets of one or more company/ies are transferred to the absorbing company, and the absorbed companies are dissolved afterwards, as they become part of the acquirer.<sup>37</sup>

In the other type of business combination, namely in an acquisition, the acquirer purchases a significant share of stocks or assets of a (usually much smaller)

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<sup>33</sup> See, e.g., Copeland and Weston (1988, p. 676) and Jansen (2008, p. 94) for a detailed discussion.

<sup>34</sup> For similar definitions of a merger, see, e.g., Gaughan (2002, p. 7) and Jagersma (2005, p. 14). Weston, Mitchell, and Mulherin (2004, p. 6) add in this context that the vast majority of mergers are friendly, negotiated transactions, even though negotiations sometimes start out hostile before turning friendly.

<sup>35</sup> Chunlai, Chen, and Findlay (2003, p. 23) and Nakamura (2005, p. 18).

<sup>36</sup> Chunlai, Chen, and Findlay (2003, p. 23) and Rui (2009, p. 10).

<sup>37</sup> Chunlai, Chen, and Findlay (2003, p. 23) and Rui (2009, p. 10). In fact, such a form of merger could accordingly also be classified as an acquisition, as outlined by Nakamura (2005, p. 19).

target company to achieve a managerial influence (e.g., Cisco's growth model).<sup>38</sup> Consequently, such deals can be further divided into two major forms of acquisition: stock acquisitions and asset acquisitions. In the latter, the acquiring firm purchases some or all of the target firm's assets while the former target stockowners receive cash for their shares. In stock acquisitions, however, stocks of the acquiring company are issued to a target's shareholders in exchange for their stake in the target company. Depending on the stake the acquirer holds (and thereby its voting power) in the target following the acquisition, acquisitions are then classified into three types: complete takeovers (100% of the issued shares), majority position (less than 100% but more than 50% of the issued shares), and minority position (less than 50% of the issued shares).<sup>39</sup> Nakamura (2005) outlines that even though the acquirer is assumed to have the power to influence the target's business strategy in all three cases, the acquirer's ownership (of voting rights) has to be above 50% to possess significant voting power to exert complete control over the target's operations by being able to elect the board of directors as well as replace management. Hence, acquisitions are characterized by the transfer of ownership, control, and voting rights, whereas a combination of the companies' operations is obviously not a necessary condition to be classified as an acquisition.<sup>40</sup>

With the above discussion as background, it is clear that mergers and acquisitions are two forms of transactions that differ in regard to their transaction procedures, legal obligations, and tax liabilities.<sup>41</sup> Thus, from a legal standpoint, a distinction between a merger and an acquisition is crucial,<sup>42</sup> but from an economic and practical perspective, which is used in this study, it is redundant. In both cases, the involved companies ultimately combine their business efforts to realize some kind of benefit. In the context of this study, we

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<sup>38</sup> Chunlai, Chen, and Findlay (2003, p. 23), and Epstein (2005, p. 38).

<sup>39</sup> Chunlai, Chen, and Findlay (2003, p. 23) and Nakamura (2005, p. 19).

<sup>40</sup> This is a crucial difference to a merger, in which the operations of the involved companies are combined (e.g., Mueller-Stewens, Spickers and Deiss, 1999, p. 1; European Council, 2004 Art. 3 (1); Schertzinger, 2008, p. 4; Spiss, 2008, p. 1).

<sup>41</sup> E.g., Buono and Bowditch (1989, p. 60), Cartwright and Cooper (1992, p. 30), Gerpott (1993, p. 27), Marren (1993, p. 77), Achleitner (2002, p. 141), and Rusu (2010, p. 12).

<sup>42</sup> In a merger, the target is dissolved after the closing of the transaction. In an acquisition, the target company remains legally in existence after the transaction, e.g., Gerpott (1993, p. 30), Kerler (1999, p. 11), and Rusu (2010, p. 12).

accordingly follow the narrow interpretation<sup>43</sup> of the term *M&A* and, moreover, do not distinguish between a merger and an acquisition.<sup>44</sup> It is appropriate therefore, to make no differentiation between the terms *merger*, *acquisition*, *transaction*, and *M&A* and use them interchangeably throughout this study.

Further criteria for categorizing the various dimensions of these transactions are of much more interest. This will be dealt with in the subsequent section.

### 2.2.3 Categorization of M&A

Similarly to the definition of the generic term *mergers and acquisitions*, previous M&A literature offers a wide range of possible systematizations for types of M&A transactions. Table 1 displays these various dimensions for categorization.

**Table 1: Criteria for categorizing M&A<sup>45</sup>**

Criterion	Characteristics
Attitude of the transaction	Friendly, hostile
Competitive impact	Beneficial, neutral, limiting
Duration	Temporary, indefinite
Financing	Equity, debt, hybrid
Geographic area	Within-country, cross-border, transcontinental
Industry relatedness	Within-industry, cross-industry
Method of payment	Cash, shares, others
Motive	Profit, non-profit
Ownership status of the target	Private, public
Status of the transaction	Announced, pending, completed, withdrawn
Strategic direction	Horizontal, vertical, concentric, conglomerate
Structure of the transaction	Asset deal, share deal, portfolio transaction
Type of business combination	Acquisition, merger

<sup>43</sup> See, e.g., Gerpott (1993, p. 22), Wuebben (2007, p. 7), and Schertzingler (2008, p. 7), who also adopt the definition of M&A in a narrower sense. Wuebben (2007, p. 7) adds that this procedure places the focus exclusively on companies as acquirers while transactions by private investors (e.g., by investor groups or through a management buyout) as well as strategic cooperations (e.g., joint ventures and alliances) are excluded.

<sup>44</sup> We follow, for example, Wuebben (2007, p. 7) and Spiss (2008, p. 1), who do not make a distinction between these two terms.

<sup>45</sup> Source: Pausenberg (1993, column 4438), Beitel (2004, p. 34), Eisenbarth (2013, p. 26) own research.

The most prominent dimensions by which M&A transactions can be categorized include the type of business combination, attitude of the transaction, geographic area, industry relatedness, payment method, and the ownership status of the target. However, as these various dimensions have been discussed extensively in several previous publications,<sup>46</sup> we omit a detailed description at this point and will instead provide a more elaborate discussion on the few specific criteria that will become relevant when analyzing the success of insurance M&A and its determining factors (see Chapter 4).

#### **2.2.4 Phases of the M&A Process**

When analyzing value creation in insurance M&A and its influencing factors, we first have to grasp the manifold aspects of the M&A transaction process and its specific phases in order to provide a basis for evaluating the success of such corporate activities. Furthermore, Jemison and Sitkin (1986) highlight that “[t]he acquisition process itself is a potentially important determinant of acquisition activities and outcomes” (p. 145) and hence has to be portrayed in order to attain a comprehensive picture of the relevant issues.<sup>47</sup>

Given the complex challenges involved in conducting an M&A transaction, the popular M&A literature provides a variety of different structures for illustrating the typical transaction process from the perspective of the buying firm. These various structures of a friendly<sup>48</sup> transaction differ mainly with respect to the number of phases and their respective denomination, as pointed out by Wuebben (2007, p. 39). While Boland (1970) and Schweiger and Weber (1989) subdivide the process of managing an M&A transaction only into two phases (pre-merger and post-merger or implementation, respectively), Hitt (2002), Parenteau, and Weston (2003), and Carpenter and Sanders (2007) divide the

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<sup>46</sup> For an in-depth discussion on the several categorization criteria, see, for example, Pausenberg (1993, column 4438), Gaughan (2002, p. 3), Beitel (2004, p. 34), Settnik (2006, p. 33), Wuebben (2007, p. 11), Jansen (2008, p. 99), and Schertzinger (2008, p. 7).

<sup>47</sup> In addition, Haspeslagh and Jemison (1987) assert that “[b]y considering how this process affects the results, we believe managers may gain insights into ways to control negative outcomes” (p. 53).

<sup>48</sup> Wuebben (2007, p. 39) notes that in hostile transactions as well as in auctions the transaction process regularly differs substantially from the one in friendly deals. The author refers here to the work of Picot (2002) for a description of such a hostile transaction process.



M&A process into four phases.<sup>49</sup> Farley and Schwallie (1982) even use six phases (integration with the strategic plan, intelligent screening, evaluation of targets through creativity and analysis, understanding value and price, anticipating the post-acquisition phase, and efficient implementation), and seven phases (assessment, joint planning, issues analysis, structure selection, securing approvals, final planning, and implementation), respectively, to describe a typical transaction process. However, in the recent M&A research, a preferred structure has evolved that subdivides the acquisition process into three phases: pre-transaction phase, transaction phase, and post-transaction phase.<sup>50</sup> This three-phase structure, as shown in Figure 3 below, is adopted for the purpose of this study and described in more detail hereinafter.<sup>51</sup> However, as this structure represents a standardized transaction process, real-life processes might differ with respect to the individual steps and activities of these independent phases.<sup>52</sup>

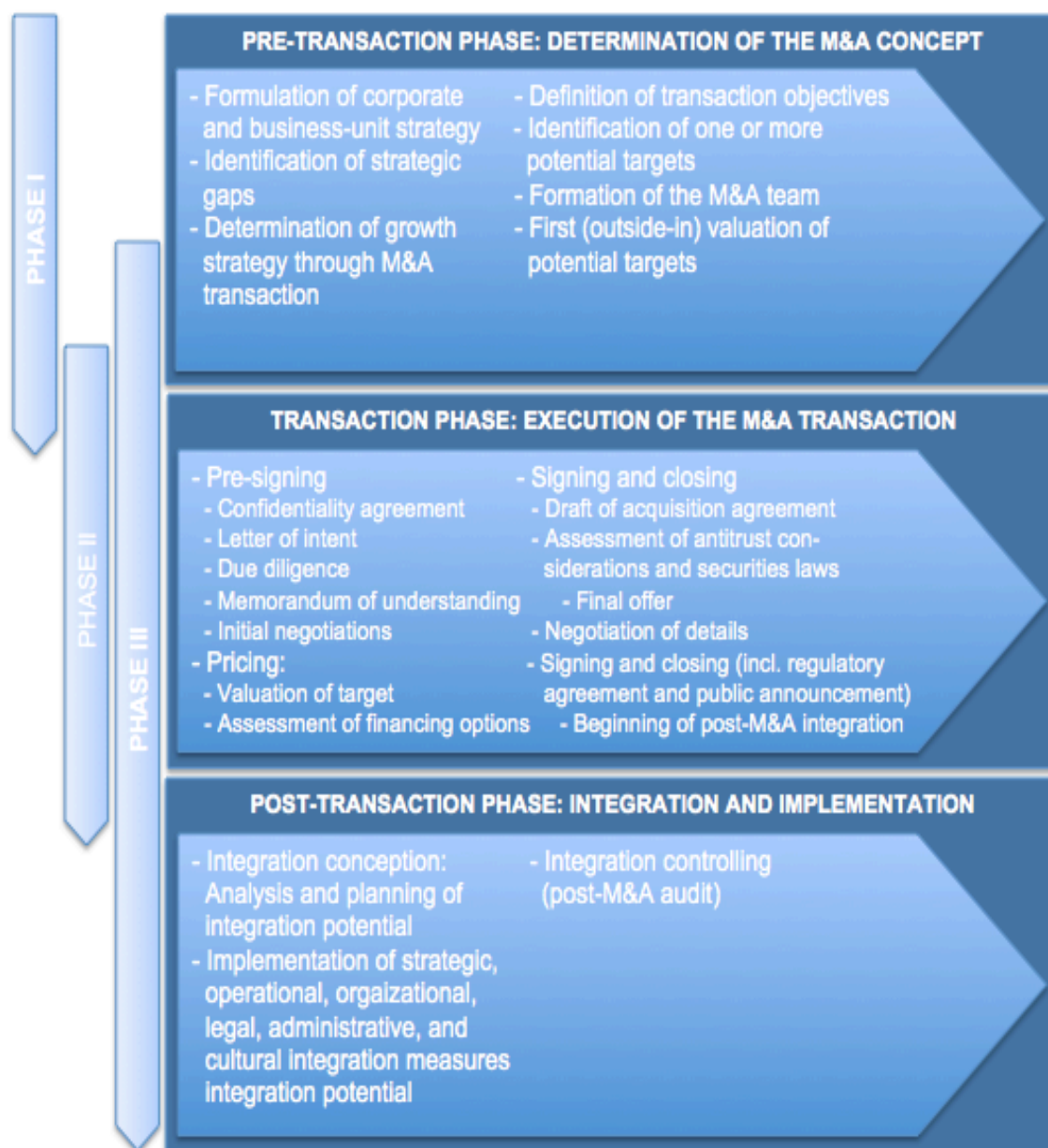
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<sup>49</sup> Parenteau and Weston (2003): Strategy planning, candidate screening, due diligence and deal execution, and integration phase; Javidan et al. (2004): Strategic thinking and target identification, due diligence, negotiations, post-merger processes; Carpenter and Sanders (2007): Idea, justification, acquisition integration, and result appraisal.

<sup>50</sup> E.g., Salus (1989): Premerger, merger, and post-merger; Von Krogh (1994): Pre-acquisition, acquisition, and post-acquisition; Dabui (1998): Premerger, merger post-merger; Appelbaum et al. (2000): Premerger, during, and post-merger; Picot (2002); Jansen (2008): Planning, implementation, and integration; Vogel (2002); Wirtz (2003); Richter (2005); Wuebben (2007): Strategic analysis and conception, acquisition structuring and management, and post-closing integration; Schertzinger (2008): Planning, transaction, and integration.

<sup>51</sup> Note that for an all-encompassing description of the individual transaction phases and the associated buy-side activities, please refer to the works of Wuebben (2007, p. 39), and Jansen (2008, p. 250).

<sup>52</sup> Wuebben (2007, p. 39). See also Vogel (2002, p. 113) and Jansen (2008, p. 249).



**Figure 3: Structure of a typical M&A process<sup>53</sup>**

In the first phase of the M&A transaction process, the so-called “pre-transaction” or “planning phase,” an insurance firm has to first formulate its corporate strategy and select its individual growth targets.<sup>54</sup> If strategic gaps exist

<sup>53</sup> Source: Wuebben (2007, p. 40), Schertzingler (2008, p. 11), own research. Presentation follows Jansen (2008, p. 249).

<sup>54</sup> See Kerler (1999, p. 235), Wirtz (2003, p. 108), Wuebben (2007, p. 41), and Schertzingler (2008, p. 10). Note that this sentence and the remainder of the paragraph are mainly based on Javidan et al. (2004, p. 248), Wuebben (2007, p. 41), Schertzingler (2008, p. 10), and Boesecke (2009, p. 12).

between the firm's current state and the desired state of assets and processes, the insurer may reach the decision to grow externally through M&A.<sup>55</sup> Thereupon, the specifics of this external growth strategy have to be determined based on the individual growth targets of the firm, and transaction objectives have to be defined accordingly.<sup>56</sup> Next, potential target candidates have to be identified and screened by the newly formed M&A team<sup>57</sup> of the acquiring insurance firm, and the most promising target firms are preliminarily valued from an outside-in perspective.<sup>58</sup> In the last step of the pre-transaction phase, the corresponding transaction is either cancelled or the second phase of the transaction process is begun.<sup>59</sup> This second phase, namely the "transaction phase," comprises not only pre-signing activities, such as transaction planning, negotiation, and documentation, it also comprises the signing and closing of the deal.<sup>60</sup> During the pre-signing phase, the transaction is planned, and simultaneously the most relevant details are negotiated. Typically, this involves addressing all relevant issues influencing the success of the combination of target and acquirer firms, ranging from expert discussions and several types<sup>61</sup> of due diligence to various aspects of the deal structure, the contractual framework, and the legal procedure (e.g., confidentiality agreement, letter of intent, and memorandum of understanding).<sup>62</sup> Special emphasis should be placed on a thorough due diligence process in order get a solid understanding of the strengths and weaknesses of the respective target company, to eliminate or at least reduce information asymmetries between the current owner of the target and the potential acquirer, and to avoid disruptive surprises in the subsequent post-transaction integration phase.<sup>63</sup> Based on the gained insights

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<sup>55</sup> Pausenberg (1989, p. 621), Wirtz (2003, p. 108), and Wuebben (2007, p. 41).

<sup>56</sup> Krueger and Mueller-Stewens (1994, p. 80) as well as Wuebben (2007, p. 41).

<sup>57</sup> Schertzinger (2008, p. 10) lists the typical team members: financial advisors, legal counsel on corporate law and taxation, accountants, and actuaries.

<sup>58</sup> Krueger and Mueller-Stewens (1994, p. 80), Wuebben (2007, p. 41), and Schertzinger (2008, p. 10).

<sup>59</sup> Bausch (2003, p. 47) and Wuebben (2007, p. 41).

<sup>60</sup> See Wuebben (2007, p. 42).

<sup>61</sup> The various types of due diligence include managerial, financial, organizational, market, IT, employment, environmental, legal, and tax due diligence to name a few. For a discussion on these types, see for example, Marten and Koehler (1999, p. 337) and Wuebben (2007, p. 43).

<sup>62</sup> See Wuebben (2007, p. 42) and Schertzinger (2008, p. 10).

<sup>63</sup> See Lucks and Meckel (2002, p. 163), Middelmann and Helmes (2005, p. 656), Richter (2005, p. 199), and Wuebben (2007, p. 43).

into the target, a detailed valuation of the stand-alone target firm is conducted, synergy potentials are identified, and different financing options are assessed.<sup>64</sup> Furthermore, a number of core aspects of post-M&A integration should be assessed at this point of time to ensure a proper integration of the target firm's business into the acquirer's operations.<sup>65</sup> At the end of the transaction phase is the "signing and closing" phase in which the involved companies negotiate the final details of the transaction. If both parties agree to the terms and conditions of the planned deal and the M&A transaction further meets the required approval of the regulatory authorities (e.g., antitrust, insurance supervisory, and exchange supervisory authorities), then the completed transactions will be announced to the general public and the market.<sup>66</sup> The third phase, the post-transaction or integration phase, starts upon closing of the deal, and all aspects of post-M&A integration and controlling are covered. These aspects include activities related to implementation of strategic, operational, organizational, legal, administrative, and cultural integration measures, coordination of joint operations, and monitoring the achievement of expected benefits as well as strategic and operational goals.<sup>67</sup>

### **2.2.5 Overview of M&A Waves**

Looking at M&A activity over the last 125 years, one can observe that M&A transactions, both in number and total value, have occurred in so-called "waves" of particularly intense activity.<sup>68</sup> Overall, six of these M&A waves can be identified, each of them varying with respect to their strategic direction and underlying motives.<sup>69</sup> Table 2 displays these various M&A waves and their unique patterns and distinct motives.

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<sup>64</sup> See Wuebben (2007, p. 45) and Schertzing (2008, p. 12).

<sup>65</sup> See Schertzing (2008, p. 12).

<sup>66</sup> See Schertzing (2008, p. 12).

<sup>67</sup> See Vogel (2002, p. 254), Wirtz (2003, p. 110), Andrade and Stafford (2004, p. 104), Wuebben (2007, p. 48), and Schertzing (2008, p. 12).

<sup>68</sup> See, e.g., Weston, Mitchell, and Mulherin (2004), Martynova and Renneboog (2005), Wuebben (2007), and Spiss (2008).

<sup>69</sup> E.g., Weston, Mitchell, and Mulherin (2004, p. 171) and Martynova and Renneboog (2005, p. 5).

Table 2: Characteristics of the individual M&A waves<sup>70</sup>

	Wave 1	Wave 2	Wave 3	Wave 4	Wave 5	Wave 6
Period	1897 - 1904	1916 - 1929	1965 - 1969	1981 - 1989	1993 - 2000	2003 - 2008
Description	Horizontal consolidation	Increasing concentration	The conglomerate era	The retrenchment era	Age of strategic cross-border megamergers	Age of cross border and horizontal megamergers
Geographical scope	US	US	US, UK, Europe	US, UK, Europe, Asia	US, UK, Europe, Asia	US, UK, Europe, Asia
Strategy	Realization of monopoly rents by horizontal takeovers	Vertical integration to gain control of the complete value chain	Anti-cyclical portfolio building to harmonize different industry-driven economic downturns	Back to core business through divestitures and carve-outs as well as speculative gains for acquirers	Increasing shareholder value and globalization	Increasing shareholder value, globalization, talents technology and consolidation of the New Economy
Integration competence	Low	Medium	None	Low	High	High
M&A outcome	Formation of monopolies	Formation of oligopolies	Growth through diversification and expansion	Elimination of inefficiencies	Adjustment to globalization processes	Global expansion
Industry relatedness	Focus Hydraulic power, textiles industry, iron industry, metals, transportation, mining industry	Focus Steam engines, steel, automobile manufacturers, railways	Diversification Electricity, chemicals, combustion engines	Focus Petrochemicals, aviation, electronics, communications, technology	Focus Communications /information technology	Focus Banking, tele-communications, utilities, healthcare, commodities
Dominant method of payment	Cash	Equity	Equity	Debt, cash	Equity	Cash, debt and cash
Hostile M&A activity	n.a.	n.a.	None	High (US, UK), none (Europe, Asia)	Some (US, UK), high (Europe), none (Asia)	Some (US, UK), some (Europe), some (Asia)
Cross-border M&A activity	n.a.	n.a.	n.a.	Some	Medium	High
Other specifics	n.a.	n.a.	n.a.	LBOs, MBOs, going private deals, and divestitures	Cross-border mega-deals, divestitures	Deals by private equity funds
Events coinciding with beginning of wave	Economic expansion, industrialization processes, introduction of new state legislations on incorporations, development of trading on NYSE, radical changes in technology	Economic recovery after the market crash and the First World War, strengthen enforcement of antimonopoly law	Economic recovery after the Second World War, tightening of antitrust regime in 1950	Economic recovery after recession, changes in antitrust policy, deregulation of financial services sector, new financial instruments and markets, technological progress in electronics	Economic and financial markets boom, globalization processes, technological innovation, deregulation and privatization	Economic recovery after the downturn in 2000/01
Events coinciding with end of wave	Stock market crash in 1904, fraudulent financing, economic stagnation, beginning of First World War	Stock market crash in 1929, beginning of Great Depression	Stock market crash, oil crisis, economic slowdown	Stock market crash, collapse of banks' capital structures, bankruptcy of several large LBOs	Stock market crash, 9/11 terrorist attack, worldwide recession	Global credit market meltdown, worldwide recession

<sup>70</sup> Source: Martynova and Renneboog (2005, p. 35), Picot (2012, p. 68), Eisenbarth (2013, p. 47), own research. Presentation follows Martynova and Renneboog (2005, p. 35).

As can be seen from the table above, despite the various differences in their strategic rationales and aims, a number of common characteristics of all M&A waves can also be identified. Martynova and Renneboog (2005) summarize these characteristics as follows:

First, all waves occur in periods of economic recovery [...]. Second, the waves coincide with periods of rapid credit expansion and booming stock markets. It is notable that all five waves ended with the collapse of stock markets [...]. Third, takeover waves are preceded by industrial and technological shocks often in the form of technological and financial innovations, supply shocks (such as oil price shocks), deregulation, and increased foreign completion. Finally, takeovers often occur in periods when regulatory changes (e.g., related to antitrust or takeover defense mechanisms) take place. (p. 7)

However, due to the huge differences in strategic rationales, geographical scope, individual integration requirements, method of payment, and other specifics between the individual waves (see Table 2), a comparison between M&A that have taken place during different M&A waves is not useful for identifying general patterns and driving factors of M&A success. Since this is the basic point that is relevant for our further work, there will be no further discussion on the M&A waves and their individual characteristics. Instead, the reader is referred to the earlier works of, for example, Mirvis and Marks (1992, p. 33), Boeckli (2003, p. 43), Weston, Mitchell, and Mulherin (2004, p. 171), Martynova and Renneboog (2005, p. 3), Jansen (2008, p. 60), and Picot (2012, p. 50)

## **2.3 Methodological Foundations**

### **2.3.1 Definition of M&A Success**

The obvious question, when analyzing the success of business combinations, is how such an analysis works and how the outcomes of M&A transactions are measured and judged. Previous papers<sup>71</sup> document many alternative ways of measuring the success of M&A transactions and give two definitions of the term

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<sup>71</sup> E.g., Schoenberg (2006), Wuebben (2007), and Meglio and Risberg (2010).

*success*. In an archaic sense, success is defined as either “the good or the bad outcome of an undertaking.”<sup>72</sup> In a more narrow sense, as highlighted by Wuebben (2007), “success is defined as the achievement of objectives” (p. 12). Hence, the definition of objectives of an M&A, that is, the goals the buying firm wants to achieve with the transaction, is the essential starting point for measuring the success of such corporate activities.<sup>73</sup> The main objective of acquiring firm’s shareholders is obviously creating additional shareholder value, or, in other words, “making a net addition to the wealth of the company’s owners.”<sup>74</sup> In the extant literature,<sup>75</sup> this shareholder value perspective is the most prominent perspective from which the success of M&A transactions can be assessed. From another perspective, namely that of the employees, the goals of M&A transactions primarily consist of securing jobs, increasing compensation, and improving career potentials.<sup>76</sup> In addition, M&A are motivated by the desire of the acquiring firm’s management to secure their jobs and to increase their managerial compensation and status within the firm.<sup>77</sup> However, there are further potentially incompatible perspectives from which the success of an M&A transaction can be evaluated, for example, from the perspective of company outsiders such as customers or the general society (see Figure 4).<sup>78</sup>

Besides the perspective from which transaction success is evaluated, the extant M&A literature offers a wide range of different measurement criteria for evaluating the outcome of M&A, which are portrayed in Figure 4. Probably the most important dimension to measuring M&A success concerns the applied

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<sup>72</sup> Oxford Dictionaries (2010).

<sup>73</sup> See Wuebben (2007, p. 12).

<sup>74</sup> Love and Scouller (1990, p. 5). See also, for example, Bamberger (1994, p. 85) and Kerler (1999, p. 39).

<sup>75</sup> See, e.g., Loughran and Vijh (1997), Floreani and Rigamonti (2001), Cummins and Weiss (2004), Mishra and Goel (2005), and Sudarsanam and Mahate (2006). For a detailed description of the shareholder value approach, please refer to the works of Rappaport (1986), Bamberger (1994), or Copeland, Koller, and Murrin (2000).

<sup>76</sup> Gerpott (1993, p. 213), Beitel (2002, p. 41), and Wuebben (2007, p. 13).

<sup>77</sup> Gerpott (1993, p. 210), Beitel (2002, p. 40), and Wuebben (2007, p. 13).

<sup>78</sup> Acquisition objectives of customers include improving access to products and services and reducing prices, as well as increasing product offering and variety. Objectives of the society typically include securing location of companies, securing jobs, and reducing bankruptcy risks (Beitel, 2002, p. 37; Wuebben, 2007, p. 13). According to Boesecke (2009), other interest groups include creditors, suppliers, governmental bodies, and sometimes even competitors.

success metric, which in turn directly determines the data used for analysis purpose. As it will be described in more detail in the subsequent section, success metrics and related approaches use either quantitative or qualitative data. Quantitative information forms the basis for objective measures of success, for example, in financial statement-based and capital market-based research, whereas qualitative data, which allows a subjective assessment of M&A activity, is primarily gathered from interviews and questionnaires with personnel involved in the particular transaction.<sup>79</sup> In addition to these differences in the concept of measuring M&A success, multiple ways of benchmarking the success of M&A transactions are available. A first possibility consists in an intertemporal comparison, that is, a before-after comparison. Another option is benchmarking M&A firms to comparable firms (e.g., of the same size and industry) or to industry or market indices. Success can also be measured against the original objectives and goals of the involved firms or against alternative investment opportunities.<sup>80</sup> With regard to the dimension of success, it is possible to place the focus on one aspect or multi-dimensional aspects of success as well as on financial, market strategic, and social aspects.<sup>81</sup> Looking at the timeframe, success can be evaluated over various time periods ranging from short time frames, such as a couple of days surrounding the M&A announcement, to longer time frames up to several years after the transaction year. Moreover, success measures can be divided into ex ante measures and ex post measures. While ex ante success measures are based on expectations about future outcomes, ex post measures (predominantly applied in medium- and long-term investigations) are based on realized rather than on potential values.<sup>82</sup> All these different dimensions and ways of analyzing the success of M&A are visually summarized in Figure 4.

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<sup>79</sup> Wuebben (2007, p. 11).

<sup>80</sup> See Gerpott (1993, p. 234) as well as Wuebben (2007, p. 12).

<sup>81</sup> Wuebben (2007, p. 12). For a deeper understanding of the dimension of success and its two aspects, i.e., number and content, please refer to the work of Gerpott (1993, p. 229).

<sup>82</sup> See Gerpott (1993, p. 231).



WAYS OF MEASURING THE SUCCESS OF MERGERS AND ACQUISITIONS				
PERSPECTIVE	METRIC	BENCHMARK	DIMENSION	TIMEFRAME
Shareholders	Quantitative (objective)	Intertemporal comparison (before-after)	Number	Point in time
Management	- Financial statement-based	Benchmarking comparable companies (control group)	- One-dimensional	- Ex ante
Employees	- Capital market-based	Goals	- Multi-dimensional	- Ex post
Customers	- Divestment	Alternative Investments	Content	Period
Society	Qualitative (subjective)		- Financial	- Short-term
	- Employees		- Market strategic	- Medium-term
	- Management		- Human resource/Organizational behavior	- Long-term
	- External experts		- Social	

Figure 4: Criteria for categorizing M&A in the insurance industry<sup>83</sup>

### 2.3.2 Traditional Approaches to Testing the Success of M&A

When examining the success of major corporate events such as mergers and acquisitions, the choice of adequate success metrics is of central importance, as highlighted in the previous section and by a number of other authors.<sup>84</sup> However, despite this crucial role, a consensus regarding the correct methodology has not emerged from previous literature, and thus the appropriate metric for assessing the outcome of such corporate events is still to be determined.<sup>85</sup> As a result, a number of different approaches and metrics have been proposed in recent years. As can be seen from Figure 4 above, these various approaches can be roughly divided into two groups, one that focuses on quantitative metrics as be the best predictors of M&A success and the other that

<sup>83</sup> Source: Gerpott (1993, p. 190) and Wuebben (2007, p. 12).

<sup>84</sup> See, e.g., Kerler (1999), Larsson and Finkelstein (1999), Cartwright and Schoenberg (2006), and Spiss (2008).

<sup>85</sup> See Schoenberg (2006) as well as Spiss (2008) and the references therein for a more thorough treatment of this.

uses qualitative metrics for measuring success. The group of studies<sup>86</sup> that applies a quantitative approach to objectively assess the success of M&A transactions can be further divided into a subgroup of studies that make use of accounting data and another subgroup of studies that apply market data.

In contrast, studies belonging to the latter group base their measures of M&A success on qualitative, and hence subjective, performance evaluations from executives and managers involved in the transaction or external experts. The general procedure of the survey approach, as well as its suitability for investigating the effects of M&A transactions in the insurance industry, will be discussed in the following section. However, before describing this qualitative approach, each of the three popular quantitative approaches, namely financial statement-based, capital market-based, and retention/divestment approach, will be presented and evaluated.

### **2.3.2.1 Financial Statement-Based Approach**

#### **2.3.2.1.1 Basic Procedure**

One of the major streams in previous M&A research makes use of accounting data taken from the involved firms' financial statements to evaluate the success of M&A transactions. Proponents of such financial statement-based analyses, such as Antoniou, Arbour, and Zhao (2011), argue that "accounting data (when analyzed with the appropriate level of skill and competence) remains the best proxy of company economic performance available to investors, analysts and academics alike" (p. 20). This argument is frequently based on the proposition that the effect of M&A should be reflected in a change of company fundamentals (e.g., efficiency, cash flow, profitability, margin, asset productivity, growth, solvency, liquidity, leverage, and so on), and hence that if M&A activities create value, the value creation should be reflected in perceptible and assessable improvements in at least some of these measures.<sup>87</sup> Accordingly, a first group of researchers examines such changes in key accounting measures over time by comparing a wide number of differing pre-merger and post-merger accounting figures and

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<sup>86</sup> Mostly coming from the field of finance and related disciplines, as noted by Spiss (2008).

<sup>87</sup> Antoniou, Arbour, and Zhao (2011, p. 17).

financial ratios. These various accounting figures and ratios are all based on annual financial statement data and are therefore past-oriented success measures. In general, they can be broadly divided into two groups of measures, depending on whether they measure firm's performance and profitability (e.g., return on equity, return on assets, return on investment, return on policyholders' surplus, and profit margin) or not (e.g., number of employees, capital base, total assets, sales, earnings per share, price-earnings-ratio, and staff turnover expenses).<sup>88</sup> Essential to the methodology and its proper use is the correct choice of a benchmark against which the changes in the accounting measures can be judged. From a theoretical point of view, the effects of an M&A transaction have to be determined based on a comparison of the realized post-merger accounting measures with the hypothetical accounting measures that would have been reported in the absence of the M&A transaction. However, as a result of the fact that these hypothetical accounting measures are not observable, a particular reference benchmark has to be constructed. Although there is no unique benchmark evident in the extant literature, three possible ways of benchmarking can be identified: 1) a comparison with a control group comprised of comparable firms, 2) a comparison with average industry values, and 3) a before-and-after comparison.<sup>89</sup> As will be briefly addressed in the next section, each method has its own advantages and shortcomings.

A second large body of literature, namely efficiency research, which uses accounting data to measure efficiency changes of merged companies, has become the state of the art. Modern frontier efficiency analysis measures firms' efficiency<sup>90</sup> relative to "best practice" frontiers, which are derived from the most efficient firms in the industry. Firms operating on the frontier have an efficiency score of 1 and are considered fully efficient, whereas firms lying below the frontier are inefficient relative to "best practice" firms (efficiency scores between 0 and 1). To maximize profit and thereby to operate on the

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<sup>88</sup> E.g., Bamberger (1994, p. 115) and Kerler (1999, p. 103).

<sup>89</sup> Bamberger (1994, p. 114). For a more detailed exposition on this issue, the reader is referred to section 4.3.5.2.

<sup>90</sup> Cost (calculate the minimum costs to produce the given output vector), production (assess the minimum inputs required to produce the given output vector), and revenue frontiers (measure the maximization of revenues).

“best practice” efficiency line, a firm must be both cost and revenue efficient. Since the birth of this type of analysis in the late 1970s (Aigner, Lovell, & Schmidt, 1997), two major estimation methods, econometric modeling<sup>91</sup> and mathematical programming,<sup>92</sup> have emerged as the standard methods for measuring the efficiency effects of M&A transactions. Thus, a bulk of the existing M&A literature makes use of these two approaches, which compare frontier efficiency estimates or the pre-merger and post-merger performance of firms using accounting data.<sup>93</sup> From a theoretical standpoint, firms with higher efficiency should also be more profitable. Simultaneously, a firm’s profitability should be positively related with its cash flow generated. Given that, in modern corporate valuation theory, the present value of a company’s future cash flows determines the firm’s value,<sup>94</sup> we can conclude that more efficient firms should also have higher share prices.<sup>95</sup> Consequently, a successful M&A transactions should cause improvements in firm’s efficiency and ultimately lead to an increase in the value of the firm.

#### **2.3.2.1.2 Strengths and Weaknesses of the Measure**

A broad range of relevant merits and limitations of measures based on financial statement data is provided by the extant literature (see Table 3 below). Though accounting data is an objective success measure, can be easily obtained, and is well understood, there are some serious problems with accounting measures of performance (e.g., a lack of comparability due to different accounting standards across countries and the complexity of measuring past performance and managerial manipulation).<sup>96</sup> In general, previous studies have regularly highlighted the negative impact of managerial manipulation<sup>97</sup> of financial

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<sup>91</sup> Stochastic frontier analysis, a parametric approach.

<sup>92</sup> Data envelopment analysis (DEA), a non-parametric approach.

<sup>93</sup> For a detailed examination, see Berger and Humphrey (1997). They review 130 studies that adopt the efficiency methodology to financial institutions (primarily to banks) and find an almost equal split between these two methods (69 applicants of non-parametric approaches and 60 using parametric techniques).

<sup>94</sup> See, e.g., Weston, Chung, and Hoag (2007, p. 133).

<sup>95</sup> See, e.g., Cummins and Xie (2005, p. 40).

<sup>96</sup> See, e.g., Lubatkin and Shrieves (1986, p. 498), Bamberger (1994, p. 194), and Settnik (2006, p. 217).

<sup>97</sup> E.g., Gerpott (1993, p. 194).

statements and differences in local accounting standards and practices<sup>98</sup> on the explanatory power of accounting measures. The latter is a major drawback, especially when comparing accounting data of firms from different countries or even firms operating in varying economic, political, and cultural settings.<sup>99</sup> Even though the cross-country information comparability in the European Union was significantly enhanced by the mandatory adoption of the International Financial Reporting Standards (IFRS) in 2005,<sup>100</sup> prior to that, companies followed their own distinct domestic generally accepted accounting principles (GAAP). For example, as shown by the study of Joos and Lang (1994) (who compare various financial ratios of firms from the UK and Germany<sup>101</sup> before the harmonization of accounting standards in 2005), individual local accounting standards and practices differ and hence constitute a palpable barrier to a meaningful cross-country comparison. Furthermore, an insurance-specific drawback is that substantial differences between financial statements of life insurance and non-life insurance companies exist, which in turn might result in an improper comparison of financial figures and ratios of life and non-life insurers.<sup>102</sup> However, Settnik (2006) emphasizes that besides all these drawbacks, the financial statement-based approach provides a major advantage when analyzing the success of M&A in the insurance industry. In contrast to companies in other industries, all<sup>103</sup> insurance players, independent of their size and legal form, have the obligation to compile annual financial statements. As a result, the author concludes that the one essential requirement for performing such an accounting-based analysis is always available in the case of insurance companies.<sup>104</sup>

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<sup>98</sup> E.g., Bradshaw and Miler (2007) and Soderstrom and Sun (2007).

<sup>99</sup> E.g., Bradshaw and Miller (2002), Meeks and Swann (2008), and Liao, Sellhorn, and Skaife (2011).

<sup>100</sup> See, e.g., Yip and Young (2012).

<sup>101</sup> Applying UK GAAP that primarily provide useful information to shareholders and German GAAP (HGB) that, in contrast, are stakeholder oriented and place the focus on creditor protection, respectively (Iatridis, 2010, p. 198).

<sup>102</sup> See, for example, the discussion by Baete (2009a, p. 84, 2009b, p. 27, and 2009c, p. 32) or Antolin, Schich, and Yermo (2011, p. 242).

<sup>103</sup> With the exception of very few and very small insurance firms which are of minor importance in the insurance market, as described by Settnik (2006, p. 224).

<sup>104</sup> Settnik (2006, p. 224).

For a more detailed and comprehensive discussion on the individual strengths and weaknesses of this approach when analyzing the success of insurance M&A, see for example, Gerpott (1993, p. 194) and Bamberger (1994, p. 112). In addition, Settnik (2006, p. 224) provides arguments specific to the insurance industry.

**Table 3: Strengths and weaknesses of the financial statement-based approach**

<b>Financial Statement-based Approach</b>	
<b>Strengths</b>	<b>Weaknesses</b>
<p>All insurance companies, independent of their size and legal form, are required to compile annual financial statements (Settnik, 2006);</p> <p>The company does not need to be listed on a stock exchange (Sudarsanam, 2003);</p> <p>Credibility, since financial statements are typically audited and used by investors in judging corporate performance; accordingly, they serve as an indirect measure of economic value creation (Wuebben, 2007);</p> <p>Evaluation is based on realized operating performance (Boesecke, 2009);</p> <p>Ability to handle and process a large quantity of data (Nakamura, 2005);</p>	<p>Availability of annual financial statement a prerequisite (Sudarsanam, 2003);</p> <p>Financial statement data do not consider risk (Kirchner, 1991);</p> <p>Managerial manipulation of financial statements resulting from accounting options (Gerpott, 1993);</p> <p>Differences in accounting standards and practices across countries lead to a lack of cross-country comparability of accounting information (Bradshaw &amp; Miller, 2002);</p> <p>Lack of comparability of financial statements of life and non-life insurance companies (Baete, 2009);</p> <p>Accounting figures and financial ratios are a muddled measure of current performance as they reflect the past (Schwaiger &amp; Walsh, 1999);</p> <p>Doubtful whether accounting measures are useful proxies for post-M&amp;A performance and whether the objectives and goals of the respective transaction can be assessed by these measures (Moeller, 1993);</p> <p>Accounting measures are typically available in aggregate form and isolating the performance of the acquisition after controlling for the performance of other units and the impact of other events is difficult, if not impossible (Datta, 1991);</p> <p>If relative size of target to the acquirer is small, the transaction does not induce any change in acquiring firm's balance sheet data (Bamberger, 1994);</p> <p>Overlay of several other effects, especially multiple M&amp;A activity of acquirers in the same event window (Bamberger, 1994);</p> <p>Each accounting measure captures only one dimension of success (Lubatkin &amp; Shrieves, 1986).</p>

## 2.3.2.2 Capital Market-Based Approach

### 2.3.2.2.1 Basic Procedure

A second major stream in the extant M&A literature analyzes the stock market reaction to special events (such as M&A announcements) and thereby relies on capital market data. Proponents of the capital market-based approach argue that M&A activities should follow the principle of shareholder wealth maximization<sup>105</sup> and hence evaluate its success by the change in shareholders' wealth as measured by share price changes. Accordingly, this future-oriented performance indicator places its focus on the financial dimension of success.

Since the birth of this approach in 1969 (Fama et al., 1969), an overwhelming majority of the existing literature, and in particular almost all of the existing capital market research, uses an event study approach to analyze the impact of M&A transactions on stock price performance of acquirers (and targets). Researchers applying the event methodology argue that, given the assumption of capital market efficiency,<sup>106</sup> event studies are the best way to assess the real economic effects of M&A activity by using reliable market data.<sup>107</sup> The underlying procedure for estimating the performance effects of M&A transactions is quite standardized. The researcher tries to determine if

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<sup>105</sup> For example, Jensen (1984) states that “stockholders are not equal with these other groups [e.g., management, employees, customers, society – ed. note] because they are the ultimate holders of the rights to organization control and therefore must be the focal point for any discussion concerning it” (p. 110). In addition, Treynor (1981) remarks that “[t]hose who criticize the goal of share value maximization are forgetting that stockholders are not merely the beneficiaries of the corporation’s financial success, but also the referees who determine management’s financial power. Any management – no matter how powerful and independent – that flouts the financial objective of maximizing share value does so at its own peril” (p. 71 and p. 69). See for example, Rappaport (1986) and Reimann (1989) for more on the shareholder value approach.

<sup>106</sup> See, e.g., Boeshecke (2009), who states that “[e]vent studies are based on the assumption that in an efficient market the immediate wealth effect reflects the capital market’s overall unbiased assessment of the present value of the future benefits of the alliance” (p. 51). Bower (2004) further elaborates: “Given the assumption that security markets were perfectly efficient in their pricing of company shares, then the wisdom of managers in merging or acquiring could be measured by examining how the market reacted to the news of an M&A event” (p. 236).

<sup>107</sup> E.g., Schwert (1981), Fama (1991), Shleifer and Vishny (1997), and Cummins and Weiss (2004). Bouwman, Fuller, and Nain (2003, p. 9) add: “Many view short-run stock performance as the most reliable evidence of value creation because in an efficient capital market, stock prices quickly adjust to new information and incorporate any changes in value that the acquisitions are expected to bring.”

transactions on average result in an abnormal performance of the involved companies by calculating the realized stock market returns of acquirers or targets, or both, relative to expected returns generated by asset pricing models, such as the market model, or relative to specific benchmarks such as non-merging control firms, reference portfolios of comparable firms, or stock indices.<sup>108</sup>

Some authors assess the overall effect of M&A by calculating the total wealth creation for all the involved firms (i.e., value creation for acquirer firm's shareholders and target firm's shareholders, as well as the value created for the combined entity of acquirer and target).<sup>109</sup> Others, such as Bamberger (1994) and Boubakri, Dionne, and Triki (2006), argue that this procedure—that is, the calculation of the total value creation for all involved firms—conflicts with the principle of acquiring firm's shareholder wealth maximization,<sup>110</sup> and hence they only evaluate the success of M&A from the perspective of the acquiring firm. Possible differences in the stock return between the merged company and its respective benchmark are calculated over a certain period (“event window”) before, after, or surrounding the announcement day of the transaction in order to examine the market reaction from different angles. Intervals prior to the announcement of the transaction examine a possible information leakage; symmetric intervals (i.e., same number of days before and after the announcement) try to compare pre-merger and post-merger returns; and intervals afterwards aim to evaluate long-term performance effects of such events. Afterwards, these differences in stock returns are used as estimates of “abnormal” or “excess” returns. The majority of studies on acquisition performance using the event study methodology concentrate on short-term capital market reactions to M&A announcements. Under the assumption of at

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<sup>108</sup> E.g., Brown and Warner (1985) and Martynova and Renneboog (2008).

<sup>109</sup> As Elgers and Clark (1980) put it, “[f]rom a shareholder's standpoint, business combinations are justified when the market value of the equity shares of buyer and seller firms increases as a result of their intention to merge” (p. 66). This is also in line with Rappaport's (1986) definition of value creation.

<sup>110</sup> The reasoning behind this is that if the M&A announcement induces an increase in the stock price of the target firm, this price increase represents higher acquisition costs for the acquirer, as it must spend additional money to purchase the target firm (Bamberger, 1994, p. 90).



least semi-strong market efficiency,<sup>111</sup> these short-term event studies use announcement period returns in the form of cumulative abnormal returns (CARs) surrounding the announcement as the measure of M&A success. However, as noted by Antoniou, Arbour, and Zhao (2011), “a series of new methodologies has given rise to a “new wave” of long-run event studies” (p. 15) that investigate the medium- and long-term effects of M&A transactions by predominantly relying on buy-and-hold abnormal returns (BHARs) or calendar-time abnormal returns (CTARs).<sup>112</sup>

In the next section, we will again provide a summary overview table of the strengths and weaknesses of the capital market approach that have been identified in the previous M&A literature. Furthermore, the most important arguments, with a particular emphasis on insurance-specific arguments, are briefly outlined.

#### **2.3.2.2 Strengths and Weaknesses of the Measure**

Even though various interest groups might have somewhat differing goals, empirical studies regularly assess the success of M&A transactions from the perspective of shareholders.<sup>113</sup> According to Wirtz (2006) and Boesecke (2009), this is owing to the fact that, on the one hand, an equal (or even weighted) consideration of all stakeholder interests is hardly possible, and on the other hand, claims of all other stakeholders (with the exception of shareholders)<sup>114</sup> are defined by contracts. Hence, M&A activity should primarily pursue the objectives of a firm's shareholders.<sup>115</sup> Furthermore, Bamberger

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<sup>111</sup> For a thorough discussion on market efficiency and its several forms, i.e. weak, semi-strong, and strong form, please see Fama (1970), Brealey and Myers (1991), and Spiss (2008).

<sup>112</sup> For additional details on the mechanics of these long-term event methodologies, Antoniou, Arbour, and Zhao (2011) refer to the works by Barber and Lyon (1997), Lyon, Barber, and Tsai (1999), Brav (2000), and others. Toward a better understanding of the event study methodology, please consider also the dissertation of Schertzinger (2008), in which the author extensively elaborates on the measurement of abnormal returns, the benchmark construction, and tests for significance of abnormal returns for short-term as well as medium- and long-term event studies.

<sup>113</sup> See, e.g., Cybo-Ottone and Murgia (2000), Cummins and Weiss (2004), and Boubakri, Dionne, and Triki (2006).

<sup>114</sup> Boesecke (2009) explains that “shareholders are seen as residual claimants of any surplus profits remaining after expenses to other participants have been paid” (p. 14). See also Wirtz (2006, p. 296).

<sup>115</sup> See also Franke and Hax (1999, p. 3).

(1994) states that the sole emphasis on profit maximization for shareholders, that is, creating additional shareholder value, is also in line with the goal of securing the survival of the firm, which is shared by other interest groups such as employees, creditors, suppliers, and especially the insured customers of the insurance company.<sup>116</sup> Based on this shareholder value maximization paradigm, the capital market approach—with its reliance on stock market data for estimating the consequences of M&A transactions—appears plausible, since share price movements represent the only direct measure of shareholder value.<sup>117</sup> Picken (2003) additionally notes that capital markets provide a fully objective measure that does not depend on data that can be manipulated.

Moreover, by relying on share price fluctuations for measuring the effects of M&A, success can be easily measured and assessed quantitatively.<sup>118</sup> From a theoretical standpoint, changes in stock market value around the M&A announcement should fully capture the valuation effects arising from the M&A activity. Accordingly, conclusions drawn out of (short-term) capital market studies strictly rely on the assumption of market efficiency.<sup>119</sup> In his study on the efficiency of capital markets, Fama (1991, p. 1607) comes to the conclusion that stock market prices adjust efficiently to new information whether or not they regard dividend decisions, investment activities, or others. However, Antoniou, Arbour, and Zhao (2011) outline some major problems of the capital market approach in general and the event study methodology in particular, which can be categorized along the time horizon of analysis. In short-term capital market studies, the use of market data causes the problem that the indicated market reaction to the transactions is solely based on expectations of investors regarding the consequences of the respective M&A transaction and the

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<sup>116</sup> To every insurance scheme the survival of the insurance company is of highest importance, as the value of insurer's promise to do certain things as specified in the contract (i.e., consideration) is dependent on the survival of the insurer and on the trust of the insured in the insurance scheme (See Settnik, 2006, p. 277). Albrecht (1994b, p. 3) and Oletzky (1998, p. 87) provide an extended discussion on the importance of the survival of insurance companies and the safety first principle in the insurance industry.

<sup>117</sup> E.g., Lubatkin and Shrieves (1986, p. 499).

<sup>118</sup> Janisch (1992, p. 30).

<sup>119</sup> See discussion by Pilloff and Santomero (1998) and Antoniou, Arbour, and Zhao (2011).

expectations of its future cash flow implications.<sup>120</sup> However, the consequences are often hardly foreseeable as a whole, and predictions are not correct in many cases, as noted by Picot (2002). In real market situations, there is plenty of evidence that stock market returns may temporarily change independently from the underlying fundamentals (see the “dot-com bubble” between 1995 and 2000), and therefore the assumption of efficient capital markets is doubtful.<sup>121</sup> Moreover, we have to face the premium exacerbation problem<sup>122</sup> on the one hand, and on the other hand, we have to note that a substantial proportion of the negative (short-term) announcement effect is due to merger arbitrage short-selling, as pointed out by Mitchell, Pulvino, and Stafford (2004). Extending the time horizon of the study mitigates most of these problems but, at the same time, causes the problem that stock market changes might be attributable to other events extraneous to the M&A transaction, for example, new issues of stock, dividend changes, or multiple M&A in the event window.<sup>123</sup>

Furthermore, in studies that apply long-term event windows, we have to withstand some methodological and computational problems. The foremost issues are the bad-model problem<sup>124</sup> and biased test statistics,<sup>125</sup> which cause problems in receiving accurate and reliable long-run results. Boehmer, Masumeci, and Poulsen (1991), Barber and Lyon (1997), Lyon, Barber, and Tsai (1999), and Erhardt and Koerstein (2007) outline how to deal with these

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<sup>120</sup> E.g., Montgomery and Wilson (1986) and Datta (1991).

<sup>121</sup> Budde, Felcht, and Frankemoelle (2006, p. 11 and p. 16).

<sup>122</sup> Antoniou, Arbour, and Zhao (2011, p. 7) use this term to describe the fact that, even under the assumption of efficient markets, substantial premiums offered to target shareholders bias weighted average return calculations. As result, the calculated parameter (WACAR) is almost inevitably positive regardless of the real economic value effect.

<sup>123</sup> E.g., Lubatkin and Shrieves (1986) and Schertzing (2008). See also the discussion in Kerler (1999, p. 99).

<sup>124</sup> The problem of selecting the correct model and benchmark (see, e.g., Fama, 1998, p. 292).

<sup>125</sup> This is comprised of size and book-to-market biases as a result of non-random samples of firms, the new listing bias (i.e., the problem of adding firms to the index after the event; see, e.g., Barber and Lyon, 1997, p. 342), the rebalancing bias (i.e., reference portfolio returns are typically calculated assuming some form of portfolio rebalancing; see, e.g., Barber and Lyon, 1997, p. 342), the skewness bias (i.e., stock returns are highly skewed with a few big outliers influencing the sample; see, e.g., Barber and Lyon, 1997, p. 343; Lyon, Barber, and Tsai, 1999, p. 165) and the overlapping horizons bias (i.e., cross-sectional dependence of stocks in contemporaneous event windows; see, e.g., Cowan and Sergeant, 1997, p. 6).

problems by making several adjustments to the parametric tests.<sup>126</sup> Additional problems include differences in post-merger book values depending on the chosen accounting method,<sup>127</sup> the expected negative abnormal return in event studies with a small sample,<sup>128</sup> the “hot market” issue,<sup>129</sup> and the appropriateness of the benchmark<sup>130</sup> and the estimation period.<sup>131</sup> Moreover, there are various problems in the application of the CAPM mode (e.g., the lack of consideration of risk and insolvency), which are especially troublesome when analyzing the success of M&A transactions in an insurance context.<sup>132</sup>

Table 4 presents a summary on these aforementioned and other strengths and weaknesses. For a considerable discourse on the individual strengths and weaknesses of this approach when analyzing the success of insurance M&A, see also, Gerpott (1993, p. 197), Bamberger (1994, p. 93), and Settnik (2006, p. 205).

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<sup>126</sup> They propose to successive select single control firms that have not undertaken any M&A activity or to employ a reference portfolio composed of comparable firms.

<sup>127</sup> Until the issuance of the Statement of Financial Accounting Standard (SFAS) No. 141 in 2001 in the US, mergers were accounted for using either the purchase or the pooling method resulting in differences in post-merger values (see, e.g., Antoniou, Arbour, & Zhao, 2011, p. 11; Erhardt & Koerstein, 2007, p. 2).

<sup>128</sup> Viswanathan and Wei (2004) provide mathematical proof that the usual abnormal return calculated in event studies with any finite sample results in a negative expectation.

<sup>129</sup> For the problem in the calculation of weighted abnormal returns in the calendar-time approach, see discussion in Mußhoff (2007, p. 149).

<sup>130</sup> Gregory (1997).

<sup>131</sup> Lubatkin and Shrieves (1986).

<sup>132</sup> E.g., Oletzky (1998, p. 140), Zweifel and Eisen (2000, p. 249), and Settnik (2006, p. 212).

Table 4: Strengths and weaknesses capital market-based approach

Capital Market-based Approach	
Strengths	Weaknesses
<p>No need for an annual financial statement (Lubatkin &amp; Shrieves, 1986);</p> <p>Success can be easily measured and assessed quantitatively (Janisch, 1992);</p> <p>Share price movements represent the only direct measure of value creation for shareholders (Lubatkin &amp; Shrieves, 1986);</p> <p>From a shareholder value perspective, the capital-market approach and relying on stock market data appears plausible (Eisenbarth, 2013);</p> <p>Unbiased rational expectations of future cash flows, since share prices reflect the present value of expected future cash flows (Wuebben, 2007);</p> <p>The capital market provides a fully objective measure and does not depend on data that can be manipulated (Picken, 2003);</p> <p>Stock prices have been shown to "see through" managers' attempts to manipulate reported accounting measures (Lubatkin &amp; Shrieves, 1986);</p> <p>The sole emphasis on profit maximization for shareholders, i.e., creating additional shareholder value, is in line with the goal of securing the survival of the firm of other interest groups such as employees, creditors, and suppliers (Bamberger, 1994);</p> <p>Use of public data (Wuebben, 2007);</p> <p>Ability to handle and process a large quantity of data (Nakamura, 2005);</p>	<p>Sole focus on one interest group, namely acquiring and target firms' shareholders (Settnik, 2006);</p> <p>Insurance-specific conflict between shareholder value and policyholder value (Settnik, 2006);</p> <p>Principle of shareholder wealth maximization cannot be justified in case of mutual insurance associations (Oletzky, 1998);</p> <p>Acquiring and/or target firms have to be publicly quoted (Schoenberg, 2006);</p> <p>Stock prices are primarily based on the assessment of investors (Lubatkin &amp; Shrieves, 1986) and especially short-term studies assume that market participants are able to quickly and accurately predict the impact of the transaction (Wuebben, 2007);</p> <p>Market reaction to transactions in short-term studies are solely based on 'a priori' expectations of unrealized future cash flows and not on realized operating performance (Montgomery &amp; Wilson, 1986);</p> <p>Overlay of several other effects such as other M&amp;A transactions especially in long-term event windows (Schertzinger, 2008);</p> <p>Requires significant assumptions about the functioning of capital markets; efficiency, rationality, and absence of restrictions on arbitrage (Wuebben, 2007);</p> <p>Assumption of (at least semi-strong) market efficiency is doubtful both from a theoretical (Shleifer, 2000) and an empirical (Haugen, 1999) standpoint;</p> <p>Situations in which capital markets temporarily deviate from a substantiated assessment of fundamental value creation (Budde, Felcht, &amp; Frankemoelle, 2006), and hence stock market wealth may change independently of fundamentals (Antoniou, Arbour, &amp; Zhao, 2011);</p> <p>Results obtained may be subject to technical aspects of the computational procedure, including choice of daily vs monthly share data (Lubatkin &amp; Shrieves, 1986), the relevance of the benchmark market index (Gregory, 1997), and the appropriateness of the event period (Lubatkin &amp; Shrieves, 1986);</p> <p>Insurance-specific issues related to the application of the CAPM model such as the lack of consideration of the risk of insolvency of the insurer</p> <p>If relative size of target to the acquirer is small, the transaction does not have an impact on acquirer's stock price (Schertzinger, 2008).</p>

### **2.3.2.3 Retention/Divestment Approach**

#### **2.3.2.3.1 Basic Procedure**

A third and relatively small body of previous literature on the success of M&A transactions concentrated on the role of retention and divestiture of acquired companies as an indicator of M&A success. Proponents of this approach, such as Porter (1987) and Ravenscraft and Scherer (1987), argue that a subsequent divestment of the acquired firm is equivalent to the failure of the previous acquisition. “The underlying assumption is that a company will generally not divest or close down a successful business except in a comparatively few special cases.”<sup>133</sup> Simultaneously, if previously acquired entities are not divested in a specified timeframe, the M&A transaction is labeled successful. In general, timeframes employed in these studies vary from six years (e.g., Porter, 1987; Kaplan & Weisbach, 1992) to 13 years (Schoenberg, 2006) after the transaction year.

#### **2.3.2.3.2 Strengths and Weaknesses of the Measure**

Strengths and weaknesses of the retention/divestment measure that have been mentioned in the extant M&A research are presented in Table 5 below. We will discuss a few of these points, especially those that are of particular relevance for analyzing the success of insurance M&A, briefly.

Even though the retention/divestment approach is a fast and simple method for assessing the success of (insurance) M&A, its results are not sufficiently accurate and hence not a reliable guide to M&A success. Porter (1987) solely bases the success evaluation on whether the previously acquired firm is subsequently divested or not. As stated above, the elementary assumption underlying the approach is that “a company will generally not divest or close down a successful business except in a comparatively few special cases.”<sup>134</sup> However, there are more than just a few special cases in which a successful acquisition is divested. It has regularly been argued that there are various other reasons for divestiture, which consequently pose a serious threat to the validity

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<sup>133</sup> Porter (1987, p. 47).

<sup>134</sup> Porter (1987, p. 47).

of this approach. These various other reasons, for example, might include profit taking following successful restructure (Kaplan & Weisbach, 1992) and appropriate resource reconfiguration in response to environmental change (Capron et al., 2001), as well as tax reasons, regulatory constraints, and protection against takeover attempts from raiders, as enumerated by Markides and Berg (1992, p. 13). Furthermore, serious concerns have to be raised with respect to the conclusion that transactions in which the target has not been divested (in a specified post-M&A period) ultimately indicate a successful M&A transaction. Especially in the insurance industry, this conclusion is often not true as pointed out by Settnik (2006) and Farny (2011). The authors argue that due to specifics of the insurance business, the liquidation of an insurance company is a long-term process and happens very rarely in practice.<sup>135</sup> For a more detailed discussion on the merits and limitations of this approach, the reader is referred to Bamberger (1994, p. 118) and Settnik (2006, p. 237). In summary, when analyzing the success of M&A transactions, the retention/divestment approach has to be rejected for theoretical reasons, especially when analyzing the success of insurance M&A.

**Table 5: Strengths and weaknesses retention/divestment approach**

Retention/Divestment Approach	
Strengths	Weaknesses
<p>Company does not need to be listed on a stock exchange (Sudarsanam, 2003);</p> <p>A relatively simple way to gauge success that does not require detailed financial information (Porter, 1987);</p> <p>Ability to handle and process a large quantity of data (Nakamura, 2005);</p>	<p>Coarse-grained measure (Schoenberg, 2006);</p> <p>Divestment may indicate strategic failure, but equally may indicate profit taking following successful restructure (Kaplan &amp; Weisbach, 1992), appropriate resource reconfiguration in response to environmental change (Capron et al., 2001), or other motives which are not to be equated with M&amp;A failure (Markides &amp; Berg, 1992);</p> <p>Implicit assumption that retention of the previously acquired firm is tantamount to a successful acquisition. However, the assumption does not hold true in many cases (Bamberger, 1994), especially in the insurance industry, as the divestment in form of liquidation occurs very rarely in practice (Farny, 2000).</p>

<sup>135</sup> See Settnik (2006, p. 239) as well as Farny (2011, p. 203).

### 2.3.2.4 Interview and Survey Approach

#### 2.3.2.4.1 Basic Procedure

The fourth major methodology for investigating the success of M&A is based on the subjective assessment of executives and managers involved in the transaction (and in a very few cases, it is based on expert informants' subjective assessment).<sup>136</sup> While in the case of corporate managers' and executives' ex post assessment, the perspective from which success is measured is obvious, but the success perspective in interviews and surveys of external industry experts is far from clear.<sup>137</sup> Restricting the discussion to interviews and surveys of executives and managers, we can note that the majority of these interrogations evaluate the post-M&A performance from the viewpoint of the acquiring firm management (e.g., Kitching, 1967, 1974; Datta & Grant, 1990; Datta, 1991; Beatty, 1999), whereas only a small number of interviews and surveys are conducted addressing the target firm management (e.g., Very et. al, 1997; Brock, 2005). As discussed thoroughly by Nakamura (2005), interviews and surveys can be conducted in manifold ways, ranging from open and flexible in-depth interviews (also known as unstructured personal interviews) and other detailed semi-structured interviews to structured interviews such as questionnaires and standardized surveys. Under the former two interview procedures, "the actual content of the interview is decided by the conversation during the interview itself"<sup>138</sup> and hence is far less standardized and structured than surveys in which a series of pre-specified questions assessing the specific topic are asked. Frequently asked questions in these studies are about the original objectives and motives for making the transaction and the various factors of M&A success (for example in the studies of Kitching, 1967, 1974; Datta & Grant, 1990; Datta, 1991; Beatty, 1999) or about the satisfaction of the management with the deal and the overall success of the transaction (for example in the studies of Kitching 1967; Dess & Robinson, 1984; Datta, 1991; Beatty, 1999). After discussing the general mechanics of the

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<sup>136</sup> Due to the limited dissemination of expert informant surveys in the extant M&A literature, this method is not further discussed and evaluated here. Instead, we focus solely on surveys of executives and managers.

<sup>137</sup> Bamberger (1994, p. 120).

<sup>138</sup> Nakamura (2005, p. 78).



interview and survey method, we will next outline its benefits and limitations for analyzing the success of insurance M&A.

### 2.3.2.4.2 Strengths and Weaknesses of the Measure

**Table 6: Strengths and weaknesses of the interview and survey approach**

<b>Interview and Survey Approach</b>	
<b>Strengths</b>	<b>Weaknesses</b>
<p>Company does not need to be listed on a stock exchange (Sudarsanam, 2003);</p> <p>Can be utilized where objective measures are not available, for example, in cases of divisions of private or divisions of listed companies (Dess &amp; Robinson, 1984);</p> <p>Recognizes the complexity and multi-dimensional nature of measuring success of transactions (Wuebben, 2007);</p> <p>Allows a composite view of performance that takes into account differing management objectives (Brouthers et al., 1998);</p> <p>Managers' perceptions define their reality and influence their behavior and attitudes (Krug &amp; Hegarty, 2001).;</p> <p>Large amount of data that a researcher can extract from the interviewee, as he or she feels more comfortable with the situation and the interviewer gains the interviewee's confidence (Nakamura, 2005);</p> <p>Can yield data that is unexpected and that can form the basis of new hypotheses and aspects of the original research questions (Nakamura, 2005);</p> <p>Can capture subtleties that are easy to miss and yield information that are hard to capture in other approaches (Nakamura, 2005);</p>	<p>Success is evaluated from the perspective of managers and not from the perspective of shareholders or other interest groups (Kerler, 2000);</p> <p>Time-consuming approach and hence difficulty in generating a large volume of interviews (Nakamura, 2005);</p> <p>Critical aspect is the quality of the interviewees' information (Nakamura, 2005);</p> <p>Difficulties in identifying key people to interview (Nakamura, 2005);</p> <p>Results may be subject to respondents' familiarity with the original objectives of acquisition (Datta, 1991);</p> <p>Self-reporting bias: Dependant upon accurate retrospective recall of respondents (Miller et al., 1997);</p> <p>Assessment may be idiosyncratic to the individual manager providing the information (Bowman &amp; Ambrosini, 1997) and hence subject to managerial bias (Lubatkin &amp; Shrieves, 1986);</p> <p>Often too positive evaluation of managers involved in the respective transaction (Kerler, 2000);</p> <p>Companies engaged in unsuccessful M&amp;A are likely not to participate in these interviews and surveys (Picken, 2003);</p> <p>Data may be subject to differences in the respondents understanding of the definitions or bases on which they are making performance judgements (Cannella &amp; Hambrick, 1993);</p> <p>Typically surveys have a low rate of participation, making them vulnerable to criticism of generalizability (Wuebben, 2007), as well as limited generalizability from studying individual cases (Nakamura, 2005).</p>

As shown in the above table, previous academic literature identifies a large number of strengths and weaknesses of interview and survey-based measures of success. In short, the advantages of this approach can be summarized as its

broad applicability as well as its potential to extract a large amount of qualitative data. As to the former advantage, it is clear that this approach can also be utilized where objective measures are not available, for example, in cases of divisions of private or listed companies.<sup>139</sup> As to the latter advantage, in the case of interviews, the interviewer is not only able to gain an in-depth understanding of the underlying M&A motives and the transaction as a whole, but also might reveal something that is beyond the scope of quantitative methods.<sup>140</sup> However, the downside of such a qualitative approach is the difficulty of generating a large volume of interviews due to the time-consuming interview process.<sup>141</sup> Consequently, serious concerns have been raised about the generalizability from inferences drawn from such a limited sample.<sup>142</sup>

A further critical aspect is the quality of such an approach, as highlighted by Nakamura (2005). Even if the difficulties in identifying the "right" person to interview, as referred to by Nakamura (2005), can be overcome, the approach is prone to subjective biases, and its results are often too optimistic. This positive bias can be attributed to two factors: First, the evaluation of managers involved in the respective transaction is often too positive (Kerler, 1999), and second, companies engaged in unsuccessful M&A are not likely to participate in these interviews and surveys (Picken, 2003). For a further discussion on the strengths and weaknesses of this approach when analyzing the success of M&A, see for example, Bamberger (1994, p. 120) and Nakamura (2005, p. 78). In addition, Settnik (2006, p. 235) adapts and extends these arguments to the insurance context.

### **2.3.2.5 Concluding Evaluation of the Approaches**

From the above discussion, it should be clear that each approach has its own particular strengths and weaknesses and can be better suited for a specific purpose or situation.

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<sup>139</sup> See, e.g., Dess and Robinson (1984) and Sudarsanam (2010).

<sup>140</sup> See also the discussion in Nakamura (2005, p. 77).

<sup>141</sup> Nakamura (2005, p. 79).

<sup>142</sup> See, e.g., Eisenhardt (1989), Beatty (1999), and Nakamura (2005).

In general, the use of the financial statement-based approach (and hence accounting data) to evaluate the outcome and success of M&A transactions between insurance firms has one major advantage: as opposed to companies from other industries, all insurance companies, independent of their size and legal form, are required to compile annual financial statements, and thus the essential requirement for its application can be fulfilled by all insurers.<sup>143</sup> However, as highlighted by Baete (2009), an insurance-specific problem arises when comparing insurers operating in different insurance segments such as life and non-life. Due to various differences in balance sheet characteristics between, for example, a life and a non-life insurance company, a comparison between such two insurers on the basis of accounting figures and ratios is not meaningful. Moreover, there is also the potential for managerial manipulation of accounting figures and differences in accounting standards and practices across countries that lead to a lack of cross-country comparability of accounting information. Accordingly, accounting-based analyses should be used with great caution in the context of cross-country samples.<sup>144</sup> However, taking these shortcomings into account, the financial statement-based approach offers a powerful tool for evaluating the success of M&A and in particular for M&A transactions between insurance firms.

When analyzing the success of M&A from the viewpoint of firms' shareholders, the capital market-based approach, however, is the most suitable approach.<sup>145</sup> Similar to the financial statement-based approach, this methodology has also the ability to handle and process a large quantity of data and therefore also guarantees the generalizability of the results.<sup>146</sup> Moreover, the use of capital market data offers an objective success measure that cannot be manipulated and that primarily focuses on the financial and market strategic aspects of success.<sup>147</sup> Despite various points of criticism that have been raised against this approach (see Section 2.3.2.2.2), it is the most commonly applied method for

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<sup>143</sup> Settnik (2006, p. 224).

<sup>144</sup> Bradshaw and Miller (2002, p. 7).

<sup>145</sup> See Spiss (2008, p. 105) and Boesecke (2009, p. 87), who both reach the same conclusion.

<sup>146</sup> E.g., Eisenhardt (1989, p. 544) and Datta (1991, p. 294).

<sup>147</sup> E.g., Picken (2003, p. 61).

M&A performance and success evaluation in the extant literature.<sup>148</sup> In addition, a small minority of researchers concentrate on the role of retention and divestiture of acquired companies as an indicator of M&A success. However, considering the weaknesses of the retention/divestment approach (see Section 2.3.2.3.2), one has to conclude that this approach has to be rejected as a measure of M&A success in general and for the analysis of success of M&A transactions in the insurance industry in particular.

In contrast to the foregoing approaches, the major advantage of the interview and survey approach is the richness and depth of qualitative responses, which provide a much fuller understanding of the individual transactions and their underlying motives. But here again we have to recognize the potential perils and downside of such an approach, such as quality concerns, lack of objectivity in the assessment, and the small-sample problem (see Table 6 in Section 2.3.2.4.2). These are major limitations, especially the latter two, because serious concerns about the objectivity and generalizability of the results are raised due to subjective assessment and the relatively small number of companies surveyed. Accordingly, there is broad consensus in the literature<sup>149</sup> that the interview and survey approach is only useful either as a complementary tool in addition to one of the two aforementioned methodologies (i.e., financial statement-based approach and capital market-based approach) for analyzing the financial performance and success of M&A or as an alternative method for investigating the “soft”<sup>150</sup> non-financial factors of M&A transactions.

Overall, this concluding evaluation should emphasize that only the capital market-based approach and financial statement-based approach (when conducted properly) allow for general conclusions about the success of M&A transactions as well as the success factors. This finding serves as a basis for the following chapters, which review the extant literature on the success of insurance M&A and examine M&A success in the European insurance industry.

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<sup>148</sup> Wirtz (2006, p. 300).

<sup>149</sup> E.g., Kirchner (1991, p. 99), Bamberger (1994, p. 120), Wirtz (2003, p. 406), and Settnik (2006, p. 234).

<sup>150</sup> See also section 3.2 for an extended description of “soft” and “hard” factors.

