Essays on the economic benefits and costs of fair value accounting in European banks' financial reporting

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Vorwort

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Motivation and research questions

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1. Motivation

In the wake of the EU-wide mandatory IFRS adoption for publicly-traded companies (EC, 2002), an ever-evolving strand of research explores the benefits and costs of this substantial financial reporting change (see Pope and McLeay (2011) and Brown (2011) for an overview of early evidence). For most jurisdictions, the IFRS adoption resulted in a significant expansion of fair value accounting, particularly with regard to measurement of financial instruments under IAS 39 (e.g., Schipper, 2005). The controversial debate about this shift towards fair value accounting culminated during the recent financial crisis, where opponents claimed that fair value accounting in banks' financial statements has aggravated the situation (e.g., Laux and Leuz, 2010). Taken together, these developments result in a demand for research that contributes to a more profound understanding of the timely and relevant issue of fair value accounting under IFRS and its economic consequences (Hopwood, 2009).

In the light of the lively debate about the fair value measurement concept and its alleged role during the financial crisis, standards regulating fair value accounting were repeatedly amended in the years following the EU-wide IFRS adoption. As explained below, these amendments entail a fertile soil for research that aims at a differentiated understanding of the economic benefits and costs of fair value accounting. In June 2005, the IASB issued *Amendments to IAS 39 Financial Instruments: Recognition and Measurement - The Fair Value Option* (IASB, 2005). These amendments introduced certain criteria which financial instruments have to meet in order to be eligible for a designation as at fair value through profit or loss (so-called fair value option). Analyzing fair value accounting under the fair value option enables researchers to gain insights into the *economic benefits and costs associated with voluntary fair value accounting*. In the midst of the recent financial crisis, in October 2008, the IASB issued amendments to IAS 39 and IFRS 7 (IASB, 2008), which enable banks to abandon fair value measurement in favor of historical cost accounting by changing the IAS 39 classification of certain assets. Reclassifications carried out under this amendment provide an unparalleled natural experiment for examining the *economic consequences of suspending fair value accounting* (see also Bischof et al., 2010). As a further consequence of the financial crisis, in March 2009, the IASB issued another amendment to IFRS 7 called *Improving Disclosures about Financial Instruments*. Accordingly, entities have to disclose fair value hierarchy levels for all fair value measurements recognized in the

financial statements from financial year 2009 onwards (IFRS 7.27A-B and IFRS 7.44G).[1] These disclosures enhance the quantity and quality of publicly available information about different types of fair value measurement (Fiechter and Novotny-Farkas, 2011). Hence, this enables researchers to examine empirically whether and how *economic benefits and costs of fair value accounting depend on certain types of fair value measurement*.

This thesis consists of three essays on the economic benefits and costs of fair value accounting in European banks' financial reporting that address the subjects outlined above. All three essays present empirical analyses that build upon prior theoretical and empirical literature in the respective research fields. The first essay, *Fair Value Option for Liabilities and Information Asymmetry – Evidence on the Recognition of Credit Risk Changes under IFRS*, is co-authored with Dr. Duc Hung Tran, postdoctoral research assistant at the Department of Accounting at the University of Cologne. The essay focuses on voluntary fair value accounting for liabilities and the recognition of fair value changes that result from changes in banks' own credit risk. It investigates how the adoption of the fair value option for liabilities and the associated recognition of own credit risk changes affect information asymmetry across investors.

The second essay, *Capital Market Reactions to the Reclassification of Financial Assets under IAS 39 – Evidence from European Banks*, examines the investors' reaction to the reclassifications of financial instruments under the amendment to IAS 39. The essay analyzes the reaction by comparing the value relevance of reclassified assets' book values to that of disclosed fair values. In addition, the essay explores value relevance differences between the three types of reclassifications.

The third essay, *The Role of Fair Values in the Pricing of Audit Services – Evidence from European Banks*, is based on a working paper with Dr. Duc Hung Tran.[2] The essay focuses on costs associated with fair value accounting for financial instruments by examining its influence on audit fees of European banks. Among the key aspects of the study are the questions whether the influence differs between different fair value types as reflected in fair value hierarchy levels and how financial instrument reclassifications affect audit fees.

[1] For more information on the hierarchy levels see chapter 4.
[2] The first and the third essay of this thesis are based on working papers co-authored with Dr. Duc Hung Tran, however, the research work (idea, research design, data collection, data analysis and writing) was primarily carried out by myself.

2. Fair Value Option for Liabilities and Information Asymmetry – Evidence on the Recognition of Credit Risk Changes under IFRS

2.1 Research question and design

The essay *Fair Value Option for Liabilities and Information Asymmetry – Evidence on the Recognition of Credit Risk Changes under IFRS* explores how voluntary fair value accounting for liabilities affects information asymmetry across investors. In the first part of the essay, we investigate whether information asymmetry is lower for adopters of the fair value option for liabilities than for non-adopters. IAS 39.9 limits the adoption to cases where one of three eligibility criteria is met. Accordingly, the first two criteria allow entities to adopt the fair value option if it eliminates or significantly reduces an accounting mismatch or if a group of financial instruments is managed and performance evaluated on a fair value basis. Following Copeland and Galai (1983) as well as Glosten and Milgrom (1985), we argue that the adoption under these criteria is positively impacting the informational level of uninformed traders and thus decreasing information asymmetry across investors.

In the second part of the essay, we focus on the controversial recognition of fair value changes that are attributable to own credit risk changes. The recognition is criticized as being counterintuitive because a deterioration of an entity's own credit quality leads to a decline of its liabilities' fair value which is then recognized as income statement gain (e.g., Power, 2010).[3] In the light of considerable criticism by academics as well as practitioners (e.g., ECB, 2001; Lipe, 2002; Heckman, 2004) and experimental research documenting that investors misinterpret the counterintuitive recognition of credit risk fair value changes (Lachmann et al., 2010; Gaynor et al., 2011), we examine its incremental effect on information asymmetry. To this end, we address the question whether a potential reduction in information asymmetry that results from the adoption of the fair value option is countervailed by the recognition of credit risk changes.

Consistent with prior research (e.g., Leuz, 2003), we employ observable bid-ask spreads as our information asymmetry measure. Controlling for inventory-holding and order-processing costs enables us to isolate the information asymmetry component of the spreads (Stoll, 1978). Spanning the period 2006-2010, our primary sample consists of 108 listed banks from 25

[3] Vice versa for an improving credit quality.

European countries. First, we test for information asymmetry differences between adopters and non-adopters by comparing their bid-ask spreads. Subsequently, we hold the control-group of non-adopters constant while reducing the treatment group to adopters with credit risk fair value changes. Finally, we compare the latter group to adopters without such changes. We address endogeneity concerns by excluding banks that we classify as lacking eligibility for the fair value option adoption and additionally by using a two-stage treatment effects model. The data used for the analyses are partly hand-collected from the 2006-2010 annual reports and partly obtained from commercial databases (Worldscope, Datastream, and I/B/E/S).

2.2 Results and contribution to the literature

The results of our analyses document that information asymmetry levels are lower for adopters than for non-adopters, as reflected in smaller bid-ask spreads. Next, we find that bid-ask spreads are still significantly smaller for adopters with credit risk fair value changes compared to non-adopters. Finally, the results indicate that information asymmetry levels are lower for adopters with credit risk changes relative to adopters without such changes. In summary, our results show that the adoption of the IAS 39 fair value option is effective in reducing information asymmetry and we do not find evidence that recognizing own credit risk fair value changes does countervail this reduction. Thus, the results do not support claims that investors perceive the recognition as being detrimental to financial reporting quality.

The essay mainly contributes to two strands of literature. Firstly, it adds to the extant research on the effects of fair value accounting on information asymmetry (e.g., Muller and Riedl, 2002; Bischof et al., 2010; Ball et al., 2012). Secondly, using a capital market-based measure of information asymmetry, the essay makes a distinct contribution to the literature on the investors' perception of fair value accounting for liabilities. With the exception of concurrent research by Ball et al. (2012),[4] previous studies in this area employ either a value relevance approach (Song, 2008; Fiechter and Novotny-Farkas, 2011) or experimental settings (Lachmann et al., 2010; Koonce et al., 2011; Gaynor et al., 2011) to capture the investors' perception.

[4] For more information regarding differences and similarities between the two studies see chapter 2.

3. Capital Market Reactions to the Reclassification of Financial Assets under IAS 39 – Evidence from European Banks

3.1 Research question and design

The essay *Capital Market Reactions to the Reclassification of Financial Assets under IAS 39 – Evidence from European Banks* investigates how investors reacted to financial instruments reclassifications carried out by European banks under the amendment to IAS 39. In October 2008, the IASB and the European Commission issued and endorsed this amendment (IASB, 2008), which enables banks to abandon fair value measurement in favor of historical cost accounting by changing the IAS 39 financial instrument classification of certain assets, e.g. from the held-for-trading category into the loans and receivables category.

The study employs a value relevance approach based on the modified Ohlson (1995) model to analyze the investors' reaction. First, I compare the *relative* value relevance of reclassified assets' book and fair values by examining whether on measure possesses a higher power in explaining equity market values than the other. The results of previous studies document that banks used the reclassifications for earnings and capital management purposes (e.g., Bischof et al., 2010; Kholmy and Ernstberger, 2010; Fiechter, 2011), which might be detrimental to investors' confidence in recognized accounting values, i.e. book values of reclassified assets. Thus, the value relevance of these book values decreases because investors perceive them as less reliable. On the other hand, a main motive for abandoning fair value measurement in favor of historical cost accounting was the lack of prices from functioning markets (e.g., EBF, 2008; Véron, 2008, Dobler and Kuhner, 2009). Accordingly, fair values were either derived from distorted market prices or entirely determined on the basis of internal valuation models, which are subject to high levels of management discretion (e.g., Véron, 2008; Barth and Landsman, 2010). Prior research shows that the value relevance of fair values decreases with an increasing exposure to discretion (e.g., Nelson, 1996; Park et al., 1999; Khurana and Kim, 2003; Goh et al., 2009; Kolev, 2009), which leads to the expectation that book values of reclassified assets possess a higher value relevance compared to disclosed fair values.

Next, I address the question whether differences in the explanatory power of book and fair values depend on the type of reclassification. I motivate this question by arguing that reclassifications represent accounting choices through which management is able to convey private information (Holthausen and Leftwich, 1983). The peculiarities of the different types

of reclassification affect the credibility of the private information. More credible information, in turn, mitigates reliability concerns that arise from the reclassifications' earnings management implications and thus increase value relevance.

In the following part of the essay, I employ an *incremental* value relevance approach to analyze whether disclosed fair values possess value relevance beyond that of book values. Under this approach, I hypothesize that although fair values might possess lower explanatory power relative to book values, investors still factor fair and book value differences into their pricing, especially because of the earnings management implications that become visible in these differences. Consequentially, reclassified assets' fair values are *incrementally* value relevant. Finally, I compare investors' pricing of reclassified instruments' book values and predict that the pricing differs between the types of reclassification.

The sample used in the study consists of 56 listed banks that originate from 19 European countries. The reclassified assets' book and fair values are hand-collected from these banks' quarterly and annual reports (Q3 2008 – Q1 2010), other data for the empirical analyses are obtained from commercial databases (Worldscope and Datastream).

3.2 Results and contribution to the literature

The results of the *relative* value relevance study indicate that book values of reclassified assets possess a higher power in explaining equity market values in comparison to fair values. Accordingly, investors do not regard the reclassifications as mere earnings management but as an adequate means to abandon distorted fair values. Furthermore, I find that the higher explanatory power of book values is mainly driven by the reclassifications from the held-for-trading into the held-to-maturity category. I attribute this finding to peculiarities of this type of reclassification, e.g. the IAS 39.9 tainting rules for the held-to-maturity category, which positively affect the credibility of the information conveyed through the reclassification. The *incremental* value relevance study reveals that fair value disclosures are only value relevant to investors for reclassifications from held-for-trading into held-to-maturity. The direction of the investors' pricing adjustment reinforces the notion that they react positively to the reclassifications. The lack of *incremental* value relevance of disclosed fair values for the other types of reclassification indicates that investors seem to disregard fair values because they originate from malfunctioning markets and/or unreliable management estimations. Regarding the pricing of book values, I find that investors price assets reclassified from held-for-trading

into loans-and-receivables lowest showing that book values resulting from this reclassification are perceived as least reliable.

Taken together, the results document that investors reacted favorably to the reclassifications in spite of the associated earnings management. Hence, I conclude that financial statement preparers were able to convey private information through the reclassifications, whereas rules penalizing opportunistic behavior seem to positively affect the perceived reliability of this information. This essay contributes to the extant literature on value relevance of fair values (e.g., Khurana and Kim, 2003; Song et al., 2010) and on economic consequences of the reclassifications under the IAS 39 amendment (e.g., Fiechter and Novotny-Farkas, 2011). Notably, I add to this literature by showing that the type of reclassification exhibits an influence on the investors' reaction. In a more broader sense, this essay further contributes to the empirical research on accounting choice (Fields et al., 2001).

4. The Role of Fair Values in the Pricing of Audit Services – Evidence from European Banks

4.1 Research question and design

The essay *The Role of Fair Values in the Pricing of Audit Services – Evidence from European Banks* examines the determinants of audit fees for IFRS reporting banks. More specifically, it focuses on the question whether and to what extent audit fees are determined by the exposure to fair value accounting. The essay sheds light on costs associated with fair value accounting since audit fees represent agency costs in the form of monitoring costs shareholders have to bear (Jensen and Meckling, 1976).

We first build a base model to capture general and bank-specific determinants of banks' audit fees. To the best of our knowledge, we conduct the first and, thus far, only study on the determinants of IFRS reporting banks' audit fees. Therefore, we follow Fields et al. (2004) and adjust their US banking sector model to reflect the institutional environment and data specifics of our sample.

In the next part, the study analyzes whether the fair value exposure of banks exhibits an influence on audit fees. To this end, we define two alternative measures of this exposure: (1) The number of different IAS 39 fair value instrument categories used by a bank and (2) the proportion of fair value assets and liabilities to total assets. While we are not aware of other

studies that use the number of categories as measure of fair value exposure, prior literature provides mixed results regarding the influence of relative fair value amounts on audit fees (Chen et al., 2010; Ettredge et al., 2011; Goncharov et al., 2013).

We then isolate effects of different fair value types: Firstly, we partition the relative amount of fair value instruments according to the three levels of the IAS 39 fair value hierarchy, and secondly, according to the financial instruments categories. The influence on audit fees is hypothesized to differ between the hierarchy levels due to decreasing verifiability and increasing complexity from level one to three (e.g., Hitz, 2005; Ettredge et al., 2011; Goncharov et al., 2013). We expect the peculiarities of the different financial instrument categories, e.g. higher turnover rates for held-for-trading financial instruments, to affect audit fees. Finally, we examine whether financial instrument reclassifications carried out under the IAS 39 amendment exhibit an influence on audit fees.

Our dataset consists of mostly hand-collected data from the 2009 and 2010 annual reports of 114 listed banks that originate from 21 European countries. In addition to hand-collected data, other data are obtained from commercial databases (Worldscope, Datastream and Reuters CreditViews).

4.2 Results and contribution to the literature

The results of the base model estimation indicate that audit fees are significantly influenced by variables controlling for banks' size, general risk, complexity and non-audit fees, whereas more bank-specific risk variables, e.g. credit risk, seem to be of minor importance to auditors when pricing their services. Next, our evidence consistently shows that audit fees increase with an increasing number of IAS 39 fair value instrument categories. In contrast, our findings do not indicate that the relative volume of fair value assets and liabilities exhibits an influence on audit fees. Consistent with prior research (Chen et al., 2010; Ettredge et al., 2011, Goncharov et al., 2013), we find evidence that audit fees increase with the exposure to less reliable and more complex level 3 fair value assets and liabilities. Furthermore, our results do not indicate that the IAS 39 fair value financial instrument categories exhibit differences in their influence on audit fees. Finally, the comparison of reclassifying and non-reclassifying banks documents significantly higher audit fees for the former group. We attribute this finding to earnings management associated with the reclassifications (e.g., Fiechter, 2011) and incremental audit effort due to a lack of experience and additional

disclosures requirements for reclassified assets (IFRS 7.12A). Taken together, our results suggest that fair value accounting is not associated per se with higher audit fees. Instead, a more differentiated view reveals that certain fair value types, i.e. level 3 fair values, and the suspension of fair value recognition by financial instrument reclassifications exhibit an influence on audit fees.

In the light of the recent financial crisis and related regulating proposals that potentially affect audit fees in the European Union (EC, 2010), this essay, presenting empirical evidence on the determinants of audit fees for European IFRS reporting banks, provides insights into the pricing of audit services valuable to regulators, practitioners and researchers. Furthermore, our essay contributes to the research on the audit fee costs associated with fair value measurement (Chen et al., 2010; Ettredge et al., 2011, Goncharov et al., 2013) and complements the second essay of this thesis by adding evidence on the economic consequences of financial instrument reclassifications under the IAS 39 amendment.

5. References

Ball, R., Jayaraman, S., and Shivakumar, L. (2012). Mark-to-Market Accounting and Information Asymmetry in Banks. *Working paper*, The University of Chicago Booth School of Business.

Barth, M. E. and Landsman, W. R. (2010). How did Financial Reporting Contribute to the Financial Crisis? *European Accounting Review,* 19 (3), 399-423.

Bischof, J., Brüggemann, U., and Daske, H. (2010). Relaxation of Fair Value Rules in Times of Crisis: An Analysis of Economic Benefits and Costs of the Amendment to IAS 39. *Working paper*, University of Mannheim and Lancaster University.

Brown, P. (2011). International Financial Reporting Standards: what are the benefits? *Accounting and Business Research*, 41 (3), 269-285.

Chen, F., Lam, K., Smieliauskas, W., and Ye, M. (2010). Fair Value Measurements and Auditor versus Management Conservatism: Evidence from the Banking Industry. *Working paper*, University of Toronto and Chinese University of Hong Kong.

Copeland, T. E. and Galai, D. (1983) Information Effects on the Bid-Ask Spread. *Journal of Finance*, 38 (5), 1457-1469.

Dobler, M. and Kuhner, C. (2009). Die internationale Rechnungslegung im Belastungstest der subprime-Krise. *Die Wirtschaftsprüfung*, 62 (1), 24-33.

Ettredge, M., Xu, Y., and Yi, H. (2011). Fair Value Measurements and Audit Fees: Evidence from the Banking Industry. *Working paper*, The University of Kansas – School of Business and Korea University – Business School.

European Banking Federation (EBF) (2008). European Banks Support EU Decision To Endorse IASB Changes To Accounting Rules. Available from: http://www.frb.co.uk/cgi-bin/dmr5?access=&runprog=frb/frb_pages&mode=disp&fragment=2008_10_052. Accessed 15 September 2013.

European Central Bank (ECB) (2001). Fair value accounting in the banking sector. Available from: http://www.ecb.eu/pub/pdf/other/notefairvalueacc011108en.pdf. Accessed 15 September 2013.

European Commission (EC) (2002). Regulation (EC) No 1606/2002 of the European Parliament and of the Council of 19 July 2002 on the application of international accounting standards. Available from: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2002:243:0001:0004:EN:PDF. Accessed 15 September 2013.

European Commission (EC) (2010). Audit policy: Lessons from the Crisis. Green paper. Available from: http://ec.europa.eu/internal_market/consultations/docs/2010/audit/green_paper_audit_en.pdf. Accessed 15 September 2013.

Fiechter, P. (2011). Reclassification of Financial Assets under IAS 39: Impact on European Banks' Financial Statements. *Accounting in Europe*, 8 (1), 49-67.

Fiechter, P. and Novotny-Farkas, Z. (2011). Pricing of Fair Values during the Financial Crisis: International Evidence. *Working paper*, University of Zurich and Goethe-University Frankfurt.

Fields, L. P., Fraser, D. R., and Wilkins, M. S. (2004). An investigation of the pricing of audit services for financial institutions. *Journal of Accounting and Public Policy*, 23 (1), 53-77.

Fields, T. D., Thomas, Z. L., and Vincent, L. (2001). Empirical research on accounting choice. *Journal of Accounting and Economics*, 31 (1-3), 255-307.

Gaynor, L. M., McDaniel L., and Yohn, T. L. (2011). Fair value accounting for liabilities: The role of disclosures in unraveling the counterintuitive income statement effect from credit risk changes. *Accounting, Organizations and Society,* 36 (3), 125-134.

Glosten, L. R. and Milgrom, P. R. (1985). Bid, ask and transaction prices in a specialist market with heterogeneously informed traders. *Journal of Financial Economics*, 14 (1), 71-100.

Goh, B. W., Ng, J., and Yong, K. O. (2009). Market Pricing of Banks' Fair Value Assets Reported under SFAS 157 during the 2008 Economic Crisis. *Working paper*, Singapore Management University and Massachusetts Institute of Technology.

Goncharov, I., Riedl, E. J., and Sellhorn, T. (2013). Fair Value and Audit Fees. *Review of Accounting Studies,* forthcoming.

Heckman, P. E. (2004). Credit Standing and the Fair Value of Liabilities: A Critique. *North American Actuarial Journal,* 8 (1), 70-85.

Hitz, J.-M. (2005). Rechnungslegung zum fair value – Konzeption und Entscheidungsnützlichkeit. Frankfurt am Main, Peter Lang.

Holthausen, R. W. and Leftwich, R. W. (1983). The economic consequences of accounting choice: Implications of Costly Contracting and Monitoring. *Journal of Accounting and Economics*, 5 (1), 77-117.

Hopwood, A. G. (2009). The economic crisis and accounting: Implications for the research community. *Accounting, Organizations and Society*, 34 (6-7), 797-802.

International Accounting Standards Board (IASB) (2005). Amendments to International Accounting Standard 39 Financial Instruments: Recognition and Measurement – The Fair Value Option, June 2005. London.

International Accounting Standards Board (IASB) (2008). Reclassification of Financial Assets – Amendments to IAS 39 Financial Instruments: Recognition and Measurement and IFRS 7: Disclosures, October 2008. London.

Jensen, M. C. and Meckling, W. H. (1976). Theory of the firm: managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3 (4), 305-360.

Kholmy, K. and Ernstberger, J. (2010). Reclassification of Financial Instruments in the Financial Crisis – Empirical Evidence from the European Banking Sector. *Working paper*, Ruhr-University Bochum.

Khurana, I. K. and Kim, M. S. (2003). Relative value relevance of historical cost vs. fair value: Evidence from bank holding companies. *Journal of Accounting and Public Policy*, 22 (1), 19-42.

Kolev, K. (2009). Do Investors Perceive Marking-to-Model as Marking-to-Myth? Early Evidence from FAS 157 Disclosure. *Working paper*, New York University.

Koonce, L., Nelson, K. K., and Shakespeare, C. (2011). Judging the Relevance of Fair Value for Financial Instruments. *The Accounting Review*, 86 (6), 2075-2098.

Lachmann, M., Wöhrmann, A., and Wömpener, A. (2010). Investorenreaktionen auf die Fair Value-Bilanzierung von Verbindlichkeiten nach IFRS - eine experimentelle Untersuchung. *Zeitschrift für Betriebswirtschaft*, 80 (11), 1179-1206.

Laux, C. and Leuz, C. (2010). Did Fair-Value Accounting Contribute to the Financial Crisis? *Journal of Economic Perspectives*, 24 (1), 93-118.

Leuz, C. (2003). IAS Versus U.S. GAAP: Information Asymmetry-Based Evidence from Germany's New Market. *Journal of Accounting Research,* 41 (3), 445-472.

Lipe, R. C. (2002). Fair Valuing Debt Turns Deteriorating Credit Quality into Positive Signals for Boston Chicken. *Accounting Horizons,* 16 (2), 169-181.

Muller, K. A. and Riedl, E. J. (2002). External Monitoring of Property Appraisal Estimates and Information Asymmetry. *Journal of Accounting Research,* 40 (3), 865-881.

Nelson, K. K. (1996). Fair Value Accounting for Commercial Banks: An Empirical Analysis of SFAS No. 107. *The Accounting Review*, 71 (2), 161-182.

Ohlson, J. A. (1995). Earnings, Book Value and Dividends in Equity Valuation. *Contemporary Accounting Research*, 11 (2), 661-687.

Park, M. S., Park, T., and Ro, B. T. (1999). Fair Value Disclosures for Investment Securities and Bank Equity: Evidence from SFAS No. 115. *Journal of Accounting, Auditing & Finance*, 14 (3), 347-370.

Pope, P. F. and McLeay, S. J. (2011). The European IFRS experiment: objectives, research challenges and some early evidence. *Accounting and Business Research*, 41 (3), 233-266.

Power, M. (2010). Fair value accounting, financial economics and the transformation of reliability. *Accounting and Business Research*, 40 (3), 197-210.

Schipper, K. (2005). The Introduction of International Accounting Standards in Europe: Implications for International Convergence. *European Accounting Review*, 14 (1), 101-126.

Song, C. J. (2008). An Evaluation of FAS 159 Fair Value Option: Evidence from the Banking Industry. *Working paper*, Virginia Polytechnic Institute and State University.

Song, C. J., Thomas, W. B., and Yi, H. (2010). Value Relevance of FAS No. 157 Fair Value Hierarchy Information and the Impact of Corporate Governance Mechanisms. *The Accounting Review*, 85 (4), 1375–1410.

Stoll, H. R. (1978). The pricing of security dealer services: An empirical study of NASDAQ stocks. *The Journal of Finance,* 33 (4), 1153-1172.

Véron, N. (2008). Fair Value Accounting is the Wrong Scapegoat for this Crisis. *Accounting in Europe*, 5 (2), 63-69.

Chapter 2

Fair Value Option for Liabilities and Information Asymmetry – Evidence on the Recognition of Credit Risk Changes under IFRS

Fair Value Option for Liabilities and Information Asymmetry – Evidence on the Recognition of Credit Risk Changes under IFRS

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Fair Value Option for Liabilities and Information Asymmetry – Evidence on the Recognition of Credit Risk Changes under IFRS

This paper investigates whether the fair value option for liabilities (FVO) under IAS 39 is effective in reducing information asymmetry across investors as reflected in smaller bid-ask spreads. Using a sample of European banks for the years 2006 until 2010, our evidence consistently shows that the FVO for liabilities mitigates information asymmetries since FVO-adopters exhibit lower bid-ask spreads, relative to non-adopters. We next find that the decrease in bid-ask spreads is still present when the control group of non-adopters is held constant while the treatment group is reduced to adopters that recognize fair value changes attributable to own credit risk changes. Moreover, the comparison of adopters with own credit risk fair value changes to other adopters reinforces the notion that recognizing these fair values does not countervail the reduction in information asymmetry attained by the adoption of the FVO. Taken together, our findings do not support claims that recognizing fair value changes attributable to changes in the own credit risk is detrimental to the transparency of financial statements.

Keywords: Fair value option, credit risk, financial instruments, IAS 39

JEL Classification: G14, G21, M41

1. Introduction

In the context of the ongoing discussion on fair value accounting for liabilities, the so-called counterintuitive effect represents the most heavily debated aspect. The counterintuitivity, or income statement anomaly, arises from the following mechanism: When an entity's credit quality deteriorates, the liabilities' fair value decreases which is subsequently recognized as income statement gain (e.g., Power, 2010).[1] Consequentially, the profitability as well as the debt ratio improve. The potential magnitude of this effect can be exemplified by the 2008 financial statements of the HSBC Group. They include a gain of US $ 6.5 bn that was recognized due to HSBC Group's worsening credit quality which led to decreasing values for liabilities accounted for under the fair value option (FVO). This gain makes up approximately 70 percent of the total profit before tax of US $ 9.3 bn in 2008 (HSBC Holdings plc, 2008).

Opponents of the described mechanism criticize its outcomes as being misleading and potentially masking a worsening situation regarding the entity's financial health, thereby increasing information asymmetries across investors (e.g., ECB, 2001; Heckman, 2004). Competing views in the literature argue that a more distorted picture results when the same factors that actually lead to changing asset values are disregarded in the valuation of economically related financial liabilities. If assets are measured at fair value, while liabilities do not incorporate changes in credit risk, the profit or loss amounts will be distorted by this inconsistency. Also practitioners explicitly motivate the use of the FVO as follows: "The bonds subscribed by the Group and mortgage bonds issued are classified in the category of *Other financial assets at fair value through profit or loss* and *Other financial liabilities at fair value through profit and loss* respectively, to avoid information asymmetries" (Banco Pastor Group, 2011, p. 76).

Set against this backdrop, this paper provides empirical evidence on the question whether the application of the FVO for liabilities and the related accounting for credit risk changes under IAS 39 are effective in reducing information asymmetries across investors. We expect the FVO to have positive implications on information asymmetry because of the eligibility criteria according to IAS 39.9. These limit the FVO adoption to certain circumstances: The first criterion states that the FVO can be adopted if it

[1] When the entity's credit quality improves this mechanism works vice versa.

eliminates or significantly reduces an accounting mismatch. Such an elimination or reduction should increase the reporting quality and therefore decrease measurement error of investors. According to the second eligibility criterion, the FVO can also be adopted for a group of financial instruments that is managed and performance evaluated on a fair value basis. An adoption based on this criterion should also increase reporting quality by reflecting the actual investment or risk management strategy. Those two positive implications on information asymmetry lead to our first hypothesis, that information asymmetry is lower for adopters relative to non-adopters.

We focus on the liabilities side since the main interest of our study is to disentangle the incremental effect on information asymmetry induced by the counterintuitive recognition of own credit risk changes which only occurs on the liabilities side of the balance sheet. We disentangle this effect by analyzing whether the reduction in information asymmetry attained through the FVO adoption is countervailed by the recognition of fair value changes that result from changes in the own credit risk. Such a recognition might be detrimental to information asymmetry since it potentially leads to diverging opinions among investors: Some might view it as being misleading and adjust the income for this effect, some might agree with, while some might not even detect it.

Using a European sample of IFRS reporting banks over the period 2006 to 2010, we employ observed bid-ask spreads as our dependent variable. Building upon prior finance literature (e.g., Stoll, 1978), we isolate the component in the bid-ask spread attributable to information asymmetry by including control variables for inventory-holding and order-processing costs. This measure thus enables us to evaluate differences in information asymmetry among investors, i.e. the implications of the FVO on the information environment. Our analysis proceeds in two steps. First, we investigate whether bid-ask spreads are lower for adopters of the FVO for liabilities than for non-adopters. Our results show consistent evidence for lower levels of information asymmetry for adopters. The results are robust when we control for endogeneity bias by excluding banks that are viewed as lacking eligibility to adopt the FVO and when we additionally use treatment effects models. Also, the exclusion of the financial crisis years 2008 and 2009 does not affect our results qualitatively.

Second, we find that the decrease in bid-ask spreads is still present when the control group of non-adopters is held constant while the treatment group is reduced to adopters

that recognize fair value changes attributable to changes in credit risk. Again, sample alterations and controls for endogeneity bias reinforce the robustness of the results. Finally, the comparison of adopters with credit risk fair value changes to adopters without such changes reveals systematic differences in the bid-ask spreads in favor of the former group. Our findings suggest that the FVO for liabilities is perceived favorably by investors and it is effective in reducing information asymmetries. Furthermore, and contrary to findings gained from experimental settings (Lachmann et al., 2010; Gaynor et al., 2011), our results do not support claims that recognizing fair value changes attributable to changes in the credit risk is detrimental to the transparency of financial statements.