## **3 Literature Review: Prior Research on the Success of Insurance M&A and its Determinants**

### **3.1 Overview**

The following sections provide an in-depth overview of research on the influences of M&A activities on the involved insurance companies. First, we give a broad overview of the most important academic publications examining the success of M&A transactions in the insurance industry (Section 3.2). Second, we describe the selection criteria and the selection process (Section 3.3) and the literature review method (Section 3.4) for identifying all relevant studies on the relationship between insurance M&A activity and firms' financial performance. Thereafter, we develop a research cluster that aims to organize and classify previous insurance M&A literature by assembling the identified studies into homogenous research clusters (Section 3.5). This procedure shall provide information on how previous researchers have tackled the investigated research questions of this work and thereby help to better understand the various research findings. Accordingly, on the basis of this classification scheme, a review of all published empirical studies on the overall success of insurance transactions and their respective findings is presented in Section 3.6.

As our descriptive analysis in Chapter 4 examines the success of insurance M&A from a capital market perspective, Sections 3.7 and 3.8 place special attention to these academic publications, utilizing capital market data to analyze the influence of insurance M&A activity on firms' overall performance and the determinants of M&A performance. Eventually, this specific focus on prior capital market research will provide consistent results on the impact of M&A activity on insurers' financial success.

### **3.2 Overview of Recent Studies**

In general, there is a bulk of academic literature that investigates the success of major organizational decisions, such as the decision to undertake an M&A, the importance and influence of various determinants of success, and the role of post-merger integration in influencing the success of these undertakings.

However, in the insurance industry, this area of research has been far less investigated compared to other industries, such as manufacturing, chemical/pharmaceuticals, telecommunications, and even the banking industry.

When looking at the academic literature on insurance M&A, a clear separation between studies focusing mainly on strategic and financial aspects of insurance M&A and studies addressing primarily organizational behavior and human resources aspects of transactions can be observed.<sup>151</sup> The former strand of research, to which our study also belongs, highlights the importance of strategic and financial factors in explaining the value effects of insurance M&A transactions. In particular, strategy and finance research has put its emphasis on strategic and financial factors that are quantitatively measurable, such as transaction experience, relative size of the target company, shareholding details, mode of acquisition, method of payment, and percentage acquired.<sup>152</sup> These are also called “hard” factors and further include the M&A strategy, financing alternatives, legal issues, and due diligence; they have received significant attention in the extant literature.<sup>153</sup> In this general overview, only a small selection of studies dealing with “hard” factors will be outlined, since most of the studies will be discussed more thoroughly in the following sections. In their closely related studies on bank/insurance combinations, Fields, Fraser, and Kolari (2005, 2007) cover financial and strategic factors such as acquirers’ size, previous acquirers’ performance, relative size of the target, previous targets’ performance, geographic and industry focus, and the method of payment. Kitching (1974) performed a great number of personal interviews with top executives of the involved companies. Analyzing 407 acquisitions between 1965 and 1970, he outlined how important numerous hard factors—such as the country and industry chosen, the kind of diversification attempted, the purchase method, and various characteristics of the acquired company (e.g., profitability, size, and market share)—are in determining the success of these M&A

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<sup>151</sup> E.g., Jemison and Sitkin (1986, p. 145), Javidan et al. (2004, p. 247), and Schoenberg and Bowman (2010, p. 154).

<sup>152</sup> See, e.g., studies by Floreani and Rigamonti (2001), Fields, Fraser, and Kolari (2005, 2007), Schertzinger (2008), and Cummins and Xie (2009).

<sup>153</sup> E.g., Jung (1993, p. 253 and p. 263) and Bertoncelj and Kovac (2008, p. 215).

transactions. Further studies (e.g., Floreani & Rigamonti, 2001; Boubakri, Dionne, & Triki, 2006; Klumpes, 2006; Schertzing, 2008; Cummins & Xie, 2009) analyze the strategic and financial determinants and will be discussed in greater detail in Sections 3.7 and 3.8.

In contrast, another strand of research has shifted the attention toward the human side of these transactions by considering non-financial factors related to people and process management.<sup>154</sup> The majority of these qualitative “soft” elements (mostly related to the post-merger integration process), which range from various employee problems and communication issues to cultural differences within the two companies,<sup>155</sup> cannot be measured accurately in real numbers. Accordingly, these factors are very complex to grasp and quantify and hence are most often only available through small “case-study-like” investigations.<sup>156</sup> The problem with such case study research is in its lack of generalizability, meaning that the findings might only be restricted to the specific case that is under investigation. Nevertheless, there is a fast-growing body of literature that integrates these softer non-financial elements of an M&A transaction process into their focus of research.<sup>157</sup> In the mid ’80s, Jemison and Sitkin (1986) spotlighted the crucial role of organizational factors in contributing to the success of corporate M&A activity. Later on, Datta (1991) worked out the significant impact of organizational differences between the involved companies on the success or failure of these transactions. However, his study is limited to US manufacturing firms. Also, in a survey of large public Canadian companies, Beatty (1999) expressly underlines the essential need for managers to pay much attention to the human side of these M&A deals. In a similar research

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<sup>154</sup> See, e.g., studies by Datta (1991), Cartwright and Cooper (1995), Nguyen and Kleiner (2003), and Fustec and Faroult (2011).

<sup>155</sup> Jung (1993, p. 253 and p. 263), Bauch (2004, p. 82), Greenberg and Guinan (2004, p. 137), Hartog (2004, p. 213), Sitkin and Pablo (2004, p. 182), and Bertonecelj and Kovac (2008, p. 217) enumerate various “soft” factors, including the transfer of strategic capabilities, effectiveness of M&A implementation, creation of M&A oversight committees, selection of advisors, management expertise, managerial compensation, and communication, to name a few.

<sup>156</sup> See also Bower (2004, p. 241) and Antoniou, Arbour, and Zhao (2011, p. 19).

<sup>157</sup> See, e.g., Jemison and Sitkin (1986), Datta (1991), Beatty (1999), Nguyen and Kleiner (2003), Schumacher (2003), Carey and Ogden (2004), Riad (2005), Lin and Wei (2006), The Boston Consulting Group (2008a), and Fustec and Faroult (2011).

work, Nguyen and Kleiner (2003) investigate several organizational factors responsible for achieving post-acquisition success. In contrast to the study by Beatty (1999), their study is based on empirical findings of previous literature and case studies. Last but not least, with an exclusive focus on the insurance industry, Fustec and Faroult (2011) highlight the important role of various intangible assets in explaining why almost 50% of all insurance M&A deals destroy value.

A further differentiation of studies analyzing the wealth effects of M&A deals in the insurance industry is closely related to this separation of financial and non-financial literature. According to Jemison and Sitkin (1986), academic literature on the effects of M&A transactions can be divided into studies dealing mainly with the selection process and others focusing primarily on the integration process of such transactions. Adopting Jemison and Sitkin's definition, Erez-Rein, Erez, and Maital (2004) use the phrases "making an M&A decision" and "doing the deal" to refer to various pre-merger processes from determining the growth strategy to the closing of the transaction and "making an M&A work" to describe all tasks related to the integration of the two or more companies. Empirical studies with a specific focus on the selection process often also have components that concentrate on "hard" strategic and financial aspects of an M&A transaction. Likewise, studies that deal with the post-acquisition integration phase mainly direct their attention to "soft" human factors. Similar to the dominance of strategic and financial literature, most scholars dealing with the topic of value creation in insurance transactions have limited their studies to activities in the pre-merger phase of organizational integration. Numerous studies investigate various aspects related to the pre-merger phase of the transaction process.<sup>158</sup> Since most of these studies are discussed in Sections 3.7 and 3.8, a detailed discussion on them is not provided herein.

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<sup>158</sup> See, e.g., Kruse et al. (2002), King et al. (2004), Cummins and Xie (2005), Martynova, Oosting and Renneboog (2006), Fields, Fraser, and Kolari (2005, 2007), Schertzing (2008), The Boston Consulting Group (2009a), Cummins and Xie (2009), and Shim (2011a and 2011b).



Issues related to post-merger integration are mostly neglected by previous academic literature. Once again, however, more and more studies shift the center of their attention toward the complex challenges of implementation and integration.<sup>159</sup> Chakrabarti and Mitchell (2004) place their main emphasis on the corporate level integration process, while others, such as Beatty (1999), focus on the integration issues of individual business units. In a first report on post-merger integration, published in 2007, The Boston Consulting Group (2007) focuses on general strategic and tactical aspects relevant to all acquirers facing significant challenges of post-merger integration and organizational change. Similarly, in the 2008, 2009, and 2010 studies by The Boston Consulting Group (2008a, 2008b, 2008c, 2009a, 2009b, 2010), a range of more specific topics dealing with the post-merger integration of the target's business into the acquirer's organization are considered. DeNoble, Gustafson, and Hegert (1988) describe several acquisition pitfalls and how to avoid them. The authors explain how neglecting the post-merger integration process can undermine the performance of a strategically sound acquisition. They additionally offer guidelines to improve the quality of this crucial acquisition planning and implementation phase. Pautler (2003) presents a review of business consulting literature on the effects of mergers and post-merger integration, answering the questions of whether mergers achieve the goals of the executives involved and whether these deals enhance shareholder value relative to industry benchmarks and explaining what characteristics the more successful deals have compared to the less successful ones.

Regarding the methodology for assessing the valuation effects of insurance M&A activity, the most significant difference lies in the way the data was collected. By far, most of the previous studies rely on quantitative (i.e., objective) metrics by using either market or accounting data to analyze the effects of M&A transactions. The group of studies using market data conducts short- or long-term event studies, while the latter group relies on financial statements for analysis, as discussed in detail in Section 3.6. A further objective

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<sup>159</sup> See, e.g., DeNoble, Gustafson, and Hegert (1988), Habeck, Kroeger, and Traem (2000), Carleton (2004), Epstein (2004), Homburg and Bucerius (2006), Puranam, Singh, and Zollo (2003, 2006), and Puranam and Srikanth (2007).

methodology for evaluating the success of M&A includes the analysis of subsequent divestitures of acquired companies. Additional sources of data collection include questionnaires or interviews with personnel from the involved firms that form the basis for investigations based on surveys of executives and managers and subjective performance assessments obtained from external expert informants. For a detailed discussion on the mechanics of these different quantitative and qualitative methodologies and an evaluation of their application to the insurance industry, refer to Section 2.3.2.

In addition to several studies specified in the following sections,<sup>160</sup> The Boston Consulting Group (2009a) conducts a short-term event study on 1,100 insurance transactions. As explained in Section 2.3.2.1.1, a traditional event study measures the effect of an M&A transaction on the value of each sample firm using financial market data. The same event study research methodology is applied by Fields, Fraser, and Kolari (2005, 2007) in investigating short-term announcement effects of 129 bank/insurance transactions. Others, such as Franks, Harris, and Titman (1991), Loderer and Martin (1992), Loughran and Vijh (1997), Cybo-Ottone and Murgia (2000), Moeller, Schlingemann, and Stulz (2003), Andre, Kooli, and L'Her (2004), and Lee and Mansor (2008), examine post-M&A performance over a longer period of time (i.e., several years following the transaction) by using cumulative abnormal returns (CARs), buy-and hold abnormal returns (BHARs), or calendar-time returns (CTRs). Also using financial market data, Abhyankar, Ho, and Zhao (2006) employ an alternate approach to investigating the effects of M&A on acquiring firms' long-run stock performance. Using a sample of 305 public mergers by UK firms in the period from 1985 to 2000, the authors analyze whether there is evidence of a first- or second-order stochastic dominance relationship between acquirers and their benchmark portfolios.

Accounting data is used by a wide variety of researchers, who generally perform accounting ratio analyses or efficiency studies. The former group of

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<sup>160</sup> BarNiv and Hathorn (1997), Akhigbe and Madura (2001), Floreani and Rigamonti (2001), Cummins and Weiss (2004), Cummins and Xie (2005), Boubakri, Dionne, and Triki (2006), Elango (2006), Schertzing (2008), Cummins and Xie (2009), and Staikouras (2009).

studies evaluate operating performance of the involved companies by using publicly available standard accounting information (performance) ratios (e.g., Chamberlain & Tennyson, 1998; Martynova, Oosting, & Renneboog, 2006; Settnik, 2006; Shim, 2011b). The latter prolific group of researchers (e.g., Cummins & Weiss, 2000; Klumpes, 2006; Cummins & Xie, 2008; Shim, 2011a) specifically focuses on efficiency effects of M&A among (insurance) company acquirers. In particular, these efficiency studies, in which researchers also employ financial accounting data, focus on various dimensions such as production efficiency, cost efficiency, technical efficiency, and revenue efficiency. For example, using a Bayesian stochastic frontier, Anderson, Ensfiller, and Lewis (2004) explore the production efficiency change of the Austrian insurance market from 1994 to 1999. Nakamura (2005), in contrast, employs a stochastic frontier production function model to assess technical efficiency effects of Japanese M&A deals.

While the use of market- and accounting-based data is quite common in academic studies analyzing insurance M&A, only a few studies rely on subjective performance evaluations of the management. These so-called management surveys and interviews have been carried out in the academic studies of Datta (1991), Schoenberg (2006), and The Boston Consulting Group (2009c). Additionally, to investigate whether Japanese firms create value through M&A transactions, Nakamura (2005) conducts interviews with people who had deep insights into Japanese M&A transactions, such as M&A advisors and academic scholars. Also, in his doctoral dissertation on Japanese M&A, Nakamura (2005) employs several other methodologies, such as case studies and efficiency studies, to address the effects of these transactions on the behavior and efficiency of acquiring firms' operations. However, his research is restricted to Japanese firms and does not have a special focus on the insurance sector. Similarly, Schoenberg (2006) uses various forms of performance measures for evaluating the success rate of such corporate acquisitions. Besides using stock market and divestment data, the author also bases his study on evidence collected from managers' and expert informants' assessments. The two studies by Nakamura (2005) and Schoenberg (2006) represent a new and promising strand of research that combines quantitative

and qualitative data to attain a deeper understanding of the effects of M&A. Looking at previous insurance M&A literature, Schertzinger (2008) not only provides a cross-sectional analysis of 176 insurance transactions between 1990 and 2005, but also examines two case studies to fully capture the individual value drivers of the two transactions under consideration. Thereby, he is able to combine the generalizability of the results from the large-sample statistically-oriented cross-sectional analysis with specific findings from the two case studies, which in turn “can offer a potential for exploring new dimensions and for raising new research questions.”<sup>161</sup>

Finally, a last group of studies can be identified that summarize previous findings on the success of M&A and the success factors and that further attempt to find possible explanations for the partly contradicting results regarding these effects. For example, Agrawal and Jaffe (1999) and Lubatkin (1983) provide summaries of studies dealing with the performance effects of acquiring firms. While Agrawal and Jaffe center their attention on long-run stock returns following acquisitions, Lubatkin tries to explain why companies still conduct M&A transactions, despite the fact that the vast majority of previous studies report negative performance effects for acquiring firms’ shareholders. He provides various plausible theoretical reasons for the contradicting findings of previous empirical studies and theoretical foundations of strategic management literature. Meglio and Risberg (2010), on the other hand, posit that the conflicting findings of previous research are merely attributable to differences in the methodologies applied to investigate these issues. A further literature overview is provided by Nissim (2010); however, it does not exclusively focus on M&A deals, but instead on the insurance sector. A similar review of previous academic literature on the causes, consequences, and implications of the consolidation in the financial services industry is elaborated by Berger, Demsetz, and Stahan (1999).

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<sup>161</sup> Meglio and Risberg (2010, p. 89). Similarly, Antoniou, Arbour, and Zhao (2011, p. 19) propose the use of a case-study-like testing procedure instead of applying large-sample statistical tests for estimating the effects of M&A transactions.

Since a litany of studies have been conducted to evaluate the effects of insurers (and other companies) involved in M&A, it is beyond the scope of this research work to identify and survey all these studies. Instead, Table 40 in the appendix summarizes the most relevant academic publications on the success of insurance M&A transactions.

### **3.3 Selection of Prior Research**

In our general literature overview, we focused on academic studies that examine the success of M&A activities in the financial services sector, especially in the insurance industry.<sup>162</sup> However, to fulfill the purpose of our analysis, which is to identify the financial success of M&A transactions, this general overview of the most important studies investigating the influence of M&A deals on the performance of financial services firms, that is, banks, insurers, and other financial institutions, is insufficient. We have hence narrowed down the selection to these academic publications that not only consider the insurance industry as one of the many sectors in their sample, but have more importantly, predominantly or even exclusively focused on insurance acquirers. As a result, academic papers that regarded insurance simply as one of many industries and therefore do not have an insurance-specific focus,<sup>163</sup> such as Berger (2005), Nakamura (2005), Schoenberg (2006), and Fields, Fraser, and Kolari (2005, 2007), are dropped out of the literature review sample. The distinct focus on insurance company acquirers enables us to investigate the valuation effects of M&A in this particular industry and thereby to control for differences in value creation across different industries. Furthermore, this particular focus should shed light on various inconsistencies in previous study findings and help to provide evidence for consistent industry-specific patterns in insurance M&A.

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<sup>162</sup> It is important to note that this literature review focuses primarily on insurance M&A literature, and due to the high number of studies focusing on the banking and financial services industry, it may not be representative for the financial services sector as a whole.

<sup>163</sup> In our thesis, empirical studies are regarded to have an insurance focus if at least 50% of the sample acquirer firms come from the insurance industry.

We further limit the focus of our literature review to the studies that place their main focus on the financial side of M&A transactions and investigate the financial success and performance effects of such deals.

In addition, we restrict our review to studies analyzing the overall wealth effects of insurance M&A since our major interest is on the overall success of acquiring insurance companies. For example, the following academic studies are eliminated from the sample since they do not calculate the overall wealth effect of such deals: Graves (1981), DeNoble, Gustafson, and Hergert (1988), Chakrabarti and Mitchell (2004), Focarelli and Pozzolo (2008), The Boston Consulting Group (2007, 2008a, 2008b, 2008c, 2009a, 2009b, 2010), and Fustec and Faroult (2011).

By concentrating exclusively on studies with an empirical research design, we assure that reliable primary and secondary information was used in order to answer a specific research question or to test a hypothesis. As a result of this specification, academic work focusing exclusively on thorough case studies that analyze individual transactions and studies using analytical models are dropped out of our review of prior research.

Furthermore, empirical research makes use of either direct or indirect data.<sup>164</sup> As elaborated in Section 2.3.2.4, studies relying on managerial or expert informants' assessment base their analyses on subjective data and therefore suffer from the previously mentioned disadvantages<sup>165</sup>. As result of the fundamental weaknesses of subjective performance indicators and Porter's retention/divestment approach, we confine our general literature review to indirect studies that rely on quantitative (i.e., objective) data, such as stock prices and accounting values. This includes studies measuring short- and long-term performance effects of M&A and studies analyzing efficiency changes over time.

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<sup>164</sup> Baker, Singleton, and Veit (2011, p. 408).

<sup>165</sup> See section 2.3.2.4 for a number of limitations of approaches using subjective data. Often, researchers using subjective performance measures argue that the collection of objective data is not always easy or even possible (Dess & Robinson, 1984).

Moreover, to be included in our final sample, the study must place its main attention on the pre-M&A phase. Studies focusing on the role of post-acquisition integration in influencing the performance are consequently excluded from the review scope (e.g., DeNoble, Gustafson & Hegert, 1988; Beatty, 1999; Pautler, 2003; Chakrabarti & Mitchell, 2004; The Boston Consulting Group, 2007, 2008a, 2008b, 2008c, 2009b, 2009c, 2010).

After providing evidence as to the extent to which insurance transactions were value enhancing or not, we investigate which factors of the acquiring and target companies as well as which transaction characteristics may cause performance differences. As argued earlier, our analysis focuses primarily on strategic and financial factors. Studies conducted by Jemison and Sitkin (1986), Cartwright and Cooper (1995), Nguyen and Kleiner (2003), and Fustec and Faroult (2011), which highlight the role of softer elements, do not fulfill this requirement and are thus not included in our final literature review.

Summarizing, to be included in our review of previous academic literature on the effects of M&A in the insurance industry, the studies have to meet following criteria:

- insurance focus (at least 50% of the sample acquirer firms coming from the insurance industry);
- financial success;
- calculate the overall wealth effects;
- empirical research design;
- usage of objective data (stock and market data);
- focus on pre-M&A phase; and
- focus on strategic and financial factors.

### **3.4 Literature Review Method**

The process we applied to identify all relevant studies on the relationship between M&A activity and financial performance is as follows:

Firstly, we scanned paper titles and examined abstracts of research articles released in peer-reviewed journals<sup>166</sup> in accounting, economics, finance, and management to identify as many relevant studies regarding valuation effects of M&A activities.<sup>167</sup> We then applied the “ancestry” approach,<sup>168</sup> searching through all relevant articles that were referred to in the references of previous identified papers. Thirdly, studies citing the relevant papers were also scanned to identify additional articles (a descendary approach). This process of examining reference sections and in-text citations was iterated until no new studies were found. Additionally, searches were carried out using the research tool Mendeley and the Internet search engines Google and Google Scholar. The various articles were sourced from EBSCO, Wiley Interscience, Elsevier and LexisNexis Academic, from the University of Cologne library and the University of Minnesota library, and personal collections of publications. This procedure gives an acceptable guarantee that all relevant studies dealing with value creation in insurance M&A were identified.

In total, 19 recent studies on the overall success of insurance M&A have been identified that meet the previously described selection criteria, with 17 of them having seen print in the 21st century. Table 8 gives an overview of these empirical research studies, which will be further clustered and discussed in more detail in the following two sections.

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<sup>166</sup> E.g., Academy of Management Journal, Applied Financial Economics, Financial Management, Journal of Accounting and Economics, Journal of Accounting Research, Journal of Banking and Finance, Journal of Business, Journal of Business Finance and Accounting, Journal of Finance, Journal of Financial Economics, Journal of Financial Research, Journal of Management, Journal of Risk and Insurance, Journal of Risk and Uncertainty, Journal of Risk Finance, Managerial Finance, Quarterly Journal of Economics, and Strategic Management Journal.

<sup>167</sup> Articles published in languages other than English and German were excluded from the sample.

<sup>168</sup> See, e.g., Cooper (1998) and King et al. (2004).



**Table 7: Overview of prior research on the value effects of insurance M&A**

	Author	Year	Type of Study	Time Span (From - To)	Sample Size	Sample Region
1	Akhigbe and Madura	2001	Event study	1985-1996	88 transactions	US
2	BarNiv and Hathorn	1997	Event study	1984-1992	124 transactions	US
3	Boubakri, Dionne and Triki	2006	Event study	1995-2000	177 transactions	Acquirer US; target global
4	Chamberlain and Tennyson	1998	Accounting ratio analysis	1980-1990	84 transactions	Acquirer global; target US
5	Cummins and Rubio-Misas	2003	Efficiency study	1989-1998	548 insurers	ES
6	Cummins and Weiss	2000	Efficiency study	1992-1998	130 reinsurers	Global
7	Cummins and Weiss	2004	Event study	1990-2002	535 acquirers, 165 targets	Western Europe
8	Cummins and Xie	2005	Efficiency and event study	1997-2003	285 transactions, 180 acquirers, 46 targets	US
9	Cummins and Xie	2008	Efficiency study	1994-2003	588 transactions	US
10	Cummins and Xie	2009	Efficiency and event study	1997-2003	285 transactions, 180 acquirers, 46 targets	US
11	Cummins, Tennyson, and Weiss	1998	Efficiency study	1988-1995	137 targets	US
12	Elango	2006	Event study	1997-2003	52 transactions	Acquirer US; target global (except US)
13	Floreani and Rigamonti	2001	Event study	1996-2000	56 transactions	US, EU, AU
14	Klumpes	2006	Efficiency study	1997-2001	1,680 observations	EU (major markets)
15	Schertzingler	2008	Event study	1990-2005	176 transactions	Acquirer EU-25, CH or NO; target global
16	Settnik	2006	Accounting ratio analysis	1990-1998	25 transactions	DE
17	Shim	2010	Accounting ratio analysis	1989-2004	190 acquirers	US
18	Shim	2011	Efficiency study	1990-2004	348 transactions	US
19	Staikouras	2009	Event study	1990-2005	51 transactions	Global

### 3.5 Development of Research Clusters

For the purpose of getting a better overview of the diverse empirical studies, we try to develop a research cluster that aims to organize the extant literature on insurance M&A to serve as a blueprint for our further analysis. Accordingly, we try to assemble the identified studies into homogenous research clusters. This classification should help to obtain consistent results concerning the overall wealth effects of insurance M&A and their influencing factors. Empirical studies focusing on the success of M&A activities can be grouped along various dimensions. These dimensions include the research design and methodology, region under investigation, time span of the M&A that were studied, sample

characteristics (such as sample size, sample region, and the specific industry segment of the involved companies), or whether the results were obtained from short-term or long-term analyses. A further categorization divides the group of studies on value creation in insurance M&A into four distinct schools of thought: the capital markets school, the strategic management school, the organizational behavior school, and the process school (Haspeslagh and Jemison, 1991).<sup>169</sup> Financial researchers belonging to the capital markets school of thought focus primarily on the wealth effects for the firms' shareholders. To quantify these effects, this school of thought uses the traditional event study methodology; that is, financial scholars use stock market measures to estimate the performance of the involved companies before and after the M&A transaction.<sup>170</sup> The second school of thought, the strategic management school, focuses on the motives for M&A transactions and on the performance effects of the individual types of transactions by utilizing either stock market data or accounting-based performance measures. In contrast, rather than providing normative descriptions of how to achieve a superior performance, the impact of M&A transactions on the people of the involved transaction partners is regularly studied by the organizational behavior research literature. Finally, the process school, which emerged from a combination of the strategic management and organizational behavior school, aims to provide a more thorough understanding of the process itself by investigating the influence of the post-M&A integration process on the success of M&A transactions. Thereby, this stream of research may provide an alternative picture of value creation in these transactions and its influencing factors.

For the purpose of our analysis, however, we chose to categorize the 19 different studies according to their research methodology. Since the research methodology simultaneously determines the measure of success that is used to evaluate the outcome of an M&A transaction, this category might seem to be

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<sup>169</sup> For a comprehensive discourse on the various schools of thought, see for example, Javidan et al. (2004, p. 247).

<sup>170</sup> Therefore, research papers belonging to the capital market stream are most likely to be also placed in the methodology cluster 4 - "event analysis" (see below for an explanation of the different clusters of our study).

the most important dimension.<sup>171</sup> Accordingly, the problem of differences in performance measures that may cause inconsistent findings resulting from these different estimation methodologies is often highlighted in the extant literature.<sup>172</sup> Meglio and Risberg (2010), who refer to Corvellec (1997), put this problem in a nutshell by stating: “It does not make sense, in the name of a generic performance, to compare CAR—which is a prediction of possible future company performance—with accounting measures—which are measures of historical performance—with management perceptions—which, besides being historical, usually depict non-measurable aspects. The different measures all say something about the performance of the M&A, but they are different stories told for different audiences, often by different narrators.”<sup>173</sup> Consequently, we divide the previously identified studies from our final sample into several streams of research using different methodologies to assess valuation effects of insurance M&A. Table 9 gives an overview of the identified studies on value creation in insurance transactions by methodology employed. Besides the different methodologies used in each of the studies, they differ with regard to their sample characteristics, the time span over which the M&A occur, and the specific industry segment of targets and acquirers.

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<sup>171</sup> See, e.g., Buehner (1990b), who divides previous investigations according to their methodology.

<sup>172</sup> See, e.g., Corvellec (1997), Jansen (2004), King et al. (2004), Stahl and Voigt (2004), Schoenberg (2006), and Meglio and Risberg (2010). Meglio and Risberg (2010, p. 88) state that “[w]hat M&A scholars seem to overlook is that contradictory results arise from the adoption of different performance measures embedded in different research methods,” and Schoenberg (2006, p. 3) further assumes that “some of the conflicting conclusions within the acquisitions literature may be due, in part, to the adoption of different performance metrics.”

<sup>173</sup> Meglio and Risberg (2010, p. 91). Some empirical support for this conclusion is provided in the results reported by Schoenberg (2006), who examined the comparability of four measures of M&A performance, namely cumulative abnormal returns, managers’ assessment, divestment data, and expert informants’ subjective assessments). The author concludes that “with the exception of a positive relationship between managers’ and expert informants’ subjective assessments, there was no comparability between the performance data generated by the alternative metrics” (p. 11).

Table 8: Prior research on the value effects of insurance M&amp;A by cluster

Cluster	Author	Type of Study	Methodology		
I - Accounting data	1 - Accounting ratio analysis	Chamberlain and Tennyson (1998)	Accounting ratio analysis	Various accounting performance ratios	
		Settnik (2006)	Accounting ratio analysis	Figures for growth, profit performance and solvency	
		Shim (2010)	Accounting ratio analysis	ROA, ROE, Z-score, volatility	
	2 - Efficiency analysis	Cummins and Rubio-Misas (2003)	Efficiency study	Non-parametric DEA; Malmquist	
		Cummins and Weiss (2000)	Efficiency study	Non-parametric DEA; Parametric SFA	
		Cummins and Xie (2008)	Efficiency study	Non-parametric DEA; Malmquist	
		Cummins, Tennyson, and Weiss (1998)	Efficiency study	Non-parametric DEA; Malmquist	
		Klumpes (2006)	Efficiency study	Non-parametric DEA; Malmquist	
	3 - Linkage of efficiency and event analysis	Shim (2011)	Efficiency study	Non-parametric DEA	
		Cummins and Xie (2005)	Efficiency and event study	Non-parametric DEA; S-t CAR, s-t CER	
		Cummins and Xie (2009)	Efficiency and event study	Non-parametric DEA; S-t CAR	
		Akhigbe and Madura (2001)	Event study	S-t CAR, s-t CER	
	II - Capital market data	4 - Event analysis	BarNiv and Hathorn (1997)	Event study	M-t CAR
			Boubakri, Dionne, and Triki (2006)	Event study	L-t BHAR
			Cummins and Weiss (2004)	Event study	S-t CAR
Elango (2006)			Event study	S-t CAR	
Floreani and Rigamonti (2001)			Event study	S-t CAR, s-t CER, s-t BHAR	
Schertzinger (2008)			Event study	S-t CAR, s-t CER, I-t BHAR, I-t CTAR	
Staikouras (2009)			Event study	S-t CAR	

As can be seen in Table 9, the 19 academic papers can be clustered into a broad group of studies relying on financial accounting data (cluster I studies) and a group of studies using financial market data (papers belonging to cluster II).

The first-mentioned group of studies further consists of two subgroups, namely accounting performance studies based on various accounting ratios (cluster 1 studies), and efficiency studies, which apply data envelopment analysis (DEA) to measure the relative efficiency (cluster 2 studies). The two related studies

belonging to the third research cluster rely on both accounting and stock price data for estimates of firm performance following M&A activity. In contrast, the most dominant group, accounting for more than 40% of the studies in our final sample, address the issue of value creation for insurance acquirers by conducting event studies.

In the following section, we will discuss these major strands of literature and the related studies in more detail.

### **3.6 Review of Individual Studies on the Overall Success of Insurance M&A by Cluster**

Due to the fact that there is no single authoritative source for information on M&A in the insurance industry, the reviewed papers use various sources for collecting capital market and accounting data. Moreover, different criteria<sup>174</sup> are used to identify the relevant M&A transactions, resulting in varying samples. The individual sample characteristics, most of which will be mentioned throughout this section, as well as the various data sources used in the reviewed studies, are summarized in Tables 10 and 11, respectively.

Looking at Table 11, we can see that the event study methodology is the most dominant type of study, with more than 50%<sup>175</sup> of the identified studies applying this approach. The majority of studies investigate insurance M&A activity in the fifth and sixth M&A wave and put the focus of their investigation on the US insurance market. Fourteen studies investigate the effects of M&A activities either exclusively or partly in the US, while eight studies consider acquirers from European countries (double counts for international samples). Almost half of the reviewed studies (nine out of 19) require a change of control<sup>176</sup> that occurred

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<sup>174</sup> Industry and geography of acquirer and target, sample period, transaction volume, and so on.

<sup>175</sup> Including the two studies of Cummins and Xie (2005, 2009), which also apply the event approach besides applying an additional efficiency technique.

<sup>176</sup> The initial stake of the acquirer in the target before transaction was smaller than 50%, and the final stake after transaction is higher than 50%.

through the transaction, and five out of the total number of studies necessitate a minimum transaction volume.

**Table 9: Data sources of the reviewed studies**

<b>Author</b>	<b>Data Source</b>
Chamberlain and Tennyson (1998)	Mergers and Acquisitions online database and magazine, Best's Insurance Reports, regulatory annual statements
Settnik (2006)	SDC, CRSP, Compustat
Shim (2010)	Financial Times CD-ROM, AMDATA, Datastream, Bloomberg, Morgan Stanley Capital International
Cummins and Rubio-Misas (2003)	Regulatory annual statements
Cummins and Weiss (2000)	S&P's "Top 100 Reinsurer's Report", S&P's CLASSIC Ratings Database, Conning and Company, Swiss Re, regulatory annual statements
Cummins and Xie (2008)	SNL DataSource, Best's Insurance Reports, Best's Review, Best's Key Rating Guide, Conning and Company, NAIC regulatory annual statements
Cummins, Tennyson, and Weiss (1998)	Mergers and Acquisitions, Best's Insurance Reports, Best's Review, Conning and Company
Klumpes (2006)	Eurostat
Shim (2011)	NAIC regulatory annual statements, U.S. Department of Labor, Best's Insurance Reports-Property/Casualty
Cummins and Xie (2005)	SNL DataSource, CRSP, Compustat, NAIC regulatory annual statements
Cummins and Xie (2009)	SNL DataSource, CRSP, Compustat, NAIC regulatory annual statements
Akhigbe and Madura (2001)	Mergers & Acquisitions, Wall Street Journal
BarNiv and Hathorn (1997)	Best's Reports, Best's Key Rating Guide, NAIC regulatory annual statements
Boubakri, Dionne, and Triki (2006)	SDC, CRSP
Cummins and Weiss (2004)	SDC, Datastream
Elango (2006)	SDC, Yahoo! Financial, World Bank, U.S. Department of Commerce
Floreani and Rigamonti (2001)	Financial Times CD-ROM, Datastream
Schertzinger (2008)	SDC, Dealogic, Datastream, Bloomberg, other databases, regulatory annual statements
Staikouras (2009)	Bloomberg, Datastream, Thomson One Banker, press clippings, industry reports

**Table 10: Criteria and sample characteristics of the reviewed studies**

Author	Type of Study	Time Span (From - To)	Sample Size	Sample Region	Industry		Further Details
					Acquirer	Target	
Chamberlain and Tennyson (1998)	Accounting ratio analysis	1980-1990	84 transactions	Acquirer global; target US	Insurer	P/L insurer	Change of control required
Settnik (2006)	Accounting ratio analysis	1990-1998	25 transactions, 21 acquirers, 26 targets	DE	Insurer	Insurer	Relative size of target $\geq 1\%$ ; Purchase price > \$1 mn; Change of control required and at the end 100% ownership
Shim (2010)	Accounting ratio analysis	1989-2004	190 acquirers	US	P/L insurer	P/L insurer	Transactions > \$100 mn; Change of control required
Cummins and Rubio-Misas (2003)	Efficiency study	1989-1998	548 insurers	ES	Insurer	Insurer	
Cummins and Weiss (2000)	Efficiency study	1992-1998	130 reinsurers	Global	Reinsurer	Reinsurer	
Cummins and Xie (2008)	Efficiency study	1994-2003	588 transactions	US	Insurer	P/L insurer	
Cummins, Tennyson, and Weiss (1998)	Efficiency study	1988-1995	137 targets	US	Life insurer	Life insurer	Change of control required
Klumpes (2006)	Efficiency study	1997-2001	1680 observations	EU (major markets)	Insurer	Insurer	
Shim (2011)	Efficiency study	1990-2004	348 transactions, 190 acquirers	US	P/L insurer	P/L insurer	
Cummins and Xie (2005)	Efficiency and event study	1997-2003	285 transactions, 180 acquirers, 46 targets	US	Either acquirer or target is P/L insurer (at least one of them)		Change of control required
Cummins and Xie (2009)	Efficiency and event study	1997-2003	285 transactions, 180 acquirers, 46 targets	US	Either acquirer or target is P/L insurer (at least one of them)		Change of control required
Akhigbe and Madura (2001)	Event study	1985-1996	88 transactions	US	Insurer	Insurer	Purchase price > \$50 mn
BarNiv and Hathorn (1997)	Event study	1984-1992	124 transactions	US	P/L insurer	P/L insurer	
Boubakri, Dionne, and Triki (2006)	Event study	1995-2000	177 transactions	Acquirer US; target global	P/L insurer	Insurer	Percentage of shares acquired > 10%
Cummins and Weiss (2004)	Event study	1990-2002	499 transactions, 535 acquirers, 165 targets	Western Europe	Either acquirer or target is insurer (at least one of them)		Acquisition of value stake; Change in control required
Elango (2006)	Event study	1997-2003	52 transactions	Acquirer US; target global (except US)	Insurer	Insurer	
Floreani and Rigamonti (2001)	Event study	1996-2000	56 transactions	US, EU, AU	Pure insurer	Pure insurer	Ratio between deal value and bidder market value > 2%; Change of control required
Schertzing (2008)	Event study	1990-2005	176 transactions	Acquirer EU-25, CH or NO; target global	Insurer	Insurer or asset manager	Transaction volume $\geq$ \$100 mn; Change of control required
Staikouras (2009)	Event study	1990-2006	51 transactions	Global	Insurer or bank	Insurer or bank	

### 3.6.1 Accounting Ratio Analysis

The first strand of past empirical research, namely accounting-ratio-based research (cluster 1), argues that the effects of M&A activity can be best assessed from a perspective of company fundamentals by relying on financial accounting data. Academic papers belonging to this stream make use of various accounting ratios, such as return on assets (ROA), return on equity (ROE), and the Z-score (see the study of Shim, 2011b), as well as figures for growth, profit performance, and solvency (see Settnik, 2006). In the third study of this group, Chamberlain and Tennyson (1998) employ a matched-pair research design to compare pre-merger and post-merger accounting ratios of successfully acquired property-liability insurance targets with those of non-acquired property-liability insurers. In the three identified studies, the sample region of the acquiring insurance company is equally split between the United States, Europe, and a worldwide sample, with one study analyzing US acquirers (Shim, 2011b), one study concentrating on German insurers (Settnik, 2006), and a third analyzing a global sample (Chamberlain & Tennyson, 1998).

While the sample of **Chamberlain and Tennyson (1998)** consists of insurance acquirers from all over the world, the acquisition targets must however belong to the US property-liability sector. Eighty-four transactions have been identified that fulfill these criteria in the 11-year time span from 1980 to the end of 1990. The authors use a matched-pair research design to analyze merger activity following capital market shocks. The major focus of their study is on financial synergies as a motive for insurance M&A transactions by testing two hypotheses: (i) Financial synergies are a main motive for insurance mergers in general, and (ii) mergers motivated by financial synergies are particularly important in the years following the negative industry capital shock in the years 1984 and 1985. Only the second hypothesis receives strong support from the work of Chamberlain and Tennyson. They come to the conclusion that firms acquired following a capital market shock suffered from lower pre-merger solvency and liquidity, higher pre-merger underwriting leverage, and greater declines in total capital compared to their benchmark groups. These poorly capitalized targets are likely to be affiliated firms, which have a higher



benchmarked expense ratio and lower investment income relative to invested assets in the pre-merger period.

In contrast, **Settnik (2006)** employs accounting data to a purely German sample in order to investigate the extent to which the performance of German insurance companies is influenced by M&A transactions. Using a sample of 25 German insurance transactions involving 47 different insurers, Settnik assesses the overall success of these deals by calculating figures for growth, profit performance, and solvency. Overall, the author's results indicate that in the period between 1990 and 1998, only 8% of all acquiring insurance firms successfully achieved a favorable change in all three key figures for growth, profit performance, and solvency. Nevertheless, in every single transaction, at least one of the three ratios experiences an improvement three years after announcement of the deal. Looking at the figures for growth, Settnik draws an entirely positive conclusion since the results indicate that acquirers exhibited positive long-term growth in terms of new business and recurring premium income in more than 90% of the transactions. Furthermore, the author finds that the majority of M&A transactions (56%) resulted in improvements in profit performance of the combined German entity. Most of the acquiring insurance companies (64%), however, suffered from a decline in profitability, while only eight of 21 acquirers (38%) showed an increase in profitability three years after the M&A deal. The economic risk of the involved insurance firms (as proxied by the solvency ratio) predominantly does not seem to decrease subsequent to M&A transactions. These findings indicate a trade-off between profit growth and market share as well as between profit growth and economic risk, which is also in line with previous research.<sup>177</sup> Moreover, the results support the hypothesis that managers conducting M&A transactions predominantly pursue their own selfish interests instead of focusing on shareholders' interests. Therefore, these deals are in general perceived as non-value-enhancing events for shareholders of both insurers involved.

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<sup>177</sup> Farny (2011, p. 540).

**Shim (2011b)** also uses accounting data to investigate the financial performance effects of US property-liability insurance acquisitions in the years 1989 to 2004. More specifically, Shim combines various measures, such as the Z-score and total risk measured by earnings volatility, as well as the profitability ratios risk-adjusted return on assets (ROA) and return on equity (ROE), to proxy firms' performance. Investigating a final sample of 190 US property-liability insurance acquirers, the author's regression analysis provides strong support for a negative relationship between M&A activity in the US property-liability insurance industry and acquirers' financial performance. Three years after an M&A transaction was completed, not only did the overall financial performance decrease, but also the earnings volatility and hence the risk of the acquiring firm increased. The author further finds evidence that focused insurance companies outperform product-diversified ones and that insurers' capitalization, the share of commercial line, and the use of a direct marketing system have a positive impact on insurers' profits. The proportion of stock investment, geographical diversification, and a variable for mutual insurers, however, are significantly negative related to the post-M&A performance of the involved insurers. Lastly, the relationship between firm size and performance is found to have a parabolic shape. "[U]p to certain values of asset, an additional asset has an increasing effect on performance and beyond some critical value of asset, the effect might become decreasing, outweighing any potential scale efficiency benefits."<sup>178</sup>

Summing up, evidence from accounting ratio research points toward a negative relationship between M&A transactions in the insurance industry and subsequent accounting performance of insurance acquirers. Insurance firms tend to acquire poorly capitalized firms, which means that these transactions can increase earnings volatility and risk subsequent to the M&A deal. Accordingly, managers of acquiring insurance firms predominantly do not enhance the value of their company and hence do not focus on shareholders' interests.

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<sup>178</sup> Shim (2011b, p. 133).

### 3.6.2 Efficiency Analysis

As stated above, efficiency studies (cluster 2) use data envelopment analysis methodology as a tool for evaluating the comparative efficiency of insurance firms. To be more specific, this strand of the insurance M&A literature measures the efficiency of firms relative to the “best practice” frontier<sup>179</sup> or compares pre-merger and post-merger accounting ratios and thus examines efficiency changes over time.<sup>180</sup> If M&A transactions are efficiency-increasing, acquirers and targets combined efficiency post-M&A should be higher either than their own pre-M&A efficiency or in relation to the post-M&A efficiency of a control group of non-merging and non-acquiring insurers. This research strand, accounting for almost one-third of the studies in the final sample, has gained importance in the last 20 years and hence has resulted in several publications analyzing efficiency changes in various industries. We identified six efficiency studies that focus on pure insurance M&A transactions and two further studies by Cummins and Xie (2005, 2009) in which the efficiency approach is used in combination with a standard event study approach. All eight<sup>181</sup> efficiency studies apply a non-parametric data envelopment analysis (DEA) methodology, and only Cummins and Weiss’ (2000) study uses an additional parametric approach. Further on, with the exception of Cummins and Weiss (2000) and Shim (2011a), all event studies in our sample employ Malmquist indices to measure changes in efficiency and productivity of firms over time. Geographically, the efficiency studies concentrate on transactions in the United States (three studies) or in Europe (two studies) or evaluate global transactions (one study). All studies belonging to this cluster have a particular focus on the efficiency effects of insurance M&A in the 1990s.

**Cummins and Rubio-Misas (2003)** analyze the effects of deregulation and consolidation on 548 Spanish insurance companies covering the period from

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<sup>179</sup> The “best practice” frontier consists of a dominant firm.

<sup>180</sup> For more information on the efficiency concept, see for example, Jarraya and Bouri (2013).

<sup>181</sup> Including the two related studies of Cummins and Xie (2009). The authors use a book-value sample to estimate efficiency scores and a market-value sample to conduct an event study. Subsequently, they regress the cumulative abnormal returns (CARs) from the event study analysis on the efficiency scores to measure the relationship between stock market returns and efficiency.

1989 to 1998. The authors make use of modern frontier efficiency analysis for calculating cost, technical, and allocative efficiency. Moreover, they identify changes in total factor productivity by using DEA-based Malmquist productivity index measures. Testing various hypotheses on efficiency, productivity, and insurance prices, the authors found that consolidation significantly reduced the number of firms in the Spanish insurance market, insurance prices declined, and efficiency of the involved insurance firms increased over the 10-year sample period. In addition, their results suggested that relatively inefficient and financially underperforming insurance companies were eliminated from the market, not because they were acquired, but simply because they were liquidated or filed for insolvency. On the question of whether a company should conduct an M&A transaction or not, the authors suggest that “many large firms should focus on improving efficiency by adopting best practices rather than on further growth.”

**Cummins and Weiss (2000)**, who perform an efficiency analysis of the 130 largest global reinsurance companies over the period 1992–1998, not only estimate a non-parametric frontier using data envelopment analysis (DEA) but also employ an econometric frontier model using a parametric stochastic frontier analysis (SFA). Based on both estimation methods, the authors show that the consolidation wave has, firstly, increased the capacity of the global reinsurance industry to respond to catastrophic losses, and secondly, had a positive impact on the levels of efficiency in the reinsurance market by increasing average firm size and thereby providing risk-reduction benefits of diversification. In contrast to the findings of Cummins and Rubio-Misas (2003), however, global reinsurance companies predominantly acquired inefficient and under-capitalized insurance firms,<sup>182</sup> since efficiency gains could be primarily achieved from replacing the acquired firm’s management with that of the buying reinsurance firm. Essentially, the same finding (i.e., size of a firm is negatively related to being a target because small firms are easier to acquire and integrate) and support for the corporate control hypothesis is reported by a

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<sup>182</sup> But, as noted by the authors, within this set of firms, those targets with relatively good underwriting and investment results and/or relatively low ROE risk are preferred.

study by **Cummins and Xie (2008)**, who examine firm characteristics that are associated with becoming an acquirer or a target in a US setting. Furthermore, Cummins and Xie (2008) explore the impact of M&A transactions on the efficiency and productivity of acquiring insurance firms, acquisition targets, and non-M&A insurance firms in the US property-liability insurance market by employing DEA models to calculate efficiency scores and the Malmquist productivity indices. Identifying 588 insurance transactions in the years 1994 to 2003, the authors conclude that these transactions were value enhancing in general. Besides significant gains in cost and allocative efficiency for US property-liability insurance targets (in relation to non-targets), acquiring insurers' revenue efficiency is found to be positively related to M&A activity. US insurance acquirers experience greater efficiency three years after an M&A transaction, and acquisition targets also did significantly better than non-targets in terms of cost efficiency, revenue efficiency, and total factor productivity growth.

Also investigating a US sample, **Cummins, Tennyson, and Weiss (1998)** were the first to attempt to assess the relationship between efficiency and M&A activity in the insurance industry. As almost every study of this kind, a DEA model was developed to compare the technical, cost, and revenue efficiency of acquiring and non-acquiring and acquired and non-acquired US life insurance companies. Additionally, the authors use a Malmquist index approach to gauge changes in efficiency and productivity over time. According to the authors' results, M&A transactions involving US life insurance companies led to long-term efficiency improvements during the period 1988 to 1995. Besides significant efficiency improvements of the target insurance firms, acquiring insurers also showed greater efficiency gains than their non-acquiring counterparts. These efficiency enhancements are possible through the acquisition of typically inefficient, financially vulnerable, and affiliated targets by large insurance acquirers, which restructure these inefficient target firms.

A similar approach is used by **Klumpes (2006)**, who conducts a frontier efficiency analysis of 1,680 M&A transactions in the major European insurance markets from 1997 to 2001. Non-parametric DEA is used to assess cost and revenue efficiency, and Malmquist indices are calculated to identify changes in

efficiency over time. Similar to the findings of studies of Cummins, Tennyson, and Weiss (1998), and Cummins and Xie (2008), the author provides evidence of efficiency gains for acquiring insurance firms. According to Klumpes' results, M&A activity in the major European insurance markets had a positive effect on efficiency of the target firm and on the efficiency of the acquiring insurance firm. Acquirers not only achieve greater efficiency gains than their non-acquiring counterparts, but also outperform target firms. Once again, financially vulnerable firms are found to be preferred acquisition targets.

**Shim (2011a)** also makes use of the commonly applied DEA model to estimate cost, revenue, technical, scale, and allocative efficiency of a sample of 348 transactions between US property-liability insurance companies over the period 1990–2004. Testing several hypotheses on the efficiency effects of insurance M&A, the main findings of this academic paper are: (i) overall, acquiring insurance firms' cost and revenue efficiency declined following M&A transactions; (ii) geographically focused insurance firms achieved greater cost and revenue efficiency than geographically diversified ones; (iii) insurance firms using an independent agency distribution system were less cost and revenue efficient than insurance firms using a direct marketing distribution system; (iv) mutual insurance firms were more cost efficient than stock firms; and (v) unaffiliated single firms were more cost and revenue efficient than insurance groups.

In summary, the quintessential finding of the efficiency studies reviewed is that M&A in the insurance industry are primarily driven by value-enhancing motivations<sup>183</sup> such as achieving economies of scope<sup>184</sup> and financial synergies.<sup>185</sup> Consequently, consolidation in the insurance industry has led to significant improvements in economic efficiency for targets and for acquirers. The extant literature also finds that acquirers, in general, are not significantly different from non-acquirers in terms of efficiency in the years prior to an

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<sup>183</sup> See, e.g., Cummins and Weiss (2000, p. 193), Cummins and Rubio-Misas (2003, p. 340), Cummins and Xie (2008, p. 49), and Cummins and Xie (2009, p. 150).

<sup>184</sup> See, e.g., Cummins and Xie (2008, p. 48).

<sup>185</sup> See, e.g., Cummins and Xie (2008, p. 31).

acquisition.<sup>186</sup> In contrast, financially vulnerable firms are much more likely to be acquisition targets than stronger firms. Targets typically consist of inefficient and undercapitalized firms, but at the same time, these financially weak insurers still have relatively good underwriting and investment results.<sup>187</sup> Acquiring managers believe that they are able to improve a target's efficiency after an acquisition and by these means create value for their shareholders. In fact, the reviewed efficiency studies support the view that insurance M&A lead to synergies, since the majority of studies detect higher cost and revenue efficiency gains for targets than for non-targets.<sup>188</sup> Moreover, M&A in the insurance industry have also yielded higher cost and revenue efficiency gains for the acquiring insurers.<sup>189</sup> Cummins and Xie (2005, p. 45) and Cummins and Xie (2009, p. 150) further discover that more efficient acquirers in terms of cost and revenue efficiency experience higher abnormal returns after the announcement of acquisitions. Nevertheless, Cummins and Rubio-Misas (2003, p. 350) and Cummins and Xie (2008, p. 48) provide evidence that acquiring insurance companies that become too large suffer from substantial declines in scale efficiency. In the authors' opinion, these companies should rather concentrate on improving efficiency instead of seeking further external growth possibilities.

### **3.6.3 Linkage of Event and Efficiency Analysis**

Another fairly new strand has recently emerged in the literature on the success of insurance M&A transactions (cluster 3 studies). By linking frontier efficiency with market values, this approach measures the relationship between stock market returns and efficiency and therefore combines the two most popular

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<sup>186</sup> E.g., Cummins, Tennyson, and Weiss (1998, p. 351) and Cummins and Xie (2008, p. 41).

<sup>187</sup> See, e.g., Cummins, Tennyson, and Weiss (1998, p. 346), Cummins and Weiss (2000, p. 190), Klumpes (2006, p. 24), and Cummins and Xie (2008, p. 53).

<sup>188</sup> E.g., Cummins, Tennyson, and Weiss (1998, p. 347), Cummins and Xie (2008, p. 43), and Cummins and Xie (2009, p. 149).

<sup>189</sup> See, e.g., Cummins, Tennyson, and Weiss (1998, p. 351), Klumpes (2006, p. 25), Cummins and Xie (2008, p. 49), and Cummins and Xie (2009, p. 150). In contrast, the paper by Shim (2011a) reveals that acquiring insurer's cost and revenue efficiency declined following the announcement of an M&A transaction.

methodologies.<sup>190</sup> Due to the novelty of this research design, just a few studies analyze the linkage between efficiency and market-value performance in any industry,<sup>191</sup> and only two related studies, both covering the US market, investigate this relationship in the insurance industry (Cummins and Xie, 2005, 2009).

Based on an investigation of 285 insurance M&A deals involving 180 different US acquirers during the years 1997 to 2003,<sup>192</sup> the two related papers by **Cummins and Xie (2005)** and **Cummins and Xie (2009)** assess the efficiency and market performance effects of these deals. To do this, the authors firstly calculate a firm's short-term CAR, which is obtained using the standard market model, and then apply a non-parametric DEA approach to calculate a measure of the firm's cost and revenue efficiency. Afterwards, they link these two measures by conducting a multivariate regression analysis<sup>193</sup> (as well as a univariate analysis in the 2005 version of the paper) to examine the relationship between the abnormal announcement return measures based on stock market data (event study) and the frontier efficiency scores based on accounting data (efficiency study). Assuming that a stock insurance company's primary objective lies in maximizing shareholders wealth, accounting-based frontier efficiency measures are only relevant if they meaningfully reflect the underlying market value (of the company's common shares).<sup>194</sup> Hence, Cummins and Xie test for this supposed relationship between a firm's pre-acquisition cost and revenue efficiency and its abnormal returns around the announcement date of an M&A transaction. As in all efficiency studies reported in cluster 2, the DEA technique is used to measure cost and revenue efficiency of buying insurers, target

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<sup>190</sup> More than 75% of the studies in our final literature review on the overall success of M&A transactions in the insurance industry belong to either the group of efficiency studies or the group of event studies.

<sup>191</sup> Prior studies employing this research approach focus on manufacturing firms (e.g., Wu & Ray, 2005) and the banking industry (e.g., Chu & Lim, 1998; Kohers, Huang, & Kohers, 2000; Kirkwood & Nahm, 2006; Beccalli, Casu, & Girardone, 2006; Pasiouras, Liadaki, & Zopounidis, 2007; Sufian & Majid, 2007).

<sup>192</sup> In order for a US transaction to be included in the sample, at least one of the involved transaction partners—buyer, target or seller—had to be a property-liability insurance company.

<sup>193</sup> In this regression analysis, cumulative abnormal returns serve as dependent variables, and the control variables are taken as regressors.

<sup>194</sup> Cummins and Xie (2009, p. 129).



insurers, and divesting insurers over the period 1997–2003. Additionally, a traditional event study methodology is applied to measure whether and to what extent stock markets respond to the announcement of such deals. The authors calculate announcement-period returns for each insurance firm in the sample by using the standard market model procedure with parameters estimated for a 150 trading day period starting from 31 days before announcement of the deal. Using the M&A announcement date as the event date and the event period being the 30 days before and after the announcement of the deal, they find evidence of small but statistically significant positive abnormal returns for acquirers [CARs of 0.94% in (-1;+1) and 1.19 in (-5;+5) at 5%, respectively, at the 10% level], targets [24.33% in (-1;+1) and 25.51% in (-5;+5), both at the 0.1% level] and divesting insurers [1.31% in (-1;+1) at the 10% level].<sup>195</sup> In addition, in their 2005 paper, Cummins and Xie detect that the US insurance transactions enhance combined-firm shareholder wealth, as they find significant positive CERs of 2.17%, 3.36%, and 3.71% in the event periods (0;0), (0;+1), and (-1;+1), respectively. The authors also provide evidence for the corporate control theory by detecting higher abnormal returns for acquirers with higher cost and revenue efficiency, suggesting that the market expects more efficient insurers to be more likely to realize gains and successfully operate the combined entity. Consequently, insurance M&A are primarily driven by value maximization motives of acquiring firms' management, and hence the efficiency of acquirers improves significantly following a transaction. The findings by Cummins and Xie (2005) and Cummins and Xie (2009) further suggest that relative larger acquisitions result in higher value gains for the acquiring firm, and acquirers that engage in multiple transactions per year experience significantly lower value gains, respectively.

#### **3.6.4 Event Analysis**

A last strand of the insurance M&A literature is comprised of event studies, which investigate post-merger stock market reactions of acquirers, targets, or the combined entity (cluster 4 studies) to the announcement of M&A deals.

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<sup>195</sup> Note that the individual results of this event study will be presented in more detail in Section 3.7, which exclusively deals with previous event study findings on the overall success of insurance M&A.

Hence, these studies use market data to evaluate the short-, medium-, and long-run effects of M&A activities on firm performance. The purpose of such event studies is to determine whether or not M&A transactions induce abnormal stock-return patterns.<sup>196</sup> With eight studies applying this approach [plus two additional studies by Cummins and Xie, (2005, 2009) in which an event study is linked to an efficiency study], the event study methodology is the most commonly used approach in our sample as well as in the extant M&A literature.<sup>197</sup> As a result of the predominance of this approach, as well as the fact that we also base our own analysis on capital market data, we will put special focus on studies that apply event study methodology.

Most event studies in (insurance) M&A research conduct short-term analyses focusing on abnormal stock returns around the announcement of an M&A transaction. Six out of the eight event studies in our final sample investigate the short-term stock market reaction following the announcement of an M&A deal (Akhigbe & Madura, 2001; Floreani & Rigamonti, 2001; Cummins & Weiss, 2004; Elango, 2006; Schertzing, 2008; Staikouras, 2009). In particular, all the short-term studies employ the cumulative abnormal return model, with the majority of these publications<sup>198</sup> using the standard market model as a benchmark. The significance of abnormal return measures, as well as the significance of the difference between abnormal returns, is assessed using either parametric (Akhigbe & Madura, 2001; Cummins & Xie, 2005; Elango, 2006; Staikouras, 2009; Cummins & Xie, 2009), or both parametric and non-parametric statistical tests (Floreani & Rigamonti, 2001; Cummins & Weiss, 2004; Schertzing, 2008). The short-term event studies in our final sample assess the influence of acquisitions on acquiring, target, and merged firms' stock prices around the announcement day and also until several days after the acquisition. The event window of the investigated studies reaches from a minimum of the day of announcement (see, e.g., Floreani & Rigamonti, 2001; Schertzing, 2008; Staikouras, 2009) to a maximum of 40 days before to 40

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<sup>196</sup> Peterson (1989, p. 36), McWilliams and Siegel (1996, p. 626), and Boesecke (2009, p. 88).

<sup>197</sup> Ravenscraft and Scherer (1988, p. 36).

<sup>198</sup> BarNiv and Hathorn (1997), Akhigbe and Madura (2001), Cummins and Weiss (2004), Elango (2006), Schertzing (2008), and Staikouras (2009).

days after the announcement of the transaction (see Floreani & Rigamonti, 2001). Typically, however, the event horizon is between one and 10 days before and one and 10 days after the announcement (see, e.g., Floreani & Rigamonti, 2001; Cummins & Weiss, 2004; Schertzing, 2008; Staikouras, 2009). In contrast to the numerical superiority of short-term studies, medium-term effects are only estimated in the research paper of BarNiv and Hathorn (1997), and long-term value creation is analyzed in two studies (Boubakri, Dionne, & Triki, 2006; Schertzing, 2006). All three studies perform event analyses, though similar to the procedure in short-term event studies, only BarNiv and Hathorn (1997) rely on the cumulative abnormal return methodology for estimating the medium-term effects of insurance M&A.

Furthermore, as in short-term studies, they also estimate abnormal returns (in the interval  $-250$  through  $+250$  days around the day of acquisition) by using the standard market model procedure with parameters estimated for the period 500 days to 251 days before the effective day of the M&A deal. On the contrary, Boubakri, Dionne, and Triki (2006) and Schertzing (2008) employ a buy-and-hold abnormal return measurement metric to gauge long-run performance effects (up to three years) of insurance M&A. Refer to Table 12 for a brief summary on the different specifications of the event study methodology in previous studies. With the exception of a few empirical studies in our sample, most of the authors<sup>199</sup> use the announcement date of the M&A deal, which is defined as the day the M&A transaction is officially released to the general public, as the relevant event date for conducting their study. Only the two papers by BarNiv and Hathorn (1997) on medium-term effects and the short-term study of Cummins and Weiss (2004) define the event date as the effective merger and acquisition date, respectively. It is clear, especially in short-term studies, that the choice of the event date has a strong impact on the results and hence should be carefully determined. Differences in the determination of the event date could, accordingly, cause differences in the findings regarding the

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<sup>199</sup> Akhigbe and Madura (2001), Floreani and Rigamonti (2001), Elango (2006), Schertzing (2008), and Staikouras (2009). Boubakri, Dionne, and Triki (2006) use the year in which the transaction was announced as their reference date.

effects on M&A deals.<sup>200</sup> With respect to benchmark construction, Schertzing (2008) applies the control firm approach,<sup>201</sup> whereas Boubakri, Dionne, and Triki (2006) make use of a simple S&P 500 index as the benchmark.

Additionally, Schertzing (2008) also uses the calendar-time portfolio regression approach based on the Fama-French-Three-Factor model to test the three-year stock price performance of European insurance firms involved in M&A activities. The statistical significance of the abnormal returns associated with the announcement of these M&A activities, as well as the significance of difference between abnormal returns, is tested by Schertzing (2008) using a conventional t-statistic, while Boubakri, Dionne, and Triki (2006) unfortunately do not provide sufficient information on the test statistic that is used in their paper to evaluate statistical significance. All the event studies also conduct empirical investigations on the several factors that determine the success of insurance transactions. The individual research papers evaluate the influence of each of the various determinants by either conducting univariate tests<sup>202</sup> or multivariate analyses<sup>203</sup> or by adopting both approaches.<sup>204</sup> Similar to the efficiency studies in our analysis, the geographical foci of the various event studies include the United States (four studies) and Europe (two studies) and a global sample (two studies). Hence, half the event studies in our final sample center their attention on US acquirers (and targets, e.g., Akhigbe & Madura, 2001; BarNiv & Hathorn, 1997),<sup>205</sup> while others such as Cummins and Weiss (2004) and Schertzing (2008) place their focus on the European insurance market. The two remaining studies in this group (Floreani & Rigamonti, 2006; Staikouras, 2009) investigate the overall wealth effects of M&A in an international context by also including European and Australian insurers as well as insurers from other countries.

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<sup>200</sup> See, e.g., Kerler (1999, p. 101).

<sup>201</sup> Schertzing (2008) selects control firms based on their firm size (the market value of common equity) and book-to-market ratio (defined as book value of common equity divided by the market value of common equity).

<sup>202</sup> See, e.g., Cummins and Weiss (2004).

<sup>203</sup> See, e.g., Elango (2006).

<sup>204</sup> See, e.g., Boubakri, Dionne, and Triki (2006).

<sup>205</sup> BarNiv and Hathorn (1997), Akhigbe and Madura (2001), Boubakri, Dionne, and Triki (2006), and Elango (2006).

The sample sizes differ substantially between event studies, varying from just over 50 transactions<sup>206</sup> to over 175 transactions<sup>207</sup> and to a maximum of 499 transactions in Cummins and Weiss (2004). Differences between the studies also exist in relation to the specific time span of investigation, that is, the years in which the sample transactions were obtained. Two of the academic papers in this strand of the literature (BarNiv & Hathorn, 1997; Akhigbe & Madura, 2001) include transactions conducted as early as in the fourth M&A wave, which started in the early 1980s and ended in the late 1980s. While the study of BarNiv and Hathorn (1997)<sup>208</sup> only includes transactions that took place in the fourth M&A wave and in the aftermath of it, Akhigbe and Madura's (2001)<sup>209</sup> sample comprises M&A deals conducted during the fourth (1981–1989) and also the fifth M&A wave (1993–2000). The bulk of the event studies, however, include transactions that occurred either during the fifth<sup>210</sup> or during the fifth and sixth M&A wave (2003–2008)<sup>211</sup>. As explained earlier in Section 2.2.5, each M&A wave is characterized by unique and different motives, which might result in inconsistent estimates of the relationship between insurance M&A activity and firms' performance.<sup>212</sup>

In summary, it can be stated that even though the basic event study methodology is somewhat standardized across studies, there are various

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<sup>206</sup> With a minimum of 51 transactions analyzed in the study by Staikouras (2009); Elango (2006) investigates 52 transactions, and Floreani and Rigamonti (2008) 56 transactions.

<sup>207</sup> The sample sizes in the studies by Schertzing (2008) and Boubakri, Dionne, and Triki (2006) are 176 and 177, respectively.

<sup>208</sup> The time span of the study by BarNiv and Hathorn (1997) reaches from the year 1984 up to 1992.

<sup>209</sup> Akhigbe and Madura (2001) regard transactions conducted between 1985 and 1996.

<sup>210</sup> Studies by Floreani and Rigamonti (2001), Cummins and Weiss (2004), and Boubakri, Dionne, and Triki (2006).

<sup>211</sup> Studies by Elango (2006), Schertzing (2008), and Staikouras (2009).

<sup>212</sup> See, e.g., Martynova and Renneboog (2005, p. 7), Wuebben (2007, p. 28), and Picot (2012, p. 50).

differences with regard to event window length,<sup>213</sup> tests for significance,<sup>214</sup> benchmark construction,<sup>215</sup> sample characteristics,<sup>216</sup> and so on.

**Table 11: Methodology of prior event study research on the value effects of insurance M&A**

Abnormal Return Model				
Author	Measurement of AR	Benchmark Construction	Test for Significance	Time Horizon
Cummins and Xie (2005)	CAR (s-t), CER (s-t)	Standard market model; estimation period (-180;-31)	Patell Z-statistic; Boehmer et al. SCS Z-statistic; t-statistic; Cowan generalized sign statistic	Various in (-30;+30)
Cummins and Xie (2009)	CAR (s-t)	Standard market model; estimation period (-180;-31)	Patell Z-statistic; Boehmer et al. SCS Z-statistic; t-statistic; Cowan generalized sign statistic	Various in (-30;+30)
Akhigbe and Madura (2001)	CAR (s-t), CER (s-t)	Standard market model; estimation period (-220;-20)	t-statistic	Various in (-11;+10)
BarNiv and Hathorn (1997)	CAR (m-t)	Standard market model; estimation period (-500;-251)	t-statistic	(-250;+250)
Boubakri, Dionne, and Triki (2006)	BHAR (l-t)	S&P 500 BHAR 3-year	(not explicitly stated)	(0;+750)
Cummins and Weiss (2004)	CAR (s-t)	Standard market model; estimation period (-250;-30)	t-statistic on standardized CARs; Cowan generalized sign statistic	Various in (-15;+15)
Elango (2006)	CAR (s-t)	Standard market model; estimation period (-247;-2); Combination of NYSE and AMEX composite index as well as NASDAQ insurance index	t-statistic	Various in (-1;+20)
Floreani and Rigamonti (2001)	CAR (s-t), CER (s-t), BHAR (s-t)	Daily value-weighted average of DataStreamlife insurance world (DSLIFEWD) and DataStream insurance world (DSINSWD)	t-statistic; Wilcoxon sign statistic	Various in (-40;+40)
Schertzing (2008)	CAR (s-t), CER (s-t), BHAR (l-t), CTAR (l-t)	Standard market model; estimation period (-270;-21); Control firm approach; Fama- French-Three-Factor model	t-statistic; Cowan generalized sign statistic; Wilcoxon sign statistic	Various in (-20;+20); Various in (0;+750)
Staikouras (2009)	CAR (s-t)	Standard market model; estimation period (-241;-41)	t-statistic	Various in (-40;+40)

<sup>213</sup> It is unclear what event period is most preferred. Event windows vary substantially from a low of (0;0) (Floreani & Rigamonti, 2001; Cummins & Xie, 2005; Schertzing, 2008; Staikouras, 2009) to a high of (0;+750) days (Boubakri, Dionne, & Triki, 2006; Schertzing, 2008), and the selected window might often influence the results in a strong way.

<sup>214</sup> Various parametric as well as non-parametric tests evaluate the significance of the calculated abnormal returns.

<sup>215</sup> Even though benchmarks, against which the abnormal returns are evaluated, range from single firms, reference portfolios, to multi-factor regression models, the standard market model is the most commonly used benchmark model in our sample (in six out of eight event studies).

<sup>216</sup> Sample sizes range from 51 (Staikouras, 2009) to 177 transactions (Boubakri, Dionne, & Triki, 2006).

Investigating a sample of 88 transactions involving US insurance companies in the period 1985–1996, **Akhigbe and Madura (2001)** evaluate the short-term stock market reaction of acquiring, target, and rival insurance companies subsequent to the announcement of an M&A transaction. Their results indicate that not only the companies directly involved in the transaction (i.e., acquirers and target insurance firms) but also rival insurance firms experience positive price reactions to acquisition announcements.<sup>217</sup> These positive intra-industry effects are stronger for rival firms that have similar size and are located in the same region, which provides evidence for the signaling hypothesis (i.e., that rival insurance companies could also be undervalued or that rival insurance companies could create additional value through future M&A initiatives). Also, rival insurance firms show small positive returns—with a CAR of 0.40% in (-1;0) with a significance level of 5%—in response to acquisitions of their rivals, and insurance acquirers and their targets earn a positive and significant CAR of 2.21% and 20.78%, respectively, in (-1;0), with both significance levels at 5%. Consequently, the combined announcement return of acquirer and target is also significant positive, with a CAR of 13.11% in (-1;0), once again significant at the 5% level. An additional multivariate analysis revealed that acquirers' CARs are higher for non-life acquirers compared to life acquirers. Furthermore, the authors find that the market perceives acquisitions of publicly traded targets less favorable, whereas the form of payment and relative size of the target are not significantly related to the post-M&A performance.

In an earlier study, **BarNiv and Hathorn (1997)** investigate whether accounting and financial information can explain M&A or insolvency decisions in the US property-liability insurance industry during the years 1984–1992. Considering a medium-term horizon, they detect that acquirers in distressed insurers' earnings are significantly negative [with an outlier-driven CAR of -138.63% in (-250;+250) at the 10% level] or insignificantly positive CARs [CAR of 4.57% in (-250;+250)] in the year following the acquisition. Hence, the authors conclude that these deals are primarily motivated by the self-interest of the acquirer management or

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<sup>217</sup> Note that the individual results of this as well as all other event studies will be presented in more detail in section 3.7, which exclusively deals with previous event study findings on the overall success of insurance M&A.

by managerial hubris and are particularly promoted by regulators. Acquirers of financially sound insurers are found to have insignificantly positive CARs of 8.26%, 7.95%, or 15.23% in (-250;+250), depending on the methodology chosen. Regarding the performance effects of target firms, the authors detect a positive and significant CAR of 42.61% in (-250;+250) at the 1% level for distressed targets, while financially sound targets experience only insignificantly positive or negative CARs (of 6.04%, -7.44%, or -2.10%, depending on the model used). Even though typical targets are less distressed companies, small in size, and therefore less risky, BarNiv and Hathorn (1997) emphasize that for some insurers who experience financial problems, M&A takeovers may serve as a better alternative than potential insolvency, especially in the insurance industry.

**Boubakri, Dionne and Triki (2006)** also concentrate on M&A transactions in the US property-liability insurance sector by investigating a large sample of 177 transactions between 1995 and 2000. Being one of the few studies investigating the long-term performance of insurance M&A, they primarily focus on the wealth effects for acquiring firms' shareholders. Their results show that acquirers experience positive and significant long-term BHARs of 57.3% after three years, and thus M&A activities involving only insurers create value for the acquiring firm in the long run. Univariate and multivariate regression analyses showed that these positive BHARs are positively related to countries with higher investor protection and number of board independents, greater CEO independence, longer CEO tenure, and more newly nominated directors on the board, focusing transactions, tender offers, and frequent acquirers. Some other determinants are found to be negatively related to the performance, namely CEO and blockholders' ownership.

**Cummins and Weiss (2004)** use data from 535 Western European acquirers and 165 targets in the 1990–2002 period to address the question of whether or not European insurance M&A activity is beneficial to acquiring and target firms' shareholders. To answer this question, the authors study acquiring and target firms' short-term CARs around M&A announcement. Even though their study is not strictly confined to insurance acquirers, the major focus lies on insurance



acquisitions, with 1,492 out of 1,669 transactions undertaken by insurance corporations.<sup>218</sup> The results show that these deals result in small and mostly insignificant negative returns (not larger than -0.4%) for acquiring firms. Cummins and Weiss (2004) do not perform a multivariate regression; however, an additional univariate analysis of a subsample of transactions resulting in a change in control created significant negative CARs for acquiring firms with up to -1.02% in the period (-15;+15) at the 0.1% level. Dividing into cross-border and domestic (within-country) M&A, the univariate cross-sectional model showed that cross-border transactions were value neutral for acquirers, while within-border deals led to small but statistically significant value losses (of approximately -0.5%). Targets, however, generated positive and significant CARs, with a maximum of 8.85% in (-15;+15) at a 1% significance level.<sup>219</sup> Targets' value gains from domestic transactions are generally greater than those for cross-border deals. Even though not explicitly tested in their paper, positive CERs are therefore most likely to occur especially for cross-border deals (which are value neutral to acquirers and value enhancing for target firms).

**Elango (2006)** also puts acquirers' reaction to M&A activities into the focus of his academic work. In his 2006 paper, Elango provides evidence on whether 52 international acquisitions undertaken by US insurance firms between 1997 and 2003 created value for acquiring companies' shareholders by analyzing the stock price impact of these events on acquiring firms' stock prices. The results of his traditional event study indicate that these transactions in general do not lead to any change in shareholder wealth. Analyzing the share prices of acquiring firms during several different announcement periods (with a maximum period of one day prior to and 20 days after the announcement), the author finds that insignificant negative short-term market returns vary between -0.43% and -1.27%. Hence, he draws the conclusion that international acquisitions by

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<sup>218</sup> According to the North American Industrial Classification System (NAICS) codes, the various insurance corporations can be classified into the broad categories "life direct (524113)," "P&C direct (524126)," "insurance agents (525190)," and "other direct insurance (524128)."

<sup>219</sup> A further investigation of a subsample of transactions resulting in a change in control even showed more positive CARs for target firms (in the range of 10% to 17%).

US insurance companies, on average, were value neutral during the period 1997–2003. Furthermore, using a multivariate regression model, the paper investigates how these returns are affected by the location of the target insurers. It is found that short-term abnormal returns are positively related to the two country characteristics, degree of wealth of the target country and the amount of trade relationship between the target and acquirer country. On the other hand, acquiring insurers suffer negative returns when acquisitions are made in countries with greater differences in culture, environment, economics, legal systems, politics, and geographic distance.<sup>220</sup>

**Floreani and Rigamonti's (2001)** paper investigates the financial consequences of 56 insurance M&A transactions taking place in Europe, the US and Australia over the five-year period 1996–2000. The authors compute abnormal returns as buy-and-hold market excess returns and use various indices, including subindustry indices, for life and non-life as a benchmark for performance assessment. The results show that insurance M&A create value in the short run as acquirers [CAR of 3.65% in (-20;+2) significant at the 1% level], target firms [CAR of 18.22% in (-20;+2) at the 0.1% level and with a maximum CAR of 18.80% in (-40;+40) at the 0.1% level], and as combined firms [CER of 5.27% in (-20;+2) at the 0.1% level], and all show positive and mostly significant abnormal returns, regardless of the event window over which they are measured. With respect to determinants of value creation, the authors draw several conclusions based on univariate and multivariate regression analyses. In their event study of pure insurance companies, they outline that acquirers' performance is positively related to the relative size of the deal. This result is obvious since M&A are found to be value-enhancing events and the positive effect will be greater the larger the relative size of the target to the acquirer. Cross-border transactions within Europe, which are probably perceived as a defensive strategy and thereby not rewarded by the market, are found to be value destructing for the acquirer, whereas cross-border world deals by European acquirers are value enhancing. Regarding the industry segment in

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<sup>220</sup> These various differences can be summarized under the generic term "liability of foreignness" (see, e.g., Zaheer, 1995, p. 341; Calhoun, 2002, p. 301; Elango 2006, p. 406).

which the acquirer does business, the authors suggest focusing mergers on average yield in higher returns compared to deals in which bidder and target operate in different businesses. This may be due to the fact that insurance companies are able to gain from the benefits of diversification even “when their merging partners operate in the same business segment, since actuarial risks are predominantly diversifiable.”<sup>221</sup> One last finding in this paper is that stock payment, which is found to be primarily used in acquisitions of large targets, did not lead to a decrease in value for the acquiring insurance firm.

While **Schertzing** (2008) (just like the majority of the insurance M&A literature) investigates the short-term announcement effects of M&A transactions in the insurance sector by calculating cumulative abnormal returns, he also performs a long-term analysis using the buy-and-hold abnormal returns methodology and the calendar-time approach. In his analysis of 176 transactions by European insurance companies in the period 1990–2005, Schertzing (2008) provides statistically reliable evidence for short-term shareholder value creation in insurance M&A. Target CARs are not only found to be positive and significant in all analyzed event windows, with a maximum CAR of 14.02% in (-20;+20) at the 1% significance level, but also the combined short-term CERs of target and acquirer are positive and significant on most analyzed event windows [CARs of 1.22% in (-5;0) at the 10% level, 1.45% in (0;+10) at the 5% level, and a maximum CER of 2.06% in (-10;+10) at the 10% level]. Acquirers’ abnormal returns, however, are insignificant in all event windows except for the period (- 2;+2), in which the author finds a small negative and significant CAR of -0.93% (significant at the 10% level). The analysis of long-term value creation, however, does not draw such a positive picture of the success of insurance M&A. In the long-term window, the author finds negative and significant BHARs of -4.73% and -9.98% on a one- and two-year horizon, respectively. Also, the acquirer BHAR three years after conducting an M&A underperformed a control firm benchmark matched by size and book-to-market ratio by -6.57%. Similarly, when applying the calendar-time abnormal return (CTAR) approach, the relationship between acquirers’ financial

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<sup>221</sup> Floreani and Rigamonti (2001, p. 13).

performance and M&A activity is negative but insignificant, with a CTAR estimate of about -0.40% per month. Schertzinger additionally computes the total value generation of the considered transactions. Interestingly, despite negative BHARs in all analyzed long-term event windows, these M&A deals generated a total net value of over USD 20 billion for investors of the involved acquirers, which is equivalent to a value creation of about USD 130 million per deal. Since only 49% of the deals resulted in value improvements, the author consequently concludes that “the overall positive effect is mostly driven by a slightly higher average value generation of successful deals (USD 4.6 bn) compared to unsuccessful deals (USD -4.1 bn).”<sup>222</sup> In a following multivariate analysis on the determinants of abnormal returns four determinants—namely acquirers’ transaction experience, timing of transaction, geographical and industry focus, and acquirers’ growth—are found to have significant influence on the combined entity performance. The variable for acquirers’ transaction experience is only positive related to long-term performance for acquirers without any transaction experience and for most experienced acquirers. Hence, successful acquirers have either not been active in the M&A market at all or have been specializing on external growth. On the other hand, acquirers conducting only a few transactions perform significant worse than the former two groups of acquirers. The determinant for geographical and industry focus is found to be negatively related to acquirers’ stock market performance in the short run. In the long-term analysis, however, a full-focusing or full-diversifying strategy is expected to result in better performance. A further determinant having a significant influence on the long-term performance is growth of the acquirer. The author detects significant positive long-term BHARs for strongly growing insurance acquirers than for weaker growing acquirers. With respect to the timing of the transaction, the authors find acquisitions during upswing, peak, or downturn phases of the M&A cycle to be more value generating in the short run, while in the long run, only downturn and bottom phase mergers generated value. BHARs during the market upswing (-15.3% after one year) and the peak

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<sup>222</sup> Schertzinger (2008, p. 132).

(-13% after two years) are significant negative.<sup>223</sup>

**Staikouras (2009)** also investigates the effects of M&A transactions on shareholder wealth in a relatively small global sample of 51 transactions conducted during 1990 and 2006. Nevertheless, this study differs from the above-mentioned papers in the sense that the author does not include pure insurance transactions. His analysis is instead confined to investigating bank-insurance combinations.<sup>224</sup> Staikouras (2009), who solely focuses his analysis on short-term value effects of acquiring firms' shareholders, detects positive and significant CARs<sup>225</sup> for the overall global sample of bank-insurance combinations, but when the sample is separated into insurance and bank bidders, a clearer picture is provided. Bank bidders are found to earn significant positive returns,<sup>226</sup> while their insurance counterparts experience significant losses<sup>227</sup> in the short run when buying a bank. Consequently, when insurance companies engage in M&A activities, there will most likely be a negative stock price impact on insurance bidders' shares. Moreover, the results of the author's multivariate analysis indicate that the size of the deal—that is, the relative value of the target as well as the profitability—when measured as return on equity (ROE), is positively related to the abnormal returns, while diversifying deals do not create value for shareholders.

### 3.6.5 Summary

After providing a detailed review of previous empirical studies investigating the overall short-term, medium-term, and long-term performance of insurance M&A

<sup>223</sup> The author receives these results in a univariate descriptive analysis on major cross-sections, which is conducted following the multivariate analysis.

<sup>224</sup> This includes the case of banks acquiring insurers (bancassurance transactions) and insurers acquiring banks (assurancebank transactions).

<sup>225</sup> For example, positive significant excess returns via the market index of 1.01%, 1.03%, 0.83%, 1.23%, and 0.97% in the event periods (-5;0), (-3;+1), (0;+1), (-1;+1), and (-2;+2), respectively, are reported by the author. Some positive excess returns via the industry index of 0.74%, 0.62%, 0.55%, and 0.73% are found in the periods (-5;0), (-2;+1), (0;+1), and (-3;+3), respectively. Even for all other periods, excess returns via the market and industry index are slightly positive, however insignificant.

<sup>226</sup> With a maximum excess return of 2.11% in (-1;+1) at the significance 2% level.

<sup>227</sup> E.g., significant negative excess returns via the market index of -2.29%, -2.20%, -2.37, and -1.97% in (-4;+1), (0;+1), (0;+5), and (-1;+1) and significant negative excess returns via the industry index of -2.10%, -1.87%, -1.72%, -2.20%, and -2.03% in (-5;+1), (0;+1), (0;+5), (-1;+1), and (-4;+4).

transactions, and their respective findings, it becomes clear that there is considerable variation, not only in the findings of these various studies, but also in the research design (i.e., in the measurement of performance and efficiency, benchmark construction, sample selection and size, time span under investigation, and duration of the event window). These differences in the research design are very likely to be major influencing factors in determining the success of the individual M&A transactions. Based on our review, together with the identical findings of Schoenberg (2006)<sup>228</sup> and Meglio and Risberg (2010),<sup>229</sup> we can postulate that inconsistent and contradictory findings in the available insurance M&A research might be due to differences in the research design and hence success metrics. This hypothesis will be examined in the following.

### **3.7 Review and Results of Prior Capital Market Research on the Overall Success of Insurance M&A**

To test the above-formulated hypothesis, we will narrow the focus of our further analysis exclusively to academic papers relying on capital market data, that is, event studies, and thereby analyze the success of insurance M&A from the viewpoint of insurance firms' shareholders. We chose to concentrate on insurance M&A literature that applies the capital market approach rather than on any of the other previously described approaches for three reasons: 1) as described in Section 2.3.2, from a theoretical point of view, the financial statement-based approach and the capital market-based approach can be

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<sup>228</sup> Schoenberg (2006) investigates the comparability of four measures of M&A performance, namely cumulative abnormal returns, divestment data, and managers' and expert informants' subjective assessments. The author concludes his comparison with the following assessment "[W]ith the exception of a positive relationship between managers' and expert informants' subjective assessments, there was no comparability between the performance data generated by the alternative metrics. These results highlight the dangers inherent in comparing studies that have employed different performance measures. This may help to explain some of the conflicting conclusions reported in the literature examining the antecedents of acquisition performance" (p. 11).

<sup>229</sup> "It does not make sense, in the name of a generic performance, to compare CAR—which is a prediction of possible future company performance—with accounting measures—which are measures of historical performance—with management perceptions—which, besides being historical, usually depict non-measurable aspects. The different measures all say something about the performance of the M&A, but they are different stories told for different audiences, often by different narrators" (cf. Corvellec, 1997; Meglio & Risberg, 2010, p. 91).

regarded as the only appropriate methods for analyzing the success of M&A as well as for drawing reliable and general conclusions and recommendations; 2) as discussed in Section 2.3.2.5, when analyzing the success of M&A conducted by insurers operating in different lines of business and by insurers from different countries (and hence differing national accounting standards), the capital market-based approach is the only suitable approach for comparing these diverse insurance acquirers; and 3) the majority<sup>230</sup> of studies in our final sample utilize capital market data.

In order to obtain as accurate a picture as possible, the various findings of prior academic research are differentiated by the main parties involved in the transaction and the time horizon of analysis. The separation into short-term, medium-term, and long-term results enables us to identify whether the effects of insurance M&A depend on the time horizon of the analysis. Moreover, based on the insurance-specific observations of Schertzinger (2008), as well as on recent findings from other industries<sup>231</sup> that value creation from M&A differs substantially across the various continents of the world (and even from one country to another, as specified by Boesecke, 2009), the results are presented by geographic region, that is, in the United States and Europe and worldwide.

In brief, all reviewed event studies in our final sample analyze the effect of M&A transactions on the returns to the acquirer. The effect to the target<sup>232</sup> or specifically to the combined entity,<sup>233</sup> in contrast, is only examined by some of the studies.<sup>234</sup> A definite answer to the question of whether an M&A deal is value enhancing or not, however, can only accurately be given when the effect to the combined entity, that is, the total change in shareholder wealth, is calculated. Hence, this overall economic effect of an M&A transaction, which is the result of the value-weighted<sup>235</sup> sum of acquirer and target abnormal returns,

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<sup>230</sup> 10 out of the 19 reviewed studies.

<sup>231</sup> E.g., the utility industry, which is analyzed in the dissertation of Boesecke (2009).

<sup>232</sup> Target wealth effects are examined by six out of nine event studies reviewed.

<sup>233</sup> Only four event studies analyze the combined effects of target and acquirer.

<sup>234</sup> This shortcoming is due to the need to be listed for both acquirers and targets to calculate the total return for the combined entity.

<sup>235</sup> Measured either by total assets, equity capital, or market capitalization.

has to be examined from an aggregate perspective. By this procedure, the investigator is able to mitigate a possible wealth transfer effect from the acquirer shareholders to the acquired ones, which cannot be measured by studies conducting only separate analyses of the merged firms. Nevertheless, one might argue that the performance effect of M&A deals to acquirer shareholders might be of particular interest, since such transactions should be primarily motivated by the desire to increase the acquiring firm's shareholder wealth.<sup>236</sup> Moreover, Bamberger (1994, p. 109) explains that target firms' share price increases in response to M&A announcements ultimately conflict with the interests of acquiring firms' shareholders, as they will have to pay higher prices for buying the target firms. Based on this argumentation, financial success of such deals has to be assessed from the perspective of acquiring firms' shareholders and hence is solely determined by the value creation for shareholders of the acquiring firms.<sup>237</sup>

The results of previous event studies concerning the overall wealth effects of M&A transactions in the insurance industry are summarized in Table 13.

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<sup>236</sup> See Floreani and Rigamonti (2001, p. 2).

<sup>237</sup> See also Section 2.3.2.2.1 and the annotations therein.



**Table 12: Findings of prior event study research on the value effects of insurance M&A**

Author	Sample Region	Measurement of AR	Time Horizon	Event Window	Acquirers' Wealth Effects	Targets' Wealth Effects	Combined Wealth Effects	
Cummins and Xie (2005)	US	CAR (s-t), CER (s-t)	Various in (-30;+30)	(-1;+1)	0.94%**	24.33%***	3.71%***	
				(-5;+5)	1.19%*	25.51%***		
				(-10;+10)	0.27%	27.15%***		
				(-15;+15)	0.50%	30.21%***		
				(0;0)	0.15%	8.57%***		2.17%\$
				(0;+1)	0.87%***	23.35%***		3.36%*
				(0;+1)	0.87%***	23.35%***		
Cummins and Xie (2009)	US	CAR (s-t), CER (s-t)	Various in (-30;+30)	(-1;+1)	0.94%**	24.33%***	3.71%***	
				(-5;+5)	1.19%*	25.51%***		
				(-10;+10)	0.27%	27.15%***		
				(-15;+15)	0.50%	30.21%***		
				(0;0)	0.15%	8.57%***		2.17%\$
				(0;+1)	0.87%***	23.35%***		3.36%*
				(0;+1)	0.87%***	23.35%***		
Akhigbe and Madura (2001)	US	CAR (s-t), CER (s-t)	Various in (-11;+10)	(-1;0)	2.21%*	20.78%*	13.11%*	
				(+1;+10)	-0.23%	2.28%	2.00%	
BarNiv and Hathorn (1997)	US	CAR (m-t)	(-250;+250)	(-250;+250)	Distr. targets: 4.57%, 4.57%, -138.63%\$; Fin. sound targets: 8.26%, 7.95%, 15.23%			
Boubakri, Dionne, and Triki (2006)	Acquirer US; target global	BHAR (l-t)	(0;+750)	(0;+750)	57.3%			
Cummins and Weiss (2004)	Western Europe	CAR (s-t)	Various in (-15;+15)	(-1;+1)	-0.14%	3.88%***		
				(-10;+10)	-0.29%	6.87%***		
				(-15;+15)	-0.38%	8.85%***		
				(0;+1)	-0.17%*	2.96%***		
				(0;+2)	-0.31%*	2.80%***		
				(0;+5)	-0.30%	2.48%***		
				(0;+15)	-0.20%	3.94%***		
Elango (2006)	Acquirer US; target global (except US)	CAR (s-t)	Various in (-1;+20)	(-1;+1)	-0.51%			
				(-1;+2)	-0.41%			
				(-1;+5)	-0.28%			
				(-1;+10)	-0.22%			
				(-1;+20)	-0.30%			
				(-1;+20)	-0.30%			
Floreani and Rigamonti (2001)	US, EU, AU	CAR (s-t), CER (s-t), BHAR (s-t)	Various in (-40;+40)	(-1;-1)	0.68%*	2.26%	1.21%*	
				(-10;+10)	2.27%\$	16.07%***	3.75%**	
				(-20;+20)	2.64%\$	17.42%***	4.26%**	
				(-40;+40)	3.40%	18.80%***	5.06%\$	
				(-20;+2)	3.65%**	18.22%***	5.27%***	
				(0;0)	0.65%	3.97%	0.18%	
				(0;0)	0.65%	3.97%	0.18%	
Schertzinger (2008)	Acquirer EU-25, CH or NO; target global	CAR (s-t), CER (s-t), BHAR (l-t), CTAR (l-t)	Various in (-20;+20); Various in (0;+750)	(-1;+1)	-0.21%	9.38%***	0.87%***	
				(-10;+10)	0.47%	13.82%***	2.06%*	
				(-20;+20)	0.25%	14.02%***	1.69%	
				(0;0)	-0.09%	6.26%***	0.61%***	
				(0;+1)	-0.19%	7.80%***	0.64%***	
				(0;+2)	-0.68%	8.73%***	0.41%*	
				(0;+5)	-0.77%	9.62%***	0.46%	
				(0;+20);	0.24%;	9.92%***	1.23%*	
				(0;+250)	-4.73%\$			
				(0;+500)	-9.98%*			
				(0;+750)	-6.57% (BHAR)			
					-0.39% (pm CTAR)			
Staikouras (2009)	Global	CAR (s-t)	Various in (-40;+40)	(-1;0)	-0.78%			
				(-1;+1)	-2.20%*			
				(-10;+10)	-0.34%			
				(-20;+20)	0.77%			
				(0;0)	-0.45%			
				(0;+1)	-1.87%*			
				(0;+2)	-1.86%*			
				(0;+5)	-1.72%*			
(0;+20)	-1.22%							

### 3.7.1 Acquiring Firm Stockholder Returns

#### 3.7.1.1 Short-Term Results

In general, short-term event studies that focus on abnormal stock returns around the announcement of M&A transactions find varying results concerning the effects on acquiring insurers' stock returns. While some studies<sup>238</sup> detect a positive reaction of the acquiring firms' stock prices to the acquisition announcement, other studies<sup>239</sup> find small non-significant or even significant negative CARs around the announcement date. Floreani and Rigamonti (2001) and Cummins and Xie (2009), for example, detect strong positive CARs of 0.68% and 0.94% in the event window (-1;+1), respectively, whereas Staikouras (2009) finds a significant negative CAR of -2.20% in the same event window. However, as already indicated by Schertzing (2008), the "findings of US-focused studies may not apply for European markets."<sup>240</sup> Therefore, to get a more consistent view of acquirers' short-term valuation effects, we further subdivide these research papers into event studies analyzing European, US, and global M&A transactions.

Only the two studies by Cummins and Weiss (2004) and Schertzing (2008) exclusively focus on bidders from Europe. Both papers predominantly detect small negative short-term abnormal returns for insurance firms conducting M&A transactions.<sup>241</sup> This almost uniformly negative relationship between insurance transactions and acquiring firms' short-term stock performance suggests that insurance M&A activity, on average, is not perceived by the market as a value-enhancing event for acquiring insurance firms in the short

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<sup>238</sup> Akhigbe and Madura (2001), Floreani and Rigamonti (2001), Schertzing (2008), Cummins and Xie (2005, 2009), and Staikouras (2009).

<sup>239</sup> Cummins and Xie (2004), Elango (2006), Schertzing (2008), and Staikouras (2009).

<sup>240</sup> Schertzing (2008, p. 50). The author explains these variable and also contradictory findings by disparities in capital markets as well as structural differences in the insurance markets that lead to lower potentials for creating value and higher hurdles for realizing these potentials.

<sup>241</sup> In Cummins and Weiss' (2004) study, acquirers average abnormal returns after M&A announcements were invariably negative in all tested event windows. Schertzing (2008) also finds that M&A transactions led to decreased returns for acquiring insurance firms in the majority of tested event windows. However, the author also detects small positive, albeit insignificant, abnormal acquirer returns in six out of 16 tested event periods, all of them over a longer event horizon (spanning at least five days prior to the announcement day or 10 days following the announcement).

run. However, as the only significant abnormal returns to acquirers of -0.35%, -0.18%, -0.17%, and -0.31% are found by Cummins and Weiss (2004) during the event windows (-2;+2), (-15;0), (0;+1), and (0;+2), respectively, it can be concluded that European insurance M&A definitely do not create short-term value, but also do not destroy significant value for acquiring firms' shareholders around the time of M&A announcement.<sup>242</sup> This conclusion is further supported by the findings of Floreani and Rigamonti (2001), which showed that short-term abnormal returns were not significantly different between acquiring European insurers and their non-acquiring European peers.

In contrast, Floreani and Rigamonti (2001) also detect significant positive short-term abnormal returns of 5.89% for acquiring US insurance companies. Moreover, three out of the four short-term event studies that confine their analyses to US insurance bidders detect significant positive acquirer CARs in response to insurance transactions. Cummins and Xie (2005, 2009) observe significant positive acquirer CARs of 0.87%, 0.94%, and 1.19% in the event period (0;+1), (-1;+1), and (-5;+5), respectively. Even in all other event windows, their results show a consistently positive yet insignificant relationship between acquirer returns and M&A activity. In an earlier study, Akhigbe and Madura (2001) also find strong positive abnormal returns of 2.21% in (-1;0) at the 5% level. Only the results of Elango (2006), on average, do not indicate that US insurance acquirers create short-term value through M&A, since in Elango's sample, acquiring insurers exhibit small negative returns, however, with insignificant short-term CARs around the time of the announcement. It has to be emphasized that in contrast to the studies of Akhigbe and Madura (2001) and Cummins and Xie (2005, 2009) who only include US acquirers and targets, Elango (2006) does not fully confine his analysis to US firms. This may account for the discrepant findings between Elango's study and the other two US-based research papers.<sup>243</sup> Accordingly, we conclude that the review of the previous

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<sup>242</sup> Insignificant acquirer CARs range from -0.38% in (-15;+15) to 0.02% in (-1;0) in Cummins and Weiss' study and -0.93% in (-2;+2) to 0.47% in (-10;+10) in Schertzingler's paper.

<sup>243</sup> Hayward and Shimizu (2006) mention various "confounding factors such as country risk and different institutional arrangements (e.g., legal and regulatory issues related to M&A)" that may cause differences in the results if a study is not restricted to the US companies only (p. 545).

empirical literature provides some evidence that acquiring US insurance firms experience a positive market reaction to the announcement of an M&A transaction (especially a within-country transaction).<sup>244</sup>

The two remaining short-term event studies employ an international sample of acquiring firms from various countries, including the United States, Germany, England, and Australia. In the first study, Floreani and Rigamonti (2001) provide strong support for a positive relationship between insurance M&A and acquiring-firm shareholder wealth even in an international setting. With one exception,<sup>245</sup> acquirer CARs in their research study are strong positive in all analyzed event windows and mostly statistically significant. The event window (-20;+2) shows the highest cumulative abnormal return of the various time intervals tested, with a statistically significant CAR of 3.65%.<sup>246</sup> In the second research paper, Staikouras (2009) finds that acquiring insurers either earn small and insignificant positive abnormal returns of 0.77% in the event window (-20;+20) or significant negative abnormal returns of -2.20% in the event window (-1;+1). However, these ambiguous results only refer to transactions in which an insurance company acquires a bank and must therefore be regarded with caution, as they do not refer to the full spectrum of insurance M&A.

Overall, findings of previous US-focused event research suggest that M&A transactions between US insurance companies have increased the value of the acquirers in the short run. While the evidence for global insurance M&A is less conclusive, studies analyzing the short-term effect of European transactions detect a small negative market reaction of acquiring insurance firms to the announcement of such deals.

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Also, Schertzing (2008, p. 50) picks up these reasons for explaining inconsistent patterns in findings across studies from different sample regions.

<sup>244</sup> To further examine whether US transactions in general or only US within-country transactions create value, we will investigate this relationship more thoroughly in the next section when addressing several determinants of value creation in insurance M&A.

<sup>245</sup> The only negative yet insignificant acquirer CAR of -0.76% is found in the event window (+3;+40).

<sup>246</sup> Over the periods (-1;-1), (-5;+5), (-10;+10), and (-20;+20), the authors also find statistically significant positive CARs of 0.68%, 2.63%, 2.27%, and 2.64%, respectively.

### 3.7.1.2 Medium- and Long-Term Results

In contrast to short-term capital market reactions, the majority of shareholders are more interested in medium- and long-term value creation through M&A activities. The ultimate success of an M&A transaction is furthermore highly depending on the pre-merger and post-merger integration strategy of the acquiring company and will be only noticeable after several years. It is unfortunate that most academic studies only conduct short-term analyses, which causes the problem of valuations based on the expectations of unrealized events, as discussed above.

With regard to our sample, this general shortfall is confirmed because only three<sup>247</sup> out of the nine event studies analyze medium- or long-term performance of insurance M&A. Moreover, only Boubakri, Dionne, and Triki (2006) and Schertzingler (2008) focus their analyses on a long-term horizon of up to three years after the transaction. While Boubakri, Dionne, and Triki (2006) calculate three-year buy-and-hold abnormal returns (BHARs) relative to the S&P 500 index, Schertzingler (2008) adopts two different methodologies to measure abnormal returns: the calendar-time approach (CTA) and the buy-and-hold abnormal return (BHAR) approach.

As already highlighted above, a serious concern about long-term event methodology was raised by Roll in 1978. He “argued that [not only] the measures of abnormal performance can be sensitive to the choice of benchmark ... [but also] that estimates generated with inefficient benchmarks are not generally meaningful.”<sup>248</sup> Basically the same argumentation is given by Rau and Vermaelen (1998, p. 224): “In contrast to event studies over short horizons, long-term event studies are sensitive to the model used for computing normal returns, which may partially explain the conflicting conclusions of past research.” Long-term studies also suffer from the hindrance of calculated long-term abnormal returns being partially attributable to several other unrelated

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<sup>247</sup> BarNiv and Hathorn (1997), Boubakri, Dionne, and Triki (2006), and Schertzingler (2008).

<sup>248</sup> Franks, Harris, and Titman (1991, p. 86). The authors show in their study that with the appropriate benchmark, a previously negative post-acquisition performance disappears and even turns positive.

events that take place simultaneously. Still, as several authors point out, these distorting effects should diminish with an appropriate and theoretical sound benchmark against which the returns are evaluated.<sup>249</sup> In the case of Boubakri, Dionne, and Triki's (2006) study, however, the appropriateness of the benchmark for judging performance of US insurance companies has to be questioned, as the study reverts to the S&P 500 index, which not only consists of insurance companies but which also comprises a variety of other representative US companies from totally different industries. The coherence between the applied benchmark index and the share price of the respective US insurance company, as postulated by some scholars,<sup>250</sup> is hence not guaranteed. Additionally, Barber and Lyon (1997) and Lyon, Barber, and Tsai (1999) describe three problems related to the use of BHARs in long-term event studies, that is, the new listing, the rebalancing, and the skewness bias.<sup>251</sup> As pointed out by Gur-Gershgoren, Hughson, and Zender (2008, p. 2), the skewness bias is an especially serious concern associated with the use of a simple index as a benchmark. Comparing the long-run return of an individual asset/stock (which is highly skewed) with the long-run return of a broad portfolio/index (which is more stable due to diversification) will result in a skewed BHAR, since this value is the difference between the two before-mentioned returns. After careful evaluation, Barber and Lyon (1997) and Lyon, Barber, and Tsai (1999) come to the conclusion that a control firm approach should be more favorably considered than the use of a reference portfolio (e.g., the S&P 500 market index, which is employed by Boubakri, Dionne, and Triki, 2006).<sup>252</sup> The more favorable control firm approach, on the other hand, is applied by the Schertzingler study (2008). The author examines how acquiring

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<sup>249</sup> Peng and Isa (2008, p. 4). For a summary of the different approaches to constructing a benchmark, see Barber and Lyon (1997, p. 360).

<sup>250</sup> E.g., Spiss (2008).

<sup>251</sup> See also Peng and Isa (2008, p. 4). For more information on the bad-model problem and its solution, refer to Barber and Lyon (1997) as well as Lyon, Barber, and Tsai (1999).

<sup>252</sup> Barber and Lyon (1997) find that using the reference portfolio approach and employing the three-factor model cannot overcome the skewness bias since their sample provides evidence that BHARs with the reference portfolio display negatively bias statistics and that CARs are either positively (with the reference portfolio approach) or negatively skewed (with the Fama and French three-factor model).

insurance firms perform relative to selected control firms with similar firm size<sup>253</sup> and book-to-market ratio<sup>254</sup> and thereby is able to overcome the before-mentioned biases caused by the use of a broad index. Even in an additional calendar-time approach, Schertzingler does not use a simple index as the benchmark for his analysis. Instead, the Fama and French three-factor regression model serves as the benchmark for comparison purpose.

Also in this section, we will proceed by first subdividing all identified medium- and long-term event studies into papers that analyze the performance effects of insurance M&A transactions in a European and in an American sample and then discussing the individual results.

In recent academic literature, Schertzingler (2008) is the only one who analyzes long-term value creation of insurance transactions in a European setting. Conducting an event time and a calendar-time analysis, the author draws the overall conclusion that European acquiring insurance firms underperform their benchmark returns in the post-M&A period of up to three years. In more detail, this study finds that European insurance acquirers experienced either significant negative BHARs of -4.73% and -9.98% on a one- and two-year horizon (significant at the 10% and 5% levels, respectively) or generated an insignificant negative BHAR of -6.57% on a three-year event horizon. Also, acquiring insurers' CTARs are insignificant and negative with an average monthly return of around -0.40%. The author further reveals that more than 50% of all buyers in M&A transactions destroy their own shareholders' wealth. However, it has to be noted that these European insurance deals generated a total net value of USD 20.6 bn for shareholders of acquiring insurance firms.<sup>255</sup> Schertzingler's results are in line with the prevalent finding of previous empirical research in

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<sup>253</sup> Schertzingler (2008) defines firm size as "market value of common equity at 30.6. in year t for the period 1.7.t – 30.6.t+1" (p. 127).

<sup>254</sup> "Book-to-market ratio for the period 1.7.t – 30.6.t+1 is defined [by Schertzingler (2008)] as book value of common equity end of year t-1, divided by market value of common equity at 31.12. of year t-1" (p. 127).

<sup>255</sup> This positive value and the fact that the majority of transactions resulted in value destruction imply that the value creation of successful deals outweighed the negative effects of the unsuccessful deals. Thus, Schertzingler (2008) concludes, "larger acquirers are able to extract more value from transactions than small acquirers" (p. 133).

other industries suggesting that M&A in general do not enhance—and may even destroy—long-term value for bidder firm shareholders.<sup>256</sup> This common finding of negative long-term effects to acquiring firms following M&A transactions is described by Antoniou, Arbour, and Zhao (2011) as the “long-run merger underperformance anomaly”<sup>257</sup> and is often explained by previous M&A research as the direct result of a competitive market for M&A, causing overpayment for the target firm (“winner’s curse” phenomenon).<sup>258</sup>

In sharp contrast to the overall disillusioning results of Schertzingler’s European-focused study (i.e., insignificant negative BHAR of almost -6.6% on a three-year horizon and an insignificant negative CTAR of about -0.40% per month), however, the long-term findings of US-focused studies draw a much brighter picture on the long-run success of insurance transactions. In their US sample of 177 transactions undertaken by US property-liability insurers, Boubakri, Dionne, and Triki (2006) obtain a strong positive market-adjusted BHAR of 57.3% after three years following the deal.

The contradicting findings between the two long-term studies by Schertzingler (2008) in the European context and Boubarkir, Dionne, and Triki (2006) in the US context are, probably, attributable to the different sample regions. However, it has to be mentioned that other factors related to the methodological specification and the research design (e.g., differences in the performance evaluation methodology or in the insurance industry segment of the acquiring firm) may have also led to this disparity. In their medium-term event study of US insurance companies, BarNiv and Hathorn (1997), for instance, receive completely different results depending on the financial model used. Overall,

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<sup>256</sup> Significant long-run post-M&A underperformance of acquiring firms is found, for example, by Limmack (1991), Loderer and Martin (1992), Higson and Elliot (1993), Madura and Wiant (1993), Gregory (1997), Loughran and Vijh (1997), Andre, Kooli, and L’Her (2004), and Peng and Isa (2008). Some other studies (e.g., Jakobsen and Voetmann, 2003; Abhyankar, Ho and Zhao, 2006; Francoeur, 2006) have shown that acquiring companies’ shares neither increase nor decrease in value in the long run.

<sup>257</sup> Antoniou, Arbour, and Zhao (2011, p. 10).

<sup>258</sup> Sudarsanam and Mahate (2006, p. 10) clarify: “In a takeover involving more than one bidder, it is likely that the acquirer pays in excess of the expected value of the target. The acquirer (or winning bidder) is cursed because its bid exceeds the value of the target.” See also Roll (1986, p. 200), Ravenscraft and Scherer (1988, p. 38), Black (1989, p. 613 and p. 623), Bruner (2004, p. 790), and Ahern and Weston (2007, p. 16).



their results show that M&A in the US insurance industry create medium-term value for shareholders of the acquiring firms, as CARs are positive in almost all cases. Acquirer abnormal returns for acquisitions of financially sound insurance companies range from 7.95% and 8.26% to 15.23% depending on the chosen financial model. Additionally, acquisitions of distressed targets resulted in insignificant but small positive abnormal returns of 4.57% in (-250;+250) in two out of three reduced models used in their paper. At the same time, however, the authors also attain a significant negative abnormal return for one classification of distressed acquirers. Yet this negative CAR of -138.63% from day -250 throughout day +250, which is statistically significant at the 10% level, is attributable to the impact of few outliers and must therefore be regarded with caution. Hence, both US studies (i.e. BarNiv and Hathorn, 1997; Boubarkir, Dionne, and Triki, 2006), provide some, but not very strong, empirical support for value creation for the shareholders of US acquiring firms in the medium and long run. Since the only study analyzing the relationship between insurance M&A activity and acquirer long-term performance in the European context finds the opposite relationship, that is, significant long-run underperformance of acquiring European insurance firms following M&A transactions, previous event study research does not give a clear and consistent answer to the question of whether M&A transactions in the insurance industry create value for the acquiring firms' shareholders in the long run. The evidence on long-term performance of acquirers appears to be sensitive to the sample characteristics, such as the sample region and specifications of the estimation model, including the estimation technique and the benchmark for long-run stock returns.

### **3.7.2 Target Firm Stockholder Returns**

#### **3.7.2.1 Short-Term Results**

In theory and in the academic literature on the effects of M&A transactions on targets' stock market performance, there is a broad consensus that targets' stock price reaction to the announcement of an M&A event is almost uniformly positive.<sup>259</sup> According to many researchers and theorists, these strong favorable

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<sup>259</sup> See Mandelker (1974), Dodd and Ruback (1977), Langetieg (1978), Asquith (1983), Bradley, Desai, and Kim (1983), Jensen and Ruback (1983), Limmack (1991), Conrad and Niden

valuation effects of the target firm can be explained by the fact that “a premium over prevailing market prices is usually offered to induce target companies either to tender their shares or (for negotiated mergers) to vote in favor of merger.”<sup>260</sup> Our literature review on M&A in the insurance industry also provides considerable support for this general finding. All event studies under review report substantially positive and significant target CARs, independent from the analyzed event window. Following our procedure, we first present the results of studies that restrict their sample to European insurance markets and then concentrate on US-focused studies and papers employing a global sample.

In their sample of 499 Western European insurance M&A, Cummins and Weiss (2004) get positive target CARs between 2.48% in the period (0;+5) and 8.85% in (-15;+15), all highly significant at the 99% confidence level. Schertzing (2008) detects significant positive target CARs of around 10%, with a minimum of 6.26% on the day of announcement and a maximum CAR of 14.02% in the event period that begins 20 trading days before the announcement and ends 20 trading days after the announcement day (both highly significant at the 0.1% level).

Findings of the subsample comprising studies of US insurance transactions are generally consistent with these above-mentioned positive target performance effects, even though the positive abnormal returns seem to be inherently higher. With an average CAR of above 20%, targets of US acquiring insurance companies tend to gain substantial value in acquisitions. While Akhigbe and Madura (2001) report that US targets that have been acquired by US insurance bidders generated an outperformance of 20.78% in the period one day prior to the announcement date to the day of announcement (statistically significant at the 5% level), Cummins and Xie (2005, 2009) even found significant CARs of up

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(1992), Cheung and Shum (1993), Schwert (1996), Glaum, Hommel, and Thomaschewski (2002), Seth, Song, and Pettit (2002), Georgen and Renneboog (2004), Martynova and Renneboog (2005), Draper and Paudyal (2006), Spiss (2008), Boesecke (2009), and Masulis, Swan, and Tobiansky (2011), among many others; see also Cybo-Ottone and Murgia (2000) and Fields, Fraser, and Kolari (2007) for findings related exclusively to M&A in the financial services industry.

<sup>260</sup> Ravenscraft and Scherer (1988, p. 38). See also Hayes and Garvin (1982, p. 5), Jensen and Ruback (1983, p. 43), and Antoniou, Arbour, and Zhao (2011, p. 2).

to 30%<sup>261</sup> for US targets of domestic insurance acquirers. Moreover, Cummins and Xie (2005, 2009) detect information leakage prior to these deals because targets, on average, earn significant positive abnormal returns even before the announcement of the M&A deal.<sup>262</sup>

In a sample of global insurance acquirers from the United States, Europe, and Australia, Floreani and Rigamonti (2001) also report positive and mostly significant target CARs. On the announcement day and on the day prior to announcement, the daily abnormal returns are small and positive but not significant, while the CARs are highly statistically significant and positive over all other pre-announcement and post-announcement periods, with a minimum of 12.48% in (-5;+5) to a maximum CAR of 18.80% in (-40;+40). These positive valuation effects of global transactions (ranging from 12% to 19%) are the mean values of the findings obtained in the above-mentioned US-based (CARs of around 20% to 30%) and European-based studies (CARs within the 6%–14% range). Hence, Floreani and Rigamonti's (2001) results may further serve as an indicator of the finding that US acquirers, on average, gain above 20%, while European ones in general experience positive abnormal returns below 15%.

### **3.7.2.2 Medium- and Long-Term Results**

The acquired company has to be listed following an acquisition to detect long-run abnormal returns of targets. In the majority of cases, this is a problem because many targets are delisted following the transactions or have not even been publicly traded prior the acquisition. As a result, no study has been performed that investigated targets' medium- or long-term performance effects.

However, BarNiv and Hathorn (1997) are the only ones to analyze the financial consequences of M&A deals to publicly traded firms that sold these insurers. In their US analysis, they found significant positive medium-term CARs for companies that sold distressed US property-liability insurance targets in all three

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<sup>261</sup> 30.21% in (-15;+15) statistically significant at the 0.1% level. Also in other event windows, e.g. (-1;+1), (-5;+5), and (-10;+10), CARs are highly statistically significant and positive in the range of 24-28%.

<sup>262</sup> The average CAR in the event window that starts 10 trading days before the M&A announcement and lasts until one day prior to the announcement date is 2.94% and significant at the 95% confidence level.

models that were used. Their first model yielded a positive CAR of 37.81% (significant at the 10% level), while their second and third model even produced CAR estimates of 79.63% and 42.61%, respectively, both of which are statistically significant at the 1% level. However, medium-term CAR results are insignificant, and the authors find no consistent pattern in their sample of sellers of financial sound US property-liability insurance firms. In all three models under analysis, the CARs of these sellers are insignificant, either small and positive (CAR of 6.04%) or small and negative (CARs of -7.44% or -2.10%). It can hence be concluded that returns to shareholders of firms selling distressed US property-liability insurance companies are significantly higher than returns to US insurance companies acquiring these distressed insurers.

Overall, even though no empirical evidence has been produced that could provide support for value creation for shareholders of target insurance firms in the years following the transaction, the initial short-term positive effects at the time of the transaction are very likely to last for a long period of time.

### **3.7.3 Total Stockholder Returns of Combined Firms**

#### **3.7.3.1 Short-Term Results**

Many academic researchers who examine the short-term effects of M&A transactions do not restrict their analysis to examining the performance effects of the acquirer and target separately.<sup>263</sup> Instead, they further measure the combined stock market performance of both parties involved and thereby estimate the economic gains of insurance transactions from a net aggregate perspective.

Of the 10 event studies in our sample, four<sup>264</sup> papers particularly quantify the net aggregate economic effects of insurance M&A, all of them being short-term studies. The studies adopt a weighted-average approach based on firm size,

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<sup>263</sup> In the case of strong positive target CARs but small negative acquirer CARs, the simple general conclusion of positive combined entity returns (CERs) cannot be drawn based on a separate analysis of both the target and the acquirer. As stated by Ravenscraft and Scherer (1988, p. 39), “[w]hen the acquiring firm is much larger than the acquired company, even small negative acquirer returns can swamp the positive returns of the acquired company.”

<sup>264</sup> Akhigbe and Madura (2001), Floreani and Rigamonti (2001), Cummins and Xie (2005), and Schertzinger (2008).

which is defined as the market value-weighted average of acquiring firm abnormal return and target firm abnormal return, to calculate the abnormal return of the combined entity. Positive and mostly significant CERs around the announcement of an insurance transaction were found in each of the four short-term event studies, ranging from a minimum of 0.41% in the event window (0;+2) in Schertzing's (2008) paper to a maximum of 13.11% in the window (-1;0) in the study by Akhigbe and Madura (2001), both significant at the 5% level. The finding of positive abnormal returns for the combined entity (calculated as a weighted average of target and acquiring firm returns) is not surprising and should be expected, as the studies detect either small negative or even small positive acquirer returns and strong positive target returns around the announcement date of a transaction.<sup>265</sup> Hence, the positive short-term returns of the combined entity are primarily driven by strong positive announcement returns of the target, which on the other hand, primarily resulted from the substantial deal premiums offered to target firm shareholders.<sup>266</sup> In many cases, these enormous deal premiums are due to factors such as agency problems (Jensen, 1986, 1988, 2005), self-interest, and managerial hubris (Roll, 1986), which induce bidders to overpay for their targets. Consequently, as argued by Antoniou, Arbour, and Zhao (2011, p. 4), the combined entity returns are biased, and this positive short-term market reaction of the combined firm may not ultimately tell us whether or not the combining of target and acquirer was a value-creating corporate event that yielded net positive economic gains. Despite this criticism on the weighted average approach to determine CERs, almost half of the event studies performed this analysis.

In his empirical work on the European insurance market, Schertzing (2008) finds small positive (and mostly significant) CERs in all 16 tested event windows. The positive CER estimates range from a low of 0.41% in (0;+2) to a high of 2.06% in (-10;+10), both being significant at the 5% level. Even though

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<sup>265</sup> The same finding is reported by Antoniou, Arbour, and Zhao (2011), who affirm that "weighted average calculations are almost guaranteed to generate a positive result upon the inclusion of target firm returns" (p. 5).

<sup>266</sup> See previous section 3.7.2.1 and references listed for proof of this statement.

not explicitly tested in the paper by Cummins and Weiss (2004), combined firms' wealth effects in their study on 499 Western European M&A should also be small and positive, as acquirers, experience small and insignificant short-term losses on average, while returns to target firms are statistically significant and uniformly strong and positive.

Studies analyzing the combined valuation effects for US insurance company M&A report significantly positive abnormal returns, which are considerably higher than those found in European studies. The US-based academic paper by Akhigbe and Madura (2001) reveals that the combined insurance companies generally earn a 13.11% gain over the (-1;0) event window (statistically significant at the 95% confidence level). Again, this positive combined entity return is mainly driven by the strong positive effect on the target (20.78%) rather than by the positive response of the acquiring insurance firm (2.21%). More evidence on the US insurance market comes from the study by Cummins and Xie (2005), who report significantly positive abnormal CERs between 2% and 4% around the announcement date.<sup>267</sup>

Based on a global sample of 24 matched pairs of international insurance target-acquirer deals, Floreani and Rigamonti (2001) provide evidence for a positive post-acquisition performance of combined entities in the short run. The highest CER of 5.27% (significant at the 0.1% level) is found in the event period from 20 trading days prior to the announcement of the transaction to two trading days after the announcement date. With the exception of a statistically insignificant announcement-day return of 0.18%, CERs in all other event windows are also positive and significantly different from zero.<sup>268</sup>

In summary, every single short-term event study of transactions between insurance players shows positive and significant CERs around the announcement of such deals.

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<sup>267</sup> The authors find significant and positive and CERs of 2.52%, 2.17%, 3.36%, and 3.71% in (-1;0), (0;0), (0;+1), and (-1;+1), respectively.

<sup>268</sup> Average CERs of 1.21% in (-1;+1), 2.75% in (-5;+5), 3.75% in (-10;+10), 4.26% in (-20;+20), and 5.06% in (-40;+40).

### 3.7.3.2 Medium- and Long-Term Results

The combined wealth effects of acquirers and targets are not analyzed in any medium- or long-term study.

### 3.7.4 Comparison of Short-Term and Medium- and Long-Term Results

Overall, previous insurance M&A literature suggests that deals in the insurance industry are economically viable. However, a great variety in the individual outcomes is detected, as some insurance companies achieved high value gains while others obviously destroyed substantial shareholder value through M&A. In the light of these differing overall results, a comparison of the short-term and medium- and long-term performance results of acquiring insurance firms shall outline some of the reasons for these conflicting findings.

Comparing the results from short-term and medium- and long-term studies that focus on the European market, we can conclude that while the available evidence on a short-term basis only suggests a small and predominantly non-significant negative relationship,<sup>269</sup> the findings in the medium- and long-term studies reveal a significant negative abnormal stock performance over one to three years following the transaction.<sup>270</sup>

Previous studies dedicated to determining the short-term value effect of US insurance transactions predominantly come to the conclusion that these transactions are beneficial to the acquiring insurance firm's market value.<sup>271</sup>

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<sup>269</sup> Cummins and Weiss (2004): insignificant CARs ranging from -0.38% in the event period (-15;+15) to 0.02% in (-1;0) and only a few (small) significant CARs ranging from -0.35% in (-2;+2) to -0.17% in (0;+1).

Schertzing (2008): only insignificant CARs ranging from -0.93% in the period (-2;+2) to 0.47% in (-10;+10).

<sup>270</sup> However, it has to be noted that this negative long-term relationship is solely derived from the findings of Schertzing's (2008) investigation. The author detects either significant negative BHARs of -4.73% and -9.98% on a one- and two-year horizon (significant at the 10% and 5% level, respectively) or insignificant negative BHAR of -6.57% on a three-year event horizon. Also, average monthly returns are insignificant and negative: equally weighted CTAR of -0.37% and value-weighted CTARs of -0.39%.

<sup>271</sup> Akhigbe and Madura (2001): strong positive CAR of 2.21% in (-1;0) significant at the 5% level.

Elango (2006): small negative insignificant short-term CARs in all 14 event periods tested [between -1.27% and -0.22% in (-1;+20) and (-1;+10), respectively].

The same conclusion is drawn from US-based studies that look into the long-term performance of acquiring insurers. US insurance M&A, especially in-country deals, create positive abnormal returns for acquiring insurance companies' shareholders.<sup>272</sup>

Our review of academic publications examining the stock price performance of acquiring firms in a global sample does not provide any further evidence, as only two academic papers were identified, both investigating the short-term market reaction in response to the announcement of an insurance transaction.<sup>273</sup>

Looking at the influence of insurance M&A on the value of target firms, former empirical research uniformly indicates a strong positive correlation. Even though none of the reviewed capital market studies has directly investigated long-term value effects of insurance M&A on target firm shareholder wealth, strong positive short-term returns around the announcement date allow the assumption of wealth creation in the long run.

The combined wealth effects of acquirers and targets are not analyzed in any medium- or long-term study; consequently, we are not able to perform a comparison.

Cummins and Xie (2005, 2009): significant positive acquirer CARs of 0.87%, 0.94%, and 1.19% in the event period (0;+1), (-1;+1), and (-5;+5), respectively. In all other event windows, their results show consistently positive yet insignificant CARs.

<sup>272</sup> BarNiv and Hathorn (1997): positive but insignificant CARs of 7.95%, 8.26% and 15.23% for acquisitions of financially sound insurance (in the interval from -250 through +250 days around the effective day of the transaction). Acquisitions of distressed targets also resulted in insignificant but small positive abnormal returns of 4.57% in (-250;+250) in two out of three reduced models used in their paper. The CAR for one classification of distressed acquirers is, however, negative and statistically significant at the 1% level (attributable to the impact of few outliers).

Boubakri, Dionne, and Triki (2006): strong positive market-adjusted BHAR of 57.3% after three years following the M&A transaction.

<sup>273</sup> Floreani and Rigamonti (2001): all significant or at least insignificant positive CARs, with the highest statistical significant return being 3.65% in the event period (-20;+2). The only negative yet insignificant acquirer CAR of -0.76% is found in the event window (+3;+40).

Staikouras (2009): Excess returns via the industry index are mostly negative and statistically significant (e.g., CARs of -2.27%, -2.28%, -2.20%, and -2.38% in (-2;+1), (-4;+1), (-1;+1), and (-3;+3), respectively). The few insignificant positive CARs of 0.23%, 1.54%, 0.13%, and 0.77% are attained in the periods (-10;0), (-20;0), (-20;+1), and (-20;+20), respectively.



### **3.7.5 Summary of the Evidence on the Overall Success of Insurance M&A**

In the previous event study research on the effects of M&A, considerable effort was made to ascertain the desirability of insurance transactions on an ex post basis. Overall, empirical studies on this topic have consistently documented that insurance M&A are beneficial to target firms' shareholders independent from the sample region and the time horizon of analysis. The positive market reaction during the few days surrounding the announcement of an M&A deal is more pronounced for US insurance targets being acquired by US insurance bidders (average target CAR of above 20%) than for international transactions (average target CAR between 15% to 20%) and for European deals (average target CAR in transactions involving a European acquirer of below 15%).

Evidence on the effect of insurance transactions to the shareholders of the acquiring firm, however, is not that conclusive. The empirical evidence on acquirers' wealth effects from insurance M&A seems to strongly depend on the geographic nature of the sample and the time horizon of analysis. Event studies with a particular focus on the European insurance market fail to provide consistent proof of the positive impact of insurance M&A on the acquiring firms' stock returns. Even though short-term results indicate neither a consistent significant positive stock price impact nor a consistent significant negative market reaction for shareholders of European acquirers, abnormal returns to their shareholders are negative in almost all analyzed short-term event windows, and a strong negative abnormal stock price performance of acquiring European insurance companies is found over a long-term event horizon of one to three years following the transaction.<sup>274</sup> On the contrary, US insurance transactions are found to enhance acquiring insurance firms short-term and medium- and long-term shareholder value. This positive market reaction is primarily attributed to large wealth gains in transactions between a US acquirer and a US target. Previous short-term event studies using an international data

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<sup>274</sup> In previous literature, it is often argued that the negative price effect of the acquiring firm's share price is due to the competitive market for M&A, which results in the "winner's curse" phenomena (see, e.g., Roll, 1986, p. 200; Ravenscraft & Scherer, 1988, p. 38; Bruner, 2004, p. 790; Sudarsanam & Mahate, 2006, p. 10; Ahern & Weston, 2007, p. 16).

set that includes both European and US insurance companies have yielded mixed results on the question of whether these deals have a positive short-term impact on acquiring firm shareholder wealth. However, since the only study that fully concentrates on pure insurance transactions<sup>275</sup> shows small positive but mostly significant acquirer CARs<sup>276</sup> regardless of the event window over which they are measured, we conclude that insurance transactions, in general, enhance acquiring-firm shareholder wealth. Nevertheless, acquirer shareholder wealth gains in insurance M&A are significantly smaller than wealth gains to target shareholders.

The few academic papers that explicitly investigate the combined entity abnormal returns in the context of M&A in the insurance industry provide further strong evidence for beneficial effects of insurance M&A deals. Each single short-term event study finds these transactions to result in significant positive short-term combined entity returns. The positive and significant CERs<sup>277</sup> observed around the announcement of such deals are primarily driven by the positive announcement effect to target firms. In addition, although Cummins and Weiss (2004) do not analyze the accumulated wealth of both acquirer and target company in their Western European insurance study, small negative or positive returns for European acquirers and strong positive returns for European targets suggest that combined entity returns are likely to be significantly positive. Their study also suggests that there is a wealth transfer from an acquirer's shareholders to a target's shareholders, which is particularly large in domestic transactions. However, Cummins and Weiss' (2004) results for cross-border European deals, as well as the findings of all other studies, do not support this conjecture, and the papers show evidence that the wealth transfer does not simply occur from acquirers to targets. These insurance

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<sup>275</sup> The study by Floreani and Rigamonti (2001). Staikouras (2009), on the other hand, considers transactions of insurance players acquiring banks.

<sup>276</sup> Floreani and Rigamonti (2008) detect positive abnormal returns for the sample of 56 acquiring insurance firms, ranging from 0.65% at the day of announcement to 3.65% in the period (-20;+2).

<sup>277</sup> The highest significant positive CER of 13.11% in the event period (-1;0) is found by Akhigbe and Madura (2001). Further studies by Floreani and Rigamonti (2001), Schertzinger (2008), and Cummins and Xie (2009) also document significant positive CERs of up to 5.27% in (-20;+2), 2.06% in (-10;+10), and 3.71% in (-1;+1), respectively.

transactions seem to produce synergies between the involving partners, which might be a result of the unique characteristics of insurance company operations, as argued by Akhigbe and Madura (2001).<sup>278</sup> Accordingly, insurance M&A are primarily driven by “value-maximizing motivations rather than managerial rent-seeking,”<sup>279</sup> which is consistent with corporate control and production theory. All in all, M&A deals in the insurance industry, especially in the US, appear to be economically viable since they are wealth-creating events for the target and for the combined entity (and in many cases even for the acquirer), which distinguishes insurance transactions from M&A in many other industries.<sup>280</sup>

### **3.8 Review and Results of Prior Capital Market Research on the Determinants of M&A Success in the Insurance Industry**

#### **3.8.1 Overview**

Although in the previous section our work outlined the average overall effect of insurance transactions, there was a high variation in the performance of individual insurance transactions. Several empirical papers have outlined that subgroups of insurance firms experience significant positive abnormal returns following the announcement of an M&A transaction, while others suffer significant negative stock price reactions.<sup>281</sup> Studies primarily belonging to the

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<sup>278</sup> “The merging of standardized insurance products may be viewed more favorably by the market than the merging of manufacturing facilities between industrial firms” (Akhigbe and Madura, 2001, p. 504).

<sup>279</sup> Cummins and Xie (2009, p. 150).

<sup>280</sup> Although the majority of analyses concerning the success of M&A in other industries yield overall positive wealth effects for the combined entity (e.g., Bradley, Desai, and Kim, 1988; Mulherin and Boone, 2000; Andrade, Mitchell, and Stafford, 2001), the phenomena that both acquiring and target firm significantly outperform their benchmark in the post-M&A period (as found in the studies of Akhigbe & Madura, 2001; Floreani & Rigamonti, 2001; Cummins & Xie, 2009) does not very often occur in previous literature (e.g., studies by Roll, 1986; Shleifer & Vishny, 1988; Limmack, 1991; Servaes, 1991; Healy, Palepu, & Ruback, 1992; Kaplan & Weisbach, 1992; Highson & Elliot, 1993; Gregory, 1997; Mulherin & Boone, 2000; King et al., 2004; Darkow, Kaup, & Schiereck, 2008; and Boesecke, 2009 detect positive combined entity returns; however, the acquiring firm earns small negative abnormal returns).

<sup>281</sup> For example, Floreani and Rigamonti (2001) found that a subgroup of US acquiring firms achieved a significant outperformance when conducting M&A within the US, while another subgroup of European insurers experienced significant performance declines when conducting domestic M&A transactions. Another example is provided by Schertzing (2008), who detects

strategic management literature have hence attempted to answer the question: “Why are firms different?”<sup>282</sup> According to their findings, the variation in the M&A outcomes are not only due to differences in the sample selection, the time horizon of analysis, and methodology used, they are also attributed to various qualitative differences in the characteristics and factors of the acquisition process and in the acquisition process itself. These various factors, which essentially influence and drive the direction and the extent of the overall success of an M&A transaction, will be analyzed in this section. In order to gain a complete understanding of this relationship, we will not only explain these various factors identified by previous insurance M&A research but also examine their influences depending on the time horizon of the analysis.<sup>283</sup>

The majority of reviewed event studies conduct univariate cross-sectional analyses on the various determinants of value creation by dividing the examined transactions into several subsamples in order to explain the discovered short- and long-run valuation effects.<sup>284</sup> Mostly, this procedure is accompanied by multivariate cross-sectional regression analyses, which are necessary for precisely separating simultaneous effects of the various factors of value creation.<sup>285</sup> A few other studies in our sample did not use simple univariate approaches for the identification of influencing success factors but instead conducted only the more complex multivariate analyses.<sup>286</sup>

In general, numerous factors have been identified by the extant M&A literature that influence and moderate the post-M&A financial performance of the involved

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significant positive returns only for a subgroup of the most experienced acquirers, while less experienced acquirers generate negative abnormal returns following an M&A deal.

<sup>282</sup> Rumelt, Schendel, and Teece (1994, p. 43).

<sup>283</sup> The previous work of Schertzing (2008) has already pointed out that factors that affect the short-term market reaction of the acquiring firm in a positive way do not automatically enhance firm's shareholder value on a long-term basis (e.g., the growth of an acquirer is found to have a negative short-term relationship with acquiring firms' performance, while the effect on acquirers' firm performance in the long run is strong and positive).

<sup>284</sup> See, BarNiv and Hathorn (1997), Floreani and Rigamonti (2001), Cummins and Weiss (2004), Cummins and Xie (2005), Boubakri, Dionne, and Triki (2006), Schertzing (2008), and Staikouras (2009).

<sup>285</sup> See, Floreani and Rigamonti (2001), Cummins and Xie (2005), Boubakri, Dionne, and Triki (2006), Schertzing (2008), and Staikouras (2009).

<sup>286</sup> See, Akhigbe and Madura (2001), Elango (2006), and Cummins and Xie (2009).

insurance companies. Among those various determinants are the size and strategic direction of the transaction (e.g., industry relatedness and geographic area), method of payment, transaction premium of the deal, financial condition, ownership structure, changes in the organizational structure and cultural compatibility of the companies involved, the degree of post-merger integration of the target, and economic factors such as the economic growth of the economy. Due to the focus of this thesis on financial and strategic aspects of mergers and acquisitions, the reviewed academic papers come from two major groups of scholars: financial economics and strategic management scholars. In contrast to academic publications from the organizational behavior fields, which investigate the acquisition's impact on the organization and the people and thus center their attention on the cultural, human, and organizational elements of the M&A process,<sup>287</sup> publications belonging to the two previously mentioned groups assume that financial characteristics and strategic rationales of the firms mainly influence the success of M&A. These influencing factors of M&A success comprise managerially controllable endogenous factors and managerially uncontrollable exogenous factors.<sup>288</sup> Endogenous factors, which can be directly or indirectly influenced by the management of the acquiring firm, are further divided into company-specific factors of the acquiring firm and the target firm and features of the transaction structuring and management process (see Figure 5).<sup>289</sup> Factors related to the acquiring firm regularly consist of an acquirer's transaction experience, financial condition (i.e., level of excess cash), line of business, and various firm level corporate governance characteristics (e.g. ownership structure, CEO tenure, and CEO independence). Furthermore, the impact of variables such as target company's ownership, the relative size to the acquirer, the financial condition of the target prior to the M&A transaction, the target's pre-merger performance, and its line of business seem to greatly

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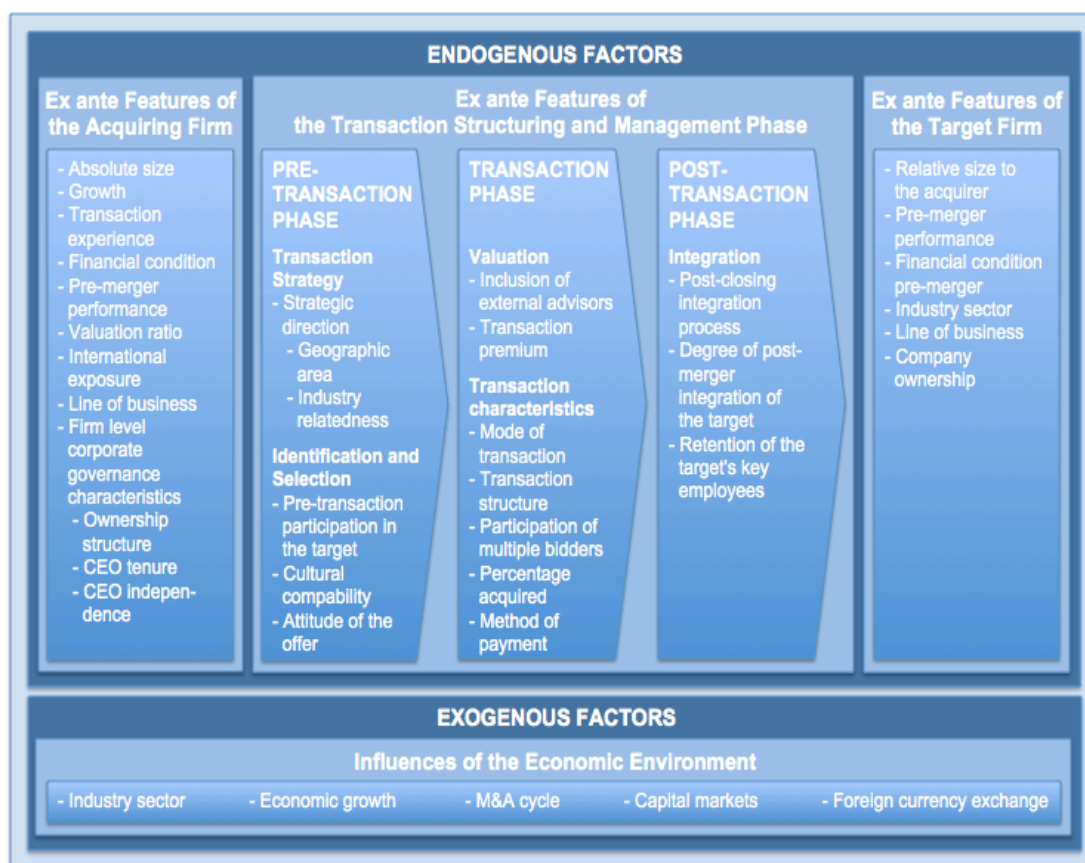
<sup>287</sup> These elements range from changes in the organizational structure and working relationships, status changes of employees in the organization, and employee and top management turnover of the acquired firm to organizational and cultural incompatibility (See, e.g., Marks, 1982; Lubatkin, 1983; Datta, 1991; Beatty, 1999; Javidan et al., 2004).

<sup>288</sup> See, e.g., Merchant and Schendel (2000, p. 724), Beitel (2002, p. 130), and Wuebben (2007, p. 151). Cooper and Finkelstein (2010) use the terms "internal" and "external variables" instead of "endogenous" and "exogenous factors," respectively.

<sup>289</sup> See, e.g., Beitel (2002, p. 131), Moeller, Schlingemann, and Stulz (2005, p. 208), and Wuebben (2007, p. 152).

influence the M&A success. The analyzed features of the transaction structuring and management phase are also manifold, ranging for example from determinants of the pre-merger planning phase such as the strategic direction of the transaction, pre-merger participation in the target, and the attitude of the offer (hostile versus friendly) to determinants of the transaction process such as the transaction premium, the method of payment (cash versus equity), and the percentage acquired to features of the integration phase (e.g., the retention of the target's key employees and the degree of post-merger integration of the target).

Researchers from the disciplines of strategy and finance have also commonly examined the impact of following external (i.e., exogenous) factors related to the field and environment: the industry sector, the relative strength of a country's economic growth, capital markets, and foreign currency exchange rates. Even though the management of the acquiring firm has minimal influence on these mostly macroeconomic factors, the success of an insurance transaction, that is, the creation of shareholder value, is likely to be dependent on them. As these endogenous determinants make value creation easier or more difficult in specific circumstances, they have to be included as part of the model.



**Figure 5: Overview of potential determinants of success of insurance M&A**

After providing a general overview of all those determinants included in previous M&A research from the fields of financial economics and strategic management, we outline which specific determinants have been analyzed by the individual studies under review.

All in all, 24 determinants of value creation have been identified by the recent capital market research on the effects of insurance M&A, which we then classified into four groups (“ex ante features of the acquiring firm,” “ex ante features of the target firm,” “ex ante features of the transaction structuring and management phase,” and “influences of the economic environment”) to allow for a better overview (See Table 14).

Table 13: Overview of determinants of success analyzed in recent studies

Author	Ex ante Features of the Acquiring Firm											
	Absolute Size	Growth	Transaction Experience	Pre-merger Performance	Line of Business	CEO Share Ownership	Institutional Ownership	Blockholder Ownership	CEO Tenure	CEO Independence	Board Independence	% New Board Members
Cummins and Xie (2005)	*		*	*		*						
Cummins and Xie (2009)	*		*									
Akhigbe and Madura (2001)					*							
BarNiv and Hathorn (1997)												
Boubakri, Dionne, and Triki (2006)			*			*	*	*	*	*	*	*
Cummins and Weiss (2004)												
Eiango (2006)					*							
Florenti and Rigamonti (2001)	*		*		*							
Schertzing (2008)	*	*	*		*							
Staikouras (2009)				*								
Author	Ex ante Features of the Target Firm					Ex ante Features of the Transaction Structuring and Management Phase					Economic Environment	
	Relative Size	Pre-merger Performance	Line of Business	Company Ownership	Geographic Focus	Industry Focus	Pre-merger Participation	Cultural Compatibility	Mode of Transaction	Percentage Acquired	Method of Payment	Timing
Cummins and Xie (2005)	*				*	*	*				*	
Cummins and Xie (2009)	*			*			*				*	
Akhigbe and Madura (2001)	*			*							*	
BarNiv and Hathorn (1997)		*										
Boubakri, Dionne, and Triki (2006)	*		*		*	*		*	*	*		
Cummins and Weiss (2004)			*		*							
Eiango (2006)			*		*							
Florenti and Rigamonti (2001)	*		*		*		*			*		
Schertzing (2008)	*		*		*							*
Staikouras (2009)	*				*	*						



In the following paragraphs, we give an answer to the fourth research question by determining which factors induce a positive/negative short-term capital market reaction and which factors lead to long-term value creation/destruction. To do this, we will first give a brief overview of the four groups and the related determinants that are analyzed by the individual capital market studies, and then we will describe each group and its determinants more thoroughly. Finally, the findings of the various studies will be presented according to the four-group classification scheme and discussed in detail (see Table 15). The observed directional correlation between the individual determinants and the M&A success is used to derive testable hypotheses for the empirical investigation of our research proposition.

### 3.8.2 Characteristics of Acquiring Companies

In recent capital market research, several variables related to the acquirer have been examined in the context of wealth gains from mergers and acquisitions. A first classification scheme for insurance M&A is the grouping of these deals by the absolute size of the acquiring insurance firm. From a theoretical standpoint, as an acquirer, there is a significant advantage in being a large company by providing greater flexibility and the option to potentially finance sizeable deals.<sup>290</sup> Empirical studies by Floreani and Rigamonti (2001), Cummins and Xie (2005), Schertzing (2008), and Cummins and Xie (2009) include an **acquirer's size**<sup>291</sup> as a variable to assess whether a large insurance firm is more capable in identifying and realizing synergy potentials and thereby benefits from M&A. All capital market-based studies in our sample, however, confirm that the size of an acquirer is (either non-significantly<sup>292</sup> or significantly<sup>293</sup>) negatively related to acquirers' abnormal returns in the short

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<sup>290</sup> See Cummins and Xie (2005) and Cummins and Xie (2008).

<sup>291</sup> Measured by the logarithm of company's market value of equity at announcement date (see Floreani & Rigamonti, 2001, p. 10; Cummins & Xie 2005, p. 58; Schertzing, 2008, p. 88; Cummins & Xie, 2009, p. 146). Alternatively, company's size can be defined by total assets (see, e.g., Klumpes, 2006; Cummins & Xie, 2008), sales (see, e.g., Chang & Chen, 2002; Danzon, Epstein, & Nicholson, 2004), or number of employees (see, e.g., McKinley, 1987; Merchant & Schendel, 2000).

<sup>292</sup> See Floreani and Rigamonti (2001), Schertzing (2008), and Cummins and Xie (2009).

<sup>293</sup> See Cummins and Xie (2005).

run.<sup>294</sup> Floreani and Rigamonti (2001), Schertzing (2008), and Cummins and Xie (2009) find that short-term acquirer CARs insignificantly decrease with increasing size (.e. market value, of the acquirer). A significant negative relationship between an acquirer's size and financial post-M&A performance is found in the study by Cummins and Xie (2005). In the long run, however, an acquirer's size showed no significant correlation with an acquirer's post-M&A performance, as pointed out by Schertzing (2008).