Our paper makes several contributions to the extant literature regarding investors' perception of the recognition of liabilities' fair value changes, in particular those evoked by credit risk changes. Prior literature explores the perception by following two approaches: One approach tests the value relevance of liabilities measured at fair value, whereby lower reliability is supposed to be driven by higher degrees of information asymmetry and measurement error (Song, 2008; Fiechter and Novotny-Farkas, 2011). We extend this stream of literature by using a more direct measure of information asymmetry. A second approach implements experimental settings where CPAs or (MBA) students serve as participants (Lachmann et al., 2010; Koonce et al., 2011; Gaynor et al., 2011). However, the specific choice of participants might limit the extent to which the results of these studies are generalizable. In turn, this paper adds to this stream of literature by analyzing capital market data. Our study of financial liabilities also complements the literature on the effects of non-financial assets' fair values on information asymmetry (Muller and Riedl, 2002; Muller et al., 2011). Finally, in a broader sense, we contribute to the current debate (e.g., van Zijl and Whittington, 2006; Horton et al., 2011; Nobes, 2011) whether fair values or other approaches should be applied in the measurement of contract liabilities by providing evidence on the information asymmetry implications of the FVO.

We note that there is one contemporaneous and independent capital market based study related to ours: Ball et al. (2012) use a sample of US banks and find, contrary to our results, that adopters of the SFAS 159 FVO for assets and liabilities experience an increase in bid-ask spreads relative to non-adopters. We attribute this divergence of results to differences in the design of the FVO under IFRS and US GAAP, since, unlike

IAS 39, the adoption of the SFAS 159 FVO is not subject to any eligibility criteria. We therefore regard the findings from Ball et al. (2012) as further support to our hypothesis that the IAS 39 eligibility criteria are the main drivers of an information asymmetry reduction attained through the FVO. Also, Ball et al. (2012) do not specifically focus on liabilities' fair value changes triggered by credit risk changes. To the best of our knowledge, this is the first paper providing capital market based evidence on the perception of these particular fair value changes across market participants in an international IFRS setting.

The remainder of the paper is organized as follows: Section 2 summarizes the fair value option for liabilities and the role of credit risk changes under IFRS and presents the related discussion in the literature. The following Section 3 provides an overview of the related literature and develops the hypotheses. Section 4 elaborates on the research design and describes the sample. The results of the empirical analysis are presented in Section 5. Finally, Section 6 concludes.

2. Institutional background and general discussion

2.1 Fair value option and own credit risk according to IAS 39 and IFRS 9

In 2003, the IASB issued an amendment to IAS 39 that introduced the option to irrevocably designate *any* financial instruments at fair value through profit or loss. However, due to concerns raised by several institutions (e.g., Basel Committee on Banking Supervision, 2002) the current version of IAS 39, which has been effective for financial years beginning on or after 1 January 2006, was altered to the effect that the application of the FVO is tied to three eligibility criteria.[2] Accordingly, an entity is eligible to designate a financial liability at fair value through profit or loss if one of the following three criteria is met:[3] (1) The designation eliminates or significantly reduces a measurement or recognition inconsistency (so-called accounting mismatch), (2) a group of financial instruments is managed and its performance is evaluated on a fair value basis, in accordance with a documented risk management or investment strategy, and (3) a financial liability belongs to a contract that contains one or more substantive

[2] In most EU jurisdictions all unrealized gains and losses resulting from the application of the FVO are fully reflected in the regulatory capital (Basel Committee on Banking Supervision, 2006; CEBS, 2007) with the exception of gains and losses attributable to changes in own credit risk. According to article 64(4) of Directive 2006/48/EC credit institutions shall not include these gains and losses in own funds.
[3] See IAS 39.9.

embedded derivatives. While US GAAP SFAS 159 contains a similar option to designate financial assets and liabilities at fair value through profit or loss, here, in order to avoid an increase in the standards' complexity, the US Financial Accounting Standards Board (FASB, 2007) abstained from incorporating any eligibility criteria (SFAS 159.A21). Moreover, in the FASB's view, eligibility criteria are detrimental to the flexibility of the FVO and therefore "hinder entities' ability to mitigate accounting mismatches through the use of a flexible and easy-to-implement fair value option." (SFAS 159.A21). However, several voices argue for the application of scope limitations similar to the eligibility criteria under IAS 39 (e.g., American Accounting Association's Financial Accounting Standards Committee, 2007).

Once a financial liability is designated as at fair value through profit or loss, all fair value changes, including those attributable to changes in the credit risk, have to be recognized in the income statement. IFRS 7.10a requires an entity to disclose the liabilities' fair value change, during the period and cumulatively, that is attributable to changes in the credit risk. According to IFRS 9 *Financial Instruments*, which is designated to replace IAS 39 in the year 2015, the conditions that have to be met in order to irrevocably designate a financial liability as measured at fair value through profit or loss are consistent with the latter standard.[4] However, as a reaction to the debate on the counterintuitive effect, the IASB modified the treatment of fair value changes: For FVO liabilities the amount of change in the fair value attributable to changes in the credit risk is directly recognized in equity via the other comprehensive income.[5] However, if the recognition in the other comprehensive income would create or increase an accounting mismatch, the entire amount of change is still recognized in the income statement.[6]

[4] See IFRS 9.4.2.2.
[5] See IFRS 9.5.7.7 ff.
[6] See IFRS 9.5.7.8. The rationale behind this approach lies in the IASB's (2010) view that the recognition of effects that stem from the credit risk of a fair value option liability does not provide useful information unless it prevents or decreases an accounting mismatch. According to IFRS 9.B5.7.9 the accumulated effects attributable to changes in the credit risk that were directly recognized in equity are not to be recycled.

2.2 Fair value option for liabilities and own credit risk: General discussion

In the staff paper accompanying the discussion paper *Credit Risk in Liability Measurement* by the IASB (2009), Wayne Upton Jr. provides a summary of the debate about fair value measurement for liabilities. The main point of criticism concerns the financial reporting implications of recognizing changes in debt value due to changes in the firm's own credit risk. When liabilities are measured at fair value, a deterioration of a company's credit risk leads to an income statement gain and vice versa.

Proponents argue that this incorporation of credit risk changes helps to avoid accounting mismatches. Accounting mismatch means that due to diverging measurement of economically related assets and liabilities, the financial statements provide a distorted view of the profit or loss amounts which does not reflect the actual profitability (IAS 39.AG4D). Defining equity as a put option, Merton (1974) concludes that an increase in the credit risk is accompanied by a wealth transfer from debt- to shareholders. Accordingly, such a wealth transfer should be presented in the entity's accounts (Barth and Landsman, 1995; Chasteen and Ransom, 2007; Barth et al., 2008).[7] Barth and Landsman (2010) point out that recognizing fair value changes that arise from credit risk changes in the regulatory capital has the potential to mitigate regulatory capital procyclicality, especially during crisis periods. Finally, another argument for the incorporation of credit risk states that it is inconsistent to incorporate credit risk when determining the fair value at initial recognition but then disregard it subsequently (IASB, 2009).

Opponents on the other hand label the income statement effect that results from the incorporation of credit risk as counterintuitive because financial statement users could misinterpret gains as positive signals and losses as negative signals regarding the entity's financial health (e.g., ECB, 2001; Heckman, 2004). Lipe (2002) illustrates the misleading effects of recognizing fair value changes that are attributable to credit risk changes in his case study analysis of the US restaurant chain Boston Chicken.[8] From an investor's point of view, the distinction between fair value changes attributable to a changing credit risk and other fair value changes is fundamental. A decrease in a

[7] See also Heckman (2004) who argues that the option is an asset that belongs on the balance sheet of the owners and not of the entity.

[8] See also Barth et al. (2008) who criticize that the inferences drawn in Lipe (2002) mainly stem from incomplete recognition of changes in asset values rather than from fair value measurement of liabilities.

liability's fair value caused by increasing market interest rates is viewed as being advantageous for the entity's shareholders, although the effect will reverse as the liability matures. Also, shareholders appreciate a decrease of a liability's estimated cash flow if it is not caused by the entity's worsening credit quality. On the contrary, a fading financial strength leading to lower fair values is generally not in the interest of shareholders (IASB, 2009). Furthermore, critics argue that in the majority of cases, an entity will not be able to realize the gain from the liability's decreasing fair value by transferring it. This might be due to the liability's contractual terms or simply to a lack of financial means (Heckman, 2004). Finally, opponents object that the inclusion of credit risk changes leads to an increase of accounting mismatches (American Accounting Association's Financial Accounting Standards Committee, 2007). This notion stems from the fact that the deterioration of an entity's credit quality is oftentimes caused by an impairment of assets which also are not recognized at fair value, e.g. fixed assets, or not recognized on the balance sheet at all, e.g., goodwill (Nissim and Penman, 2008).

3. Related literature and hypotheses development

3.1 Related literature

According to Demsetz (1968), the bid-ask spread results from bid and ask prices set by a market maker willing to immediately buy or sell a security upon receipt of an order. The provision of these services depends on certain levels of compensation required by the market maker. Theoretical research by Stoll (1978) documents that the bid-ask spread comprises of three cost components: information asymmetry, inventory-holding, and order-processing costs, where the first cost component is the primary interest of our study. In their market microstructure models, Copeland and Galai (1983) as well as Glosten and Milgrom (1985) assume the presence of traders with superior information. The market maker knows that he always loses when he trades with informed traders and thus imposes an adverse selection cost in the bid-ask spread. Hence, the spreads reflect a balancing of gains from trading with uninformed traders and potential losses incurred from trading with informed traders. Copeland and Galai (1983) show that a decrease in the percentage of informed traders leads to lower bid-ask spreads. We contribute to this stream of literature by examining whether the FVO is associated with a change in

information levels between the market maker and the different types of traders that leads to lower information asymmetries, as reflected in lower bid-ask-spreads.

Turning to empirical studies, the extant literature provides limited direct evidence on the impact of the FVO for liabilities on information asymmetry. Thus, the literature review focuses on inferences drawn from earnings management studies regarding banks' utilization of the FVO, which are then complemented by value relevance studies and experimental settings that capture the investors' perception.

Guthrie et al. (2011) investigate whether US S&P firms use the SFAS 159 FVO for assets and liabilities to systematically manage their earnings in the 2007 and 2008 financial statements. The authors define firms as current earnings managing firms if they met or beat analysts forecast only by adopting the FVO. Future earnings managing firms are defined as those that use the FVO to recognize prior unrealized losses and thereby avoid recognition when the instruments are sold. However, the analysis does provide only negligible evidence that the adoption of the FVO is associated with any type of earnings management. Focusing on the same two years, the findings of Chang et al. (2009) also do not indicate that regular adopters made use of the SFAS 159 FVO for earnings management purposes. Rather, the authors show that banks with high values for variables that measure ineffective accounting hedging or accounting mismatches are more prone to adopt the option, suggesting that the option is used as intended by the standard. The same can be inferred from the results of Fiechter's (2011) analysis of international banks. Fiechter (2011) shows that banks electing the FVO to reduce accounting mismatches under IAS 39 exhibit lower earnings volatility than their peers. Contrary to the results of the cited studies, Song (2008) identifies earnings management as well as portfolio restructuring as motives for the FVO adoption under SFAS 159.

Furthermore, Song (2008) employs a value relevance approach based on return model specifications to analyze investors' perception. The findings suggest that banks' unrealized fair value option losses are priced by investors whereas unrealized gains are not, raising doubts about investors perceiving the FVO adoption favorably.[9] Using an international sample of banks for the years 2006 until 2008, Fiechter and Novotny-

[9] Song (2008) examines FVO assets' and liabilities' income statement effects as one netted position, resulting in either a gain or a loss.

Farkas (2011) do not find significant differences between the investors' pricing of trading liabilities and liabilities designated at fair value. This leads to the conclusion that investors perceive the adoption of the FVO as being conform with the standards intention, i.e. the reduction of accounting mismatches, rather than as being of an opportunistic nature.

In their experiment with MBA students Koonce et al. (2011) find that the value relevance of fair values for held-to-maturity financial liabilities is lower than for assets that possess exactly the same characteristics. Moreover, the same holds for fair value gains or losses which are due to interest rate changes. The authors trace their results back to a judgment bias, i.e. investors base their assessment on how easy an entry or exit option for the financial instrument can be accomplished and not on the underlying economic characteristics of said financial instrument. In their settings Lachmann et al. (2010) and Gaynor et al. (2011) put more emphasis on the effect that results from changes in the company's own credit risk. They use CPAs and students, respectively, as participants and their experiments show that a gain (loss) resulting from a deteriorating (improving) credit quality is indeed misinterpreted as a credit quality improvement (deterioration). However, the results of Gaynor et al. (2011) also suggest that additional disclosures highlighting the interrelation are able to significantly reduce this misinterpretation.

Analyzing a sample of US banks, Ball et al. (2012) find that the SFAS 159 FVO for assets and liabilities is associated with an increase of information asymmetry as adopters experience an increase in bid-ask spreads relative to non-adopters. They argue that the introduction of mark-to-market accounting through the adoption of the FVO for assets and liabilities increases information asymmetry compared to the alternative of historical cost accounting. When interpreting the results in the light of our study it is especially worthwhile to highlight the lack of eligibility criteria under SFAS 159, which presents another possible explanation for the information asymmetry increase. Without the eligibility criteria the FVO use is subject to a higher degree of discretion leaving more room for judgment by managers and decreasing verifiability. This reduces consensus about measurements among preparers, auditors, and other capital market participants (Schipper, 2003).

3.2 Hypotheses development

As specified above, the first eligibility criterion allows the adoption of the FVO if it eliminates or significantly reduces an accounting mismatch that would otherwise result from applying different measurement concepts to economically related assets and liabilities. Eliminating or reducing accounting mismatches should in turn increase the reporting quality which leads to decreasing measurement error of investors that are assessing the entity's value based on this information. Consequentially, the FVO adoption decreases the informational disadvantage of uninformed investors and thereby the information asymmetry across investors. Under the terms of the second eligibility criterion, the FVO can be adopted for a group of financial instruments that is managed and performance evaluated on a fair value basis, in accordance with a documented risk management or investment strategy. According to IAS39.AG4H, the measurement at fair value through profit or loss results in these instances *per se* in more relevant information (Barth and Landsman, 1995; Barth, 2007).[10] An adoption based on the second criterion is therefore supposed to improve the level of informativeness by reflecting the actual investment strategy.[11] Again, this should decrease measurement error of investors, have a positive impact on the informational level of uninformed traders and therefore reduce information asymmetry.[12]

Alternatively, it might be hypothesized that this type of public disclosure leads to increased acquisition of private information by informed investors which adds to their informational advantage (e.g., Kim and Verrecchia, 1991). Ball et al. (2012) follow this line of argumentation by specifying that mark-to-market accounting accelerates the release of public information about the value of the bank's financial instruments which in turn stimulates informed traders to invest more in private information and consequentially increases information asymmetry. The same can be inferred from the adoption of the FVO under the first and the second eligibility criteria: Not only disclosures about the value of financial instruments become public but also relevant

[10] The entity here also signalizes that the risk of the portfolio is managed by macro hedging techniques that comprise hedging the net position on a portfolio of assets and liabilities (Whittington, 2005).
[11] In his literature review, Landsman (2007) concludes that the existing overall research findings suggest that fair values are more informative to investors.
[12] In our analysis we do not regard banks that made use of the FVO under the first, the second or both criteria separately due to rather scarce disclosures regarding this matter. However, this does not affect the appropriateness of our research design since we expect both criteria to exhibit a positive impact on information asymmetry.

information about their economic relationship with other assets or liabilities (first criterion) and about how they are accounted for in the bank's risk management or investment strategy (second criterion).[13]

Furthermore, market participants might be suspicious about managers using the FVO for earnings management or portfolio restructuring purposes, which is likely to have a detrimental effect on information asymmetry since uninformed traders are at a informational disadvantage in detecting these practices (Ball et al., 2012). However, as elaborated in more detail above, with the exception of Song (2008), the prevailing empirical findings (Chang et al., 2009; Guthrie et al., 2011) indicate that the FVO is not used to manage earnings but as intended by the standard. Assuming that investors' perception is in line with these findings,[14] we put the emphasis on the positive implications on information asymmetry induced by the adoption under the two eligibility criteria. According to the frameworks of Copeland and Galai (1983) and Glosten and Milgrom (1985), we expect that the FVO adoption leads to a lower percentage of informed traders and an improved information level of the market maker. The market maker thus imposes lower adverse selection costs in the bid-ask spread, resulting in lower bid-ask spreads. In sum, we therefore state the following hypothesis (in the alternative):

H1: Information asymmetry is lower for adopters of the fair value option for liabilities relative to non-adopters.

We exclusively regard the fair value option adopted for liabilities since we subsequently intend to disentangle the incremental effect on information asymmetry induced by own credit risk fair value changes which solely occur on the liabilities side. Considering the substantial criticism of the incorporation of credit risk changes in the fair value measurement for liabilities, which is mainly due to the counterintuitive effect arising from this incorporation (ECB, 2001; Lipe, 2002; Heckman, 2004), it is highly

[13] Moreover, Ball et al. (2012) expect the adoption of the FVO to be detrimental to the quality and quantity of management forecasts since gains and losses from mark-to-market accounting are difficult to forecast which increases the informational disadvantage of uninformed traders. We argue that the increase in reporting quality attained through the adoption according to the eligibility criteria under IFRS, which are nonexistent under U.S. GAAP, outweighs the presumed negative effects on forecasting.

[14] The results of Fiechter and Novotny-Farkas (2011) regarding the pricing of FVO liabilities lend support to this assumption. Since FVO liabilities are not priced significantly different than trading liabilities, investors do not seem to be concerned about opportunistic behavior of bank managers in their FVO use.

questionable if the expected decrease in information asymmetry also holds for entities that recognize own credit risk fair value changes. This notion can be reinforced by experimental results suggesting that the effect is not correctly understood by investors (Lachmann et al., 2010; Gaynor et al., 2011). Moreover, even the standard setter itself is unstable in its opinion on the recognition of credit risk changes: While according to the current IAS 39, these have to be recognized in the income statement, IFRS 9 stipulates the recognition in the other comprehensive income unless it creates or increases an accounting mismatch. Taken together, these implications of the recognition of credit risk fair value changes might result in diverging opinions among investors: Some investors might consider the recognition as misleading and adjust the income for the effect, some might agree with it, while some might not even detect it. Consequentially, the informational advantage of informed traders increases. In this case, we predict that the recognition would be detrimental to the reduction in information asymmetry which was attained through the adoption of the FVO for liabilities in the first place. On the contrary, following the arguments in favor of incorporating credit risk changes (e.g., Barth and Landsman, 1995; Chasteen and Ransom, 2007; Barth et al., 2008), this incorporation should not induce any negative effects on information asymmetry. These deliberations lead to the following hypotheses (stated in the alternatives):

H2a: Adopters that recognize fair values changes due to credit risk changes exhibit differences in information asymmetry relative to non-adopters.

H2b: Adopters that recognize fair values changes due to credit risk changes exhibit differences in information asymmetry relative to other adopters.

4. Research design and sample description

4.1 OLS regression model and variable definitions

In order to analyze whether adopters experience lower levels of information asymmetry relative to non-adopters, we construct the following OLS regression model:

$$LogBA_{i,t} = \beta_0 + \beta_1 LogP_{i,t} + \beta_2 LogTO_{i,t} + \beta_3 LogRET\_SD_{i,t} + \beta_4 LogFF_{i,t} + \beta_5 LogNUMEST_{i,t} + \beta_6 LogBA\_CNTRY_{c,t} + \beta_7 FVO_{i,t} + \Sigma_t \beta_{8,t} YEAR_t + \varepsilon_{i,t} \quad (1)$$

The dependent variable $LogBA_{i,t}$ is the log of the mean daily bid-ask spread averaged over the fourth month following fiscal year end. The spread is calculated daily as the

difference between the ask and the bid price divided by the mid-point price. We rely on bid-ask spreads to proxy the overall level of information asymmetry in line with prior research (e.g., Muller and Riedl, 2002; Leuz, 2003; Muller et al., 2011) because of their strong theoretical literature background.[15]

As shown above, prior literature suggests that market makers set the bid-ask spread based on three components. To isolate the information asymmetry component, we include a set of control variables capturing the inventory-holding and order-processing cost components in the bid-ask spread as follows: $LogP_{i,t}$ is the log of the closing stock price measured on the beginning of the fourth month following fiscal year end. *LogP* is included as a control variable for order-processing costs that experience a proportional decrease for higher priced stocks (Benston and Hagerman, 1974; Stoll, 1978). Thus, the coefficient of *LogP* is predicted to be negative. $LogTO_{i,t}$ is the log of the mean daily volume traded on per share basis averaged over the fourth month following fiscal year end. $LogRET\_SD_{i,t}$ is the log of the standard deviation of the bank's stock returns measured over the fourth month following fiscal year end. Market-makers' inventory-holding cost and risk are controlled for by including *LogTO* which proxies for liquidity and *LogRET_SD* which proxies for volatility, i.e. uncertainty of returns. In line with the extant literature, we predict the coefficient to be negative for *LogTO* (Demsetz, 1968; Barnea and Logue, 1975; Copeland and Galai, 1983) and to be positive for *LogRET_SD* (Welker, 1995; Leuz and Verecchia, 2000; Muller and Riedl, 2002). $LogFF_{i,t}$ is the log of the percentage of free float shares measured on the beginning of the fourth month following fiscal year end. Assuming that information asymmetry is higher for firms with smaller proportions of freely traded shares (Leuz and Verrecchia, 2000), *LogFF* captures these differences in the availability of tradeable shares and thus its coefficient is predicted to be negative. $LogNUMEST_{i,t}$ is the log of the number of different analyst estimations measured during the fourth month following fiscal year end. Since the banks' information environment is controlled for by including *LogNUMEST*, it is expected that a better information environment, i.e. a higher number of analyst estimations, reduces information asymmetry (Brennan and Subrahmanyam, 1995; Leuz and Verrecchia, 2000). As large banks are subject to a better information environment,

[15] Alternative dependent variables (e.g., zero-trading days and share turnover) are not employed due to their weaker theoretical background on capturing information asymmetry.

it is necessary to ensure that the bid-ask spreads are not driven by this underlying bank characteristic. In this context, prior research (e.g., Bhushan, 1989; Rock et al., 2000) shows that firm size is a major determinant of analyst following and thus highly correlated with the latter.[16] Hence, *LogNUMEST* also serves as our bank size variable. $LogBA\_CNTRY_{c,t}$ is the log of the average percentage bid-ask spread for the country in which the bank is domiciled. Before averaging across all sample banks within a country and within a year, the daily percentage bid-ask spread is calculated by bank and year for the entire initial sample.[17] *LogBA_CNTRY* controls for differences regarding market microstructures across the distinct stock exchanges of our sample. In line with findings of Muller et al. (2011), we predict a positive coefficient for *LogBA_CNTRY*. We also include year fixed effects in our regression models to control for differences across the sample years, in particular the decreasing time trend in bid-ask spreads (Chordia et al, 2008). Consistent with the extant literature, we use the log-linear form for all continuous variables since multiplicative relations between the spread and its determinants are identified by most analytical models (e.g., Stoll, 1978, Glosten and Milgrom, 1985). $FVO_{i,t}$ is an indicator variable that equals one if the bank adopted the FVO for liabilities and zero otherwise. To the extent that adopters have a higher reporting quality, *FVO* is expected to exhibit a negative coefficient indicating a decline in bid-ask spreads and thus in information asymmetry.

Following Rogers (1993), we run all OLS regression models by using heteroskedasticity-robust standard errors which are clustered by bank. One concern is that this specification might neglect unobserved heterogeneity, i.e. omitted bank characteristics that are correlated with information asymmetry. The opposing concern using bank fixed effects is that our variables of interest are time-invariant for the vast majority of the banks included in the sample. Almost 90 percent of the banks do not change from being a non-adopter to being an adopter or vice versa and so the fixed effects models are estimated for only around 10 percent of the total sample. Nevertheless, we additionally use fixed effects estimations with standard errors clustered on the firm level to eliminate all time-invariant differences between banks.

[16] Consistently, the spearman correlation between *LogNUMEST* and banks' market value is around 70 percent in our sample. Using alternatively the banks' market value (four months after a bank's fiscal year end) as our size variable (instead of *LogNUMEST*) leaves the results qualitatively unchanged (results reported in Appendix 2).

[17] The bank sample used in the calculation of *LogBA_CNTRY* consists of 671 observations.

The primary inferences drawn from the main analysis are not affected qualitatively by this alteration (see Appendix 3). However, given the opposing concern, these results need to be interpreted cautiously.[18]

As already pointed out, the adoption of the FVO is subject to certain eligibility criteria. This implies that in order to avoid endogeneity bias in our study, it is crucial to differentiate between banks that intentionally refrain from adopting the FVO and those that actually are not eligible to adopt it. Since an entity is not obliged to provide disclosures on the reasons why it did not designate any financial liabilities at fair value through profit or loss, only very few non-adopters do so. However, according to IFRS 7.25, an entity has to disclose book and fair values of all financial instruments. We make use of these disclosures in order to identify those banks that very probably lack eligibility: If disclosures reveal that for all financial liabilities fair values equal book values,[19] then the adoption of the FVO would not help to eliminate or reduce an accounting mismatch, since neither the balance sheet nor the income statement would be undergoing any changes. Also in these cases the designation according to the second eligibility criterion, i.e. management and evaluation of the liabilities' performance on a fair value basis, would not be in the intention of IAS 39. Following this rationale, we regard these banks as lacking eligibility.[20] On the contrary, if banks' disclosures reveal differences between fair and book values of financial liabilities these banks are viewed as generally being eligible for the adoption of the FVO. Assuming that investors are not provided with additional information on this matter through other sources, they might wonder whether there simply do not exist any accounting mismatches or liabilities that are evaluated on a fair value basis or whether the management is disregarding the opportunity to reduce accounting mismatches and disclose information about how the performance of certain liabilities is evaluated. This would lead to the conclusion that by refraining from the FVO adoption, the banks' management not only misses an opportunity to reduce information asymmetry but it could even have the opposite effect, i.e. an information asymmetry increase due to decreasing investor confidence.

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[18] Given the implausible negative sign of the estimated coefficient on *LogBA_CNTRY* the expressed concerns seem to be justified.

[19] In some cases, the fair values of liabilities are not disclosed as numerical values but the annual report contains statements like "the fair values of liabilities do not materially differ from their book values". For the purpose of this study these cases are treated as if fair values would be exactly equal to book values.

[20] However, it has to be noted that this rationale does not apply to liabilities that are eligible because they are part of a contract that contains one or more substantive embedded derivatives.

In the next part of our analysis, we examine whether adopters with fair value changes due to credit risk changes (adopters with CRE) exhibit differences in information asymmetry relative to non-adopters as well as relative to adopters without such fair value changes (adopters without CRE). In order to do so, the dummy $FVO_{i,t}$ in equation (1) is replaced by $CRE_{i,t}$ resulting in the following model:

$$LogBA_{i,t} = \beta_0 + \beta_1 LogP_{i,t} + \beta_2 LogTO_{i,t} + \beta_3 LogRET\_SD_{i,t} + \beta_4 LogFF_{i,t} + \beta_5 LogNUMEST_{i,t} + \beta_6 LogBA\_CNTRY_{c,t} + \beta_7 CRE_{i,t} + \Sigma_t \beta_{8,t} YEAR_t + \varepsilon_{i,t} \quad (2)$$

$CRE_{i,t}$ is an indicator variable that equals one if the bank adopted the FVO for liabilities *and* recognized fair value changes attributable to changes in the credit risk, zero otherwise. To test for H2a we exclude all adopters without CRE from the sample. If investors do not perceive these recognized fair value changes as transparency decreasing, we expect the estimated coefficient of CRE to be negative, and vice versa. To test for H2b we exclude all non-adopters. Here, the expectations and interpretations regarding CRE differ from H2a. If the recognition of fair value changes attributable to changes in the credit risk exhibits a negative incremental effect on the information asymmetry beyond the effects induced by the adoption of the FVO, *CRE* is expected to exhibit a positive coefficient, and vice versa.

We do not further differentiate between types of FVO financial liabilities. It might be hypothesized that the different levels of information asymmetry are also influenced by the respective type due to diverging methods of determining the fair value. For example, a fair value derived from the market price of issued debt securities is assumed to be more reliable than the fair value of customer deposits derived from internal models (e.g., Hitz, 2007). However, the voluntary disclosures of the banks in our sample do not allow for a clean differentiation in this regard, as the banks do not sufficiently specify different types.[21]

[21] In a similar spirit, it can be hypothesized that the trigger for the change in credit risk has an influence on information asymmetry: Differences might exist between banks that experience changes in their credit risk as a direct result of a down- or upgrading by a rating agency and others that solely determine the change in credit risk as the residual amount of change in fair value that is not attributable to changes in the market risk. Again, the information disclosed by the banks in our sample regarding this matter is too scarce to analyze possible differences that arise from these factors.

4.2 Treatment effects model

As already mentioned, the comparison of FVO adopters and non-adopters might suffer from endogeneity bias. Besides excluding all non-adopters whose financial liabilities' book values equal fair values as elaborated in more detail above, another way of mitigating the endogeneity concern would be to implement a change analysis design where banks' bid-ask spreads are compared before and after the adoption of the FVO. However, due to several reasons such a change analysis is not feasible in the context of our study. First of all, in the period under review (2006-2010) a large majority of banks in the sample turns out to be sticky regarding their use of the FVO. As already indicated above, only 4 up to 7 banks per year change from being a non-adopter to being an adopter, or vice versa, yielding an insufficient number of observation. Also, an extension of the period under review to years before 2006 is not considered as a viable option since the FVO in its current version, i.e. including the eligibility criteria, became effective for financial years beginning on or after 1 January 2006. Moreover, before 2005, listed companies in the European Union were not required to prepare their consolidated financial statements according to IFRS. Instead, we follow Fiechter (2011) and additionally address endogeneity by the use of a two-stage treatment effects model (Heckman, 1979).[22] In the first stage, the determinants of the decision to adopt the FVO for financial liabilities are incorporated in the following probit regression:

$$PR(FVO_{i,t} = 1) = \beta_0 + \beta_1 REGQUAL_{i,t} + \beta_2 BIG4_{i,t} + \beta_3 LEV_{i,\,t} + \beta_4 SIZE_{i,t} + \beta_5 FVOA_{i,t} + \varepsilon_{i,t} \quad (3)$$

The value of $REGQUAL_{i,t}$ equals the regulatory quality index variable for 2008 as presented by the World Bank (Kaufmann et al., 2009) for the respective bank's domicile country. Regulatory quality expresses the ability of a country's government to permit and promote the development of the private sector by formulating and implementing sound policies and regulations. Fiechter (2011) shows that banks domiciled in countries with strong regulatory environment are more prone to adopt the FVO to reduce accounting mismatches. Assuming that this relationship is still valid when exclusively regarding the adoption of the FVO for liabilities, we expect *FVO* to be positively

[22] While Ball et al. (2012) follow the same two-stage treatment effects approach our model specification is quite different: Since our study is based in an IFRS setting we align our model with Fiechter (2011) and adjust it for the fact that we specifically analyze the adoption of the FVO for liabilities.

associated with *REGQUAL*. We construct $BIG4_{i,t}$ as binary variable that equals one if according to information provided in the bank's annual report, the financial statements are audited by one of the Big 4 audit firms. Since Big 4 audit firms are supposed to provide more expertise than their competitors we follow Fiechter (2011) by expecting the relation between *BIG4* and *FVO* to be of a positive nature. $SIZE_{i,t}$ is computed as the natural logarithm of the bank's total assets. Chang et al. (2009) as well as Song (2008) find that large banks are more prone to adopt the FVO, which might result from an increase in complexity for larger banks as proposed by Fiechter (2011), therefore we expect the relation between *SIZE* and *FVO* to be of a positive nature. Calculated as the ratio of the bank's debt to total assets, $LEV_{i,t}$ presents the general proportion of financial liabilities that is potentially eligible for the FVO. We assume that banks with a higher proportion of these liabilities are more prone to adopt the FVO for liabilities, i.e. a positive association between *FVO* and *LEV* is predicted. $FVOA_{i,t}$ is defined as a binary variable that takes the value of one if the bank adopted the FVO for financial assets, zero otherwise. Assuming that *FVOA* proxies for the suitability of the FVO concept in the specific banks' business model environment as well as for the management's general attitude towards the FVO, we predict that banks which adopt the FVO for assets are more likely to adopt it for liabilities as well.[23]

For the comparison of adopters with CRE and non-adopters under H2a we estimate equation (3) exclusively for these two subgroups and replace $FVO_{i,t}$ by $CRE_{i,t}$, which results in the following model:

$$PR(CRE_{i,t} = 1) = \beta_0 + \beta_1 REGQUAL_{i,t} + \beta_2 BIG4_{i,t} + \beta_3 LEV_{i,t} + \beta_4 SIZE_{i,t} + \beta_5 FVOA_{i,t} + \varepsilon_{i,t} \quad (4)$$

None of the determining variables is altered since, in essence, it is still a comparison of FVO adopters and non-adopters. The recognition of fair value changes attributable to changes in the credit risk here is not subject to any further self-selection since there is no optional character inherent to the recognition. Once the FVO is adopted, all occurring fair value changes have to be recognized. For this reason, no treatment effects model is computed for the comparison of adopters with CRE and adopters without

[23] Fiechter (2011) shows that there is a positive association between the adoption of the fair value option for liabilities and for assets.

CRE.

In the second stage, we derive the inverse Mills ratios (IMR) from the probit regression equations (3) and (4) and include them in equation (1) and (2), respectively. This proceeding yields the following self-selection corrected models:

$$LogBA_{i,t} = \beta_0 + \beta_1 LogP_{i,t} + \beta_2 LogTO_{i,t} + \beta_3 LogRET\_SD_{i,t} + \beta_4 LogFF_{i,t} + \beta_5 LogNUMEST_{i,t} + \beta_6 LogBA\_CNTRY_{c,t} + \beta_7 FVO_{i,t} + IMR_{i,t} + \Sigma_t \beta_{8,t} YEAR_t + \varepsilon_{i,t} \quad (5)$$

$$LogBA_{i,t} = \beta_0 + \beta_1 LogP_{i,t} + \beta_2 LogTO_{i,t} + \beta_3 LogRET\_SD_{i,t} + \beta_4 LogFF_{i,t} + \beta_5 LogNUMEST_{i,t} + \beta_6 LogBA\_CNTRY_{c,t} + \beta_7 CRE_{i,t} + IMR_{i,t} + \Sigma_t \beta_{8,t} YEAR_t + \varepsilon_{i,t} \quad (6)$$

4.3 Sample description

We run queries in the databases Thomson Reuters Knowledge, Compustat, and Datastream to identify European banks that prepared their financial statements for the financial year 2008 under IFRS. From the resulting list we exclude all banks that are subsidiaries of other banks present in the sample, for which no annual report could be found on the banks' homepage in the English, German or French language, that do not prepare their 2008 IFRS financial statements on a consolidated basis and those that were not publicly traded on at least one European stock exchange or went out of existence by the end of the financial year 2008. This proceeding yields a sample of 178 banks before data collection, which is further reduced by banks with no stock price data available on Datastream or with too opaque disclosures regarding financial instruments. The resulting sample of 166 banks leads to a number of 830 potential firm-year observations for the time period under review, i.e. 2006-2010. Due to insufficient data for the variables calculation we arrive at a number of 453 available firm-year observations, which presents our sensitivity sample. To obtain the primary sample of 391 firm-year observations we eliminate all non-adopters whose financial liabilities' book values equal fair values from the sensitivity sample.[24] Table 1 illustrates the sample selection process in more detail.

[24] Due to a relatively small sample size, our analyses use an unbalanced panel data set to maximize statistical power. We examine a potential survivorship bias in our sample twofold: We rerun our entire set of regression models (1) with a balanced data set (N = 260) and alternatively (2) by including an indicator variable equal to 1 if a bank is present in the sample for the entire five years and 0 otherwise. The inferences drawn from the ones reported are not affected qualitatively.

[Insert Table 1 here]

Different data sources are used for the empirical analysis. We hand-collect data from the annual reports 2006 until 2010 regarding the decision to designate financial instruments at fair value through profit or loss in order to generate the variables *FVO* and *FVOA*. For those annual reports where the adoption of the FVO for liabilities is confirmed, we additionally analyze if fair value changes arose from changes in credit quality (*CRE*). For all non-adopters we examine if the disclosed liabilities' fair values are equal to their book values. Finally, we hand-collect the data regarding the audit firm (*BIG4*). Accounting data used for the calculation of the variables *SIZE* and *LEV* are obtained from Worldscope. The data for all variables computed by the use of capital markets data, i.e. *LogBA, LogP*, *LogTO*, *LogRET_SD*, *LogFF*, and *LogBA_CNTRY*, are obtained from Datastream. The variable *LogNUMEST* is calculated by using data from I/B/E/S.

4.4 Descriptive statistics

Table 2 presents the distribution by country and year for the primary sample.

[Insert Table 2 here]

The last four columns indicate that overall there are 262 adopters, 130 of which recognize fair value changes attributable to changes in the credit risk, and 129 non-adopters. The relation of adopters to non-adopters is fairly stable across the five years. While in 2006 only 6 out of 43 adopters recognize fair value changes attributable to changes in the credit risk, this proportion increases considerably until 2010 (31 out of 47). Italy, Norway, and England represent the countries with the highest number of observations as well as with the highest number of adopters. None of the adopters is domiciled in Finland, Liechtenstein, Russia, Slovenia, and Turkey, however these countries are also well below average in terms of total observation numbers.

Panel A of Table 3 reports descriptive statistics about the relative amounts of the FVO and the credit risk effects. For all adopters the FVO liabilities amount to 7 percent (21 percent) of total assets (debt) on average while for adopters with CRE the absolute value of the credit risk effect exceeds the absolute value of net income on average by 11 percent. Panel B and panel C depict descriptive statistics for the variables used in the first and second stage regression on the primary sample. The mean (median) *LogBA* for

the FVO adopting banks is -5.863 (-5.973) whereas it is -5.080 (-5.020) for non-adopters indicating a lower spread for adopters and thus lower information asymmetries among the investors. The descriptive statistics also reveal that, on average, the FVO adopting banks have statistically larger analyst following, higher average daily trading volumes and higher percentages of free float shares relative to non-adopters.

[Insert Table 3 here]

Table 4 shows Pearson and Spearman correlations among the variables used in the main analysis.

[Insert Table 4 here]

Both Pearson and Spearman correlations between *LogBA* and *FVO* show that in a univariate sense adopters exhibit statistically significantly lower bid ask spreads than non-adopters. Moreover, the correlations also indicate that the recognition of credit risk changes is not detrimental to this reduction in information asymmetry since *CRE* is also negatively correlated with *LogBA*. The statistical significant correlations between the independent variables are small to moderate so we do not expect any multicollinearity problems arising from our model specifications.

5. Results

5.1 Main analysis

Panel A of Table 5 presents results for the univariate comparisons of bid-ask spreads across the different partitions of the primary sample.

[Insert Table 5 here]

The differences of means are tested using a two-tailed t-test and the differences in medians by using a Wilcoxon rank-sum test. When compared to non-adopters, the average bid-ask spread (difference = 0.004) as well as the median is lower for adopters at the one percent significance level. In a univariate sense, these results are consistent with our expectations as hypothesized under H1. When analyzing the bid-ask spreads of adopters with CRE versus non-adopters, the mean (difference = 0.005) and median of the former group are lower at the one percent significance level. This can be interpreted as first indicative evidence that lower levels of information asymmetry induced by the

adoption of the FVO are not reversed through the recognition of fair value changes attributable to credit risk changes (H2a). This notion is reinforced by examining bid-ask spreads of adopters with CRE compared to those of adopters without CRE. Here, marginally significant evidence (at the ten percent level) is provided for a decrease of average bid-ask spreads for adopters with CRE compared to Non-CRE adopters (difference = 0.002) (H2b).

Panel B depicts the results of the ordinary least squares regression analysis of information asymmetry differences for the primary sample. Model 1 serves as the benchmark regression. The estimated coefficients of all control variables are in line with the predicted signs. For *LogP* (-0.155; t-statistic = -2.90)*, LogTO* (-0.261; t-statistic = -6.77)*,* and *LogNUMEST* (-0.810; t-statistic = -8.40)*,* the coefficients are statistically significant at the one percent level, while they lack statistical significance for *LogFF* (-0.114; t-statistic = -0.74), *LogRET_SD* (0.203; t-statistic = 1.54), and *LogBA_CNTRY* (0.316; t-statistic = 0.93).

Model 2 includes *FVO*, the variable of interest. In line with H1, the coefficient of *FVO* (-0.400; t-statistic = -2.52) is negative and significant at the five percent level. The coefficients of the control variables do neither change in terms of signs nor in terms of significance, which is also true for the models 3 and 4. The results are consistent with lower levels of information asymmetry for adopters as reflected in smaller bid-ask spreads.

Model 3 includes *CRE,* the variable of interest in order to compare adopters with CRE to non-adopters. The negative coefficient of *CRE* (-0.582; t-statistic = -3.21) at a significance level of one percent lends support to H2a by indicating that the recognition of fair value changes attributable to changes in the credit risk is not detrimental to the lower level of information asymmetry attained through the adoption of the FVO. The comparison of adopters with CRE and other adopters in model 4 reveals that information asymmetry is even lower for the former group as indicated by the negative sign of the estimated coefficient for *CRE* (-0.328; t-statistic = -2.04), thus providing supportive evidence in favor of H2b. Overall, this result does not back claims that the recognition of fair value changes attributable to changes in the credit risk is perceived as transparency decreasing by investors.

To illustrate the economic magnitude of the effect, we exponentiate the value of -0.400 for the estimated coefficient on *FVO* in model 2. The resulting value of exp(-0.400) = 0.670 represents the ratio of the geometric mean spreads for adopters to the geometric mean spreads for non-adopters. This implies that the geometric mean spreads are 32 percent lower for the adopters than for non-adopters. Similarly for the coefficient estimated on *CRE* in model 3 exp(-0.582) = 0.559 implies that the geometric mean spreads for adopters with CRE are 44 percent lower than those of non-adopters.

5.2 Treatment effects

Panel A of Table 6 presents results for the first-stage probit regressions across two different partitions of the primary sample.

[Insert Table 6 here]

Column (1) presents the results on the determinants for the FVO adoption for liabilities when using adopters as treatment and non-adopters as control group. The signs of the explanatory variables *REGQUAL* (0.399; z-statistic = 2.39)*, BIG4* (0.288; z-statistic = 0.48)*, LEV* (0.639; z-statistic = 1.57)*, SIZE* (0.272; z-statistic = 6.76), and *FVOA* (0.590; z-statistic = 2.97) are in line with our predictions and statistical significant at the one or five percent level, except for *BIG4* and *LEV* that lack significance. The pseudo R-squared of the model equals 22.66 percent. Column (2) shows the results on the determinants when using only the adopters with CRE instead of all adopters as treatment group. Here, the signs of the significant coefficients still match the predictions. However, there are some changes in terms of statistical significance. The coefficient on *REGQUAL* (0.155; z-statistic = 0.76) loses its statistical significance, whereas the coefficient of *LEV* (1.677; z-statistic = 2.71) is now significant at the one percent level. Also, the pseudo R-squared increases to 37.77 percent.

Panel B shows the results of the ordinary least squares regression that is now adjusted for potential self-selection bias by including the inverse Mills ratios computed from the probit models. In model 2, the statistical significance for *IMR* (0.986; t-statistic = 3.96) indicates that our two-stage approach successfully captures self-selection. However, the results and therefore the inferences from the main analysis do not change qualitatively. The control variables remain unchanged in terms of significance, with the exception of *LogRET_SD* now being significant at the five percent level. Most importantly, the

estimated coefficient on *FVO* (-1.750; t-statistic = -4.30) is now negative at the one percent level reinforcing the notion that information asymmetries are mitigated by the FVO for liabilities. The *IMR* (1.046; t-statistic = 4.87) in model 3 is statistically significant at the one percent level providing evidence for the presence of self-selection. However, when comparing to the results of the main analysis, the coefficient on the treatment variable *CRE* (-1.794; t-statistic = -5.02) increases both in magnitude and statistical significance. Overall, the treatment effect models reinforce the results of the main analysis.

5.3 Additional analysis

5.3.1 Sample alterations analysis

In order to test the robustness of the primary sample results, we rerun our analysis with the sensitivity sample, i.e. with all observations available. The results of the multivariate comparisons of bid-ask spreads across different partitions are shown in Table 7.

[Insert Table 7 here]

The results of the base model are qualitatively consistent with the primary sample results. The coefficient on the treatment variable *FVO* (-0.418; t-statistic = -3.00) in model 2 increases both in magnitude and significance compared to the primary sample. The same is true for the treatment variable *CRE* (-0.605; t-statistic = -3.61) in model 3. Considering that the endogeneity bias that potentially arises from those banks where the liabilities' book values equal fair values works against our hypotheses H1 and H2a, these outcomes further strengthens the overall robustness of our analysis.

Panel A of Table 8 depicts the first stage regression results for the sensitivity sample.

[Insert Table 8 here]

In line with the main analysis, in column (1) adopters are used as treatment and non-adopters as control group. With all signs remaining unchanged the coefficient on *LEV* (0.861; z-statistic = 2.31) is now significant at the five percent level. More importantly, the pseudo R-squared increases to 28.63 percent, compared to 22.66 percent for the primary sample (Panel A of Table 6). This lends support to our proceeding of excluding the observations where the liabilities' book values equal fair values. The same holds when using adopters with CRE as treatment and non-adopters as control group. Here,

the pseudo R-squared increases to 42.97 percent.

The results of the second stage are tabulated in Panel B. Our assumption that the self-selection is more pronounced when including the previously excluded non-adopters is supported since *IMR* (0.948; t-statistic = 5.22) increases in terms of significance, compared to the primary sample (0.986; t-statistic = 3.96). However, after having adjusted for this self-selection by including *IMR*, the statistical significance of the coefficient on the variable of interest *FVO* (-1.641; t-statistic = -5.91) in model 2 even increases. The same is true for *CRE* (-1.721; t-statistic = -6.40) in model 3, where *IMR* (1.014; t-statistic = 6.10) increases in terms of statistical significance. Again, these results of the sensitivity sample provide further support for the robustness of our inferences drawn from the main analysis.

A further concern in our study is that adopters with overall poor disclosures may simply not report fair value changes that arise from credit risk changes. To mitigate this concern we follow prior literature (Lang and Lundholm, 1993; Healy and Palepu, 2001) which argues that more (informative) disclosure lowers the cost of information acquisition for analysts, thereby increasing analysts following. Thus, we first rank *LogNUMEST* into deciles and then reestimate our regression models without the banks in the lowest decile, i.e. we exclude the banks with the lowest analyst following and hence poorest disclosure. We find that our results (untabulated) do not materially change, compared to the ones reported in the main analysis. To sum up, these findings indicate that our results are not affected by adopters with overall poor disclosures.

5.3.2 Different effects due to negative vs. positive fair value changes

We also analyze whether the results concerning H2a and H2b are sensitive to a further partitioning of *CRE* into negative and positive fair value changes, i.e. gains and losses that arise from changes in credit risk. For this purpose, we run models 3 and 4 of the main analysis separately with adopters that recognize gains and with adopters that recognize losses due to credit risk fair value changes. Untabulated results show that there are no qualitative differences, compared to the main analysis, except for one minor variation. In model 4 the estimated negative coefficient on *CRE* (-0.294; t-statistic = -1.58) loses its statistical significance when regarding adopters that recognized losses in comparison to the control group of adopters without CRE. Overall, the results suggest

that the direction of the fair value changes attributable to changes in credit risk has no material impact on information asymmetry.

5.3.3 Effect of financial crisis

Finally, we exclude the years 2008 and 2009 from our main analysis in order to isolate potential influences of the financial crisis, especially on the market data. Untabulated results suggest that the evidence from the main analysis is reinforced by omitting the crisis years. In model 2, the estimated coefficient on *FVO* (-0.5701; t-statistic = -3.35) is now significant at the one percent level, while *CRE* (-0.5545; t-statistic = -3.96) in model 3 remains significant at said level. In model 4, the estimated coefficient on *CRE* (-0.3961; t-statistic = -2.46) also remains significant at the five percent level. Again, this reinforces the notion that investors do not perceive the recognition of credit risk evoked fair value changes as detrimental to the quality and transparency of financial statements.

6. Conclusion

This paper contributes to the extant literature on the recognition of liabilities' fair value changes, especially those attributable to changes in the credit risk, by measuring the impact on information asymmetry in an IFRS setting. Using data from European banks for the years 2006 until 2010, we provide empirical evidence on whether adopting the FVO for liabilities under IAS 39 leads to lower levels of information asymmetry as reflected in smaller bid-ask spreads. We argue that the adoption of the FVO in accordance with the eligibility criteria increases reporting quality and therefore has a positive impact on the information levels of uninformed traders and the market maker. Consequentially, this leads to a decrease of information asymmetry among investors. Our findings consistently show that adopters exhibit smaller bid-ask spreads than non-adopters. We next investigate whether the recognition of fair value changes that are attributable to changes in the own credit risk and the resulting counterintuitive income statement effects are detrimental to the reduction in information asymmetry attained through the FVO. For this purpose, we alter the treatment group of adopters by excluding all adopters without such changes, while holding constant the control group of non-adopters. The results show that the bid-ask spreads for the former group are still significantly smaller relative to the non-adopters. This indicates that the recognition of credit risk evoked fair value changes is not perceived as transparency decreasing by investors. Moreover, we also find statistical significant evidence for a decrease of bid-

ask spreads when comparing adopters with credit risk fair value changes to adopters without such changes. These results again do not support claims that recognizing fair value changes attributable to changes in the credit risk is detrimental to the transparency of financial statements. The inferences drawn from our main analysis do not change when performing different sample alterations and controlling for endogeneity. The latter is done twofold: We exclude banks classified as lacking eligibility for the FVO adoption and additionally use treatment effects models.

Bearing in mind that the study is subject to several limitations, the results should be interpreted cautiously. One of the limitations inherent to the research design is omitted variable bias. Although we address this bias by controlling for unobserved heterogeneity through our fixed effects models, we cannot rule out that other confounding variables may affect our results. For instance, they might not be exclusively driven by the difference regarding the FVO adoption or the fair value changes due to credit risk changes, but by additional differences between the two groups that also the inverse Mills ratio fails to capture. Also, our analyses in regards to endogeneity and self-selection bias neglect financial liabilities that are eligible for the FVO adoption under IAS 39 because they belong to a contract that contains one or more substantive embedded derivatives. Finally, the results presented in this study might suffer from a lack of generalization to financial institutions in a broader context since our sample is limited exclusively to banks that are predominantly domiciled in highly developed countries.

References

American Accounting Association's Financial Accounting Standards Committee (2007). Response to FASB Exposure Draft, "The Fair Value Option for Financial Assets and Financial Liabilities, Including an Amendment of FASB Statement No. 115". *Accounting Horizons,* 21 (2), 189-200.

Ball, R., Jayaraman, S., and Shivakumar, L. (2012). Mark-to-Market Accounting and Information Asymmetry in Banks. *Working paper*, The University of Chicago Booth School of Business.

Banco Pastor Group (2011). Consolidated Financial Statements 2010. Available from: http://quote.morningstar.com/stock-filing/Annual-Report/2010/12/31/t.aspx?t=:PAS&ft=&d=802e6fbd27bdedc3811570a7700c5c06. Accessed 15 September 2013.

Barnea, A. and Logue, D. E. (1975). The Effect of Risk on the Market Maker's Spread. *Financial Analysts Journal,* 31 (6), 45-49.

Barth, M. E. (2007). Standard-setting measurement issues and the relevance of research. *Accounting and Business Research*, 37 (1), 7-15.

Barth, M. E., Hodder, L. D., and Stubben, S. R. (2008). Fair Value Accounting for Liabilities and Own Credit Risk. *The Accounting Review,* 83 (3), 629-664.

Barth, M. E. and Landsman, W. R. (1995). Fundamental Issues Related to Using Fair Value Accounting for Financial Reporting. *Accounting Horizons*, 9 (4), 97-107.

Barth, M. E. and Landsman, W. R. (2010). How did Financial Reporting Contribute to the Financial Crisis? *European Accounting Review,* 19 (3), 399-423.

Basel Committee on Banking Supervision (2002). Basel Committee Comments on IASB Exposure Draft of Proposed "Amendments to IAS 32, Financial Instruments: Disclosure and Presentation, and IAS 39, Financial Instruments: Recognition and Measurement. Available from: http://www.bis.org/bcbs/commentletters/iasb09.pdf. Accessed 15 September 2013.

Basel Committee on Banking Supervision (2006). Supervisory guidance on the use of the fair value option for financial instruments by banks. Available from: http://www.bis.org/publ/bcbs127.pdf. Accessed 15 September 2013.

Benston, G. J. and Hagerman, R. L. (1974). Determinants of bid-asked spreads in the over-the-counter market. *Journal of Financial Economics,* 1 (4), 353-364.

Bhushan, R. (1989). Firm characteristics and analyst following. *Journal of Accounting and Economics*, 11 (2-3), 255-274.

Brennan, M. J. and Subrahmanyam, A. (1995). Investment analysis and price formation in securities markets. *Journal of Financial Economics,* 38 (3), 361-381.

Chang, Y.-L., Liu, C.-C., and Ryan, S. G. (2009). SFAS No. 159's Fair Value Option: Eventually Used as Intended. *Working paper*, National Taiwan University and New York University.

Chasteen, L. G. and Ransom, C. R. (2007). Including Credit Standing in Measuring the Fair Value of Liabilities: Let's Pass This One to the Shareholders. *Accounting Horizons,* 21 (2), 119-135.

Chordia, T., Roll, R., and Subrahmanyam, A. (2008). Liquidity and market efficiency. *Journal of Financial Economics*, 87 (2), 249-268.

Community of European Banking Supervisors (CEBS) (2007). Analytical report on prudential filters for regulatory capital. Available from: http://www.eba.europa.eu/documents/10180/16094/145Final_Analytical_report_on_prudential_filters.pdf. Accessed 15 September 2013.

Copeland, T. E. and Galai, D. (1983) Information Effects on the Bid-Ask Spread. *Journal of Finance*, 38 (5), 1457-1469.

Demsetz, H. (1968). The cost of transacting. *The Quarterly Journal of Economics,* 82 (1), 33-53.

European Central Bank (ECB) (2001). Fair value accounting in the banking sector. Available from: http://www.ecb.eu/pub/pdf/other/notefairvalueacc011108en.pdf. Accessed 15 September 2013.

Fiechter, P. (2011). The Effects of the Fair Value Option under IAS 39 on the Volatility of Bank Earnings. *Journal of International Accounting Research,* 10 (1), 85-108.

Fiechter, P. and Novotny-Farkas, Z. (2011). Pricing of Fair Values during the Financial Crisis: International Evidence. *Working paper*, University of Zurich and Goethe-University Frankfurt.

Financial Accounting Standards Board (FASB) (2007). Statement of Financial Accounting Standards No. 159: The Fair Value Option for Financial Assets and Financial Liabilities, February 2007. Norwalk, Connecticut.

Gaynor, L. M., McDaniel L., and Yohn, T. L. (2011). Fair value accounting for liabilities: The role of disclosures in unraveling the counterintuitive income statement effect from credit risk changes. *Accounting, Organizations and Society,* 36 (3), 125-134.

Glosten, L. R. and Milgrom, P. R. (1985). Bid, ask and transaction prices in a specialist market with heterogeneously informed traders. *Journal of Financial Economics,*14 (1), 71-100.

Guthrie, K., Irving, J. H., and Sokolowsky, J. (2011). Accounting Choice and the Fair Value Option. *Accounting Horizons,* 25 (3), 487-510.

Healy, P. M. and Palepu, K. G. (2001). Information asymmetry, corporate disclosure, and the capital markets: A review of the empirical disclosure literature. *Journal of Accounting and Economics*, 31 (1-3), 405-440.

Heckman, J. J. (1979). Sample selection bias as a specification error. *Econometrica,* 47 (1), 153-161.

Heckman, P. E. (2004). Credit Standing and the Fair Value of Liabilities: A Critique. *North American Actuarial Journal,* 8 (1), 70-85.

Hitz, J.-M. (2007). The Decision Usefulness of Fair Value Accounting – A Theoretical Perspective. *European Accounting Review,* 16 (2), 323-362.

Horton, J., Macve, R., and Serafeim, G. (2011). 'Deprival value' vs. 'fair value' measurement for contract liabilities: how to resolve the 'revenue recognition' conundrum? *Accounting and Business Research*, 41 (5), 491-514.

HSBC Holdings plc (2008). 2008 Annual Report and Accounts. Available from: http://www.hsbc.com/investor-relations/~/media/HSBC-com/InvestorRelationsAssets/FinancialResults/2008/hsbc2008ara0.ashx. Accessed 15 September 2013.

International Accounting Standards Board (IASB) (2009). Credit Risk in Liability Measurement: Staff paper accompanying Discussion Paper DP/2009/2, June 2009. London.

International Accounting Standards Board (IASB) (2010). ED/2010/4 Fair Value Option for Financial Liabilities, May 2010. London.

Kaufmann, D., Kraay, A., and Mastruzzi, M. (2009). Governance Matters VIII: Aggregate and Individual Governance Indicators 1996-2008. *Policy research working paper 4978*, The World Bank.

Kim, O. and Verrecchia, R. E. (1991). Trading Volume and Price Reactions to Public Announcements. *Journal of Accounting Research*, 29 (2), 302-321.

Koonce, L., Nelson, K. K., and Shakespeare, C. (2011). Judging the Relevance of Fair Value for Financial Instruments. *The Accounting Review*, 86 (6), 2075-2098.

Lachmann, M., Wöhrmann, A., and Wömpener, A. (2010). Investorenreaktionen auf die Fair Value-Bilanzierung von Verbindlichkeiten nach IFRS - eine experimentelle Untersuchung. *Zeitschrift für Betriebswirtschaft*, 80 (11), 1179-1206.

Landsman, W. R. (2007). Is fair value accounting information relevant and reliable? Evidence from capital market research. *Accounting and Business Research*, 37 (supplement 1), 19-30.

Lang, M. and Lundholm, R. (1993). Cross-Sectional Determinants of Analyst Ratings of Corporate Disclosures. *Journal of Accounting Research,* 31 (2), 246-271.

Leuz, C. (2003). IAS Versus U.S. GAAP: Information Asymmetry-Based Evidence from Germany's New Market. *Journal of Accounting Research,* 41 (3), 445-472.

Leuz, C. and Verrecchia, R. E. (2000). The Economic Consequences of Increased Disclosure. *Journal of Accounting Research,* 38 (supplement), 91-124.

Lipe, R. C. (2002). Fair Valuing Debt Turns Deteriorating Credit Quality into Positive Signals for Boston Chicken. *Accounting Horizons,* 16 (2), 169-181.

Merton, R. C. (1974). On the pricing of corporate debt: The risk structure of interest rates. *The Journal of Finance,* 29 (2), 449-470.

Muller, K. A. and Riedl, E. J. (2002). External Monitoring of Property Appraisal Estimates and Information Asymmetry. *Journal of Accounting Research,* 40 (3), 865-881.

Muller, K. A., Riedl, E. J., and Sellhorn, T. (2011). Mandatory Fair Value Accounting and Information Asymmetry: Evidence from the European Real Estate Industry. *Management Science,* 57 (6), 1138-1153.

Nissim, D. and Penman, S. H. (2008). Principles for the Application of Fair Value Accounting. *Working paper*, Center for Excellence in Accounting and Security Analysis, Columbia Business School.

Nobes, C. (2011). On relief value (deprival value) versus fair value measurement for contract liabilities: a comment and a response. *Accounting and Business Research*, 41(5), 515-524.

Power, M. (2010). Fair value accounting, financial economics and the transformation of reliability. *Accounting and Business Research*, 40 (3), 197-210.

Rock, S., Sedo, S., and Willenborg, M. (2000). Analyst following and count-data econometrics. *Journal of Accounting and Economics*, 30 (3), 351-373.

Rogers, W. H. (1993). Regression standard errors in clustered samples. *Stata Technical Bulletin,* 3 (13), 19-23.

Schipper, K. (2003). Principles-Based Accounting Standards. *Accounting Horizons*, 17 (1), 61-72.

Song, C. J. (2008). An Evaluation of FAS 159 Fair Value Option: Evidence from the Banking Industry. *Working paper*, Virginia Polytechnic Institute and State University.

Stoll, H. R. (1978). The pricing of security dealer services: An empirical study of NASDAQ stocks. *The Journal of Finance,* 33 (4), 1153-1172.

Van Zijl, T. and Whittington, G. (2006). Deprival value and fair value: a reinterpretation and a reconciliation. *Accounting and Business Research*, 36 (2), 121-130.

Welker, M. (1995). Disclosure Policy, Information Asymmetry and Liquidity in Equity Markets. *Contemporary Accounting Research,* 11 (2), 801-827.

Whittington, G. (2005). The Adoption of International Accounting Standards in the European Union. *European Accounting Review,* 14 (1), 127-153.