Despite the negative short-term and insignificant long-term correlation, former investigations have revealed that acquiring insurers, on average, tend to be larger in size than average.<sup>295</sup> As previous studies found out, the size of an acquirer may not only have an influence on the success of an insurance transaction, but it also might have a dependency relationship with the growth of the acquiring firm. For example, Cosh and Hughes (1989, p. 78) report that acquiring firms typically are both large in size and fast growing. Moreover, Nissim (2010, p. 134) cites existing research from the fields of marketing and industrial organization that has shown empirical evidence of a negative relationship between an acquirer's size and an acquirer's subsequent growth and envisages this negative correlation also for the insurance industry.<sup>296</sup> Consequently, an **acquirer's growth** may also be an influencing factor for value creation in such transactions and is hence included in the empirical analysis by Schertzing (2008). According to the author's findings, fastest-growing acquirers insignificantly underperformed their benchmark in the

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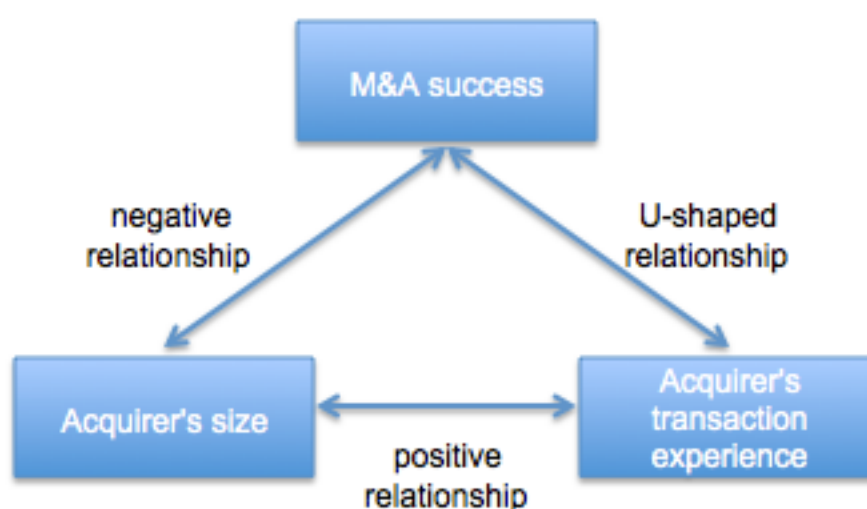
<sup>294</sup> This negative relationship is also the predominant finding in recent insurance efficiency research (e.g., Cummins, Tennyson, & Weiss, 1998; Cummins & Xie, 2008) as well as in event studies on M&A in other industries. For example, Moeller, Schlingemann, and Stulz (2003), who base their event study on data from 12,023 transactions of various listed US companies, differentiate between small and large acquirers. They find a positive and significant equally weighted CAR of 1.1%, but at the same time the value-weighted CAR of -1.18% is significantly negative [both in (-1;+1) at the 1% level]. This disparity suggests a size effect, which is defined by the authors as "the difference between the abnormal returns of small and large acquirers." The authors further verify these findings by dividing the sample into small and large acquirers. Small firms have a significant positive equally weighted CAR of 2.32% and a value-weighted CAR of 1.27%, while large firms show an insignificant equally weighted CAR of 0.08% and a value-weighted CAR of -1.25%.

<sup>295</sup> E.g., Floreani and Rigamonti (2001, p. 11), Klumpes (2006, p. 28), Cummins and Xie (2008, p. 42).

<sup>296</sup> The literature attributes this negative relationship mainly to: 1) diminishing returns to scale and finite demand, 2) life cycle effects, and 3) diminishing returns to learning (see Nissim, 2010, p. 137).

announcement period [mean acquirer CARs of up to -6.11% in the (-20;+20) event period]. On a long-term horizon however, fast-growing acquirers perform significantly better than weaker growing acquirers, suggesting that strong growth does not ultimately lead to difficulties in integrating the respective targets and/or that the integration of targets is not dependent on acquirers' growth.

Finally, the expected dependency relationship between insurance M&A success, size of the acquirer, and the acquirer's growth is illustrated in Figure 6.



**Figure 6: Dependency between M&A success, an acquirer's size and growth**

As frequent acquirers may most likely benefit from their knowledge and experience of previous M&A transactions, a variable for **acquirers' transaction experience** is included in four studies<sup>297</sup> to gauge if transaction experience has a positive impact on acquirers' post-M&A performance. The long-term findings of Boubakri, Dionne, and Triki (2006) support this positive correlation between M&A success and transaction experience, as frequent acquirers in their US sample are found to outperform their less experienced US counterparts. As argued by the authors, the positive long-run returns of frequent acquirers suggest "that bidders involved in several acquisitions acquire the necessary

<sup>297</sup> Cummins and Xie (2005), Boubakri, Dionne, and Triki (2006), Schertzingler (2008), and Cummins and Xie (2009).

experience to integrate successfully the target's activities into their own businesses."<sup>298</sup> Moreover, proponents of this point of view argue that with each transaction conducted, up to a certain point, more active acquirers may benefit from these advantages in terms of experience in all phases of the transaction process (before, during, and after).<sup>299</sup> More precisely, acquiring firms' management teams may obtain additional expertise in identifying and choosing potential targets (e.g., Hitt et al., 1998, p. 108; Wuebben, 2007, p. 153), negotiating deals (e.g., Haspeslagh & Jemison, 1991, p. 50), finding the necessary structure (e.g., Chandler, 1962, p. 3; Kitching, 1967, p. 94; Lubatkin, 1983, p. 223; Paine & Power, 1984, p. 108), and as stated above, in conducting post-merger integration (e.g., King et al., 2004, p. 190; Boubakri, Dionne, & Tiki, 2006, p. 15 and p. 23; Wuebben, 2007, p. 154).<sup>300</sup> Evidence contrary to this view comes from several short-term investigations. Besides others,<sup>301</sup> Cummins and Xie (2005) and Cummins and Xie (2009) detect a negative relationship between an acquirer's transaction experience and its post-acquisition performance on a short-term horizon. The authors justify these negative announcement returns as evidence that "the market thinks that the 'frequent buyers' have a problem of promptly and efficiently integrating the target firms into their existing business"<sup>302</sup> and that "the market doubts the value-maximizing motives of these 'acquisition lovers.'"<sup>303</sup> This dichotomous relationship of both positive and negative effects is also outlined by the theoretical work of Bamberger (1994, p. 223) and the empirical results of Haleblan and Finkelstein (1999) and Schertzinger (2008). In their investigation of 449 acquisitions in the manufacturing sector, Haleblan and Finkelstein (1999) provide an answer to this dichotomous relationship by revealing an overall U-shaped relationship between acquirers' transaction experience and post-M&A financial

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<sup>298</sup> Boubakri, Dionne, and Triki (2006, p. 23).

<sup>299</sup> See, e.g., Buehner (1990a, p. 209). For further information on the organizational learning theory and related topics, such as "learning curve," "knowledge acquisition," and "knowledge management" see, for example, Ellsworth (1999) as well as Haleblan and Finkelstein (1999).

<sup>300</sup> As pointed out by Singh and Zollo (1998, p. 30), it is important to note that conducting a series of homogenous transactions is a prerequisite for benefiting from these learning curve effects.

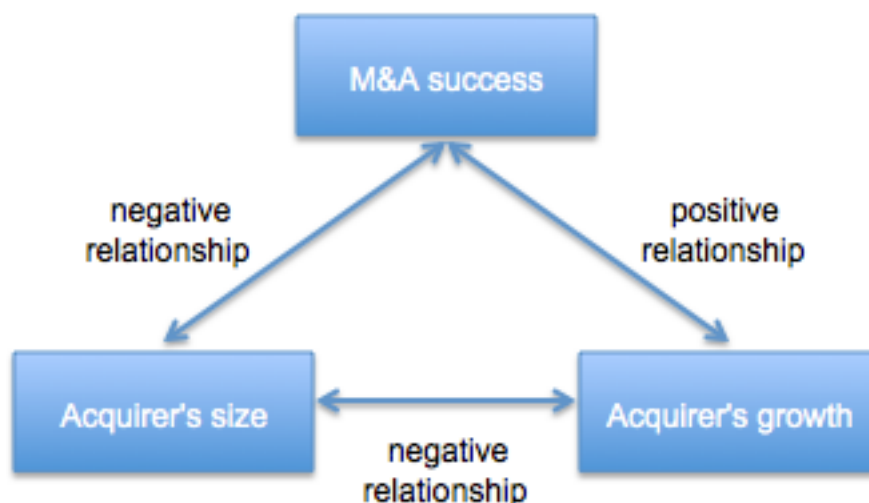
<sup>301</sup> E.g., Kusewitt (1985) and Fuller et al. (2002).

<sup>302</sup> Cummins and Xie (2005, p. 37). See also Wuebben (2007, p. 154) and the references there.

<sup>303</sup> Cummins and Xie (2005, p. 38).

performance, which is further confirmed by Schertzingers (2004) academic work for the insurance industry. In his dissertation research, Schertzingers (2008) provides a more detailed picture of the influence of the variable for an acquirer's transaction experience in the insurance industry. Independent from the time horizon under analysis, Schertzingers documents a positive yet insignificant valuation effect for acquirers without any acquisition experience and for acquirers with an extensive acquisition record. On the contrary, acquirers with medium transaction experience yield significantly smaller CARs than acquirers following the previous mentioned strategies. Thus, companies should either pursue a strategy of organic growth or strongly depend on M&A activities for business growth (Schertzingers 2008, p. 137).

Last but not least, Bamberger (1994), among others, points out that an acquirer's acquisition experience is not only related to the acquisition success, it is also positively correlated to the size of the acquirer, as larger firms usually have a longer history of M&A activities. Summarizing, the expected dependency relationship between insurance M&A success, size of the acquirer, and the acquirer's transaction experience is illustrated in Figure 7.



**Figure 7: Dependency between M&A success, an acquirer's size, and transaction experience**

**Previous acquirer performance**, that is, its profitability, might be a further determinant of value creation in insurance transactions and is also related to the

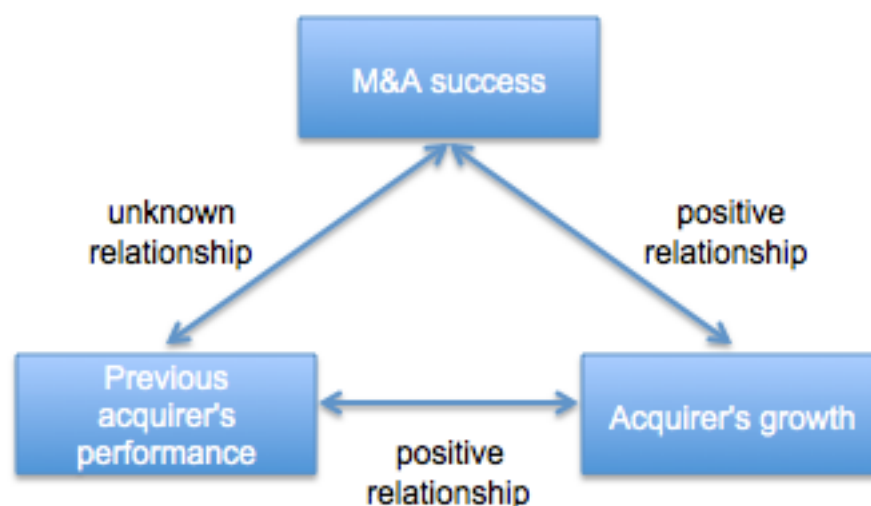
above discussed growth variable. In Nissim's (2010) work on the insurance business and the valuation of insurance companies, the author offers several explanations for a positive relationship between the profitability of an insurance firm and its subsequent growth potential. These various explanations can be divided into five quintessential value drivers for future growth of more profitable insurance firms: (1) positive effect on the solvency capital requirements, (2) increased availability of internal funds, (3) better access to operating credits (4) better access to capital markets, and (5) better investment opportunities (Nissim, 2010, p. 137). Figure 8 summarizes this dependency relationship between an acquirer's previous performance and its subsequent growth.

The relationship between pre-merger and post-merger performance is analyzed in two studies by Cummins and Xie (2005) and Staikouras (2009). Cummins and Xie (2005) relate acquirers' performance before announcement, measured by Tobin's Q value, to its post-acquisition performance. In their US study, the authors detect a significant negative relationship between these two variables. The negative correlation indicates that the market favors bad performing US insurance companies to participate in M&A activities, while better performing insurers should pursue organic growth instead. This finding contrasts with the one by Staikouras (2009), who identifies insurance acquirers with a higher profitability, defined as return on equity (ROE), to perform better. Based on a global sample, the author argues that the market expects acquirers who have performed better in the past to be more capable of managing a target's assets well in the future and thus be able to improve the target's performance more effectively. Further support for Staikouras' (2008) findings is provided by the empirical work of Morck, Shleifer, and Vishny (1990), who conclude that "firms with bad managers (identified by poor performance relative to its industry) do much worse in making acquisitions than firms with good managers" (p. 47).

Nevertheless, as implied by Roll's hubris theory (1986), management of well-performing acquiring firms might be prone to overconfidence and might suffer

from managerial hubris, leading them to undertake unprofitable transactions that result in an unfavorable post-M&A performance.<sup>304</sup>

All in all, the former insurance literature indicates a positive correlation between a previous acquirer's performance and its growth, while there is no consistent and reliable evidence on the relationship between pre-M&A performance and M&A success of an acquiring firm (see Figure 8).



**Figure 8: Dependency between M&A success, an acquirer's size, and transaction experience**

In addition to the above discussed acquirer variables, Akhigbe and Madura (2001), Floreani and Rigamonti (2001), and Schertzing (2008) distinguish between different **lines of business** in their analyses. While the former authors only subdivide insurers into "life" and "non-life," the latter two academic studies separate transactions into "life," "reinsurance," and "others," and "P&C," "life," "re," "agents/brokers," and "others," respectively. Akhigbe and Madura (2001) report that transactions undertaken by US non-life insurers create significantly more value for the acquiring US insurance company and the combined entity than M&A transactions undertaken by US life insurers. This result stands in

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<sup>304</sup> Lang, Stulz, and Walkling (1989) provide empirical evidence supporting this argumentation. In their sample of successful tender offers, shareholders of acquirers who engage actively in M&A transactions receive reduced returns. However, empirical findings by Morck, Shleifer, and Vishny (1990) provide evidence for the contrary. In their US sample, bad M&A transactions are primarily driven by managerial objectives and not by managerial hubris.

sharp contrast to the findings of the latter two studies. According to Schertzingler's (2008) European data, life insurance companies were not only the most active acquirers but also the most preferred targets. The author observes higher CARs and CERs (however, not statistically significant) for European acquirers operating in life business than for P&C insurance acquirers. Similarly, in a global context, Floreani and Rigamonti (2001) also consider pure life insurance deals to be more value enhancing than business-diversifying non-life deals. In addition, shareholders of reinsurance companies engaging in M&A activity are found to experience the highest abnormal stock returns around the announcement of the deal.

In summary, the direction of the relationship between an acquirer's line of business and its M&A success cannot be completely determined by a review of the extent literature on the effects of insurance M&A. There is no significant evidence from the insurance M&A literature, and evidence from other industries suggests that there is no statistically significant relationship between these two variables,<sup>305</sup> the findings of Schertzingler's (2008) European sample and from Floreani and Rigamonti's (2001) global study suggest that M&A transactions by European life insurance companies yield small positive short- and long-term abnormal returns.

Additionally, several firm level corporate governance characteristics—which comprise **percentage of shares held by the CEO, percentage of shares held by institutions, percentage of shares held by blockholders, CEO tenure, CEO independence from the chief of the board position, proportion of independent directors within the board of directors, and percentage of newly nominated board members**—are analyzed by Boubakri, Dionne, and Triki (2006). CEO share ownership is also studied in the paper by Cummins and Xie (2005).

Concentrating first on the ownership structure of the acquiring insurance firms, on the one hand, the authors expect that the higher financial performance the

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<sup>305</sup> See, e.g., Bamberger (1994, p. 199).



higher the CEO, institutional, and blockholder ownership level is, since personal interests of managers are aligned to the organizational objective of maximizing the value for company shareholders, and thereby agency conflicts are diminished (i.e., interest alignment hypothesis).<sup>306</sup> On the other hand, however, major shareholder ownership may cause managerial entrenchment problems, that is, problems resulting from situations in which “managers gain so much power that they are able to use the firm to further their own interests rather than the interest of their shareholders.”<sup>307</sup> <sup>308</sup> Empirical evidence for the latter argument comes from Cummins and Xie (2005). The authors show in their study that the coefficient of insider ownership on an acquirer’s post-merger performance is negative, although insignificant. Moreover, in the study of Boubakri, Dionne, and Triki (2006), the two variables, CEO share ownership and blockholder share ownership, are estimated to have significantly negative effects on acquiring firm’s valuation, and institutional ownership is found to be insignificantly negative related to an acquirer’s M&A success.<sup>309</sup> Consequently, the more shares the CEO, blockholders, and/or institutional investors hold, the lower the value creation for the acquirer’s shareholders. Accordingly, the combined findings of both studies provide strong support for the agency theory’s argument that entrenchment problems could arise as a result of major shareholders.<sup>310</sup>

Following the results from previous research from other industries, the CEO experience and CEO independence from the chief of the board position are

<sup>306</sup> Past studies supporting this view include that of Jensen and Meckling (1976) and Hart and Holmstrom (1987).

<sup>307</sup> Weisbach (1988, p. 435). A further definition of entrenchment is provided by Shleifer and Vishny (1989, p. 123): “By making manager-specific investments [e.g., conducting specific M&A transactions], managers can reduce the probability of being replaced, extract higher wages and larger prerequisites from shareholders, and obtain more latitude in determining corporate strategy.”

<sup>308</sup> Previous studies supporting this hypothesis include the works by Fama and Jensen (1983a, 1983b) and Morck, Shleifer, and Vishny (1988). See Fulghieri and Hodrick (2006) for a comprehensive analysis on internal agency conflicts, e.g., entrenchment problems, in the context of M&A activity. Additionally, Morck, Shleifer, and Vishny (1988) as well as Jun (2007) investigate the entrenchment effect on corporate valuation.

<sup>309</sup> CEO ownership: Cummins and Xie (2005) find an insignificant relationship. A significant negative relationship is detected by Boubakri, Dionne, and Triki (2006). Blockholder ownership: Boubakri, Dionne, and Triki (2006) observe a significant negative impact.

<sup>310</sup> See, e.g., Morck and Vishny (1988, p. 301) and Boubakri, Dionne, and Triki (2006, p. 59).

expected to have a small positive influence on the success of mergers.<sup>311</sup> Even though both variables (CEO tenure and CEO independence), which have been exclusively studied by Boubakri, Dionne, and Triki (2006) in an insurance context, indicate some relationship in the expected direction, they are not significantly related to the CAR of the acquirer, and thus these factors do not result in a different reaction by the market on average.

The proportion of independent directors within the board of directors and the percentage of newly nominated board members, however, both show a significantly positive long-term effect on the stock price change, as outlined by Boubakri, Dionne, and Triki (2006). As a result, board independence leads to value gains for the acquirer if the number of independent board directors is large enough to make a difference.

Table 15 summarizes the above findings of previous capital market research on the various acquirer determinants of value creation in insurance transactions and their findings on the effects of several target features, features of the transaction structuring and management phase, and influences of the economic environment.

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<sup>311</sup> For example, see findings reported by Denis and McConnell (2003) and Walters, Kroll, and Wright (2007).



Author	Ex ante Features of the Target Firm				Ex ante Features of the Transaction Structuring and Management Phase						Economic Environment	
	Relative Size	Pre-merger Performance	Line of Business	Company Ownership	Geographic Focus	Industry Focus	Pre-merger Participation	Cultural Compatibility	Mode of Transaction	Percentage Acquired		Method of Payment
Cummins and Xie (2005)	Insignificant positive			Private positive	Focus positive	Focus positive	Insignificant negative				Cash insignificant positive	
Cummins and Xie (2009)	Positive			Public negative			Positive				Cash insignificant positive	
Akhigbe and Madura (2001)	Insignificant positive										Cash insignificant	
BarNiv and Hathorn (1997)		Insignificant, but CAR financially sound target > CAR distressed target										
Boubakri, Dionne, and Triki (2006)	Insignificant positive				Diversification insignificant negative	Focus positive			Mergers negative	Insignificant		
Cummins and Weiss (2004)					Diversification insignificant negative	Focus positive				Insignificant		
Elango (2006)					Diversification insignificant negative	Focus positive		Positive				
Florenti and Rigamonti (2001)	Positive				EU: Focus insignificant negative, Diversification positive; US: Focus positive, Diversification insignificant negative	Focus positive					Cash insignificant negative	
Schertzing (2008)	S-t: Insignificant, L-t: Insignificant positive		S-t: Life and P&C positive, Agents/Brokers and Others insignificant negative; L-t: Life positive, P&C negative		S-t: Full focus insignificant negative, Full diversification positive, Mixed strategy insignificant positive; L-t: "All-or-nothing"-strategy is best, Full focus insignificant positive, Full diversification insignificant positive, Mixed strategy insignificant negative							S-t: Upswing and peak positive, downturn insignificant positive, bottom negative; L-t: CTAR: Upswing and peak insignificant positive, downturn and bottom insignificant negative; BHAR: Upswing and peak insignificant negative, downturn insignificant, bottom insignificant positive
Staikouras (2009)	Positive								Diversification negative			

### 3.8.3 Characteristics of the Target Companies

A large number of target firm characteristics have also been considered in the reviewed capital market studies. Various studies<sup>312</sup> analyze the influence of the **relative size of the target to the acquiring insurer** and thereby try to derive an optimal relative size of an M&A transaction. While the two related studies by Cummins and Xie (2005, 2009) base their measure on the relative equity value of the two firms, Akhigbe and Madura (2001) set the relative size of the target (measured by its market capitalization) in proportion to the size of the industry median size. Instead of using the size of the target, Floreani and Rigamonti (2001), Schertzingler (2008), and Staikouras (2009) apply a different measure that indicates the relative importance of the deal: transaction volume divided by market value of the acquiring firm, which gives us the relative transaction value.<sup>313</sup> In contrast, Boubakri, Dionne, and Triki (2006) only include a dummy variable that allows them to differentiate between insurance agencies/brokers and larger insurance companies.

In general, the larger the target relative to the acquirer, the greater the effect of the M&A transaction on the acquiring firm's valuation<sup>314</sup> and vice versa.<sup>315</sup> Moreover, it is argued that large targets are more difficult to integrate, but at the same time, a successful integration will most likely lead to substantial value gains. Proponents of this view point out that even though a successful integration of a large target might lead to substantial value gains,<sup>316</sup> its

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<sup>312</sup> Akhigbe and Madura (2001), Floreani and Rigamonti (2001), Cummins and Xie (2005), Boubakri, Dionne, and Triki (2006), Schertzingler (2008), Cummins and Xie (2009), and Staikouras (2009),

<sup>313</sup> See, e.g., Floreani and Rigamonti (2001, p. 12) and Schertzingler (2008, p. 88).

<sup>314</sup> See, e.g., Lang, Stulz, and Walkling (1991, p. 324), Jarrell and Poulsen (1994, p. 292), Sawjer Jr. and Shrieves (1994, p. 45), and Sirower (1997, p. 134). The former authors state that "the gain will be more noticeable if the target is large in relation to the bidder" (Lang, Stulz, and Walkling, 1991, p. 324).

<sup>315</sup> In contrast, the lower the relative size of the target to the acquirer, the lower the expected impact of the transaction on the acquiring firm's stock price. In an extreme case, the relative size of the target would be so small that its acquisition would not have any wealth effect on the acquirer (see, e.g., Ravenscraft & Scherer, 1988, p. 38; Eckardt, 1999, p. 112).

<sup>316</sup> For example, Martynova, Oosting, and Renneboog (2007, p. 6) state that "takeovers of relatively large targets are more likely to achieve sizeable operating and financial synergies and economies of scale than small acquisitions, therefore leading to stronger post-acquisition operating performance."

integration becomes more difficult the bigger the size of the target,<sup>317</sup> since the size acts as an indicator of a firm's complexity.

Although the relative size variable fails to exhibit any significance in four out of seven short-term event studies (Cummins & Xie, 2005; Akhigbe & Madura, 2006; Boubakri, Dionne, & Triki, 2006; Schertzing, 2008), all these non-significant estimates have a uniformly positive sign. Furthermore, in the remaining three studies (Floreani & Rigamonti, 2001; Staikouras, 2009; Cummins & Xie, 2009) a positive and statistically significant short-term relationship is observed, independently from the sample region.<sup>318</sup> The relationship between relative deal size and post-M&A performance over a long time horizon is also positive, however, statistically insignificant. In conclusion, short-term abnormal returns for acquiring insurance firms are strongly positively correlated with the relative size of the deal, which indicates that wealth increase through an M&A transaction is higher the greater the relative importance of the deal.

Similar to the properties of acquirers, certain studies might distinguish between **targets** on the basis of their **pre-merger performance**. In the reviewed sample of capital market studies, BarNiv and Hathorn (1997) investigate whether acquisitions of good performing targets or poor performing targets create more shareholder value for the acquiring insurance firm. In particular, their paper focuses on mergers of either financially sound targets or distressed insurance targets. The authors find that the difference in one-year post-merger performance of acquirers of financially sound targets and acquirers of distressed targets is statistically insignificant in most of their models used. However, in all three models tested, acquirers buying financially sound

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<sup>317</sup> For example, Clark and Ofek (1994) hypothesize that potential difficulties that result from managing a large combined operation may outweigh the operating and financial synergies of such an M&A deal and hence result in a deterioration of operating performance, as cited by Martynova, Oosting, and Renneboog (2007, p. 6).

In addition, Berger and Ofek (1995, p. 55), as well as Lamont and Polk (2001, p. 1718), present arguments for the existence of the conglomerate discount (e.g., over investments, inefficient cross-subsidization, and market valuation problems).

<sup>318</sup> In addition, this positive short-term market reaction is confirmed by the two event studies of Moeller, Schlingemann, and Stulz (2003), as well as Fields, Fraser, and Kolari (2007), in which the insurance industry is analyzed as one of many others.

insurance companies experience higher medium-term CARs as compared to acquirers of distressed insurers. Accounting studies dealing with this topic give an additional insight into the influence of profitability on the probability of being an acquisition target in insurance transactions. The first group of studies, consisting of works by Chamberlain and Tennyson (1998), Cummins, Tennyson, and Weiss (1998), and Cummins and Xie (2009), indicate a positive correlation of targets' pre-M&A efficiency and the probability of being a target firm. According to their findings, more efficient insurers—and hence most likely also better performing firms—might be preferred because of their ability to generate higher synergies when integrated into the acquiring firm's operations.<sup>319</sup> Findings from a second group of accounting studies<sup>320</sup> do not confirm these results because these studies find that less efficient and underperforming insurance companies are significantly more likely to become acquisition targets. It is argued by these authors that vulnerable and inefficient insurance targets offer a remarkable opportunity to considerably improve a target firm's efficiency.

Finally, the direction of the relationship between a target's pre-merger performance and an acquirer's post-merger success cannot be asserted unequivocally; however, the capital market study by BarNiv and Hathorn (1997) provides some evidence that insurance companies acquiring financially sound targets outperform acquirers of distressed targets.

Schertzinger (2008) examines the relationship between M&A performance and **targets' line of business** by separating transactions into "P&C," "life," "re," "agents/brokers," and others.<sup>321</sup> In the period 1990–2005, acquisitions of life insurance companies are found to be more value enhancing than acquisitions of

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<sup>319</sup> See, e.g., Cummins, Tennyson, and Weiss (1998, p. 328) and Cummins and Xie (2009, p. 149).

<sup>320</sup> Cummins and Weiss (2000) as well as Cummins and Xie (2008).

<sup>321</sup> Also, Floreani and Rigamonti (2001) form subsamples where acquirer and target are both life insurance companies, both reinsurance companies, and a third subsample in which all other transactions are included. However, since the authors primarily test the conglomeration versus the strategic focus hypothesis, their study is not listed here.

non-life companies both on a short-term and long-term horizon.<sup>322</sup> This result is consistent with Floreani and Rigamonti's (2001) findings that focusing deals involving pure life insurance companies result in higher abnormal returns than diversifying non-life deals.<sup>323</sup>

In their US-focused studies, Akhigbe and Madura (2001) and Cummins and Xie (2009) control for **target ownership** by differentiating between publicly traded and privately held targets. Both studies come to the conclusion that the acquisition of a privately held US insurance company is more favorable than the acquisition of a publicly traded US target. More precisely, Cummins and Xie (2009) find that private ownership is significant and positively related to acquirers' performance, whereas the cross-sectional regression analysis of Akhigbe and Madura (2001) yield a significant negative coefficient for the acquisition of a publicly traded insurance target. Akhigbe and Madura (2001, p. 496) explain their results by highlighting that privately held targets are more easily to acquire at lower prices because their shares are not continuously valued by the capital markets.

In summary, previous capital market research undoubtedly documents favorable valuation effects for acquirers of privately held insurance targets upon the announcement of M&A transactions.<sup>324</sup>

### **3.8.4 Characteristics of Transaction Structuring and Management**

Features of the transaction structuring and management phase can be divided into factors related to the pre-transaction phase, to the transaction phase, and to the post-transaction phase. As a first step of the transaction process, the transaction strategy, that is, the strategic direction, has to be chosen by the acquiring insurance firm. Geographic location and industry relatedness appear

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<sup>322</sup> While positive abnormal returns of life targets are significant in the long run, short-term abnormal returns are statistically not significant.

<sup>323</sup> Floreani and Rigamonti (2001) detect that “[s]hareholders of reinsurance companies gain most from merger activity”, while “[a]bnormal returns for mergers of life insurance partners are also significantly positive” (p. 10).

<sup>324</sup> Even though both studies that investigate the effects of target ownership on an acquiring firm's performance employ a US-only sample.



to be the two most important factors in determining the success of an M&A transaction. This conjecture is supported by the fact that a large number of academic studies include variables for the **geographic area** and the **industry relatedness** of the merging partners in their models or even place this strategic direction dimension at the center of their analyses. Also, in our sample of reviewed studies, geographic and industry diversification versus geographic and industry focus have also been the most commonly analyzed cross-sections, which both have been included in the empirical studies of Floreani and Rigamonti (2001), Cummins and Weiss (2004), Cummins and Xie (2005), Boubakri, Dionne, and Triki (2006), and Schertzingler (2008).<sup>325</sup> In addition, Staikouras (2009) only examines the influence of industry relatedness on M&A success, while Elango (2006) restricts his empirical analysis to investigating solely the geographical dimension.

In general, it is argued that an expansion into a new field, on the one hand, will offer considerable opportunities for the respective firm to defend and even enhance its competitive position, but on the other hand, acquiring a company in a different market and/or a different business segment will ultimately increase the degree of unfamiliarity and risk.<sup>326</sup>

Looking at the geographical dimension, transactions can be divided into geographically focusing (or domestic) deals, involving an acquirer and a target from the same country, and geographically diversifying (or cross-border) deals, which involve an acquiring firm and a target from different countries.<sup>327</sup> Each of the two main geographical directions has its advantages and limitations simultaneously. For example, Martynova, Oosting, and Renneboog (2007, p. 6)

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<sup>325</sup> Floreani and Rigamonti (2001) and Cummins and Weiss (2004) analyze geographic and industry focus in two univariate cross-sections; Cummins and Xie (2005) investigate geographic and industry focus in their multi- and univariate analyses; Boubakri, Dionne, and Triki (2006) examine geographic and industry focus in their multivariate analysis; and Schertzingler (2008) evaluates geographic and industry focus through cross-sectional analyses. Furthermore, various efficiency studies test the impact of the strategic direction on firms' performance: Cybo-Ottone and Murgia (2000) include both variables for geographic area and industry relatedness in their multi- and univariate analyses; Fields, Fraser, and Kolari (2005) include a geographic diversification measure in their univariate comparison; and Fields, Fraser, and Kolari (2007) conduct a multi- and univariate analyses to investigate the geographic dimension.

<sup>326</sup> E.g., Beatty (1999, p. 3, p. 5).

<sup>327</sup> E.g., Spiss (2008, p. 19).

enumerate multiple arguments given by previous authors why cross-border deals should be value enhancing for the involved firms. These arguments range from advantages resulting from imperfections in international capital, factor, and product markets (Hymer, 1976), and from geographic diversification (Erez-Rein, Erez & Maital, 2004; Focarelli & Pozzolo, 2008) to strategic considerations, such as expanding the business into new and lucrative markets (Hitt, Ireland & Hoskisson, 2003; Martynova, Oosting, & Renneboog, 2007; Focarelli & Pozzolo, 2008).<sup>328</sup> However, at the same time, acquiring firms face additional risk and numerous significant challenges when conducting these complex overseas M&A transactions. Besides the already formidable task of integrating the target into the acquiring company's operations, an acquisition of a foreign company may provoke additional difficulties resulting from regulatory, political, cultural, and managerial differences between the two companies.<sup>329</sup> These complex issues increase the likelihood of M&A failure and might possibly offset the benefits of international expansion.<sup>330</sup> Concentrating on the findings of the reviewed capital market studies, the results show a clear pattern that can be identified by differentiating between European mergers and US ones.

While the short-term influence of geographically focusing mergers in the EU on acquirers' performance is significantly negative, as found by Cummins and Xie (2004) and Schertzingler (2008) in their investigations on M&A transactions in the European insurance market, geographically diversifying mergers in the EU are associated with a significant positive short-term market reaction.<sup>331</sup> For example, the short-term analysis of Floreani and Rigamonti (2001) indicates that European diversifying (cross-border) transactions created substantial value for acquiring insurance firms' shareholders, as their study finds a positive short-term abnormal return of 4.23% in (-20;+2), which is statistically significant at the

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<sup>328</sup> For further advantages and opportunities of cross-border M&A, see for example, Erez-Rein, Erez, and Maital (2004, p. 20) and Martynova, Oosting, and Renneboog (2007, p. 6).

<sup>329</sup> E.g., Erez-Rein, Erez, and Maital (2004, p. 21), Martynova, Oosting, and Renneboog (2007, p. 6), and Spiss (2008, p. 21).

<sup>330</sup> E.g., Schoenberg (1999, p. 294) and Spiss (2008, p. 21).

<sup>331</sup> Floreani and Rigamonti (2001): EU domestic deals insignificantly negative abnormal return of -0.21% in (-20;+2), EU international deals significant positive abnormal return of 4.23% in (-20;+2); Cummins and Weiss (2004): Focusing deals are negative (e.g., mean CAAR of -0.40% in (0;+1) significant at 1% level), and diversifying value is neutral; Schertzingler (2008): Focusing transactions are negative, and cross-border deals experience highest CERs.

10% level. Moreover, Cummins and Weiss (2004) show that geographically focusing (within-border) deals led to significant value losses for acquirers.<sup>332</sup> In contrast, in the US insurance market, a positive and statistically significant short-term relationship between geographical focus and post-M&A performance is found by Floreani and Rigamonti (2001), whereas US insurance firms who diversify geographically face abnormal decreases in stock prices.<sup>333</sup> This initial negative stock price reaction to US transactions also seems to be an unbiased estimate of the long-term valuation effect, inasmuch as Boubakri, Dionne, and Triki (2006) also detect small negative long-run performance effects for US insurance firms that diversify geographically.

Varying M&A outcomes might not only result from differences in the geographical dimension of the transaction but might also vary depending on the degree of business overlap between acquirer and target. According to the industry relatedness of the target to the acquiring insurance firm, M&A transactions are most commonly divided into focusing (or related) transactions and diversifying (or unrelated) transactions. The latter group comprises deals in which two (or more) companies merge or affiliate that do not operate in the same industry segment.<sup>334</sup> Focused transactions, on the contrary, describe M&A deals in which the acquirer and the target firm both operate in the same industry segment. These related transactions are expected to generate substantially higher synergistic gains as compared to unrelated ones because of the higher degree of business overlap.<sup>335</sup> Supplementary to synergistic effects, numerous other value drivers of related M&A, such as greater expertise in managing the target company (Prahalad & Bettis, 1986; Dickie, Michel, &

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<sup>332</sup> Acquirers' mean and weighted CAAR for cross-border transactions are 0.07% and 0.10%, respectively, compared to -0.44% and -0.27% for within-border transactions in (-1;+1) at the 10% level.

<sup>333</sup> Floreani and Rigamonti (2001): Within US deals significant positive with an abnormal return of 5.87% in (-20;+2); Cummins and Xie (2005): Geographically focusing acquisitions have a significant positive abnormal return of 4.25% in (-1;+1), diversifying neutral ones have a CAR of 0.43% for the (-1;+1) window; Elango (2006): US insurance acquirers face statistically insignificant negative CARs when diversifying geographically; the higher the differences between target's and acquirer's country factors, such as wealth of the countries, amount of bilateral trade between the two countries, extent of potential liabilities of foreignness, and economies of scope.

<sup>334</sup> See, e.g., Eckardt (1999) and Spiss (2008).

<sup>335</sup> E.g., Bhagat, Shleifer, and Vishny (1990, p. 4) and Healy, Palepu, and Ruback (1997, p. 51).

Shaked, 1987; Chatterjee & Lubatkin, 1990; Martin & McConnell, 1991; Healy, Palepu, & Ruback, 1997) and an increase in market share that will most likely lead to higher profits (KPMG, 2001; Gosh, 2004), have been identified by the extant literature.<sup>336</sup> In contrast, advantages of unrelated transactions (and, in many cases, simultaneously disadvantages of related transactions) range from risk-reduction benefits of diversification to the creation of an internal capital market that potentially enables cross-subsidization within the firms, as stated by Sudarsanam (2010, p. 184). Even though these aforementioned benefits of unrelated M&A will have a positive effect on shareholders wealth, former studies on this relationship also revealed a broad variety of disadvantages, including an increase in agency problems caused by diversification (Shleifer & Vishny, 1989; Sudarsanam, 2010) and non-value maximizing activities of managers (Shleifer & Vishny, 1989; Eckardt, 1999; Scharfstein & Stein, 2000), which may probably outweigh the potential synergies of diversification. Due to these disadvantages of unrelated transactions and the bulk of advantages of related M&A, previous studies predominantly expect related transactions to result in more favorable outcomes.<sup>337</sup> Findings from recent empirical studies on the financial services industries have been mixed, depending on the time horizon and the particular industry analyzed. For bank-insurance combinations, Cybo-Ottone and Murgia (2000) expect diversification from banks into the insurance business to have a positive valuation effect, whereas Lelyveld and Knot (2009) have found firm-specific conglomerate discounts for large bank-insurance conglomerates.

However, empirical evidence from the insurance industry indicates significant shareholder value creation for focus-enhancing insurance transactions.<sup>338</sup> In more detail, the majority of the capital market studies in our sample suggest that mergers of similar businesses on average seem more profitable than mergers in

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<sup>336</sup> For a detailed overview on the various sources of value creation in focusing transactions, please refer to the work of Sudarsanam (2010), Spiss (2008), and the references therein.

<sup>337</sup> E.g., Lubatkin (1983), Bamberger (1994), Healy, Palepu, and Ruback (1997), Eckardt (1999), and Heron and Lie (2002).

<sup>338</sup> E.g., Floreani and Rigamonti (2001), Cummins and Weiss (2004), and Cummins and Xie (2005). Even though Schertzing (2008) detects a negative announcement effect for industry-focusing insurance transactions, his long-term results provide strong support for a positive long-term wealth effect of these transactions.

which acquirer and target engage in different businesses.<sup>339</sup> Short-term event studies conducted by Floreani and Rigamonti (2001), Cummins and Weiss (2004), Cummins and Xie (2005), and Schertzing (2008) all find business focus-enhancing transactions to have a positive impact on acquirers' and combined entities' performance. Floreani and Rigamonti (2001) find insurance transactions between life insurers and reinsurers to result in significant positive market reactions of 3.13% and 4.66%, respectively. In the paper by Cummins and Xie (2005), business-focusing transactions are associated with a significant positive acquirer CAR of 1.21% and a positive CER of 5.01% for the (-1;+1) window. Additionally, business-diversifying transactions are found to be value neutral because of a statistically insignificant abnormal return of 0.37% for the (-1;+1) event window (Cummins & Xie, 2005). Schertzing (2008) not only presents significant positive short-term CARs and CERs for within-industry M&A [e.g., mean acquirer CAR of 2.10% in (-10;+10) significant at the 10% level] but also significant negative short-term CARs and CERs for cross-industry transactions [e.g., mean acquirer CAR of -2.50% in (-2;+2) significant at the 1% level]. In addition to this favorable short-term market reaction of industry-focusing insurance M&A, Boubakri, Dionne, and Triki (2006) confirm the positive relationship between within-industry transactions and acquirers' post-M&A performance on a long-term horizon.<sup>340</sup>

To conclude, in contrast to many other industries (e.g., banking), focus-enhancing M&A transactions in the insurance industry are found to generate significantly higher wealth gains than business-diversifying M&A. This insurance-specific finding of positive wealth effects in business-focusing transactions is explained by the ability of insurance companies to diversify most of their risks (e.g., actuarial risks) even when acquiring other insurance players that operate in the same business segment.<sup>341</sup> Accordingly, insurance

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<sup>339</sup> In contrast, Cybo-Ottone and Murgia (2000) and Fields, Fraser, and Kolari (2007), who investigate the valuation effects of banks and not insurers, observe significantly positive CARs for industry-diversifying transactions of banks into insurance companies.

<sup>340</sup> However, Boubakri, Dionne, and Triki (2001) fail to provide statistical evidence for this positive long-term relationship.

<sup>341</sup> Floreani and Rigamonti (2001, p. 13). See also the paper by Babbel and Santomero (1997).

companies do not ultimately have to diversify their business operations (e.g., products or services) in order to spread their business risks.<sup>342</sup>

Looking not only independently at the geographic and industry dimension, but instead at the firms' combined product-market mix, Cummins and Xie (2005) assess full-focusing US acquirers to generate the highest abnormal return of 6.27% for the (-1;+1) short-term event window (whereas, geographically diversifying/business-focusing transactions experience a CAR of 0.44%, geographically focusing/business-diversifying transactions yield a CAR of 0.22%, and geographically diversifying/business-diversifying transactions generate a CAR of 0.40%). In a European context, however, Schertzingler does not find a positive short-term market reaction for European full-focusing insurance transactions. Instead, these deals lead to insignificant negative abnormal returns for acquiring European insurance companies. In contrast, the author detects positive, yet also non-significant, short-term abnormal returns for European insurance companies diversifying their business and simultaneously expanding their geographical presence. Besides this insignificant positive short-term market reaction for European insurance acquirers pursuing a full diversification strategy, Schertzingler (2008) also finds insignificant positive long-term value creation for these kinds of M&A deals. Over the long horizon of three years following the M&A transactions, even fully focusing European insurance acquirers created insignificant value, yet significantly less than their fully diversifying counterparts.<sup>343</sup>

Furthermore, the author finds patterns indicating that acquirers who pursue an "all-or-nothing" strategy (either full focus or full diversification) perform significantly better in the long run as compared to acquirers pursuing other strategies. Also, Berger et al. (2000) discover a long-run coexistence of joint producers and specialists in the insurance industry. Focusing transactions are

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<sup>342</sup> In contrast, banks ultimately have to diversify and expand their business activities into other business segments in order to spread and diversify their risks, which predominantly arise from changes in interest rates and credit defaults (Florenani & Rigamonti, 2001, p. 13).

<sup>343</sup> Schertzingler (2008) underlines this finding by explicitly stating that "acquirers pursuing a full diversification strategy create significantly more value than fully focusing acquirers" (p. 168).

beneficial for some types of insurance companies, while diversifying ones are the preferable approach for others, depending on firm-specific variables.<sup>344</sup>

In summary, the empirical US literature in our sample indicates that the level of relatedness between US bidder and target firms (which is defined in terms of product-market similarity) is positively correlated with M&A success. The reviewed studies provide evidence for the “diversification discount” phenomenon in the US insurance industry by suggesting that focus-enhancing transactions in the US on average appear to be more profitable than diversifying ones. US Insurers that increase their geographical and industry focus generally dominate insurance acquirers that pursue a diversification strategy in terms of short- and long-run post-acquisition performance. These empirical findings suggest that regional market power effects or scale economies are more important than benefits from risk diversification or economies of scope in the US insurance market.<sup>345</sup> In contrast, full diversification strategies in the European insurance market increase shareholder value in the short and in the long run. However, as pointed out by Schertzing (2008), European insurers extensively pursuing a full focus strategy may also enhance value for their shareholders in the long term.

In addition, two issues that are related to the identification and selection process are studied by the three academic papers of Cummins and Xie (2005, 2009), and Elango (2006). While the latter author points out the importance of cultural compatibility between acquirer and target firm in influencing the success of insurance M&A, the two related studies conducted by Cummins and Xie (2005)

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<sup>344</sup> See, e.g., Berger et al. (2000, p. 358), Schmid and Walter (2009, p. 208), and Lelyveld and Knot (2009, p. 2316).

<sup>345</sup> Akhigbe and Madura (2001, p. 495), Cummins and Xie (2005, p. 28), and Boubakri, Dionne, and Triki (2006, p. 58) provide possible explanations for the predominance of focusing deals (standardization in services and products, improvement in economies of scale, superior expertise, higher service quality, and cost savings). Lelyveld and Knot (2009, p. 2317) outline three characteristics that are able to explain the superiority of focus-enhancing transactions: size as a proxy for the complexity of a firm (lower valuation for more complex firms because of negative effects of diversification and valuation problems for investors), degree of mixedness (difficulties in management and evaluation of complex conglomerates), and risk profile (transfer of value from shareholders to debt holders by decreasing the riskiness of the company through diversification).

and (2009) are the only ones to investigate the impact of acquirers' ownership in targets before the transaction.

Deals in which acquirers and targets have a business relationship before the transaction, measured by **ownership of acquirers in targets before the transaction**,<sup>346</sup> generally outperform deals in which there is no relationship between the two companies.<sup>347</sup> In their recent short-term event study, Cummins and Xie (2009) confirm this positive correlation for the insurance market. In their regression analysis, the authors discover a significant positive coefficient for the variable representing pre-M&A ownership in the target. However, in an earlier study, the present authors found a small and insignificantly negative regression coefficient for same variable.<sup>348</sup>

The other classification scheme for M&A deals, which is exclusively used in the cross-sectional regression analysis by Elango (2006), investigates the possible relationship between the **cultural compatibility** of the involved firms. In Elango's paper, cultural comparability between a US acquirer and an international target firm is measured as the extent of potential liabilities of foreignness (or abbreviated as LOF)<sup>349</sup> faced by the acquiring firm. Based on the finding of a significant negative coefficient for the variable "LOF," the author concludes that acquiring insurance companies face significant negative returns when conducting acquisitions "in countries which are characterized by greater differences in culture, environment, legal systems, and geographic distance" (Elango, 2006, p. 402). Consequently, the market rewards cultural comparability

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<sup>346</sup> In general, a business relationship between the two parties may manifest itself in several different ways, including cooperation, a reinsurance arrangement, or an asset ownership. The two reviewed studies by Cummins and Xie (2005, 2009) base their analysis on the decision criterion whether or not the acquirer partially owns assets of its target before the announcement of the transaction (toehold interest), since information on other forms of business relationships is not available.

<sup>347</sup> See, e.g., Grossmann and Hart (1980), Mikkelson and Ruback (1985), Shleifer and Vishny (1986), Bradley, Desai, and Kim (1988), and Franks and Harris (1989).

<sup>348</sup> Cummins and Xie (2005).

<sup>349</sup> "Liabilities of foreignness" is a term introduced by Zaheer (1995) that captures the additional costs that firms face when operating abroad. These additional costs primarily arise "from the unfamiliarity of the environment, from cultural, political, and economic differences, and from the need for coordination across geographic distance" (Zaheer, 1995, p. 341).



between the merging partners with a positive announcement return for the acquirer.

According to the studies in our sample, some transaction characteristics could be responsible for the market's reaction to the transaction. Consequently, some of the studies reviewed control for certain deal characteristics, namely mode of acquisition, method of payment, and percentage of shares acquired. The **mode of acquisition** is examined by the long-term study of Boubakri, Dionne, and Triki (2006). The authors investigate whether tender offers or mergers result in a more favorable valuation effect for acquiring firms' shareholders. Mergers typically are friendly, negotiated deals that are conducted with the full cooperation of the target firm's management. In contrast, tender offers are mostly hostile and directly addressed to target firm shareholders (via public offer), bypassing a target firm's management.<sup>350</sup> As intuitively argued in the extant M&A literature, acquiring managers in friendly mergers have better access to internal company data, which reduces the information asymmetry, enhances the quality of the due diligence process, and reduces the acquirer's uncertainty in the valuation of a target's assets.<sup>351</sup> Besides, Healy, Palepu, and Ruback (1997) add that "friendly takeovers are less likely to experience disrupted operations after the takeover that may destroy the target firm's intangible assets" (p. 45). In contrast, unfriendly tender offers are expected to increase acquirer value by replacing inefficient management of the target firm and reducing agency costs (Healy, Palepu, & Ruback, 1997, p. 45). In addition to that, acquirers in hostile takeovers (which regularly are more expensive for the bidding firm) indicate their confidence in being able to generate substantial value gains from these M&A deals (Loughran & Vijh, 1997; Burkart & Panunzi, 2006; Martynova, Oosting, & Renneboog, 2007). Some empirical evidence on this relationship in the insurance industry is provided by Boubakri, Dionne, and Triki (2006). The authors consider tender offers to be more profitable than

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<sup>350</sup> E.g. Morck and Shleifer (1988, p. 101), Loughran and Vijh (1997, p. 1767), Ravenscraft and Scherer (1987, p. 147), Boeckli (2003, p. 25), and Weston, Chung, and Hoag (2007, p. 534 and p. 747).

<sup>351</sup> Sudarsanam (2010, p. 420), Healy, Palepu, and Ruback (1997, p. 45) and Sudarsanam and Mahate (2003, p. 305).

mergers since they detect higher long-term returns for tender offers than for friendly mergers.

The only capital market studies that consider the relationship between the **percentage of shares acquired** and firms' post-merger financial performance are the ones conducted by Cummins and Weiss (2004) and Boubakri, Dionne, and Triki (2006). In theory, it is argued that a positive relationship, on the one hand, is expected since obtaining control of the target enables the acquiring company to gain more flexibility in imposing its way of doing business and to reduce the problems resulting from differing understandings about the future strategic direction of the combined company.<sup>352</sup> On the other hand, a negative influence of the percentage acquired on the M&A success is also conceivable, such that the price paid for the ownership stake in the target firm outweighs their benefits, as illustrated by Bamberger (1994, p. 294). However, the combined empirical evidence from the two studies in our sample indicates that the variable percentage of shares acquired has no explanatory power of the acquirers' returns in the insurance industry. Cummins and Weiss (2004) receive identical results for M&A deals involving the acquisition of a value stake and deals involving a change in control, and Boubakri, Dionne, and Triki (2006) also detect an insignificant yet small positive relationship.

Last but not least, the effect of the **payment method** on abnormal stock returns around the announcement date is analyzed by the short-term event studies by Akhigbe and Madura (2001), Floreani and Rigamoti (2001), and Cummins and Xie (2005, 2009). Previous M&A literature on this issue outlines that the decision on the specific form of the payment in M&A deals (e.g., payment entirely in stocks, in cash, or in a mix of cash and stocks) is always a trade-off between various factors and implications (e.g., size of the M&A transaction, the acquirer's pre-merger participation in the target, the acquirer's pre-merger stock market valuation, the acquirer's ownership structure, financial leverage, speed and extent of the planned integration process, and regulatory obligations).<sup>353</sup> In

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<sup>352</sup> E.g., Bamberger (1994) and Boubakri, Dionne, and Triki (2006, p. 13).

<sup>353</sup> For additional information on these influencing factors and their particular influence on the method of payment in M&A, see, for example, Myers and Majluf (1984, p. 187), Sudarsanam

addition to these influencing factors, the method of payment might also be a result of the negotiation process between the acquirer and the target and hence might not necessarily be fully in the hands of the acquiring firm.

In all four short-term event studies tested, the method of payment fails to exhibit any significance.<sup>354</sup> Akhigbe and Madura (2001) and Floreani and Rigamonti (2001) report statistically non-significant higher returns at the announcement for transactions financed exclusively with stocks than for deals financed with cash or with a mix of cash and stocks. However, these small positive abnormal returns of stock financed transactions might also be attributable to a size effect rather than the method of payment. Predominantly smaller deals are financed with cash, whereas stock payment is far more prevalent in deals with a larger relative size of the target.<sup>355</sup> Those are the deals that have a distinctive positive impact on acquirers' performance. By comparison, even though Cummins and Xie (2005, 2009) also find acquirers' abnormal returns to be unrelated to the form of payment, their statistically insignificant results for cash as a means of payment are positive in nature. Consequently, the method of payment does not seem to have a significant impact on the performance of acquiring insurance firms in general.

### 3.8.5 Influences of the Economic Environment

Almost all the reviewed academic papers do not include any exogenous factors in their analyses. The **timing of a transaction**, with respect to the phase in the M&A cycle, is however exclusively investigated in the work of Schertzing (2008).<sup>356</sup> The author differentiates between bottom, upswing, peak, and

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(2010, p. 482), and Spiss (2008, p. 14). Floreani and Rigamonti (2001, p. 7) present a theoretical motivation for the relevance of the method of payment, while Myers and Majluf (1984), Travlos (1987), Martin (1996), and Houston and Ryngaert (1997) conduct a comprehensive analysis of the effects of the method of payment on abnormal returns.

<sup>354</sup> Akhigbe and Madura (2001), Floreani and Rigamonti (2001), and Cummins and Xie (2005, 2009).

<sup>355</sup> For a proof of this statement, see for example, the summary statistic of our empirical study (Table 26 in section 4.3.10).

<sup>356</sup> The Boston Consulting Group (2003, 2009a) studies compare the success of strong- and weak-economy transactions to assess the impact of economic cycles.

downturn phases to test the “bandwagon effect,”<sup>357</sup> which might lead to the overpayment by acquiring companies in “hot” M&A markets.<sup>358</sup> While transactions conducted during the bottom phase of the M&A cycle experienced, on average, a negative CER of -3.10% in the estimation period from five days prior to five days after the announcement (significant at the 5% level), Schertzing (2008) identifies overall short-term positive valuation effects for deals conducted during the upswing [insignificant positive CER of 5.99% in (-5;+5)], peak [insignificant positive CER of 0.97% in (-5;+5)], and downturn phase [CER of 3.47% in (-5;+5) significant at 1% level] of the M&A cycle. Moreover, transactions conducted during the latter three phases (upswing, peak, and downturn) also generate significantly higher short-term returns for the acquiring insurance companies compared to transactions in the bottom phase. Acquirer CARs of transactions during the bottom phase of the M&A cycle are mostly significantly negative, with the highest significant value being -3.33% [in (-5;+5) at the 5% level], whereas CARs for acquirers that announced an M&A transaction during the peak phase are found to be insignificantly positive in most of the tested short-term event windows, with a maximum 0.89% in the event period (-10;+10). Schertzing (2008) further reveals that latter deals created significant value for acquiring firm shareholders (total value creation of \$17 billion), while bottom phase M&A resulted in a total value destruction of \$80 billion. Consequently, based on the short-term results, Schertzing does not find empirical support for a “bandwagon effect” in the European insurance M&A market in the period from 1990 to 2005. On the contrary, insurance firms that engage in M&A activity in the strong phases of the M&A cycle are rewarded by investors with higher short-term valuations.

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<sup>357</sup> Many firms enter a rising acquisition wave motivated by previous merger activities of other firms or by pressure from investors rather than fully undertaking a comprehensive analysis of strategic opportunities (see, e.g., McNamara, Halebian, & Dykes, 2008, p. 116).

<sup>358</sup> Literature in the field of IPOs regularly investigates the effect of the economic cycle on the performance of corporate IPOs (e.g., Ljungqvist, Nanda, & Singh, 2006; Yung, Colak, & Wang, 2008; Boulton, 2010). In these studies, the terms *hot market* and *cold market* are understood in terms of IPO activity. In general, “hot” (“cold”) IPO periods can be defined as “those where the number of firms in the portfolio is greater (lower) than the median” (Gregory & Matatko, 2005, p. 28). Accordingly, these “hot” (“cold”) periods of high (low) IPO volume can only be defined ex post (e.g., Gregory & Matatko, 2005, p. 12). Schertzing (2008), among others, adopts this term and refers to the level M&A undertaken. If the M&A activity is above (below) the sample median, the respective period is referred to as “hot” (“cold”).

By comparison, analyzing also the long-term effects of insurance M&A, Schertzinger's study produced inconclusive results. On the one hand, results drawn from a calendar-time analysis provide further evidence for the non-existence of the "bandwagon effect," as insurance acquirers in his sample achieve highest, yet insignificant CTARs in the strong phases of the M&A cycle, that is, in the upswing and peak phase. Long-term CTARs to acquiring insurers that carry out M&A deals during the downturn or bottom phase suffer small negative CTARs. Furthermore, transactions conducted during the upswing (or peak) of the M&A cycle yield significantly (or insignificantly) higher acquirer CTARs in the three-year period following the announcement. On the other hand, Schertzinger draws an opposing conclusion from an event analysis using BHARs. In this case, long-term value creation is only detected for deals conducted during the bottom (total value creation of \$51.2 bn) and downturn phase (total value creation of \$56.8 bn) of the M&A cycle,<sup>359</sup> while BHARs during the market upswing (-15.34% after one year) and peak (-13.45% after two years) are significantly negative at the 10% and 5% level, respectively.<sup>360</sup> These results, on the other hand, give weak support for the "bandwagon effect". Schertzinger's (2008) findings of positive long-run returns to acquirers conducting deals in the downturn phase of the M&A cycle and negative long-run returns of acquirers in upswing transactions are in line with results reported by The Boston Consulting Group. The Boston Consulting Group (2003, 2009a) studies compare the success of strong- and weak-economy<sup>361</sup> transactions to assess the impact of economic cycles. In their study, they also come to the

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<sup>359</sup> Positive, yet insignificant, cumulative abnormal returns for acquiring insurers are, however, only detected for downturn mergers (insignificant positive acquirer CAR of 6.23% after three years following the M&A announcement). In contrast, M&A transactions in the bottom phase of the M&A cycle, though increasing total shareholder value, exhibit insignificant negative acquirer returns on average. Even though negative, returns to acquirers carrying out transactions in the bottom phase are still significantly higher than returns to acquirers conducting transactions in the upswing phase.

<sup>360</sup> In addition to these negative long-run BHARs, value destruction of \$17.8 billion in transactions during the upswing phase of the M&A cycle and \$69.6 billion value destruction in transactions in the M&A peak are observed. Note that these significant results are based on the descriptive analysis. In addition, Schertzinger (2008) performs a multivariate regression model that yields comparable results (even though not statistically significant in the long term).

<sup>361</sup> Depending on whether GDP growth is above or below the long-term average growth of 3.0%.

conclusion that deals done during economic downturns<sup>362</sup> have a higher probability of success, produce higher long-run returns (on average 14.5% higher as compared to deals done during phases of strong economic growth over a two-year post-M&A period), and most importantly these deals are more likely to create long-term value (mainly through operational improvement and industry consolidation) than deals conducted during upswings. Furthermore, The Boston Consulting Group (2009a) outlines that downturn acquisitions usually suffer an adverse market reaction shortly after the announcement of the transaction.

Even though the influence of the timing of transactions seems to depend on the time horizon chosen and the long-term performance measure employed, the findings overall suggest that M&A transactions conducted in the upswing and peak phase of the M&A cycle experience a more favorable short-term market reaction than transactions during the downturn and/or bottom phase. Transactions in the two latter phases (downturn and bottom), however, might lead to higher shareholder wealth in the long run.

### **3.8.6 Comparison of Short-Term and Medium- and Long-Term Results**

As outlined in the previous sections, the various factors influence the success of an insurance transaction in manifold ways, primarily depending on the time horizon and the geographic region of the sample. A comparison of the short-term and medium- and long-term performance results on the several determinants of M&A success shall finally help to shed light on the reasons for the conflicting results of previous insurance M&A literature. Accordingly, in Figure 9, the available empirical findings are classified on the basis of their time horizon and valuation effect.

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<sup>362</sup> The Boston Consulting Group (2003) defines an economic downturn as a period of below-average GDP growth.

Short-term	+	Significant Positive	Pre-M&A performance of acquirers (Global) Non-life acquirers (US) Relative size of target Privately held targets Geographic diversification (EU) Geographic focus (US) Industry focus Pre-M&A participation Cultural compatibility Upswing of M&A cycle Peak of M&A cycle Downturn of M&A cycle	M&A transactions (US)
	-	Insignificant or Not Tested	CEO share ownership Blockholder ownership Board independence Property/Casualty targets Mergers	Growth of acquirers % new board members Life targets
	-	Significant Negative	Size of acquirers Pre-M&A performance of acquirers (US) Public targets Geographic focus (EU) Geographic diversification (US) Industry diversification Bottom of M&A cycle	M&A transactions (EU) Medium M&A experience (EU)
	-	Significant Negative	M&A transactions (EU) Medium M&A experience (EU)	M&A experience (US)
	-	Significant Negative	Insignificant or Not Tested	Significant Positive +
			Long-term	

**Figure 9: Comparison of the influence of determinants of success of insurance M&A depending on time horizon<sup>363</sup>**

As it can be seen from the figure above, while a specific factor might result in a significant negative abnormal stock market reaction around the time of M&A announcement, this factor could simultaneously help to increase shareholder wealth in the long term (e.g., transactions conducted by US insurance acquirers with considerable M&A experience or by fast-growing acquirers). Similarly, other factors might positively influence the stock market price after the announcement of the transaction, but with time, these same factors may lead to value destruction in the long run (e.g., M&A transactions conducted in the

<sup>363</sup> Source: Schertzing (2008, p. 174), own research.

upswing and peak phase of the M&A cycle). As result, the hypothesis of a correlation between the initial stock market response to a deal announcement and the long-term success of the combined entity has to be rejected for these specific influencing factors.

### **3.8.7 Summary of the Evidence on the Determinants of M&A in the Insurance Industry**

Former insurance M&A research has undoubtedly made some considerable contributions to the knowledge of the effects of insurance transactions on the involved firms' financial performance. However, the combined findings of previous capital market research on the performance effects of insurance M&A also indicate the need for additional research in this particular area. Even though the overall wealth effect of these transactions tends to be positive on average (especially in US transactions), it is highly determined by several factors that influence post-M&A performance. As outlined above, these various factors comprise not only features of the acquiring and target firm but also factors of the transaction process and influences of the economic environment. The expected directional influence of each factor upon the M&A success may differ depending primarily on the specific strategic direction (i.e., geographic area and industry relatedness), the time horizon, and geographic region and is hence only partly generalizable across various types of M&A transactions. Managers and investors should be well aware of these situation-specific obstacles and time interdependencies. Investors could use the information derived from the pattern in Figure 9 to improve their long-term investment strategy and optimize their investment portfolio. Managers should primarily concentrate on factors that improve long-term value of the company instead of focusing exclusively on short-term gains. For the sake of the company and its shareholders, it is crucial only to undertake acquisitions that contribute to firms' long-term financial success and thereby create sustainable long-term value. Further on, the results may support management in improving its capital market communication.

Overall, a significant short-term relationship between acquiring insurers' financial performance and the following determinants is found in the extant insurance literature:



## (i) Significant positive short-term effect:

- Global transactions by strong performing acquirers
- Non-life insurance acquirers in the US
- M&A of relatively large targets
- M&A of privately held targets
- Geographically diversifying European M&A deals
- Geographically focusing US transactions
- Industry-focusing M&A deals
- Transactions by acquirers with pre-M&A participation in the target
- Deals with a high degree of cultural compatibility between M&A partners
- M&A conducted during the upswing phase of the M&A cycle
- Transactions during the peak of the M&A cycle

## (ii) Significant negative short-term effect:

- Acquisitions by large insurance acquirers
- M&A by European insurance acquirers with medium M&A experience
- M&A deals conducted by US acquirers with extensive M&A experience
- Transactions conducted by strong performing US acquirers
- M&A transactions of public targets
- Geographically focusing deals in Europe
- Geographically diversifying M&A transactions by US acquirers
- Industry-diversifying M&A
- Transactions during the bottom phase of the M&A cycle

In the long run, the following determinants are found to have a significant wealth impact on acquiring firms' stock market value:

## (i) Significant positive long-term effect:

- M&A conducted by US acquirers with extensive M&A experience
- M&A transactions by fast-growing acquirers
- Transactions by insurance acquirers with a high percentage of newly nominated board members
- Acquisitions of life insurance targets

## (ii) Significant negative long-term effect:

- M&A conducted by European acquirers with medium M&A experience

- Deals by acquirers with high percentage of CEO share ownership
- Transactions of insurers with a high percentage of blockholder ownership
- M&A deals conducted by acquirers with a high board independence
- Mergers

In summary, based on the evidence of earlier M&A research, it can be said that M&A transactions are more likely to create value if insurance companies follow these general findings of the influence of the various determinants.

## 4 Evidence from the European Insurance Sector: Empirical Analysis of the Success of M&A and its Determinants

### 4.1 Overview

We concluded our literature review on prior capital market research on the performance effects of insurance M&A by highlighting that these deals on average tend to create value not only for shareholders of the target firms but also for the combined entity of acquirer and target. Moreover, shareholders of acquiring US insurance companies, on average, also benefit from these corporate undertakings. However, negative wealth effects for acquiring insurers' shareholders are the common finding in capital market studies analyzing the effects of M&A transactions in the European insurance industry. Based on the argumentation of Lubatkin (1983), the finding of negative wealth effects for shareholders of European insurance acquirers only leads to the following two conclusions: Either European insurance M&A transactions do not provide real benefits to the acquiring insurance company,<sup>364</sup> or else these deals do provide real benefits,<sup>365</sup> which however, have not been detected by earlier research. We

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<sup>364</sup> The author mentions two possible reasons for this: either hubris, i.e., managers make mistakes, or empire building, i.e., managers focus on their own utility/wealth maximization rather than on a maximization of firm value (see Lubatkin, 1983, p. 221). For further motives related to the empire-building theory of Jensen (1986) and Shleifer and Vishny (1989), see for instance, Albrecht (1994b), Schertzingler (2008), Boesecke (2009), and Cooper and Finkelstein (2010).

<sup>365</sup> In previous M&A literature, various benefits of M&A activity, such as financial, managerial, and operational synergies stemming from lower capital costs, the replacement of inefficient management, and economies of scale or scope, respectively (Weidenbaum & Chilton, 1988; Kerler, 1999; Berger, DeYoung, & Udell, 2001; Settnik, 2006; Boesecke, 2009; Farny, 2011; Shim, 2011a), market power effects (Berger, DeYoung, & Udell, 2001; Weston, Mitchell, & Mulherin, 2004; Boesecke, 2009), tax advantages (Weidenbaum & Chilton, 1988; Weston, Mitchell, & Mulherin, 1998; Kerler, 1999), managerial efficiencies (Berger, DeYoung, & Udell, 2001; Weston, Mitchell, & Mulherin, 2004), and risk and earnings diversification (Cummins & Weiss, 2004; Cummins & Xie, 2005, 2008; Cummins et al., 2010), have been regularly pointed out. The first and the latter benefits, i.e., synergies and earnings diversification, are of particular importance in the insurance business, as pointed out by Settnik (2006) and Cummins, Tennyson, and Weiss (1998), respectively. Settnik (2006) highlights that the realization of synergy potentials is the most prevalent motive for conducting insurance transactions and backs up this assertion by citing a statement of AXA Colonia in an annual report as well as the results of a management survey conducted in 1999 by Meyer. Moreover, Cummins, Tennyson, and Weiss (1998) emphasize that M&A activity is an important source of earnings diversification in the insurance industry. Instead of repeating their material, we quote: "By increasing the breadth of the policyholder pool, losses become more predictable and earnings volatility due to underwriting income is reduced. This gives the insurer the opportunity

will test Lubatkin's (1983) proposition in the following section by investigating whether insurance transactions in general are able to generate real benefits to acquiring firm shareholders (in the form of higher shareholder returns), and if so, whether these benefits are offset by additional costs arising from inefficiencies and scale diseconomies<sup>366</sup> as well as increased complexity and coordination needs.<sup>367</sup> Besides, there is considerable variation in the outcomes of the individual transactions, as some insurance M&A create substantial shareholder value, while other transactions result in significant wealth losses. As pointed out in the former sections, investigations analyzing the effects of insurance M&A, especially in an US context, do not ultimately permit conclusions concerning the effects of European insurance deals.

Similarly, the results obtained from analyzing short-term market returns around the M&A announcement dates do not need to hold for the wealth effects of these transactions in the long run. The same applies for the numerous factors that influence M&A performance. For some factors, as for instance the growth of acquirers and/or acquiring life insurance companies in the US or Europe, recent insurance research produces inconclusive and widely differing results depending on the time horizon under consideration and sample characteristics (primarily the geographic area of the involved firms), or the extant literature even provides no results at all (e.g., the influence of a pre-M&A participation in the target in European insurance transactions and/or the influence of the method of payment in European insurance deals). Given this unsatisfactory state of affairs, previous authors postulate the need for further research on this topic, as well as alternative approaches and methods for measuring the success of insurance M&A (see, e.g., Schoenberg, 2006, p. 1; Antoniou, Arbour, & Zhao, 2011, p. 19). The extant capital market research on the effects of insurance M&A, however, has exclusively relied on standard event study

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to take on more risky, higher yielding investments, thus increasing revenues for a given level of overall risk" (Cummins, Tennyson, & Weiss, 1998, p. 328).

<sup>366</sup> E.g., Katrisha and Scordis (1998) as well as Shim (2011a, 2011b). The latter author mentions cost inefficiencies resulting from integrational costs as well as "operating and managerial inefficiencies due to the organizational diseconomies of operating larger institutions, aggravated agency problems, and managerial hubris" (Shim, 2011a, p. 80).

<sup>367</sup> For example, increased cost of governance (i.e., monitoring and controlling) in larger and more complex firms (Shim, 2011a, p. 80).

methodology. In addition, the vast majority of the research has offered short-term event studies analyzing only the initial market reaction around the announcement date of the specific M&A deal instead of focusing on the long-term stock development. Only the two studies by Boubakri, Dionne, and Triki (2006) and Schertzing (2008) focus on the long-term value effects of insurance M&A. Moreover, these two studies come to different conclusions regarding the overall wealth effects of insurance transactions. While the former authors detect an outperformance of 57.3% for acquiring US insurance firms in the three-year period after the M&A transaction, Schertzing (2008) finds that European insurance transactions result in significant negative acquirer returns one and two years after the deal announcement and an insignificant underperformance of -6.57% after three years. To investigate whether or not these contradictory long-term results are attributable to differences in the geographic location from which the samples were collected<sup>368</sup> and whether it is possible to draw some general conclusions about the overall wealth effects of insurance M&A that are true for all types or at least for specific groups of transactions, this academic work performs an empirical capital market analysis on the effects of M&A transactions in the European insurance market. As seen in the literature review above, it is not only essential to restrict the analysis to those transactions where the acquirer is an insurance company, but it is also essential to limit the sample to a specific geographic area in order to get meaningful results. Based on the contradictory findings of the two long-term studies by Boubakri, Dionne, and Triki (2006) and Schertzing (2008) concerning the overall wealth effect of US and European insurance M&A, transactions from a diverse sample that includes business combinations from more than one continent or market may not provide much insight into the specific wealth effects of these deals and their determinants.<sup>369</sup> Consequently, the following empirical investigation will focus solely on M&A transactions involving European insurance acquirers.

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<sup>368</sup> Boubakri, Dionne, and Triki (2006): Sample of US acquiring firms; Schertzing (2008): Acquiring firms from EU-25 countries.

<sup>369</sup> The same conclusion is drawn by Boesecke (2009) with regard to M&A transactions in the utility industry.