Table 1: Sample selection

Thomson Reuters Knowledge:		
European IFRS Banks for FY 2008	291	
Less		
Subsidiaries of other banks in the sample	- 66	
American Depositary Receipts	- 9	
No annual report found (in English, German or French)	- 43	
No financial statements under IFRS	- 14	
Financial statements not on consolidated basis	- 5	
Not publicly traded or out of existence	- 18	
	136	
Plus		
Compustat:		
Additional European IFRS Banks for FY 2008 after filters	+ 33	
	169	
Plus		
Datastream:		
Additional European IFRS Banks for FY 2008 after filters	+ 9	
Sample before Data Collection	178	
Less		
Disclosures concerning financial instruments opaque	- 3	
No stock prices available on Datastream	- 9	
	166	
Potential firm year observations (166 banks times five fiscal years)	830	
Less		
Firm-years with insufficient data	- 377	
Remaining firm-year observations	453	
	Observations	Firms
Primary sample: Excl. banks where liabilities' BV equal FV	391	108
Sensitivity sample: All available observations	453	117

Table 2: Primary sample distribution: Adopters vs. Non-Adopters by country and year

	2006			2007			2008			2009			2010			Total			
Country	FVO	[CRE]	Non-FVO	FVO	[CRE]	Non-FVO	FVO	[CRE]	Non-FVO	FVO	[CRE]	Non-FVO	FVO	[CRE]	Non-FVO	FVO	[CRE]	Non-FVO	Sum
Austria	0	[0]	0	0	[0]	0	1	[0]	1	1	[0]	1	2	[2]	0	4	[2]	2	6
Belgium	1	[0]	0	1	[0]	0	1	[1]	0	1	[1]	0	1	[1]	0	5	[3]	0	5
Cyprus	0	[0]	1	1	[0]	1	1	[0]	1	0	[0]	1	0	[0]	1	2	[0]	5	7
Denmark	1	[0]	4	2	[0]	4	2	[0]	2	1	[0]	5	1	[0]	3	7	[0]	18	25
Finland	0	[0]	0	0	[0]	0	0	[0]	0	0	[0]	0	0	[0]	1	0	[0]	1	1
France	4	[0]	0	4	[4]	0	4	[4]	0	4	[4]	1	3	[3]	0	19	[15]	1	20
Germany	1	[1]	3	4	[3]	2	3	[3]	4	3	[3]	4	2	[2]	2	13	[12]	15	28
England	6	[2]	3	6	[5]	2	5	[5]	2	5	[5]	2	5	[3]	1	27	[20]	10	37
Greece	0	[0]	0	0	[0]	0	0	[0]	0	3	[2]	3	3	[2]	1	6	[4]	4	10
Hungary	0	[0]	2	1	[0]	1	1	[0]	1	0	[0]	0	0	[0]	0	2	[0]	4	6
Ireland	1	[0]	1	2	[0]	1	2	[1]	1	0	[0]	1	1	[1]	1	6	[2]	5	11
Italy	10	[2]	4	12	[7]	5	13	[8]	3	13	[9]	3	7	[6]	4	55	[32]	19	74
Liechtenstein	0	[0]	1	0	[0]	1	0	[0]	1	0	[0]	1	0	[0]	1	0	[0]	5	5
Lithuania	0	[0]	0	0	[0]	0	1	[0]	0	0	[0]	0	0	[0]	0	1	[0]	0	1
Netherlands	2	[0]	0	3	[1]	0	3	[2]	0	3	[2]	0	4	[2]	0	15	[7]	0	15
Norway	4	[0]	3	5	[0]	2	7	[2]	3	8	[4]	2	6	[5]	2	30	[11]	12	42
Poland	0	[0]	2	0	[0]	2	1	[0]	1	0	[0]	2	0	[0]	3	1	[0]	10	11
Portugal	2	[1]	1	3	[2]	0	3	[2]	0	3	[2]	0	2	[2]	0	13	[9]	1	14
Russia	0	[0]	1	0	[0]	2	0	[0]	2	0	[0]	4	0	[0]	0	0	[0]	9	9
Scotland	1	[0]	0	1	[1]	0	1	[1]	0	1	[1]	0	1	[0]	0	5	[3]	0	5
Slovenia	0	[0]	0	0	[0]	0	0	[0]	0	0	[0]	1	0	[0]	0	0	[0]	1	1
Spain	3	[0]	0	3	[0]	0	3	[0]	0	3	[0]	1	2	[0]	0	14	[0]	1	15
Sweden	4	[0]	0	3	[0]	0	4	[1]	0	5	[2]	0	4	[1]	0	20	[4]	0	20
Switzerland	3	[0]	1	3	[1]	1	4	[2]	1	4	[2]	0	3	[1]	0	17	[6]	3	20
Turkey	0	[0]	0	0	[0]	0	0	[0]	1	0	[0]	1	0	[0]	1	0	[0]	3	3
Sum	43	[6]	27	54	[24]	24	60	[32]	24	58	[37]	33	47	[31]	21	262	[130]	129	391

This table depicts the primary sample distribution by country and year, across the years 2006-2010 and in total. For each year and country the number of banks that adopt the fair value option for liabilities (FVO) is compared to those that refrain from doing so (Non-FVO). CRE specifies the number of adopters with fair value changes attributable to changes in the own credit risk.

Table 3: Descriptive statistics on primary sample

Panel A: Descriptive statistics on relative amounts of FVO liabilities and credit risk effects

	FVO / CRE	N	Mean	SD	Q1	Median	Q3
FVO-Liabilities/Total Assets	If FVO = 1	262	0.07	0.10	0.01	0.04	0.08
	If CRE = 1	130	0.06	0.07	0.02	0.04	0.08
	If CRE = 0	132	0.07	0.12	0.01	0.03	0.07
FVO-Liabilities/Total Debt	If FVO = 1	262	0.21	0.38	0.04	0.11	0.24
	If CRE = 1	130	0.24	0.48	0.05	0.13	0.24
	If CRE = 0	132	0.18	0.24	0.03	0.08	0.22
Credit Risk Effect % Net Income	If CRE = 1	130	1.11	6.96	0.02	0.06	0.27

Panel A presents descriptive statistics on the relative amounts of FVO liabilities and credit risk effects. See Appendix 1 for definition of variables.

Panel B: Descriptive statistics on first stage model variables

	FVO / CRE	N	Mean	SD	Q1	Median	Q3
REGQUAL	All	391	1.33	0.46	0.95	1.34	1.68
	If FVO = 1	262	1.39	0.33	1.12	1.34	1.68
	If CRE = 1	130	1.36	0.34	0.95	1.34	1.68
	If CRE = 0	132	1.41	0.32	1.25	1.34	1.68
	If FVO = 0	129	1.21	0.63	0.95	1.34	1.79
BIG4	All	391	0.97	0.16	1.00	1.00	1.00
	If FVO = 1	262	0.99	0.11	1.00	1.00	1.00
	If CRE = 1	130	0.99	0.09	1.00	1.00	1.00
	If CRE = 0	132	0.98	0.12	1.00	1.00	1.00
	If FVO = 0	129	0.95	0.23	1.00	1.00	1.00
LEV	All	391	0.34	0.18	0.21	0.36	0.44
	If FVO = 1	262	0.35	0.16	0.24	0.37	0.44
	If CRE = 1	130	0.34	0.14	0.24	0.37	0.44
	If CRE = 0	132	0.35	0.18	0.26	0.37	0.47
	If FVO = 0	129	0.32	0.22	0.11	0.33	0.42
SIZE	All	391	10.80	2.25	9.07	10.77	12.38
	If FVO = 1	262	11.52	2.06	9.99	11.79	13.21
	If CRE = 1	130	12.21	1.79	10.99	12.31	13.83
	If CRE = 0	132	10.85	2.08	9.16	10.87	12.54
	If FVO = 0	129	9.32	1.85	8.03	9.45	10.62
FVOA	All	391	0.82	0.39	1.00	1.00	1.00
	If FVO = 1	262	0.92	0.28	1.00	1.00	1.00
	If CRE = 1	130	0.92	0.28	1.00	1.00	1.00
	If CRE = 0	132	0.92	0.28	1.00	1.00	1.00
	If FVO = 0	129	0.62	0.49	0.00	1.00	1.00

Panel B presents descriptive statistics for the variables used in the first stage analysis on the primary sample. See Appendix 1 for definition of variables.

Table 3: Descriptive statistics on primary sample (continued)

Panel C: Descriptive statistics on second stage model variables

	FVO / CRE	N	Mean	SD	Q1	Median	Q3
LogBA	All	391	-5.604	1.303	-6.573	-5.622	-4.716
	If FVO = 1	262	-5.863	1.312	-6.880	-5.973	-5.020
	If CRE = 1	130	-5.985	1.259	-6.933	-6.144	-5.123
	If CRE = 0	132	-5.742	1.355	-6.719	-5.811	-4.902
	If FVO = 0	129	-5.080	1.119	-5.796	-5.020	-4.396
LogP	All	391	1.990	1.527	1.273	2.065	2.933
	If FVO = 1	262	1.991	1.524	1.345	2.079	2.933
	If CRE = 1	130	1.827	1.616	1.046	1.969	2.909
	If CRE = 0	132	2.152	1.415	1.555	2.283	2.936
	If FVO = 0	129	1.989	1.541	1.209	2.065	2.923
LogTURN	All	391	-6.039	1.782	-6.790	-5.848	-4.957
	If FVO = 1	262	-5.866	1.553	-6.547	-5.560	-4.913
	If CRE = 1	130	-5.997	1.593	-6.634	-5.573	-4.951
	If CRE = 0	132	-5.737	1.507	-6.323	-5.554	-4.895
	If FVO = 0	129	-6.391	2.138	-7.454	-6.153	-5.438
LogRET_SD	All	391	-3.900	0.566	-4.298	-3.943	-3.550
	If FVO = 1	262	-3.885	0.544	-4.276	-3.925	-3.550
	If CRE = 1	130	-3.792	0.549	-4.169	-3.878	-3.487
	If CRE = 0	132	-3.976	0.526	-4.384	-4.039	-3.655
	If FVO = 0	129	-3.932	0.608	-4.343	-4.016	-3.570
LogFF	All	391	4.195	0.460	3.892	4.382	4.605
	If FVO = 1	262	4.241	0.412	3.989	4.407	4.605
	If CRE = 1	130	4.260	0.422	3.989	4.472	4.605
	If CRE = 0	132	4.223	0.402	3.989	4.290	4.605
	If FVO = 0	129	4.101	0.534	3.689	4.234	4.605
LogNUMEST	All	391	3.881	0.703	3.611	4.007	4.357
	If FVO = 1	262	3.995	0.663	3.714	4.103	4.489
	If CRE = 1	130	4.120	0.548	3.871	4.205	4.533
	If CRE = 0	132	3.872	0.741	3.637	4.007	4.394
	If FVO = 0	129	3.648	0.726	3.296	3.807	4.094
LogBA_CNTRY	All	391	-0.881	0.198	-0.980	-0.842	-0.751
	If FVO = 1	262	-0.905	0.195	-0.996	-0.916	-0.792
	If CRE = 1	130	-0.913	0.205	-0.996	-0.898	-0.810
	If CRE = 0	132	-0.898	0.185	-0.996	-0.931	-0.753
	If FVO = 0	129	-0.830	0.195	-0.889	-0.804	-0.743

Panel C presents descriptive statistics for the variables used in the second stage analysis on the primary sample. See Appendix 1 for definition of variables.

Table 4: Correlations among main analysis variables

	A	B	C	D	E	F	G	H	I
A: *LogBA*		**-0.2308**	**-0.5383**	0.0650	-0.0267	**-0.5358**	**0.2629**	**-0.3366**	**-0.2185**
B: *LogP*	**-0.2750**		**-0.1809**	**-0.3652**	**-0.0956**	**0.1027**	-0.0439	0.0054	-0.0684
C: *LogTO*	**-0.5103**	-0.0947		**0.2574**	**0.2257**	**0.3185**	**-0.2725**	**0.2251**	**0.0823**
D: *LogRET_SD*	0.0594	**-0.3712**	**0.2711**		0.0647	**0.1472**	**-0.1512**	0.0524	**0.1339**
E: LogFF	**-0.1687**	**-0.0813**	**0.2705**	**0.1206**		0.0741	**0.0816**	0.0176	0.0430
F: *LogNUMEST*	**-0.5353**	**0.1283**	**0.2314**	**0.1399**	**0.1138**		**-0.2743**	**0.2640**	**0.2608**
G: *LogBA_CNTRY*	**0.1669**	-0.0123	**-0.1587**	**-0.2187**	-0.0210	**-0.2332**		**-0.2229**	**-0.1176**
H: FVO	**-0.3338**	0.0235	**0.2107**	0.0536	**0.0947**	**0.2324**	**-0.1068**		**0.5217**
I: *CRE*	**-0.2199**	-0.0499	0.0649	**0.1224**	0.0493	**0.2410**	-0.0769	**0.5217**	

Pearson correlations are below and Spearman are above the diagonal. The correlation table depicts pair-wise correlations between variables used in the second stage of the main analysis. All correlations significant at 0.1 two-tailed level are in bold. See Appendix 1 for variable definitions.

Table 5: Fair value option for liabilities and the effects on information asymmetry

Panel A: Univariate Analysis (dependent variable is BA)

Primary Sample	FVO	Non-FVO	CRE	Non-FVO	Non-CRE (FVO)
N	262	129	130	129	132
Mean	0.007	0.011	0.006	0.011	0.008
Difference of Means		-0.004***		-0.005***	-0.002*
Wilcoxon rank-sum test (Z-value)		5.790***		5.713***	1.414

Panel A presents univariate comparisons of bid-ask spreads across different partitions of the primary sample: Adopters of the fair value option for liablities (FVO) vs. non-adopters (Non-FVO); adopters with fair value changes attributable to changes in the credit risk (CRE) vs. Non-FVO; CRE vs. adopters without fair value changes attributable to changes in the credit risk (Non-CRE (FVO)). The primary sample excludes non-adopters for which book values of all liabilities are equal to fair values. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels (two-tailed), respectively, under a two-tailed t-test for differences of means and under a two-tailed Wilcoxon rank-sum test for differences in medians.

Panel B: Multivariate Analysis on Primary Sample (dependent variable is LogBA)

Variables	Predicted Sign	Treatment Group: Control Group:	FVO Non-FVO	CRE Non-FVO	CRE Non-CRE
		(Model 1)	(Model 2)	(Model 3)	(Model 4)
Intercept	?	-2.407	-2.862	-3.858	-2.782
		(-2.18)**	(-2.63)**	(-3.33)***	(-1.81)*
LogP	-	-0.155	-0.161	-0.184	-0.164
		(-2.90)***	(-3.21)***	(-3.30)***	(-2.75)***
LogTO	-	-0.261	-0.257	-0.261	-0.273
		(-6.77)***	(-6.41)***	(-6.89)***	(-4.46)***
LogRET_SD	+	0.203	0.156	0.061	0.121
		(1.54)	(1.19)	(0.39)	(0.71)
LogFF	-	-0.114	-0.064	-0.005	-0.178
		(-0.74)	(-0.42)	(-0.03)	(-0.93)
LogNUMEST	-	-0.810	-0.751	-0.647	-0.869
		(-8.40)***	(-7.37)***	(-5.03)***	(-7.66)***
LogBA_CNTRY	+	0.316	0.165	0.007	0.018
		(0.93)	(0.51)	(0.02)	(0.04)
FVO	-		-0.400		
			(-2.52)**		
CRE	?			-0.582	-0.328
				(-3.21)***	(-2.04)**
Year Effects		Yes	Yes	Yes	Yes
Adj. R-squared (%)		52.78%	54.58%	54.42%	54.48%
N		391	391	259	262

Panel B provides ordinary least squares regression analysis (based on heteroskedasticity-robust standard errors) of information asymmetry differences that arise from the adoption of the FVO for liabilities and from recognized fair value changes attributable to changes in the credit risk. Model 1 presents the base model. The results of Model 2 show that information asymmetry is lower for adopters. Model 3 indicates that information asymmetry is lower for adopters with fair value changes attributable to changes in the credit risk than for non-adopters. Model 4 provides evidence that the information asymmetry for adopters with fair value changes attributable to changes in the credit risk is lower, relative to adopters without these changes (Non-CRE (FVO)). The primary sample excludes non-adopters for which book values of all liabilities are equal to fair values. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels (two-tailed), respectively. See Appendix 1 for definition of variables.

Table 6: Treatment regression of LogBA on the application of FVO (CRE)

Panel A: First stage on Primary Sample (dependent variable is FVO)

Variables	Predicted Sign	FVO Non-FVO	CRE Non-FVO
		(1)	(2)
Intercept	?	-7.659	-13.277
		(-6.94)***	(-7.40)***
REGQUAL	+	0.399	0.155
		(2.39)**	(0.76)
BIG4	+	0.288	-0.040
		(0.48)	(-0.04)
LEV	+	0.639	1.677
		(1.57)	(2.71)***
SIZE	+	0.272	0.494
		(6.76)***	(8.27)***
FVOA	+	0.590	0.488
		(2.97)***	(1.90)*
Pseudo R-squared (%)		22.66%	37.77%
LR Chi-square (5)		112.39***	135.63***
N		391	259

Panel A presents the results of a first-stage probit regression for the application of FVO / CRE. The first-stage probit model computes the inverse Mills ratios (IMR) which are included in the second-stage equations under Panel B in order to adjust standard errors for selection bias. In column (1) the dependent variable is FVO with non-adopters representing the control group (Non-FVO). In column (2) the dependent variable is CRE with non-adopters representing the control group (Non-FVO). The primary sample excludes non-adopters for which book values of all liabilities are equal to fair values. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels (two-tailed), respectively.

Panel B: Second stage (dependent variable is LogBA)

Variables	Predicted Sign	FVO Non-FVO	CRE Non-FVO
		(Model 2)	(Model 3)
Intercept	?	-3.354	-4.474
		(-3.21)***	(-4.14)***
LogP	-	-0.130	-0.188
		(-2.95)***	(-3.80)***
LogTO	-	-0.276	-0.279
		(-7.36)***	(-7.93)***
LogRET_SD	+	0.273	0.270
		(2.13)**	(1.87)*
LogFF	-	0.071	0.123
		(0.51)	(0.92)
LogNUMEST	-	-0.433	-0.249
		(-3.68)***	(-1.64)
LogBA_CNTRY	+	0.228	0.050
		(0.79)	(0.20)
IMR	?	0.986	1.046
		(3.96)***	(4.87)***
FVO	-	-1.750	
		(-4.30)***	
CRE	?		-1.794
			(-5.02)***
Year Effects		Yes	Yes
Adj. R-squared (%)		58.53%	62.00%
N		391	259

Panel B provides ordinary least squares regression analysis (based on heteroskedasticity-robust standard errors adjusted for self-selection bias) of information asymmetry differences that arise from the adoption of the FVO for liabilities and from recognized fair value changes attributable to changes in the credit risk. The results of Model 2 show that information asymmetry is lower for adopters. The results of Model 3 indicate that information asymmetry is lower for adopters with fair value changes attributable to changes in the credit risk than for non-adopters. The primary sample excludes non-adopters for which book values of all liabilities are equal to fair values. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels (two-tailed), respectively. See Appendix 1 for definition of variables.

Table 7: Fair value option for liabilities and the effects on information asymmetry

Multivariate Analysis on Sensitivity Sample (dependent variable is LogBA)

Variables	Predicted Sign	Treatment Group: Control Group:	FVO Non-FVO	CRE Non-FVO
		(Model 1)	(Model 2)	(Model 3)
Intercept	?	-1.946	-2.393	-3.161
		(-1.92)*	(-2.44)**	(-3.16)***
LogP	-	-0.188	-0.184	-0.212
		(-3.30)***	(-3.65)***	(-3.88)***
LogTO	-	-0.248	-0.244	-0.247
		(-7.03)***	(-7.07)***	(-7.57)***
LogRET_SD	+	0.183	0.162	0.088
		(1.46)	(1.31)	(0.63)
LogFF	-	-0.200	-0.155	-0.135
		(-1.41)	(-1.13)	(-0.99)
LogNUMEST	-	-0.759	-0.684	-0.563
		(-8.61)***	(-7.44)***	(-5.21)***
LogBA_CNTRY	+	0.470	0.315	0.191
		(1.36)	(0.94)	(0.57)
FVO	-		-0.418	
			(-3.00)***	
CRE	?			-0.605
				(-3.61)***
Year Effects		Yes	Yes	Yes
Adj. R-squared (%)		54.11%	56.24%	56.69%
N		453	453	321

This table provides ordinary least squares regression analysis (based on heteroskedasticity-robust standard errors) of information asymmetry differences that arise from the adoption of the FVO for liabilities and from recognized fair value changes attributable to changes in the credit risk. Model 1 presents the base model. The results of Model 2 show that information asymmetry is lower for adopters. The results of Model 3 indicate that information asymmetry is lower for adopters with fair value changes attributable to changes in the credit risk than for non-adopters. The sensitivity sample consists of all available observations. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels (two-tailed), respectively. See Appendix 1 for definition of variables.

Table 8: Treatment regression of LogBA on the application of FVO (CRE) for liabilities

Panel A: First stage on Sensitivity Sample (dependent variable is FVO)

Variables	Predicted Sign	FVO Non-FVO	CRE Non-FVO
		(1)	(2)
Intercept	?	-8.404	-13.930
		(-7.68)***	(-7.79)***
REGQUAL	+	0.358	0.179
		(2.28)**	(0.92)
BIG4	+	0.056	-0.226
		(0.09)	(-0.21)
LEV	+	0.861	1.644
		(2.31)**	(2.86)***
SIZE	+	0.302	0.520
		(7.94)***	(8.97)***
FVOA	+	0.681	0.542
		(3.79)***	(2.29)**
Pseudo R-squared (%)		28.63%	42.97%
LR Chi-square (5)		176.59***	186.19***
N		453	321

Panel A presents the results of a first-stage probit regression for the application of FVO / CRE. The first-stage probit model computes the inverse Mills ratios (IMR) which are included in the second-stage equations under Panel B in order to adjust standard errors for selection bias. In column (1) the dependent variable is FVO with non-adopters representing the control group (Non-FVO). In column (2) the dependent variable is CRE with non-adopters representing the control group (Non-FVO). The sensitivity sample consists of all available observations. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels (two-tailed), respectively.

Panel B: Second stage (dependent variable is LogBA)

Variables	Predicted Sign	FVO Non-FVO	CRE Non-FVO
		(Model 2)	(Model 3)
Intercept	?	-3.275	-3.974
		(-3.71)***	(-4.47)***
LogP	-	-0.147	-0.210
		(-3.43)***	(-4.31)***
LogTO	-	-0.269	-0.270
		(-8.67)***	(-9.19)***
LogRET_SD	+	0.278	0.268
		(2.44)**	(2.10)**
LogFF	-	0.001	-0.006
		(0.01)	(-0.05)
LogNUMEST	-	-0.358	-0.208
		(-3.90)***	(-1.80)*
LogBA_CNTRY	+	0.318	0.160
		(1.09)	(0.64)
IMR	?	0.948	1.014
		(5.22)***	(6.10)***
FVO	-	-1.641	
		(-5.91)***	
CRE	?		-1.721
			(-6.40)***
Year Effects		Yes	Yes
Adj. R-squared (%)		61.07%	64.29%
N		453	321

Panel B provides ordinary least squares regression analysis (based on heteroskedasticity-robust standard errors adjusted for self-selection bias) of information asymmetry differences that arise from the adoption of the FVO for liabilities and from recognized fair value changes attributable to changes in the credit risk. The results of Model 2 show that information asymmetry is lower for adopters. The results of Model 3 indicate that information asymmetry is lower for adopters with fair value changes attributable to changes in the credit risk than for non-adopters. The sensitivity sample consists of all available observations. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels (two-tailed), respectively. See Appendix 1 for definition of variables.

Appendix 1: Definition of variables

Variables	Definitions
LogBA	Log of the mean daily bid-ask spread averaged over the fourth month following fiscal year end. The daily spread is calculated as the difference between the ask and the bid price divided by the midpoint price.
LogP	Log of the closing share price measured on the beginning of the fourth month following fiscal year end.
LogTO	Log of the mean daily volume traded on per share basis averaged over the fourth month following fiscal year end.
LogRET_SD	Log of the standard deviation of the stock returns measured over the fourth month following fiscal year end.
LogFF	Log of the percentage of free float shares measured on the beginning of the fourth month following fiscal year end.
LogNUMEST	Log of the number of different analyst estimations available during the fourth month following fiscal year.
LogBA_CNTRY	Log of the average bid-ask spread for the bank's domicile country. The daily percentage bid-ask spread is calculated by bank and year and then averaged across all sample banks within a country and a year.
FVO	Indicator variable that equals one if the bank adopted the fair value option for liabilties and zero otherwise.
CRE	Indicator variable that equals one if the bank adopted the fair value option for liabilities and recognized fair value changes attributable to changes in the credit risk, zero otherwise.
YEAR	Indicator variable that equals on if the observation belongs to the respective financial year and zero otherwise.
REGQUAL	Regulatory Quality index variable as presented by Kaufmann et al. (2009).
BIG4	Indicator variable that equals one if financial statements are audited by at least one of the Big 4 audit firms.
SIZE	Log of total assets.
LEV	Ratio of debt to total assets.
FVOA	Indicator variable that equals one if the bank adopted fair value option for assets and zero otherwise.
IMR	Inverse Mills ratio.

Appendix 2: Fair value option for liabilities and the effects on information asymmetry using market value (MVE) as bank size variable

Multivariate Analysis on Primary Sample (dependent variable is LogBA)

Variables	Predicted Sign	Treatment Group: Control Group:	FVO Non-FVO	CRE Non-FVO	CRE Non-CRE
		(Model 1)	(Model 2)	(Model 3)	(Model 4)
Intercept	?	-6.838	-6.634	-7.062	-7.622
		(-9.51)***	(-9.27)**	(-9.52)***	(-5.35)***
LogP	-	-0.212	-0.208	-0.233	-0.142
		(-4.17)***	(-4.69)***	(-4.88)***	(-2.38)**
LogTO	-	-0.307	-0.292	-0.296	-0.346
		(-8.91)***	(-8.68)***	(-8.58)***	(-6.27)***
LogRET_SD	+	-0.032	-0.041	-0.157	-0.037
		(-0.25)	(-0.32)	(-1.14)	(-0.17)
LogFF	-	0.075	0.063	0.014	0.120
		(0.73)	(0.60)	(0.14)	(0.69)
MVE	-	-0.028	-0.026	-0.024	-0.024
		(-5.18)***	(-4.93)***	(-3.38)***	(-4.54)***
LogBA_CNTRY	+	0.180	0.102	-0.027	0.111
		(0.65)	(0.39)	(-0.11)	(0.26)
FVO	-		-0.396		
			(-2.61)**		
CRE	?			-0.542	-0.276
				(-3.20)***	(-1.84)*
Year Effects		Yes	Yes	Yes	Yes
Adj. R-squared (%)		58.88%	60.62%	62.26%	58.73%
N		428	428	296	263

This table provides ordinary least squares regression analysis (based on heteroskedasticity-robust standard errors) of information asymmetry differences that arise from the adoption of the FVO for liabilities and from recognized fair value changes attributable to changes in the credit risk. Model 1 presents the base model. The results of Model 2 show that information asymmetry is lower for adopters. Model 3 indicates that information asymmetry is lower for adopters with fair value changes attributable to changes in the credit risk than for non-adopters. Model 4 provides marginally significant evidence that the information asymmetry for adopters with fair value changes attributable to changes in the credit risk is lower than for adopters without these changes (Non-CRE (FVO)). The primary sample excludes non-adopters for which book values of all liabilities are equal to fair values. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels (two-tailed), respectively. See Appendix 1 for definition of variables.

Appendix 3: Fair value option for liabilities and the effects on information asymmetry using fixed effects models

Multivariate Analysis on Primary Sample (dependent variable is LogBA)

Variables	Predicted Sign	Treatment Group: Control Group:	FVO Non-FVO	CRE Non-FVO	CRE Non-CRE
		(Model 1)	(Model 2)	(Model 3)	(Model 4)
Intercept	?	-5.958	-5.891	-5.482	-8.057
		(-6.00)***	(-6.07)***	(-6.01)***	(-5.02)***
LogP	-	-0.353	-0.363	-0.401	-0.386
		(-4.35)***	(-4.50)***	(-4.96)***	(-3.91)***
LogTO	-	-0.118	-0.120	-0.151	-0.083
		(-2.93)***	(-2.94)***	(-3.10)***	(-1.29)
LogRET_SD	+	0.288	0.281	0.230	0.165
		(2.78)***	(2.75)***	(1.99)*	(1.13)
LogFF	-	0.162	0.169	0.139	0.373
		(0.94)	(1.00)	(1.21)	(1.16)
LogNUMEST	-	-0.106	-0.087	-0.108	0.017
		(-1.13)	(-1.00)	(-1.08)	(0.16)
LogBA_CNTRY	+	-1.527	-1.506	-0.954	-1.720
		(-4.02)***	(-3.97)***	(-2.17)**	(-3.68)***
FVO	-		-0.258		
			(-2.41)**		
CRE	?			-0.267	0.099
				(-1.40)	(0.72)
Year Effects		Yes	Yes	Yes	Yes
R-squared (%)		50.71%	51.10%	52.44%	53.25%
N		391	391	259	262

Using fixed effects models, this table provides analysis of information asymmetry differences that arise from the adoption of the FVO for liabilities and from recognized fair value changes attributable to changes in the credit risk. Model 1 presents the base model. The results of Model 2 show that information asymmetry is lower for adopters. Model 3 does not find any statistical significant differences regarding the information asymmetry for adopters with fair value changes attributable to changes in the credit risk and non-adopters. Model 4 does not find any statistical significant differences regarding the information asymmetry of adopters with fair value changes attributable to changes in the credit risk and adopters without these changes (Non-CRE (FVO)). The primary sample excludes non-adopters for which book values of all liabilities are equal to fair values. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels (two-tailed), respectively. See Appendix 1 for definition of variables.

Chapter 3

Capital Market Reactions to the Reclassification of Financial Assets under IAS 39 – Evidence from European Banks

Capital Market Reactions to the Reclassification of Financial Assets under IAS 39 – Evidence from European Banks

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Capital Market Reactions to the Reclassification of Financial Assets under IAS 39 – Evidence from European Banks

This paper investigates the investors' reaction to the reclassification of financial instruments carried out by European banks during the financial crisis under the amendment to IAS 39. The reaction is analyzed by comparing the value relevance of book vs. disclosed fair values for reclassified financial instruments. The findings suggest that book values possess higher *relative* informativeness for reclassified financial instruments, indicating that investors do not view the reclassification as mere earnings management but as an adequate means to depart from distorted fair values. Furthermore, reclassifications from the held-for-trading category into held-to-maturity are identified as the main driver for the higher explanatory power of book values. Also, the results show that disclosed fair values are *incrementally* value relevant beyond book values only for reclassifications from held-for-trading into held-to-maturity. Finally, some evidence indicates that the type of reclassification influences the pricing of the book values. The paper complements recent studies on value relevance of fair values during the financial crisis as well as on the banks' reclassification behavior under the IAS 39 amendment. It contributes to extant knowledge by providing evidence that the investors' reaction differs according to the different types of reclassification.

Keywords: Value relevance, fair value, reclassification, financial instruments, IAS 39

JEL Classification: G14, G21, M41

1. Introduction

The fair value measurement concept has been the subject of an ongoing debate among academics, standard setters and practitioners for several decades now. Rarely, if ever, were the opponents as numerous as during the financial crisis when the criticism centered on the following line of argument: Uncertainty regarding the value of the complex Subprime securities marked the beginning of the crisis, which soon started to spread to other financial instruments and thereby lead to a severe decrease of market liquidity. Consequentially, fair values were either derived from market prices that originated from panic and distressed sales or determined on the basis of biased market parameters. This resulted in excessive write-downs, which in turn increased the uncertainty about the fundamental value of the financial instruments and eroded banks' regulatory capital. Accordingly, banks sold their financial instruments to increase cash resources or to prevent a further decrease in regulatory capital, which again depressed market prices and led to new write-downs (e.g., Bank of England, 2008; Gorton, 2008).[1]

The IASB and the European Union reacted to the criticism by issuing and endorsing the amendment to IAS 39 *Reclassification of financial assets* on 15 October 2008 (IASB, 2008). Through this amendment banks were enabled to depart from fair value measurement by changing the classification of financial instruments. Additionally, banks were given substantial earnings management opportunities since the amendment allowed these reclassifications to be carried out on a predefined retroactive basis. Several studies show the ample use of reclassifications by European banks in their 2008 financial statements, with resulting effects on balance sheets and income statements being of considerable magnitude (e.g., CESR, 2009; Bischof et al., 2010). Also the determinants of the reclassification behavior were explored by some recent publications (e.g., Kholmy and Ernstberger, 2010).

This paper analyzes how investors reacted to these reclassifications by examining the value relevance of book values and disclosed fair values of reclassified financial instruments for a sample of European banks for the period Q3 2008 until Q1 2010. The first part of the analysis provides evidence for the higher *relative* value relevance of book values, leading to the conclusion that investors do not view the reclassifications as

[1] However, by analyzing the effects retrospectively Laux and Leuz (2010) do not find evidence for the claim that fair value accounting lead to severe contagion that worsened the financial crisis.

a mere earnings management tool but as an adequate measure to depart from distorted fair values. Next, I investigate whether this result is particularly driven by any of the different types of reclassification. According to the evidence, the higher informativeness of book values is especially distinct for reclassifications made out of the held-for-trading (HFT) category into held-to-maturity (HTM). A possible explanation for this finding is that here the IAS 39.9 tainting rules of the HTM category provide for a comparatively high credibility of the reclassification. The results of the *incremental* value relevance study show that investors seem to make use of the fair value disclosures only for the reclassification from HFT into HTM. In the next part, I analyze whether investors' pricing of book values differs between the types of reclassification. The findings suggest that assets reclassified from HFT into HTM and from available-for-sale (AFS) into loans and receivables (LAR) are priced higher than the ones reclassified from HFT into LAR. This outcome reveals that investors perceive the latter type of reclassification as least credible. Finally, when comparing the peak crisis period with the recovery period, the results indicate that the higher informativenss of book values is especially pronounced during the recovery period.

To the best of my knowledge, this paper is the first to analyze the value relevance of financial instruments reclassified under the amendment to IAS 39. It expands the extant literature on value relevance of fair value information for debt securities (e.g., Barth et al., 1996; Park et al., 1999; Khurana and Kim, 2003) and complements the more recent studies on value relevance of fair values during the financial crisis (e.g., Kolev, 2009; Song et al., 2010), on the reclassification behavior of European banks under the amendment (e.g., Bischof et al., 2010; Fiechter and Novotny-Farkas, 2011) as well as on the value relevance of reclassifying vs. non-reclassifying banks (Paananen et al., 2012). Notably, the paper contributes to extant knowledge by providing evidence that the investors' reaction differs according to the different types of reclassification. Moreover, this paper provides valuable implications for practitioners, such as financial statement preparers and standard setters, since the investors' reaction to the reclassifications forms an important part in the retrospective analysis of the actions taken to deal with the exceptional situation during the financial crisis.

The remainder of the paper is organized as follows: Section 2 presents the IAS 39 classification taxonomy for financial instruments. Section 3 provides a literature overview and develops the hypotheses. Section 4 elaborates on the research design and

section 5 describes the sample. The results of the empirical analysis regarding the *relative* and *incremental* value relevance of fair vs. book values are presented in section 6. Finally, section 7 concludes.

2. Institutional Background

2.1 (Re)Classification of financial instruments according to IAS 39 old version

In order to gain an understanding of the effects induced by the IAS 39 amendment, it is necessary to be familiar with the IAS 39.9 financial assets classification: Financial assets that are either HFT or that are designated as at fair value through profit or loss (FVO) are measured at fair value with value changes being recorded in the income statement. Financial instruments with a fixed maturity, fixed or determinable payments for which the entity has the intention and ability to hold to maturity and that do not meet the definition of LAR, have to be categorized as HTM. LAR are financial assets with fixed or determinable payments, which are neither quoted in an active market nor categorized as HFT or FVO. LAR and HTM financial assets are measured at amortized cost under the effective interest method. All financial instruments that do not belong to any of the mentioned categories are to be classified as AFS. These are measured on a fair value basis with resulting gains or losses being recognized directly in the equity reserve via the other comprehensive income (IAS 39.46 in conjunction with IAS 39.55(b)).

2.2 The amendments to IAS 39 and IFRS 7 Reclassification of financial assets

Before the IAS 39 amendment *Reclassification of financial assets*, reclassifications were limited to the following two cases: (1) AFS financial instruments may be reclassified into the category HTM if the bank has the intent and ability to hold them until maturity, (2) if a classification as HTM becomes inappropriate due to changes in the intention or ability, the asset shall be reclassified as AFS. Reclassified financial instruments have to be accounted for at fair value, which implies that write-downs cannot be avoided through reclassifications. While these two types of reclassifications apply to IFRS as well as to US GAAP, there existed a difference concerning the category HFT before the amendment. According to IAS 39.50 old version, a reclassification into or out of this category is prohibited, whereas under US GAAP SFAS 115.15 such reclassifications are allowed in “rare circumstances“.

As the financial crisis worsened, the fair value measurement concept was accused of having a pro-cyclical effect and therefore aggravating the situation (e.g., Gorton, 2008). Moreover, critics argued that fair value information is not useful and even misleading to investors if it is derived from illiquid or biased markets (e.g., Gandy et al., 2008). European banks criticized the scarce possibilities to surrender from fair value measurement in favor of historical cost accounting and claimed to be disadvantaged in comparison to their US peers (e.g., CEBS, 2008). As a reaction to this criticism, on 13 October 2008 the IASB issued the amendments to IAS 39 and IFRS 7 in absence of the otherwise mandatory due process, which permit to reclassify certain financial instruments out of the category HFT into HTM, LAR or AFS as well as out of the category AFS into LAR. On 15 October 2008 the amendments were endorsed into EU law (EC, 2008) with the following implications:

1. A non-derivative financial instrument that meets the definition of LAR can be reclassified into this category if the entity has the ability and intent to hold this financial asset for the foreseeable future.
2. In rare circumstances a non-derivative financial instrument can be reclassified out of HFT into HTM if the entity has the ability and intent to hold this asset until its maturity.
3. The reclassification of non-derivative financial instruments out of the HFT into the AFS category is also limited to rare circumstances, which arise from an unusual single event that is highly unlikely to recur in the near term (IAS 39.BC104D).

For all reclassified assets the fair value at the date of the reclassification becomes the new amortized cost. Any gain or loss that was recognized while the assets were still classified as HFT is not reversed upon reclassification. However, considerable earnings management opportunities arose from the fact that entities were given the possibility to opt for any date in the time period from 1 July to 31 October 2008 as the date of reclassification.[2] For reclassifications made after 31 October 2008 the reclassification date has to correspond with the actual date the reclassification decision was made. In addition to the effects on book values and on the (other comprehensive) income, the reclassifications also influenced banks' regulatory capital. While there are differences across European countries concerning the interdependency of unrealized fair value

[2] This opinion is shared by the IASB (see IAS 39.BC104B).

gains or losses and corresponding regulatory capital changes, the commonalities that are shared among almost all European jurisdiction are the full reflection of HFT fair value changes as well as the full reflection of unrealized AFS fair value losses in the regulatory capital.[3]

According to the amendment to IFRS 7, the entity has to disclose the amounts and effects of the reclassifications as well as describe the rare circumstances that lead to the reclassifications. For each reporting period after the reclassification the entity has to present the reclassified assets' book and fair values as well as fair value gains or losses that would have been resulted without the reclassification (IFRS 7.12A)

3. Related literature and hypotheses development

3.1 Related literature

The literature review focuses on prior studies that deal with value relevance of fair value versus historical cost measurement in general and with value relevance of fair values in the context of the financial crisis. Additionally, the main results of recent studies on banks' reclassification behavior will be summarized.

3.1.1 Value relevance of fair value disclosures

In one of the pioneering studies, Barth (1994) investigates the *incremental* value relevance of US GAAP fair value disclosures for banks' investment securities.[4] The results show that disclosed fair values of investment securities possess explanatory power *incremental* to historical cost information. Nelson (1996) looks at the *incremental* value relevance of disclosed fair values of different categories of US bank holdings' financial instruments. The results suggest that while fair value disclosures of investment securities hold an *incremental* value relevance compared to historical cost book values, the disclosed fair values of loans do not. These findings are in line with the study of US bank holding companies by Eccher et al. (1996). It yields only mixed and weak evidence for the *incremental* value relevance of fair value disclosures for financial assets other than investment securities. Taken together, the results of the cited studies

[3] The main difference concerns unrealized fair value gains of the latter type, which are subject to a varying haircut before being recognized in the regulatory capital. See Bischof et al. (2010) who provide detailed information on country-specific levels of this haircut.

[4] Investment securities here represent mainly debt securities for which banks have the ability and intent to hold to maturity, which makes them most comparable to HTM financial instruments under IAS 39. The US GAAP rules that were in place during that period required them to be recognized at cost.

suggest that while investment securities' fair value disclosures are *incrementally* value relevant compared to book values, this is not the case for other debt financial instruments. In contrast, however, Barth et al. (1996) find evidence that loans' fair value disclosures do have *incremental* explanatory power in comparison to book values. For a sample of US bank holdings Park et al. (1999) show that unrealized gains and losses of AFS securities and HTM debt securities are *incrementally* value relevant. However, they also find that the explanatory power of value differences of AFS securities is higher compared to HTM securities.

Unlike the previously cited *incremental* value relevance studies that seek to answer whether fair value disclosures are useful to investors in the sense that they possess additional value relevance beyond that of historical costs, Khurana and Kim (2003) use a *relative* value relevance approach. The question of *relative* information content is whether one measure alone is more informative to investors than the other. Using a sample of US bank holdings Khurana and Kim (2003) do not find evidence for higher value relevance of fair values *relative* to historical cost for financial instruments on an aggregated level. However, when further partitioning their sample, they find that loans' historical cost information is more informative than fair values for small banks and for banks with no analysts following. The authors trace the inferiority of fair value information for loans back to the fact that loans are less actively traded and their fair values depend to a higher extent on subjectivity both in terms of the methods used and assumptions made. In line with this rationale, they also find that fair values of AFS financial instruments, which are more likely to be traded in active markets, are more relevant than their historical cost.

3.1.2 Value relevance of fair values and the financial crisis

Goh et al. (2009), Kolev (2009) and Song et al. (2010) explore the value relevance of fair values by analyzing US banks' quarterly accounting information that was published during the financial crisis. Here, the main focus lies on differences in value relevance that stem from different methods in determining fair values, i.e. the three SFAS 157 fair value levels: Level 1 fair values are determined by using observable prices in active markets, whereas for level 2 fair values observable market prices for comparable instruments or observable market parameters are used as valuation model inputs. Finally, level 3 inputs are not observable and therefore subject to managers' discretion.

The authors hypothesize that as a consequence of the higher exposure to managerial discretion coupled with decreasing investors' confidence due to the financial crisis, level 3 fair values are less value relevant than level 2 and 1 fair values. All three studies find evidence that supports this hypothesis. Also, Goh et al. (2009) find that value relevance is lower at the climax of the financial crisis.

The hitherto cited literature is exclusively limited to US banks. More recently, authors began to fill this research gap regarding value relevance of fair values in an international context. Using a sample of international IFRS reporting banks for the years 2006-2008, Fiechter and Novotny-Farkas (2011) examine the effect of the financial crisis on the value relevance of fair values. Among other results, they find that in general, fair values are value relevant but the extent of the value relevance is influenced by the subprime exposure (investors value HFT and FVO assets less for banks with subprime exposure) and the stage of the financial crisis (investors value fair value assets to a lesser extent in 2008 compared to the two previous years). Beltratti et al. (2010) find that write-downs of US and European banks during the crisis are value relevant both for fair value and historical cost financial assets.

3.1.3 Reclassification of financial instruments

The reclassification behavior under the IAS 39 amendment is the subject of some recent studies. Using a sample of European banks, Kholmy and Ernstberger (2010) find that the propensity to reclassify financial instruments in the 2008 annual report increases with a bank's size while it is negatively correlated with the profitability and capital market performance. Moreover, some evidence is presented showing that reclassifying banks are facing higher bid-ask-spreads after disclosing their reclassification decision, which indicates that the reclassification leads to an increase of information asymmetry. Fiechter (2011) also identifies the size and the profitability as determinants of the reclassification decision. Examining international banks, Bischof et al. (2010) as well as Paananen et al. (2012) find evidence that banks with poor capital adequacy ratios are more prone to make use of the reclassifications. Furthermore, using an event study on the date of the IASB's regulatory change, Bischof et al. (2010) provide some evidence suggesting that capital market participants reacted positively to the newly created reclassification options. The authors support this notion by showing that in the year following the reclassification, buy and hold returns are significantly higher for

reclassifying banks than for non-reclassifying banks.[5] However, Paananen et al. (2012) find that the value relevance of reclassifying banks' accounting numbers is lower after the reclassification when compared to non-reclassifying banks. The authors interpret this as evidence for investors disapproving of the reclassifications.

In summary, the results of the four studies indicate that the reclassifications were used in order to manage earnings and capital resources. However, the perception of investors remain ambiguous since in this regard the results of Bischof et al. (2010) point in a different direction than those of Kholmy and Ernstberger (2010) and Paananen et al. (2012).

The literature review shows that while several studies have been conducted on the value relevance of historical cost versus fair values of banks' financial instruments before as well as during the financial crisis, the reclassification behavior was also analyzed. However, there is a lack of a study combining both aspects: The value relevance of book and fair values of reclassified assets. This void is to be filled with the present paper. Moreover, since the difference between book and fair values of reclassified assets is a result of explicit earnings management, the value relevance analysis sets itself apart from prior studies where debt securities' fair values are just disclosed to provide additional information. Finally, providing evidence that the investors' reaction also depends on the type of reclassification contributes to the extant literature and further deepens the understanding of effects induced by the reclassifications.

3.2 Hypotheses development

As presented in the literature review, evidence for the superiority of debt securities' fair values over historical cost measures in terms of value relevance is rather mixed. Since the financial instruments that can be reclassified under the IAS 39 amendment consist exclusively of debt securities,[6] the literature review leads to the expectation that book values possess a higher *relative* value relevance compared to fair values.

[5] In contrast to these rather short-term consequences, Bischof et al. (2010) also show that in the long-term, reclassifying banks for which the reclassifications had a strong impact on net income experience an increase in information asymmetry. However, when banks provide full disclosure of the reclassification effects this increase vanishes.

[6] With the exception of the reclassification from HFT into AFS, which is ignored since here book values still equal fair values.

Furthermore, several studies find that value relevance of fair values declines with an increasing use of estimates for their determination (e.g., Nelson, 1996; Park et al., 1999; Khurana and Kim, 2003; Goh et al., 2009; Kolev, 2009). The rationale behind this finding is that estimates are subject to management discretion, which reduces reliability of the resulting accounting measures and thus value relevance (Barth et al., 2001). Whenever reliable and relevant prices from functioning markets do not exist, preparers have to determine fair values on the basis of estimates. During the financial crisis, exactly this absence of reliable and relevant prices from functioning markets was used as a main argument to abandon fair value measurement by reclassifying certain assets (e.g., EBF, 2008; Véron, 2008, Dobler and Kuhner, 2009). Accordingly, disclosed fair values of reclassified assets are likely to be derived from distorted market prices or entirely determined on the basis of estimates implying low value relevance.

On the other hand, investors' confidence in recognized accounting numbers might be negatively affected because banks used the reclassifications for earnings management (Bischof et al., 2010; Kholmy and Ernstberger, 2010; Fiechter, 2011). This opportunistic behavior potentially undermines the perceived reliability of the reclassified assets' book values. Consequentially, book values are less value relevant to investors, which stick to the lower fair values (Paananen et al., 2012). However, this notion is not supported by the findings of Bischof et al. (2010) suggesting that capital market participants perceived the reclassifications as an adequate measure rather than as mere earnings management. Moreover, the reclassifications also enabled banks to avoid a further decrease of regulatory capital (Bischof et al., 2010; Paananen et al., 2012) which is supposed to have positive implications on investors' valuation and therefore leading to book values of higher value relevance.

Taken together, these deliberations lead to the following hypothesis stated in the alternative:

H1a: Book values of the reclassified financial instruments possess a higher power in explaining equity values than disclosed fair values.

Prior literature suggests that the value relevance of fair values differs between financial instrument categories (e.g., Eccher et al., 1996; Nelson, 1996). Assuming that this also holds for reclassified assets, I hypothesize that the *relative* value relevance differs between the new categories (LAR vs. HTM) and between the categories of origin (HFT

vs. AFS). In particular, differences might arise from the fact that different criteria have to be met to use the respective category. Namely, the reclassification into the HTM category requires the preparer to document the intention and ability to hold the financial instrument until its maturity. Additionally, for all reclassified financial instruments the rationale behind the reclassification has to be disclosed, e.g. why the respective market is seen as disordered. In conjunction with the obligation to hold the assets until their maturity, the information given about the malfunctioning capital markets is highly credible, since the obligation means to abandon the possibility of participating in a future increase of market prices by selling the positions. The financial statement preparer will abandon this possibility only when he expects the assets' future contractual cash flows, which according to IFRS 7.12A also have to be disclosed, to be considerably higher than the level implied by current distorted market prices. The so-called tainting rules according to IAS 39.9 ensure that the financial statement preparer adheres to the commitment.[7] In summary, this represents a signaling mechanism, where managers convey private information through their accounting choice and thereby influence rational investors' beliefs (Holthausen and Leftwich, 1983).[8] Applied to the question of *relative* value relevance, this line of argument would lead to the hypothesis, that the higher explanatory power of book values is more pronounced for assets reclassified into the HTM category than for those reclassified into the LAR category. This is due to the fact that the latter lacks an equivalent to the described signaling mechanism: Here, the entity merely has to have the ability and intent to hold the financial asset for the foreseeable future. Firstly, foreseeable future is a more flexible criterion than the assets' maturity and secondly, there is a lack of a sanction be it that the banks sells the assets shortly after the reclassification. Moreover, the possibility to reclassify out of HFT into HTM is limited to "rare circumstances", whereas the reclassifications into LAR is not subject to this condition (IAS 39.50B in conjuncture with IAS 39.50D), which also renders the departure from allegedly distorted fair values less credible. In summary, I argue that the peculiarities of the reclassifications exhibit an influence on the credibility of the private information conveyed by management. More credible information reduces reliability concerns that arise from the earnings management implications (see above) and thus increases value relevance.

[7] These rules prohibit classifying any assets as HTM for two years if the entity had sold or transferred more than an insignificant amount of HTM instruments before their maturity.

[8] Beaver and Venkatachalam (2003) provide evidence that the determination of banks' loan fair values is partly used as signaling in order to convey private information about future earning power.

Regarding the categories of origin (HFT vs. AFS), the financial instruments characteristics might cause differences in the *relative* value relevance. Accordingly, HFT assets are more prone to be traded in active markets than AFS assets, which decreases the exposure to less value-relevant, models-based fair values. However, it can also be argued that due to distorted and dried up markets, investors view both categories' fair values as equally irrelevant. Consequently, they would not differ in terms of value relevance. In order to analyze whether the superiority of book values depends on the reclassification type, the following hypothesis is stated in the alternative:

H1b: The superiority of reclassified assets' book values in terms of relative value relevance depends on the type of reclassification.

Although H1a states that reclassified assets' fair values are inferior to book values in terms of *relative* informativeness, it is to be expected that the fair value disclosures are still of *incremental* value relevance to the book value information alone. Due to the earnings management implications (e.g., Kholmy and Ernstberger, 2010; Paananen et al., 2012), investors will make use of the disclosures required under the amendment to IFRS 7 by comparing book to fair values. Hence, I hypothesize that the difference between book and fair values exhibits an influence on the market value of equity in the following manner: The lower fair values are in comparison to book values, the lower is the market value of equity. Or, to put it differently: While investors rely more on reclassified assets' book values than on fair values for their pricing decision (H1a), they still analyze to what extent disclosed fair values fall below book values and adjust their pricing accordingly. Consequentially, this information is *incrementally* value relevant. In contrast, however, investors might regard the fair values as a mere product of malfunctioning markets and therefore ignore them completely. In a similar vein, Fiechter and Novotny-Farkas (2011) show that the value relevance of fair value assets significantly decreased during the financial crisis. In this case one would not find any *incremental* value relevance. While the above discussion yields two competing hypotheses, I state the following one in the alternative:

H2: The difference between book and fair values of reclassified financial instruments is negatively related to equity values.

Among others, Easley and O'Hara (2004) show in their theoretical model that investors price assets associated with greater private information at a discount. As elaborated

above, the amount and credibility of private information conveyed by the reclassifications differs between the categories. Thus, investors' pricing of reclassified assets' book values is likely to reflect these assumed differences: Book values that lack credibility are less relevant to investors and consequentially valued less.

On the empirical side, Fiechter and Novotny-Farkas (2011) provide evidence for pricing differences regarding the IAS 39 fair value categories. Accordingly, fair value option assets are priced less than held-for-trading assets. The authors argue that managers use the former category more opportunistically which increases information asymmetries between investors and managers. In a similar vein, the results of Goh et al. (2009), Kolev (2009), and Song et al. (2010) indicate that investors value level 3 assets less than level 1 and level 2 assets.

The above deliberations lead to the following hypothesis (stated in the alternative):

H3: Investors' pricing of book values of reclassified financial instruments differs between the types of reclassification.

Goh et al. (2009) as well as Fiechter and Novotny-Farkas (2011) find that the value relevance of recognized fair values decreases during the financial crisis as they are priced less by investors. This is mainly attributed to decreasing investor confidence. Conversely, in times of recovery, which result from increasing confidence, the value relevance will increase. Applying this relationship to the value relevance of reclassified assets leads to the expectation that the higher informativeness of book values is more articulate during the peak of the financial crisis than in times of recovery. This notion can be reinforced by comparing how reclassifications affect regulatory capital during crisis and during times of recovery. During crisis, abandoning low fair values exhibits a positive effect on regulatory capital. As already pointed out under the development of H1a, this is expected to favor book values in terms of higher value relevance. In times of recovery however, book and fair values are converging due to increasing fair values, which implies that the described effect on the regulatory capital is at least partly reversed. These considerations lead to the hypothesis H4 (stated in the alternative):

H4: The superiority of reclassified assets' book values in terms of relative value relevance differs during and after the peak of the crisis.

Moreover, I use the findings of Beaver and Venkatachalam (2003) to motivate H4. They partition disclosed loans' fair values into discretionary, non-discretionary as well as noise components and show that value relevance differs across these components. Regarding the reclassified assets' fair values, it is reasonable to assume that the proportion of the three components differ during and after the peak of the crisis. Thus, investors' valuation regarding fair values of reclassified assets also differs.

4. Research design

Ohlson (1995) as well as Feltham and Ohlson (1996) state that the market value of equity (*MVE*) equals the book value of equity (*BVE*) plus discounted future abnormal earnings. In line with prior empirical studies (e.g., Nelson, 1996), I proxy expected abnormal earnings by reported net income (*NI*). In order to test the hypotheses on the *relative* informativeness, *BVE* is separated into the book value of all reclassified financial instruments *SumBV* and *BVEnet*, which equals *BVE* less *SumBV*. For the alternative model specification the fair value of all reclassified financial instruments *SumFV* is used instead of *SumBV*.[9] In line with prior research (e.g., Park et al., 1999), I test for the *incremental* value relevance by using the difference between the book and the fair values of the reclassified financial instruments *DiffSum* as explanatory variable in addition to *BVE*. Next, the respective sum of book (*BV*) and fair values (*FV*) and their difference (*Diff*) are partitioned for all reclassified financial instruments into the specific types of reclassifications: From AFS into LAR (*AFSLAR*), from HFT into LAR (*HFTLAR*) and from HFT into HTM (*HFTHTM*). The reclassifications out of the HFT into the AFS category are disregarded. Here, book values still equal fair values rendering this type of reclassification futile for the purpose of the study.

Fiechter and Novotny-Farkas (2011) show that investors value fair value assets less for banks with subprime investments. Accordingly, it might be hypothesized that characteristics of reclassified assets beyond those captured by the IAS 39 categories exhibit an influence on value relevance. However, since the amendment to IFRS 7 does not require disclosures about the reclassified asset types, this piece of information is rather scarce. It is therefore to be assumed that its influence on investors' valuation is marginal. Nevertheless, in order to control for a possible influence of voluntary

[9] See Khurana and Kim (2003) who proceed in a similar fashion when comparing the relative informativeness of fair values and historical cost measures for different types of financial instruments.

disclosures about the types of reclassified assets, the variable *COMPLEX* is included. *COMPLEX* is defined as a binary variable that takes the value of 1 if the respective report contains specifications that identify at least parts of the reclassified assets as complex assets and zero otherwise. Assets that were heavily affected by the financial crisis such as Mortgage Backed Securities or Credit Default Obligations and therefore were traded on illiquid markets with the already explained implications for the fair value determination are regarded as being complex assets. Whereas common debt securities such as bonds or other corporate debt represent non-complex assets.

The binary variable S*TOXX*, that takes the value of one if the bank is included in the Stoxx® Europe 600 Banks Index and zero otherwise, is added to control for differences in bank size and liquidity of the banks' shares. Since Sahut et al. (2011) provide evidence for cross-country differences in value relevance that they attribute to regulatory characteristics, the control variable *RQ* is included to control for differences in terms of regulatory quality. *RQ* equals the Regulatory Quality index variable for the respective country as presented by the World Bank (Kaufmann et al., 2009). Regulatory Quality expresses the ability of a country's government to permit and promote the development of the private sector by formulating and implementing sound policies and regulations. *REGQUAL* also serves as a country variable in order to control for other country effects. Finally, time variable dummies on a quarterly basis (Q408 – Q110) are included to control for differences across the reporting periods. In sum this leads to the following three model specifications:

$$(1)\ MVE_{t,i} = \beta_0 + \beta_1 BVEnet_{t,i} + \beta_2 BVAFSLAR_{t,i} + \beta_3 BVHFTLAR_{t,i} + \beta_4 BVHFTHTM_{t,i}$$
$$+\beta_5 NI_{t,i} + \beta_6 COMPLEX_{t,i} + \beta_7 STOXX_{t,i} + \beta_8 RQ_{t,i} + \sum_{l=9}^{14} \beta_l Q_l + \varepsilon_{t,i}$$

$$(2)\ MVE_{t,i} = \beta_0 + \beta_1 BVEnet_{t,i} + \beta_2 FVAFSLAR_{t,i} + \beta_3 FVHFTLAR_{t,i} + \beta_4 FVHFTHTM_{t,i}$$
$$+\beta_5 NI_{t,i} + \beta_6 COMPLEX_{t,i} + \beta_7 STOXX_{t,i} + \beta_8 RQ_{t,i} + \sum_{l=9}^{14} \beta_l Q_l + \varepsilon_{t,i}$$

$$(3)\ MVE_{t,i} = \beta_0 + \beta_1 BVE_{t,i} + \beta_2 DiffAFSLAR_{t,i} + \beta_3 DiffHFTLAR_{t,i} + \beta_4 DiffHFTHTM_{t,i}$$
$$+ \beta_5 NI_{t,i} + \beta_6 COMPLEX_{t,i} + \beta_7 STOXX_{t,i} + \beta_8 RQ_{t,i} + \sum_{l=9}^{14} \beta_l Q_l + \varepsilon_{t,i}$$

,where all variables are previously defined.

All continuous variables are deflated by the number of shares outstanding at the end of the respective quarter. This proceeding is in line with prior research (e.g., Barth, 1994; Kolev, 2009) and as it is shown in Barth and Clinch (2009) a deflation based on the number of shares is effective in reducing scale effects in the modified Ohlson (1995) model. Observations for Q3 2008 until Q1 2010 are pooled resulting in an unbalanced sample. When conducting a value relevance-study in a time period that is as eventful as the one under review it is worthwhile to determine preferably exactly the date when the dependent variable is most likely to incorporate the information inherent to the independent variables. Accordingly, *MVE* is measured at the end of the first trading day after the publication of the financial report.[10]

The definitions of all variables are summarized in Table 1.

[Insert Table 1 here]

The *relative* informativeness (H1a, H1b and H4) is tested by comparing each model's R-squared with the Vuong (1989) test. As Khurana and Kim (2003) explain, this test is appropriate for comparing the *relative* informativeness of two mutually exclusive measures since it compares the R-squared of one model with the R-squared of another, non-nested model and identifies the one with the greater explanatory power. If the test results in a positive and significant Z-statistic, the book value model exhibits more explanatory power and therefore book values of reclassified assets possess higher value relevance for investors than fair values. In order to compare investors' valuation of book values for the different types of reclassification (H3), a Wald test for equality of coefficients is employed.

5. Sample Description

5.1 Sample Selection

The databases Datastream and Compustat are used to identify European banks that prepared their 2008 financial statements under IFRS. All banks that are subsidiaries of other banks present in the sample, for which no annual report could be found on the banks' homepage in the English, German or French language, that do not prepare

[10] Kolev (2009), who examines quarterly reports of US banks, works in a quite similar fashion by using the closing price of common stock one day after the Form 10-Q filing (see also Goh et al., 2009).

consolidated IFRS financial statements and those that were not publicly traded by the end of the financial year 2008 are excluded. This proceeding yields a sample of 163 banks before data collection.

In a next step, the sample is partitioned into 81 reclassifying and 79 non-reclassifying banks by verifying if they made use of the reclassifications in the 2008 financial statements. Three banks are excluded due to opaque disclosures concerning financial instruments. Furthermore, 11 banks are identified that exclusively reclassified assets out of the category HFT into AFS. This implies that book values still equal fair values rendering these banks futile for the study. Accordingly, the number of reclassifying banks is reduced to 70. As previously explained, *MVE* is measured at the end of the first trading day after the report's publication date. If the publication date could neither be found on the investor relations homepage nor in the respective financial report itself, an email was sent to the investor relations department. However, if none of the described sources allows an identification of the publication date the bank is excluded from the sample. Furthermore, unavailability of variables data (*BVE* and *NI* are obtained from Worldscope,[11] while *MVE* is obtained from Datastream) in the databases leads to a final sample of 56 reclassifying banks from 19 different European countries. For these banks book and fair values of reclassified assets are manually collected from the Q3 2008 – Q1 2010 reports, yielding a final, unbalanced sample of 189 observations.[12] Table 2 illustrates the sample selection process in more detail.

[Insert Table 2 here]

To mitigate the effect of extreme outliers, all continuous variables are winsorized at the 98 percent level. 62 (112) observations take on a value of one for the variable *COMPLEX* (*STOXX*).

5.2 Descriptive Statistics

Panel A of Table 3 presents descriptive statistics on the variables.

[11] In order to avoid a further downsizing of the sample, for a small number of cases where net income data was not available through Worldscope it is collected manually from the reports.

[12] For 10 observations only the aggregated reporting date values for the new category are disclosed without being partitioned according to the category of origin. In order to avoid losing these observations, the assumption is made that the reclassification type which was used most extensively in terms of volumes represents the only reclassification, i.e. the values for this reclassification type correspond to the aggregated values while the other reclassification type values are set to zero.

[Insert Table 3 here]

The mean of *MVE* (14.103) is smaller than the mean of *BVE* (19.069), which indicates that investors value the book value of equity with a discount. The comparison between the mean of *BVEnet* (-0.375) and the mean of *BVE* suggests that the book value of all reclassified assets is higher than *BVE*. The mean of *BVAFSLAR* (*FVAFSLAR*) of 13.615 (13.205) shows that the reclassification from the AFS into the LAR category was used most extensively in terms of reclassified amounts.

In Panel B of Table 3 the mean *BV* and *FV* for the reclassified amounts and their *Diff* are depicted in relation to the number of shares outstanding as well as in relation to the book value of equity. The mean is calculated by using the total number of observations (N=189) and additionally by using exclusively the number of observations that actually contain the respective reclassification. The average difference of *SumBV* and *SumFV* when deflated by *BVE* is 0.038, i.e. the average difference of the book and fair values of all reclassified assets equals approximately 3.8 percent of the book value of equity. Reclassifications from the AFS into the LAR category result in the highest average difference between the respective book and fair values among the three forms of reclassifications.