Going back to the statement of Corvellec, our objective is to tell the story on the performance of insurance M&A transactions from the perspective of the acquiring firms' shareholders. Therefore, we decide to evaluate the effects of M&A activities of the major European insurance companies using stock market data instead of adopting an accounting method and measure value creation by changes in acquiring firms' market value (see Figure 10 below). Besides being widely available and easily accessible, stock market data is an objective measure of M&A success. By comparing stock price movements of acquirers to movements of the market, related industry portfolios, or benchmark firms, it is possible to make inferences about the desirability of these corporate deals.

In contrast to the extant capital market research on insurance M&A, which has exclusively used the standard event study procedure to investigate short-term and medium- and long-term effects of such insurance combinations, our study presents an alternative and fairly new approach that is based on stochastic dominance (For more information on the stochastic dominance approach and on how this methodology can be applied to measuring the success of insurance M&A, see the following sections). It must be noted here, however, that the stochastic dominance approach should not fully replace the standard event study methodology but rather complete it and offer an alternative approach for the evaluation of success of insurance M&A.

Even though acquirers' short-term capital market reactions shortly after announcement of insurance transactions will be analyzed, the main focus of this dissertation work is on the long-term wealth effects of these deals. In the long-term analysis, we examine the stock returns of acquiring insurers for up to three years after M&A announcement.

However, the extant literature outlines that the overall wealth effect of insurance transactions does not say much about the success on an individual level. It has been well documented that certain M&A transactions perform significantly better or worse than other deals based on several M&A characteristics. Yet the influence of these individual determinants on the overall success of a transaction also seems to heavily depend on the time horizon under

consideration and the geographic area of the involved firms. Accordingly, the other goal of this academic work is to detect the key characteristics of M&A success and failure in the European insurance industry. In the following sections, we will investigate which determinants positively or negatively influence the short-term share price performance of the acquiring firm and which factors lead to value creation or destruction in the long run.

Figure 10 shows an overview of the criteria for differentiating the success of insurance M&A that are taken into account in this empirical study.

WAYS OF MEASURING THE SUCCESS OF MERGERS AND ACQUISITIONS				
PERSPECTIVE	METRIC	BENCHMARK	DIMENSION	TIMEFRAME
Shareholders	Quantitative (objective) - Financial statements-oriented	Intertemporal comparison (before-after)	Number	Point in time
Management			- One-dimensional	- Ex ante - Ex post
Employees	Qualitative (subjective) - Employees - Management - External specialists	Benchmarking comparable companies (control group)	- Multi-dimensional	Period
Customers			Content	- Short-term
Society			- Financial - Market strategic	- Mid-term
		Goals	- Human resource/ Organizational behavior	- Long-term
		Alternative Investments	- Social	

Figure 10: Applied criteria for differentiating success of M&A<sup>370</sup>

All in all, this academic work differs from previous insurance M&A research in two important respects:

First, previous capital market research on the effects of insurance M&A on firms' financial performance primarily concentrates on the short-term effects around the date of announcement. While our study also investigates these

<sup>370</sup> Source: Adapted from Wuebben (2007, p. 12), own research.

short-term market reactions, we additionally put special attention on the long-term wealth effects of these combinations. Only two other studies have measured long-term stock market performance of acquiring insurance companies until now, yielding opposing results.

The second difference between previous studies and our work lies in the methodology applied to this specific problem. Former capital market studies limit their methodology to a conventional event study approach, measuring the abnormal stock returns either in various trading day windows surrounding the M&A announcement or exactly one, two, or three years after announcement of the transaction. This empirical study, on the other hand, applies an alternative approach, namely a stochastic dominance method, to the measurement of the effects of insurance M&A on acquiring insurers' share price performance. This methodology, in general, provides a broad framework for decision making under uncertainty and has so far not been applied to the analysis of wealth effects of insurance M&A.

The empirical investigation is based on several hypotheses that are derived from the theoretical and practical implications of Chapter 2 and from the available body of empirical evidence from earlier insurance M&A research, which has been presented in detail in Chapter 3. After deriving the hypotheses on the value effects of insurance M&A and the influences of the various factors of M&A failure and success, this chapter defines the methodological approach and the specifications of the empirical investigation of this dissertation. Finally, the results of the empirical study on the overall wealth effect of insurance combinations and the individual determinants that influence acquiring insurers' share prices in the short and long run are presented.

## **4.2 Formulation of Hypotheses**

Various hypotheses on the overall success of insurance M&A and its determinants are established and tested in this section. The hypotheses are primarily based on the accumulated evidence from past empirical research summarized in Chapter 3 and—in cases where no general conclusions can be



drawn from this literature review—on theoretical considerations and practical observations from the M&A market discussed in Chapter 2.

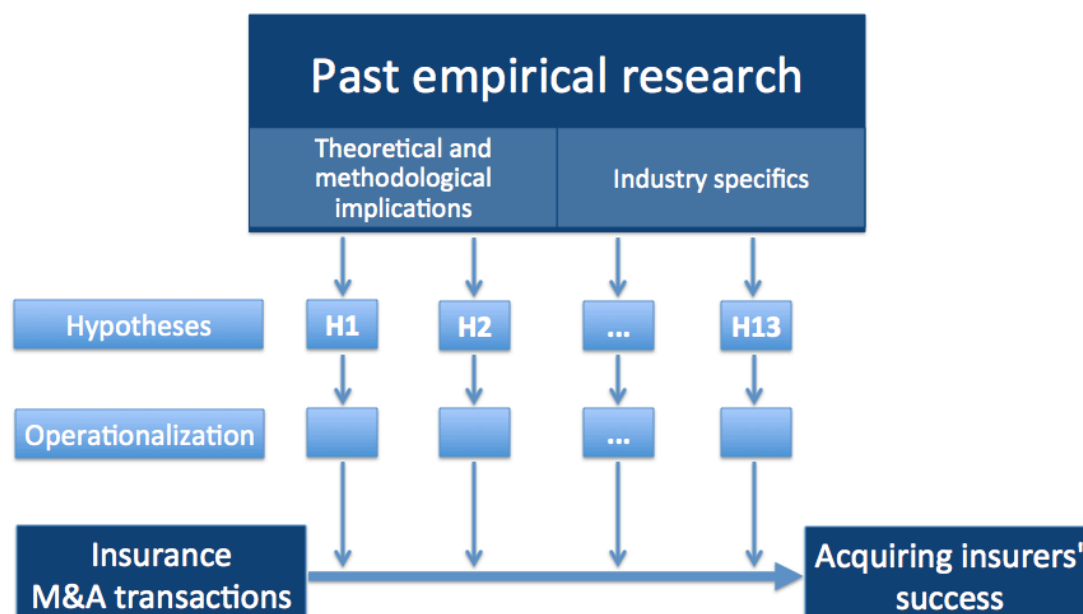


Figure 11: Approach for derivation of hypotheses<sup>371</sup>

#### 4.2.1 Success of M&A in the European Insurance Industry

In a first step, the hypothesis on the overall performance effect of European insurance transactions is formulated. From the above accumulation of empirical evidence on the relationship between M&A transactions and acquiring insurance firms' subsequent financial performance (see Section 3.7), we hypothesize that the direction of this relationship crucially depends on the time horizon under examination and the specific sample region being analyzed. As concluded in Section 3.7.5, while researchers analyzing the relationship between M&A activity and acquirers announcement returns in the United States confirm a positive relationship, academic researchers find an opposing relationship in the European insurance market. More precisely, previous event studies document largely consistent (partly significant and partly non-significant) negative short-term abnormal returns for acquiring European insurance firms

<sup>371</sup> Source: Adapted from Boesecke (2009, p. 71), own research.

around the M&A announcement.<sup>372</sup> Accordingly, one can hypothesize that the overall short-term effect of insurance M&A transactions differs substantially between transactions undertaken by US insurance acquirers and those conducted by European insurers. Also in a medium- and long-term event horizon, transactions conducted by European insurance companies, on average, destroy<sup>373</sup> shareholder value, as found by Schertzing (2008), whereas US insurance acquirers seem to create<sup>374</sup> value for their shareholders.<sup>375</sup> Accordingly, we enunciate our first hypothesis as follows:

**H1:** European insurance acquirers are not only stochastically dominated by their non-acquiring counterparts in the short run, but also underperform their benchmark over a long-term horizon.

#### **4.2.2 Determinants of M&A Success in the European Insurance Industry**

In a second step, we formulate several hypotheses on the various determinants that potentially influence the outcome of an insurance transaction. As pointed out in our literature review, substantial and significant differences exist between the specific effects of the individual M&A transactions. This great variety of individual M&A outcomes is mainly attributed to differences in the underlying

<sup>372</sup> Significant negative acquirer abnormal returns of -0.17%, -0.31%, and -0.35% are found by Cummins and Weiss (2004) in the short-term event windows (0;+1), (0;+2), and (-2;+2), respectively. In the remaining short-term event windows (0;+5), (-1;+1), and (-5;+5), the authors detect insignificant negative acquirer abnormal returns of -0.30%, -0.14%, and -0.35%. In addition, Schertzing (2008) also detects small and insignificant negative short-term abnormal returns for acquiring insurance firms ranging from -0.93% to -0.09% in the various event windows from (0;0) to (-5;+5).

<sup>373</sup> According to Schertzing's (2008) study on European insurance transactions, these deals result in either significant negative BHARs of -4.73% and -9.98% on a one- and two-year event horizon (significant at the 10% and 5% level, respectively) or generate a non-significant negative BHAR of -6.57% on a three-year horizon.

<sup>374</sup> The two medium- and long-term studies by BarNiv and Hathorn (1997) and Boubakri, Dionne, and Triki (2006), which analyze M&A transactions undertaken by US insurance acquirers, both found a positive, yet statistically insignificant, relationship between M&A activity and acquiring firms' post-M&A performance (BarNiv & Hathorn, 1997: acquirer abnormal returns for acquisitions of financially sound insurance companies of 7.95%, 8.26%, and 15.23% in the event period that begins 250 trading days before the effective day of the M&A deal and ends 250 trading days after the effective M&A transaction; Boubakri, Dionne, & Triki, 2006: market-adjusted BHAR of 57.3% after three years following an M&A transaction).

<sup>375</sup> However, it has to be kept in mind that these conclusions about the long-term effects of insurance transactions are solely based on the available empirical observations from a small sample of only three medium- and long-term event studies, two of which analyze the effect in the US insurance industry and a single study on the European insurance market.

M&A structure and strategy. In order to test the impact of the various characteristics of the acquiring insurance firm, the target firm, the transaction structure, and the economic environment on acquirers' post-M&A performance, we investigate the influence of following determinants.

As outlined earlier, the first group of determinants, namely *ex ante* features of the acquiring firm, comprises acquirer's absolute size, acquirer's growth, acquirer's transaction experience, acquirer's line of business, and others.

First, the acquirer's absolute size is found to be negatively<sup>376</sup> related to an acquiring firm's short-term financial performance. However, this negative relationship diminishes over time, as Schertzingler does not detect any significant relationship between the acquirer's absolute size and its three-year BHAR. Accordingly, we set our second hypothesis as follows:

**H2:** Small insurance acquirers stochastically dominate large insurance acquirers at the time of M&A announcement, whereas there is no dominance relationship between small and large acquirers in the long run.

Second, the acquirer's growth is found to have a significant<sup>377</sup> effect on the insurer's post-M&A performance. As documented by Schertzingler (2008), there is a significant positive relationship between the acquirer's growth and its long-term financial performance. The fastest-growing insurers consistently outperform the slowest-growing insurers in three years following M&A transactions. Yet Schertzingler (2008) also asserts that this relationship might vary depending on the time horizon under consideration, as the author finds that fastest-growing acquirers in his sample slightly underperform their slow-growing peers shortly after M&A announcements. Hence, following Schertzingler's (2008) findings, we propose:

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<sup>376</sup> Either significantly negative as found by Cummins and Xie (2005) or insignificantly negative as detected by Floreani and Rigamonti (2001), Schertzingler (2008), and Cummins and Xie (2009).

<sup>377</sup> At least on a long-term horizon.

**H3:** Slow-growing acquirers weakly dominate fast-growing acquirers at M&A announcement, whereas there is a strong dominance relationship of fast-growing acquirers over slow-growing ones in the long term.

In the previous insurance M&A literature, an acquirer's transactions experience is regularly found to have a significant impact on M&A success. The findings of US studies provide contrary evidence. In their 2005 and 2009 research papers, Cummins and Xie empirically ascertain that an acquirer's transaction experience relates negatively to its subsequent financial performance. The long-term results of Boubakri, Dionne, and Triki (2006), on the other hand, suggest that transaction experience has a positive impact on US acquirers' post-M&A performance. Consequently, in the US insurance market, the direction of the relationship of transactions experience and acquirers' performance either depends on the time period studied or it is more complex and cannot be expressed in terms of a linear relationship. In his European study, Schertzing (2008) discovers such a quadratic relationship between acquisition experience and financial performance. European insurance acquirers without any acquisition experience and acquirers with an extensive acquisition record created substantially more value than acquirers with medium transaction experience, in the short term and in the long term. This U-shaped relationship should hence be interpreted as advice to insurance managers to either pursue a strategy of organic growth or to fully rely on external growth by means of M&A. Relying solely on the findings of Schertzing's (2008) European investigation, we thus hypothesize:

**H4:** Medium experienced insurance acquirers are stochastically dominated by inexperienced and most experienced acquirers.

Moreover, differences in the post-M&A performance of US insurance acquirers are found among the various lines of business the acquiring US insurer operates in. Looking at the results of previous studies analyzing the effect in the European insurance market, it appears that there is some evidence for a positive association between life insurance acquirers and their post-M&A success. Both Floreani and Rigamonti (2001) and Schertzing (2008) find that short- and long-term abnormal returns are more positive for shareholders of life

insurance acquirers as compared to shareholders of non-life acquirers; however, both authors do not find any significance. Hence, this leads us to the conclusion:

**H5:** Independent from the time horizon under investigation, M&A transactions by life insurance acquirers either weakly dominate or do not perform significantly different from transactions conducted by non-life insurance acquirers.

Previous empirical evidence suggests that several characteristics of the target companies may significantly affect acquirer's financial post-M&A performance.

The relative size of the target firm (or rather the deal) with respect to the acquirer has been found by a number of previous studies to be an important influencing factor in terms of the outcome of a transaction. As intuitively assumed, the larger the relative deal size, the greater the effect of the respective M&A transaction on the share performance of the acquiring firm. Consequently, conducting and completing a large transaction successfully will most likely lead to substantial wealth creation for shareholders, but simultaneously, the probability of a successful outcome decreases with an increase in the relative size of the target, as the integration of a large target is more complex and difficult. At the same time, the empirical studies in our review allege that the larger the relative deal size, the higher the post-acquisition returns to the shareholders of the acquiring firm.<sup>378</sup> As this positive relationship between relative deal size and post-M&A success is found to be significant only on a short-term basis, we expect:

**H6:** Large insurance M&A transactions stochastically dominate small transactions in the short term.

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<sup>378</sup> Statistically significant positive short-term abnormal returns for bidding insurers are detected by Floreani and Rigamonti (2001), Cummins and Xie (2009), and Staikouras (2009). Moreover, in the studies of Cummins and Xie (2005), Akhigbe and Madura (2006), Boubakri, Dionne, and Triki (2006), and Schertzing (2008), a positive, yet insignificant, short-term relationship is found.

A target's line of business has also been examined in the context of wealth gains from insurance M&A. Schertzing (2008) discovers in his empirical study that short-term returns following acquisitions of life and P&C targets are higher than short-term returns following acquisitions of agents/brokers and other target industries. Furthermore, in the long term, acquisitions of life insurance targets create significantly more value than acquisitions in which P&C targets are acquired. Based on the findings of Schertzing's (2008) European sample, we hypothesize:

**H7:** Acquisitions of life insurance targets stochastically dominate acquisitions of non-life insurance targets independent from the time horizon under investigation.

In addition to these various firm characteristics, we also propose hypotheses on several determinants of the transaction structuring and management.

First of all, the two most commonly studied determinants in the reviewed studies, geographic area and industry relatedness, are considered to have a significant influence on post-M&A performance. As the extant insurance M&A literature has proven, the qualitative effects of these two determinants are determined by the region the transaction has been conducted in. For example, empirical studies that investigate the short-term effect of geographically focusing M&A in the United States unanimously document a positive market reaction to acquiring insurers. In sharp contrast, geographically focusing deals in Europe relate negatively to the subsequent financial performance of acquiring firms. Consequently, as performance effects differ across different geographic regions, we base our hypothesis on the findings of the European studies in our sample. Besides this significant negative short-term impact of focus-enhancing European transactions, geographically diversifying deals, conversely, are associated with a significant positive market reaction for European insurance acquirers.<sup>379</sup> These findings provide strong evidence that the advantages of geographical diversification outweigh not only the disadvantages of this

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<sup>379</sup> See Floreani and Rigamonti (2001), Cummins and Weiss (2004), and Schertzing (2008).

international expansion but also the benefits of geographical concentration. Hence, in a further hypothesis we predict:

**H8:** In the European insurance market, geographically focusing M&A transactions are stochastically dominated by geographically diversifying M&A.

In addition to this statistically significant influence of the geographical factor, the investigated European studies showed a positive relation between industry relatedness and acquirers' post-M&A performance. A statistically significant positive short-term relationship is detected by Floreani and Rigamonti (2001), Cummins and Weiss (2004), Cummins and Xie (2005), and Schertzing (2008). Furthermore, Boubakri, Dionne, and Triki (2006) and Schertzing (2008) confirm this positive relationship on a long-term horizon (with, however, only insignificant evidence), which leads us to the conclusion:

**H9:** Returns from industry-related transactions stochastically dominate those from unrelated deals.

Instead of only investigating these two factors separately, we additionally follow Schertzing's (2008) approach and combine these two variables into a single construct, analyzing the geographic and industry dimensions simultaneously. Schertzing's (2008) evidence suggests that a full diversification strategy increases short-term and long-term shareholder value and is not only superior to a mixed strategy but also to a full-focus strategy. Since the latter geographical and industry focus strategy at least has a small and insignificant positive value creation effect in the long run, the author concludes that acquirers that pursue an "all-or-nothing" strategy (either full focus or full diversification) perform significantly better in the long run as compared to acquirers pursuing other strategies. Based on this finding, we hypothesize:

**H10:** Insurers pursuing a full diversification strategy stochastically dominate their competitors that follow other strategies.

According to the findings of Cummins and Xie (2009), acquirers' ownership in targets before announcing transactions has a significant positive short-term

relation with success in such M&A transactions. Since this positive correlation is also the common finding in former non-insurance literature,<sup>380</sup> we conclude that there is strong empirical evidence for a favorable dependency relationship between an acquirer's pre-merger participation in the target and an acquirer's subsequent M&A success. Accordingly, our hypothesis predicts:

**H11:** On a short-term basis, transactions where the acquiring insurer has a pre-M&A participation in the target firm stochastically dominate transactions in which there is no pre-M&A business relationship between acquirer and target.

An additional potential influence factor on the success of insurance M&A is the method of payment. However, as this determinant fails to attain a significant effect in all four tested short-term event studies,<sup>381</sup> we enunciate:

**H12:** No stochastic dominance relationship exists between the various methods of payment in the short run.

Last but not least, we further investigate the influence of the economic environment. According to the academic paper by Schertzing (2008), the timing of the transaction appears to be an influencing factor for the success of an M&A transaction. The author finds significant positive abnormal announcement returns for European acquirers that conduct transactions in strong phases of the M&A cycle (i.e., the upswing and peak phase). In addition, these strong phase M&A deals produce significantly higher returns than downturn and especially bottom-phase M&A. However, as shown by Schertzing's (2008) event study, after a couple of years following the transaction, these weak-phase M&A transactions might possibly lead to small positive long-term buy-and-hold abnormal returns and to substantial value creation for the shareholders of the acquiring insurers. Upswing and peak phase deals, on the contrary, resulted in significant negative acquirer BHARs and value destruction. However, in a second analysis, which is based on

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<sup>380</sup> See, e.g., Grossmann and Hart (1980), Mikkelson and Ruback (1985), Shleifer and Vishny (1986), Bradley, Desai, and Kim (1988), and Franks and Harris (1989).

<sup>381</sup> Akhigbe and Madura (2001), Floreani and Rigamoti (2001), and Cummins and Xie (2005, 2009).



calendar-time abnormal returns, the author finds small positive CTARs for deals during the strong phase of the M&A cycle, whereas transactions in the weak phase of the M&A cycle triggered a small underperformance in the three-year period after the announcement. Based on these findings, we hypothesize:

**H13:** In the short term, M&A transactions announced in the strong phase of the M&A market stochastically dominate transactions during the weak phase, but over a long-term horizon, transactions conducted during strong-phase years either dominate or are dominated by weak-phase transactions.

Hypotheses 1 through 13 will be tested in this work by simple partitioning of the sample by the various factors, using not only short-term daily returns but also long-term buy-and-hold returns. We compare the respective return distributions using stochastic dominance techniques. In the following, we will explain this stochastic dominance concept and the specifications of the study.

### **4.3 Specification of the Empirical Study**

This section begins with a description of the estimation methodology, followed by detailed information on the selection process, variable operationalization, and generation of the data sample for conducting the empirical study. We conclude with a summary of statistics on the characteristics of the identified M&A transactions in our sample.

#### **4.3.1 Estimation Methodology**

##### **4.3.1.1 Overview**

As seen in the previous sections, various attempts have been made to assess the valuation effects of M&A transactions in the insurance industry. However, a consistent pattern has not yet been identified. Some researchers provide evidence of significant underperformance of acquiring insurance firms following an M&A transaction,<sup>382</sup> while others find the opposite.<sup>383</sup> Hence, general

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<sup>382</sup> E.g., Schertzing (2008) on a long-term basis and Staikouras (2009) measuring the relationship on a short-term horizon.

conclusions regarding the overall effect of insurance M&A on acquirers' performance, as well as the influencing variables, cannot simply be drawn based on these investigations.

As outlined earlier, most of the existing empirical and all of the extant capital market literature on value creation in insurance M&A is based on the traditional event study methodology. These well-known event studies calculate the difference between the mean returns of an acquiring firm portfolio and a matched-firm portfolio or an index. Short-term event studies rely on short-term stock market returns at the M&A announcement as indicators of the success of the respective transaction. Accordingly, the initial stock market response to the news of an M&A deal is predominantly based on the expectations of investors about potential future wealth gains resulting from the deal. However, as stated by Loughran and Vijh (1997), "whether the wealth gains materialize is another matter" (p. 1782), and hence an acquirer's short-term market reaction may not always be a good indicator for the actual wealth effect of this deal. As explained in Section 2.3.2.2, the short-term event study approach is based on the underlying assumption of efficient capital markets, in which market prices fully reflect all publicly available information, and market participants are able to assess correctly the expected wealth effects of the respective transaction. While the latter might be true for target company shareholders, who subsequently receive financial benefits in proportion to their investment, the benefits to shareholders of the acquiring company will not ultimately become clear shortly after the announcement.<sup>384</sup> Long-term event studies, on the other hand, measure the relative performance of the involved firms over a period of several years following the M&A transaction. During this period of time, the expected benefits and consequences of a transaction will most likely be visible. However, estimates of long-term abnormal returns suffer from the hindrance of being partly attributable to the overlay of various other events occurring in the same

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<sup>383</sup> A significant positive short-term abnormal performance of acquiring insurers is found by Akhigbe and Madura (2001), Floreani and Rigamonti (2001), Cummins and Xie (2005), Fields, Fraser, and Kolari (2007), and Cummins and Xie (2009). In addition, BarNiv and Hathorn (1997) and Boubakri, Dionne, and Triki (2006) find positive effects on a longer horizon.

<sup>384</sup> E.g., Healy, Palepu, and Ruback (1997, p. 53) and Loughran and Vijh (1997, p. 1782).

event window. Furthermore, as outlined by Barber and Lyon (1997), Fama (1998), Lyon, Barber, and Tsai (1999), and many others, it is well known that “long-run abnormal return distributions are positively skewed and non-normal leading to various biases in statistical inference about the sample mean,”<sup>385</sup> which might lead to varying results depending on the methodologies used to assess the impacts of M&A. Due to the research design, the long-term event study approach therefore may produce biased and unreliable results and hence may not be the measure that best evaluates the performance effects of corporate events.<sup>386</sup> Furthermore, several academics critically note that the long-term event methodology does not capture the impact of the entire distribution of acquiring and benchmark firms’ returns.<sup>387</sup> As a consequence to this, the adoption of an alternative approach to measuring these effects is required to allow comparison of the entire distribution of returns. In addition, the application of a different approach would help to shed light on the question of the non-existence of homogeneous industry-specific patterns in insurance M&A or whether the inconsistent findings of previous capital market studies are simply resulting from problems in the methodology used.

In their paper, Abhyankar, Ho, and Zhao (2006) lay the foundation for such an alternate approach to measuring firm’s abnormal performance following corporate takeovers by introducing the stochastic dominance (SD) methodology into the M&A literature. To the best of our knowledge, they are the first and so far only ones to evaluate the effects of M&A transactions on acquiring firms’ performance from the perspective of stochastic dominance. Analyzing a sample of UK-based acquiring firms in the period from 1985 to 2000, the authors find persuasive evidence that acquiring firms<sup>388</sup> in the UK do not significantly underperform their benchmark over a three-year period following an M&A deal. We adopt the SD approach, which has never been used in the context of insurance M&A, and investigate the relationship between transactions in the

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<sup>385</sup> Ho (2003, p. 15).

<sup>386</sup> E.g., Barber and Lyon (1997, p. 342), Kothari and Warner (1997, p. 302), and Antoniou, Arbour, and Zhao (2011, p. 16).

<sup>387</sup> E.g., Ho (2003, p. 15).

<sup>388</sup> In their study, the authors exclude financial services as well as utility firms.

insurance industry and acquiring firms' short- and long-run post-acquisition performance. More precisely, we analyze whether investors in acquiring insurance companies benefit from M&A undertakings by comparing short-term daily return distributions and long-term buy-and-hold return distributions of acquiring firm portfolios with benchmark portfolios using the first two orders of stochastic dominance.

Following its introduction by Lehmann in 1955, the idea of stochastic dominance has been widely used in various areas, such as medicine, statistics, risk management, insurance, finance, and multiple fields of economics, by providing a general framework for studying economic behavior and decision making under uncertainty.<sup>389</sup> In a recent paper, Guo (2012) classifies studies applying the SD methodology according to their main object of investigation.<sup>390</sup> In medicine, the SD approach is primarily a tool for comparing medical and surgical treatments.<sup>391</sup> In another area, namely statistics, stochastic dominance is utilized to estimate and evaluate parameters.<sup>392</sup> SD application in risk management is regularly applied to quantify and rank risks and to measure investors' and involved parties' risk appetite.<sup>393</sup> Accordingly, in these studies, the SD methodology competes with alternative risk measurement approaches such as variance and Value-at-Risk (VaR). As outlined by various authors,<sup>394</sup> especially in the fields of economics and finance, there are wide and extensive arrays of empirical applications, ranging from crop insurance selections<sup>395</sup> to the measurement of poverty and inequality,<sup>396</sup> and from performance evaluation<sup>397</sup>

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<sup>389</sup> See, e.g., Levy (1992, 1998, 2006), Sriboonchitta et al. (2010), and Guo (2012). We do not cover the basics of decision making under uncertainty. For a thorough discussion on this subject, see Sriboonchitta et al. (2010, p. 1)

<sup>390</sup> Note that the following paragraph is primarily based on Guo (2012) and his earlier version from 2011.

<sup>391</sup> E.g., Stinnett and Mullahy (1998) and Leshno and Levy (2004).

<sup>392</sup> E.g., Ben-Horim and Levy (1982, 1984).

<sup>393</sup> E.g., Levy and Levy (2001), Giorgi (2002), Giorgi and Post (2004), and Fong, Lean, and Wong (2006).

<sup>394</sup> E.g., Ho (2003), Abhyankar, Ho, and Zhao (2006, 2008), and Guo (2012).

<sup>395</sup> E.g., Williams (1988) and Wilson, Gustafson, and Dahl (2009).

<sup>396</sup> E.g., Anderson (1996), Foster and Sen (1997), and Davidson and Duclos (2000).

<sup>397</sup> E.g., Joy and Porter (1974), Meyer (1977), Li and Linton (2007), and Annaert, Osselaer, and Verstraete (2009).

to momentum effect identifications.<sup>398</sup> The most relevant papers in the context of welfare economics use SD as a measure of wealth,<sup>399</sup> whereas the SD approach when used in agricultural economics is applied in manifold ways.<sup>400</sup> In finance, or more precisely, in portfolio management, numerous researchers have investigated the performance of portfolios relying on stochastic dominance techniques as a supplement for the well-established mean-variance (M-V) approach<sup>401</sup> to portfolio selection, which overcomes the main drawbacks<sup>402</sup> of the M-V decision rule by looking at the full distribution of the returns.<sup>403</sup> Hence, especially in cases in which the distribution of returns is skewed and non-normal, the SD approach produces superior results compared to the M-V approach.<sup>404</sup> A further advantage of the SD methodology is that the approach requires only minimal assumptions regarding investors' utility functions and no assumptions on the form of the distribution of the random variables, thereby

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<sup>398</sup> E.g., Fong, Wong, and Lean (2003).

<sup>399</sup> E.g., Atkinson (1970), Anderson (1996), Foster and Sen (1997), Davidson and Duclos (2000), and Davidson (2006).

<sup>400</sup> "SD is applied to crop insurance selections (Williams, 1988; Wilson, Gustafson, & Dahl, 2009), production risk analyses (Lee, Lacewell, & Ellis, 1987), production management (Bezuneh, 1992), stocking rate strategy evaluations (Riechers, Lee, & Heitschmidt, 1988), export earnings analyses (Gan, Wharton, & Zacharias, 1988), irrigation strategy comparisons (Harris & Mapp, 1986), marketing tactic analyses (Anaman & Boggess, 1986; Moss, Ford, & Castejon, 1991), crop or production alternative selections (Moss & Livanis, 2009; Griffith, 2009), farmland control (Gustafson, 1989), and fertilizer treatment comparisons (Ndjeunga & Bationo, 2005)." (Guo 2011, p. 40)

<sup>401</sup> For a detailed but critical discussion of the M-V rule proposed by Markowitz (1952, 1959, 1987), see for example, Klaever (2006, p. 20), Levy (2006, p. 1), Sriboonchitta et al. (2010, p. 89), and Guo (2012, p. 43).

<sup>402</sup> The M-V approach evaluates two alternatives by looking only at the parameters mean and variance and thereby, in some cases, leads to questionable and not economically meaningful decisions (Klaever 2006, p. 21). Levy (2006, p. 2) reveals one of the drawbacks of the M-V approach by providing a trivial example in which the M-V decision rule is not able to rank two alternative investment prospects: "x providing \$1 or \$2 with equal probability and y providing \$2 or \$4 with equal probability, with an identical initial investment of [...] \$1.1. [...] [B]oth the mean and the variance of y are greater than the corresponding parameters of x; hence the mean-variance rule remains silent regarding the choice between x and y. Yet any rational investor would (and should) select y because the lowest return on y is equal to the largest return on x (this is only a trivial case in which the mean-variance rule fails to show the superiority of one investment over another)." For further examples, see, e.g., Hanoch and Levy (1969, p. 335) and Klaever (2006, p. 20).

<sup>403</sup> E.g., Barrett and Donald (2003, p. 2), Abhyankar and Ho (2003, p. 2), Li and Linton (2007, p. 3), Post and Versijp (2007, p. 489), Annaert, Osselaer, and Verstraete (2009, p. 272), Abhyankar, Ho, and Zhao (2009, p. 223), and Yezegel (2009, p. 8).

<sup>404</sup> E.g., Klaever (2006, p. 20), Phoon, Wong, and Lean (2008, p. 222), and Guo (2012, p. 2).

being able to better model reality.<sup>405</sup> An additional strength of the SD approach, as pointed out by various authors,<sup>406</sup> is that investigators do not have to construct an asset pricing model for calculating the expected returns. Last but not least, as concluded by Guo (2012, p. 2), the stochastic dominance criteria are consistent with the principle of expected utility maximization. As a result of these advantages, the use of the SD framework has gained great popularity in portfolio management. Early studies of Joy and Porter (1974) and Meyer (1977) evaluate mutual fund performance, Li and Linton (2007) and Phoon, Wong, and Lean (2008) both focus on hedge funds, while Brooks, Levy, and Yoder (1987) assess the performance of portfolios with options, and Ho (2002) analyzes the long-run stock price performance after IPOs, to name a few. As outlined by Guo (2011, p. 40), further applications in finance comprise determination of default and bankruptcy probabilities,<sup>407</sup> quantification of operational synergies in M&A,<sup>408</sup> bond term premium analyses,<sup>409</sup> examination of stock recommendations,<sup>410</sup> investigation of value versus growth investment strategies,<sup>411</sup> and international momentum strategy assessment.<sup>412</sup> Looking at its application in the area of insurance, Guo (2011, p. 38) subdivides the application of SD in insurance into three broad topics, namely portfolio insurance, insurance premium valuation, and indemnity determination. In previous studies focusing on portfolio insurance,<sup>413</sup> an optimal portfolio insurance strategy is determined, while in the two latter cases, acceptable premiums<sup>414</sup> and indemnities<sup>415</sup> are calculated using the SD approach. Only a few other applications of SD in insurance have been published so far, as

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<sup>405</sup> E.g., Abhyankar and Ho (2003, p. 2), Li and Linton (2007, p. 3), Abhyankar, Ho, and Zhao (2009, p. 223), Yezegel (2009, p. 8), Chan et al. (2012, p. 167), Chou and Chang (2012, p. 73), and Guo (2012, p. 2).

<sup>406</sup> E.g., Abhyanka and Ho (2003, p. 2), Abhyankar, Ho, and Zhao (2009, p. 223), and Chou and Chang (2012, p. 73).

<sup>407</sup> Broske and Levy (1989).

<sup>408</sup> Gupta and Gerchak (2001).

<sup>409</sup> Levy and Brooks (1989) and Fisher, Willson, and Xu (1998).

<sup>410</sup> Yezegel (2009).

<sup>411</sup> Abhyankar, Ho, and Zhao (2006, 2009).

<sup>412</sup> Fong, Wong, and Lean (2003).

<sup>413</sup> Gandhi, Saunders, and Sugars (1981), Clarke (1988), Levy (1985, 1988), Brooks and Levy (1993), Bertrand and Prigent (2002), Zagst and Kraus (2008), and Annaert, Osselaer, and Verstraete (2009).

<sup>414</sup> E.g., Doherty (1977) and Kroll (1983a, 1983b).

<sup>415</sup> E.g., Gollier and Schlesinger (1996).

highlighted by Guo (2011, p. 38). In an early paper, Cummins and Weiss (1993) put the focus on automobile insurance policies, elaborating on the stochastic dominance of no-fault automobile insurance. In another paper, Heyer (2001) explores the relationship between differing reinsurance alternatives from the perspective of SD, while Borglin and Keiding (2002) apply this method in the context of partial insurance contracts. However, the relationship between M&A activity and financial performance of the involved insurance companies has not been investigated yet from the perspective of stochastic dominance. In this paper, we make a first attempt to eliminate this drawback and fill this gap.

In order to achieve this goal, we first review some basic concepts of stochastic dominance. In a next step, the most important stochastic dominance models, namely the first two degrees of stochastic dominance decision rules, are looked at more closely. After that, we describe the various approaches and tests for detecting stochastic dominance and then explain how short-term and medium- and long-term returns are calculated in this work.

#### **4.3.1.2 The Stochastic Dominance Model**

In short, stochastic dominance gives us a general framework for decision making under uncertainty.<sup>416</sup> Even though utility functions and risk-taking attitudes vary between individuals, the concept of stochastic dominance is suitable in most cases, since hardly any assumptions about the form of an investor's preferences and no assumptions on the form of distributions are needed.<sup>417</sup> By using various degrees of stochastic dominance ranking rules it is possible to order pairs of random variables (e.g.,  $X$  and  $Y$ ), given that they meet specific criteria like non-satiation or risk aversion. More specifically, economists and researchers are able to compare and rank cumulative distribution functions (CDFs) of utility, such as wealth or investment income, for

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<sup>416</sup> E.g., Joy and Porter (1974, p. 26), Fong, Wong, and Lean (2003, p. 4), Abhyankar, Ho, and Zhao (2006, p. 8), Klaever (2006, p. 19), Levy (2006, p. 1), and Abhyankar, Ho, and Zhao (2008, p. 225).

<sup>417</sup> In contrast, the mean-variance analysis as proposed by Markowitz (1952), in which mean and variance of investment alternatives are compared, may lead to dissatisfying results, as pointed out by Klaever (2006, p. 20) (see discussion above).

first, second, or higher orders of stochastic dominance.<sup>418</sup> In finance, for example, researchers typically investigate whether an investment portfolio  $A$  with random return  $X$  stochastically dominates an investment portfolio  $B$  with random return  $Y$ . If investment portfolio  $A$  dominates investment portfolio  $B$  by first-order stochastic dominance, all investors who prefer more wealth to less<sup>419</sup> will invest in alternative  $A$ , regardless of their attitude toward risk (i.e., if they are risk averse, risk neutral, or risk seeking.). However, under second-order stochastic dominance, investors who prefer investing in portfolio  $A$  are required to be risk averse. In our context, first- and second-order stochastic dominance rules<sup>420</sup> are applied to investigate whether the cumulative distribution function of daily and monthly returns to an investment in a merger portfolio stochastically dominates an investment in a size and book-to-market matched benchmark portfolio. Or, to put it differently, we examine whether a portfolio of acquiring insurance companies is preferred by a group of investors with specific preferences over a benchmark portfolio. The advantage of the SD criteria when applied to the distributions of returns of the two portfolios is that a comparison of these objects is made at all points instead of focusing only on a limited subset of measures, such as the mean and the variance, and thereby it is more consistent with the principle of expected utility maximization.<sup>421</sup>

In the following, we will more thoroughly define the first two orders of stochastic dominance.

#### 4.3.1.3 Orders of Stochastic Dominance

To test for first- and second-order stochastic dominance (abbreviated by SD1 and SD2), let us start by considering two investments  $A$  and  $B$  with future returns  $X$  and  $Y$ , respectively, which are characterized by cumulative

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<sup>418</sup> For some early work in investment decision making under uncertainty and risk, see, e.g., Hadar and Russell (1969), Hanoch and Levy (1969), and Whitmore (1970). Besides defining stochastic dominance by cumulative distribution functions, as done in our study, the Neumann Morgenstern utility functions and quantile distributions can be used, as pointed out by Guo (2012, p. 3).

<sup>419</sup> Investors with a utility function that is non-decreasing in the first order.

<sup>420</sup> According to Klaever (2006, p. 7), first- and second-order stochastic dominance are the most important stochastic dominance decision rules.

<sup>421</sup> E.g., Porter and Gaumnitz (1972, p. 445), Tehranian (1980, p. 160), and Barrett and Donald (2003, p. 2).



distribution functions  $F_X$  and  $F_Y$ . As depicted by Klaever (2006, p. 12), a comparison of these two investment alternatives would be simple and uncomplicated if the distribution functions of returns were known, but unfortunately in most practical applications, the conditions to achieve this are not fulfilled. Hence, to investigate whether one investment prospect is dominated by the other, the underlying distributions have to be derived from the empirical data. The SD approach, however, does not require any assumptions about the underlying return distribution, while making only minimal assumptions about the form of investors' utility functions, as seen in the following sections.

#### 4.3.1.3.1 First-Order Stochastic Dominance

If the return for investment  $A$  is always higher than that for investment  $B$ , then under the first SD ranking procedure, investment alternative  $A$  is preferred over alternative  $B$  by all investors favoring more over less wealth (in our case, returns to an investment).<sup>422</sup> Hence, it is the weakest assumption on preference, only requiring that investors' utility functions have a non-negative first derivative ( $U'(x) \geq 0$ ), that is,  $U$  is an increasing monotonic utility function.<sup>423</sup>

Accordingly, we define:<sup>424</sup>

$X$  first-order stochastically dominates  $Y$ , denoted as  $X \succeq_1 Y$ ,<sup>425</sup> if and only if:

$$E[u(X)] \geq E[u(Y)]$$

for all  $u \in U_1$ , with strict inequality for some  $u$ ;

where  $u$  is the utility function, and  $U_1$  is defined as the set of all non-decreasing (von Neumann-Morgenstern) utility functions, namely that  $U' \geq 0$ ; Or:

$$F_X(x) \leq F_Y(x)$$

for all  $x \in \mathfrak{R}$ , with strict inequality for some  $x$ ,

<sup>422</sup> This also includes the case in which the return for prospect  $A$  is at least as large as that for prospect  $B$ .

<sup>423</sup> See, e.g., Levy (2006, p. 55).

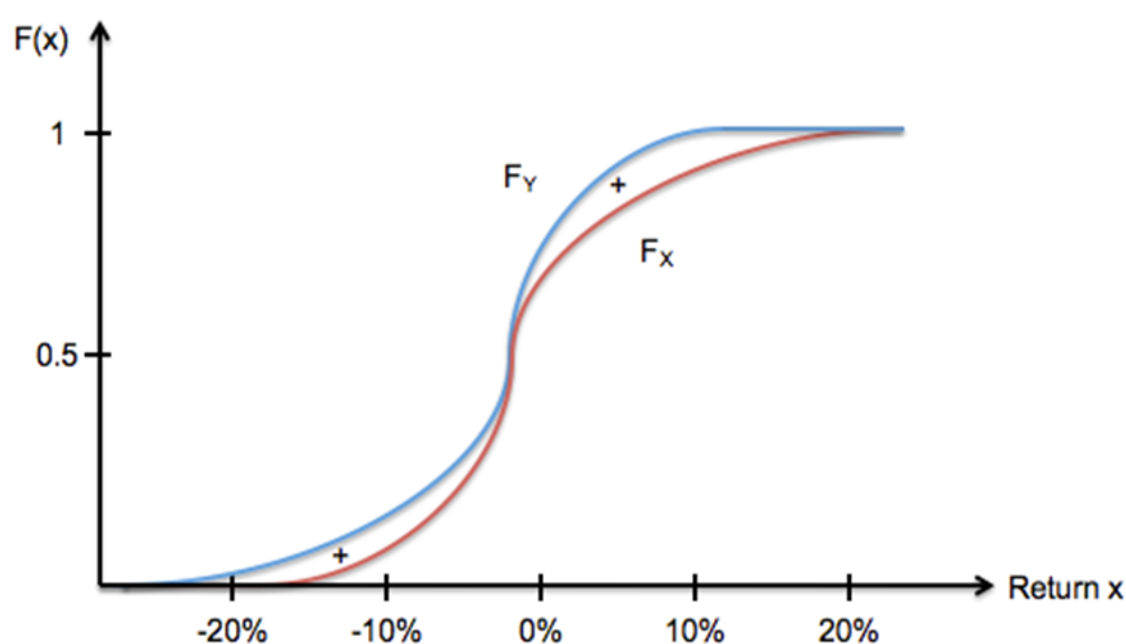
<sup>424</sup> See also Linton, Maasoumi, and Whang (2005, p. 737), Maasoumi and Heshmati (2005, p. 3), Klaever (2006, p. 21)

<sup>425</sup> According to the von Neumann-Morgenstern utility axioms that build the basis for the expected utility theory, the symbol  $\succeq$  denotes the binary preference relation "is weakly preferred to" (see von Neumann and Morgenstern, 1944). See, e.g., Klaever (2006, p. 19) for a detailed description of the von Neumann-Morgenstern utility axioms. It is important to note that during this work, preference is understood in terms of the weak form. This is consistent with many other studies, e.g., Tehranian (1980, p. 160), Barrett and Donald (2003, p. 4), and Levy (2006, p. 64). The subscript 1 denotes first-order preference relation.

and which can be more conveniently written as

$$F_Y(x) - F_X(x) \geq 0.^{426}$$

From the above equation, it becomes clear that cumulative distribution function  $F_Y$  has to be everywhere to the left of distribution function  $F_X$ . Or, to put it differently, while the two distribution functions are allowed to touch, distribution function  $F_X$  must not exceed  $F_Y$ .<sup>427</sup> Graphically, this (weak) stochastic dominance relationship is illustrated in Figure 12.



**Figure 12: First-order stochastic dominance of  $F_X$  over  $F_Y$**

After discussing the conditions under which investment alternative  $A$  first-order stochastically dominates alternative  $B$ , for reasons of symmetry, we now turn to the opposite case. Investment prospect  $B$  is accordingly said to first-order stochastically dominate investment alternative  $A$  if:

$$F_Y(x) \leq F_X(x)$$

for all  $x \in \mathfrak{R}$ , with strict inequality for at least one  $x$ .

<sup>426</sup> For proof, see the early work of Quirk and Saposnik (1962), Hadar and Russell (1969), and Hanoch and Levy (1969). For a graphical and mathematical exposition as well as an intuitive explanation of the SD1 decision rule, see Levy (2006, p. 59).

<sup>427</sup> The area in which distribution function  $F_Y$  is above distribution function  $F_X$  is denoted by "+".

If we fail to provide evidence for first-order stochastic dominance of one alternative over another, we should consider weaker orderings such as the second-order analysis, which generally provides a broader set of efficient investments.<sup>428</sup>

#### 4.3.1.3.2 Second-Order Stochastic Dominance

Under second-order stochastic dominance, all investors display risk aversion in addition to non-satiation, which both form the basis for testing SD2. Accordingly, second-order stochastic dominance, which was developed by Hadar and Russell in 1969, is less restrictive and thereby potentially increases the size of the set of efficient investment alternatives.

It is defined as follows:

$X$  second-order stochastically dominates  $Y$ , denoted as  $X \succeq_2 Y$ , if and only if:

$$E[u(X)] \geq E[u(Y)]$$

for all  $u \in U_2$ , with strict inequality for some  $u$ ;

where  $U_2$  is defined as the set of all non-decreasing and concave (von Neumann-Morgenstern type) utility functions (standing for risk aversion of the investors, which is commonly assumed in literature<sup>429</sup>), namely that  $U' \geq 0$  and  $U'' \leq 0$  ( $U_2 \subseteq U_1$ ); Or:

$$\int_{-\infty}^x F_X(t) dt \leq \int_{-\infty}^x F_Y(t) dt$$

for all  $x \in \mathfrak{R}$  with strict inequality for some  $x$ ,

which is equivalent to

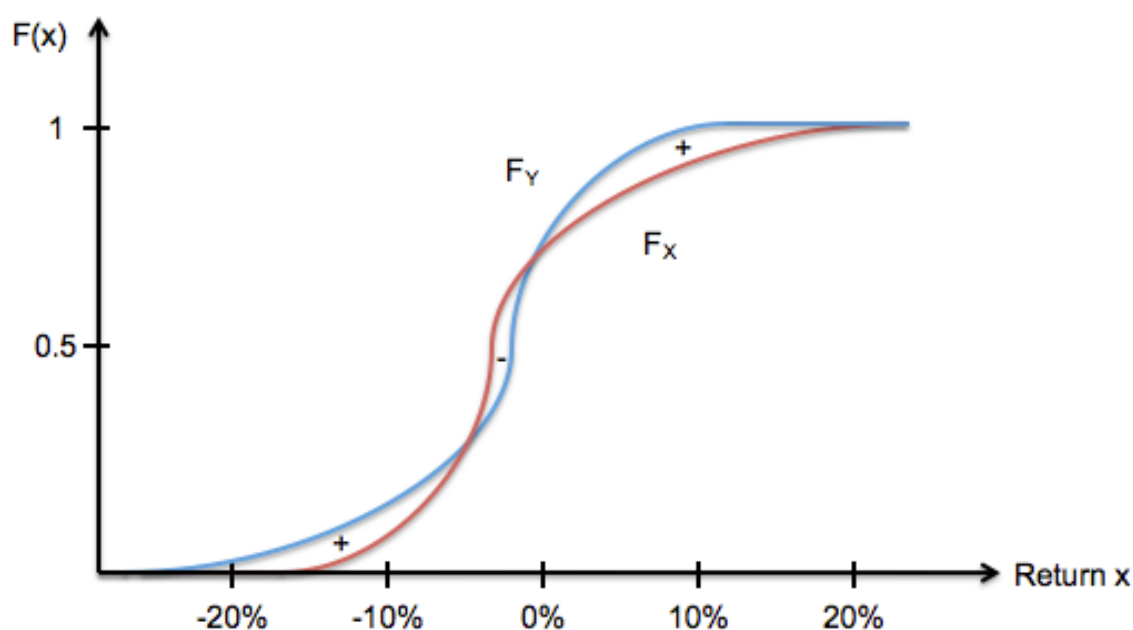
$$\int_{-\infty}^x [F_Y(t) - F_X(t)] dt \geq 0. \quad 430$$

To illustrate this dominance criterion, Figure 13 gives an example of two CDFs in which second-order but not first-order stochastic dominance exists between the two investment alternatives.

<sup>428</sup> Joy and Porter (1974, p. 24).

<sup>429</sup> E.g., Levy (2006, p. 75) and Post and Versijp (2007, p. 491).

<sup>430</sup> Hadar and Russell (1969), Hanoch and Levy (1969), Rothschild and Stiglitz (1970), and Fishburn (1974) present a mathematical proof for this relationship. See Levy (2006, p. 59) for a graphical exposition, a numerical example, and an intuitive explanation of the SD2 decision rule.



**Figure 13: Second-order, but not first-order stochastic dominance of  $F_X$  over  $F_Y$**

As can be seen from the above figure, investment alternative  $A$  second-order stochastically dominates alternative  $B$  because the area under the distribution function  $F_X$  is everywhere, that is, for every value of  $x$  smaller than that of distribution function  $F_Y$ .

Once again, we denote the area enclosed between the two distributions by “+” in cases where CDF  $F_Y$  exceeds CDF  $F_X$  and whenever  $F_X$  is above  $F_Y$  by “-“. In order for second-order stochastic dominance of  $A$  over  $B$  to hold, the cumulative areas enclosed between the corresponding distribution functions have to be positive or at least non-negative for every possible value of  $x$ . Since in our case, the first area is positive and also greater than the following negative area (which is once again followed by a positive area), we can assert SD2 of  $A$  over  $B$ .

#### 4.3.1.3.3 $K$ th-Order Stochastic Dominance

More generally, we can write the stochastic dominance criteria for any positive integer degree ( $k$ ) in following way:

$X$  stochastically dominates  $Y$  by  $k$ th-order, denoted as  $X \succeq_k Y$ , if and only if:

$$E[u(X)] \geq E[u(Y)]$$

for all  $u \in U_k$ , with strict inequality for some  $u$ ; Or:

$$F_X^{(k)}(x) \leq F_Y^{(k)}(x)$$

for all  $x \in \mathfrak{R}$  with strict inequality for some  $x$ , With  $k \in \mathbb{N}$ .

Note that this is equivalent to

$$F_Y^{(k)}(x) - F_X^{(k)}(x) \geq 0.$$

Finally, as illustrated by Klaever (2006, p. 21), using the general definition of stochastic dominance of the  $k$ th order, it can be proved that stochastic dominance of the first order implies second-order stochastic dominance, which in turn implies stochastic dominance ordering of any higher order.

#### 4.3.1.4 Testing for Stochastic Dominance

##### 4.3.1.4.1 Descriptive Approach

There are various approaches to assessing a stochastic dominance relationship between the two investments  $A$  and  $B$  with their respective returns  $X$  and  $Y$ . A first approach, which is used by Schmid and Trede (2000) and which is also applied in our following empirical investigation, is a purely descriptive one. This approach makes use of the empirical distribution functions (EDFs), which gives a nonparametric minimum variance unbiased estimate of the cumulative distribution functions (CDFs).<sup>431</sup> Accordingly, this nonparametric method relies solely on the observations  $x_1, x_2, \dots, x_n$  and  $y_1, y_2, \dots, y_m$  of  $X$  and  $Y$ , respectively, without making any special assumptions on the particular distribution of the returns.<sup>432</sup> Essentially, the idea here is to let the data speak for itself.

The EDFs corresponding to these observations are

$$\hat{F}_{X,n}(x) = \frac{1}{n} \sum_{i=1}^n 1(x_i \leq x),$$

and

$$\hat{F}_{Y,m}(y) = \frac{1}{m} \sum_{i=1}^m 1(y_i \leq y),$$

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<sup>431</sup> Nelson and Pope (1991, p. 1183).

<sup>432</sup> E.g., Schmid and Trede (2000), Klaever (2006), and Sriboonchitta et al. (2010). Note that this and the upcoming paragraphs on descriptive stochastic dominance are in large parts based on the work of Schmid and Trede (2000).

respectively, where the indicator function  $1(c)$  has the value 1 if  $c$  is true and the value 0 if  $c$  is not true:

$$1(x_i \leq x) = \begin{cases} 1: x_i \leq x \\ 0: x_i > x \end{cases}.$$

For testing if investment alternative  $A$  first-order (descriptively) dominates alternative  $B$ , that is, if  $X \succeq_1 Y$ , one has to check whether

$$\hat{F}_{Y,m}(z) - \hat{F}_{X,n}(z) \geq 0$$

for all  $z \in \mathfrak{R}$ , with strict inequality for some  $z$ , with the empirical analogue of

$$\frac{1}{m} \sum_{i=1}^m 1(y_i \leq z) - \frac{1}{n} \sum_{i=1}^n 1(x_i \leq z) \geq 0.$$

To test for second-order (descriptive) dominance, the empirical distribution functions are replaced by the pertinent integrated empirical distribution functions

$$\int_{-\infty}^t \hat{F}_{X,n}(z) dz = \int_{-\infty}^t (t-z) d\hat{F}_{X,n}(z),$$

and

$$\int_{-\infty}^t \hat{F}_{Y,m}(z) dz = \int_{-\infty}^t (t-z) d\hat{F}_{Y,m}(z).$$

Accordingly, the empirical analogues to the antiderivatives of the empirical distribution functions are

$$\frac{1}{n} \sum_{i=1}^n (t-x_i) 1(x_i \leq t),$$

and

$$\frac{1}{m} \sum_{i=1}^m (t-y_i) 1(y_i \leq t).$$

Alternative  $A$  is said to second-order (descriptively) dominate alternative  $B$ , that is,  $X \succeq_2 Y$ , if

$$\int_{-\infty}^t [\hat{F}_{Y,m}(z) - \hat{F}_{X,n}(z)] dz \geq 0$$

for all  $t \in \mathfrak{R}$ , with strict inequality for some  $t$ , with the empirical analogue of

$$\frac{1}{n} \sum_{i=1}^n (t - x_i) \mathbb{1}(x_i \leq t) - \frac{1}{m} \sum_{i=1}^m (t - y_i) \mathbb{1}(y_i \leq t) \geq 0.$$

Obviously, the major advantage of this approach is that the descriptive comparison relies solely on the observations without making any restrictive assumptions concerning the data, in particular concerning the independence of the observations. This benefit is especially important when analyzing financial data such as stock returns.<sup>433</sup> Contrarily, as empirically shown by Klaever (2006), the downside of this approach is that the standard error has a strong influence on the results of the descriptive comparison, hence leading to a high rate of wrong rejection of stochastic dominance. This influence, and thus, the rate of wrong rejection, is particularly pronounced for a first-order descriptive analysis, in which stochastic dominance of the first order is rejected far too often.<sup>434</sup> In an empirical analysis of daily returns of 30 stocks listed in the German stock index DAX, Klaever (2006) could not establish any first-order stochastic dominance relationship in a descriptive sense between any pair of stock return series. This particular drawback is further confirmed by the paper of Schmid and Trede (2000), who also did not find a dominance relationship in the sense of SD1 in their empirical investigation on 32 German assets during the 1990s. However, looking at stochastic dominance of the second order, findings from the descriptive analyses of Schmid and Trede (2000) and Klaever (2006) provide evidence for the reliability and validity of this approach. Testing for second-order stochastic dominance with a descriptive comparison, Schmid and Trede (2000) receive an adequate set of efficient firms, and so does Klaever (2006), who receives an almost identical set of efficient firms using either a descriptive or a statistical testing procedure for SD2.<sup>435</sup> Nevertheless, Klaever (2006) expresses the need for statistical inference and supports the use of statistical tests for stochastic dominance in order to obtain significant and reliable results. These statistical tests will be presented in the following section.

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<sup>433</sup> For further information on the importance of the independence of the data when investigating financial returns, see the next section, or see for example, Funke (1994), Luetkepohl (1997), Lim, Maasoumi, and Martin (2004) and Klaever (2006).

<sup>434</sup> See Klaever (2006).

<sup>435</sup> See Table 41 in the appendix for an overview of Klaever's (2006) efficiency results concerning the application of the considered tests on stochastic dominance.

#### 4.3.1.4.2 Statistical Tests

As discussed earlier, since the distribution functions of future returns,  $F_X$  and  $F_Y$ , are not known in most real-world cases, they need to be obtained from their empirical estimators in order to establish or reject stochastic dominance. Instead of investigating stochastic dominance with a descriptive comparison, a second, large group of SD papers bases their approaches for obtaining the distribution functions of returns on statistical inference. In recent years, various papers have developed a huge number of differing statistical tests for detecting stochastic dominance.<sup>436</sup> These tests differ in multiple respects, including the formulation of the null hypothesis, the orders of stochastic dominance tested, the specific type of the test statistic, the underlying assumptions of the respective statistical test, and the method for verification of statistical significance.

In general, for testing stochastic dominance, two different kinds of statistical tests can be carried out, depending on the formulation of the null and alternative hypothesis. The first posits a null hypothesis ( $H_0$ ) of dominance and an alternative ( $H_1$ ) of non-dominance. Accordingly, the hypotheses for any positive integer degree ( $k$ ) are

$$H_0 : F_X^{(k)}(x) \leq F_Y^{(k)}(x)$$

for all  $x \in (a, b)$ ; against the alternative

$$H_1 : F_X^{(k)}(x) > F_Y^{(k)}(x)$$

for some  $x \in (a, b)$ , where  $a$  and  $b$  are any two real numbers satisfying  $-\infty < a < b < \infty$ .

This testing procedure is applied by the majority of researchers to test whether or not stochastic dominance exists between two investment alternatives;<sup>437</sup>

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<sup>436</sup> See, e.g., Klaever (2006) and Guo (2012) for a comprehensive overview on the different strands of SD literature.

<sup>437</sup> E.g., McFadden (1989), Klecan, McFadden, and McFadden (1991), Xu, Fisher, and Wilson (1995, 1995, 1997), Schmid and Trede (1996a, 1996b, 1997, 1998), Barrett and Donald (2003), Lim, Maasoumi, and Martin (2004), Linton, Maasoumi, and Whang (2005), Maasoumi and Heshmati (2000, 2005), Abhyankar, Ho, and Zhao (2006), and Linton, Song, and Whang (2010).



however, “this is arguably a matter of convention and convenience,”<sup>438</sup> as described by Davidson and Duclos (2009). Formulating the null hypothesis in this way enables the researcher to relatively easily determine the appropriate rejection regions for the test statistic; however, as criticized by several researchers,<sup>439</sup> significant statistical evidence for stochastic dominance cannot be deduced from such a testing procedure.<sup>440</sup> Davidson and Duclos summarize this issue by stating: “Positing a null of dominance cannot be used to infer dominance; it can however serve to infer non-dominance” (p. 2). On the other hand, the authors further note that “[p]ositing a null of non-dominance cannot serve to infer non-dominance; it can however lead to inferring dominance” (p. 2), which in the majority of cases is the point of interest.

Consequently, a second, less common strand of research seeks to find statistical evidence for a dominance relationship by postulating the null hypothesis ( $H_0$ ) of non-dominance and the alternative ( $H_1$ ) of dominance.<sup>441</sup> Under this testing procedure, the rejection of the null hypothesis of non-dominance ultimately leads to acceptance of a dominance relationship. As stated by Davidson and Duclos (2009), Kaur, Rao, and Singh (1994) are the first ones to come up with such a test method that formulates the null hypothesis of a zero difference against its negation hypothesis of nonzero difference. They test the null hypothesis for second-order stochastic dominance

$$H_0 : F_X^{(2)}(x) \geq F_Y^{(2)}(x)$$

for some  $x \in (a, b)$ ; against the alternative

$$H_1 : F_X^{(2)}(x) < F_Y^{(2)}(x)$$

for all  $x \in (a, b)$ , where  $a$  and  $b$  are any two real numbers satisfying  $-\infty < a < b < \infty$ .

<sup>438</sup> Davidson and Duclos (2009, p. 1). The authors further elucidate their statement by explaining: “convention in the sense that it follows the usual practice of making the theory of interest the null and seeking evidence contrary to it, and convenience in that the null is then relatively easy to formulate” (Davidson and Duclos, p. 1).

<sup>439</sup> E.g., Klaever (2006) and Davidson and Duclos (2009).

<sup>440</sup> For a thorough elaboration on this point, please refer to the work of Klaever (2006), or see the paper by Davidson and Duclos (2009, p. 1 and p. 36), which graphically depicts this problem.

<sup>441</sup> E.g., Eubank, Schechtman, and Yitzhaki (1993), Kaur, Rao, and Singh (1994), Anderson (1996), Herring (1996), and Davidson and Duclos (2006, 2009).

By specifying the testing procedure in this way, the authors are able to provide statistical evidence for SD if the null hypothesis (of non-dominance) can be rejected. However, the Kaur, Rao, and Singh test, as well as the testing procedure in general, have their own drawbacks. Most importantly, as explained in the work of Klaever (2006), tests with the null hypothesis of non-dominance suffer from the mathematical complexity (and thereby difficulty) that arises from the existence of multiple possible combinations of distribution pairs that do not dominate each other.<sup>442</sup> Accordingly, “the boundary of the non-dominance hypothesis cannot be expressed in closed form,”<sup>443</sup> and thus its construction is a very complex undertaking.

As has been pointed out earlier in this chapter,<sup>444</sup> return distributions can be compared using first, second, or even higher orders of stochastic dominance. While some test are only applicable to first-order stochastic dominance (e.g., Schmid & Trede, 1995, 1996a; Davidson & Duclos, 2006, 2009), second-order stochastic dominance (e.g., Eubank, Schechtman, & Yitzhaki, 1993; Kaur, Rao, & Singh, 1994; Schmid & Trede, 1998; Abhyankar, Ho, & Zhao, 2009), or both of the before-mentioned orders (e.g., McFadden, 1989, Klecan, McFadden, & McFadden, 1991; Schmid & Trede, 1996b, 1997; Xu, Fisher, & Wilson, 1995, 1996, 1997; Maasoumi & Heshmati, 2000, 2005), others can be applied to various orders of stochastic dominance (e.g. Davidson & Duclos, 2000; Barrett & Donald, 2003; Lim, Maasoumi, & Whang, 2004; Linton, Maasoumi, & Whang, 2005; Bennett, 2008, 2010; Linton, Song, & Whang, 2010).

According to Guo (2012), the extant SD literature can also be categorized into three broad groups of studies based on their respective test statistic features. The largest group of papers by far employs statistical tests for identifying stochastic dominance that are based on Kolmogorov-Smirnov (KS) statistics.<sup>445</sup> This most popular group is followed by a group of studies applying t-statistic

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<sup>442</sup> See Klaever (2006, p. 13 and 38).

<sup>443</sup> Klaever (2006, p. 13).

<sup>444</sup> See section 4.3.1.3 for the various orders of stochastic dominance.

<sup>445</sup> E.g., Schmid and Trede (1998), Barrett and Donald (2003), Linton, Maasoumi, and Whang (2005), Abhyankar, Ho, and Zhao (2009), Bennett (2010), and Linton, Song, and Whang (2010),

stochastic dominance tests,<sup>446</sup> which in general are computationally simpler than KS-type tests. A third and very small group of studies, comprising for example, the papers by Eubank, Schechtman, and Yitzhaki (1993), Schmid and Trede (1995, 1996b, 1997), Hall and Yatchew (2005), and Bennett (2008), applies integral-type tests for detecting stochastic dominance.<sup>447</sup>

A serious drawback of every statistical test, which has been regularly pointed out in the past, concerns the assumptions regarding the data employed, in particular regarding the independence of the data.<sup>448</sup> The vast majority of statistical tests applied in previous SD studies are designed for independent data, and hence these studies assume their observations to be independent.<sup>449</sup> In reality, however, this might often not be the case.<sup>450</sup> For example, financial time series exhibit considerable dependencies, both within (serial dependence) and between (contemporaneous dependence) time series, as outlined by various authors.<sup>451</sup> Consequently, Schmid and Trede (2000) infer that “conclusions drawn from these tests are unreliable,”<sup>452</sup> especially when analyzing financial data such as stock returns, as noted by Klaever (2006, p. 67). A promising attempt to redress this problem is presented by Klaever (2006) in his dissertation. The author modifies existing statistical tests, for example, the Kaur, Rao, and Singh (1994) and the Schmid and Trede (1997) test, and thereby develops several new tests for SD that are also applicable to financial data, as they are robust to time series properties. Accordingly, these new statistical tests can also be used in cases where serial and contemporaneous dependence in the data set is present.

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<sup>446</sup> E.g., Kaur, Rao, and Singh (1994), Anderson (1996), Crawford (2005), Davidson and Duclos (2000, 2006, 2007), and Knight and Satchell (2008).

<sup>447</sup> See Guo (2012, p. 27). In order to get a deeper understanding on the different statistical testing procedures, please refer to the work of Klaever (2006), Sriboonchitta et al. (2010), or Guo (2012).

<sup>448</sup> E.g., Schmid and Trede (2000, p. 316) and Klaever (2006, p. 7, 13, 46, and 67).

<sup>449</sup> E.g., Nelson and Pope (1991), Eubank, Schechtman, and Yitzhaki (1993), Kaur, Rao, and Singh (1994), Barrett and Donald (2003), Abhyankar, Ho, and Zhao (2009), Bennett (2010), Linton, Song, and Whang (2010), Chou and Chang (2012), and many others.

<sup>450</sup> Klaever (2006, p. 46).

<sup>451</sup> E.g., Bollerslev, Chou, and Kroner (1992), Funke (1994), Harvey and Siddique (2000), and Klaever (2006).

<sup>452</sup> Schmid and Trede (2000, p. 316).

### 4.3.1.5 Calculation of Returns

This empirical work not only investigates the effect of insurance transactions in the short run, but also in the long run. As explained later in this chapter, we collect the short-term and long-term stock market data by Bloomberg (See Table 18 in Section 4.3.8).

#### 4.3.1.5.1 Short-Term Returns

In the short-term study, we use daily stock returns of all reviewed insurance companies in order to compare the return distributions of an acquiring firm portfolio with a portfolio of benchmark control firms.

Following common practice,<sup>453</sup> the dividend-adjusted daily stock return for the acquirer company  $i$  at time  $t$  has been computed as

$$R_{i,t} = \frac{P_{i,t} + D_{i,t} - P_{i,t-1}}{P_{i,t-1}} = \frac{P_{i,t} - P_{i,t-1}}{P_{i,t-1}} + \frac{D_{i,t}}{P_{i,t-1}},$$

where  $R_{i,t}$  is called the daily simple total return to shareholders (TRS) adjusted for dividends,  $P_{i,t}$  is the asset price at the end of trading day  $t$ ,  $P_{i,t-1}$  is the asset price at the end of one day prior to the trading day, and  $D_{i,t}$  denotes the amount of the cash dividend per share, which is added to the share price on the ex-dividend date.  $\frac{P_{i,t} - P_{i,t-1}}{P_{i,t-1}}$  is referred to as the capital gain, whereas  $\frac{D_{i,t}}{P_{i,t-1}}$  is

referred to as the dividend yield. Benchmark firm daily returns (TRS) are calculated in the same manner as described above. Both acquirer and benchmark firm TRS are estimated over a period ranging from the publication date of M&A announcement ( $t_0$ ) up to five trading days after the day of announcement ( $T_1, T_2, T_3, T_4$ , or  $T_5$ ).<sup>454</sup> The majority of the reviewed event

<sup>453</sup> Elango (2006), Schertzing (2008), and Staikouras (2009), for example, also use simple daily returns to shareholders in their recent empirical studies. In contrast, Schmid and Trede (2000), Cummins and Weiss (2004), and Klaever (2006) compute continuously compounded rates of returns. Following their approach, we perform a second calculation, this time using continuously compounded total returns to shareholders as a basis for the calculation. The dividend-adjusted daily stock return for company  $i$  at time  $t$  becomes

$$r_{i,t} = \ln(1 + R_{i,t}) = \ln\left(\frac{P_{i,t} + D_{i,t}}{P_{i,t-1}}\right),$$

where  $r_{i,t}$  is called the continuously compounded return adjusted for dividends and  $\ln(\bullet)$  is the natural log function.

<sup>454</sup> Note that if an asset is not traded on a particular trading day within the estimation period, we use the asset price on the following trading day for calculating the daily return.

studies<sup>455</sup> analyzing the market response to insurance transactions also utilize (at least some of) these various short-term post-announcement windows.

In an additional analysis, we also calculate short-term acquirer CARs to enable an easy comparison with the results of previous event studies that rely on the traditional event study approach and hence on CARs. In a first step, daily stock returns of the acquirer and benchmark are used in order to compute daily abnormal returns relative to a benchmark. The abnormal return  $AR_{i,t}$  on day  $t$  for insurer  $i$  is measured as the difference between the daily total return to shareholders  $R_{i,t}$  of insurer  $i$  and the benchmark daily return  $E(R_{i,t})$  for this particular insurer  $i$ ,

$$AR_{i,t} = R_{i,t} - E(R_{i,t}),$$

with  $E(R_{i,t}) = BR_{m,t}$ , and where  $BR_{m,t}$  denotes the realized daily return of benchmark company  $m$  during time period  $t$ .

In a second step, the cumulative abnormal return for a particular insurer  $i$  across a specified time interval from time  $t_0$  to time  $T_D$  is calculated as

$$CAR_i = \sum_{t=t_0}^{T_D} AR_{i,t},$$

where  $t_0$  is the announcement day (day 0) and  $T_D$  is a particular day within the announcement period (announcement day +1 to +5).

In a last step, the CARs of each individual company  $i$  are aggregated across all companies in the sample and hence the equally weighted average cumulative abnormal return is provided by

$$\overline{CAR} = \frac{1}{N} \sum_{i=1}^N \sum_{t=t_0}^{T_D} AR_{i,t},$$

where  $N$  is the number of transactions in the sample.

#### 4.3.1.5.2 Long-Term Returns

In general, no consensus exists among researchers and practitioners on the particular time period in which the effects of transactions can accurately be

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<sup>455</sup> E.g., Floreani and Rigamonti (2001), Cummins and Weiss (2004), Schertzingler (2008), Cummins and Xie (2009), and Staikouras (2009).

assessed. As described earlier, the choice of the estimation period is always a trade-off between being long enough to capture the full performance effect of the particular transaction under analysis and the overlay of other factors that are not related to the respective transaction when extending the event period. Following the hypothesis that the valuation effects of M&A transactions may be spread over several years following the deal announcement,<sup>456</sup> we place further attention to the long term. Accordingly, in addition to those previously described short-term event windows, our study also looks at several longer post-M&A periods in order to evaluate long-term performance effects of these insurance transactions. In this work, long-term returns to acquiring firm shareholders are calculated over three periods extending from the month prior to the announcement month ( $t_0$ ) to the announcement month plus one year, plus two years, and plus three years ( $T_y$ ).

This long-term event window of up to three years after the announcement has been chosen in accordance with previous long-term event studies in which the maximum event window setting was also three years after the M&A announcement year.<sup>457</sup> In addition, some empirical evidence supports such a particular long-term event window, as a survey conducted on US managers by the American Management Association shows that the full synergy potential of a transaction is achieved during a three-year post-M&A period in more than half of all M&A transactions.<sup>458</sup> Based on these findings, Settnik (2006) also uses a post-event window of up to three years in his accounting-based study on the effects of M&A transactions in the insurance industry.

First of all, monthly simple returns to shareholders of each company has to be computed as

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<sup>456</sup> See, e.g., Fama (1998, p. 292).