Table 4 shows Pearson and Spearman correlations among the variables.

[Insert Table 4 here]

The comparison of the correlations between the dependent variable *MVE* and the respective *BV* and *FV* measures shows that in a univariate sense the book values of *HFTHTM* seem to possess higher *relative* value relevance than the fair values with a Pearson correlation of 0.6419 vs. 0.5957. For the other cases with statistical significance the correlations between *MVE* and the respective *BV* and *FV* measures are almost identical. In regards of *incremental value relevance*, especially the Pearson correlations show a quite surprising picture. All *Diff* variables are positively correlated with *MVE*, which is contrary to the relationship hypothesized under H2. With a statistical significant value of 0.7333 this relationship is most pronounced for *DiffHFTHTM*. In some cases, correlations between independent variables are both high and significant, which is especially true for the correlations between *BVEnet* and some of the reclassification variables. Notably, the size of the Pearson correlation between *BVEnet*

and all *AFSLAR* variables indicate collinearity, which might be detrimental to the statistical significance of the regression coefficient estimates. There is scant significance in the correlations between *NI* and the other independent variables, and if so, correlations are small to moderate. The same holds for the correlations between the reclassification variables both for *BV* and *FV*, with the exception of the Spearman correlation between *BVAFSLAR* (*FVAFSLAR*) and *BVHFTHTM* (*FVHFTHTM*) with a comparably high value of -0.5240 (-0.5216).

6. Results

6.1 Relative and incremental value relevance

Table 5 presents the regression results for the book and fair value model specifications.

[Insert Table 5 here]

The adjusted R-squared values exceeding 92 percent for both models are fairly high. Except for the control variables all coefficients possess the predicted sign, are significant and of a reasonable magnitude.[13] The coefficients of the variables representing book and fair values of reclassified assets all are significant at the one percent level. The Vuong's Z-statistic of 2.2352 at a significance level of five percent suggests that the book value model is more informative than the fair value model. This result supports hypothesis H1a that book values of reclassified financial instruments possess a higher explanatory power in explaining equity values than disclosed fair values. The lack of statistical significance for *COMPLEX* indicates that voluntary disclosures about the types of reclassified assets do not exhibit any influence.

To further examine the question whether the results on *relative* informativeness differ between the reclassification types, the fair value model is altered in a way that all reclassification variables are kept at book values except for the variable of interest.[14] In a first step, this is done separately for each type of reclassification. Thereafter, the fair value model is altered so that both variables for reclassifications into LAR (*AFSLAR* and *HFTLAR*) are measured at fair values at the same time. Finally, the two different categories of origin (HFT vs. AFS) are regarded separately.

[Insert Table 6 here]

[13] For further analysis regarding additional control variables see section 6.3.
[14] See also Khurana and Kim (2003).

The *FV* model for the *AFSLAR* reclassification generates estimation coefficients for the continuous variables that possess the expected sign and are significant at the one and five percent level, respectively. Again, none of the control variables exhibits a statistical significant influence. Interestingly in contrast to the results for all financial instruments collectively, here the Vuong test does not suggest that one measure is superior to the other in terms of *relative* informativeness. The *FV* model for *HFTLAR* yields quite similar results regarding the estimation coefficients. Also, the Vuong test does not allow for a conclusion regarding the *relative* informativeness. The *HFTHTM* models show a different picture. Here, the Vuong test with a Z-statistic of 3.5734 at the one percent significance level strongly suggests that book values possess higher *relative* informativeness than their fair value counterparts. The results of the *FVLAR* model regarding the estimated coefficients do not materially differ from the *FVAFSLAR* and *FVHFTLAR* models. Also, the Vuong test does not indicate with statistical significance that one measure is superior in terms of *relative* informativeness. Finally, the Vuong test of the *FVHFT* model with a Z-statistic of 3.3441 at the one percent significance level here strongly favors the book value model, which seems to be primarily driven by the reclassifications into HTM.

Before further interpreting these results, the observations that do not contain the respective reclassification of interest are excluded as an additional analysis. For example, when regarding assets reclassified from AFS into LAR, the regression only includes observations with a value different than zero for the variables *BVAFSLAR* and *FVAFSLAR*. Hence, the number of observations differs according to the type of reclassification under review in the separate models. This proceeding also leads to the rather small number of 69 observations for the *HFTHTM* model. The outcomes of this analysis are reported at the bottom of Table 6. Taken together, the results do not materially differ from the ones obtained by using the total number of 189 observations, which renders them more robust. However, the Z-statistic regarding the *HFTHTM* models decreases to the ten percent significance level, probably as an outcome of the reduced sample size.

When comparing the three types of reclassifications, the *HFTHTM* model is the only one where the Vuong test suggests that book values are of higher relevance to investors than fair values. These observed differences between reclassification types provide support for H1b and especially for the notion that the conveyance of private information

is most credible for reclassifications into HTM. When looking at the two categories of origin, the Vuong test yields statistically significant evidence for the higher explanatory power of book values exclusively for HFT. However, none of the Vuong tests results in a Z-statistic with a negative value, i.e. none of the model specifications suggests that fair values possess a higher value relevance compared to book values. This indicates that investors do not perceive the reclassification as earnings management.

Table 7 presents the results regarding the *incremental* value relevance of fair values.

[Insert Table 7 here]

The estimated coefficients for *DiffAFSLAR* and *DiffHFTLAR* possess the predicted negative sign but they are not statistically significant. This leads to the conclusion that the fair values are not *incrementally* value relevant. In contrast, the significance at the one percent level for the coefficient of *DiffHFTHTM* (2.7366) indicates that here fair value disclosures are *incrementally* value relevant. The positive sign implies the following relationship: The lower the fair values compared to the book values, the higher is the market value of equity. Taken together the results do not support H2. This outcome raises some doubts about the usefulness of the required fair value disclosures for the reclassified financial instruments and can be seen as a confirmation of the notion that investors react positively to the reclassifications: Not only are book values to some extent superior to fair values in terms of *relative* value relevance but the fair value disclosures also seem to be at least partly neglected as a source of *incremental* information. Moreover, in the case were the disclosures are of *incremental* value relevance, investors seem to be strongly favoring the reclassification decision, which is indicated by the positive sign of the estimated coefficient of *DiffHFTHTM*.

The results of the test for differences in the pricing of book values are reported in Table 8:

[Insert Table 8 here]

The null hypothesis of the Wald test states that the coefficients of two reclassification variables are equal. For the comparison of *BVHFTLAR* (0.6244) vs. *BVHFTHTM* (0.8810) the test rejects the null hypothesis. This result suggests that investors impound financial assets reclassified from HFT into LAR at a lower multiple than those reclassified into HTM. A possible explanation for this outcome again is the higher

credibility of the HTM category. However, the fact that the coefficients of *BVAFSLAR* (0.7873) and *BVHFTHTM* are not materially different does not reinforce this explanation. When comparing the coefficients of *BVAFSLAR* vs. *BVHFTLAR* the null hypothesis is also rejected. This outcome indicates that the reclassification from HFT into LAR induces the highest discount by investors. These findings support H3 since overall investors do differentiate in their pricing of book values between the types of reclassification.

6.2 Influence of the stage of the financial crisis on value relevance

In order to examine the influence of the financial crisis, the sample is partitioned into two subsamples according to the time periods Q3 2008 until Q2 2009 and Q3 2009 until Q1 2010. The performance of the Stoxx® Europe 600 Banks Index is the basis for this partitioning: After having reached its lowest point on 9 March 2009 since the beginning of the crisis, the index recovered in a slow but continuous manner. However, Q1 and Q2 2009 are still included in the crisis period in order to incorporate the time period needed by investors to realize that the market is actually recovering in a sustainable fashion.

Table 9 depicts the results of the models when calculated for the two different time periods.

[Insert Table 9 here]

The coefficients of the continuous variables are identical in terms of sign and significance levels across the two periods. Interestingly, the coefficient of *NI* is an exception since it is only of statistical significance for the recovery period models and here it increases considerably in size compared to the full sample results. This outcome is probably due to an increase of investors' confidence in the sustainability of the reported net income when comparing the recovery to the crisis period. The results of the *relative* value relevance comparison indicate that only for the recovery period book values possess a higher informativeness (Z-statistic of 4.0658). This outcome reveals that the superiority of reclassified assets' book values in terms of relative value relevance differs during and after the peak of the crisis (H4). Besides higher levels of noise during the crisis period which might be causal for these findings, another explanation is that with the passing of time, investors care less and less about the original purpose of the financial instruments. The fair value information therefore

becomes less and less relevant since the instruments are neither held for the purpose of trading nor available for sale. This effect seems to outweigh the presumed increase in the reliability of the fair values due to the return of functioning, active markets. Moreover, as laid out in the development of H4, if the effects on the regulatory capital would exhibit an influence on the value relevance, the superiority of book values would be of higher significance for the crisis period. However, since the findings indicate the opposite, it can be concluded that the outcomes on value relevance do not seem to be particularly driven by regulatory capital effects.

While the Vuong test does not indicate a higher informativeness of book values for the crisis period, it also does not favor the fair value model. This outcome does not impede the inference drawn from the results under H1a, namely that investors do not perceive the reclassification as earnings management. If such a perception would be prevailing than the outcome of the Vuong test would suggest the superiority of fair values.[15]

6.3 Additional analysis

As an additional analysis, the fair value models and the difference model are estimated by adjusting *NI* for the quarterly (other comprehensive) income effects that arise from the reclassifications. However, it has to be highlighted that due to the very heterogeneous nature or even complete lack of disclosures in this regard, the performed adjustment presents a mere proxy of the actual effect for a substantial number of observations. Although IFRS 7.12A requires to disclose fair value gains or losses that would have been resulted without the reclassification, this piece of information is not provided consistently on a quarterly basis. Also, in some cases the additional impact on the (other comprehensive) income resulting from the reclassification is specified, whereas in other cases only the hypothetical gain or loss that would have resulted is provided without a specification of the actual number, which renders it impossible to determine the net effect. Moreover, in some reports the effect is shown in a cumulative manner. There are also cases where the information is exclusively disclosed in the annual reports and therefore the numbers on the reclassification effect relate to the whole financial year and not to the previous quarter. Moreover, some banks report the effect before taxes, while others report it net of taxes or do not give any specifications

[15] Following Rogers (1993), I additionally calculate all OLS regressions models with heteroskedasticity-robust standard errors clustered by bank. With the exception of H3, this proceeding does not lead to qualitative changes of the results. Regarding H3, the results fail to provide evidence for significant differences between the investors' pricing of reclassified financial instrument book values.

about taxes at all. Finally, several reports do not allow to allocate the effect according to the different reclassification types since it is only detailed on an aggregated level. These restrictions on the available data render it necessary to apply proxy techniques, which are summarized in the following: If possible, cumulative effects are disentangled by using the cumulative data of the respective preceding reports. No adjustments are made for tax effects. For the observations where no information about the effect of the reclassification on the (other comprehensive) income can be obtained, this effect is set to zero. Finally, if the effect cannot be allocated to the different reclassification types, the aggregated effect is allocated to the type that is most extensively used in terms of reclassified volumes for the respective observation. Due to these approximations, the results have to be interpreted cautiously and are not tabulated.

When adjusting *NI* the inferences from the main analysis do not change with two exceptions concerning H1a and H1b.[16] H1a is not supported any more since here the Vuong test is still positive but now lacks statistical significance. H1b is still supported overall, although the Vuong test for the comparison of the *BVHFT* und *FVHFT* models is still positive but now lacks statistical significance. However, the results of the Vuong test for the *HFTHTM* models that exclusively contain observations with HFTHTM reclassifications is now statistically significant at the five instead of the 10 percent level. Other results regarding the reclassification from HFT into HTM do not change and therefore the main inferences drawn from the analysis on H1b still apply.

As an additional control for country differences the dummy variable *EU*, which equals one if the bank's country of origin belongs to the EU and zero otherwise, is included. However, except for the *incremental* value relevance of the fair value disclosures (H2) this modification does not have any material effect on the results. Here, the estimated coefficient for *DiffAFSLAR* possesses the predicted negative sign and is now statistically significant at the five percent level.[17] This indicates that although fair values of *AFSLAR* are not superior to book values, the fair value information is still *incrementally* relevant and investors perceive high differences between book and fair values negatively. This result lends some support to hypothesis H2, which still cannot be supported by the findings on the coefficients on *DiffHFTLAR* and *DiffHFTHTM*.

[16] The same holds when additionally adjusting for income effects that arise from the reclassifications from HFT into AFS.
[17] The same holds when using no control variables at all.

Overall *EU* is of statistical significance only in three of the regression models used throughout the analysis. This might be due to the fact that *EU* takes a value of zero for only 35 of the 189 observations.[18]

Following Kolev (2009), I additionally include a control for size because previous research documents that the business model and information environment of financial institutions is affected by their size (e.g., Khurana and Kim, 2003; Nissim and Penman, 2007). I use deciles of the equity market value in Euros as proxy for size. Furthermore, in order to control for pricing-differences between loss-reporting and other firms (e.g. Hayn, 1995; Collins et al., 1999), I construct a binary variable that equals one if a bank's reported net income is negative and zero otherwise. While I find that solely the size variable exhibits statistically significant positive influence on *MVE* (mostly at the five percent level), the results regarding H1a become even stronger. The Vuong's Z-statistic of 2.5999 is now significant at the one percent level reinforcing the notion that book values of reclassified financial instruments possess a higher explanatory power than disclosed fair values. Furthermore, the findings provide additional evidence for H3. In contrast to the main analysis, the null hypothesis that *BVAFSLAR* (0.7762) and *BVHFTHTM* (0.9846) are equal is rejected by the Wald test at the ten percent level. Accordingly, the Wald test null hypothesis is now rejected in all three variable comparisons, which strongly indicates that investors do differentiate in their pricing of reclassified instruments' book values (H3). Among the three forms of reclassifications, investors price assets reclassified into HTM highest. Also, I find some minor variations regarding H4 in comparison to the main analysis. While the results for the recovery period remain qualitatively unchanged (Z-statistic of 3.9550), the Vuong test yields a marginally significant positive Z-statistic of 1.8526 for the crisis period. However, the difference in magnitude and statistical significance of the Z-statistic still support H4, i.e. that the superiority of reclassified assets' book values in terms of relative value relevance differs during and after the peak of the crisis.

As a final robustness test, all models are calculated without the variable *NI* in order to exclude any bias that might result from the inclusion of negative net income figures. However, omitting the variable *NI* does not change the results qualitatively. The only exception concerns the *incremental* value relevance of the fair value disclosures (H2).

[18] The same holds when using EU-15 instead of EU.

Here the results correspond to the ones obtained by the introduction of *EU* as a control variable.

7. Conclusion

This paper examines the value relevance of book and disclosed fair values for financial instruments reclassified under the IAS 39 amendment during the financial crisis. Using a sample of European banks for the period Q3 2008 until Q1 2010 evidence for the higher *relative* informativeness of book values is provided. Furthermore, when partitioning the reclassified amounts according to the type of reclassification, the higher explanatory power of book values is found to be especially distinct for the amounts transferred from HFT into HTM. None of the results for the different reclassification types suggests that fair values possess higher *relative* value relevance. Also, disclosed fair value information is not *incrementally* value relevant beyond book values to investors for two of the three reclassification types. For the reclassification from HFT into HTM, fair values are *incrementally* value relevant in a way that also reinforces the notion that investors are favoring the reclassification decision. Furthermore, the type of reclassification exhibits an influence on the pricing of reclassified assets' book values, revealing that the reclassification from HFT into LAR is perceived as least credible. Finally, evidence is provided that the superiority of book values in terms of *relative* informativeness is more pronounced during times of recovery than during the peak of the financial crisis.

Taken together, the findings indicate that despite their explicit earnings management implication, investors reacted positively to the reclassifications under IAS 39. The reclassifications were therefore useful in order to convey private information from the financial statement preparers to investors, whereas the credibility of this information seems to be positively impacted by rules that penalize opportunistic behavior, for example the so called tainting rules according to IAS 39.9 for HTM financial instruments.

Besides of the contribution these results present for the fair value relevance literature, they additionally provide some useful implications regarding IFRS 9, which is designated by the IASB to replace IAS 39 in the year 2015 but is still awaiting EU endorsement. IFRS 9.A4.1.2 defines the business model test as one of two prerequisites for the application of the amortized cost method and thereby makes use of the typical

characteristics of a HTM instrument: Accordingly, the amortized cost method can be applied if the objective of the entity's business model is to hold the financial asset to collect the contractual cash flows rather than to sell it prior to its contractual maturity to realize fair value changes. If the objective of the business model changes subsequent reclassifications are allowed (IFRS 9.A4.4.1). However, reclassifications are neither limited to “rare circumstances“ nor is the credibility of the reported change in the business model reinforced by tainting rules. Since the results of this paper suggest that investors perceive these features favourably the absence of them should be put into question.

Limitations inherent to this paper include assumptions implicitly made by using the modified Ohlson (1995) model, which does not consider any other source of information than accounting data. Especially for the crisis period it can be argued that the dependent variable *MVE* is influenced by numerous other factors. Furthermore, the partly very high correlations among some independent variables might run the risk of causing collinearity problems. Due to the voluntary character of the disclosures regarding the types of reclassified assets, the use of the control variable *COMPLEX* might also be subject to self-selection bias. Finally, another limitation inherent to the design of the study is the comparably small sample size, which is especially true for the analysis of the differences in pricing during the two time periods.

References

Bank of England (2008). Financial Stability Report April 2008. Available from: http://www.bankofengland.co.uk/publications/Documents/fsr/2008/fsrfull0804.pdf. Accessed 15 September 2013.

Barth, M. E. (1994). Fair Value Accounting: Evidence from Investment Securities and the Market Valuation of Banks. *The Accounting Review*, 69 (1), 1-25.

Barth, M. E., Beaver, W. H., and Landsman, W. R. (1996). Value-Relevance of Banks' Fair Value Disclosures under SFAS No. 107. *The Accounting Review*, 71 (4), 513-537.

Barth, M. E., Beaver, W. H., and Landsman, W. R. (2001). The relevance of the value relevance literature for financial accounting standard setting: another view. *Journal of Accounting and Economics*, 31 (1), 77-104.

Barth, M. E. and Clinch, G. (2009). Scale Effects in Capital Markets-Based Accounting Research. *Journal of Business Finance & Accounting*, 36 (3-4), 253-288.

Beaver, W. H. and Venkatachalam, M. (2003). Differential Pricing of Components of Bank Loan Fair Values. *Journal of Accounting, Auditing & Finance*, 18 (1), 41-67.

Beltratti, A., Spear, N., and Szabo, M. D. (2010). The Value Relevance of Write-downs during the Subprime Financial Crisis. *Working paper*, Bocconi University and University of Melbourne.

Bischof, J., Brüggemann, U., and Daske, H. (2010). Relaxation of Fair Value Rules in Times of Crisis: An Analysis of Economic Benefits and Costs of the Amendment to IAS 39. *Working paper*, University of Mannheim and Lancaster University.

Collins, D. W., Pincus, M., and Xie, H. (1999). Equity Valuation and Negative Earnings: The Role of Book Value of Equity. *The Accounting Review*, 74 (1), 29-61.

Committee of European Banking Supervisors (CEBS) (2008). Report on issues regarding the valuation of complex and illiquid financial instruments. Available from: http://www.eba.europa.eu/documents/10180/16166/20080618b_valuation.pdf. Accessed 15 September 2013.

Committee of European Securities Regulators (CESR) (2009). CESR Statement - Application of and disclosures related to the reclassification of financial instruments. Available from: http://www.esma.europa.eu/system/files/09_575_CESR_statement_disclosures_reclassification_Chairs.pdf. Accessed 15 September 2013.

Dobler, M. and Kuhner, C. (2009). Die internationale Rechnungslegung im Belastungstest der subprime-Krise. *Die Wirtschaftsprüfung*, 62 (1), 24-33.

Easley, D. and O'Hara, M. (2004). Information and the Cost of Capital. *The Journal of Finance*, 59 (4), 1553-1583.

Eccher, E. A., Ramesh, K., and Thiagarajan, S. R. (1996). Fair value disclosures by bank holding companies. *Journal of Accounting and Economics*, 22 (1-3), 79-117.

European Banking Federation (EBF) (2008). European Banks Support EU Decision To Endorse IASB Changes To Accounting Rules. Available from: http://www.frb.co.uk/cgi-bin/dmr5?access=&runprog=frb/frb_pages&mode=disp&fragment=2008_10_052. Accessed 15 September 2013.

European Commission (EC) (2008). COMMISSION REGULATION (EC) No 1004/2008 of 15 October 2008. Available from: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2008:275:0037:0041:EN:PDF. Accessed 15 September 2013.

Feltham, G. A. and Ohlson, J. A. (1995). Valuation and Clean Surplus Accounting for Operating and Financial Activities. *Contemporary Accounting Research*, 11 (2), 689-731.

Fiechter, P. (2011). Reclassification of Financial Assets under IAS 39: Impact on European Banks' Financial Statements. *Accounting in Europe*, 8 (1), 49-67.

Fiechter, P. and Novotny-Farkas, Z. (2011). Pricing of Fair Values during the Financial Crisis: International Evidence. *Working paper*, University of Zurich and Goethe-University Frankfurt.

Gandy, B., Maher, D., and Sonola, O. (2008). Fair Value Accounting: Is It Helpful In Illiquid Markets? Fitch Ratings Accounting Research Special Report. Available from: www.sec.gov/comments/4-560/4560-8.pdf. Accessed 15 September 2013.

Goh, B. W., Ng, J., and Yong, K. O. (2009). Market Pricing of Banks' Fair Value Assets Reported under SFAS 157 during the 2008 Economic Crisis. *Working paper*, Singapore Management University and Massachusetts Institute of Technology.

Gorton, G. B. (2008). The panic of 2007. *NBER working paper 14358*, National Bureau of Economic Research.

Hayn, C. (1995). The information content of losses. *Journal of Accounting and Economics*, 20 (2), 125-153.

Holthausen, R. W. and Leftwich, R. W. (1983). The economic consequences of accounting choice: Implications of Costly Contracting and Monitoring. *Journal of Accounting and Economics*, 5 (1), 77-117.

International Accounting Standards Board (IASB) (2008). Reclassification of Financial Assets – Amendments to IAS 39 Financial Instruments: Recognition and Measurement and IFRS 7: Disclosures, October 2008. London.

Kaufmann, D., Kraay, A., and Mastruzzi, M. (2009). Governance Matters VIII: Aggregate and Individual Governance Indicators 1996-2008. *Policy research working paper 4978*, The World Bank.

Kholmy, K. and Ernstberger, J. (2010). Reclassification of Financial Instruments in the Financial Crisis – Empirical Evidence from the European Banking Sector. *Working paper*, Ruhr-University Bochum.

Khurana, I. K. and Kim, M.-S. (2003). Relative value relevance of historical cost vs. fair value: evidence from bank holding companies. *Journal of Accounting and Public Policy*, 22 (1), 19-42.

Kolev, K. (2009). Do Investors Perceive Marking-to-Model as Marking-to-Myth? Early Evidence from FAS 157 Disclosure. *Working paper*, New York University.

Laux, C. and Leuz, C. (2010). Did Fair-Value Accounting Contribute to the Financial Crisis? *Journal of Economic Perspectives*, 24 (1), 93-118.

Nelson, K. K. (1996). Fair Value Accounting for Commercial Banks: An Empirical Analysis of SFAS No. 107. *The Accounting Review*, 71 (2), 161-182.

Nissim, D. and Penman, S. H. (2007). Fair Value Accounting in the Banking Industry. *Working paper,* Center for Excellence in Accounting and Security Analysis, Columbia University.

Ohlson, J. A. (1995). Earnings, Book Value and Dividends in Equity Valuation. *Contemporary Accounting Research*, 11 (2), 661-687.

Paananen, M., Renders, A., and Shima, K. M. (2012). The Amendment of IAS 39: Determinants of Reclassification Behavior and Capital Market Consequences. *Journal of Accounting, Auditing & Finance,* 27 (2), 208-235.

Park, M. S., Park, T., and Ro, B. T. (1999). Fair Value Disclosures for Investment Securities and Bank Equity: Evidence from SFAS No. 115. *Journal of Accounting, Auditing & Finance*, 14 (3), 347-370.

Rogers, W. H. (1993). Regression standard errors in clustered samples. *Stata Technical Bulletin*, 3 (13), 19-23.

Sahut, J.-M., Boulerne, S., and Teulo, F. (2011). Do IFRS provide better information about intangibles in Europe? *Review of Accounting and Finance*, 10 (3), 267-290.

Song, C. J., Thomas, W. B., and Yi, H. (2010). Value Relevance of FAS No. 157 Fair Value Hierarchy Information and the Impact of Corporate Governance Mechanisms. *The Accounting Review*, 85 (4), 1375–1410.

Véron, N. (2008). Fair Value Accounting is the Wrong Scapegoat for this Crisis. *Accounting in Europe*, 5 (2), 63-69.

Vuong, Q. H. (1989). Likelihood ratio tests for model selection and non-nested hypotheses. *Econometrica*, 57 (2), 307-333.

Table 1: Definition of variables

Variables	Definitions
MVE	Market value of equity deflated by the number of shares outstanding at the end of the quarter and measured at the end of the first trading day after the publication date of the report.
BVE	Book value of equity deflated by the number of shares outstanding at the end of the quarter.
BVEnet	Difference between the book value of equity and the sum of book values of all reclassified financial instruments deflated by the number of shares outstanding at the end of the quarter.
NI	Quarterly net income deflated by the number of shares outstanding at the end of the quarter.
SumBV	Sum of the book values of all reclassified financial instruments deflated by the number of shares outstanding at the end of the quarter.
SumFV	Sum of the fair values of all reclassified financial instruments deflated by the number of shares outstanding at the end of the quarter.
DiffSum	Difference of the sum of book and fair values of all reclassified financial instruments deflated by the number of shares outstanding at the end of the quarter.
BVAFSLAR	Book value of all financial instruments reclassified out of available-for-sale (AFS) into loans and receivables (LAR) deflated by the number of shares outstanding at the end of the quarter.
FVAFSLAR	Fair value of all financial instruments reclassified out of available-for-sale (AFS) into loans and receivables (LAR) deflated by the number of shares outstanding at the end of the quarter.
DiffAFSLAR	Difference of the book and fair values of all financial instruments reclassified out of available-for-sale (AFS) into loans and receivables (LAR) deflated by the number of shares outstanding at the end of the quarter.
BVHFT	Book value of all financial instruments reclassified out of held-for-trading (HFT) deflated by the number of shares outstanding at the end of the quarter.
FVHFT	Fair value of all financial instruments reclassified out of held-for-trading (HFT) deflated by the number of shares outstanding at the end of the quarter.
DiffHFT	Difference of the book and fair values of all financial instruments reclassified out of held-for-trading (HFT) deflated by the number of shares outstanding at the end of the quarter.
BVHFTLAR	Book value of all financial instruments reclassified out of held-for-trading (HFT) into loans and receivables (LAR) deflated by the number of shares outstanding at the end of the quarter.
FVHFTLAR	Fair value of all financial instruments reclassified out of held-for-trading (HFT) into loans and receivables (LAR) deflated by the number of shares outstanding at the end of the quarter.
DiffHFTLAR	Difference of the book and fair values of all financial instruments reclassified out of held-for-trading (HFT) into loans and receivables (LAR) deflated by the number of shares outstanding at the end of the quarter.
BVHFTHTM	Book value of all financial instruments reclassified out of held-for-trading (HFT) into held-to-maturity (HTM) deflated by the number of shares outstanding at the end of the quarter.
FVHFTHTM	Fair value of all financial instruments reclassified out of held-for-trading (HFT) into held-to-maturity (HTM) deflated by the number of shares outstanding at the end of the quarter.
DiffHFTHTM	Difference of the book and fair values of all financial instruments reclassified out of held-for-trading (HFT) into held-to-maturity (HTM) deflated by the number of shares outstanding at the end of the quarter.
BVLAR	Book value of all financial instruments reclassified into loans and receivables (LAR) deflated by the number of shares outstanding at the end of the quarter.
FVLAR	Fair value of all financial instruments reclassified into loans and receivables (LAR) deflated by the number of shares outstanding at the end of the quarter.
DiffLAR	Difference of the book and fair values of all financial instruments reclassified into loans and receivables (LAR) deflated by the number of shares outstanding at the end of the quarter.
COMPLEX	Binary variable set to one if the report identifies at least parts of the reclassified financial instruments as complex assets and zero otherwise.
STOXX	Binary variable set to one if the bank belongs to the Euro STOXX Banks Index and zero otherwise.
RQ	Regulatory Quality index variable for countries as presented by Kaufmann et al. (2009).
Q4 08 - Q1 10	Time variable dummies set to one if the observation belongs to the respective reporting period, zero otherwise.

Table 2: Sample selection

Datastream:	
European Banks	277
Less	
Subsidiaries of other banks in the sample	-58
No annual report found (in English, German or French)	-34
No financial statements under IFRS for FY 2008	-52
Financial statements not on consolidated basis	-2
	131
Plus	
Compustat:	
Additional European IFRS Banks for FY 2008 after filters	32
Sample before data collection	163
Less	
Disclosures concerning financial instruments opaque	- 3
Non-reclassifying Banks	-79
Reclassifying Banks	81
Less	
Reclassification only from HFT to AFS	-11
	70
Potential firm-quarter observations (70 banks times 7 fiscal quarters)	490
Less	
Firm-quarters with insufficient data	-301
Remaining firm-quarter observations	189
Number of different firms	56

Table 3: Descriptive statistics

Panel A: Descriptive Statistics Q3 2008 - Q1 2010

Winsorized Ratios (variables deflated by shares outstanding at the end of the quarter)

Variables	N	Mean	Median	Std.-Dev.	Lower Quartile	Upper Quartile
MVE	189	14.103	6.389	22.297	2.290	14.650
BVE	189	19.069	8.824	26.382	3.830	23.981
BVEnet	189	-0.375	3.049	36.815	0.458	9.209
NI	189	0.092	0.053	0.875	-0.013	0.328
SumBV	189	19.444	2.870	38.069	0.569	13.685
SumFV	189	18.431	2.527	36.923	0.536	13.522
DiffSum	189	1.013	0.108	2.143	0.013	0.707
BVAFSLAR	189	13.615	0.017	36.767	0.000	1.399
FVAFSLAR	189	13.205	0.015	36.030	0.000	1.193
DiffAFSLAR	189	0.410	0.000	1.138	0.000	0.077
BVHFT	189	5.829	0.880	10.533	0.075	5.484
FVHFT	189	5.226	0.840	9.200	0.078	5.004
DiffHFT	189	0.603	0.034	1.579	0.000	0.194
BVHFTLAR	189	3.795	0.151	9.093	0.000	2.958
FVHFTLAR	189	3.444	0.146	8.102	0.000	2.877
DiffHFTLAR	189	0.350	0.006	1.050	0.000	0.095
BVHFTHTM	189	2.035	0.000	6.181	0.000	0.128
FVHFTHTM	189	1.782	0.000	5.126	0.000	0.107
DiffHFTHTM	189	0.252	0.000	1.246	0.000	0.001
BVLAR	189	17.410	0.866	38.423	0.061	7.459
FVLAR	189	16.649	0.775	37.300	0.048	7.223
DiffLAR	189	0.760	0.058	1.847	0.000	0.355

See Table 1 for variable definitions.