<sup>457</sup> See both long-term event studies by Boubakri, Dionne, and Triki (2006), and Schertzing (2008).

<sup>458</sup> In 28% of the transactions, the full synergy potential was achieved in one to two years after deal announcement, in 30% after two to three years, and in 29% after three to five years after the deal; see Perin (1996, p. 70).

$$R_{i,t} = \frac{(P_{i,t} - P_{i,t-1})}{P_{i,t-1}},^{459}$$

where  $R_{i,t}$  denotes the monthly simple net return to shareholders of the acquiring insurance firm  $i$  at time  $t$ ,  $P_{i,t}$  is the average asset price in month  $t$ , and  $P_{i,t-1}$  is the average asset price one month earlier. Monthly simple returns to shareholders of the respective benchmark firm,  $BR_{m,t} = E(R_{i,t})$ , are computed similarly.

Monthly simple returns are then compounded to calculate buy-and-hold returns (BHRs) of company  $i$  over several holding periods as shown below:

$$BHR_i = \prod_{t=t_0}^{T_Y} (1 + R_{i,t}) - 1,$$

where  $BHR_i$  is the buy-and-hold return for company  $i$  over the time period from  $t_0$  to  $T_Y$  where  $T_Y = 1, 2,$  and  $3$  year(s). Benchmark company buy-and-hold returns in period  $T_Y$  are calculated analogously using their respective monthly simple returns  $BR_{m,i} = E(R_{i,t})$ .

Once again, for comparison purpose with previous empirical studies applying the traditional event study approach, we also calculate long-term buy-and-hold abnormal returns. Following the advice of Barber and Lyon (1997) that “researchers should calculate abnormal returns as the simple buy-and-hold return on a sample firm less the simple buy-and-hold return on a reference portfolio or control firm,”<sup>460</sup> we calculate long-term abnormal returns as

$$BHAR_i = \prod_{t=t_0}^{T_Y} [1 + R_{i,t}] - \prod_{t=t_0}^{T_Y} [1 + E(R_{i,t})],$$

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<sup>459</sup> Note that because of the negligible effect of dividend payments in calculating long-term abnormal returns, we do not adjust for dividends in the long-term study.

<sup>460</sup> Barber and Lyon (1997, p. 342). The authors justify their claim for this calculation procedure by the fact that this procedure for estimating long-term buy-and-hold abnormal returns takes the monthly compounding into account and thereby eliminates the measurement bias stemming from cumulating abnormal returns and hence produces accurate long-term results (For further information, see also Higson & Elliott, 1998; Lyon, Barber, & Tsai, 1999; Arian, 2004; Spiss, 2008). This procedure has also been applied by most recent researchers investigating the long-term effects of corporate events, including Higson and Elliott (1998), Schertzinger (2008), and Spiss (2008).

where  $BHAR_i$  is the buy-and-hold abnormal return for insurer  $i$  over the respective time period from  $t_0$  to  $T_y$ .

Subsequently, the equally weighted average BHAR across all transactions in the sample is determined as follows

$$\overline{BHAR} = \frac{1}{N} \sum_{i=1}^N BHAR_i,$$

where  $N$  is the number of transactions in the sample.

### 4.3.2 Operationalization of Determinants of M&A Success

After specifying the methodology used to determine short-term and medium- and long-term effects of M&A deals, it is necessary to operationalize the various determinants that are likely to influence the overall performance of acquiring insurers.

First of all, an acquirer's absolute size, growth, transaction experience, and line of business have to be operationalized as the influence of these features of the acquiring insurance firm is investigated.

Consistent with previous event study research on the effect of insurance M&A, an acquirer's absolute size is measured as the market value of equity of the respective acquirer at the day of announcement.<sup>461</sup> Acquirers are then sorted into the groups "large" and "small" according to the respective market value at announcement. Acquirers with a market value above the median are classified as large acquirers, whereas acquirers with below median market value are classified as small acquirers.

Similar to the specification used by Schertzing (2008), an acquirer's pre-M&A growth is computed by taking the relative change in the acquirer's market value in the period from one year prior to announcement to the day of announcement.<sup>462</sup> We split acquirers into a group of acquirers with a negative

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<sup>461</sup> More precisely, the price on the announcement day is defined as the closing price at the end of the day prior to the announcement day. See Floreani and Rigamonti (2001), Cummins and Xie (2005), Schertzing (2008), and Cummins and Xie (2009).

<sup>462</sup> In the few cases in which no market value could be estimated on the exact announcement day or exact day one year prior to the announcement day, we used the respective market value on 01/01 of the respective year.



growth rate over this one-year estimation window and a group of acquirers with a positive growth rate.

Analogously, insurance acquirers are divided into groups of M&A-experienced, medium experienced, and inexperienced acquirers. Acquirers announcing more than four transactions<sup>463</sup> in the announcement year<sup>464</sup> are classified as M&A-experienced acquirers, while announcing two to four transactions and announcing only one transaction resulted in a categorization into the groups medium M&A experienced and inexperienced, respectively.

Hypothesis 5 tests whether differences in the outcome of insurance transactions can be attributed to the acquirer's line of business. Accordingly, we split the sample of acquiring firms into life/health acquirers, property/casualty acquirers, and a subset consisting of multi-line and other insurers.<sup>465</sup>

In addition to these acquirer characteristics, two features of the target company need to be specified: first, the relative size of the target, and second, the target's line of business.

The relative size of the target firm is defined in this work as the deal value relative to the acquirer market value at M&A announcement.<sup>466</sup> We have classified the transactions in the following subsamples: A subsample where all transactions have a relative deal size of above 50% are characterized as large, between 11% and 50% as medium, and transactions below 11% of an acquirer's market value as small.

To investigate the performance effect of targets' line of business, target firms are categorized in multiple groups in accordance to their respective GICS subindustry (i.e., line of business). We distinguish between life/health insurance

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<sup>463</sup> No value limit.

<sup>464</sup> Number of transactions conducted in the announcement year is the most common operationalization of transaction success in previous insurance M&A literature (see for example, Cummins & Xie, 2005; Boubakri, Dionne, & Triki, 2006; Cummins & Xie, 2009).

<sup>465</sup> Other insurers comprise insurance companies belonging to the subindustries reinsurance and insurance brokers.

<sup>466</sup> Our definition is in accordance with the event studies by Floreani and Rigamonti (2001), Schertzing (2008), and Staikouras (2009). Other reviewed event studies define this variable as the natural logarithm of the ratio of the target's market capitalization to acquirer's market capitalization (Cummins & Xie, 2005, 2009), the ratio of the market capitalization of the target to the industry median market capitalization (Akhigbe & Madura, 2001), and as a dummy variable to indicate whether the target is an insurance agency or broker (Boubakri, Dionne, & Triki, 2006).

targets, property/casualty insurers, multi-line and other insurance targets, and a group of banks and other financial services targets.

Moreover, differences in the post-M&A performance of acquiring insurance firms are attributed to the impact of various features of the transaction structuring and management phase. Consequently, our empirical study investigates the impact of geographic area, industry relatedness, strategic direction, and the influence of a pre-M&A participation in the target and the method of payment.

First, we form subsamples according to the geographic region of acquirer and target firm, which is defined as the country of incorporation, to investigate if insurance acquirers involved in geographically focusing (within-border<sup>467</sup>) transactions outperform or underperform insurance acquirers that conduct geographically diversifying (cross-border) M&A deals.<sup>468</sup>

Similarly, we divide transactions based on the industry relatedness between acquirers' and targets' businesses. Once again, GICS subindustry codes<sup>469</sup> are used in order to differentiate between industry-focusing (within-industry) and industry-diversifying (cross-industry) M&A. Industry-focusing M&A are defined as transactions where the acquirer and target have identical GICS industry codes; they are industry-diversifying transactions if not.

Combining the geographic and industry dimension, we test in a further hypothesis whether insurance acquirers exhibit different performances depending on the chosen strategic direction. All transactions are subdivided into three groups, labeled full focusing (within-country and within-industry

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<sup>467</sup> In accordance to Spiss (2008), we define within-border M&A as "transactions where the acquirer and the target [both] are headquartered in the same country" and cross-border M&A as "transactions where the acquirer and the target are headquartered in two separate countries" (p. 118).

<sup>468</sup> This formation of subsamples is consistent with the procedure most authors adopt (see, e.g., Floreani & Rigamonti, 2001; Cummins & Weiss, 2004; Cummins & Xie, 2005; Boubakri, Dionne, & Triki, 2006; Schertzing, 2008).

<sup>469</sup> Using Bloomberg as a primary source of data, Staikouras (2009) also identifies insurance firms and banks according to the Global Industry Classification Standard (GICS). Two or four digit SIC codes are used by Boubakri, Dionne, and Triki (2006) and Schertzing (2008) to identify the particular lines of business of acquiring and target firms. Cummins and Weiss (2004) categorize industries according to North American Industrial Classification System (NAICS) codes, whereas Cummins and Xie (2005) obtain the primary insurance sectors from the SNL DataSource.

transactions), full diversifying (cross-country and cross-industry transactions), and mixed (either within-country and cross-industry or cross-country and within-industry transaction).

A further influencing factor of success in insurance M&A is the acquirer's participation in the target before M&A announcement. Like Cummins and Weiss (2005, 2009), we test this relationship by classifying M&A transactions into two groups based on whether the acquirer has an ownership in its target before announcing the specific deal.

To gauge whether there are differences in acquirers' post-M&A performance related to the method of payment, we split the final sample of M&A transactions into three groups, depending on the particular payment structure. The first group consists of all transactions paid exclusively with cash, whereas the second group includes all pure stock-financed transactions. A third group, called "mixed," covers all M&A in which a mixture of cash and stock is used as the payment method.<sup>470</sup>

In our last hypothesis, we test the effect of the economic environment determinant. The timing of the transaction with respect to the M&A cycle is tested in the recent academic work of Schertzing (2008) and found to be significantly related to the outcome of M&A in the European insurance market. Consequently, we also test the performance effect of the timing of transactions. We make use of a typical two-phase classification scheme<sup>471</sup> by differentiating between phases of weak and strong M&A activity. In accordance to Schertzing's (2008) classification, phases of strong M&A activity (upswing and peak phase) comprise the years 1996–1999 and 2006–2007, whereas phases of weak M&A activity (bottom and downturn phase) include the years 1993–1995, 2000–2005, and 2008–2009.<sup>472</sup> However, as the M&A cycle is found to be highly correlated with the economic cycle,<sup>473</sup> we also follow the

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<sup>470</sup> The identical classification scheme is also used by Floreani and Rigamonti (2001). Akhigbe and Madura (2001) and Cummins and Xie (2005, 2009) split their samples only into two groups, namely "cash payment" and "others/otherwise."

<sup>471</sup> See, e.g., Hamilton (1989).

<sup>472</sup> See also section 2.2.5 for a detailed picture on the various M&A waves.

<sup>473</sup> Liu and Wen (2010) compare the M&A and the economic cycle and empirically reveal a synchronic relation between the two cycles. Moreover, the authors combine the results of

approach by Sudarsanam and Mahate (2006), Wuebben (2007), and The Boston Consulting Group (2009a) and focus additionally on the economic cycle. We obtain the annual real GDP growth for the period 1993–2009 from Eurostat and then divide our sample into two groups based on the euro area annual real GDP growth by expenditure. The first group is called strong economy M&A and includes all transactions that were announced in periods of above-average annual GDP growth.<sup>474</sup> The second group is called weak economy M&A and includes all transactions that were announced in a period of below-average annual GDP growth. Considering whether the transaction was announced in a year of below-average economic growth or in a year of above average economic growth allows us to test the potential influence of the economic cycle on the success of insurance M&A.

In summary, Table 16 gives a brief summary on the various tested influencing factors, their respective definitions in our work, and the formation of subsamples for testing.

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previous studies examining this relationship (e.g., Markham, 1955; Nelson, 1959; Melicher, Ledolter, & Antonio, 1983; Wang Junhua, Pan Yonghui, & Han Shikun, 2004) and conclude, based on a literature overview, that the M&A cycle is associated with the economic cycle.

<sup>474</sup> The average annual real GDP growth by expenditure in the euro area in the time period 1992–2011 is 1.61% (see Table 42 in the appendix). Accordingly, transactions that were announced in years with real GDP growth of above 1.61% are classified into the subset “strong economy M&A” (years 1994, 1995, 1997, 1998, 1999, 2000, 2001, 2004, 2005, 2006, 2007, & 2010), while deals announced in years with real GDP growth below 1.61% are classified into the subset “weak economy M&A” (years 1992, 1993, 1996, 2002, 2003, 2008, 2009, & 2011). In addition, the average annual real GDP growth in the period studied (1993–2009) is 1.60% and hence yields an identical partitioning of the transactions studied.

**Table 15: Variable operationalization and formation of subsamples**

<b>Determinant</b>	<b>Criteria</b>	<b>Formation of Subsamples</b>
Acquirer's absolute size	Acquirer's market value at announcement	Large (above median) versus small (below median)
Acquirer's growth	Change in acquirer's market value over a period of one year prior to announcement	Negative versus positive
Acquirer's transaction experience	Number of transactions conducted in the announcement year	Experienced (more than 4 transactions) versus medium experienced (2-4 transactions)
Acquirer's line of business	Acquirer's GICS subindustry	Life/health versus property/casualty versus multi-line and other insurers
Relative size	Transaction value in % of acquirer's market value at announcement	Large (above 50%) versus medium (11%-50%) versus small (below 11%)
Target's line of business	Target's GICS subindustry	Life/health versus property/casualty versus multi-line and other insurers versus banks and other financial
Geographic area	Acquirer's and target's country of incorporation	Focusing (within-country) versus diversifying (cross-country)
Industry relatedness	Acquirer's and target's GICS subindustry	Focusing (within-industry) versus diversifying (cross-industry)
Strategic direction	Acquirer's and target's country of incorporation and GICS subindustry	Full focusing (within-country and within-industry) versus full diversifying (cross-country and cross-industry) versus mixed
Pre-M&A participation	Acquirer's share ownership in the target firm prior to the M&A	Pre-M&A participation versus no pre-M&A participation
Method of payment	Payment structure	Cash versus stock versus mixed
Timing	Total M&A transaction volume; GDP growth rate	Strong M&A market versus weak M&A market; Above GDP growth versus below

### 4.3.3 Selection of Investigated Time Periods

As illustrated in Section 2.2.5, the various M&A waves differ substantially with regard to the underlying characteristics and motivations of the involved parties. According to various researchers,<sup>475</sup> these differences might be responsible for inconsistent findings of prior academic research on the topic of value creation in insurance M&A. Consequently, in order to get meaningful results, we have to

<sup>475</sup> E.g., Kerler (1999), Martynova and Renneboog (2005), and Wuebben (2007).

restrict our investigation to only analyzing specific M&A transactions that took place during a comparable time period defined by similar underlying motives and characteristics. Based on our review of the consolidation process and the M&A waves (Sections 1.1 and 2.2.5), we choose to confine our study to analyzing insurance transactions during the years 1993 through 2009. This time frame not only includes the two most recent M&A waves, the fifth (1993–2000) and the sixth (2003–2007), which are characterized by similar characteristics and motivational factors, it also includes the most up-to-date data set available when considering the three-year post-M&A performance of acquiring insurers.

#### **4.3.4 Selection of Geographic Areas**

Based on the findings of previous insurance M&A literature on the effects of M&A deals on acquiring insurers' post-M&A performance (Chapter 3), it becomes clear that these effects may differ considerably between geographical areas. Consequently, it does not make sense to investigate the effects of US, European, and/or global deals in one joint sample. We hence geographically restrict the empirical analysis to transactions involving Western European<sup>476</sup> insurance acquirers. Target firms, however, may come from all over the world, as we exclusively assess the performance effects of acquiring insurance firms and do not evaluate the financial benefits occurring to target firm shareholders.

#### **4.3.5 Selection of Firms**

##### **4.3.5.1 Acquiring Insurance Firms**

In order to identify all relevant insurance company acquirers, we first have to compile a list of all stock-listed Western European companies that predominantly engage in the insurance business. Due to the regional focus of our empirical study, we only include insurance companies that are

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<sup>476</sup> Western European countries, as defined by Bloomberg, comprise Andorra (AD), Austria (AT), Belgium (BE), Cyprus (CY), Denmark (DK), Faroe Island (FO), Finland (FI), France (FR), Germany (DE), Gibraltar (GI), Greece (GR), Guernsey (GG), Iceland (IS), Ireland (IE), Isle of Man (IM), Italy (IT), Jersey (JE), Lichtenstein (LI), Luxembourg (LU), Malta (MT), Monaco (MC), Netherlands (NL), Norway (NO), Portugal (PT), Reunion (RE), San Marino (SM), Spain (ES), Svalbard and Jan Mayen Islands (SJ), Sweden (SE), Switzerland (CH), and the United Kingdom (GB).

headquartered<sup>477</sup> in one of the previously enumerated Western European countries. The STOXX Europe 600 Insurance index (ISIN EU0009658822), which is derived from the STOXX Europe 600 index that consists of 600 components of different listed companies across 18 European countries,<sup>478</sup> serves as an ideal starting point. In general, all listed companies can be categorized into various Industry Classification Benchmark (ICB) groups ranging from 10 broad industry groups through 19 more detailed supersectors to 41 sectors, which again are subdivided into 114 very detailed subsectors.<sup>479</sup> Based on this ICB classification scheme, every single stock and hence each of the 600 companies listed in the STOXX Europe 600 is uniquely allocated to one of the 114 fine-grained subsectors and consequently also to one of the 41 sectors, to one of the 19 supersectors, and to one of the 10 industries according to their primary revenue source.<sup>480</sup> The STOXX Europe 600 Insurance index includes all companies belonging to the broad industry “Financials,” as well as the more detailed supersector “Insurance,” and comprises hence all listed insurance companies included in the STOXX Europe 600. In addition to all constituents of the STOXX Euro 600 Insurance index, further insurance firms obtained from a Bloomberg search are also added. Restricting the Bloomberg search to all actively traded primary securities that belong to the insurance industry<sup>481</sup> and that are located in Western Europe,<sup>482</sup> we identified numerous other potential insurance acquirers. In order to produce a reasonably homogenous final sample of similarly sized insurance acquirers and to obtain

<sup>477</sup> Earlier empirical studies regularly use the headquarters of the respective firm as the definition of the firm’s country of origin, see, e.g., Hitt and Hoskisson (1994), Ruigrok and Wagner (2003), Cummins and Xie (2005), Pindur (2006), Schertzingler (2008), Spiss (2008), and Boesecke (2009).

<sup>478</sup> Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom.

<sup>479</sup> [www.icbenchmark.com](http://www.icbenchmark.com). Figure 21 in the appendix visualizes this ICB structure and the later discussed GICS structure.

<sup>480</sup> [www.stoxx.com](http://www.stoxx.com)

<sup>481</sup> Bloomberg also uses a classification scheme for categorizing listed companies that is similar to the ICB one, namely the Global Industry Classification Standard (GICS), which was developed by Morgan Stanley and Standard & Poor’s in 1999. Instead of using the group names “Industry,” “Supersectors,” “Sectors,” and “Subsectors,” GICS names these respective groups “Sector,” “Industry Group,” “Industry,” and “Subindustry.” Currently, the GICS structure consists of 10 sectors, 24 industry groups, 68 industries, and 154 subindustries; see [www.msci.com](http://www.msci.com).

<sup>482</sup> For a list of all countries belonging to the Western European region, see above.

meaningful results in the empirical investigation, we use a cut-off threshold of 1% market value of the insurance company with the highest market value at the beginning of the respective year.<sup>483</sup> This search, in combination with the previously identified STOXX Europe 600 Insurance companies, provided a preliminary sample size of 89 potential insurance acquirers.<sup>484</sup> In order to conduct a capital market study and to obtain stock market data, each insurance company in the sample has to be stock listed. However, we do not require the respective insurers to be listed over the full sample period of 1993–2009. Yet the insurer has to be listed and hence publicly traded before the end of the sample period, in December 2009. As two insurance companies<sup>485</sup> were listed after 12/31/2009, these two potential acquirers had to be eliminated from the sample. Moreover, besides the general requirement of being stock listed before 12/31/2009, insurers must not be delisted before 12/31/2012<sup>486</sup> and consequently survive the full period from the first day of being listed to the end of the year 2012. This exclusion of non-surviving (or delisted) companies may possibly generate a small bias in the final performance estimates (i.e., survivorship bias<sup>487</sup>). Sudarsanam and Mahate (2003, p. 310) give an example of a positive survivorship bias that would arise if unsuccessful non-surviving acquirers with negative returns would be eliminated from the sample, for example, due to bankruptcy or liquidation. In this case, the exclusion would lead to upward-biased estimates of the M&A test sample performance and hence more positive overall BHARs. Conversely, the authors argue that an exclusion of non-surviving insurers with negative returns from the control sample would positively influence the benchmark group performance estimates.

Consequently, this exclusion would result in a negative shift in the overall BHARs of acquirers. However, as this potential bias would probably affect both

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<sup>483</sup> Such an absolute cut-off point for very small insurance companies is also used by Cummins and Xie (2009). The authors justify this restriction by noting that “extremely small firms are atypical and may bias the estimation” (p. 135).

<sup>484</sup> Due to restrictions in data availability, only constituents of the STOXX Euro 600 Insurance index in the years between 01/01/2008 and 12/31/2012 can be included. Furthermore, data provided by Bloomberg was only available for the time period 01/01/2003 to 31/12/2012.

<sup>485</sup> Direct Line Insurance Group PLC (DLG LN) and Talanx AG (TLX GR).

<sup>486</sup> 12/31/2009 plus the maximum investigation period of three years.

<sup>487</sup> I.e., the performance difference between a portfolio of all companies and a portfolio of only surviving companies. For a detailed discussion and evidence on the survivorship bias, see for example, Sudarsanam and Mahate (2003, p. 310).



the acquirer and the control firm sample in a similar way, Sudarsanam and Mahate (2003) conclude that “the effects may cancel out and abnormal returns may be relatively unbiased” (p. 310). In addition, previous empirical research has shown that results of tests including only survivors and tests including both survivors and non-survivors do not significantly differ.<sup>488</sup> Accordingly, we consider this potential survivorship bias (especially in our case, when analyzing the success of M&A transactions in the insurance industry)<sup>489</sup> to be the lesser evil as compared with the expected stronger bias when including these non-survivors in our final sample. To explain this assumption, we have to concentrate on the distinct reasons for companies being delisted, as we expect them to significantly influence the direction of the potential bias. The scenarios include companies that voluntarily delist to reduce compliance and regulatory costs and the chance of bankruptcy/liquidation, public companies that become private, and companies that are transformed by mergers and acquisitions.<sup>490</sup> As in the example of Sudarsanam and Mahate (2003), an elimination of non-survivors with negative returns (e.g., unsuccessful companies that have been delisted due to bankruptcy or financial distress) from the test sample of acquirers would ultimately bias returns upwards, whereas an elimination of non-survivors with positive returns (e.g., successful companies that have been delisted due to merger or acquisition) from the test sample of acquirers would ultimately bias returns upwards (and vice versa in the case of exclusion of non-survivors from the benchmark sample). Accordingly, these two opposing effects are also likely to cancel out, and hence the exclusion of successful and unsuccessful non-survivors should not have a significant impact on the results of a study. Besides this relatively harmless bias when excluding non-survivors, including them could even be more harmful and distort the results more seriously. To illustrate such a severe bias resulting from the inclusion of non-survivors, we provide an example of an acquirer that is being acquired during the event window. First, we consider an insurance company that carries out an M&A transaction in  $t_0$ . We further assume that the acquiring insurer makes

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<sup>488</sup> See, Higson and Elliott (1998) and Baker and Limmack (2001).

<sup>489</sup> In the insurance industry, liquidation is less likely to occur as compared to other industries. For a detailed explanation on this, see Farny (2011, p. 203).

<sup>490</sup> Thomsen and Vinten (2007, p. 7).

severe mistakes in the acquisition process (e.g., poor due diligence leading to valuation mistakes, overestimating the benefits of the deal, and consequently incurring an excessive deal premium, and underestimating the challenges and risks associated with the deal) and hence that this acquisition is deemed value destroying, and the acquirer experiences a declining performance in the aftermath.

Consequently, this transaction shows a substantial negative buy-and-hold abnormal return of, say, -15% over the 11-month period after the announcement. However, due to financial problems and a low valuation resulting from the failed M&A transaction, the initial acquirer is becoming a preferred acquisition target,<sup>491</sup> which we then assume to be acquired in  $t_1$  (i.e., 12 months after the initial M&A announcement). As outlined in Section 3.7.2, acquired insurance firms regularly experience a strong positive market reaction and outperform the market or their non-acquired counterparts. In our example, we suppose the initial acquirer experiences a strong positive abnormal return of 25% on the announcement of being acquired. Accordingly, the overall one-year BHAR of the initial acquirer is positive, which leads to the conclusion that the previously conducted M&A transaction is branded successful. However, as seen in the example, the positive outperformance is solely attributable to being an acquisition target and not to being a successful acquirer. Consequently, the above example illustrates how the inclusion of a non-survivor in the final sample would distort the results of the capital market-based analysis on the effects of insurance M&A. We therefore excluded insurance companies that did not survive the full investigation period (01/01/1993 to 12/31/2012) from the sample of potential acquirer firms. This constraint resulted in a reduction of 25 insurance companies, which ultimately left 62 insurance companies for analysis, shown in Table 17.

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<sup>491</sup> The assumption that financial vulnerability of insurers increases the likelihood of being acquired is based on the findings of Klumpes (2006, p. 29).

Table 16: Overview of insurance companies in the final sample

	Bloomberg	ISIN	Company Name	Subindustry	Col
1	ABB LN	GB00B293ZK84	Abbey Protection PLC	Ins. Services & Other	GB
2	ACE US	CH0044318745	ACE Limited	Property/Casualty	CH
3	ADMLN	GB00B02J6398	Admiral Group PLC	Property/Casualty	GB
4	AGN NA	NL0000303709	Aegon NV	Life/Health	NL
5	AGS BB	BE0974264930	Ageas	Life/Health	BE
6	ALMB DC	DK0015250344	Alm. Brand A/S	Property/Casualty	DK
7	ALV GR	DE0008404005	Allianz SE	Multi-line	DE
8	AML LN	GB00B2988H17	Amlin PLC	Property/Casualty	GB
9	AON US	GB00B5BT0K07	Aon PLC	Insurance Brokers	GB
10	APR FP	FR0004037125	April	Life/Health	FR
11	AV/ LN	GB0002162385	Aviva PLC	Life/Health	GB
12	AWH US	CH0121032772	Allied World Ass. Company Holding AG	Property/Casualty	CH
13	BALN VX	CH0012410517	Baloise Holding AG	Multi-line	CH
14	BEZ LN	JE00B64G9089	Beazley PLC	Property/Casualty	GB
15	CASS IM	IT0000784154	Societa Cattolica di Assicurazioni	Life/Health	IT
16	CGL LN	BMG196F11004	Catlin Group Ltd	Property/Casualty	GB
17	CNP FP	FR0000120222	CNP Assurances	Life/Health	FR
18	CS FP	FR0000120628	AXA SA	Life/Health	FR
19	DL NA	NL0009294552	Delta Llyod NV	Life/Health	NL
20	ELE FP	FR0004254035	Euler Hermes SA	Property/Casualty	FR
21	FBD ID	IE0003290289	FBD Holdings PLC	Property/Casualty	IE
22	FOYLX	LU0112960504	Foyer SA	Property/Casualty	LU
23	FSA IM	IT0001463071	Fondiaria-Sai SpA	Property/Casualty	IT
24	G IM	IT0000062072	Assicurazioni Generali SpA	Life/Health	IT
25	GBLI US	IE00B5NH3H04	Global Indemnity PLC	Property/Casualty	IE
26	GCO SM	ES0116920333	Grupo Catalane Occidente SA	Property/Casualty	ES
27	GE1 GR	DE0008400029	Generali Deutschland Holding AG	Life/Health	DE
28	GJF NO	NO0010582521	Gjensidige Forsikring ASA	Property/Casualty	NO
29	HELN SE	CH0012271687	Helvetia Holding AG	Life/Health	CH
30	HNR1 GR	DE0008402215	Hannover Rueckversicherung AG	Reinsurance	DE
31	HSXLN	BMG000FD8G46	Hiscox Ltd	Property/Casualty	GB
32	INGA NA	NL0000303600	ING Groep NV	Life/Health	NL
33	JLT LN	GB0005203376	Jardine Lloyd Thompson Group PLC	Insurance Brokers	GB
34	LGEN LN	GB0005603997	Legal & General Group PLC	Life/Health	GB
35	LRE LN	BMG5361W1047	Lancashire Holdings Ltd	Property/Casualty	GB
36	MAP SM	ES0124244E34	Mapfre SA	Multi-line	ES
37	MED IM	IT0001279501	Mediolanum SpA	Life/Health	IT
38	MI IM	IT0000062221	Milano Assicurazioni SpA	Property/Casualty	IT
39	MUV2 GR	DE0008430026	Muenchener Rueckvers. AG / MunichRe	Reinsurance	DE
40	NATN SW	CH0100699641	Schweizer. Nat.-Vers.-Gesellschaft AG	Property/Casualty	CH
41	NBG6 GR	DE0008435967	Nuernberger Beteiligungs-AG	Life/Health	DE
42	NVA LN	GB00B40SF849	Novae Group PLC	Property/Casualty	GB
43	OML LN	GB00B77J0862	Old Mutual PLC	Life/Health	GB
44	PF IM	IT0001475109	Premafin Finanziaria SpA	Multi-line	IT
45	PHNX LN	KYG7091M1096	Phoenix Group Holdings	Life/Health	JE
46	PRU LN	GB0007099541	Prudential PLC	Life/Health	GB
47	RSALN	GB0006616899	RSA Insurance Group PLC	Property/Casualty	GB
48	RUKN VX/ SREN VX	CH0126881561	Swiss Reins. Co Ltd / Swiss Re AG	Reinsurance	CH
49	SAMAS FH	FI0009003305	Sampo	Property/Casualty	FI
50	SCR FP	FR0010411983	SCOR SE	Reinsurance	FR
51	SL/ LN	GB00B16KPT44	Standard Life PLC	Life/Health	GB
52	SLHN VX	CH0014852781	Swiss Life Holding AG	Life/Health	CH
53	STB NO	NO0003053605	Storebrand ASA	Life/Health	NO
54	STJ LN	GB0007669376	St James's Place PLC	Life/Health	GB
55	TOP DC	DK0010259530	Topdanmark A/S	Property/Casualty	DK
56	TRYG DC	DK0060013274	Tryg A/S	Property/Casualty	DK
57	UNI IM	IT0001074589	Unipol Gruppo Finanziario SpA	Multi-line	IT
58	UQA AV	AT0000821103	Uniqua Versicherungen AG	Multi-line	AT
59	VAHN SW	CH0021545667	Vaudoise Assurances Holding SA	Life/Health	CH
60	VIG AV	AT0000908504	Vienna Insurance Group AG	Multi-line	AT
61	XL US	IE00B5LRLL25	XL Group PLC	Life/Health	IE
62	ZURN VX	CH0011075394	Zurich Insurance Group AG	Multi-line	CH

#### 4.3.5.2 Control Firms

In order to measure the financial performance effects of M&A transactions, one has to compare the realized financial performance after announcing the M&A transaction with the hypothetical performance that would have occurred without conducting the M&A transaction.<sup>492</sup> However, as this hypothetical performance cannot be observed, it has to be derived from a particular benchmark model, which is always problematic, especially over a long study horizon.<sup>493</sup> Problems and biases when analyzing the effect of corporate events such as M&A announcements, for example, bad-model problems, sampling biases, and new listing and rebalancing biases, might arise from an inadequate benchmarking procedure.<sup>494</sup> Previous capital market studies apply various different benchmark models, ranging from single- and multi-factor regression models to size, book-to-market, and/or size and book-to-market matched control firm or reference portfolio approaches.<sup>495</sup> One of the main advantages of the SD approach is that it does not require asset pricing benchmarks. In our empirical study, we hence use a book-to-market adjusted control firm benchmark, as this approach is the most suitable for our estimation methodology and is hence also the most commonly used benchmark in previous studies<sup>496</sup> applying the same estimation methodology. Similar to the sample of acquiring firms, control firms have to be stock listed and publicly traded before 12/31/2009 and not delisted before 12/31/2012.

Moreover, they have to be headquartered in one of the previously mentioned Western European countries and predominantly engage in the insurance business. We also restrict the control firm sample to firms with at least 1% of the market value of the insurer with the highest market value at the beginning of the respective year. Consequently, the list of control firms comprises the same 62 companies that are also included in the sample of potential acquirers, and

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<sup>492</sup> E.g., Fairburn and Kay (1989, p. 32).

<sup>493</sup> See, e.g., Barber and Lyon (1997, p. 342) and Antoniou, Arbour, and Zhao (2011, p. 10).

<sup>494</sup> E.g., Barber and Lyon (1997, p. 354), Lyon, Barber, and Tsai (1999, p. 165), and Schertzing (2006, p. 73),

<sup>495</sup> E.g., Floreani and Rigamonti (2001, p. 5), Cummins and Xie (2005, p. 18), Schertzing (2008, p. 56, p. 66, p. 91 and p. 127), and Cummins and Xie (2009, p. 136).

<sup>496</sup> E.g., Ang and Zhang (2002), Abhyankar and Ho (2003), and Abhyankar, Ho, and Zhao (2006).

hence it is guaranteed that each acquiring insurer is matched only to a control firm also belonging to the insurance industry,<sup>497</sup> which in turn “control[s] for changes in performance attributable to industry or economy-wide factors,” as outlined by Kruse et al. (2002, p. 7). As a further matching requirement, the respective benchmark firm has to belong to the same subindustry (i.e., line of business) as the acquiring insurer. This restriction prevents not only the matching of insurance companies of dramatically different sizes<sup>498</sup> (e.g., large insurance companies with multiple lines of business are not matched with much smaller single-line insurance companies), but also biases resulting from an incorrect matching of insurance firms with largely differing lines of business and hence differing insurance exposures (e.g., life/health insurers and companies operating only in the non-life sector, such as property/casualty insurers). In addition to matching acquirer and control firms by industry and subindustry, following the proposal of Barber and Lyon (1997) and Lyon, Barber, and Tsai (1999), benchmark companies are ranked by their book-to-market ratio<sup>499</sup> and selected based on the lowest difference between the acquirer’s and benchmark firm’s ratio at the end of the year preceding the transaction year.<sup>500</sup> By this method, we match the sample of acquiring firms with non-acquiring insurance companies, not only based on industry and subindustry, but also on the market-to-book performance ratio. Similar to previous studies,<sup>501</sup> the respective benchmark company must not engage in M&A activity over a period of three years surrounding the M&A announcement date of the particular transaction

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<sup>497</sup> Here and in the following, we use the GICS industry classification system, which is also adapted by the main data source of our empirical study, namely Bloomberg.

<sup>498</sup> Other authors, such as Ang and Zhang (2002), Kruse et al. (2002), and Schertzing (2008), directly use the size of companies as matching criteria (e.g., the book value of the control firm has to be in the range of 70% to 130% of the acquirer). We consider the respective line of business to be a good approximation for firms’ size and moreover to be a more meaningful matching criterion, especially for the insurance sector.

<sup>499</sup> The book-to-market ratio is defined as the book value of common equity divided by the market value of common equity; see, e.g., Schertzing (2008, p. 127) and Yezegel (2009, p. 120). “[B]ook-to-market is an important issue in takeovers, either as a measure of growth opportunities or distress risk, or as an indicator of over or under valuation,” as supposed by Gregory (1997, p. 982), and is consequently a crucial standard for comparing competing firms in the same industry.

<sup>500</sup> Earlier academic papers that match their sample of acquirer and benchmark firms by the book-to-market ratio include Loughran and Vijh (1997), Mitchell and Stafford (1997), Rau and Vermaelen (1998), Francouer (2006), Peng and Isa (2008), and Schertzing (2008), to name a few.

<sup>501</sup> E.g., Martynova, Oosting, and Renneboog (2007).

being investigated. According to Lubatkin (1983, p. 122), this is a further requirement in order to ensure a proper benchmarking of acquiring and non-acquiring insurance firms.

#### 4.3.6 Selection of Investigated M&A Transactions

To be included in the final sample, the transactions must meet the following criteria:

First of all, the transaction has to be conducted by one of the previously identified 62 stock-listed Western European insurance companies. Secondly, this empirical work focuses on insurance transactions that were announced between 01/01/1993 and 12/31/2009 and completed by 12/31/2012. The respective announcement<sup>502</sup> and completion dates are obtained from the two financial data and information providers Bloomberg and Thomson Reuters and afterwards cross-checked using press releases and/or the financial statements of the involved companies. Identifying the exact date on which the transaction is first publicly announced is essential for the proper execution, in particular, of short-term, capital market-based event studies.<sup>503</sup> Moreover, the acquisition price, also known as the transaction value,<sup>504</sup> has to be known to ensure a minimum level of relative importance of the deal with respect to the value of the acquiring insurance firm. Given that small acquisitions are less likely to result in any abnormal post-acquisition performance, previous studies either make use of the relative<sup>505</sup> size of the acquisition or they utilize an absolute<sup>506</sup> transaction

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<sup>502</sup> I.e., the day of the initial announcement of the intention to merge. Floreani and Rigamonti (2001) provide a more thorough description of this day by stating that “[t]he announcement date is the date the merger is officially released to the general public. For a takeover, the announcement date is the date the management of the target firm accepts the proposal. For a merger the announcement date is the date of the agreement between the two parties. Mergers in the financial industry are subject to the approval of the regulating and the antitrust authorities. We then include in our sample all events that received the approval by the authorities” (p. 5).

<sup>503</sup> See Entrup (1995, p. 143) and Spiss (2008, p. 106).

<sup>504</sup> The transaction value is defined by the SDC as “the total consideration that the acquirer paid for the % of the target they are acquiring plus any liabilities assumed if publicly closed.”

<sup>505</sup> Relative size is the transaction value divided by the market value of the acquiring firm’s common stock prior to the announcement of the acquisition (see, e.g., Loderer & Martin 1992, p. 73; Moeller, Schlingemann, & Stulz 2003, p. 209). In our sample of reviewed studies, Floreani and Rigamonti (2001) adopt the relative transaction value method. In their study, the authors require the ratio between deal value and acquirer market value to be greater than 2%. In recent accounting-based work, Settnik (2006) restricts the analysis to transactions in which the deal value is in excess of 5% of the acquiring firm’s gross premium income.

value. In our empirical analysis, the transaction value has to be equal or larger than 8% of the acquiring firm's current market capitalization<sup>507</sup> at the beginning of the transaction year.<sup>508</sup> While inevitably somewhat arbitrary, this 8% cut-off point was chosen because hardly no deals were conducted that had a relative size of 6% to 8%, and furthermore the sample size remained adequate for the analyses conducted.<sup>509</sup> Simultaneously, this cut-off point guarantees that all transactions included were sufficiently large to have a significant influence on the acquirer's market value and thereby improve the quality of the data used.<sup>510</sup> Moreover, to focus on deals involving financial services firms, we further require targets to include insurers, banks, and other financial services firms. Once again, we utilize the GICS classification codes, which are also used by Bloomberg to identify acquired firms that belong to the "Financials" sector, and we subsequently classify them into their particular financial-services activity areas (i.e., their respective subindustry). According to the argumentation and theoretical considerations of previous research,<sup>511</sup> friendly M&A transactions involve different strategic reasons and underlying motives of the respective acquirer in comparison to hostile deals.<sup>512</sup> As the mood of the M&A deal (i.e., friendly or hostile) is additionally found to be an important determinant in the success of M&A transactions,<sup>513</sup> transactions should be divided according to the mood. Based on this knowledge, we only include friendly M&A deals and remove hostile ones from the final sample. Furthermore, it is a common practice

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<sup>506</sup> Akhigbe and Madura (2001), Schertzing (2008), and Shim (2011a) make use of a minimum absolute transaction value (\$50 million, \$100 million, and \$2 million, respectively).

<sup>507</sup> The current market capitalization is measured on the day prior to the announcement day, as reported by Bloomberg. If this current market value could not be determined, we used the book value from the balance sheet date preceding the announcement date.

<sup>508</sup> See for example, Floreani and Rigamonti (2001) and Megginson, Morgan, and Nail (2002), who employ a similar methodology in order to eliminate small and insignificant M&A transactions from the final sample.

<sup>509</sup> Previous empirical studies use relative cut-off points ranging from 2% (e.g., Floreani & Rigamonti, 2001) to 5% (e.g., Megginson, Morgan, & Nail, 2002; Settnik, 2006; Wuebben, 2007; Spiss, 2008) to 10% (e.g., Asquith, Bruner, & Mullins, 1983). We also conducted an additional test with a minimum deal value of 10% of acquirer's market value in order to check the robustness of our findings. Overall, our conclusions remained unchanged.

<sup>510</sup> See, e.g., Ravenscraft and Scherer (1988, p. 38), Wuebben (2007, p. 168), and Spiss (2008, p. 115).

<sup>511</sup> E.g., Morck, Shleifer, and Vishny (1988).

<sup>512</sup> E.g., hostile M&A deals: Acquirers take over the control of an underperforming target and subsequently replace or discipline targets' incumbent management and consequently improve its profitability; friendly: operational and strategic synergistic gains.

<sup>513</sup> See, e.g., Franks and Mayer (1996) and Sudarsanam, Holl, and Salami (1996).

in the extant M&A literature<sup>514</sup> to restrict the sample to transactions that lead to a change in control.<sup>515</sup> To be consistent with takeover theories, we run a first analysis using a subsample in which we exclusively cover acquisitions of majority stakes, defined by Best's Insurance Reports as "transactions that involve a change in control over targets." In a second analysis, however, we include acquisitions of minority stakes (i.e., transactions that do not represent a change in ownership of the target) and acquisitions of majority stakes in which the majority of share ownership is attained. By including all of these transactions, we are able to investigate the effects of M&A on the entire portfolio. Consistent with Boubakri, Dionne, and Triki (2006), Schertzing (2008), and Cummins and Xie (2009), we do not exclude transactions with multiple bidder activity. As already proved by Schertzing's (2008) similar study on European insurance M&A, performance effects do not significantly differ between a sample of only single bidders, a sample of multiple bidders, and an entire sample. Based on this finding, we do not exclude M&A transactions with multiple-bidder activity in order to keep an adequate M&A sample size. Last, but not least, acquiring an insurer's stock price must be available for up to three years following the initial M&A announcement. This last requirement permits the calculation of short-term and long-term abnormal returns and hence the analysis of the stock market impact of insurance M&A. Based on stock price data availability on Bloomberg, we are able to conduct a capital market-based event study.

In summary, the following criteria are used to identify the relevant M&A transactions that satisfy our sample requirements:

- Acquirer is one of the 62 identified publicly traded Western European insurance companies (in Section 4.3.5.1).
- The deal was announced between 01/01/1993 and 12/31/2009.
- The transaction was completed by 12/31/2012.

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<sup>514</sup> E.g., Schertzing (2008) and Spiss (2008),

<sup>515</sup> This means the acquirer does not own a controlling interest in the target prior to the deal announcement, and the transaction results in a change of control of the target. The SDC defines a transaction that involves a change in control as "an acquisition that increases the stake of the acquiring institution from less than 50% to 50% or more of the ownership shares of the target institution."



- The transaction value is equal to or larger than 8 percent of the acquiring insurer's market value on the day prior to announcement.
- The target belongs to the "Financials" sector.
- The transaction is friendly.
- The acquiring insurer's stock price must be available for three years after M&A announcement.

#### **4.3.7 Procedure for Testing Stochastic Dominance**

In this section, the testing procedure for comparing return distributions of two portfolios, for example, a first portfolio consisting of acquiring insurance firms and a second portfolio including the respective benchmark insurance firms, will be explained in detail. As it has been outlined in Section 4.3.1.4, stochastic dominance between two distributions can either be assessed through a descriptive comparison or through a variety of statistical tests. For the purpose of this study, a descriptive comparison is considered to be more appropriate than a statistical testing procedure.

First, when trying to establish stochastic dominance of one alternative over the other, applying a statistical test in which stochastic dominance is the null hypothesis does not offer significant advantages over a descriptive comparison. On the one hand, rejection of the null of dominance is not considered a very meaningful result, as it does not provide a ranking of the two alternatives. On the other hand, non-rejection of the null of dominance cannot ultimately be interpreted as the acceptance of stochastic dominance, as it fails to provide statistical significant proof of this dominance relationship.<sup>516</sup> Employing a statistical test in which the null hypothesis is formulated as non-dominance and the alternative as dominance would be more advisable for establishing significant evidence of a dominance relationship of one alternative over the other. This testing procedure, however, is mathematically complex, since the boundary of the null hypothesis of non-dominance cannot be expressed in closed form.<sup>517</sup> Another major disadvantage of statistical tests, which has also been pointed out in Section 4.3.1.4.2, lies in the several requirements and

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<sup>516</sup> Davidson and Duclos (2009, p. 1). See also section 4.3.1.4.2.

<sup>517</sup> See section 4.3.1.4.2 and the references therein.

restrictive assumptions concerning the data employed. In many fields of empirical application, these constraints might not be satisfied, and hence neither correct results nor reliable conclusions can be drawn from these tests.<sup>518</sup> Klaever's (2006) modified statistical tests are a promising path for reliable SD tests for time series data. However, these new developed tests for stochastic dominance are computationally quite complicated, and their proper application requires a thorough understanding of the particular methodology and its implementation in order to guarantee accurate results concerning a SD relationship. Hence, these new developed statistical tests, although promising, go beyond the aim and scope of this present analysis. Our work should introduce the stochastic dominance concept for analyzing the effects of corporate events such as M&A transactions into the M&A literature and promote its use as an alternative performance measure to the well-established traditional event study approach. Besides being simpler and more convenient in calculation, the descriptive approach has another advantage that makes it potentially more suitable for our investigation. The used data sample of 102 transactions between 1993 and 2009 with a maximum estimation period of three years is regarded as an adequate size for a descriptive comparison. In contrast, a much larger sample size and a longer period would necessitate the use of a statistical testing procedure, as in this case, "a descriptive dominance relationship is harder to establish."<sup>519</sup> Addressing the disadvantages of a descriptive SD approach, we are well aware of the fact that the tendency of rejecting first-order stochastic dominance in a descriptive comparison occurs too often (because if the empirical distribution functions of returns cross at least once, a stochastic dominance relationship of the first order has to be rejected; analyzing return distributions of comparable firms over the same event period will most likely result in a crossing of the respective return distributions). We will keep this in mind when interpreting the results of our descriptive comparison.

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<sup>518</sup> Schmid and Trede (2000, p. 316), Lim, Maasoumi, and Martin (2004, p. 10), and Klaever (2006, p. 49).

<sup>519</sup> Klaever (2006, p. 135). Klaever (2006) also refers to the investigations of Nelson and Pope (1991) and Stein, Pfaffenberger, and Kumar (1983), which also mention this problem.

In order to establish a dominance relationship between two different groups, for example, a group of acquirers and a non-acquiring benchmark group, we descriptively compare the empirical cumulative distribution functions at all points in the sample. In the short-term investigation, empirical distribution curves (step curves) of daily returns are compared with respect to first- and second-order stochastic dominance, whereas buy-and-hold return distributions are compared in the long-term investigation.

First of all, for each of the 102 transactions and the respective acquiring insurance company, we assemble a particular benchmark company. Following the previously described selection process,<sup>520</sup> benchmark companies are chosen on the basis of their respective subindustry (as defined by its GICS classification code), book-to-market ratio, and M&A activity surrounding the particular M&A deal. Second, for each M&A transaction, acquiring and benchmark companies' dividend-adjusted daily stock returns (for the short-term analysis) and buy-and-hold-abnormal returns (for the long-term analysis) are calculated as described under "Calculation of Returns" (Section 4.3.1.5). Third, all returns—either daily returns in case of the short-term analysis or buy-and-hold abnormal returns in case of the long-term analysis—of the acquiring insurers and their respective benchmark insurers are partitioned into equally weighted portfolios based on various characteristics, including acquiring or benchmark company, form of payment, relative deal size, line of business, percentage acquired, and many others. Subsequently, the empirical distribution functions of returns,  $\hat{F}_{X,n}^{(k)}(x)$  and  $\hat{F}_{Y,m}^{(k)}(y)$ , which are step functions with a finite number of  $n$  and  $m$  steps, respectively, are constructed for the individual groups.

Based on these portfolios and their corresponding empirical distribution functions, we perform a two-step testing procedure that is comparable to the one applied in the paper of Abhyankar, Ho, and Zhao (2006), which is the only work so far that uses the SD procedure to assess the effects of M&A transactions. We first illustrate this two-step testing procedure for the overall

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<sup>520</sup> See section 4.3.6.

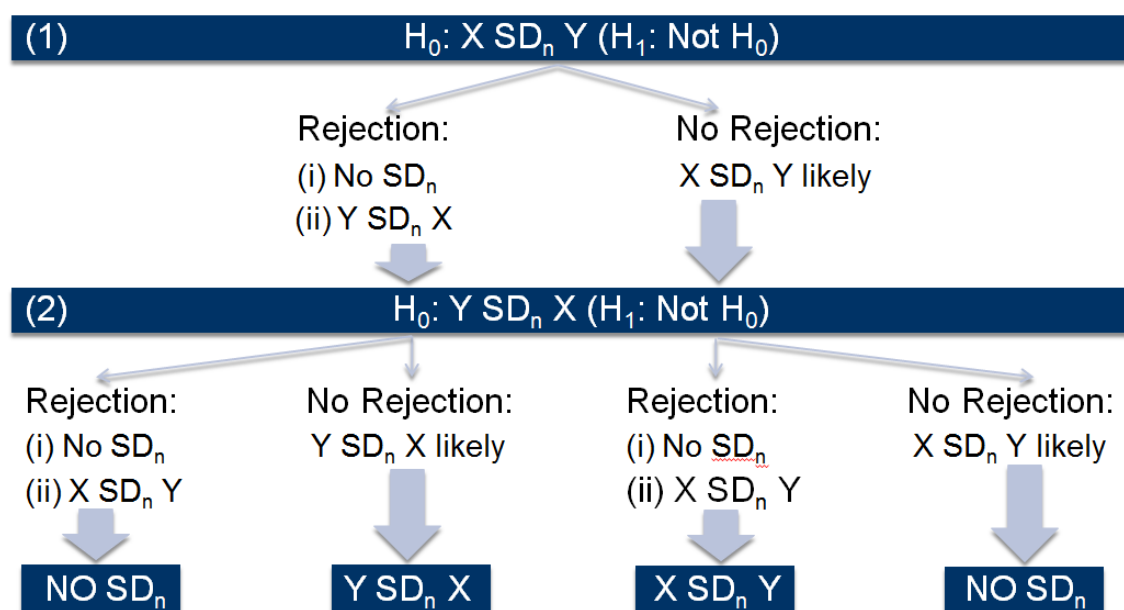
effect of insurance M&A. Specific features concerning the testing procedure for the various M&A characteristics will be addressed below.

In a first step, we test whether the M&A portfolio dominates the benchmark portfolio in the sense of first- and/or second-order SD, that is,  $X \text{ SD1 and/or SD2 } Y$ , by comparing the respective two distributions of returns. In a second step, we test the converse hypothesis, that is, whether the benchmark portfolio first- and/or second-order dominates the M&A portfolio ( $Y \text{ SD1 and/or SD2 } X$ ); this is accomplished by comparing their empirical distribution functions of returns. The results can be interpreted as follows: If the first hypothesis that the M&A portfolio  $k$ th-order dominates the benchmark portfolio is declined and the second hypothesis that the benchmark portfolio  $k$ th-order dominates the M&A portfolio is confirmed, we conclude that there is a  $k$ th-order dominance relationship of the benchmark portfolio over the benchmark portfolio (with  $k = 1, 2$ ).<sup>521</sup> In contrast, if we fail to reject the first hypothesis (i.e., M&A portfolio  $\text{SDk}$  benchmark portfolio) and reject the second hypothesis (i.e., benchmark portfolio  $\text{SDk}$  M&A portfolio), we can infer that the M&A portfolio descriptively dominates the benchmark portfolio in the sense of  $k$ th-order stochastic dominance.<sup>522</sup> However, if the two hypotheses of the first and second step are both rejected or are both confirmed in the sense of  $\text{SDk}$ , we conclude that there is no  $k$ th-order stochastic dominance relationship between the M&A and the benchmark portfolio returns. Graphically, our testing procedure can be presented as follows:

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<sup>521</sup> In addition to that, to ultimately establish  $Y \text{ SDk } X$ , the benchmark portfolio ( $Y$ ) is required to have a larger mean than the M&A portfolio ( $X$ ). Klaever (2006) explains this requirement by stating “[t]he condition concerning the mean is required in order to prevent the paradox result that a stock dominates another one with larger mean. A necessary condition for stochastic dominance of any degree is that the mean of the dominant random variable has to be at least as large as the mean of the dominated one” (p. 132).

<sup>522</sup> Once again, as a necessary condition for  $X \text{ SDk } Y$ , the M&A portfolio ( $X$ ) mean is required to exceed the benchmark portfolio ( $Y$ ) mean.



**Figure 14: Testing procedure as applied in this work and interpretation of results**

The testing procedure for the several characteristics of insurance M&A transactions is carried out in a similar way. However, in addition to the above-described comparison of the distribution of returns of a specific acquirer group and the distribution of returns of their respective benchmark group, we are also able to compare the distribution of abnormal returns of a particular first acquirer group with the distribution of abnormal returns of a particular second acquirer group. We will clarify these two testing procedures for the characteristic “acquirer’s absolute size.” In the short-term (long-term) testing procedure illustrated above, we compare, for example, the distribution function of simple daily returns (buy-and-hold returns) of a group of large acquirers with the distribution of simple daily returns (buy-and-hold returns) of a group consisting of the respective benchmark firms corresponding to these large acquirers. A possible stochastic dominance relation between the portfolio of large acquirer and the benchmark firm portfolio can be revealed by this procedure. A second testing procedure, however, is able to establish a dominance relation between a portfolio of large acquirers and a second portfolio consisting, for example, of all small-sized acquirers. In order to investigate such a short-term (long-term)

dominance relationship, the distribution of abnormal<sup>523</sup> returns (abnormal buy-and-hold-returns) of the large acquirer portfolio is compared with the distribution function of abnormal returns (buy-and-hold abnormal returns) of the small acquirer portfolio. Consequently, when assessing stochastic dominance of the various determinants, we not only able to compare the relation between acquirer and benchmark groups, we are also able to test for stochastic dominance within different acquirer subgroups.

#### **4.3.8 Generation of M&A and Reference Data**

Information on the M&A data that is required for the event analysis is obtained from a variety of data sources, since no single authoritative source on M&A deals in the insurance industry exists. The principal source of data consists of the specialized agency Bloomberg. Not only a plethora of company-specific data, such as acquirer, target, and benchmark company name, subindustry, and the country of incorporation, but also information on the M&A transaction itself (e.g., announcement and completion dates, transaction value, payment method, percentage of shares preowned, and percentage of shares acquired) and the foreign exchange rate data are extracted from the Bloomberg database. This primary data source ensures the quality and reliability of the obtained data, which is essential for the success of this empirical work. Additional information required to conduct the analysis that is not accessible through Bloomberg is collected from the other major financial information provider, Thomson Reuters, the two classification systems for stocks, ICB and GICS, and the involved insurers' financial statements and press releases. Moreover, information on economic growth rates for euro area member countries is sourced from Eurostat. As previously seen in Table 10, these various data sources have been commonly used in recent empirical studies to investigate the effects of insurance M&A.<sup>524</sup> Table 18 provides a comprehensive summary on the individual criteria and the respective data sources used here.

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<sup>523</sup> Abnormal with respect to the corresponding benchmark firm. For the calculation of abnormal returns (buy-and-hold abnormal returns), see section 4.3.1.5.2.

<sup>524</sup> See, e.g., Schertzing (2008), Staikouras (2009), and Shim (2011b).

Table 17: Overview of the generation of the data sample<sup>525</sup>

	Criteria	Sources of Data	
		Primary	Secondary
<b>Acquirer Data</b>	Name		Thomson Reuters
	Subindustry		ICB, GICS
	Country of incorporation		Thomson Reuters
	Bloomberg code		
	ISIN		Thomson Reuters
	Daily/monthly stock prices	Bloomberg	
	Market value of equity		
	Book value of equity		
	Dividend payments, rights issues, stock splits		
	# of transactions announced each year		
<b>Target Data</b>	Name		Thomson Reuters
	Subindustry	Bloomberg	ICB, GICS
	Country of incorporation		Thomson Reuters
<b>Benchmark Company Data</b>	Name		Thomson Reuters
	Subindustry		ICB, GICS
	Country of incorporation		Thomson Reuters
	Bloomberg code		
	ISIN	Bloomberg	Thomson Reuters
	Daily/monthly stock prices		
	Market value of equity		
Book value of equity			
Dividend payments, rights issues, stock splits			
<b>Transaction Data</b>	Announcement date		Thomson Reuters, financial statements, press releases
	Completion date		Thomson Reuters, financial statements, press releases
	Transaction value	Bloomberg	
	% Pre-owned		
	% Acquired		
	Method of payment		
Nature of bid			
<b>Market and Economic Data</b>	Daily exchange rate	Bloomberg	
	M&A transaction volume		
	Economic growth data	Eurostat	

<sup>525</sup> Source: Own research. Presentation follows Schertzing (2008, p. 80)

### 4.3.9 Extraction of Stock Prices

According to the design of the empirical study of this dissertation, the results are based on changes in stock market returns to shareholders of acquiring insurers relative to changes in returns to shareholders of benchmark companies. Accordingly, stock market prices of each sample insurer have to be obtained. As described in the previous section, daily and monthly market closing prices throughout the time period 01/01/1993 to 12/31/2012 are collected from the Bloomberg system. These various stock price series are mutually dependent and dependent over time, as permitted by the specification of our stochastic dominance model. However, before using these stock prices in our empirical analysis, stock price series have to be checked and several adjustments have to be made in order to guarantee causal inferences from our event.<sup>526</sup> First, all stock market series have to be adjusted for non-trading days in the respective periods under investigation. Accordingly, the days considered in this study are trading days, not calendar days.<sup>527</sup> Second, as far as possible, we control for various confounding events that may cause methodological problems and consequently may bias the estimates by offsetting the stock price effect of the respective M&A announcement. Potential confounding events range from major capital structure changes, such as dividend payments, rights issues, and stock splits, to significant changes in key executives and other concurrent M&A transactions that are announced simultaneously.<sup>528</sup> We control for changes in the capital structure of the respective insurance acquirers by adjusting all stock market series of the involved insurance firms for quotation changes, dividend payments,<sup>529</sup> and (if not automatically adjusted by Bloomberg) for rights issues and stock splits. However, we do not exclude concurrent transactions that overlap during the estimation methodology. Nonetheless, we are aware of potential biases that may arise from such overlapping transactions and consider

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<sup>526</sup> E.g., Sauer (1991, p. 3), Eckardt (1999, p. 1), and Lepone, Leung, and Li (2012, p. 10).

<sup>527</sup> If a particular M&A transaction is announced on a non-trading day, we treat the following trading day as the effective event date.

<sup>528</sup> E.g., Borg, Borg, and Leeth (1989, p. 123), Megginson, Morgan, and Nail (2002, p. 8), and Boesecke (2009, p. 93).

<sup>529</sup> Note that due to the essential role and the high influence of stock dividend payments in calculating short-term daily returns and meanwhile their negligible effect on the calculation of long-term buy and hold abnormal returns (see Section 4.3.1.5), we only adjust stock market series for dividend payments in the short-term study.



them once the results of this study are evaluated. Similarly, we are also aware of another problem that is attributed to the use of the event study approach. As described by Spiss (2008), stock price changes may also be a result of other company-specific news and information announced in the estimation period or even on the same day as the investigated M&A transaction. However, we follow the argumentation of Spiss (2008), who declares that “in case of M&A announcement one might argue that the weight of the news of such transactions has more influence than most other possible company related news” (p. 107).

#### **4.3.10 Characteristics of M&A Transactions**

As a result of our requirements (see Section 4.3.6), the final sample in our study consists of 102 M&A deals over a period from 01/01/1993 to 12/31/2009, presented in Table 19. As seen in previous sections, sample sizes in the previously reviewed event studies range from minimums of 51, 52, and 56 (Staikouras, 2009; Elango, 2006; Floreani & Rigamonti, 2001) to a maximum of 499 transactions (Cummins & Weiss, 2004). Accordingly, this final sample of 102 M&A transactions is comparable to those in previous capital market event studies. Moreover, the size of our sample is, on the one hand, large enough to guarantee reasonable power for the analysis performed, but on the other hand, small enough to establish a dominance relationship by conducting a descriptive comparison<sup>530</sup> and hence provides a solid foundation for the subsequent empirical investigation. Moreover, analyzing 102 transactions announced by Europe’s largest insurance companies offers a couple of advantages over the analysis of a random sample, as explained by Healy, Palepu, and Ruback (1997). First, the identification process applied ensures that the sample of investigated transactions comprises the majority of all insurance transactions conducted in Europe in the period 1993 to 2009. Second, by the criteria used to identify the relevant M&A, it is guaranteed that only transactions with relatively large targets,<sup>531</sup> which are more likely to cause a performance effect, are

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<sup>530</sup> Klaever (2005, p. 32; 2006, p. 135).

<sup>531</sup> The relative deal size ranges from a minimum size ratio of 8.02% to a maximum of 206.88%. Accordingly, our targets are reasonably significant targets for the respective

included in the final sample. Third, the applied criteria prevent the inclusion of further consecutive transactions by the same acquirer that take place simultaneously to the investigated M&A deal.<sup>532</sup>

**Table 18: Overview of M&A transactions investigated in our analysis by acquiring insurance company**

	Announcement Date	Name	Acquirer		Target		
			Subindustry	Col	Name	Subindustry	Col
1	08/17/1993	ACE Ltd	Property/Casualty	CH	Corporate Officers & Directors Assurance Holding Ltd	Property/Casualty	BM
2	03/26/1998	ACE Ltd	Property/Casualty	CH	CAT Ltd	Reinsurance	US
3	06/16/1998	ACE Ltd	Property/Casualty	CH	ACE Tarquin	Insurance Services & Other	US
4	01/12/1999	ACE Ltd	Property/Casualty	CH	PPTY & Casualty Business	Property/Casualty	US
5	05/27/1999	ACE Ltd	Property/Casualty	CH	ACE Financial Services Inc	Financial Guarantee Insurance	US
6	12/17/2007	ACE Ltd	Property/Casualty	CH	Combined Insurance Co of America	Life/Health	US
7	11/15/1993	Aegon NV	Life/Health	NL	Pensions Operation Div.	Life/Health	US
8	12/30/1996	Aegon NV	Life/Health	NL	Providian Corporation	Multi-line	US
9	02/18/1999	Aegon NV	Life/Health	NL	Transamerica Corp	Life/Health	US
10	05/12/1998	Ageas	Life/Health	BE	General de Banque SA	Money Center Banks	BE
11	09/27/2001	Ageas	Life/Health	BE	Fortis NL NV	Diversified Financial Services	NL
12	11/18/1997	Allianz SE	Multi-line	DE	Allianz France SA	Multi-line	FR
13	04/01/2001	Allianz SE	Multi-line	DE	Dresdner Bank AG	Money Center Banks	DE
14	09/11/2005	Allianz SE	Multi-line	DE	Allianz SpA	Multi-line	IT
15	01/18/2007	Allianz SE	Multi-line	DE	Allianz France SA	Multi-line	FR
16	06/30/2008	Allied World Assurance Co Holdings AG	Property/Casualty	CH	Darwin Professional Underwriters Inc	Property/Casualty	US
17	03/31/1999 / 04/16/1999	Alm. Brand A/S	Property/Casualty	DK	Alm Brand A/S	Commercial Banks Non-US	DK
18	03/02/2002	Alm. Brand A/S	Property/Casualty	DK	Injury claims portfolio	Life/Health	DK
19	08/01/1995	Amlin PLC	Property/Casualty	UK	Delian Lloyds Investment Trust PLC	Closed-end Funds	UK
20	07/29/1998	Amlin PLC	Property/Casualty	UK	Murray Lawrence	Property/Casualty	UK
21	08/02/2002	Amlin PLC	Property/Casualty	UK	Capacity on Syndicate 2001	Property/Casualty	UK
22	06/03/2009	Amlin PLC	Property/Casualty	UK	Fortis Corporate Insurance NV	Multi-line	NL
23	12/11/1996	Aon PLC	Insurance Brokers	UK	Alexander & Alexander Services Inc	Insurance Brokers	US
24	08/22/2008	Aon PLC	Insurance Brokers	UK	Aon Benfield Group Ltd	Insurance Brokers	UK
25	06/26/2006	Assicurazioni Generali SpA	Life/Health	IT	Toro Assicurazioni SpA	Multi-line	IT
26	02/23/2009	Assicurazioni Generali SpA	Life/Health	IT	Alleanza Toro SpA	Life/Health	IT
27	02/25/1998	Aviva PLC	Life/Health	UK	General Accident PLC	Property/Casualty	UK
28	02/21/2000	Aviva PLC	Life/Health	UK	Undershaft No 4 Ltd	Life/Health	UK
29	03/09/2005	Aviva PLC	Life/Health	UK	RAC Ltd.	Insurance Services & Other	UK
30	07/13/2006	Aviva PLC	Life/Health	UK	AmerUs Group Co	Life/Health	US
31	05/05/1998	AXA SA	Life/Health	FR	Royale Belge SA	Multi-line	BE
32	08/30/2000	AXA SA	Life/Health	FR	AXA Financials Inc	Diversified Financial Services	US
33	04/19/2005	AXA SA	Life/Health	FR	Finaxa	Investment Companies	FR
34	06/14/2006	AXA SA	Life/Health	FR	AXA Versicherungen AG	Multi-line	CH
35	01/30/2006	Catlin Group Ltd	Property/Casualty	UK	Catlin Underwriting	Property/Casualty	UK
36	02/15/2001	CNP Assurances	Life/Health	FR	Caixa Seguradora SA	Life/Health	BR
37	11/10/2004	CNP Assurances	Life/Health	FR	Fineco Vita SpA	Multi-line	IT
38	06/06/2006	CNP Assurances	Life/Health	FR	Ecureuil-Vie SA	Life/Health	FR

acquiring insurance firms, with a mean size ratio of 32.20% and a median size ratio of 19.01%.

<sup>532</sup> Healy, Palepu, and Ruback (1997, p. 46).

	Announce-		Acquirer			Target		Col
	Date	Name	Subindustry	Col	Name	Subindustry		
39	01/31/2002	Euler Hermes SA	Property/Casualty	FR	Euler Hermes Deutschland AG	Financial Guarantee Insurance	DE	
40	05/30/2002	Fondiarria-Sai SpA	Property/Casualty	IT	La Fondiarria Assicurazioni SpA	Multi-line	IT	
41	05/31/2007	Fondiarria-Sai SpA	Property/Casualty	IT	BPV Vita SpA	Multi-line	IT	
42	10/15/2004	Global Indemnity PLC	Property/Casualty	IE	Penn-America Group Inc	Property/Casualty	US	
43	10/15/2004	Global Indemnity PLC	Property/Casualty	IE	Penn Independent Corp	Property/Casualty	US	
44	03/09/2001	Grupo Catalane Occidente SA	Property/Casualty	ES	Lepanto SA	Multi-line	ES	
45	08/11/2003	Grupo Catalane Occidente SA	Property/Casualty	ES	Atradius NV	Financial Guarantee Insurance	DE	
46	11/18/2003	Grupo Catalane Occidente SA	Property/Casualty	ES	Seguros Bilbao	Multi-line	ES	
47	09/22/1997	Hannover Rueck-versicherung AG	Reinsurance	DE	International Reinsurance business of Skandia Forsakrings AB	Reinsurance	SE	
48	08/25/1998	Hannover Rueck-versicherung AG	Reinsurance	DE	Clarendon Insurance Group Inc	Property/Casualty	US	
49	06/12/2003	Hannover Rueck-versicherung AG	Reinsurance	DE	HDI Reinsurance Ireland	Multi-line	IE	
50	07/08/1997	ING Groep NV	Life/Health	NL	Equitable of Iowa Cos	Life/Health	US	
51	11/11/1997	ING Groep NV	Life/Health	NL	ING Belgium SA/NV	Regional Banks Non-US	BE	
52	05/01/2000	ING Groep NV	Life/Health	NL	Reliastar Financial Corp	Life/Health	US	
53	01/14/1999	Jardine Lloyd Thompson Group PLC	Insurance Brokers	UK	Jardine Aboitiz Insurance Brokers	Insurance Brokers	PH	
54	01/25/2000	Mapfre SA	Multi-line	ES	Mapfre Vida Seguros	Life/Health	ES	
55	01/09/2001	Mapfre SA	Multi-line	ES	Cia de Seguros Finisterre	Life/Health	ES	
56	06/27/2003	Mapfre SA	Multi-line	ES	Musini Vida SA de Seguros y Reaseguros Sociedad Un	Life/Health	ES	
57	10/31/2007	Mapfre SA	Multi-line	ES	Mapfre USA Corp/MA	Property/Casualty	US	
58	01/30/2008	Milano Assicurazioni SpA	Property/Casualty	IT	SASA Assicurazioni Riassicurazioni SpA	Multi-line	IT	
59	08/14/1996	Muenchener Rueck-versicherungs-AG	Reinsurance	DE	Munich Re America Corp	Property/Casualty	US	
60	07/01/1998	Novae Group	Property/Casualty	UK	SVB Associates Ltd	Insurance Services & Other	UK	
61	09/21/1999	Novae Group	Property/Casualty	UK	CLM Insurance Fund PLC	Closed-end Funds	UK	
62	01/18/2000	Old Mutual PLC	Life/Health	UK	OMFS GGP Ltd	Finance-Investment Bnkr/Brkr	UK	
63	06/19/2000	Old Mutual PLC	Life/Health	UK	Old Mutual US Holdings Inc	Investment Mmngt/Advisory Services	US	
64	04/26/2001	Old Mutual PLC	Life/Health	UK	Fidelity & Guaranty Life Insurance Co	Life/Health	US	
65	03/25/1997	Prudential PLC	Life/Health	UK	Scottish Amicable Life PLC	Life/Health	UK	
66	03/11/1999	Prudential PLC	Life/Health	UK	M&G Group PLC	Closed-end Funds	UK	
67	07/12/1999	RSA Insurance Group PLC	Property/Casualty	UK	Orion Capital Corp	Property/Casualty	US	
68	05/24/2007	RSA Insurance Group PLC	Property/Casualty	UK	Codan A/S	Multi-line	DK	
69	10/13/1999	Sampo	Property/Casualty	FI	Leonia PLC	Commercial Banks Non-US	FI	
70	10/13/1999	Sampo	Property/Casualty	FI	Pohjola Insurance Ltd	Multi-line	FI	
71	12/04/2000	Sampo	Property/Casualty	FI	Mandatum Pankki OYJ	Commercial Banks Non-US	FI	
72	02/11/2004	Sampo	Property/Casualty	FI	If Skadefoersaekring Holding AB	Insurance Brokers	SE	

	Announcement Date		Acquirer		Target		Col
	Name	Subindustry	Name	Subindustry	Name	Subindustry	
73	04/12/2000	SCOR SE	Reinsurance	FR	PartnerRe Life Insurance Co	Multi-line	BM
74	05/21/2001	SCOR SE	Reinsurance	FR	2 reinsurance units of Groupama SA	Multi-line	FR
75	06/22/2005	SCOR SE	Reinsurance	FR	Irish Reinsurance Partners Ltd	Reinsurance	IE
76	07/05/2006	SCOR SE	Reinsurance	FR	SCOR Global Life Ruckversicherung AG	Reinsurance	DE
77	02/19/2007 / 02/26/2007	SCOR SE	Reinsurance	FR	SCOR Holding Switzerland AG	Reinsurance	CH
78	04/09/1997	St James's Place PLC	Life/Health	UK	J Rothschild Assurance Holdings PLC	Life/Health	UK
79	01/06/1999	Storebrand ASA	Life/Health	NO	Finansbanken ASA	Commercial Banks Non-US	NO
80	09/03/2007	Storebrand ASA	Life/Health	NO	Multiple targets: Handelsbanken Life & Pensions Ltd / Handelsbanken Varumarkes AB / Nordben Life & Pension Insurance Co / SPP Fonder AB / SPP Liv Forsakrings AB	Life/Health, Commercial Banks Non-US, Life/Health, Closed-end Funds, Multi-line	IE
81	11/15/1996	Swiss Life Holding AG	Life/Health	CH	GAN Belgium	Multi-line	BE
82	02/22/1999	Swiss Life Holding AG	Life/Health	CH	Banca del Gottargo	Commercial Banks Non-US	CH
83	12/03/2007	Swiss Life Holding AG	Life/Health	CH	AWD Holding AG	Investment Mgmt/Advisory Services	DE
84	08/27/1996	Swiss Reinsurance Company Ltd / Swiss Re AG (from 12/2011)	Reinsurance	CH	Mercantile & General Reinsurance Co Ltd	Reinsurance	UK
85	11/18/2005	Swiss Reinsurance Company Ltd / Swiss Re AG (from 12/2011)	Reinsurance	CH	Swiss Re Solutions Holding Corp	Reinsurance	US
86	11/01/1999	Topdanmark A/S	Property/Casualty	DK	Danica Forsikring As	Multi-line	DK
87	09/07/1999	Unipol Gruppo Finanziario SpA	Multi-line	IT	Meie Assicurazioni SpA	Multi-line	IT
88	04/06/2000	Unipol Gruppo Finanziario SpA	Multi-line	IT	Multiple targets: Meie Assicurazioni / Meie Vita	Multi-line	IT
89	04/06/2000	Unipol Gruppo Finanziario SpA	Multi-line	IT	Multiple targets: Aurora Assicurazioni / Navale Assicurazioni	Multi-line	IT
90	05/11/2000	Unipol Gruppo Finanziario SpA	Multi-line	IT	Duomo Uni One Assicurazioni SpA	Multi-line	IT
91	10/11/2000	Unipol Gruppo Finanziario SpA	Multi-line	IT	BNL Vita SpA	Life/Health	IT
92	06/22/2003	Unipol Gruppo Finanziario SpA	Multi-line	IT	Winterthur Italian operations	Multi-line	IT
93	12/11/2006	Unipol Gruppo Finanziario SpA	Multi-line	IT	Aurora Assicurazioni SpA	Insurance Brokers	IT
94	12/24/2009	Unipol Gruppo Finanziario SpA	Multi-line	IT	Multiple targets: Arca Assicurazioni SpA / Arca Vita SpA	Life/Health	IT
95	07/05/2002	Uniqa Versicherungen AG	Multi-line	AT	MLP Versicherung AG/Austria	Life/Health	AT
96	12/23/2003	Uniqa Versicherungen AG	Multi-line	AT	Mannheimer AG Holding	Multi-line	DE
97	03/26/2008	Vienna Insurance	Multi-line	AT	Multiple targets: BCR Asigurari / Sparkassen Versicherung AG	Multi-line	RO
98	05/08/1997	XL Group	Life/Health	IE	GCR Holdings Ltd	Property/Casualty	BM
99	03/16/1998	XL Group	Life/Health	IE	MID Ocean Ltd	Property/Casualty	BM
100	02/16/1999	XL Group	Life/Health	IE	NAC Re Corp	Property/Casualty	US
101	05/03/2000	Zurich Insurance Group AG	Multi-line	CH	Allied Zurich Ltd	Multi-line	UK
102	04/16/2009	Zurich Insurance Group AG	Multi-line	CH	21st Century Insurance Group	Property/Casualty	US

A detailed list of all transactions by announcement date and their respective characteristics can be obtained from the author upon request.

In addition, Table 20 provides a historical overview of the development of annual M&A transactions, the absolute, mean and median transaction volume, and the average relative transaction value for our final sample, while Figure 15

graphically illustrates this development in the investigation period from 1993 to 2009.

**Table 19: Descriptive statistics of the final sample by year**

Year	Number of M&A Transactions	Absolute Transaction Value (in EUR mn)	Average Transaction Value (in EUR mn)	Median Transaction Value (in EUR mn)	Average Relative Transaction Value
1993	2	2606.00	1303.00	1303.00	47.52%
1994	0	0.00	0.00	0.00	0.00%
1995	1	56.61	56.61	56.61	75.05%
1996	5	8748.92	1749.78	2110.30	58.43%
1997	7	18102.05	2586.01	1948.47	31.01%
1998	9	33494.98	3721.66	651.25	46.48%
1999	15	18942.89	1262.86	578.61	35.97%
2000	13	50914.49	3916.50	349.77	25.04%
2001	7	40219.41	5745.63	594.72	25.78%
2002	5	2634.96	526.99	85.00	44.89%
2003	6	2490.38	415.06	277.00	30.80%
2004	4	2207.26	551.82	383.66	29.26%
2005	5	19610.00	3922.00	5353.82	16.96%
2006	7	17942.93	2563.28	1403.07	24.94%
2007	8	18781.19	2347.65	1705.63	28.13%
2008	4	3054.18	763.55	691.66	18.52%
2009	4	4460.41	1115.10	932.75	14.13%
Full Sample	102	244266.66	2394.77	728.66	32.20%

Over our time period, the 102 M&A transactions conducted by the largest listed European insurance acquirers totaled an absolute transaction value of €245 billion, which represents an average transaction volume of around €2,395 million. Comparing these characteristics with previous samples, we do not find striking differences between our study and the reviewed capital market studies. Even though the average and total deal values of the transactions in our European sample are considerably greater than in the reviewed US-American studies of Akhigbe and Madura (2001) and Cummins and Xie (2005),<sup>533</sup> these two values are comparable with earlier event studies analyzing the European or global insurance market. In his European sample, Schertzing (2008) receives

<sup>533</sup> We discover an average deal value of €2,395 million as compared to \$221 million in the study of Akhigbe and Madura (2001) and \$1,423 million in Cummins and Xie (2005). Similarly, we obtain a much higher total deal value of almost €245 billion as compared to \$19 billion and \$64 billion in the papers of Akhigbe and Madura (2001) and Cummins and Xie (2005), respectively.

a comparable total deal value of \$253 billion and a mean deal value of \$1,400 million. Floreani and Rigamonti's (2001) global sample is comprised of 56 insurance transactions with an average deal value of \$3,289 million and a total deal volume of \$184 billion.<sup>534</sup> Our sample of acquiring insurance firms is biased towards smaller insurance firms, as the median value of €729 million in our sample is substantially below the average transaction value of €2,395 million. Accordingly, the high average transaction value at M&A announcement is driven heavily by few very large transactions, and hence the median may be regarded as more appropriate to describe the typical transaction in the sample.<sup>535</sup>

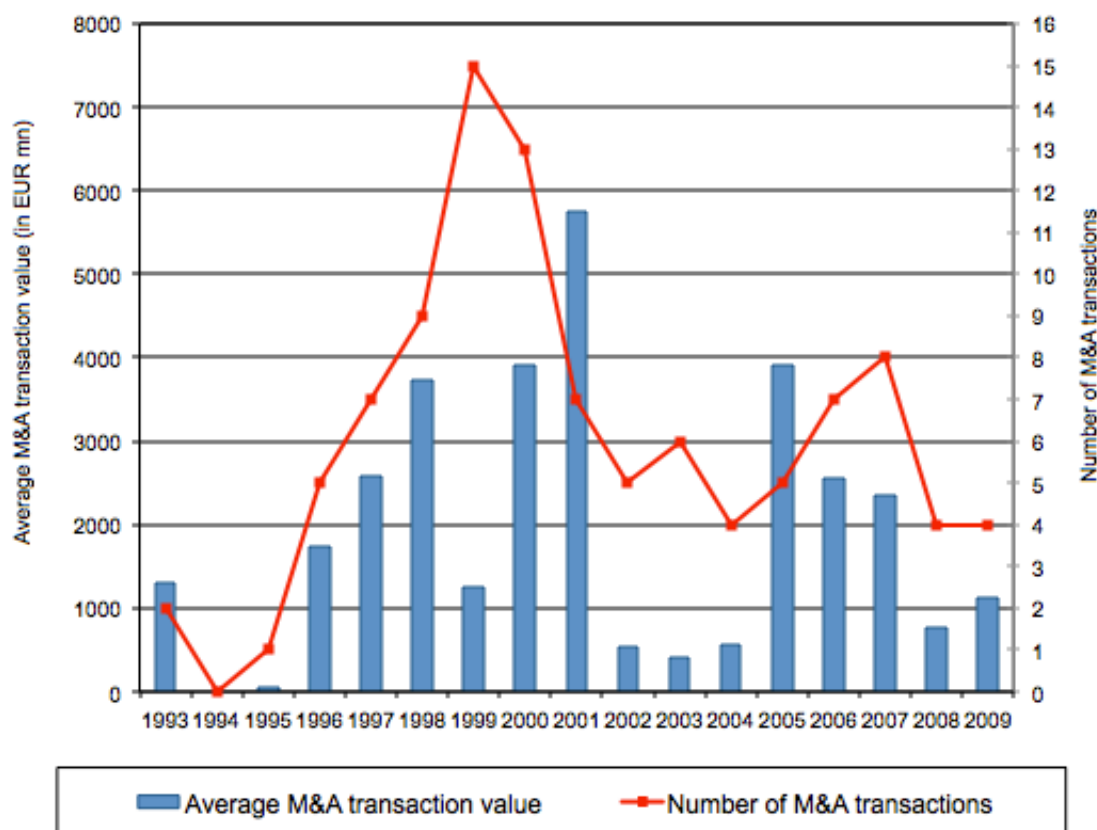
Looking at the yearly distribution of M&A transactions (Figure 15), it becomes obvious that in our sample, insurance M&A activity also occurred in waves.<sup>536</sup> While a temporary pickup in M&A activity can be observed during the years 2005–2007, the vast majority of deals occurred during the time period 1998 through 2000. M&A activity, in terms of number of transactions announced, peaked in the years 1999 and 2007 at 15 and eight, respectively, and then showed levels in the following years that were considerably lower than those of the peaking years. Interestingly, the average transaction volume showed a similar pattern. It significantly increased in the late 1990s and the mid-2000s, reached its two peaks in the years 2001 and 2005, respectively, and then declined, but not to pre-peak levels. Consequently, the total deal value was substantially larger from 2000–2001 than in other years, reaching its peak of almost €51 billion in 2000.

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<sup>534</sup> Even though their total deal value of \$184 billion is still below the value in our sample (€244.27 billion), it results in a median deal value of \$1,400 million, which is considerably higher than the value of €728.66 million we get in our study. Clearly, these differences are attributed to differences in the sample composition (i.e., Floreani & Rigamonti's sample consists of only 51 transactions, includes also insurance acquirers from the US and Australia, and the authors require the transaction to result in a change of control).

<sup>535</sup> The largest transaction in our sample is the German mega-acquisition of Dresdner Bank AG, which was one of the largest banks in Germany, by Allianz AG in 2001, with a transaction value of €23.5 billion. The second largest transaction in the sample, announced in 2000 between Switzerland's Zurich Financial Services and UK's Allied Zurich p.l.c., amounts to almost €19 billion.

<sup>536</sup> Even though this essentially identical development of European M&A activity and M&A activity of the insurance transactions in our final sample is not a necessary condition, it gives strong evidence for the correctness and representativeness of our sample, which consequently should allow a valid and meaningful capital market investigation.



**Figure 15: Number of M&A transactions and average M&A transaction volume in the final sample by year**

## 4.4 Results of the Empirical Study

### 4.4.1 Success of M&A in the European Insurance Industry

This section addresses the third research question by studying the capital market effects of M&A transactions undertaken by European insurance acquirers on short-term and medium- and long-term performance of the respective insurance acquirers. To investigate these effects, we descriptively compare the performance of a portfolio consisting of acquirers with that of a benchmark portfolio using the entire distribution of short-term and long-term returns. In accordance with hypothesis H1, our results indicate that shortly after the announcement of an M&A transaction, acquiring insurance companies show a negative (relative) performance, as the acquirer portfolio is second-order dominated by the benchmark portfolio consisting of non-acquiring peer insurance companies in various short-term event windows. However, unlike our

expectations, this negative relative performance disappears over a longer event horizon, and no stochastic dominance relation between the two portfolios is found in the long run. Table 21 presents a detailed overview on the findings of our descriptive stochastic dominance analysis. The upcoming two sections discuss these results in more depth.

**Table 20: SD relation between M&A and benchmark portfolio**

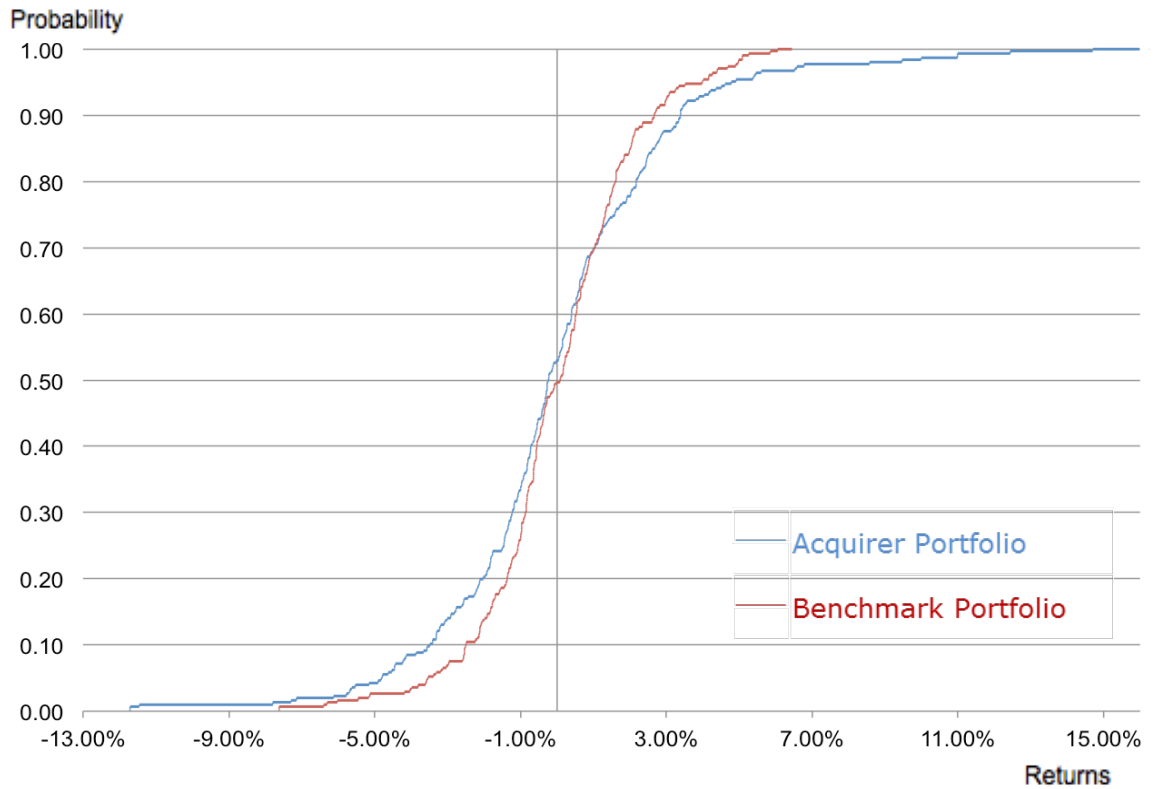
SD OVERALL					
Event Window	Acquirer (A) vs. Benchmark (B) Portfolio	Mean Return Acquirer (A) Portfolio	Mean Return Benchmark (B) Portfolio	$\Delta$ (Mean Return A - Mean Return B)	
Short-term	(0;0)	No SD	0.38%	0.15%	0.23%
	(0;+1D)	No SD	0.24%	0.15%	0.09%
	(0;+2D)	B SD2 A	0.07%	0.08%	-0.01%
	(0;+3D)	B SD2 A	0.05%	0.17%	-0.12%
	(0;+4D)	B SD2 A	0.01%	0.10%	-0.09%
	(0;+5D)	B SD2 A	-0.04%	0.08%	-0.12%
Long-term	(0;+1Y)	No SD	7.97%	5.25%	2.72%
	(0;+2Y)	No SD	16.84%	5.64%	11.20%
	(0;+3Y)	No SD	21.50%	4.64%	16.86%

#### 4.4.1.1 Results of Short-Term Analysis

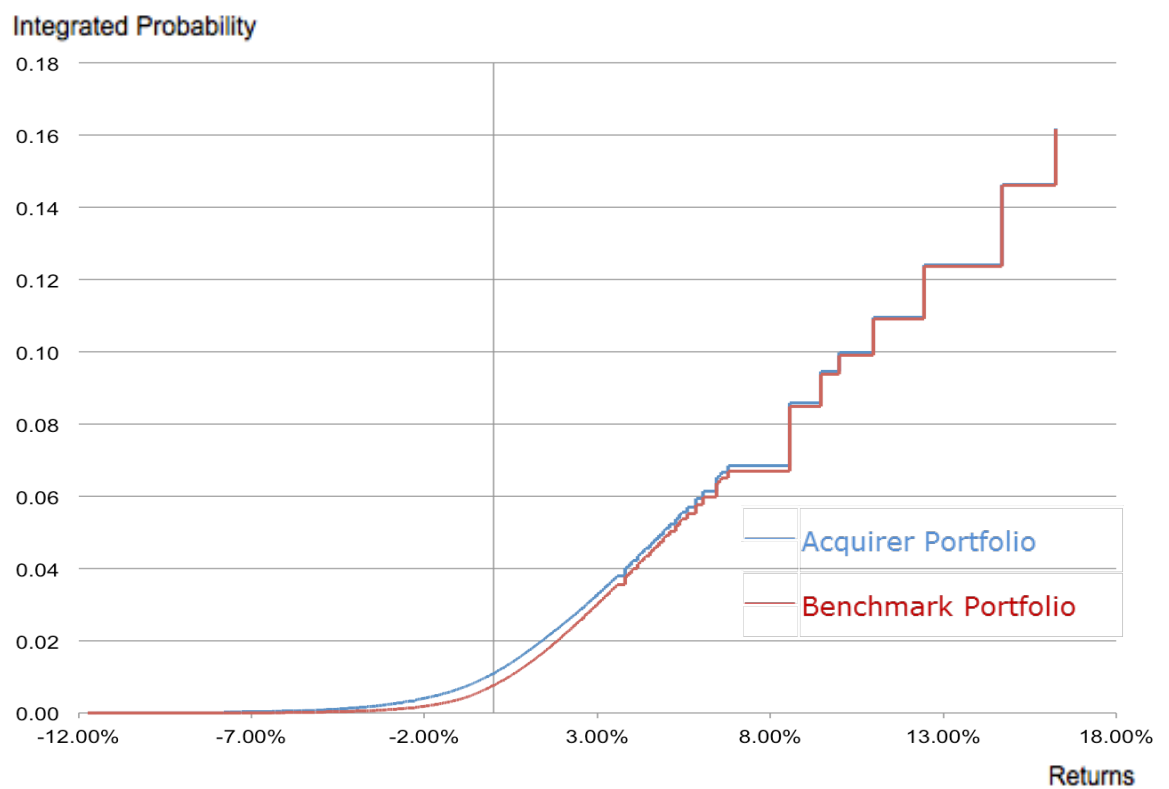
In the short term, first-order and second-order stochastic dominance relations between the acquirer and benchmark portfolios are estimated over six different announcement-period event windows, ranging from (0;0) (i.e., the announcement day) to (0;+5) days (i.e., the announcement day to five days after the announcement date). Our results provide evidence for the existence of a stochastic dominance relationship between the M&A portfolio and the benchmark portfolio. More specifically, in four out of the six event windows, that is, (0;+2), (0;+3), (0;+4), and (0;+5), the distribution of dividend-adjusted simple daily returns of the benchmark portfolio second-order dominates the distribution of dividend-adjusted simple daily returns of the M&A portfolio.<sup>537</sup> For the event window (0;+2), the corresponding empirical CDF and the integrated empirical CDF are plotted in Figures 16 and 17.

<sup>537</sup> The results of an additional analysis, in which continuously compounded TRS were used, did not bring any changes to the above-stated findings.





**Figure 16: Empirical CDFs of daily returns (0;+2D) – M&A versus benchmark portfolios**



**Figure 17: Integrated empirical CDFs of daily returns (0;+2D) – M&A versus benchmark portfolios**

As seen in Figure 16, the two CDFs cross (and hence no first-order SD relationship is found), yet the integrated CDFs do not cross (Figure 17).<sup>538</sup> Consequently, we are able to establish second-order dominance of the benchmark portfolio distribution over the acquirer portfolio distribution. Furthermore, in these four cases, the mean return of the benchmark portfolio is above the mean return of the dominated acquirer portfolio, which is required to infer stochastic dominance. Examining the distribution of transactions with a negative market effect and transactions with a positive market effect, only on the announcement day and the period from the announcement day to one day after the announcement, more than half of transactions led to a higher stock market value of the acquiring insurer. In the remaining four short-term event windows, the majority of transactions led to a decrease in acquiring firm's market value, as acquirers experienced a negative market reaction. In contrast, for benchmark insurers, we identify an almost equal split between value increases and value decreases over the several short-term event windows. In addition, acquiring European insurance firms, on average, suffer a small negative market reaction in the time period from announcing the deal to five days after M&A announcement, as the average daily return in this period is - 0.04%, whereas average benchmark returns in all tested short-term periods are positive (ranging from 0.08% to 0.17%).<sup>539</sup> In an attempt to test the robustness of our results, we perform two further analyses in which we either exclude 13 transactions that did not lead to a change in control or exclude 17 transactions that had a relative deal volume of below 10% from the sample of observations. The results of these additional descriptive comparisons (we do not show these results due to space limitations) support our previous findings concerning the short-term effects of insurance M&A, as we do not find any difference between the estimates of the full sample and the estimates of the two subsamples. Consistent with hypothesis H1, we therefore declare that European insurance acquirers are dominated by their non-acquiring European insurance competitors shortly after announcing an M&A transaction.

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<sup>538</sup> The same relationship was observed in the other three event windows, i.e., (0;+3), (0;+4), and (0;+5), hence leading to the same conclusions also in these three cases.

<sup>539</sup> See Table 21 above or Table 22 below.

**Table 21: Overall short-term results of SD approach**

SD APPROACH							
Event Window	A vs B Portfolio	A Mean R	B Mean R	A Median R	B Median R	A SD Rs	B SD Rs
(0;0)	No SD	0.38%	0.15%	0.40%	0.20%	4.35%	1.91%
(0;+1D)	No SD	0.24%	0.15%	0.15%	0.08%	3.70%	2.17%
(0;+2D)	B SD2 A	0.07%	0.08%	-0.23%	0.10%	3.30%	2.14%
(0;+3D)	B SD2 A	0.05%	0.17%	-0.13%	0.13%	3.03%	2.33%
(0;+4D)	B SD2 A	0.01%	0.10%	-0.12%	0.10%	0.08%	0.06%
(0;+5D)	B SD2 A	-0.04%	0.08%	-0.14%	-0.08%	2.73%	2.34%

Event Window	A Rs		B Rs		A % Positive Rs	B % Positive Rs
	Min	Max	Min	Max		
(0;0)	-11.72%	16.25%	-5.13%	4.99%	56%	53%
(0;+1D)	-11.72%	16.25%	-7.62%	6.44%	52%	50%
(0;+2D)	-11.72%	16.25%	-7.62%	6.44%	47%	51%
(0;+3D)	-11.72%	16.25%	-7.62%	14.88%	48%	52%
(0;+4D)	-11.72%	16.25%	-8.03%	14.88%	49%	51%
(0;+5D)	-11.72%	16.25%	-8.03%	14.88%	48%	49%

R = Daily simple total return to shareholders

As described in Section 4.3.1.5, we also conduct a traditional event study in order to enable a better comparison with previous capital market studies. The computed average CARs are negative in the same four event windows (with a maximum negative CAR of -0.70% in the estimation period from the announcement day to five trading days following the M&A announcement) and mean CARs are negative in five out of the six short-term event windows (see Table 23). As seen in the literature review (Chapter 3), the two previous event studies that focus on the performance effects of European insurance M&A both show negative CARs for acquiring European insurers in the period shortly after announcing a transaction. Cummins and Weiss (2004) report insignificant negative valuation effects of -0.17%, -0.31%, and -0.30% in (0;+1), (0;+2), and (0;+5), and also Schertzing (2008) presents negative acquirer CARs of -0.09%, -0.19%, -0.68%, and -0.77% in (0;0), (0;+1), (0;+2), and (0;+5) for his sample of European insurance companies. Hence, the results of this event study do not only strongly support the findings of our descriptive dominance approach concerning the dominance relation between the M&A and the benchmark portfolio, they are also in line with the findings of previous event study literature on M&A in the European insurance market.

**Table 22: Overall short-term results of event study approach**

TRADITIONAL EVENT STUDY APPROACH								
Event Window	Mean CAR	Median CAR	SD CARs	Min CAR	Max CAR	Sign of CARs		% Positive CARs
						Positive	Negative	
(0;0)	0.22%	0.25%	4.45%	-11.79%	13.09%	53	49	52%
(0;+1D)	0.18%	-0.50%	6.16%	-13.53%	22.65%	47	55	46%
(0;+2D)	-0.05%	-0.88%	6.54%	-15.20%	21.62%	46	56	45%
(0;+3D)	-0.49%	-1.73%	7.42%	-20.95%	21.01%	39	63	38%
(0;+4D)	-0.49%	-1.19%	7.61%	-28.23%	20.98%	45	57	44%
(0;+5D)	-0.70%	-0.70%	8.05%	-34.33%	21.00%	49	53	48%

#### 4.4.1.2 Results of Medium- and Long-Term Analysis

The results of our medium- and long-term study, however, paint a much brighter picture of the performance effects of insurance transactions.

**Table 23: Overall long-term results of SD approach**

SD APPROACH							
Event Window	A vs B Portfolio	A Mean BHR	B Mean BHR	A Median BHR	B Median BHR	A STD BHRs	B STD BHRs
(0;+1Y)	No SD	7.97%	5.25%	3.90%	-4.44%	36.47%	34.55%
(0;+2Y)	No SD	16.84%	5.64%	3.30%	-0.18%	67.94%	49.04%
(0;+3Y)	No SD	21.50%	4.64%	6.84%	-10.10%	87.28%	63.11%

Event Window	A BHRs		B BHRs		A % Positive BHRs	B % Positive BHRs
	Min	Max	Min	Max		
(0;+1Y)	-75.61%	121.59%	-93.29%	112.20%	57%	47%
(0;+2Y)	-82.19%	361.13%	-87.26%	174.42%	53%	49%
(0;+3Y)	-91.48%	416.74%	-89.78%	318.04%	56%	43%

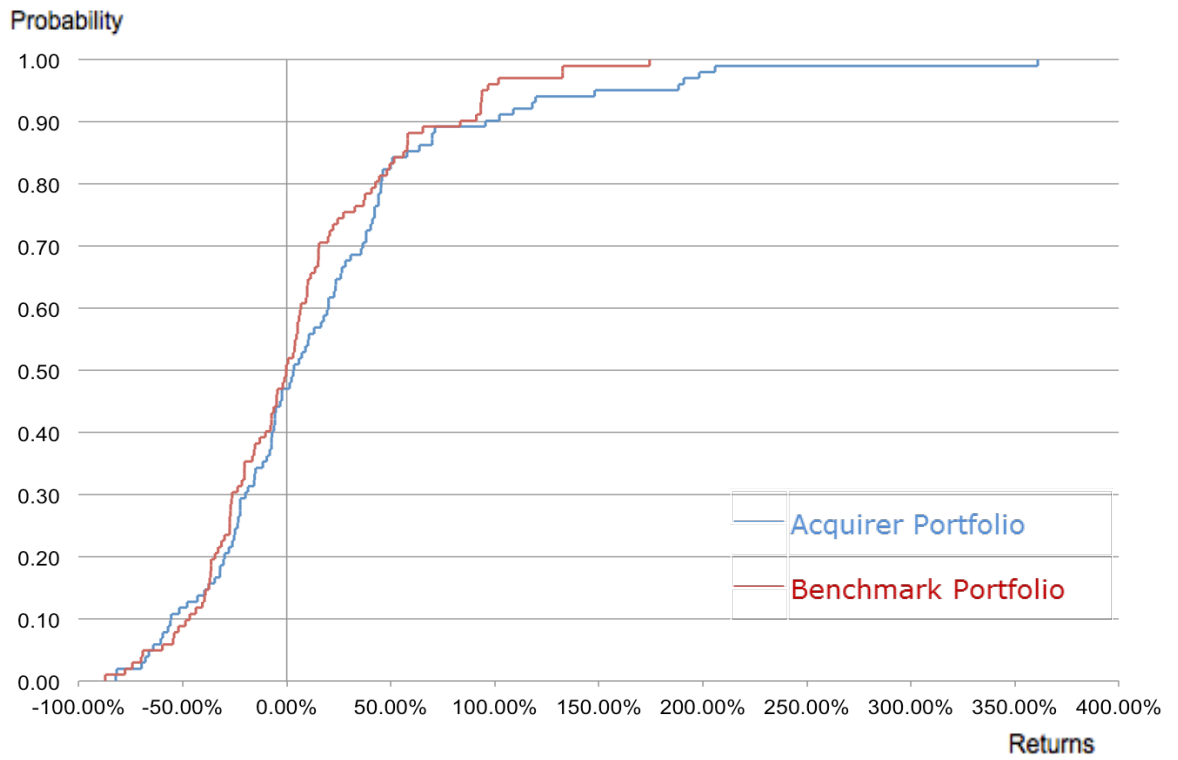
In all three medium- and long-term event periods under consideration, that is, from the month prior to the announcement month to the announcement month plus one year, plus two years, and plus three years, the portfolio of benchmark firms does not descriptively dominate the M&A portfolio in the sense of first- or second-order dominance. Even though we also do not find a stochastic dominance relation of the acquiring European insurance firm portfolio over the non-acquiring benchmark insurer portfolio in any of the investigated event

windows, the average buy-and-hold returns of the acquirer portfolio are substantially higher than the ones of the benchmark portfolio in every medium- and long-term event window considered. For example, over the same three-year post-M&A period, shareholders of European insurance acquirers on average obtained buy-and-hold returns of 21.50%, while shareholders of non-acquiring insurance peers experienced an increase of only about 5% on average (see Table 24). Moreover, in all three medium- and long-term windows analyzed, the percentage of positive buy-and-hold returns of insurers in the acquirer portfolio<sup>540</sup> is always above 50% (i.e., 57%, 53%, and 56%), whereas the percentage of positive returns of the benchmark insurers is constantly below 50% (i.e., 47%, 49%, and 43%). However, despite this clear outperformance of the M&A portfolio, we do not find stochastic dominance in our descriptive comparison. This is attributable to the higher standard deviation of the M&A portfolio as compared with the standard deviation of the benchmark portfolio (for example, 87.28% as compared with 63.11% in the three-year period after M&A announcement) and the larger number of acquirer firms with a significant negative three-year performance of more than -37% (for example, see Figure 18 for the empirical CDFs and the integrated empirical CDFs of two-year buy-and-hold returns). Once again, the conclusions drawn from the full sample also hold for the two additional SD analyses of both subsamples, that is, “change in ownership” subsample and “deal volume of above 10%” subsample.<sup>541</sup> The confirmation of a lack of a dominant relationship between the buy-and-hold return distributions of the M&A portfolio and the benchmark portfolio implies that shareholders of European insurance acquirers, on average, will not increase their wealth and expected utility by shifting their assets toward a non-acquiring insurance company. This conclusion stands in contradiction to the recent findings of Schertzingler’s (2008) European investigation and consequently to our hypothesis H1 concerning the long-term effects of European insurance transactions, which is solely derived from his empirical findings.

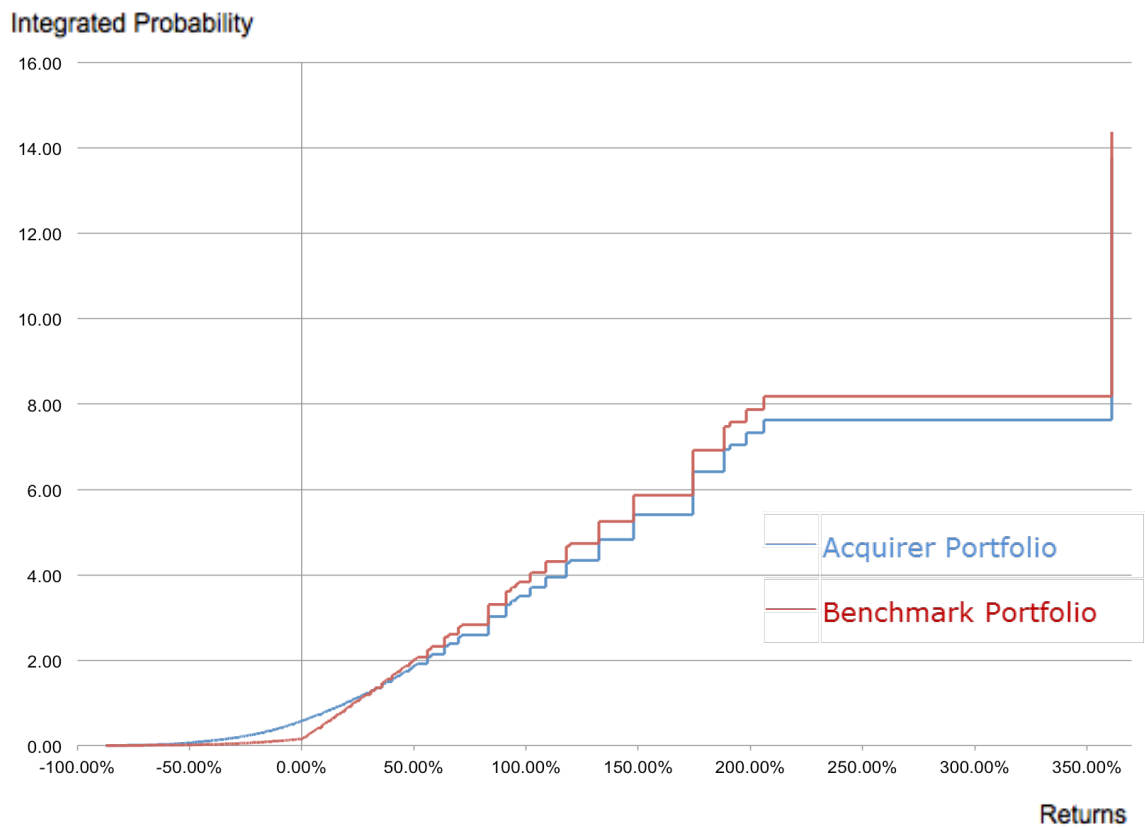
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<sup>540</sup> Calculated as the number of positive buy-and-hold returns in the M&A portfolio divided by the total number of buy-and-hold return observations in the M&A group. The same procedure of calculating the percentage of positive observations has been applied for the benchmark group and for each subgroup in the sample.

<sup>541</sup> Since no additional insights are obtained from these further comparisons, the respective results are not presented herein but are available from the authors upon request.



**Figure 18: Empirical CDFs of buy-and-hold returns (0;+2Y) – M&A versus benchmark portfolios**



**Figure 19: Integrated empirical CDFs of buy-and-hold returns (0;+2Y) – M&A versus benchmark portfolios**

The results of our supplemental event analysis underpin the findings from our descriptive SD comparison. The reviewed M&A transactions in the European insurance industry are found to have a small positive medium- and long-term effect on acquiring insurers' market value (one-, two-, and three-year outperformance of 2.72%, 11.20%, and 16.86% relative to the STOXX 600 Europe Insurance index).<sup>542</sup> Even though in sharp contrast to Schertzingers' (2008) results<sup>543</sup> on the European insurance market, findings from the two other medium- and long-term studies that analyze M&A transactions undertaken by US insurance acquirers, that is, BarNiv and Hathorn (1997) and Boubakri, Dionne, and Triki (2006), support our evidence that acquiring insurance firms do not underperform their benchmark firms in the long run. Similar to our event study estimates, the authors detect positive, yet insignificant, acquirer buy-and-hold abnormal returns of around 8% to 15% in the event period that begins 250 trading days before the effective day of the M&A deal and ends 250 trading days after the effective M&A transaction (BarNiv & Hathorn, 1997) or a market-adjusted BHAR of 57.3% after three years following an M&A transaction (Boubakri, Dionne, & Triki, 2006).

**Table 24: Overall long-term results of event study approach**

TRADITIONAL EVENT STUDY APPROACH								
Event Window	Mean BHAR	Median BHAR	STD BHARs	Min BHAR	Max BHAR	Sign of BHARs		% Positive BHARs
						Positive	Negative	
(0;+1Y)	2.72%	0.72%	32.54%	-73.53%	98.16%	53	49	52%
(0;+2Y)	11.20%	5.99%	59.82%	-181.59%	267.28%	57	45	56%
(0;+3Y)	16.86%	8.61%	76.14%	-314.38%	310.04%	59	43	58%

Concluding, in our sample of 102 transactions by European insurance firms from 1993 to 2009, there is no evidence for a first- or second-order dominance relationship between a portfolio of insurers announcing an M&A transaction and

<sup>542</sup> For a detailed overview of the results of this study, see Table 25.

<sup>543</sup> Insurance transactions in his European sample either produced significant negative BHARs of -4.73% and -9.98% on a one- and two-year event horizon (significant at the 10% and 5% level, respectively) or generated a non-significant negative BHAR of -6.57% on a three-year event horizon.

a portfolio of comparable benchmark insurers that do not engage in M&A activity over a medium- and long-term horizon. In other words, contrary to Schertzingler's (2008) earlier findings on European insurance acquirers, yet in accordance with both US-focused insurance studies by BarNiv and Hathorn (1997) and Boubakri, Dionne, and Triki (2006), we do not find any indication or evidence for a superior medium- and long-term performance of the benchmark portfolio over the portfolio that contains acquiring European insurance companies.

Overall, the findings our SD comparison suggest that M&A transactions in the insurance industry, on average, do not destroy shareholder value. Hence, it can be concluded that these transactions are primarily motivated by the desire of acquiring firms' managers to maximize shareholder wealth and not by the desire to maximize their own wealth at the expense of their firms' shareholders. Yet our SD investigation also shows that insurance firms that engage in M&A activity, on average, do not significantly outperform their non-acquiring benchmark insurance firms. Accordingly, the desire of shareholder wealth creation through M&A transactions is not fulfilled in general.

#### **4.4.2 Determinants of M&A Success in the European Insurance Industry**

After assessing the overall performance effects of European insurance transactions between the years 1993 and 2009 across different time periods, we try to give an answer to the last research question and test hypotheses H2 through H13. We perform several subsample analyses in order to examine the dominance relationship between the potential factors of short-term and medium- and long-term value creation in European insurance M&A. For this reason, we divide the 102 transactions in several subgroups according to the previously identified determinants (Table 26 reports descriptive statistics by the various determinant subgroups). Thereafter, we examine the return distributions of each subgroup by applying the testing procedure described earlier in this paper (see Section 4.3.7) and hence rank the distributions using the concept of first- and second-order stochastic dominance. This testing procedure enables us to explain the differences between discovered short- and long-term performance effects and differences between the varying effects of individual transactions.



Table 25: Descriptive statistics for determinant subsamples

Determinants			Number of Transactions	Average Acquirer MV at Announcement (mn EUR)	Average Transaction Value (mn EUR)	Average Relative Transaction Value	
Ex ante Features of the Acquiring Firm	Absolute Size	Small	51	1315	476	42.63%	
		Large	51	20195	4313	21.77%	
	Growth	Negative	30	10549	2819	43.36%	
		Positive	72	10841	2218	27.55%	
	Transaction experience	Inexperienced	30	3098	863	50.66%	
		Medium Experienced	52	9616	2293	25.46%	
		Experienced	20	25203	4958	24.51%	
	Line of Business	Life/Heath	35	17709	3809	32.79%	
		Property/Casualty	32	2837	569	39.15%	
Multi-line		21	14950	3545	25.46%		
Ex ante Features of the Target Firm	Relative Size	Small	20	14044	1335	9.17%	
		Medium	62	11728	2443	21.71%	
		Large	20	4449	3306	87.75%	
	Line of Business	Life/Heath	20	12829	2062	21.19%	
		Property/Casualty	17	5460	1535	36.03%	
		Multi-line	29	11814	2508	33.83%	
		Banks/Financial Services	18	16670	4590	41.35%	
	Ex ante Features of Transaction Structuring and Management Phase	Geographic Focus	Focusing	47	7977	2029	36.17%
			Diversifying	55	13129	2707	28.80%
Industry Focus		Focusing	50	10884	2187	29.15%	
		Diversifying	52	10631	2594	35.14%	
Strategic Direction		Full Focusing	26	6763	1637	33.27%	
		Full Diversifying	31	11765	2446	29.10%	
		Mixed	45	12366	2798	33.72%	
Pre-merger Participation		Pre-M&A Participaion	22	16465	3228	21.60%	
		No Pre-M&A Participation	80	9185	2166	35.12%	
Method of Payment	Full Cash	40	9207	1480	23.59%		
	Full Stock	20	8878	3527	50.20%		
	Mixed	42	13123	2727	31.83%		
Economic Environment	Timing	Weak M&A Cycle	51	10409	2515	27.80%	
		Strong M&A Cycle	51	11101	2275	36.60%	
		Below Avg GDP Growth	26	4363	923	35.65%	
		Above Avg GWP Growth	76	12942	2898	31.02%	

Similar to the structure in our literature review, we will first begin with presenting the results for the various endogenous factors, which include characteristics of the acquiring insurance firm, the target firm, and the transaction structure, and then concentrate on an important exogenous factor of the economic environment, namely the timing of the transaction with respect to the M&A and economic cycle.

#### 4.4.2.1 Characteristics of Acquiring Companies

According to hypothesis H2, small insurance acquirers are expected to stochastically dominate their larger acquiring insurance counterparts. In order to test this hypothesis, we split the full sample of 102 transactions into two equally

sized subsamples, one consisting of 51 below-median-sized insurance firms and another consisting of 51 above-median-sized insurance acquirers. Similarly, the respective benchmark companies are split into these two subsamples. Following the testing procedure outlined in Section 4.3.7, we first investigate whether the subgroup of large acquirers first- and/or second-order stochastically dominates its benchmark subgroup shortly after the M&A announcement (see \*<sup>1</sup> in the following Table 27). Subsequently, we test the reverse hypothesis, that is, whether the benchmark portfolio shows SD1 and/or SD2 over the large-sized acquirer portfolio (see \*<sup>2</sup> in Table 27). In a next step, we analyze whether the daily short-term return distribution of the small acquirer portfolio shows SD1 and/or SD2 over the distribution of daily returns of the corresponding benchmark firm portfolio (see \*<sup>3</sup>) and the converse hypothesis, that is, whether the benchmark portfolio shows SD1 and/or SD2 over the M&A portfolio of small acquirers (see \*<sup>4</sup>). After assessing the stochastic dominance relations between the daily return distributions of the two acquirer subsamples and the daily return distributions of their corresponding benchmark portfolios, we determine the dominant relation between the M&A subsample of small acquirers and the M&A subsample of large acquirers. Thus, in a further descriptive comparison, the two distributions of daily abnormal returns of the small acquirer subsample and the large acquirer subsample are compared with respect to first- and/or second-order stochastic dominance. Once again, dominance of the abnormal return distribution of the small acquirer subsample over the abnormal return distribution of the large acquirer subsample is tested (see \*<sup>5</sup>), and then it is investigated whether the large acquirer subsample dominates the small acquirer subsample in the sense of SD1 and/or SD2 (see \*<sup>5</sup>).

Following the short-term SD analysis, the same procedure is applied for the medium- and long-term investigation.<sup>544</sup>

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<sup>544</sup> Note that the only difference between the short-term analysis and the medium- and long-term analysis is the replacement of the simple daily return distributions and simple daily abnormal return distributions with the respective long-term buy-and-hold return distributions and buy-and-hold abnormal return distributions.

Table 26: Pairwise SD results: small versus large acquirers

Short-term			
ACQRABSSIZE	Benchmark	Small	Large
Benchmark	-	X <sup>*4</sup>	X <sup>*2</sup>
Small	X <sup>*3</sup>	-	SD2 <sup>*5</sup>
Large	X <sup>*1</sup>	X <sup>*5</sup>	-

Long-term			
ACQRABSSIZE	Benchmark	Small	Large
Benchmark	-	X	X
Small	SD2	-	X
Large	X	X	-

The results of our various descriptive comparisons on the testing procedure and the interpretation of the results can be interpreted as illustrated in Figure 14. The results in the above Table are read based on a row versus column comparison. The rows show whether the subsample in the leftmost column descriptively dominates any of the subsamples in the top row. In contrast, the columns indicate whether the subsample in the top row is stochastically dominated by any of the subsamples in the leftmost column. The “X” denotes no stochastic dominance, while “SD1” and “SD2” mean stochastic dominance of first- and second-order, respectively.<sup>545</sup> For example, the first row “Benchmark” and the second column “Small” (marked with an X<sup>\*4</sup>) means that the benchmark subsample does not first- or second-order dominate the subsample consisting of small acquirers. In comparison, examining the second row “Small” and the third column “Large” (marked with an SD2<sup>\*5</sup>), we can conclude that the return distribution of the acquirer portfolio consisting of small insurers second-order stochastically dominates the return distribution of the acquirer portfolio consisting of large insurance firms. Reading along the row, the cell “SD2<sup>\*5</sup>” means that the large acquirer subsample is stochastically dominated by the small acquirer subsample at the second order.

In case of the determinant “acquirer’s size,” we do not find a short-term stochastic dominance relation between any of the two acquirer size subsamples and the corresponding benchmark subsample. However, as expected, small

<sup>545</sup> Note that in every case where we found a potential SD relationship, we additionally checked whether the mean of the dominant subsample was larger than the mean of the dominated subsample (as required by our testing procedure to establish SDK; see section 4.3.7).

insurance acquirers stochastically dominate large insurance acquirers at the time of M&A announcement, as the small acquirer subsample is found to be second-order dominant over the large acquirer portfolio, and simultaneously, a dominance relation of the large acquirer subsample over the small acquirer subsample is rejected. Also consistent with hypothesis H2, we do not find a dominance relationship between the small and large acquirer sample in the medium- and long-term descriptive comparison. Yet the acquirer subsample of small acquirers is found to be second-order dominant over its corresponding benchmark subsample in the long run. Consequently, our short-term and our medium- and long-term findings provide strong support for hypothesis H2 and suggest that large acquirers are not better in identifying and realizing synergy potentials as compared to small insurance acquirers.

A second feature of the acquiring firm is the acquirer's pre-M&A growth,<sup>546</sup> which is expected to have an insignificant negative effect on the acquirer's short-term performance, whereas fast-growing acquirers are expected to significantly outperform their slower growing competitors over a longer horizon (see hypothesis H3). Our SD results support this hypothesis for the long run. The subsample of acquirers with a positive pre-M&A growth rate second-order stochastically dominates the subsample consisting of acquiring insurance firms with a negative growth rate over a one-year post-announcement period and hence provide further evidence for a long-run superiority of fast-growing insurance acquirers over slow-growing acquirers. Our short-term findings also reveal a second-order dominance relation of the fast-growing acquirer portfolio over the portfolio of slow-growing insurance acquirers, which stands in contrast to the small negative estimate of Schertzing's short-term multivariate regression analysis, which however falls short of any significance level. In addition, our short-term descriptive SD comparison detects that both acquirer portfolios are second-order dominated by their respective benchmark portfolio. In the case of the slow-growing acquirer subsample, the benchmark outperformance is found in all tested short-term event windows, whereas the

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<sup>546</sup> Measured as the acquirer's relative change in market value over a one-year pre-announcement phase.

portfolio consisting of positive growing acquirers is only dominated in half of the tested short-term event windows. Overall, our findings suggest that pre-M&A growth of an insurance acquirer is positively related with its post-M&A financial performance and so rejects the conjecture that fast-growing acquirers are unable to manage the integration of the target effectively.

**Table 27: Pairwise SD results: negative versus positive growth of acquirers' market values**

<b>Short-term</b>			
<b>ACQRGROWTH</b>	<b>Benchmark</b>	<b>Negative Growth</b>	<b>Positive Growth</b>
<b>Benchmark</b>	-	SD2	SD2
<b>Negative Growth</b>	X	-	X
<b>Positive Growth</b>	X	SD2	-

<b>Long-term</b>			
<b>ACQRGROWTH</b>	<b>Benchmark</b>	<b>Negative Growth</b>	<b>Positive Growth</b>
<b>Benchmark</b>	-	X	X
<b>Negative Growth</b>	X	-	X
<b>Positive Growth</b>	X	SD2	-

Next, we divide all transactions according to an acquirer's transaction experience into three groups: "Inexperienced," "Medium Experiences," and "Experienced." According to our hypothesis H4, which is fully based on Schertzingers' (2008) recent findings, we expect a U-shaped relationship between an acquirer's transaction experience and its post-M&A success, that is, inexperienced and experienced acquirers are expected to outperform acquirers with medium experience, independent of the time horizon under analysis. The results of our descriptive dominance analysis are also qualitatively similar across the different event windows. However, as we detect an inverted U-shaped relationship between M&A experience and financial performance, our results are contrary to the earlier findings of Schertzingers and hence our hypothesis H4. In our European insurance sample, acquirers with no or extensive M&A experience are less likely to produce a positive outperformance over their non-acquiring competitors. The subsample of inexperienced acquirers is dominated by the benchmark portfolio on a short-term basis, whereas experienced acquirers are dominated by their benchmark insurers in the short,

medium, and long run. In contrast, transactions where the bidder has medium transaction experience second-order stochastically dominate not only their benchmark group but also the inexperienced acquirer subgroup over a medium- and long-term period (see Table 29). Looking at some descriptive statistics for the individual transaction experience subgroups (see Table 26 above), it has to be noted that the acquirer's transaction experience is significantly positive related to the size of an acquirer. The average inexperienced acquirer in the sample had a market value at M&A announcement of €3 billion, whereas the average acquirer with medium M&A experienced had a MV of almost €10 billion, and most experienced acquirers even had a mean MV of above €25 billion. However, performance differences between the three subsamples are most likely not attributable to these differences in market values of acquirers. This is because, first, transaction volumes are also positively related to M&A experience (which accordingly results in comparable average relative transaction volumes, especially for the medium experienced and the experienced subsamples) and, second, our investigation unveiled no dominance differences between different size-matched subsamples in the long run (see hypothesis H1 above and our conclusion concerning the effect of "acquirer's absolute size"). Nevertheless, our finding of an inverted U-shaped relationship contradicts Schertzing's (2008) proposition that insurance acquirers are more successful when either fully focusing on internal or fully focusing on external growth via M&A transactions. From a theoretical standpoint, our findings seem to support the idea from the learning curve and the closely related experience curve theory that (if transaction experiences are homogenous)<sup>547</sup> an increased number of M&A transactions might provide learning and experience curve benefits for the acquirer with regard to many aspects of the transaction process (for example, valuation of the target, negotiation of the deal price, and post-merger integration, just to name a few).<sup>548</sup> This is consistent with our finding of stochastic dominance of the

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<sup>547</sup> See Singh and Zollo (1998, p. 30). In addition, the empirical study of Halebian and Finkelstein (1999) offers statistical evidence of a consistent positive influence of multiple homogeneous acquisitions on an acquirer's post-acquisition success.

<sup>548</sup> See Lubatkin (1983, p. 224), Bamberger (1994, p. 223), Szulanski (2002, p. 69), Weston, Mitchell, and Mulherin (2004, p. 132), Wuebben (2007, p. 154), and Boesecke (2009, p. 83). As stated in Boubakri, Dionne, and Triki (2006, p. 15), a further benefit of carrying out M&A

medium experienced M&A subsample over the inexperienced acquirer subsample. However, previous literature also points out that pursuing a vast number of transactions may prove disadvantageous beyond a certain point when negative effects of increased complexity and underestimating the challenges (i.e., post-merger integration) exceed the positive effects of organization M&A experience.<sup>549</sup> In such cases, extensive M&A activity might lead to a decreased post-M&A performance, which is consistent with our finding of second-order stochastic dominance of the acquirer subsample with medium M&A experience over the subsample of frequent acquirers. Accordingly, we summarize that, independent of the time scale, medium experienced acquirers in our sample, on average, dominate their non-acquiring benchmark firms and their inexperienced and experienced acquirer counterparts in the sense of second-order stochastic dominance. However, since this stands in conflict with earlier findings of Schertzing (2008) and our hypothesis H4, there is a need for further research on the influence of an acquirer's transactions experience on its post-M&A success.

**Table 28: Pairwise SD results: M&A inexperienced versus medium experienced versus experienced acquirers**

<b>Short-term</b>				
<b>ACQRTRANSEXP</b>	<b>Benchmark</b>	<b>Inexperienced</b>	<b>Medium Experienced</b>	<b>Experienced</b>
<b>Benchmark</b>	-	SD2	X	SD2
<b>Inexperienced</b>	X	-	X	X
<b>Medium Experienced</b>	X	X	-	X
<b>Experienced</b>	X	X	X	-

<b>Long-term</b>				
<b>ACQRTRANSEXP</b>	<b>Benchmark</b>	<b>Inexperienced</b>	<b>Medium Experienced</b>	<b>Experienced</b>
<b>Benchmark</b>	-	X	X	SD2
<b>Inexperienced</b>	X	-	X	X
<b>Medium Experienced</b>	SD2	SD2	-	X
<b>Experienced</b>	X	X	X	-

transactions on a frequent basis consists of the fact that frequent M&A transactions convey a positive signal to the market about future prospects of the acquiring firm and should consequently result in a higher stock price.

For classical references on the learning curve and the experience curve theory in economics, see for example, Hirschman (1964) and Henderson (1974), respectively.

<sup>549</sup> See Kusewitt (1995, p. 159 and 166) and Boesecke (2009, p. 120).

According to our hypothesis H5, we expect acquisitions of life insurance firms either to (weakly) outperform or perform in line with acquiring non-life insurers. Our long-term descriptive investigation provides support for the hypothesis of outperformance, as we detect a second-order dominance relationship of the life/health subsample and the multi-line subsample over the property/casualty insurer subsample (see Table 30). Acquirers belonging to the former two subsamples are also found to be much larger as compared to property/casualty insurers. Yet the typical target of a property/casualty insurer is also much smaller, and hence the average relative transaction value between the three acquirer subsamples does not differ significantly (see the descriptive statistics in Table 26). Moreover, our long-term comparison unveils that each acquirer subsample dominates its corresponding benchmark subsample in the sense of SD2. In contrast, our short-term findings are inconclusive with respect to the influence of an acquirer's line of business. On the one hand, our short-term results indicate that life/health acquirers being dominated by property/casualty insurers, but on the other hand, we simultaneously detect SD2 of the benchmark subsample over the property/casualty and over the multi-line subsample. These inconclusive results, however, are somewhat analogous to those found in previous event analyses. As shown in our literature review on the various influencing factors, earlier studies do not reach any significance, as they detect either insignificant positive (Floreani & Rigamonti, 2001; Schertzingler, 2008) or insignificant negative short-term CARs for life insurance acquirers (Akhigbe & Madura, 2001).

In conclusion, while our short-term descriptive comparison does not allow definite conclusions, the long-term investigation shows that the subsample of property/casualty insurance acquirers is dominated by both the life/health and the multi-line subsamples.



**Table 29: Pairwise SD results: life/health versus property/casualty versus multi-line acquirers<sup>550</sup>**

<b>Short-term</b>				
<b>ACQRLOB</b>	<b>Benchmark</b>	<b>Life/Health</b>	<b>Property/ Casualty</b>	<b>Multi-line</b>
<b>Benchmark</b>	-	X	SD2	SD2
<b>Life/Health</b>	X	-	X	X
<b>Property/Casualty</b>	X	SD	-	X
<b>Multi-line</b>	X	X	X	-

<b>Long-term</b>				
<b>ACQRLOB</b>	<b>Benchmark</b>	<b>Life/Health</b>	<b>Property/ Casualty</b>	<b>Multi-line</b>
<b>Benchmark</b>	-	X	X	X
<b>Life/Health</b>	SD2	-	SD2	X
<b>Property/Casualty</b>	SD2	X	-	X
<b>Multi-line</b>	SD2	X	SD2	-

#### 4.4.2.2 Characteristics of Target Companies

Hypothesis H6 deals with the relationship between the relative deal size, which is defined as the deal volume compared to an acquirer's market value at announcement and the success of an insurance transaction. As expected by hypothesis H6, small insurance transactions are found to underperform in the short run. Our SD comparison not only detects a second-order SD relationship of the benchmark portfolio over the portfolio of small transactions, but also reveals that the small transactions subsample is dominated by the other two subsamples of relative large and medium-sized transactions at second-order (see Table 31). Since our study detected that acquiring insurance firms, on average, are dominated by their non-acquiring benchmark firms shortly after announcing an M&A transaction (see Section 4.4.1.1), one could expect that this negative short-term market reaction is even more pronounced for acquirers who conduct transactions with large relative transaction volumes, that is, with higher relative importance of the deal, as these deals have a stronger impact on acquiring insurer's market value. However, as we detect the opposite relation, our results provide very strong support for a significant positive relationship between relative deal size and an acquirer's market performance in the short

<sup>550</sup> Note that 14 transactions (13.7%) are not included, as they do not fit in any of these previously mentioned acquirer categories.

term. In sharp contrast to these short-term findings, our long-term results show that the subsample of transactions with the largest relative deal volume is dominated by both the medium and small transactions subsamples in the sense of second-degree stochastic dominance. In addition, our descriptive comparison reveals that the medium relative deal size subsample second-order dominates its benchmark subsample (See Table 31). Previous event study research on the effects of insurance M&A fails to detect any significant long-term relationship between the relative deal size and the long-term financial performance of acquiring insurers.<sup>551</sup> It may be noted from the descriptive statistics in Table 26 that M&A with a higher relative transaction size are predominantly conducted by small insurance acquirers. The average acquirer belonging to the “large relative size” subsample has a pre-announcement market value of approximately €4.5 billion, whereas acquirers pursuing medium-sized or small-sized transactions, on average, have a market value of about €11.7 and €14 billion, respectively. In summary, consistent with previous insurance M&A literature, our descriptive comparison reveals a positive short-term relationship between the relative deal size and an acquirer’s subsequent financial performance. However, this positive short-term relationship vanishes over time and becomes negative in the long run. Long-term findings suggest that insurance acquirers “are better at handling M&A transactions with relatively smaller targets”<sup>552</sup> over a post-M&A period of several years. Possible theoretical explanations for this finding that have been put forward include diseconomies of scale and scope,<sup>553</sup> agency problems,<sup>554</sup> and organizational, administrative, and integration problems<sup>555</sup> arising from the large relative size of the target firm.

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<sup>551</sup> See Boubakri, Dionne, and Triki (2006) and Schertzing (2008).

<sup>552</sup> Schertzing (2008, p. 91). See also Boubakri, Dionne, and Triki (2006, p. 14).

<sup>553</sup> E.g., Katrishen and Scordis (1998) and Schertzing (2008) and the references therein.

<sup>554</sup> E.g., Boesecke (2009) and Shim (2011a) and the references therein.

<sup>555</sup> E.g., Berger and Ofek (1995, p. 55), Lamont and Polk (2001, p. 1718), and Boubakri, Dionne, and Triki (2006, p. 14).

**Table 30: Pairwise SD results: small versus medium versus large relative deal size**

<b>Short-term</b>				
<b>RESIZE</b>	<b>Benchmark</b>	<b>Small</b>	<b>Medium</b>	<b>Large</b>
<b>Benchmark</b>	-	SD2	SD2	X
<b>Small</b>	X	-	X	X
<b>Medium</b>	X	SD2	-	X
<b>Large</b>	X	SD2	X	-

<b>Long-term</b>				
<b>RESIZE</b>	<b>Benchmark</b>	<b>Small</b>	<b>Medium</b>	<b>Large</b>
<b>Benchmark</b>	-	X	X	SD2
<b>Small</b>	X	-	X	SD2
<b>Medium</b>	SD2	X	-	SD2
<b>Large</b>	X	X	X	-

To analyze the effect of another characteristic of target companies' on acquirers' financial performance, we split the sample of acquiring insurers according to their target firm's line of business. The average insurance company acquiring a bank has a market value on the announcement date of around €16.7 billion and is much larger than the average insurer that acquires a property/casualty insurer (MV of around €5.5 billion). Yet the relative transaction volumes between these two subgroups are almost identical, suggesting that target banks/financial services firms are also much bigger than target property/casualty insurance firms (see Table 26). As can be further seen from Table 26, the average acquirer size and the average transaction volume are quite similar between the subsample of acquirers buying life/health targets and the subsample of acquirers buying multi-line insurance targets. Previous evidence coming only from the evidence in Schertzingler's (2008) event study suggests that acquisitions of life insurance targets, on average, are more rewarding than acquisitions of targets operating in the non-life business. As illustrated below in Table 32, the results of our short-term and medium- and long-term stochastic dominance comparison confirm this hypothesis only partially. Using a short-term event window, the subsample of acquirers of multi-line insurance targets is second-order stochastically dominated by almost all other acquirer subsamples, that is, the property/casualty target subsample and the subsample consisting of insurers acquiring banks/financial services firms, as well as the benchmark subsample. In comparison, the medium- and long-term evidence is less conclusive and is heavily dependent on the exact time horizon

under analysis. According to the results presented in Table 32, insurance acquirers diversifying their business by acquiring a bank second-order stochastically dominate their benchmark and all other acquirer subgroups on a horizon of one year. However, this dominance relationship holds only for the year after the announcement, and after three years, these acquirers of banks/financial services firms are second-order stochastically dominated. Analyzing the SD relationship of the subsample of insurance acquirers announcing transactions of multi-line insurers reveals a similar dominance pattern. Measured over a medium-term horizon of one year following M&A announcement, acquirers of multi-line targets, on average, dominate acquirers of life/health targets and acquirers of property/casualty. Yet this dominance relationship is also reversed after three years following the transaction, as the subsample of acquirers of multi-line insurance targets is second-order stochastically dominated by the two subsamples of acquirers of life/health and property/casualty targets in the event window (0;+3Y). In contrast, the subsample of acquirers of life/health targets and especially the subsample of acquirers of property/casualty insurance targets second-order dominate their respective benchmark firm subsamples and (most of) the other acquirer subsamples on a long-term horizon of (0;+3Y), whereas they are both second-order stochastically dominated by the two subsamples of acquirers of bank targets and acquirers of multi-line targets on a one-year post-M&A horizon. Overall, our findings suggest that the effect of the determinant “relative deal size” is heavily depending on the time horizon chosen. Our findings can be interpreted as follows: On a short-term horizon, market returns to acquiring insurance firms are significantly lower for insurance transactions of multi-line insurance targets as compared to returns to non-acquiring benchmark insurers and to acquirers of banks/financial services firms and property/casualty targets. Examining acquirer returns over a one-year post-M&A period, acquisitions of banks/financial services firms and multi-line targets are more profitable than acquisitions of life/health and property/casualty insurance targets. From a theoretical standpoint, this positive medium-term outperformance might be primarily driven by speculation about potential future benefits and synergies resulting from an expansion into the multi-line insurance business and the banking business. However, as we also find that acquirers of banks/financial

services firms and multi-line targets are dominated by acquirers of life/health and property/casualty targets on a three-year post-M&A horizon, we can conclude that these potential benefits and synergies could either not be achieved or, if achieved, did not exceed the additional costs related to such an expansion.<sup>556</sup> This assumption will be tested in the next section, where we focus on the influence of industry relatedness on M&A success.

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<sup>556</sup> The epitome of such a performance trend and a well-fitting example is the acquisition of Dresdner Bank AG, one of Germany's leading banks, by the German insurer Allianz AG, which has been traditionally engaged in the insurance business. However, since the turn of the new millennium, Allianz has broadened its business focus through the acquisition of several financial services firms (i.e., the acquisition of Nicholas-Applegate in 2001 and the acquisition of stakes in PIMCO Advisors in 200, 2003, 2004, 2005, & 2008) and banks (i.e., Dresdner Bank AG & Bayerische Versicherungsbank in 2001). The acquisitions of Dresdner Bank AG, which was driven by an "illusive optimism" in the booming stock market in the late 1990s and early 2000s (Langenohl & Schmidt-Beck, 2004, p. 1), was by far the largest of these transactions by volume (not only for the German insurer itself, but also within our sample) and led to an outperformance of Allianz' benchmark peers in the short and medium term. However, after several years, the transaction became a fiasco for the German insurer. Allianz experienced an adverse stock market reaction and finally sold Dresdner Bank to Commerzbank in 2008 (with a total financial loss of more than €13.5 billion within seven years) and thereby shifted its focus back onto its traditional underlying business. Citibank (2008) summarized the engagement as follows: "The problem with Dresdner was that this represented an investment in an underperforming non-core business that Allianz was doing a poor job of managing. Having taken decisive action to exit Dresdner, the group now has a fairly "clean slate" to focus on the underlying business, and with potential to change perceptions if it can deliver on restructuring potential" (p. 1). The sale of Dresdner Bank, as stated by Citibank (2008), is viewed as a first step toward "rebuilding credibility, and in addressing the perception that Allianz is more interested in "empire building" than delivering shareholder value" (p. 5).

**Table 31: Pairwise SD results: life/health versus property/casualty versus multi-line versus banks/financial services targets<sup>557</sup>**

Short-term					
TARGETLOB	Benchmark	Life/Health	Property/Casualty	Multi-line	Banks/Fin. Services
Benchmark	-	X	X	SD2	X
Life/Health	X	-	X	X	X
Property/Casualty	X	X	-	SD2	X
Multi-line	X	X	X	-	X
Banks/Fin. Services	X	X	X	SD2	-

Long-term					
TARGETLOB	Benchmark	Life/Health	Property/Casualty	Multi-line	Banks/Fin. Services
Benchmark	-	X	X	X	X
Life/Health	SD2	-	X	SD2 (only Y3)	X
Property/Casualty	SD2 (only Y3)	SD2 (only Y3)	-	SD2 (only Y3)	SD2 (only Y3)
Multi-line	X	SD2 (only Y1)	SD2 (only Y1)	-	X
Banks/Fin. Services	SD2 (only Y1)	SD2 (only Y1)	SD2 (only Y1)	SD2 (only Y1)	-

#### 4.4.2.3 Characteristics of Transaction Structuring and Management

In addition to these various firm characteristics, we now present the results for the hypotheses on the various determinants of the transaction structuring and management phase. As can be seen from the descriptive statistics in Table 26 above, predominantly larger insurance acquirers strive for geographical diversification through M&A. Moreover, the majority of transactions in our final sample conduct cross-border M&A,<sup>558</sup> a finding that is not surprising given the fact that the “European market is segmented in various countries which obviously increases the likelihood of cross-border M&A,” as explained by Spiss (2008, p. 138). According to the general agreement of previous studies analyzing transactions of European acquirers, we expect geographic diversification to have a positive effect on acquirers’ post-merger performance. Our SD results strongly indicate that these geographically diversifying insurance transactions are significantly positive related to acquirers’ post-transaction performance, precisely the relationship to be expected in the European insurance market. As hypothesized, geographically diversifying M&A not only dominate their geographically focusing counterparts in the short- and medium-

<sup>557</sup> Note that 18 transactions (17.6%) are not included, as they do not fit in any of these previously mentioned target categories.

<sup>558</sup> Defined as “transactions where the acquirer and the target are headquartered in two separate countries” (Spiss, 2008, p. 118).

and long-term, these transactions also lead to a dominant long-term performance compared to the corresponding non-acquiring benchmark insurance firms (Table 33). The positive market reaction is consistent with earlier literature on insurance M&A, suggesting that geographic expansion leads to expectations of increasing benefits for European acquirers.<sup>559</sup> Beyond that, the subsample of geographically focusing transactions is found to be second-order dominated by their benchmark firm subsample in the short run, which further confirms the validity of hypothesis H8. Based on our findings, one can argue that benefits of international diversification, such as synergies arising from intangible and information-based assets (Conn et al., 2005) and portfolio diversification (Markides & Ittner, 1994), are realized and outweigh potential harms and costs<sup>560</sup> of geographic expansion.

**Table 32: Pairwise SD results: geographically focusing versus geographically diversifying transactions**

<b>Short-term</b>			
<b>GEOGRFOC</b>	<b>Benchmark</b>	<b>Focusing</b>	<b>Diversifying</b>
<b>Benchmark</b>	-	SD2	X
<b>Focusing</b>	X	-	X
<b>Diversifying</b>	X	SD2	-

<b>Long-term</b>			
<b>GEOGRFOC</b>	<b>Benchmark</b>	<b>Focusing</b>	<b>Diversifying</b>
<b>Benchmark</b>	-	X	X
<b>Focusing</b>	X	-	X
<b>Diversifying</b>	SD2	SD2	-

Moreover, the transactions in our final sample are subdivided according to the industry focus into industry-focusing and industry-diversifying transactions. The

<sup>559</sup> See, e.g., Floreani and Rigamonti (2001), Cummins and Weiss (2004), and Schertzing (2008).

<sup>560</sup> Possible drawbacks of cross-border M&A comprise increased governance costs due to complexity that may exceed the capacity of the management team (Jones and Hill, 1988), financial and political risks from currency fluctuations, and legal and regulatory changes (Brewer, 1981), and costs arising from cultural and environmental differences (Spiss, 2008). Yet Spiss (2008) somewhat weakens his own argument by stating that “cultural problems are becoming less of a problem due to the creation of global markets. Hence, CBAs [cross-border acquisitions] are more likely to result in value creation” (p. 112).

industry focus of the 102 M&A transactions is almost equally split between the subsample of industry-related transactions and the subsample of industry-unrelated transactions. Furthermore, the average acquirer MV at announcement, the average transaction value, and the relative deal value between these aforementioned two subsamples are almost identical (see descriptive statistics in Table 26). From a theoretical standpoint, there are several arguments supporting related M&A transactions and arguments favoring industry diversification. On the one hand, synergies are expected to be larger and easier to realize in related than in unrelated M&A (see, e.g., Spiss, 2008, p. 102, who refers to Hazelkorn et al., 2004),<sup>561</sup> and cross-industry transactions “may aggravate agency problems by allowing cross-subsidization to poor subsidiaries” (Shim, 2011b, p. 124; see also the references therein). On the other hand, scholars such as Spiss (2008) and Shim (2011b) also present pro-conglomeration arguments that range from risk reduction due to a broader business range to financial synergies and economic benefits from internal capital markets and lower capital costs (see also Weidenbaum & Chilton, 1988; Gertner, Scharfstein, & Stein, 1994; Stein, 1997; Schertzing, 2008; Boesecke, 2009). Yet there is a broad consensus in previous event studies that industry-focusing transactions lead to a significant positive market reaction shortly around M&A announcement (e.g., Floreani & Rigamonti, 2001; Cummins & Weiss, 2004; Schertzing, 2008) and may even lead to insignificant value creation in the long run (Boubakri, Dionne, & Triki, 2006; Schertzing, 2008), whereas industry diversification, on average, leads to negative short-term abnormal returns and destroys value of the acquiring insurer in the long run. Consequently, we hypothesized that industry-related transactions stochastically dominate industry-diversifying ones. However, contrary to this expectation, our descriptive comparison outlines a second-order dominance relationship of the subsample of industry-diversifying insurance acquirers over the subsample of

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<sup>561</sup> Boesecke (2009, p. 72) specifies this point by highlighting that “[a]ccording to efficiency theory, operational synergies that stem from economies of scale and scope may be realized in related transactions. Managerial and financial synergies are the primary motive for unrelated transactions, but are also achievable in related mergers. Another type of synergy that may be realized in related M&A transactions, namely collusive synergy, is explained by the monopoly theory.



industry-focusing insurance acquirers (Table 34). In addition, our short-term comparison reveals second-order dominance of the benchmark subsample over the industry-focusing subsample, which further underpins the short-term dominance of industry-diversifying transactions in our European sample. The long-term SD results, however, are not conclusive and do not allow for any directional causal inference. On the one hand, the subsample of industry-focusing transactions dominates its benchmark subsample, while simultaneously being dominated by the subsample of industry-diversifying transactions. Our long-term findings, hence, emphasize the need for a more differentiated analysis of the influence of this determinant, taking greater account to both geographic and industry dimensions. This has been done by linking the industry dimension with the geographical dimension (see the next paragraph).