Panel B: Descriptive Statistics on reclassification

	Mean (deflated by number of shares)			Mean (deflated by book value of equity)		
Reclassified Asset	BV	FV	Diff	BV	FV	Diff
Sum (N = 189)	19.444	18.431	1.013	1.094	1.056	0.038
AFSLAR (N = 189)	13.615	13.205	0.410	0.791	0.772	0.019
AFSLAR (N = 106)	24.276	23.545	0.731	1.410	1.377	0.034
HFT (N = 189)	5.829	5.226	0.603	0.303	0.284	0.019
HFT (N = 159)	6.929	6.213	0.717	0.360	0.338	0.022
HFTLA R (N = 189)	3.795	3.444	0.350	0.195	0.181	0.014
HFTLAR (N = 118)	6.078	5.517	0.561	0.313	0.291	0.022
HFTHTM (N = 189)	2.035	1.782	0.252	0.108	0.103	0.005
HFTHTM (N = 69)	5.573	4.882	0.691	0.295	0.281	0.013
LAR (N = 189)	17.410	16.649	0.760	0.986	0.954	0.014
LAR (N = 155)	21.228	20.301	0.927	1.203	1.163	0.040

The table depicts the mean of the reclassified financial instruments' book and fair values as well as the mean of their difference partitioned according to the different types of reclassification. For each type the mean is calculated by using the total number of N = 189 observations as well as by using the number of observations that actually contain the respective type of reclassification. On the left hand side of the table the variables are deflated by the number of shares outstanding at the end of the quarter. On the right hand side of the table the variables are deflated by the book value of equity at the end of the quarter. See Table 1 for variable definitions.

Table 4: Correlations among variables

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
A: *MVE*		**0.8935**	**0.4578**	**0.4487**	**0.1444**	**0.1413**	**0.1976**	**0.1456**	**0.1471**	**0.1639**	-0.0742	-0.0737	-0.0294	-0.0731	0.0622	**0.3109**
B: *BVE*	**0.9520**		**0.4399**	**0.3992**	**0.2140**	**0.2113**	**0.2442**	**0.1466**	**0.1468**	**0.1978**	-0.0586	-0.0584	-0.0103	-0.0194	0.0132	**0.3326**
C: *BVEnet*	**0.3928**	**0.3100**		**0.2154**	**-0.3105**	**-0.3130**	**-0.2797**	-0.0256	-0.0247	0.0337	0.0312	0.0313	0.0494	-0.0715	0.1003	0.0360
D: *NI*	**0.1656**	0.1171	0.0526		0.0220	0.0242	0.0011	**0.1322**	**0.1331**	0.1181	**0.1315**	**0.1322**	0.0658	-0.0934	-0.0068	**0.1496**
E: BVAFSLAR	0.1111	**0.2082**	**-0.8445**	-0.0089		**0.9995**	**0.7540**	0.0255	0.0244	0.0291	**-0.5240**	**-0.5240**	**-0.3728**	**0.2368**	-0.0666	0.0838
F: *FVAFSLAR*	0.1091	**0.2049**	**-0.8444**	-0.0081	**0.9997**		**0.7432**	0.0234	0.0222	0.0261	**-0.5216**	**-0.5216**	**-0.3713**	**0.2351**	-0.0635	0.0860
G: *DiffAFSLAR*	**0.1359**	**0.2391**	**-0.5499**	-0.0306	**0.6564**	**0.6383**		**0.1360**	**0.1346**	**0.1637**	**-0.4346**	**-0.4338**	**-0.3047**	**0.2878**	0.0082	0.0883
H: BVHFTLAR	**0.2862**	**0.3765**	-0.0248	**0.1982**	0.0626	0.0529	**0.3468**		**0.9997**	**0.8788**	**-0.3578**	**-0.3572**	**-0.2085**	**0.3772**	**0.2604**	0.0030
I: *FVHFTLAR*	**0.2846**	**0.3749**	-0.0198	**0.2002**	0.0565	0.0471	**0.3343**	**0.9992**		**0.8729**	**-0.3564**	**-0.3558**	**-0.2066**	**0.3723**	**0.2596**	0.0004
J: *DiffHFTLAR*	**0.2822**	**0.3676**	-0.0619	**0.1715**	0.1063	0.0951	**0.4233**	**0.9494**	**0.9358**		**-0.3066**	**-0.3064**	**-0.1816**	**0.4328**	**0.3182**	0.0455
K: BVHFTHTM	**0.6419**	**0.6297**	**0.4268**	-0.0525	**-0.1218**	**-0.1205**	-0.1191	-0.0885	-0.0875	-0.0912		**0.9999**	**0.7455**	**-0.3652**	**-0.1262**	0.0118
L: *FVHFTHTM*	**0.5957**	**0.5909**	**0.4071**	-0.0345	**-0.1285**	**-0.1272**	**-0.1258**	-0.0891	-0.0877	-0.0947	**0.9930**		**0.7441**	**-0.3647**	**-0.1260**	0.0125
M: *DiffHFTHTM*	**0.7333**	**0.6925**	**0.4423**	-0.1183	-0.0752	-0.0744	-0.0732	-0.0724	-0.0731	-0.0630	**0.8748**	**0.8117**		**-0.2701**	-0.1045	0.0067
N: *COMPLEX*	-0.1132	-0.0650	**-0.1580**	-0.0693	0.1010	0.0969	**0.1963**	**0.1976**	**0.1908**	**0.2389**	**-0.2276**	**-0.2401**	**-0.1414**		**0.2812**	**0.3008**
O: *STOXX*	**-0.1419**	**-0.1545**	0.0955	-0.0021	**-0.2178**	**-0.2173**	**-0.1566**	**0.1984**	**0.2012**	**0.1652**	**-0.2245**	**-0.2203**	**-0.2071**	**0.2812**		0.0887
P: *RQ*	**0.2667**	**0.3093**	-0.0152	-0.0148	**0.1607**	**0.1595**	**0.1409**	**0.1318**	**0.1321**	**0.1222**	**0.2611**	**0.2594**	**0.2280**	**0.2809**	**0.2246**	

Pearson correlations are below and Spearman are above the diagonal. The correlation table depicts pair-wise correlations between variables used in the analysis. All correlations significant at 0.1 two-tailed level are in bold. All continuous variables are deflated with the number of shares outstanding at the end of the quarter. See Table 1 for variable definitions.

Table 5: Regression results - Relative value relevance of book and fair values

Variables	Predicted Sign	Estimated Coefficients	
		BV model	FV model
BVEnet	+	0.8410***	0.8717***
NI	+	1.4250***	1.1857**
AFSLAR	+	0.7873***	0.8261***
HFTLAR	+	0.6244***	0.7277***
HFTHTM	+	0.8810***	0.9325***
COMPLEX	-	-0.4997	-0.1902
STOXX	?	0.5024	0.0340
RQ	+	-0.9937	-0.8413
INTERCEPT	?	-4.6293**	-5.0117**
Quarter Effects		Yes	Yes
Adj. R-squared (%)		92.86%	92.31%
Vuong's Z-statistic		2.2352**	
N		189	189

In the BV model the reclassification variables *AFSLAR*, *HFTLAR* and *HFTHTM* represent book values of reclassified financial instruments (*BVAFSLAR*, *BVHFTLAR* and *BVHFTHTM*). In the FV model the reclassification variables represent fair values (*FVAFSLAR*, *FVHFTLAR* and *FVHFTHTM*). All other variables are the same in both models. *, **, and *** indicate significant difference from 0 at the 10%, 5%, and 1% levels (two-tailed), respectively.

In order to compare the difference in the explanatory power across the two (non-nested) competing models, the Z-statistic of a Vuong test (two-tailed) is computed.

See Table 1 for variable definitions.

Table 6: Regression results - Value relevance of historical cost and fair value for individual reclassified financial instruments

			Estimated Coefficients				
			AFSLAR	HFTLAR	HFTHTM	LAR	HFT
Variables	Predicted Sign	BV model	FV model	FV model	FV model	FV model	FV model
BVEnet	+	0.8410***	0.8412***	0.8415***	0.8712***	0.8416***	0.8717***
NI	+	1.4250***	1.3585**	1.4273**	1.2481**	1.3630**	1.2505**
AFSLAR	+	0.7873***	0.8015***	0.7884***	0.8104***	0.8026***	0.8116***
HFTLAR	+	0.6244***	0.6560***	0.6983***	0.6190***	0.7328***	0.6921***
HFTHTM	+	0.8810***	0.8729***	0.8816***	0.9407***	0.8738***	0.9413***
COMPLEX	-	-0.4997	-0.3326	-0.3901	-0.4789	-0.2151	-0.3701
STOXX	?	0.5024	0.2572	0.4644	0.3231	0.2174	0.2854
RQ	+	-0.9937	-0.9406	-1.0295	-0.8593	-0.9759	-0.8944
INTERCEPT	?	-4.6293**	-4.5715**	-4.7493**	-4.9487***	-4.6976**	-5.0678***
Quarter Effects		Yes	Yes	Yes	Yes	Yes	Yes
Adj. R-squared (%)		92.86%	92.82%	92.83%	92.39%	92.77%	92.36%
Vuong's Z-statistic			0.2257	0.5993	3.5734***	0.4644	3.3441***
N		189	189	189	189	189	189
Quarter Effects			Yes	Yes	Yes	Yes	Yes
Adj. R-squared (%)	BV model		86.92%	85.46%	98.90%	86.40%	93.94%
Quarter Effects			Yes	Yes	Yes	Yes	Yes
Adj. R-squared (%)	FV model		86.70%	85.33%	98.81%	86.20%	93.52%
Vuong's Z-statistic			0.4884	0.6097	1.9352*	0.4540	2.7103***
N			106	118	69	155	159

In the BV model the reclassification variables *AFSLAR*, *HFTLAR* and *HFTHTM* represent the book values of reclassified financial instruments (*BVAFSLAR*, *BVHFTLAR* and *BVHFTHTM*). In the FV models the respective reclassification variable(s) of interest is (are) measured at fair value whereas all other reclassification variables are measured at book values. The respective reclassification variable(s) of interest is specified in the superscription. All other variables are the same in both models. *, **, and *** indicate significant difference from 0 at the 10%, 5%, and 1% levels (two-tailed), respectively.

In order to compare the difference in the explanatory power across the two (non-nested) competing models (BV model vs. FV model), the Z-statistic of a Vuong test (two-tailed) is computed.

Below the dividing line the (adjusted) R-squared and the Vuong's Z-statistic for book and fair value models calculated exclusively on observations that contain the respective type of reclassification are provided. Consequentially the number of observations differs according to the reclassification variable(s) of interest.

See Table 1 for variable definitions.

Table 7: Regression results - Incremental value relevance of fair values

Variables	Predicted Sign	Estimated Coefficients
BVE	+	0.7304***
NI	+	1.9016***
DiffAFSLAR	-	-0.6895
DiffHFTLAR	-	-0.4325
DiffHFTHTM	-	2.7366***
COMPLEX	-	-0.6279
STOXX	?	1.0406
RQ	+	-1.4702
INTERCEPT	?	-3.6374**
Quarter Effects		Yes
Adj. R-squared (%)		93.18%
N		189

*, **, and *** indicate significant difference from 0 at the 10%, 5%, and 1% levels (two-tailed), respectively.
See Table 1 for variable definitions.

Table 8: Regression results - Book value model and equality of coefficients

Variables	Predicted Sign	Estimated Coefficients
BVE	+	0.8410***
NI	+	1.4250***
BVAFSLAR	+	0.7873***
BVHFTLAR	+	0.6244***
BVHFTHTM	+	0.8810***
COMPLEX	-	-0.4997
STOXX	?	0.5024
RQ	+	-0.9937
INTERCEPT	?	-4.6293**
Quarter Effects		Yes
Adj. R-squared (%)		92.86%
N		189

Wald test for equality of coefficients

Variable	Estimate	P-value
BVAFSLAR = BVHFTHTM	0.69	0.4077
BVHFTLAR = BVHFTHTM	5.59	0.0191
BVAFSLAR = BVHFTLAR	6.99	0.0089

*, **, and *** indicate significant difference from 0 at the 10%, 5%, and 1% levels (two-tailed), respectively.
Estimates and p-values for a Wald test (two-tailed) for equality of the estimated book value variable coefficients are provided at the bottom.
See Table 1 for variable definitions.

Table 9: Regression results - Value relevance of historical cost and fair value across crisis and recovery periods

Variables	Predicted Sign	Estimated Coefficients			
		Crisis Period		Recovery Period	
		BV model	FV model	BV model	FV model
BVEnet	+	0.8166***	0.8674***	0.7893***	0.7989***
NI	+	0.4759	0.4179	3.9063***	3.9658***
AFSLAR	+	0.7317***	0.7910***	0.7748***	0.7940***
HFTLAR	+	0.5866***	0.6945***	0.6075***	0.6774***
HFTHTM	+	0.8740***	0.8736***	0.9037***	1.0242***
COMPLEX	-	-1.1683	-0.6685	-0.3123	-0.2542
STOXX	?	0.5014	-0.2671	1.4687	1.3172
RQ	+	-1.3617	-1.1528	-0.1126	-0.0334
INTERCEPT	?	-3.4478	-3.9309*	-1.5957	-1.7092
Quarter Effects		Yes	Yes	Yes	Yes
Adj. R-squared (%)		89.63%	88.90%	95.84%	95.17%
Vuong's Z-statistic		1.6066		4.0658***	
N		100	100	89	89

In the BV model the reclassification variables AFSLAR, HFTLAR and HFTHTM represent book values of reclassified financial instruments (BVAFSLAR, BVHFTLAR and BVHFTHTM). In the FV model the reclassification variables represent fair values (FVAFSLAR, FVHFTLAR and FVHFTHTM). All other variables are the same in both models. The crisis period contains the financial reports from Q3 2008 until Q2 2009, the recovery period contains the financial reports from Q3 2009 until Q1 2010. *, **, and *** indicate significant difference from 0 at the 10%, 5%, and 1% levels (two-tailed), respectively.

In order to compare the difference in the explanatory power across the two (non-nested) competing models (BV model vs. FV model), the Z-statistic of a Vuong test (two-tailed) is computed.

See Table 1 for variable definitions.

Chapter 4

The Role of Fair Values in the Pricing of Audit Services - Evidence from European Banks

The Role of Fair Values in the Pricing of Audit Services - Evidence from European Banks

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The Role of Fair Values in the Pricing of Audit Services - Evidence from European Banks

This study analyzes whether and how financial instruments' fair values in European IFRS bank financial statements exhibit an influence on audit fees. We first examine fair values along two dimensions and provide evidence that audit fees increase with a higher exposure to the first dimension, i.e. the number of IAS 39 fair value instrument categories used by banks. We next find that the second dimension, i.e. fair value financial assets and liabilities deflated by total assets, does not exhibit any influence on audit fees. When further partitioning this measure according to the three IAS 39 fair values levels, we find evidence that audit fees increase with level 3 assets and liabilities, which we attribute to lower reliability and higher complexity of these fair values. Furthermore, we analyze whether the influence of fair values on audit fees is dependent on the IAS 39 financial instruments category. However, the results do not support this notion. Finally, our evidence shows that banks which carry out financial instrument reclassifications under the IAS 39 amendment exhibit higher audit fees than other banks. Our results are robust to a host of robustness tests including principal component factoring. Overall, the findings suggest that while specific types of fair value are associated with higher audit fees, fair value measurement per se is not.

Keywords: Audit fees, fair value, reclassification, IAS 39, IFRS 7

JEL Classification: G21, M41, M42

1. Introduction

Using mostly hand-collected data for a sample of IFRS reporting banks for the period 2009 and 2010, this paper examines the determinants of European banks' audit fees and the role of fair values. To this end, we first build a base model with general and bank-specific determinants of audit fees. In a next step we construct two alternative measures of a bank's general fair value exposure, namely the number of different IAS 39 fair value financial instrument categories used by a bank and the proportion of fair value financial instruments to total assets. To disentangle effects arising from different fair value types, we further partition this measure according to the three IAS 39 fair values levels. In addition, we analyze whether the influence of fair values on audit fees varies between the different IAS 39 financial instruments categories. Finally, we seek to determine whether financial instrument reclassifications carried out under the IAS 39 amendment have an influence on audit fees.

Our results consistently show that audit fees increase with an increasing number of different IAS 39 fair value financial instrument categories used by a bank representing our first fair value dimension. However, unlike Ettredge et al. (2011) we do not find any evidence that the second dimension, i.e. fair value financial assets and liabilities deflated by total assets, exhibits an influence on audit fees. In line with prior literature, we also provide evidence that audit fees increase with level 3 assets and liabilities, which we attribute to lower reliability and higher complexity of these fair values. Furthermore, the findings do not suggest that the influence of fair value financial instruments on audit fees differs between the IAS 39 categories. Finally, our evidence shows that banks carrying out financial instrument reclassifications under the IAS 39 amendment exhibit higher audit fees, compared to other banks. We argue that this increase is due to potential earnings management implications and the incremental audit effort induced by these reclassifications. The results are robust to a host of robustness tests such as principal component factoring and alternative sets of proxy variables. Taken together, our findings lead us to conclude that the assessment of economic costs associated with fair value accounting requires a differentiated view, as the impact on audit fees differs across certain characteristics of fair values.

Our paper contributes to the fair value literature by providing evidence on the costs associated with fair value accounting. We examine these costs in the form of observable

audit fees. According to the theory of Jensen and Meckling (1976) audit fees represent agency costs, or more specifically, monitoring costs borne by shareholders in order to monitor the firm's management. During the decades-long debate about fair value accounting, various effects and implications of this measurement concept have been examined. Examples include value relevance studies (e.g., Barth, 1994), papers that analyze the effect of fair value accounting on earnings volatility (e.g., Fiechter, 2011b) and on information asymmetry (e.g., Ball et al., 2012). However, with the exception of Chen et al. (2010), Ettredge et al. (2011), and Goncharov et al. (2013), the audit fee implications of fair values remain largely unexplored up to the present. The results of the former two studies show that audit fees increase with the exposure to fair values, measured as the proportion of fair value financial instruments to total assets. Furthermore, they identify level 3 fair values, i.e. less verifiable and more complex fair values, as the main driver of this increase, which is in line with our results. While their settings are similar to ours in that the authors also analyze audit fees in the banking sector, they differentiate from our study in the underlying institutional environment and the accounting standards examined since they regard US GAAP reporting US banks. Moreover, our study introduces an alternative interpretation regarding the definition of fair value exposure and it is innovative in addressing the questions whether the impact of fair values on audit fees differs within the IAS 39 fair value categories and how reclassifications between categories affect audit fees. Analyzing European real estate firms, the institutional environment and accounting standards in Goncharov et al. (2013) are consistent with ours. However, they regard an industry that is hardly comparable to the banking sector and its regulatory environment. Unlike the US studies, Goncharov et al. (2013) find a negative relationship between audit fees and the fair value exposure, which they attribute, inter alia, to economies of scale that arise from auditing the fair value estimation process instead of individual estimates. Given the ambiguous as well as limited extant literature, the question whether and to what extent fair values affect the pricing of audit fees requires further study. To the best of the authors' knowledge, this is the first paper providing evidence on the impact of fair values on banks' audit fees in an IFRS context. Moreover, our evidence regarding the effect of IAS 39 reclassifications on audit fees complements some recent work on the reclassification behavior of European banks (e.g., Bischof et al., 2011) and the value relevance of reclassified financial instruments (Schneider, 2012). We contribute to this strand of literature by shedding some light on the audit costs associated with these reclassifications.

Furthermore, we are not aware of any other paper that investigates determinants of European IFRS reporting banks' audit fees. This research void is quite surprising given the important role external auditors play in regulatory oversight of banks. Regulatory agencies evaluate banks' financial health on the basis of audited financial statements and risk measures. Consequently, auditors that do not adequately factor fundamental risks into their audit function might jeopardize the banking system as a whole (Fields et al., 2004). The recent financial crisis made the relevance of this issue evident when some voices also questioned the work performed by auditors (e.g., Sikka, 2009). In the aftermath of the financial crisis, the European Commision (2010) issued the much debated green paper on audit policy entitled "Audit Policy: Lessons from the Crisis".[1] Several of the regulating proposals in the green paper possess direct or indirect implications on audit fees in the European Union. In order to evaluate such proposals it is crucial to gain an understanding of how auditors price their services. Focussing on the European bank audit market, our empirical analysis provides valuable evidence in this regard.

Finally, against the backdrop of the recent financial crisis, the influence of fair values on audit fees is especially worthwhile to be analyzed. During the crisis, the issue of determining and hence auditing fair values came to the public attention. Due to distorted and dried up markets, an increasing number of fair values had to be determined based on financial models making additional guidance on how to audit these fair values necessary (e.g., International Auditing and Assurance Standards Board, 2008).[2] By analyzing the period 2009-2010, this paper provides evidence on how the auditing profession factors fair values into the pricing of its services after these events.

The remainder of the paper is organized as follows: Section 2 presents an overview of the standards and regulations we draw upon in our analyses regarding audit fee and fair value data. The third section provides an overview of the related literature and describes the development of the hypotheses. Section 4 presents the research design, while section 5 describes the sample. Section 6 discusses the results of the empirical tests and the final section 7 provides a conclusion.

[1] See Humphrey et al. (2011) for a critical discussion.
[2] Moreover, fair value accounting was accused of having a procyclical effect and therefore aggravating the crisis (see for example Laux and Leuz (2010) for a discussion).

2. Institutional Background

According to article 49 of the Directive 2006/43/EC (European Commission, 2006a), entities in the European Union are required to disclose audit fees and fees paid to the auditor for non-audit services in the notes to the annual accounts and the consolidated accounts. For financial years beginning on or after 1 January 2009, IFRS 7.27B requires entities to disclose the fair value hierarchy level for each class of financial instruments for which fair value measurements are recognized in the statement of financial position. IFRS 7.27A defines these levels in the following way:

- Level 1 fair values are quoted prices in active markets for identical assets or liabilities
- Level 2 fair values are determined based on directly or indirectly observable inputs
- Level 3 fair values are determined using unobservable inputs

In our analysis regarding the different categories of fair value financial instruments we relate to the five categories as set out in IAS 39.9. These are financial assets and liabilities held for trading, financial assets and liabilities designated as at fair value through profit or loss (fair value option) as well as available-for-sale financial assets. The reclassification amendment to IAS 39 (International Accounting Standards Board, 2008) enabled entities to carry out reclassifications between the different financial instrument categories under certain circumstances (IAS 39.50-54). While these reclassifications allow to abandon fair value measurement in favor of historical cost accounting, they come along with additional disclosure requirements as laid out in IFRS 7.12A. These disclosures include for example the fair value gain or loss that would have been recognized if the financial assets had not been reclassified. According to IFRS 7.31 ff., entities shall disclose information about the nature and extent of risks arising from financial instruments, e.g., liquidity risk. We further elaborate on these risk disclosures in our research design section where we define our risk proxy variables.

3. Related literature and hypotheses development

In his seminal work, Simunic (1980) develops a theoretical model that explains the auditor's pricing decision. Accordingly, this decision is a function of the auditor's cost, i.e. the resources used for the audit including a provision for a normal profit, and the

expected value of future losses that may arise from the audited financial statements (e.g., losses from litigation). Simunic (1980) states that the auditor's liability loss exposure is, inter alia, determined by the size of the client, the complexity of its operations, and auditing problems associated with certain financial statement components. The results of his empirical analysis show that these determinants exhibit the predicted influence on audit fees. Subsequent research building upon the theoretical and empirical findings of Simunic (1980) identifies client size, client risk, and client complexity as the most important drivers of audit fees (see Hay et al. (2006) and Hay (2013) for meta-analyses). In our model, we use different variables to control for these drivers, as elaborated in more detail in the research design section.

According to Simunic (1980), auditing problems that arise from certain financial statement components increase the auditor's loss exposure and therefore audit fees. We argue that fair value assets and liabilities belong to this group of financial statement components. Prior literature identifies a number of important issues that render auditing of fair value measurements difficult. First, unlike the more uniform control systems applied to conventional transaction processes, the client's estimation processes and related internal controls over fair value measurements are more prone to be developed on an individual basis. Constant variations in innovative financial instruments cause frequent changes in fair value estimation methods, accompanied by the introduction of new valuation models and changing assumptions. This increases audit work and requires specialized valuation expertise (Martin et al., 2006). Audit teams usually lack this expertise and thus request assistance from valuation assurance specialists leading to higher audit costs.[3] Second, auditing of fair values is further complicated by cognitive biases and errors inherent in preparing these measurements (e.g., Simon 1955, 1956; Martin et al., 2006). For instance, Russo and Schoemaker (2002) show that individuals' confidence increases with the amount of information available to them. The estimation of fair values is oftentimes set in environments with tremendous quantities of information, thus making preparers more prone to overconfidence issues. As a result, they may not take additional decision relevant factors into account. In sum, cognitive biases demand more effort from the audit teams since they need to adjust for such biases when assessing the fair value measurements, thereby leading to higher audit costs.

[3] On the other hand, a different problem might arise from audit team leaders' lack of incentives to apply for support in valuation issues, which, in turn, results in higher audit risks (United States Securities and Exchange Commission, 2008).

However, a competing view suggests that fair values allow, compared to alternative accounting measurement concepts, a less effortful auditing process, as firms set up standardized procedures to determine fair values (Goncharov et al., 2013). Hence, the auditors' work is concentrated on routine checks of the underlying model inputs and assumptions.

On the empirical side and consistent with the arguments presented above, Ettredge et al. (2011) document a positive association between audit fees and fair value exposure for US banks,[4] while Gonchorav et al. (2013) find opposing results for their sample of European IFRS reporting real estate firms. Ettredge et al. (2011) complement the audit fee model by Fields et al. (2004) with their experimental variables. In their study of US banks Fields et al. (2004) identify different risk-related characteristics as drivers for banks' audit fees. Their model captures the five risk-categories liquidity, operating, credit, capital and market risk. They find that with the exception of market risk all other risk factors influence the fees charged by auditors. We extend the approach of Ettredge et al. (2011) by arguing that the banks' general exposure to fair value is not only captured by the relative proportion of total instruments measured at fair value, but also by the number of employed fair value categories, thus allowing for a new interpretation of exposure. Hence, we capture the banks' fair value exposure along two dimensions.

Guided by the deliberations above, and considering that, like Ettredge et al. (2011), our study is set in a banking environment, we expect that audit fees increase with the general fair exposure leading to the following hypotheses (stated in the alternative form):

H1a: Audit fees increase with the number of different fair value categories.

H1b: Audit fees are higher for banks with a higher proportion of financial instruments at fair value.

As stated above, we hypothesize that fair value financial instruments increase the auditor's loss exposure and consequentially audit fees. However, the fact that fair value determination methods vary significantly due to financial instruments' characteristics calls for a more differentiated view. When determining fair values, management must

[4] See also De George et al. (2013) who find in their analysis of Australian companies that the adoption of IFRS is associated with an increase in audit fees. Among other explanations they attribute this finding, in part, to the widespread use of fair values under IFRS.

adhere to the main principle of the fair value hierarchy, i.e. the "primacy of market-based measures" (Hitz, 2007, p. 326). The decreasing quantity and quality of market-based inputs from level 1 to 3 is accompanied by a decreasing verifiability of resulting fair values (Hitz, 2007). Consequentially, obtaining appropriate audit evidence relating to the valuation of level 3 fair values requires considerably more effort from auditors compared to level 1 fair values: While it is comparably easy to verify quoted prices in active markets (level 1), fair value estimates based on models render the verification process more complex. Additional audit procedures induced by level 3 fair values include understanding the underlying estimation model and checking the plausibility and reliability of input data (Ramos and Delahanty, 1998). Since the models are potentially inaccurate and their inputs subject to managerial discretion (e.g., Landsman, 2007), the potential measurement error inherent to these models-based fair values is significantly greater compared to level 1 and even level 2 fair values (Goh et al., 2009). This in turn leads to an increased auditor's loss exposure, which according to Simunic (1980),[5] results in an increase of audit fees (Ettredge et al., 2011).

Furthermore, the use of level 3 fair values is also accompanied by supplemental disclosure requirements, thereby further increasing the number of audit procedures. According to IFRS 7.27B an entity shall disclose the assumptions for level 3 fair value measurements and a sensitivity analysis documenting the effects of model input variations on profit and loss and other comprehensive income.[6]

In accordance with the deliberations above, Chen et al. (2010), Ettredge et al. (2011), and Goncharov et al. (2013) provide empirical evidence for the US banking and the European real estate industry, respectively, that audit fees increase in the firm's exposure to more difficult-to-audit level 3 fair values. In a similar vein, Goh et al. (2009), Kolev (2009), and Song et al. (2010), examine the value relevance of fair value information. The three studies consistently show that level 3 fair values are less value relevant to investors than level 1 fair values. In their analysis of equity betas, Riedl and Serafeim (2011) provide evidence that an increasing level 3 fair value exposure leads to

[5] See also Bell and Griffin (2012) who cite the case of New Century TRS Holdings, Inc. to demonstrate how auditors can suffer from litigation losses as a consequence of auditing high-uncertainty fair value estimates.

[6] In economic terms, the effects from variations in the fair value model inputs can be highly significant. Using publicly available data, Christensen et al. (2012) show that changes within reasonable ranges result in substantial changes to accounting values, oftentimes exceeding the average materiality threshold by far.

an increase of a firm's cost of capital that is significantly higher compared to level 1 and level 2 fair values. In an earlier working paper version, Riedl and Serafeim (2009) show that information asymmetry, proxied by bid-ask spreads, increases with an increasing level 3 fair value exposure. Finally, Valencia (2011) as well as Fiechter and Meyer (2011) demonstrate that Level 3 fair values are exposed to higher earnings management, thus increasing audit risk and rendering the verification process more demanding for auditors.

The sum of the considerations lead to the following hypothesis (stated in the alternative form):

H2: The influence of financial instruments at fair value on audit fees is more pronounced for less verifiable fair values.

Moreover, we argue that differences in the required audit effort, and hence in the audit fees, arise from peculiarities of the different fair value categories defined in IAS 39.9. According to these definitions, financial instruments have to be categorized as held for trading if their main purpose is to be sold or repurchased in the near term or if they belong to a portfolio with a pattern of short-term profit taking. Both cases imply a short-term holding period.[7] As a consequence, we assume the turnover rate of held-for-trading financial instruments to be considerably higher in comparison to financial instruments in the fair value option and available-for-sale categories, which are not subject to any criteria that would imply short-term holding periods. Accordingly, higher amounts of financial instruments remain in a bank's fair value option and available-for-sale portfolio over periods exceeding one financial year, whereas the held-for-trading portfolio composition is prone to significant and frequent changes from one financial year to another. Thus, auditing fair values differs between the categories in that the audit of fair value option and available-for-sale instruments benefits from prior period audit evidence which merely needs to be updated, while bigger parts of the held-for-trading instruments, i.e. fair values, are audited for the first time.[8] Consequentially, audit effort is higher for the latter category. We expect these higher levels of audit effort to translate into higher levels of audit fees.

[7] We note that this does not necessarily apply to derivatives that are categorized as held for trading.
[8] Moreover, the auditor additionally has to check whether the categorization as held for trading is correct in the first place which also increases audit effort for these first-time audited instruments.