**Table 33: Pairwise SD results: industry-focusing versus industry-diversifying transactions**

<b>Short-term</b>			
<b>INDFOC</b>	<b>Benchmark</b>	<b>Focusing</b>	<b>Diversifying</b>
<b>Benchmark</b>	-	SD2	X
<b>Focusing</b>	X	-	X
<b>Diversifying</b>	X	SD2	-

<b>Long-term</b>			
<b>INDFOC</b>	<b>Benchmark</b>	<b>Focusing</b>	<b>Diversifying</b>
<b>Benchmark</b>	-	X	X
<b>Focusing</b>	SD2	-	X
<b>Diversifying</b>	X	SD2	-

To bring further clarity to the performance effect of the industry and geographical dimensions, we combine these two variables into a single construct. For this purpose, we divided the sample according to the geographical and industrial orientation of each transaction into a subsample of full focusing transactions, a subsample of fully diversifying M&A and a third subsample of either geographically focusing and industry-diversifying or geographically diversifying and industry-focusing transactions, which in the following is denoted as the mixed subsample. In general, full-focusing acquirers

tend to be significantly smaller than their diversifying counterparts (approximately half of the size).<sup>562</sup> However, as can also be seen from Table 26, the mean relative transaction value of the full-focusing subsample is not significantly different from the one of the other two subsamples. Based on the earlier findings of Schertzingers (2008) European study, hypothesis H10 suggests that insurers who pursue a full diversification strategy increase short-term and long-term shareholder value and hence stochastically dominate their competitors that follow other strategies. The evidence of our SD comparison is clearly supportive of this hypothesis H10. Second-order stochastic dominance of the full-diversifying acquirer portfolio over the full-diversifying and mixed portfolio is found in the short-term and medium- and long-term SD investigation. In addition, full-diversifying acquirers, on average, second-order dominate non-acquiring benchmark insurers in the medium and long run. Further confirmation of the dominance of a full diversification strategy comes from our short-term analysis, which uncovers a second-order dominance relationship of the benchmark portfolio over both the full-focusing and the mixed portfolios on the days after the M&A announcement, whereas no dominance relationship was found between the return distributions of the full-focusing portfolio and the corresponding benchmark portfolio. An overview of these results can be seen in the following Table 35.

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<sup>562</sup> For example, the average acquirer size of full-focusing insurers is around €6,763 million as compared to an average acquirer size of €11,765 million for full-diversifying insurers.

**Table 34: Pairwise SD results: full-focusing versus full-diversifying versus mixed transactions**

<b>Short-term</b>				
<b>STRATEGICDIRECT</b>	<b>Benchmark</b>	<b>Full Focusing</b>	<b>Full Diversifying</b>	<b>Mixed</b>
<b>Benchmark</b>	-	SD2	X	SD2
<b>Full Focusing</b>	X	-	X	X
<b>Full Diversifying</b>	X	SD2	-	SD2
<b>Mixed</b>	X	X	X	-

<b>Long-term</b>				
<b>STRATEGICDIRECT</b>	<b>Benchmark</b>	<b>Full Focusing</b>	<b>Full Diversifying</b>	<b>Mixed</b>
<b>Benchmark</b>	-	SD2	X	X
<b>Full Focusing</b>	X	-	X	X
<b>Full Diversifying</b>	SD2	SD2	-	SD2
<b>Mixed</b>	X	X	X	-

Hypothesis H11 refers to the influence of an acquirer's pre-merger participation in the target before announcement and states that, in the short term, transactions where the acquiring insurance company has a pre-M&A participation in the target outperform transactions in which there is no pre-M&A business relationship between acquirer and target. The evidence herein is also clearly supportive of hypothesis H11, as the subsample of acquirers with no pre-M&A business relationship is second-order dominated by the subsamples of acquirers having a business relationship with the target before announcement and the subsample of benchmark insurers subsequent to the M&A announcement (see Table 36). In contrast, no dominance relationship between any two subgroups was observed in our SD comparison over a medium- and long term horizon. Previous event study research does not address this issue. Interestingly, only around 20% of all acquirers have a business relationship with the target before announcement and these acquirers are mainly large insurance companies (see Table 26 above). Overall, if acquirers have a business relationship with the target firm before M&A announcement, the acquiring firm is expected to experience a positive abnormal market reaction to the announcement of such a transaction. This positive market reaction can be theoretically justified by lower total cost of the M&A transaction for acquirers

and a higher level of success in the transaction and integration process.<sup>563</sup> However, this positive valuation effect disappears over time and, in the long run, there are no performance differences between the various subgroups.

**Table 35: Pairwise SD results: pre-M&A participation versus no pre-M&A participation**

<b>Short-term</b>			
<b>PREM&amp;PART</b>	<b>Benchmark</b>	<b>Pre-M&amp;A Participation</b>	<b>No Pre-M&amp;A Participation</b>
<b>Benchmark</b>	-	X	SD2
<b>Pre-M&amp;A Participation</b>	X	-	SD2
<b>No Pre-M&amp;A Participation</b>	X	X	-

<b>Long-term</b>			
<b>PREM&amp;PART</b>	<b>Benchmark</b>	<b>Pre-M&amp;A Participation</b>	<b>No Pre-M&amp;A Participation</b>
<b>Benchmark</b>	-	X	X
<b>Pre-M&amp;A Participation</b>	X	-	X
<b>No Pre-M&amp;A Participation</b>	X	X	-

A further strategic M&A factor that has been commonly studied in previous insurance M&A literature is the method of payment. In our final sample, most acquisitions are paid either exclusively with cash or with a combination of cash and stock (denoted as mixed payment). As argued by Spiss (2008), the numerical dominance of cash-financed transactions compared to stock-financed transactions might result from the fact that “practitioners have learned that cash-financed deals tend to outperform stock financed ones” (p. 138). However, as further elaborated on by the author, “[t]his number [...] might be misleading as it does not indicate the volume of the transactions which used cash or equity” (Spiss, 2008, p. 138). This is exactly the case in our data sample. Acquirers paying solely with cash and acquirers using all-stock payment are almost of equal size. Yet the average deal volume and the average relative deal volume of the all-stock transactions are more than two times larger than the respective values of all-cash transactions. Out of this, we conclude that cash as a means

<sup>563</sup> For a comprehensive elaboration on these arguments, see Sudarsanam (2010, p. 631).

of payment is primarily used in smaller deals that are less cash intensive, while larger acquisitions are predominantly financed with stock swaps or a mix of cash and stocks. A similar conclusion is also reached by Floreani and Rigamonti (2001) for their global sample of pure insurance transactions. In the existing insurance M&A literature, previous short-term event studies so far fail to provide any significant results concerning the influence of the form of payment on acquirers' post-M&A performance, and hence hypothesis H12 proposes that the form of payment does not have a significant impact on acquirers' subsequent post-M&A performance. Contrary to this hypothesis, a second-order dominance relationship of the various subsamples (i.e., all-cash subsample, the subsample of transactions financed by a mixture of cash and equity, and the subsample of non-acquiring benchmark insurers) over the subsample of all-stock financed transactions is observed in our European insurance sample, not only over the short-term but also over the medium- and long-term follow-up period. Short-term and medium- and long-term returns are more pronounced for acquisitions paid with cash rather than for stock payment deals. In addition, the subsample of cash-financed transactions is second-order dominant of its benchmark subsample (in the long-term analysis), and the subsample of transactions financed with a mixture of cash and stock is second-order dominated by the subsample of benchmark insurers (see Table 37). Accordingly, our SD results provide support for the outperformance of all-cash financed transactions, independent of the time interval chosen for estimating the performance effects. However, it has to be noted that our study is not able to prove these results by a statistical correlation analysis. Therefore, there is a risk that the determinant "method of payment" has no explanatory power with respect to the outcome of M&A transactions at all, and instead the outperformance of M&A deals paid by cash might be due to other factors, such as the smaller relative deal size of transactions in the "cash-payment" subgroup (see the descriptive statistics in Table 26). Assessing the significance of this determinant would, however, only be possible by performing a multivariate analysis. Yet, despite this possible criticism of our work, the finding of a superior performance after the announcement of cash-financed transactions is not

uncommon in previous M&A literature in other industries.<sup>564</sup> Moreover, there are a number of theoretical arguments that lead to similar predictions concerning the correlation of the method of payment in an M&A transaction and an acquirer's financial post-M&A performance. For example, financial literature has shown that the method of payment is most often interpreted by the market as a signal of the financial condition and insiders' valuation of the acquiring and target firms. Due to market imperfections resulting from information asymmetries with respect to the true value of the involved firms, acquiring firm's managers "will tend to finance the acquisition with the [cheapest and] most convenient mean."<sup>565</sup> Accordingly, they are more likely to choose payment via stock if their stock is overvalued (as this is the cheaper method), whereas they will prefer cash payment when their company's shares are undervalued.<sup>566</sup> As a result of this signaling effect, an acquiring firm's stock price is expected to decline in response to an announcement of a stock-financed M&A and to rise after the announcement of a cash-financed M&A transaction. In the M&A literature, various authors argue that those transactions that bear significant synergy potential are preferably financed by cash because then all potential synergy gains from combining the two entities can be reaped solely by the acquirer.<sup>567</sup> Moreover, as argued by Myers and Majluf (1984) and Jensen (1988), if the acquiring company has a substantial amount of excess cash, conducting a cash-financed transaction is considered as the lesser evil as compared to the investment in other unprofitable projects and will ultimately lead to a positive (or at least less negative) financial performance. Thus, despite the contrary evidence of previous short-term event studies on M&A in the insurance industry, the broader empirical literature (not restricted to the insurance sector), as well as theoretical rationales explaining why the

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<sup>564</sup> E.g., Asquith and Mullins (1986), Franks, Harris, and Mayer (1988), Salami (1994), Dodds and Quek (1995), and Loughran and Vijh (1997). See also the meta-analysis of Datta, Pinches, and Narayanan (1992), in which the authors conclude that all-stock transactions, on average, are wealth-reducing events for both acquiring and target firm shareholders.

<sup>565</sup> Floreani and Rigamonti (2001, p. 7). See also Myers and Majluf (1984, p. 189), Gregory and Matatko (2005, p. 9), and Boesecke (2009, p. 35) and the references therein.

<sup>566</sup> See, e.g., Myers and Majluf (1984), Seidel (1995), Floreani and Rigamonti (2001), and Boesecke (2009). As pointed out by Rigamonti (2001, p. 8), the same logic applies to managers of the target firm, which prefer to receive cash in case their firm is being overvalued by the market.

<sup>567</sup> E.g., Kerler (1999) and Wuebben (2007).

announcement of pure cash M&A might probably lead to a positive abnormal market reaction, provide a solid foundation for the assumption that all-cash transactions on average outperform all-stock transactions.

**Table 36: Pairwise SD results: cash versus stock versus mixed payment**

<b>Short-term</b>				
<b>MTHDOFPAYMENT</b>	<b>Benchmark</b>	<b>Cash</b>	<b>Stock</b>	<b>Mixed</b>
<b>Benchmark</b>	-	X	SD2	SD2
<b>Cash</b>	X	-	SD2	X
<b>Stock</b>	X	X	-	X
<b>Mixed</b>	X	X	SD2	-

<b>Long-term</b>				
<b>MTHDOFPAYMENT</b>	<b>Benchmark</b>	<b>Cash</b>	<b>Stock</b>	<b>Mixed</b>
<b>Benchmark</b>	-	X	SD2	X
<b>Cash</b>	SD2	-	SD2	X
<b>Stock</b>	X	X	-	X
<b>Mixed</b>	X	X	SD2	-

#### 4.4.2.4 Influences of the Economic Environment

Following Schertzing (2008), this study also divides the sample based on the timing of the transaction with regard to the phase in the M&A cycle. Accordingly, all transactions are split into a subsample of transactions that were announced during a weak phase of the M&A cycle and transactions announced during a phase of strong M&A activity.<sup>568</sup> We see from the descriptive statistics in Table 26 that no major differences in terms of the number of transactions conducted, mean acquirer size, mean absolute deal size, and relative deal size exist between both subsamples. Previous evidence coming from Schertzing's (2008) event study on the European insurance market suggests that M&A transactions in the upswing and peak phase of the M&A cycle produce significant positive short-term abnormal returns to acquirer shareholders,

<sup>568</sup> Note that Schertzing subdivides his data sample into four different phases of the M&A cycle, namely upswing, peak, downturn, and bottom. However, in our case, adopting this four-phase classification scheme would result in two relatively small subsamples (only five transactions would fall into the upswing subsample and 17 into the downturn subsample), which would not allow for reliable conclusions due to the small sample size. Schertzing (2008) faces the same problem of a set of transactions that is too small (the upswing subsample only comprises 16 transactions and the downturn one only 15 transactions), however, and still makes use of the four-category scheme.

whereas the market reaction to M&A transactions announced in the bottom phase of the cycle is significant negative. Hence, we hypothesize that strong phase transactions dominate weak phase M&A transactions in the announcement period. Our short-term SD comparison, however, provides no support for this conjecture, as no dominance relationship between any two subsamples, that is, the two M&A-phase subsamples and its respective benchmark subsamples, is found (see Table 38). Consequently, there are no significant performance differences related to the specific phase of the M&A cycle. Over a medium- and long-term horizon, however, our SD results send a clear and unmistakable message: Transactions announced in the strong phase of an M&A cycle outperform weak phase M&A transactions. As seen in Table 38, the buy-and-hold return distribution of transactions announced during phases of strong M&A activity is first-order stochastic dominant over the buy-and-hold return distribution of transactions announced during phases of weak M&A activity.<sup>569</sup> Consequently, with regard to the long-term influence of this determinant, the findings of Schertzingers (2008) calendar-time approach can be confirmed. All in all, there is no empirical evidence for the so-called “bandwagon effect” in our European insurance sample.

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<sup>569</sup> Note that first-order stochastic dominance also implies stochastic dominance of any higher order, such as second-order (see section 4.3.1.3 for an elaboration of the first two orders of stochastic dominance).



**Table 37: Pairwise SD results: weak M&A market versus strong M&A market transactions**

<b>Short-term</b>			
<b>M&amp;ACYCLE</b>	<b>Benchmark</b>	<b>Weak M&amp;A Market</b>	<b>Strong M&amp;A Market</b>
<b>Benchmark</b>	-	X	X
<b>Weak M&amp;A Market</b>	X	-	X
<b>Strong M&amp;A Market</b>	X	X	-

<b>Long-term</b>			
<b>M&amp;ACYCLE</b>	<b>Benchmark</b>	<b>Weak M&amp;A Market</b>	<b>Strong M&amp;A Market</b>
<b>Benchmark</b>	-	X	X
<b>Weak M&amp;A Market</b>	X	-	X
<b>Strong M&amp;A Market</b>	X	SD1	-

In addition to subdividing transactions based on the particular phase of the M&A cycle, it is possible to investigate the timing of the transaction with regard to the phase of the economic cycle. In general, economic theory suggests that most transactions conducted in periods of below-average economic growth create more value than their above-average counterparts. For example, the global management consulting company Accenture gives three theoretical reasons for the superiority of weak-economy mergers over strong-economy ones.<sup>570</sup> Foremost, in times of economic downturn, firms that are in less favorable financial positions face capital constraints that hinder them from engaging in M&A transactions. Hence, the authors expect lower premiums for M&A transactions as a consequence of less competition. However, a recent study conducted by The Boston Consulting Group (2009a) documents the contrary: Premiums in transactions that were conducted during the weak-economy years of 2008 and 2009 have been above those paid in previous strong-economy periods. Secondly, because of lower target market values, Accenture suggests that acquisitions in downturns can be used to strengthen a company's competitive position as well as to gain market share and leadership in the industry. However, looking at the strong market position of some of the

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<sup>570</sup> Ficery et al. (2008, p. 2).

acquiring insurance companies<sup>571</sup> in our sample, this argument is of little importance for these large insurance acquirers. Thirdly, since companies' market capitalizations are generally lower in periods of weak economy, targets can be acquired at considerably lower purchase prices. While this argument is generally true, it may not necessarily apply for all insurers. Value creation does not only come from "buying low and selling high," as stated by The Boston Consulting Group (2008c, p. 8). It is rather derived from unlocking hidden fundamental value through operational improvements, such as improving cash-flow margins and asset productivity. The acquisition price paid for the target is hence not the most important success factor in deciding the outcome of an M&A transaction. The key success factor is to turn relatively unprofitable targets into economically successful entities by improving the operational performance of the acquired firms. Since the turnaround of financially and operationally weak targets is much easier in a strong market environment, as pointed out by The Boston Consulting Group (2003), one could also expect dominance of strong-economy mergers over weak-economy ones. Furthermore, the assumption of perfect capital markets does not always hold true in reality. For example, Epstein (2005, p. 41) assumes that structural and economic cycle factors distort the perception of the acquisition. Consequently, these effects could cause favorable weak-economy acquisitions to appear unsuccessful and unfavorable strong-economy transactions to result in a positive market reaction. As none of the studies in our final sample investigate the timing of the transaction with respect to the economic cycle, we did not posit a hypothesis about this influence. However, we decide to investigate this issue in a further subanalysis. Transactions are hence separated into those announced in years of below-average GDP growth in the euro area and those announced in years of below-average GDP growth.

From the total sample, 76 transactions (or around 75% of all transactions in the sample) were announced in times of above-average GDP, and 26 transactions (equaling 25% of the total sample) were announced in times of below-average GDP growth. Also, the average acquirer MV and the average transaction value

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<sup>571</sup> E.g., Allianz, AXA, ING, Generali, Zurich, and AVIVA.

in the strong phase of the economic cycle exceeded the corresponding values of transactions announced in the weak phase of the economic cycle by far.<sup>572</sup> However, differences in these values between the two subsamples are obviously attributed to a higher/lower stock market valuation for the involved firms, since the average sizes of the acquirer and the target both decrease proportionally (this conclusion results from the fact that the average relative deal volume between acquirer and target is similar between both GDP growth subsamples). Looking at the results of the SD comparison, we do not find any first- or second-order stochastic dominance relationships among the two acquirer portfolios, that is, the portfolio of acquirers conducting M&A transactions in periods of below-average GDP growth and the portfolio of above-average GDP growth acquirers, neither in the short-term nor in the long-term investigation. However, second-order dominance holds in several cases when comparing the daily return distribution of either of the two acquirer portfolios with the daily return distribution of the corresponding benchmark portfolio. In half of the tested short-term event windows, we detect a second-order dominance relationship of the benchmark subsample over both the below-average GDP growth portfolio and the above-average GDP growth portfolio, whereas in the other half of the tested event windows, we fail to detect any dominance relationship. Consequently, there seems to be no difference in the return distribution of the below-average GDP growth acquirer portfolio and the benchmark portfolio. Moreover, with the exception of the event window (0;+2Y), in which the below-average GDP growth subsample second-order dominates its corresponding benchmark subsample, we do not find any dominance relationship between any two subsample return distributions in the long run. In conclusion, our descriptive dominance comparison does not detect significant performance differences that are attributed to the economic condition at the time of the M&A transaction (see Table 39).

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<sup>572</sup> Below-average GDP growth deals: 26 announced transactions with an average transaction volume of €923 million; average acquirer MV at announcement of €4,363 million. Above-average GDP growth deals: 76 transactions with an average deal volume of €2,898 million and an average acquirer MV at M&A announcement of €12,942 million.

**Table 38: Pairwise SD results: below-average GDP growth versus above-average GDP growth transactions**

<b>Short-term</b>			
<b>ECONCYCLE</b>	<b>Benchmark</b>	<b>Below-avg GDP Growth</b>	<b>Above-avg GDP Growth</b>
<b>Benchmark</b>	-	SD2 (in 3/4)	SD2 (in 2/4)
<b>Below-avg GDP Growth</b>	X	-	X
<b>Above-avg GDP Growth</b>	X	X	-

<b>Long-term</b>			
<b>ECONCYCLE</b>	<b>Benchmark</b>	<b>Below-avg GDP Growth</b>	<b>Above-avg GDP Growth</b>
<b>Benchmark</b>	-	X	X
<b>Below-avg GDP Growth</b>	SD2	-	X
<b>Above-avg GDP Growth</b>	X	X	-

#### **4.5 Summary of the Findings of the Empirical Analysis**

In line with findings of most prior studies, acquisitions in the European insurance industry cause a negative market reaction for acquiring insurer's shareholders, as we find stochastic dominance of a benchmark portfolio over the acquirer portfolio in various short-term event windows shortly after the announcement of the transaction. However, this underperformance diminishes over time and we do not find a dominance relationship in one, two, and three years following the M&A announcement. Quite contrary to the negative long-term findings of Schertzing (2008), long-term BHARs of acquiring firms are generally higher than those of their non-acquiring counterparts, independent from the long-term time horizon. Hence, our long-term results provide evidence for the success of M&A in the insurance industry, as shareholders of acquiring insurance companies on average will not suffer any negative impacts from engaging in M&A in the long run.

Looking at the various potential influencing factors of M&A success, our findings can be summarized as shown in Figure 20.

<b>Short-term</b>	+ Dominance				
	No Dominance	Large relative size of target	Large acquirers Positive growing acquirers Industry diversification Pre-M&A participation Above mean GDP growth transactions Peak/Upswing of M&A cycle Bottom/Downturn of M&A cycle	Small acquirers Medium M&A experience Life/Health acquirers Life/Health targets Property/Casualty targets (Y3) Banks/Financial Services targets (Y1) Geographic diversification Full diversification Cash payment	
	- Dominated	Most M&A experience Full focus Stock payment	M&A transactions Negative growing acquirers No M&A experience Multi-line insurance targets Small relative deal volume Geographic focus Mixed industry/geographic transactions No pre-M&A participation Mixed payment		Multi-line insurance acquirers Property/Casualty acquirers Medium relative deal volume Industry-focusing transactions Below mean GDP growth transactions
		- <b>Dominated</b>	<b>No Dominance</b>	<b>Dominance</b> +	
		<b>Long-term</b>			

**Figure 20: Comparison of influence of determinants of insurance M&A success depending on time horizon**

Interestingly, with the exception of the determinant “large relative size of the target,” we do not find any other determinant that resulted in a non-negative short-term abnormal stock market reaction and simultaneously led to underperformance in the long run. Yet, the assumption that a negative relative short-term market reaction is a harbinger for long-term wealth destruction would be a false conclusion. Even though several determinants are found to experience a negative short-term market reaction and simultaneously lead to value destruction for the shareholders of the acquiring firm in the long run, this general conclusion does not hold true for the majority of investigated determinants. A number of determinants such as “multi-line insurance acquirers,” “property/casualty acquirers,” and “industry-focusing transactions”

showed a negative relative performance in the short run, while their long-term relative price performance was positive, leading to a dominance of these transactions.

The following determinants, which did not lead to a short-term underperformance of the acquiring firm while leading to an outperformance in the long run, were identified as value drivers in European insurance M&A: “small acquirers,” “medium M&A experience,” “life/health acquirers,” “life/health targets,” “geographic diversification,” “full diversification,” and “cash payment.” Conversely, European insurance acquirers that have extensive M&A experience, conduct focus-enhancing transactions, or use their stocks as a means of payment exhibited an underperformance, not only during the announcement period, but also during the years following the announcement.

The most important findings concerning the effect of the various success factors in European insurance M&A transactions can be summarized as follows:

- In line with findings of previous insurance M&A literature, small insurance acquirers regularly outperform large insurance acquirers and their non-acquiring counterparts.
- Fast-growing acquirers not only dominate slow-growing acquirers in the long run, but also shortly after the announcement.
- While M&A experienced and inexperienced insurance acquirers, on average, perform worse than non-acquiring insurers, medium experienced acquirers perform significantly better in the years following M&A activity. These findings, however, contrast with those obtained by Schertzing (2008) and hence call for further research on this determinant.
- Our empirical study provides further support for the hypothesis that large insurance transactions stochastically dominate small transactions in the short run. Moreover, we show that this dominance relationship is reversed in the long run, as we detect SD2 of all portfolios, that is, the benchmark and the small and medium-sized acquirer portfolio over the portfolio consisting of large insurance acquirers.
- In the European insurance industry, geographically diversifying and full-diversifying acquirers are rewarded by the market. This observation is

independent from the time horizon under consideration and has also been a consistent finding in previous studies that have investigated the influence of this variable in a European insurance context.

- Consistent with the findings of previous insurance M&A research, transactions in which acquirer and target have a business relationship before the M&A transaction considerably outperform transactions without a pre-M&A participation shortly after M&A announcement. Moreover, the finding of SD2 of the benchmark portfolio over the “no pre-M&A participation” portfolio provides further empirical support for this conclusion. However, this outperformance disappears over time, and there are no performance differences between the various subgroups in the long run.
- In contrast to findings of the extant insurance M&A literature, which fails to find any significant relationship between M&A success and the method of payment, we detect a strong and consistent negative relationship between stock payment and acquirers’ M&A success (in the short, medium and long term). European insurance acquirers that use stocks as a means of payment generally perform significantly worse than non-acquiring insurance firms and acquirers using other forms of payment.
- With regard to the timing of transactions, our results clearly show that M&A transactions that have been conducted in the strong phase of the M&A cycle outperform weak phase M&A transactions over a one- to three-year period.

## 5 Conclusion

### 5.1 Summary

While there are numerous papers outlining the theoretical advantages of insurance M&A transactions, the empirical literature so far has not corroborated the alleged benefits of insurance M&A activity. The ultimate success of insurance M&A transactions is either widely unknown or previous studies have come up with conflicting results. Hence, the objective of this work is to better understand the previous findings concerning the success of insurance M&A. To address this issue, we break down the general research purpose into four research questions. With respect to the first research question, we discuss and evaluate the various ways of defining and measuring M&A success. On the basis of this evaluation, we develop a research cluster that enables us to categorize earlier studies according to the methodology used. The purpose of this division into various streams of research is to examine whether differences in the ways of measuring M&A success may (at least partly) account for the mixed and contradictory results of previous research. We identify four general streams of research. The first stream comprises papers that rely on accounting data and make use of different accounting ratios and financial performance indicators. The second stream focuses on efficiency changes following insurance transactions. Through the analysis of the linkage between frontier efficiency and market-value performance, studies from the third research stream measure the relationship between stock market returns and efficiency. The fourth and last stream of research contains several investigations applying the event study approach to evaluate post-merger stock market reactions of the involved companies. The third objective of this work is to address the impact of M&A transactions on the involved insurance companies. We firstly provide an overview of the findings of previous literature regarding the short-term and medium- and long-term success and then conduct a capital market analysis that is based on the previous scientific findings. Overall, the extant capital market literature on the success of insurance M&A transactions suggests that deals are economically viable. Yet, evidence suggests that the success of insurance M&A transactions might depend on the time horizon of analysis (that is, short-term and long-term) and might also be different across regions (that is, across



Europe and the United States). In general, insurance acquirers from the United States experience small positive abnormal stock returns around the time of an M&A announcement, whereas European acquiring insurance companies suffer small negative abnormal stock price changes. Given the findings that targets (independent from the geographical dimension) simultaneously earn strong positive short-term returns, the combined valuation effect of target and acquirer is also positive on average. Analyzing the success of 102 transactions conducted by publicly traded Western European insurance companies between the years 1993 and 2009, our study supports the results of earlier short-term event studies, as we detect that the acquirer portfolio is second-order dominated by a portfolio consisting of benchmark insurance firms that did not engage in M&A. In our European sample, this underperformance, however, diminishes over time, and over a medium- and long-term horizon, no dominance relationship between these two portfolios is found. Our findings hence neither support Schertzinger's (2008) earlier findings of a significant negative relationship between M&A activity and acquiring insurers' financial performance in the European insurance market nor the positive relationship that was found by Boubakri, Dionne, and Triki (2006) in their sample of US acquiring insurance firms. These mixed and inconclusive results, together with the finding of earlier studies that suggest that the average M&A effect is not very representative, raise the question: Which factors typically influence the outcome of insurance M&A transactions? We deliver an answer to this research question by first summarizing and organizing findings from the extant literature and then performing an empirical study on the influence of these previously identified determinants in explaining the success of M&A in the European insurance market. Our analysis, which uses the idea of stochastic dominance for evaluating insurance M&A, is able to verify many earlier findings. For example, the expectation of a positive relationship between the success of European insurance M&A and determinants such as the growth of acquirers, geographical diversification, full diversification, and pre-M&A participation—or the negative relationship of determinants such as acquirers' size and relative size of the target—is confirmed by our calculations. However, for some other determinants, namely M&A experience and industry relatedness, our findings do not support the underlying hypotheses derived from the literature review. Given that the

large majority of our findings are similar to those reported by previous papers on the success of insurance M&A, we suppose that we have received accurate and meaningful results. In conclusion, based on the accumulated evidence from past empirical studies, as well as our own analysis, we can state that M&A transactions in the European insurance industry that are conducted by small, fast-growing life/health acquirers, on average, perform significantly better than transactions conducted by large, slow-growing property/casualty acquirers, respectively. Moreover, geographical diversification, full diversification (i.e., industry and geographical diversification), and (in the short term) pre-M&A participation are associated with higher returns. In addition, empirical research points to an outperformance of insurance transactions announced in phases of strong M&A activity as compared to weak-phase M&A transactions.

## **5.2 Limitations**

There are, however, several points of criticism and limitations that must be considered when interpreting the results of the underlying investigation.

First, and above all, the use of capital market data and success metrics relying on such data could be generally criticized. We decided to evaluate the success of insurance M&A from the perspective of acquiring firms' shareholders and defined success accordingly. Consequently, we chose to adopt a capital market-based approach and thereby placed the interests of shareholders above those of other constituents. Besides the criticism of neglecting the interests of other key stakeholders, we have to deal with other well-known weaknesses of this approach, ranging from the requirement of firms being publicly quoted to the assumption of semi-strong market efficiency (see Table 4 in Chapter 2.3.2.2.2). In the short-term study, we have to face the problem that stock price changes are primarily based on the expectations of investors and other market participants regarding the future cash flow implications of this business combination and not on realized cash flows. As outlined earlier, this can be mitigated by extending the event window, which however exaggerates the problem of a possible overlay of other events unrelated to a specific M&A transaction. Yet, our study not only controls for industry-specific confounding

factors by using a sophisticated benchmark (see Section 4.3.5.2), but also for various company-specific confounding factors by adjusting all stock market series of the involved insurance firms for quotation changes, dividend payments, rights issues, and stock splits (see Section 4.3.9). Moreover, due to the research design, our empirical analysis is not able to account for detailed specifics of individual M&A transactions. However, this is not the objective of our investigation. Instead, we examine whether it is possible to obtain generally applicable statements regarding the success of insurance M&A and the influencing factors.

Second, criticism can be leveled at the descriptive SD approach applied in this work. Using a descriptive comparison design to investigate stochastic dominance has the disadvantage of a strong influence of the standard error and hence of a high rate of wrong rejection of stochastic dominance. Yet, besides being simpler and more convenient in calculation as compared to a statistical test, the descriptive approach relies solely on the observations without making any restrictive assumptions on the distributions of returns (e.g., its independence). In our case, therefore, it is particularly meaningful to compare the return distributions of the acquirer and the benchmark portfolio via a descriptive comparison. In addition, given our sample size of slightly above 100 transactions, the descriptive approach appears more appropriate. Besides a lack of evidence of the statistical significance of the descriptive SD approach, our empirical study is vulnerable to criticism concerning the explanatory power of the individual determinants under investigation. Due to our research design, it is not possible to assess the statistical significance of the overall results, the determinants, and the associations and interactions between these various determinants. Yet, it has to be kept in mind that the objective of our work lies in testing the reliability and validity of the results of previous literature on the success of insurance M&A and the underlying success factors. Therefore, earlier findings form the starting point of our empirical investigation, and the hypotheses about the success of insurance M&A, the determinants, and cause-effect relationships are primarily based on the significant findings of previous research. A closely related point of criticism concerns the process of building our hypotheses. As stated, these are primarily derived from the empirical

observations of the extant insurance M&A literature (even if only based on the findings of one single study) rather than from theoretical considerations in the literature. This procedure is aimed at investigating what we can learn from previous empirical research on the success of insurance M&As and its major influencing factors. Theoretical rationales and predictions are of secondary importance for our analysis and therefore have only been considered in our study when our empirical investigation displays a contradictory result against earlier studies.

Furthermore, the second part of this work could be criticized for certain issues regarding the specification of our study's components, such as the choice of the investigation period, the sample selection, the choice of the benchmark, the formation of subsamples, and the exclusion of non-surviving firms. Firstly, the selected investigation period from 1993 to 2009 is only a snapshot of recent M&A activity in the European insurance industry, and hence predictions for future M&A activity based on the results can only be made to a certain degree. Moreover, this investigation period includes two different M&A waves (i.e., the fifth M&A wave in the years 1993 to 2000 and the sixth wave from 2003 to 2008), with each wave consisting of the four different phases of the M&A cycle (i.e., upswing, peak, downturn, and bottom). Still, these last two M&A waves are comparable, as they comprise resembling characteristics and hold similar underlying motivations (see Section 2.2.5). Further, the influence of the individual phases of the M&A cycle as a potential influencing factor for M&A success is also investigated by our SD analysis. Secondly, as we have exclusively analyzed the European market, we cannot warrant that the results of our study will be fully applicable to the US insurance market. Thirdly, although previous studies have verified its usefulness, concerns about the appropriateness of the applied benchmark could arise. Yet, when using a SD approach to evaluate the return distribution of a portfolio of acquiring firms, the only correct way of benchmarking is to use a single-firm benchmark with a similar mean and volatility of returns. To assure a meaningful comparison, benchmark firms are not only matched by geographic region, industry, and subindustry, but also by their book-to-market ratio. Fourthly, existing discrepancies between the results of our study and the existing literature may

possibly be attributed to differences in the operationalization of determinants and in the formation of subsamples. To illustrate this, see the following example of the determinant “acquirer’s line of business.” We define acquirer’s line of business according to their Global Industry Classification Standard (GICS) codes (see Section 4.3.2). Others, such as Akhigbe (2001) and Schertzing (2008), form subsamples of acquiring insurance firms depending on acquirers’ Standard Industry Classification (SIC) codes. Moreover, in our study, acquiring firms are classified into the subsamples “life/health,” “property/casualty,” and “multi-line.” In contrast, Akhigbe and Madura (2001) subdivide acquiring insurance firms into “life” and “non-life,” Floreani and Rigamonti (2001) distinguish between “life,” “reinsurance,” and “others,” and Schertzing (2008) splits acquirers into “P&C,” “life,” “re,” “agents/brokers,” and “others.” Consequently, these differences in operationalization and in the formation of subsamples might be possible explanations for inconsistencies between our findings and those of previous studies. A further potential weakness of our study is the survivorship bias, which is the exclusion of the non-surviving (delisted) companies, which might generate a slight bias toward the final performance estimate. However, we have consciously chosen to exclude non-survivors because the expected distortions of excluding non-survivors appears relatively small in comparison to the distortions that are likely to occur when including them in our sample. Last but not least, it has to be mentioned that our work focuses exclusively on the acquisition of insurance firms. Therefore we are unable to consider portfolio transfers of insurance contracts, which are also of great relevance to the industry.

In addition to these limitations of our empirical analysis, the literature overview in the first part of this work suffers from the shortcoming of containing only a selection of publications written in English and German. Nevertheless, several papers reviewed also analyze the effects of M&A in an international setting, resulting in a global perspective on this topic. Hence, additional or even conflicting evidence from papers published in other languages is not to be expected. Moreover, since adopting a capital market-based approach to evaluate the performance and financial success of European insurance transactions was found to be the best fit, our literature review has a distinct

focus on empirical studies using capital market data as well as measuring performance effects instead of evaluating efficiency changes. Despite this, accounting-based studies (e.g., efficiency studies) were still included in the review to broaden the focus of our evaluation.

### **5.3 Implications**

Despite these limitations, our work contributes to the existing body of literature and to a better understanding of the effects of M&A transactions in the insurance industry in the following ways. Firstly, we classify the literature into various research categories and provide an up-to-date literature review on the success of insurance M&A. Secondly, besides investigating the short-term market reaction to the announcement of M&A in the European insurance market, we also assess the long-term success of such corporate activity and thus respond to the lack of empirical knowledge concerning the long-term effects of insurance M&A. Thirdly, in contrast to former capital market research, we do not apply the traditional event study approach in which the evaluation is solely based on a single value, that is, the average return. Instead, we adopt a stochastic dominance approach and investigate the entire distribution of acquiring and benchmark firms' returns.

In addition to these contributions, our work has several important implications and directions for future research, as well as implications for investors, shareholders and managers of insurance companies, in particular for the management of European acquiring insurance firms.

First of all, as shown by this dissertation, the accumulated evidence offers many important insights into the overall success of insurance M&A and its influencing factors. Yet, our work also points to the need for further empirical research on this topic, in particular on the long-term success of European insurance M&A. The lack of sufficient and consistent evidence on this long-term effect demands additional empirical research. In addition, the effects of these few determinants for which the results of earlier studies could not be confirmed by our

investigation (i.e., the method of payment and industry relatedness) need to be addressed in future M&A research.

Moreover, previous research suggests that a complete understanding of the effects of M&A transactions is only possible by case-specific studies. Consequently, several earlier studies recommend the use of a smaller sample size and a case-by-case examination to assess the individual determinants of insurance M&A success. For example, Pilloff and Santomero (1998)<sup>573</sup> and Schertzingler (2008)<sup>574</sup> postulate case-by-case examinations of financial M&A to fully capture the individual value drivers of each transaction. Future studies could follow this suggestion and thus enhance the research design. In order to perform such a deep and thorough fundamental analysis, however, general statements concerning the overall success of insurance M&A and its influencing factors, as derived in our work, are required.

Future research could also broaden the existing empirical analyses by extending the transaction process under investigation. Our empirical investigation and the analyzed papers herein primarily focus on the first two phases of the transaction process, namely the planning and transaction phase. The integration phase, which is outlined by several papers as having substantial impact on the success of an M&A transaction,<sup>575</sup> is not examined by the studies in our final sample. This third phase needs to be included in the analysis to gauge insights into the individual value drivers of each M&A transaction.

Furthermore, an important methodological implication of this research is worth noting. The applied SD methodology has not been used by other researchers

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<sup>573</sup> “But, recently, a new thread of the literature has developed which we find somewhat more promising. The recent interest in understanding individual cases, looking into the process of change for a particular merger and the realized outcome from the event, seems potentially rewarding and revealing” (Pilloff & Santomero 1998, p. 60).

<sup>574</sup> Certainly, these empirical analyses provide a solid perspective on the average transaction and its major determinants of success, but they do not account for detailed specifics of individual transactions” (Schertzingler 2008, p. 303).

<sup>575</sup> E.g., Cummins and Weiss (2004, p. 11), Boubakri, Dionne, and Triki (2006, p. 63), Gerds (2006, p. 1), The Boston Consulting Group (2007, p. 1), Gerds and Schewe (2008, p. 19), Focarelli and Pozzolo (2008, p. 17), Schertzingler (2008, p. 10), and The Boston Consulting Group (2009c, p. 21).

investigating the success of M&A transactions in the insurance industry. As this approach, however, considers the full distribution of firms' returns instead of only relying on the average return, it offers a promising tool for evaluating corporate M&A activity. Nevertheless, in his dissertation work on the application of the SD methodology to financial data, Klaever (2006) expresses the need for statistical inference and supports the use of statistical tests for stochastic dominance. Klaever modifies existing statistical tests according to the needs of financial stock market data. Such a modified statistical SD test could be applied by future investigators in order to obtain significant and more reliable results.

In general, insurers should continue to look for M&A opportunities and build on inorganic growth. Based on insurance M&A research from recent decades, M&A transactions by US insurance companies will induce on average a positive market reaction for all involved parties, that is, the acquirer, the target, and consequently the combined entity. Also in the long run, these US deals will mostly be value enhancing for all companies involved. In contrast, in the European insurance market, the announcement of an M&A transactions triggers a negative initial stock price response for the acquiring European insurance firm. Yet, as shown by our SD analysis, this short-term underperformance of acquiring European insurers diminishes over time, and over a longer period of time, there is no underperformance of acquiring European insurers. Concluding from these results, management of European insurance firms, on average, should highlight the non-negative long-term performance effects. This communication strategy will help to mitigate the negative market reactions to the announcement of such deals. The clear change in relative performance over time is primarily driven by the positive wealth effects of medium-experienced acquirers, insurers that expand internationally and pursue transactions of small and medium size, and transactions that were conducted in periods of below-average economic growth. The additional analysis of the major determinants of M&A success shows the different influences of the various determinants depending on the time frame and might help the management of European insurance companies to improve future performance in the field of external growth. Also, shareholders and investors should be well aware of the time-dependent effects of European insurance M&A, as well as its influencing



factors, and choose their investment strategies accordingly. By following certain general guidelines, which have been outlined herein, M&A transactions in the European insurance market are also very likely to be a success for all involved companies. In summary, not only in the US insurance market, but also in the European insurance sector, M&A transactions seem to be a viable model and are likely to lead to success.

## Appendix

### Figures

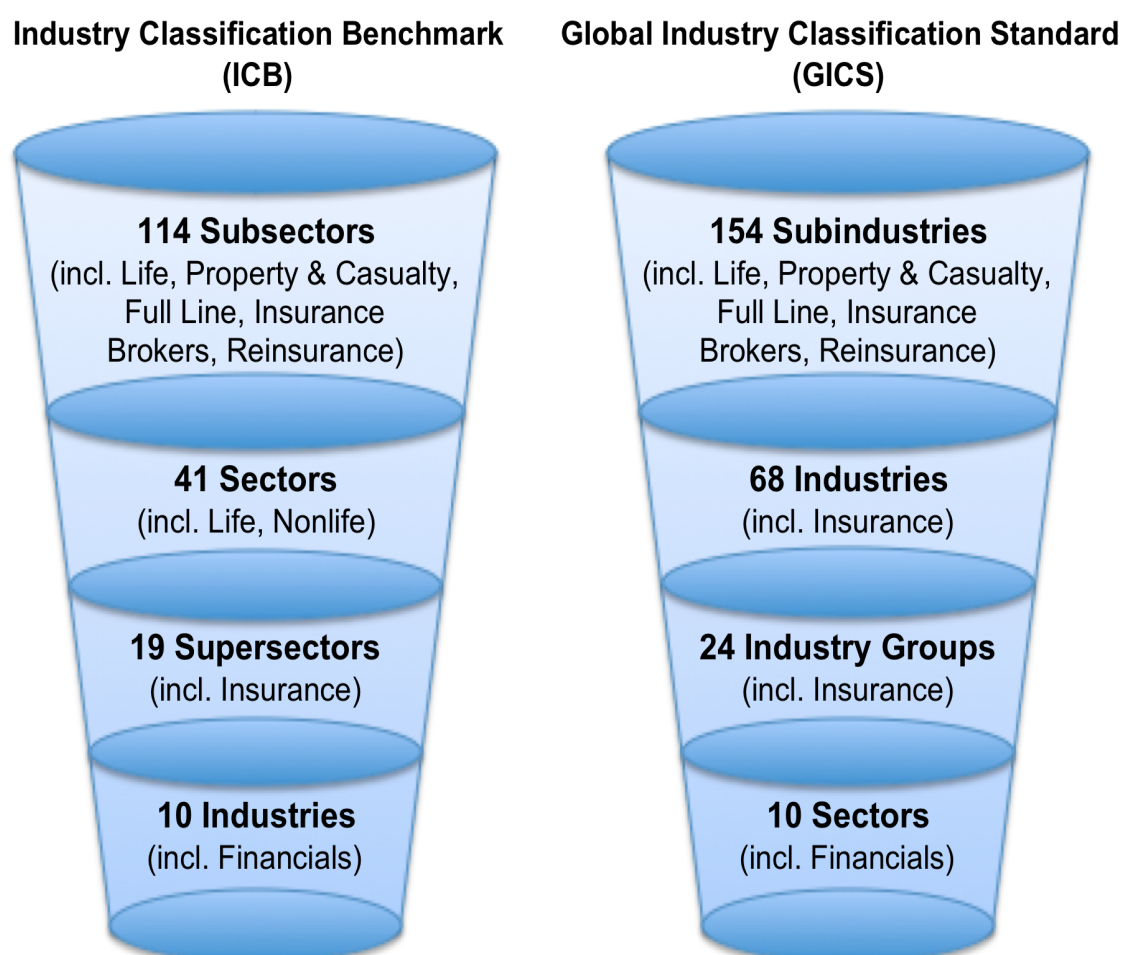


Figure 21: ICB and GICS structures for company classification<sup>576</sup>

<sup>576</sup> Source: Own research and in reference to [http://www.icbenchmark.com/Site/ICB\\_Structure](http://www.icbenchmark.com/Site/ICB_Structure).

## Tables

**Table 39: Survey of studies**

In 2006, **Abhyankar, Ho, and Zhao (2006)** were the first ones to use the idea of stochastic dominance for examining the long-run post-merger stock performance of acquiring firms. The authors compare performance by using the entire distribution of returns rather than only the mean, as in traditional event studies. Analyzing a sample of 305 UK public acquiring firms, in general, they find that acquiring UK firms do not significantly underperform within three years after a merger, since they do not observe any evidence of a first- or second-order stochastic dominance relation between acquirer and benchmark portfolios. Second, the authors find that acquirers paying excessively large premiums are stochastically dominated by their benchmark portfolio, implying that overpayment is a possible reason for post-merger underperformance. They further outline that cash-financed mergers outperform stock-financed ones. Finally, they do not observe any evidence that glamour acquirers underperform value ones, as no stochastic dominance relations between the two exist. In general, their results underline the importance of examining long-run post-merger stock performance from alternative perspectives.

**Agrawal and Jaffe (1999)** examine long-run stock returns following mergers and acquisitions. The authors review the existing literature on the financial performance of M&A, concluding that long-run performance is negative following mergers, though performance is non-negative (and perhaps even positive) following tender offers. However, the effects of both methodology and chance may modify this conclusion. Two explanations of underperformance (speed of price adjustment and EPS myopia) are not supported by the data, while two other explanations (method of payment and performance extrapolation) receive greater support.

**Anderson, Ennsfellner, and Lewis (2004)** investigate the production efficiency change of the Austrian insurance market in the period 1994–1999 using firm-specific data on life/health and non-life insurers. They use a Bayesian stochastic frontier to obtain aggregate and firm-specific estimates of production efficiency across insurer types and time. The study provides strong evidence that the process of deregulation had positive effects on the production efficiency of Austrian insurers. The life/health and non-life firms showed similar patterns of development in that they were less efficient during the years 1994–1996 and significantly more efficient in 1997–1999.

**Andre, Kooli, and L’Her (2004)** study the long-term performance of 267 Canadian mergers and acquisitions that take place between 1980 and 2000, using different calendar-time approaches with and without overlapping cases. Their results suggest that Canadian acquirers significantly underperform over the three-year post-event period. Further analysis shows that their results are consistent with the extrapolation and the method-of-payment hypotheses; that is, glamour acquirers and equity-financed deals underperform. The authors also find that cross-border deals perform poorly in the long run.

In one of the first of several reports on post-merger integration, **The Boston Consulting Group (2007)** addresses key strategic and tactical issues that should be considered before and during any integration, as well as their implications for developing a post-merger integration game plan. In the later studies of **The Boston Consulting Group (2008a, 2008b, 2009b, 2010)**, a range of topics dealing with the post-merger integration of a target’s business into an acquirer’s organization are considered. The **2008a** study concentrated on several key

issues that need to be taken into account when acquirers integrate five core functions—namely information technology, research and development, procurement, production and networks, and sales and marketing—are explored. Further special issues, such as carving out value from spinoffs, working productively with unions, and rising to the challenges of rapidly developing economies, are addressed in **The Boston Consulting Group's (2008b)** study. **The Boston Consulting Group (2009b)** study brings many of the topics discussed in the previous reports to life. In contrast, the **2010** report exclusively refers to the biggest PMI challenges for cross-border transactions.

In its study on value creation in insurance, **The Boston Consulting Group (2009a)** presents a short-term event study analysis of more than 1,100 M&A deals that also involve American and European insurance companies. The primary focus of this analysis is on the pre-merger phase and on strategic factors such as the relative size of the target company, geographic and industry focus, and the timing of the deal.

**Beatty (1999)**, who investigates M&A conducted by large public Canadian companies, expressly underlines the essential need for managers to pay much attention to the human side of these M&A deals. The author also reduces the litany of recommendations about managing the human dimension to a few critical ones.

**Berger, Demsetz, and Strahan (1999)** design a framework for evaluating the causes, consequences, and future implications of financial services industry consolidation. They further review the extant research literature within the context of this framework and suggest fruitful avenues for future research.

Whereas most research of post-acquisition integration has focused on the integration of individual business units, **Chakrabarti and Mitchell (2004)** pay particular attention to corporate level integration processes, such as the standardization of integration routines and synchronization of integration activities across a firm's business units. The authors argue that corporate level acquisition activities and post-acquisition integration processes strongly influence long-term corporate performance, particularly as a firm that comprises interdependent business units becomes geographically diffuse. They additionally state that acquisitions tend to increase system diversity and goal diversity across business units. Some goal diversity is beneficial, but excessive goal diversity and the existence of system diversity can reduce long-run corporate performance by requiring greater managerial effort and increasing the opportunity cost of managerial efforts. The negative effects become stronger as a firm becomes geographically diffuse or if business units are interdependent. Finally, the authors conclude that firms that employ active corporate level integration processes—particularly firms that acquire frequently and have interdependent business units—can enhance the benefits and eliminate some of the problems of diversity.

**Boubakri, Dionne, and Triki (2006)** examine the long-run performance of M&A transactions in the property-liability insurance industry. The authors specifically investigate whether such transactions create value for bidders' shareholders and assess how corporate governance mechanisms affect such performance. Their results show that M&A create value in the long run, as buy-and-hold abnormal returns are positive and significant after three years. While tender offers appear to be more profitable than mergers, the authors' evidence does not support the conjecture that domestic transactions create more value than cross-border transactions. Furthermore, positive returns are significantly higher for frequent acquirers and in countries where investor protection is better. Internal corporate governance mechanisms are also significant determinants of the performance of bidders.

The article by **Chamberlain and Tennyson (1998)** investigates the prevalence of financial synergies as a motive for merger-and-acquisition activity in the property-liability insurance industry. Two hypotheses are developed and tested based

upon theories of information asymmetries and firm financing decisions: (1) that financial synergies are a primary motive for insurance mergers in general and (2) that mergers motivated by financial synergies will be more prevalent in periods following negative industry capital shocks. The hypotheses are tested via analysis of accounting ratios of acquisition targets in the period 1980 through 1990 in relation to those of non-acquired firms of similar characteristics, and via analysis of acquisition characteristics. The hypothesis that financial synergies are a motive for mergers following negative industry capital shocks receives strong support.

**Cummins and Weiss (2000)** analyze the economic impact of the wave of mergers and acquisitions in the global reinsurance market in the years 1992 to 1998. The authors' empirical analysis explores several hypotheses based on these theories. Using a sample consisting of the 130 largest global reinsurers, the authors estimate industry capacity employing a lognormal option pricing model to estimate the loss payments that would be made by reinsurers that experience industry losses of various sizes. The results show that consolidation has increased the capacity of the industry to finance catastrophic risk. They also estimate mean-standard deviation efficient frontiers based on book value returns on equity in the industry. The results show that consolidation has improved efficiency in the industry by increasing average firm size, thus enhancing diversification. In addition, Cummins and Weiss find that less efficient and undercapitalized firms are more likely to be acquired than efficient and better-capitalized firms, thus providing the opportunity for acquiring managers to improve efficiency in the industry. Overall, the results strongly support the hypothesis that consolidation has improved both the capacity and the efficiency of the global reinsurance market.

Using the same data set as was used in their previous paper (Cummins & Xie, 2005) and further extending the time frame of analysis to the period 1994–2003, **Cummins and Xie (2008)** analyze the productivity and efficiency effects of mergers and acquisitions (M&A) in the US property-liability insurance industry. The authors use a data envelopment analysis (DEA) and Malmquist productivity indices to determine whether M&A are value enhancing, value neutral, or value reducing. The analysis examines efficiency and productivity change for acquirers, acquisition targets, and non-M&A firms. They also examine the firm characteristics associated with becoming an acquirer or target through probit analysis. The results provide evidence that M&A in property-liability insurance were value enhancing. Acquiring firms achieved more revenue efficiency gains than non-acquiring firms, and target firms experienced greater cost and allocative efficiency growth than non-targets. Factors other than efficiency enhancement are important factors in property-liability insurer M&A. Financially vulnerable insurers are significantly more likely to become acquisition targets, consistent with corporate control theory, and they also find evidence that M&A are motivated to achieve diversification. However, there is no evidence that scale economies played an important role in the insurance M&A wave.

Another paper by **Cummins and Xie (2009)** analyzes acquisitions and divestitures in the US property-liability insurance industry during the period 1997–2003. It estimates the valuation effects of firms' structural changes using an event study methodology; in particular, it examines the effects of diversification versus focus over the dimensions of both geographical areas and business sectors. The paper also analyzes the relationship between a firm's pre-acquisition efficiency and its event-induced abnormal returns. It finds that acquirers, targets, and divesting firms all earn significant positive abnormal returns. Acquisitions that focus on both geography and business earn the highest abnormal returns, while other types of acquisitions earn a close-to-zero abnormal return. Acquirers with higher cost efficiency or revenue efficiency earn higher abnormal returns, while divesting firms with higher revenue efficiency earn lower abnormal returns.

**Cybo-Ottone and Murgia (2000)** study the stock market valuation of mergers and acquisitions in the European banking industry. Based on a sample of very large deals observed from 1988 to 1997, they document that, on average, the size-adjusted combined performance of both the bidder and the target at the announcement time is statistically significant and economically relevant. Although their sample shows a great deal of cross-sectional variation, the general results are mainly driven by the significant positive abnormal returns associated with the announcement of domestic bank to bank deals and by product diversification of banks into insurance. Their results are remarkably different from those reported for US bank mergers. Cybo-Ottone and Murgia explain their different results as stemming from the different structure and regulation of EU banking markets, which are shown to have more similarities between each other than with the US market.

**DeNoble, Gustafson, and Hegert (1988)** describe several acquisition pitfalls and how to avoid them. The authors explain how neglecting the post-merger integration process can undermine the performance of a strategically sound acquisition. They additionally offer guidelines to improve the quality of this crucial acquisition planning and implementation phase.

**Fields, Fraser, and Kolari (2005)** investigate whether bank/insurance combinations (bancassurance) for US and non-US mergers between 1997 and 2002 created value for the bidding firm. Bancassurance mergers in their sample generate small positive and insignificant CAR of 0.42% in (-1;0). By distinguishing between bank and insurance bidders, the authors get a clearer picture: Bank bidders earn a small positive and significant CAR of 0.37% in (-1;0) at the 10% level, while insurance bidders experience small positive and insignificant CARs 0.63% in (-1;0). Even though the size of the acquirer is not an important determinant, the bidder returns are driven by economies of scale and scope. Furthermore, these bidder returns are more likely to be positive if the merged companies fit, thereby enabling the creation of synergies between the two entities as well as reducing risk.

In a related study, the same authors reexamine the wealth effects of bank/insurance combinations (bancassurance). **Fields, Fraser, and Kolari (2007)** find positive bidder, target, and combined wealth gains and no significant risk shifts for shareholders of the acquiring company (positive and significant CARs in acquisitions of publicly traded targets are observed for the acquirers [CAR of 1.07% in (-1;0) at the 1% level], targets [CAR of 2.98% in (-1;0) at the 1% level] and overall [CER of 1.89% in (-1;0) at the 10% level]). Further on, the magnitude of these wealth effects is significantly related to the relative size of the target (indicator for economies of scale), economies of scope, and the locations of acquirer and target. These results suggest that the bancassurance architectural structure for financial firms does offer some benefits.

**Floreani and Rigamonti (2001)** examine the stock market valuation of mergers in the insurance industry between 1996 and 2000 in Europe and in the United States. The authors form a sample of 56 deals in which the acquiring company is listed. Their data reveals that insurance company mergers enhance value for bidder shareholders. Over the event window (-20;+2), their abnormal return is 3.65%. The abnormal returns for acquiring firms are larger the greater the relative size of deal value. Floreani and Rigamonti also find that mergers occurring between insurance companies located in the same European country are not valued positively by the market, while cross-border deals appear to increase shareholder's wealth. The analysis of a subsample of simultaneously listed bidders and targets reveals that the combined insurance companies experience significantly positive abnormal returns—over the event window (-20;+2), shareholders gain 5.27%—and consistent with previous findings, target shareholders substantially increase their wealth.

**Focarelli and Pozzolo (2008)** investigate what factors might help to explain the internationalization strategy of banks and insurance companies by comparing determinants of cross-border M&A in these two industry sectors. The authors empirically show that between 1990 and 2003, the internationalization of banks and insurance companies followed similar patterns. Distance and economic and cultural integration are important determinants for both the banks' and the insurance companies' expansion abroad. Furthermore, they do not find evidence that cross-border M&A are more frequent between similar countries, as predicted by the new trade theory. Finally, their results support the hypothesis that implicit barriers to foreign entry are more important in explaining the behavior of banks than of insurance companies.

The paper by **Franks, Harris, and Titman (1991)** investigates share-price performance following corporate takeovers. The researchers use multifactor benchmarks from the portfolio evaluation literature that overcome some of the known mean-variance inefficiencies of more traditional single-factor benchmarks. Studying 399 US takeovers consummated in the 1975–1981 period, they conclude that previous findings of poor performance after takeover are likely due to benchmark errors rather than mispricing at the time of a takeover.

**Fustec and Faroult (2011)** search for reasons why almost 50% of all M&A transactions become a white elephant for the involved firms and destroy value. The authors argue that intangible assets must be better assessed during the due diligence process and propose the French intangible assets measurement approach to remedy this deficiency.

**Jemison and Sitkin (1986)** highlight the role of "organizational fit" in acquisition success and suggest that the regularly adopted choice perspective that portrays the corporate executive analyzing acquisition opportunities as a rational decision maker be supplemented with a process perspective that recognizes the acquisition process itself as a potentially important determinant of activities and outcomes.

In the early 1970s, **Kitching (1974)** summarized the acquisition experiences of 95 US and European corporations and thereby tried to provide recommendations for multinational corporation executives for improving their prospects for European expansion. Kitching's paper outlines the importance of factors such as the country and industry chosen, the kind of diversification attempted, the purchase method, and various characteristics of the acquired company (e.g., profitability, size, and market share) in determining the success of these deals. As a last point, guidelines are drawn from these experiences.

**Klumpes (2006)** examines the relationship between mergers and acquisitions, efficiency, and scale economies in the major European insurance markets. Cost and revenue efficiency are estimated over a period of significant consolidation and harmonization of currency and insurance regulation rules. Contrary to prior US-based research, acquiring firms achieve greater efficiency gains than either target firms or firms that have not been involved in mergers or acquisitions. Financially vulnerable firms are more likely to be acquisition targets. This activity has not however in general had a beneficial effect on efficiency of target firms in the industry. Overall, mergers and acquisitions in the major European insurance markets reflect the effects of market segmentation and concentration and the differences in regulatory framework between UK and Continental European countries.

In **Lee and Mansor's (2008)** study, the long-term share performance of bidding firms listed on the Bursa Malaysia exchange during the period of January 2000 to December 2004 are analyzed. The authors find that bidding firms slightly underperform following the post-acquisition period. This underperformance persists even after controlling for overlapping acquisitions and matching firms in terms of industry, firm size, and book-to-market ratios. However, this underperformance is not statistically significant different from zero. Further

analysis reveals that long-term returns are insignificantly different from zero, irrespective of the method of payment.

**Loderer and Martin (1992)** analyze the post-acquisition stock-price performance of acquiring firms. Between 1966 and 1986, there were more than 10,000 domestic acquisitions in the US of legally independent firms in which the acquirer traded on the New York or American Stock Exchange. An investment in each acquiring firm on the date the acquisition was completed (held for 500 trading days) would have yielded an equally weighted return of 21%. The return on a share in the market portfolio, by comparison, would have been 36%, or more than 50% higher. The difference in investment performance is likely to reflect, at least in part, differences in systematic risk. But after risk is controlled for, acquiring firms are often found to underperform the market. Therefore, the evidence on post-acquisition performance appears to be sensitive not only to the estimation technique, but also to the sample investigated. Loderer and Martin reexamine this issue with a comprehensive sample of domestic acquisitions by firms traded on the New York Stock Exchange (NYSE) or the American Stock Exchange (AMEX) during the years 1966–1986. The authors find abnormal performance in three years but not in five years following the acquisition. Negative performance in the second and third years after the acquisition is most prominent in the 1960s and to a lesser extent in the 1970s, but not in the 1980s.

Using 947 acquisitions during 1970–1989, **Loughran and Vijh (1997)** find a relationship between post-acquisition returns and the mode of acquisition and form of payment. During a five-year period following the acquisition, on average, firms that complete stock mergers earn significantly negative excess returns of -25.0 percent, whereas firms that complete cash tender offers earn significantly positive excess returns of 61.7 percent. Over the combined pre-acquisition and post-acquisition period, target shareholders who hold on to the acquirer stock received as payment in stock mergers do not earn significantly positive excess returns. In the top quartile of target-to-acquirer size ratio, they earn negative excess returns.

**Lubatkin (1983)**, who provides a literature review on studies analyzing the effects of M&A transactions, suggests the following propositions: (1) Mergers do not provide real benefits, since (i) managers make mistakes in selecting the proper merger candidate and the proper price and/or (ii) managers may seek to maximize their own wealth at the expense of stockholder's wealth; (2) mergers do provide real benefits, but (i) administrative problems may accompany mergers and cancel out the benefits, (ii) methodological problems have prevented empirically based studies from detecting the benefits, and/or (iii) only certain types of merger strategies benefit the stockholders of an acquiring firm.

**Martynova, Oosting, and Renneboog (2006)** investigate the long-term profitability of corporate takeovers, in which both the acquiring and target companies are from Continental Europe or the UK. The authors employ four different measures of operating performance that allow them to overcome a number of measurement limitations of the previous literature, which yielded inconsistent conclusions. Both acquiring and target companies significantly outperform the median peers in their industry prior to the takeovers, but the raw profitability of the combined firm decreases significantly following the takeover. However, this decrease becomes insignificant after the authors control for the performance of the peer companies, which are chosen in order to control for industry, size, and pre-event performance. None of the takeover characteristics (such as means of payment, geographical scope, and industry-relatedness) explain the post-acquisition operating performance. Still, they find an economically significant difference in the long-term performance of hostile versus friendly takeovers and of tender offers versus negotiated deals: The performance deteriorates following hostile bids and tender offers. The acquirer's leverage prior to takeover seems to have no impact on the post-merger performance of the



combined firm, whereas the acquirer's cash holdings are negatively related to performance. This suggests that companies with excessive cash holdings suffer from free cash flow problems and are more likely to make poor acquisitions. Acquisitions of relatively large targets result in better profitability of the combined firm subsequent to the takeover, whereas acquisitions of a small target lead to a profitability decline.

**Meglio and Risberg (2010)** posit that inconsistent findings in the academic literature on the effects of M&A are due to methodological issues (different methods for performance evaluation), rather than to the fragmentation and existence of substantive gaps in current M&A literature. As stated by the authors, the M&A field has become marred by a set of bureaucratic method techniques that trivialize research with little organizational relevance. They further ask for changes in the way knowledge in the M&A field in terms of research designs and sources of data is produced. To accomplish this, the authors address methodological issues about the study of M&A as processes instead of as onetime events in order to bring forward some ideas on how to learn more about M&A processes.

**Moeller, Schlingemann, and Stulz (2003)** examine a sample of 12,023 acquisitions by public firms from 1980 to 2001. The equally weighted abnormal announcement return is 1.1%, but acquiring firm shareholders lose \$25.2 million on average upon announcement. This disparity suggests the existence of a size effect in acquisition announcement returns. The announcement return for acquiring-firm shareholders is roughly two percentage points higher for small acquirers, irrespective of the form of financing and whether the acquired firm is public or private. The size effect is robust to firm and deal characteristics, and it is not reversed over time.

**Nakamura (2005)** analyzes how deregulation and liberalization have influenced Japanese firms' M&A behavior and their efficiency. His doctoral dissertation addresses the following research questions: To marry or not to marry? Do Japanese firms gain from choosing a Japanese bride or a foreign bride? What type of "personality" do the Japanese firms look for when searching for M&A brides? Accordingly, his thesis explores both the Japanese M&A process and the effects these M&A have had on firm performance. He performs not only a qualitative investigation (by investigating the determinants and transaction partner selection) of Japanese M&A, but also a quantitative analysis (by comparing the pre-M&A and post-M&A technical and production efficiency of the M&A group with the results of a non-M&A group of firms).

**Nguyen and Kleiner (2003)** examine various organizational factors that negatively impact the integration process. They suggest eight principles to make the integration more effective and successful. The factors discussed are based on empirical findings, literature, and case studies. The major causes include improper managing and strategy, culture differences, delays in communication, and lack of clear vision. Therefore, the keys to a successful integration process are a hands-on leadership style, a bias for action, involvement of the entire staff, continuous focus on customers, and most of all, open and honest communication with employees.

**Nissim's (2010)** paper first describes the insurance business and discusses how insurance activities are reflected in financial reports, and then building on the discussion and analyses, the valuation of insurance companies is evaluated. When describing the insurance business (including activities and organization of insurance companies, products and services, distribution channels, competition, regulation, taxation, and risks and risk management), the author provides a short summary on studies dealing with M&A activity in the insurance industry.

**Pautler (2003)** presents a review of the business consulting literature on the effects of mergers and post-merger integration, investigating whether mergers achieve the goals of the executives involved, whether these deals enhance

shareholder value relative to industry benchmarks, and what characteristics the more successful deals have compared to the less successful ones.

In his doctoral work, **Schertinger (2008)** not only provides a literature review of previous studies dealing with value creation in insurance M&A transactions, he also conducts an event study and identifies determinants of successful transactions, such as transaction timing and diversifying transaction strategy, through a multivariate statistical analysis. This analysis of M&A in the European insurance industry is further deepened by two case studies that illustrate success factors specifically related to the conduct of transactions in greater detail.

**Settnik (2006)** provides an extensive theoretical and empirical analysis of the effects of M&A transactions, with an exclusive focus on the German insurance market. The author relies on an accounting-based ratio analysis for investigating the success of insurance transactions.

**Shim (2011a)** investigates the relationship between mergers and acquisitions and efficiency change in the US property-liability insurance industry for the years 1990–2004. The cost, revenue, pure technical, scale, and allocative efficiency are estimated using data envelopment analysis (DEA). The empirical results reveal that acquirers' overall cost and revenue efficiency decline following M&A. This finding implies that M&A has the potential to create inefficiencies, perhaps due to scale diseconomies and post-merger integration problems. Shim's analysis presents a number of other interesting results. Geographically focused insurers achieve greater cost and revenue efficiency than geographically diversified insurers, supporting the strategic focus hypothesis. Insurers with the independent agency distribution are less cost and revenue efficient than insurers using direct marketing distribution. Mutual insurers are more cost efficient than stock firms, and unaffiliated single firms are more cost and revenue efficient than group insurers.

Similar to his 2011a study, **Shim (2011b)** examines the relationship between mergers and acquisitions, diversification and financial performance in the US property-liability insurance industry over the period 1989–2004. Risk-adjusted return on assets (ROA), return on equity (ROE), Z-score, and total risk measured by earnings volatility are considered as relevant indicators of performance. The author finds that acquirers' financial performance decreases and earnings volatility increases during the gestation period after M&A, perhaps due to increased frictional costs associated with post-merger integration and agency problems. The author finds that more-focused insurers outperform product-diversified insurers, implying that the costs of diversification outweigh the benefits. These findings are robust to alternative risk and diversification measures. He also finds that marginal increases in commercial line share are associated with higher risk-adjusted profits, but these gains are offset by the extra costs from product diversity when the initial share is low. For insurers initially concentrated in commercial line, a marginal increase in commercial line share is related to higher performance due to the positive effects of both direct exposure and indirect focus.

**Schoenberg's (2006)** paper investigates the comparability of four common measures of acquisition performance: cumulative abnormal returns, managers' assessments, divestment data, and expert informants' assessments. Independently, each of these measures indicated a mean acquisition success rate of between 44% and 56% within a sample of British cross-border acquisitions. However, with the exception of a positive relationship between managers' and expert informants' subjective assessments, no significant correlation was found between the performance data generated by the alternative metrics. In particular, ex ante capital market reactions to an acquisition announcement exhibited little relation to corporate managers' ex post assessments. This is seen to reflect the information asymmetry that can exist between investors and company management, particularly regarding

implementation aspects. Overall, the results suggest that future acquisition studies should consider employing multiple performance measures in order to gain a holistic view of outcomes, while in the longer term, opportunities remain to identify and refine improved metrics.

**Table 40: Overview of Klaever's efficiency results concerning the application of various tests on stochastic dominance<sup>577</sup>**

Abbr. of stock	1-year period				10-year period			
	LMWm	descr.	STm	KRSm	LMWm	descr.	STm	KRSm
	SD1	SD2	SD2	SD2	SD1	SD2	SD2	SD2
ADS	•	•	•	•	—	—	—	—
ALL								
ALT	•				•	•	•	•
BAS		•		•	•	•	•	•
BAY				•				•
BHV								
BMW								•
CBK								
CON	•	•	•	•	•	•	•	•
DAC					—	—	—	—
DBK	•			•				•
DBO				•	—	—	—	—
DLH								•
DPO	•			•	—	—	—	—
DTL				•	—	—	—	—
EON	•		•	•		•	•	•
FRE				•	—	—	—	—
HEN				•	•	•	•	•
INF					—	—	—	—
LIN				•			•	•
MAN				•				•
MET	•			•	—	—	—	—
MRV								
RWE	•	•	•	•		•	•	•
SAP					•	•	•	•
SCH				•	•	•	•	•
SIE	•			•	•		•	•
TYK				•				•
TUI								
VW								•

<sup>577</sup> Source: Klaever (2006, p. 158). The first column gives all 30 companies listed in the German DAX. In the wider second and third columns, the efficient stocks, depending on the considered stochastic dominance tests employed and the time period under investigation, are presented. The efficient stocks are denoted with a bullet. The stocks not considered for the 10-year period are denoted with a hyphen.

Table 41: Annual real GDP growth by expenditure<sup>578</sup>

<b>Year</b>	<b>Euro Area</b>		
1992	1.60%		
1993	-0.80%		
1994	2.50%		
1995	2.50%		
1996	1.50%		
1997	2.50%		
1998	2.70%		
1999	2.90%		
2000	3.80%		
2001	2.00%		
2002	0.90%		
2003	0.70%		
2004	2.20%		
2005	1.70%		
2006	3.20%		
2007	2.90%	Mean All Years	1.61%
2008	0.40%	Median All Years	2.00%
2009	-4.40%		
2010	2.20%	Mean 1993-2009	1.60%
2011	1.40%	Median 1993-2009	2.20%

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<sup>578</sup> Source: Eurostat.

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