The available-for-sale category differs from the other fair value categories in that here fair value gains or losses are directly recognized in the equity reserve through the other comprehensive income (IAS 39 par. 46 in conjunction with IAS 39 par. 55(b)). In their experiments with audit partners, Libby et al. (2006) find that auditors exhibit higher misstatement tolerance for disclosed than for recognized amounts. Also, their debriefing data suggest that partners view recognized misstatements as more material than disclosed ones. The authors argue this is due to the fact that disclosed amounts receive less attention from users and they are not as often used for contracting. Hypothesizing that similar differences exist between amounts that are recognized in the income statement and those that are recognized in the equity reserve leads to the expectation that auditors put less effort into auditing available-for-sale than held-for-trading and fair value option fair values, which results in higher audit fees regarding the latter categories.[9]

As was shown above, we expect the peculiarities of the fair value financial instrument categories to induce differences regarding the audit effort and hence audit fees, therefore we state the following hypothesis in the alternative form:

H3a: The influence of financial instruments at fair value on audit fees differs between the different financial instrument categories.

Some recent studies examine the reclassification behavior of IFRS reporting banks under the IAS 39 amendment (e.g., Bischof et al., 2011) and the capital market participants' reaction to said reclassifications (e.g., Paananen et al., 2012; Schneider, 2012). The outcomes of the former studies suggest that the reclassifications were carried out for earnings and capital management purposes (e.g., Bischof et al., 2011; Fiechter, 2011a). Also, prior research documents a positive relationship between earnings management and audit fees, whereby the authors measure earnings management by abnormal or discretionary accruals (accrual-based earnings management) (e.g., Gul et al., 2003; Antle et al., 2006; Caramanis and Lennox, 2008; Alali, 2011).[10] Gul et al. (2003) argue that earnings management in the form of discretionary accruals increases

[9] On the other hand, studies show that unrealized available-for-sale fair value gains or losses are value relevant to investors (e.g., Kanagaretnam et al., 2009) which contradicts the assumption that these equity reserve amounts receive less attention from users and hence auditors.

[10] In their analysis of engagement partners' client risk assessment documents Bedard and Johnstone (2004) find that auditors' pricing increases with the earnings manipulation risk. Among other factors the earnings manipulation risk is proxied by unusually aggressive and creative accounting practices.

the auditor's assessment of client risk, which in turn increases audit fees. Assuming that the same logic applies to earnings management in the form of reclassifications leads to the prediction that audit fees are higher for reclassifying banks than for other banks. However, it has to be noted that other studies document a negative relationship between audit fees and accruals (e.g., Larcker and Richardson, 2004).[11]

In addition to the earnings management implications, we argue that reclassifications induce considerable audit effort per se. In the first instance, certain criteria have to be met in order to carry out such reclassifications under the IAS 39 amendment. For example, if the entity reclassifies a held-for-trading asset into the held-to-maturity category it has to document that the asset is not a derivative financial instrument (IAS 39.50(a)), it is no longer held for the purpose of selling it in the near term (IAS 39.50(c)), "rare circumstances" are present (IAS 39.50B), and that the entity has the intention and ability to hold the financial instrument until its maturity (IAS 39.9). The auditor then has to check whether the entity complies with these requirements. In the next step, two fair values have to be audited for each reclassified financial instrument: The fair value on the date of the reclassification which becomes the financial instrument's new amortized cost (IAS 39.50C) as well as the fair value at the end of the financial year which has to be disclosed according to IFRS 7.12A(b). Additionally, other required disclosures have to be audited such as the fair value gain or loss that would have been recognized if the financial asset had not been reclassified (IFRS 7.12A(e)). Hence, reclassifications induce a considerable number of audit procedures. Moreover, due to the exceptional nature of the reclassifications it is rather difficult and inexpedient to establish a regular process including appropriate controls, which in turn means that the audit procedures have to be of a substantive nature instead of generally less costly controls testing procedures. Finally, the experience of banks and even auditors regarding reclassifications is quite limited since these reclassification were possible for the first time in the financial year 2008. We assume that this additionally increases audit effort and therefore audit fees. Taken together, these observations lead to the following hypothesis (stated in the alternative form):

[11] Unlike Gul et al. (2003), Larcker and Richardson (2004) as well as Antle et al. (2006) regard the accruals as a function of audit fees and not vice versa. The rationale behind this approach is that high fees received by the auditor undermine the independence and provide incentives for less strict auditing which in turn increases earnings management in the form of accruals.

H3b: Audit fees are higher for banks that carry out reclassifications under the amendment to IAS 39.

4. Research design

We follow prior research on the determinants of audit fees by using the natural logarithm of total audit fees (*LogAUDFEE*) as the dependent variable in our models (Hay et al., 2006). Consistent with the extant literature, we include two groups of control variables to isolate the effect of our fair value variables on audit fees: general determinants of audit fees and those specifically related to banks (Chen et al., 2010; Ettredge et al., 2011). Regarding the former, we account for client size, client risk, and client complexity as primary audit fee determinants,[12] while additionally controlling for strategic pricing behavior and cross-country differences.

In order to control for client size, we include the natural logarithm of total assets *LogTA* (Simunic, 1980). *LOSS*, which is an indicator variable that equals one if the profit before tax is negative and zero otherwise,[13] as well as the standard deviation of the bank's stock returns measured over the 12 month preceding fiscal year end (*STDRET*) are used as controls for client risk.[14] We expect positive signs for *LogTA, LOSS* and *STDRET*. *COMBANK* is an indicator variable that equals one if the bank is classified as "Commercial Bank" according to the Global Industry Classification Standard (GICS Code 401010). These are institutions "whose businesses are derived primarily from commercial lending operations and have significant business activity in retail banking and small and medium corporate lending" (Standard & Poor's and MSCI, 2010, p. 37). Banks with other GICS classifications, e.g. "Investment Banking & Brokerage" or "Diversified Capital Markets", represent more complex banks and/or banks where the

[12] See section 3.

[13] Previous research (e.g., Goncharov et al., 2013) also uses a binary variable which equals one if the auditee received a qualified audit opinion and zero otherwise to proxy for financial distress. However, we do not use this control in our setting since all of our observations received unqualified audit opinions.

[14] Alternatively, we use the bank's long term issuer rating by Fitch, Moody's or Standard & Poor's (in this order based on availability) obtained from Reuters CreditViews as risk control. We define six values for our variable *RATING*: A value of one is assigned to those observations with the best ratings in our sample, i.e. AA and AA- for Fitch and Standard & Poor's or Aa2 and Aa3 for Moody's, a value of six is assigned to those observations with the worst ratings, i.e. B for Fitch and Standard & Poor's or B2 for Moody's. Values two to five are assigned accordingly (see Ashbaugh-Skaife et al. (2006) who use a similar credit rating classification). We expect a positive sign for the estimated coefficient on *RATING*. However, while *RATING* is not statisitically significant in any of our estimated models, the results regarding the variables of interest remain qualitatively unchanged. Due to a lack of long term issuer rating data for several observations, the models using *RATING* instead of *STDRET* are estimated for a sample of 165 observations.

auditor needs a higher specialization, both leading to higher audit fees. Accordingly, we expect a negative sign for *COMBANK*.

Regarding strategic pricing behavior, Fields et al. (2004) show that audit fees experience a discount for banks with large demands for non-audit services. Therefore, we include the relation of non-audit fees to audit fees (*NONAUDIT*) in our models. Several studies (e.g., Deis and Giroux, 1996) provide evidence that audit fees decrease after a change of auditor. We use the indicator variable *AUDITSWITCH,* which equals one if the bank switched its auditor and zero otherwise, to control for this effect. We expect negative signs for *NONAUDIT* and *AUDITSWITCH*. Previous research documents that audit fees are significantly higher for entities that are audited by one of the Big 4 firms (Hay et al., 2006). However, more than 98 percent of the banks in our final sample are audited by at least one of the Big 4 firms. This means that a Big 4 variable exhibits almost no variance at all, rendering it insignificant for the explanation of audit fees. Therefore, we abstain from explicitly including this variable in the models presented in this paper.

In order to control for cross-country differences, we include *REGQUAL*, which equals the respective country's Regulatory Quality variable value from Kaufmann et al. (2009). This variable captures a government's ability to formulate and implement sound policies and regulations. *REGQUAL* also serves as a country variable controlling for differences that stem from country-specific auditing oversight models and strength of sanctions (Maijoor and Vanstraelen, 2012).[15] Furthermore, we use *CPL* to control for differences in price levels across different countries, which are likely to exhibit an influence on the pricing of audit services. *CPL* equals the respective country's comparative price level as published by the European Union. It is defined as the ratio of purchasing power parities to market exchange rates in each country. The data is then expressed in relation to EU-27, where EU-27 equals 100 and countries with values above (below) 100 are comparably expensive (inexpensive). We expect the relationship between audit fees and *CPL* to be of a positive nature.

[15] However, since we exclusively regard audit fees as our dependent variable we do not expect varying country-specific regulatory requirements to exhibit a strong influence on our dependent variable. These peculiarities are rather reflected in our non-audit fee variable, such as fees for so-called "other attestation services".

Similar to the Fields et al. (2004) banking industry audit fee model we next include control variables capturing bank-specific risk categories, namely credit, capital, liquidity, operational, and market risk.[16] We assume the general hypothesis that audit fees increase with an increase of said risks. Due to differences regarding data availability and institutional environments, we create, if necessary, variables different from those employed by Fields et al. (2004) or slightly modify the definitions.

NONPERFORM and *CHGOFF* are our proxies for credit risk. *NONPERFORM* denotes the relationship of gross impaired loans to gross loans.[17] According to IFRS 7.37(b) banks have to disclose loans that are individually determined to be impaired, therefore we use these disclosures to arrive at the numerator for the calculation of *NONPERFORM*.[18] *CHGOFF* is defined as net charge-offs in relation to loan loss provision. We expect positive signs for both credit risk variables.

Consistent with Fields et al. (2004), we proxy banks' capital risk by including the variables *CAPRATIO* and *INTANG*. We do not have a clear prediction for the sign of *CAPRATIO*, which presents the Basel II total capital ratio with a minimum requirement of 8 percent (Basel Committee on Banking Supervision, 2004). Generally, the capital risk is decreasing with an increasing total capital ratio. Accordingly, we would expect a negative sign for *CAPRATIO*. Moreover, *CAPRATIO* does not only serve as a proxy for capital risk but also for credit and operational risk. Increasing levels of credit and/or operational risk increase the value of risk-weighted assets, which results, ceteris paribus, in a lower *CAPRATIO*. However, there are also cases where regulatory authorities demand total capital ratios above the minimum requirement of 8 percent due to high risk profiles or in order to sanction non-compliance with regulatory requirements according to article 136 of the Directive 2006/48/EC (European Commission, 2006b). Here, the capital risk is increasing with an increasing capital ratio.

[16] Fields et al. (2004) also point out that proxies for these risks are likely to proxy for client complexity at the same time.

[17] We exclude loans that are designated as at fair value through profit or loss as well as loans that are held for trading and available for sale since these are accounted for at fair value. Contrary to the IAS 39 incurred loan loss approach which is applied to loans at amortized cost, fair value accounting under IAS 39 additionally considers expected loan losses (Gebhardt and Novotny-Farkas, 2011). Moreover, fair value changes of loans are recognized in net income (equity for AFS financial instruments) without building a loan loss provision.

[18] However, for a total of 12 observations the banks' disclosures do not allow for a clear separation regarding loans that are individually determined to be impaired and loans that are determined to be impaired on a portfolio basis. In order to maximize statistical power we do not exclude these observations from our analysis. However, the results do not change qualitatively when excluding these 12 observations.

INTANG represents the proportion of intangible assets to total assets. As Fields et al. (2004) explain, a bank's level of complexity and risk taking is positively correlated with the relative amount of intangible assets, especially goodwill. Moreover, intangible assets are deducted from regulatory capital as recommended by par. 689(ii) of the Basel II framework (Basel Committee on Banking Supervision, 2004). For both reasons we predict a positive sign for *INTANG*.

Next, we proxy banks' liquidity risk with the variable *LIQUID* by making use of the liquidity risk disclosures required under IFRS 7. According to IFRS 7.39 (a) and (b) in conjunction with IFRS 7 B11D, banks have to disclose a maturity analysis of undiscounted contractual cash flows for financial liabilities. Since IFRS 7.39 (a) and (b) in conjunction with IFRS 7 B11 leaves the determination of appropriate time bands to the entities' judgment, we observe very heterogeneous disclosures in this regard. However, to consistently differentiate between short- and long-term financial liabilities throughout our observations, we define liabilities with a maturity of more than one year as long-term, since data for all observations allow for this differentiation. By calculating *LIQUID* as the relationship of liabilities with a maturity of less than one year to those with a maturity of more than one year we create a measure of liquidity risk: The higher this relationship, the higher the short-term need for liquidity and refinancing. We therefore expect a positive relationship between *LIQUID* and *LogAUDFEE*. We are aware that our liquidity proxy is incomplete as it ignores the assets side, which is due to restrictions of the empirical data. Since IFRS 7 requires banks to disclose a maturity analysis only for financial liabilities but not for financial assets, a rather small number of banks actually discloses this information on a voluntarily basis. We nevertheless collected the financial assets' maturity analysis information for those cases where it is disclosed. However, calculating the liquidity proxy by including assets' maturity information would consequentially lead to a reduced sample of 154 observations. In order to maximize statistical power for the models overall, we therefore decide to calculate our liquidity proxy with the liabilities information exclusively. Also, some banks disclose undiscounted contractual cash flows for financial liabilities, while others disclose a maturity analysis for balance sheet values or even for both types of values.[19] If both types are disclosed, we use the undiscounted contractual cash flows to calculate

[19] Due to these heterogeneous disclosures, we exclusively regard on-balance sheet liabilities since disclosures regarding the maturity of off-balance sheet liabilities is even more heterogeneous.

LIQUID. However, as a sensitivity test, we alternatively use the balance sheet values for those cases, which does not qualitatively alter the results.

We proxy banks' operating risk with an efficiency measure. However, while Fields et al. (2004) calculate their efficiency ratio as operating expenses to total income, we deflate personnel expenses by total assets to arrive at *EFFIC*. Since the majority of our sample banks does neither present the measure operating expenses nor total income in their profit or loss statements we use personnel expenses and total assets instead of manually constructing the former measures, which would require rather strong assumptions. The main rationale behind the efficiency measure of Fields et al. (2004) also applies to our proxy: High relative levels of personnel expenses indicate a lower efficiency and render it more difficult to arrive at a profit. Also, we expect *EFFIC* to be positively correlated with the complexity of banks' business model. Consequentially, we predict a positive relationship for *EFFIC* and *LogAUDFEE*.

Following Fields et al. (2004), we choose interest rate risk as our proxy for banks' market risk. According to IFRS 7.40-41, banks are required to disclose sensitivity analyses for their different types of relevant market risks. The disclosures of our sample banks show a very heterogeneous picture in this regard.[20] While a lot of banks use value-at-risk, these sensitivity analyses differ in their respective confidence levels, the assumed holding period and the underlying simulation models, which renders these disclosures futile for the purpose of our study. Other banks disclose their level of interest rate risk exposure by providing a gap analysis. However, since too few banks in our sample actually do so we construct an interest rate risk proxy of our own, i.e. the relationship of interest rate-sensitive assets to interest rate-sensitive liabilities (*SENSITIVE*). We consider financial instruments of the categories loans and receivables as well as held-to-maturity financial instruments as interest rate-sensitive assets whereas due to banks, due to customers, issued debt as well as subordinated debt represent interest-rate sensitive liabilities.[21] Since market interest rates were generally falling

[20] The issue of heterogeneous banks' risk disclosures is a very relevant and timely one. In May 2012 the Financial Stability Board created the Enhanced Disclosures Task Force (2012) which then issued a report titled "Enhancing the Risk Disclosures of Banks" in October 2012. This report contains explicit recommendations on liquidity, funding as well as market risk disclosures.

[21] We are aware that our approach is not consistent with and inferior to the repricing gap method used in risk management literature to measure interest rate risk. Here, assets or liabilities are referred to as being interest rate sensitive when they are repriced at or near market interest rates within a maturity bucket (Saunders and Cornett, 2011). However, as mentioned above, due to a lack of adequate data it is not possible to construct a variable based on this method for our analysis.

during 2009 and 2010 interest rate risk was decreasing with the proportion of interest rate-sensitive assets to interest rate-sensitive liabilities. Consequentially, we predict the relationship between *LogAUDFEE* and *SENSITIVE* to be of a negative nature. We acknowledge that *SENSITIVE* represents a rather weak proxy for market risk but due to the lack of more adequate empirical data the alternative would be to calculate the models without controlling for market risk at all.

In sum, this leads to the following model, which we complete with the fair value variables employed to test our hypotheses:

$$LogAUDFEE_{t,i} = \beta_0 + \beta_1 LogTA_{t,i} + \beta_2 LOSS_{t,i} + \beta_3 STDRET_{t,i} + \beta_4 NONAUDIT_{t,i} + \beta_5 AUDSWITCH_{t,i} + \beta_6 COMBANK_{t,i} + \beta_7 REGQUAL_{t,i} + \beta_8 CPL_{t,i} + \beta_9 NONPERFORM_{t,i} + \beta_{10} CHGOFF_{t,i} + \beta_{11} CAPRATIO_{t,i} + \beta_{12} INTANG_{t,i} + \beta_{13} LIQUID_{t,i} + \beta_{14} EFFIC_{t,i} + \beta_{15} SENSITIVE_{t,i} + \beta_{16} Y10_i + \Sigma\beta_k \; FV\text{-}VARIABLES + \varepsilon_{t,I} \quad (1)$$

, where all variables except for the fair value variables are previously defined.

In order to test our hypothesis H1a, i.e. whether audit fees increase with the number of different fair value categories, we construct *CATEG*. The value of this variable corresponds to the number of fair value categories (available-for-sale assets, fair value option assets / liabilities, held for trading assets / liabilities) used by the respective bank.[22] We next include the proportion of fair value instruments to total assets to test their influence on audit fees (H1b). Due to high correlations, which might lead to multicollinearity problems,[23] we run the models separately for fair value assets (*FVA*) and liabilities (*FVL*) rather than together in one model specification.[24]

As elaborated in the hypotheses development, the verifiability (complexity) of fair values decreases (increases) from level one to three. We therefore partition *FVA* and *FVL* according to the three levels of inputs used to determine the fair values, which leads to the variables of interest *FVA1, FVA2,* and *FVA3* as well as *FVL1, FVL2,* and *FVL3*. Including these variables in our model allows us to test H2. We alternatively partition *FVA* and *FVL* according to the IAS 39 fair value categories, i.e. available-for-sale assets (*AFS*), fair value option assets (*FVOA*) / liabilities (*FVOL*) and held-for-

[22] Since we regard *CATEG* also as a proxy for complexity, we keep this variable in all following model specifications.
[23] Pearson (Spearman) correlation between FVA und FVL is 0.6887 (0.5575) (see Table 4).
[24] The same applies to all other models where the variables of interest contain fair value financial instruments deflated by total assets.

trading assets (*HFTA*) / liabilities (*HFTL*). These fair value variables are added in order to test for H3a.

To further strengthen the robustness of our results, we employ an indicator variable that equals one if the respective proportion of fair value instruments to total assets is higher than the sample median (*FVAMedian, FVLMedian, FVA1Median, FVA2Median, FVA3Median, FVL1Median, FVL2Median,, FVL3Median, AFSMedian, FVOAMedian, HFTAMedian, FVOLMedian, HFTLMedian*). Following Goncharov et al. (2013), we additionally calculate our fair value variables of interest as indicator variables that equal one if the proportion is higher than the sample mean (*FVAMean, FVLMean, FVA1Mean, FVA2Mean, FVA3Mean, FVL1Mean, FVL2Mean, FVL3Mean, AFSMean, FVOAMean, HFTAMean, FVOLMean, HFTLMean*). For brevity reasons, we do not tabulate the results of the models with *Mean* variables in the tables but report them in footnotes to the text.

Finally, we include the indicator variable *RECLASS*, which equals one if the bank carried out reclassifications under the amendment to IAS 39 during the financial year (H3b). We follow Rogers (1993) by running all our OLS regressions models with heteroskedasticity-robust standard errors clustered by bank.

5. Sample Description

5.1 Sample Selection

We run queries in the databases Bankscope and Datastream to identify European banks that prepared their consolidated financial statements for the years 2009 and 2010 under IFRS.[25] From the resulting list we exclude all banks that are subsidiaries of other banks present in the sample, for which no annual report could be found on the banks' homepage in the English, German or French language and those that were not publicly traded on at least one European stock exchange or went out of existence by the end of the financial year 2009. This proceeding yields a sample of 183 different banks before data collection. Having hand collected the audit fee data, 43 banks are identified that do not disclose audit fee information, which results in a sample of 140 different banks with 280 potential firm-years observations for the time period under review, i.e. 2009-2010. Due to insufficient data concerning the variables calculation, we arrive at a number of

[25] Our sample selection starts with the financial year 2009 since this is the first year where entities are required to provide far value hierarchy level information.

201 firm-year observations that originate from 114 different banks. Table 1 illustrates the sample selection process in more detail.

[Insert Table 1 here]

Share price related information is obtained from Datastream while the Global Industry Classification Standard (GICS Code 401010) is collected from the database Reuters CreditViews. All other data used for the calculation of the variables in the main analyses are hand-collected from the annual reports.[26] All amounts that relate to accounting and audit fee data are translated into Euros by using exchange rates from oanda.com applicable to the respective reporting date.

5.2 Descriptive Statistics

Table 2 reports the sample distribution by country for both years 2009 and 2010.

[Insert Table 2 here]

With a number of 28 observations (15 in 2009 and 13 in 2010) Italy represents the country with the highest number of observations followed by Norway (20 observations in total) and Germany (18 observations in total). With the exceptions of Norway and Switzerland all countries are members of the European Union.

Table 3 presents descriptive statistics of the variables used in our analysis.

[Insert Table 3 here]

On average, 13 percent of our observations report a negative profit before tax, 3 percent switched their auditor and 78 percent are classified as Commercial Banks. The average relation of non-audit fees to audit fees is 0.67. The mean of *NONPERFORM* suggests that, on average, non-performing loans make up 6 percent of gross loans while the net charge-offs constitute 40 percent of the loan loss provision. The median of 5 for *CATEG* shows that more than 50 percent of the observations use all five categories of fair value financial instruments. On average, financial assets (liabilities) that are measured at fair value represent 24 (11) percent of total assets. With a mean value of 10 (6) percent financial assets (liabilities) held for trading is the most extensively used fair value

[26] Where possible, we collected 2009 data as „previous year data“ from the respective 2010 annual reports due to hand-collection costs. The accounting data used for the treatment effects model probit regression (section 6.4) are obtained from Worldscope.

category on the assets and liabilities side. When splitting the fair value instruments according to the three fair value levels it shows that most assets' fair values are determined on the basis of level 1 inputs (12 percent of total assets). The most common input level on the liabilities side is level 2. Here, liabilities' fair values determined on the basis of level 2 inputs represent 9 percent of total assets. Reclassifications were carried out by 14 percent of the observations.

Table 4 shows Pearson and Spearman correlations among the variables.

[Insert Table 4 here]

When regarding the general control variables both Pearson and Spearman correlations indicate with statistical significance the predicted relationships between *LogAUDFEE* and *LogTA*, *STDRET*, *AUDSWITCH*, as well as *REGQUAL*. The univariate evidence for the correlations of the bank risk-specific variables and *LogAUDFEE* is mixed. While Spearman and Pearson correlations are significant for *CHGOFF, INTANG,* and *SENSITIVE* and in line with the predictions made, the correlations for *NONPERFORM* and *EFFIC* are not. H1a is supported by the univariate results since both Pearson and Spearman correlations for *CATEG* strongly suggest that audit fees are positively correlated with the number of financial instrument categories. The same holds for the total assets deflated fair value exposure on the assets (*FVA*) and on the liabilities (*FVL*) side (H1b). When regarding fair value levels of financial assets (liabilities), the relationship is most pronounced for *LogAUDFEE* and *FVA2* (*FVL3*), which lends some support to H2, i.e. that the influence of financial instruments at fair value on audit fees is more pronounced for less verifiable fair values. The partitioning according to the financial instrument categories shows that for assets and liabilities held-for-trading financial instruments exhibit the strongest influence on audit fees, which is line with the predictions made under H3a. Also, univariate evidence suggests that audit fees are higher for banks that carried out IAS 39 reclassifications during the current financial year (H3b) since *RECLASS* is positively correlated with *LogAUDFEE*.

When regarding correlations between the independent variables both Spearman and Pearson correlations indicate high correlations between *FVA* and *FVL*, *FVOA* and *FVOL*, *HFTA* and *HFTL* as well as *FVA2* and *FVL2*. We do not include assets and liabilities side fair value instruments in the same models exactly due to these anticipated high correlations, which allows us to avoid potential multicollinearity problems.

Correlations between the other independent variables of the same models are small to moderate with two exceptions. These two exceptions concern the Pearson correlation between *LogTA* and *HFTL* (0.7112) as well as the Spearman correlation between *SENSITIVE* and *FVA* (-0.6457).[27]

6. Results

6.1 Determinants of banks' audit fees and the influence of fair values

Table 5 presents OLS regression results on the determinants of banks' audit fees and the influence of total fair value assets and liabilities.

[Insert Table 5 here]

First, we estimate our base model (1). With the exception of *CPL* the estimated coefficients of all general, i.e. not bank-specific, control variables are in line with the predictions. For *LogTA* (0.826; t-statistic = 24.40), *STDRET* (7.231; t-statistic = 2.12), *NONAUDIT* (-0.280; t-statistic = -3.11), *COMBANK* (-0.410; t-statistic = -2.10), and *REGQUAL* (0.577; t-statistic = 2.28), the coefficients are statistically significant at the one and five percent level respectively, they lack statistical significance for *LOSS* (0.199; t-statistic = 1.35), *AUDSWITCH* (-0.087; t-statistic = -0.35), and *CPL* (-0.001; t-statistic = -0.30). Besides the strong influence exhibited by total assets we want to highlight the highly significant result regarding *NONAUDIT*. This result indicates that audit firms offer discounts on their audit fees in return for a high client demand of non-audit services. These strategic considerations might be detrimental to the formation of adequate audit fees, i.e. fees that reflect the risk and complexity of the client.

With regard to our bank-specific credit risk variables, we find that the estimated coefficient of *NONPERFORM* (0.381; t-statistic = 0.29) lacks significance, while it is statistically significant for *CHGOFF* but does not possess the predicted sign (-0.669; t-statistic = -2.70). We interpret these findings as evidence that auditors do not put much emphasis on credit risk when pricing their services. However, we cannot provide a reasonable explanation of why audit fees would decrease with an increase of *CHGOFF*. Also, the estimated coefficients for both our capital risk variables *CAPRATIO* (0.003; t-

[27] Further analyses reveal that the alternative exclusion of these variables does not change the results qualitatively.

statistic = 0.13) and *INTANG* (6.240; t-statistic = 1.28) are not statistically significant. As mentioned above, *CAPRATIO* also serves as a proxy for credit risk. Thus, the fact that *CAPRATIO* does not exhibit any statistically significant influence on audit fees again suggests that auditors do not adequately factor credit risk into their audit fee function. In contrast, the results on *LIQUID* (0.001; t-statistic = 3.24) and *EFFIC* (22.413; t-statistic = 2.84) indicate at the one percent significance level that audit fees increase in the level of liquidity risk and operational risk. Finally, our base model does not find any statistical significant evidence for an influence of our interest rate risk variable *SENSITIVE* (-0.338; t-statistic = -1.17) on audit fees. Taken together, the base model results suggest that the bank-specific risk variables play an inferior role in the pricing of audit services when compared to more general, i.e. not bank-specific, variables that control for size, risk, complexity and non-audit fees. The adjusted R-squared of 88.88 percent is quite high and comparable to the values originated by previous studies (e.g., Ettredge et al., 2011).

In order to test our hypothesis H1a, we include *CATEG* in model (2). The results on *CATEG* (0.255; t-statistic = 3.69) strongly support H1a: The positive and highly statistically significant estimated coefficient indicates that audit fees increase with the number of different fair value categories employed by a bank.[28]

We next test whether audit fees are higher for banks with a higher proportion of financial instruments at fair value (hypothesis H1b) by including *FVA* in model (3a) and *FVL* in model (4a). The results on both fair value variables do not lend support to H1b since both *FVA* (-0.470; t-statistic = -1.18) and *FVL* (0.131; t-statistic = 0.24) lack statistical significance. The same holds when using *FVAMedian* (-0.071; t-statistic = -0.48) instead of *FVA* in model (3b) and *FVLMedian* (-0.061; t-statistic = -0.51) in model (4b).[29] In sum, we note that fair value exposure measured as the number of employed IAS 39 fair value categories exhibits an influence on audit fees, while the exposure measured as the relative amount of fair value financial instruments does not.

[28] The result regarding H1a is robust throughout our analyses since the estimated positive coefficient on *CATEG* is significant at the one percent level in all of our models.
[29] Untabulated results for *FVAMean* (-0.225; t-statistic = -1.66) and *FVLMean* (0.009; t-statistic = 0.05) do not change these inferences qualitatively.

Next, we analyze whether a more differentiated approach regarding the nature of fair values changes the latter result. Therefore, we partition *FVA* and *FVL* according to the respective fair value level inputs used in determining the fair values.

[Insert Table 6 here]

Model (5a) includes the assets side fair value variables in order to test H2, i.e. whether the influence of fair values on audit fees is more pronounced for less verifiable and more complex fair values. The estimated coefficient on *FVA3* (0.927; t-statistic = 0.33) actually is positive as opposed to *FVA1* (-0.181; t-statistic = -0.38) and *FVA2* (-0.829; t-statistic = -1.40), which suggests that audit fees increase exclusively with less verifiable and more complex level 3 fair value assets. However, the coefficients all lack statistical significance. When alternatively approximating the three level exposures with the *Median* variables we find that the estimated positive coefficient of *FVA3Median* (0.321; t-statistic = 2.76) is significant at the one percent level while *FVA1Median* and *FVA2Median* still lack significance. These findings support H2.[30]

Regarding the liabilities side, the results of model (6a) also lend support to H2: *FVL1* and *FVL2* both do not exhibit any statistically significant influence on audit fees as opposed to level 3 fair value financial liabilities *FVL3* (18.856; t-statistic = 2.21). When alternatively approximating the exposures, we do not find statistically significant evidence in favor of H2 since although the estimated coefficient on *FVL3Median* is the only one with a positive sign, all *Median* variables lack significance in model (6b).[31]

In sum, we regard our overall findings as evidence that the influence of fair values on audit fees increases with a decreasing verifiability and increasing complexity of these fair values.

As described in section 4, we next partition *FVA* and *FVL* according to the IAS 39 fair value categories to examine whether the influence of fair values on audit fees differs due to the peculiarities of these categories (H3a). Table 7 presents the results of the assets and liabilities side models (7a-b) and (8a-b):

[Insert Table 7 here]

[30] The same inference can be drawn from the untabulated results for *FVA3Mean* (0.297; t-statistic = 2.14), where *FVA1Mean* and *FVA2Mean* also lack statistical significance.
[31] The same holds when using *Mean* variables.

While in model (7a) neither the estimated coefficient on *AFS* (-0.238; t-statistic = -0.25) nor on *HFTA* (0.183; t-statistic = 0.33) exhibits statistically significant influence on audit fees, we detect a marginally significant negative influence regarding *FVOA* (-0.947; t-statistic = -1.95). However, we do not put much emphasis on this marginally significant result because both alternative approximations of the fair value option exposure *FVOAMedian* (-0.093; t-statistic = -0.80) and *FVOAMean* (-0.209; t-statistic = -1.60) fail to provide statistically significant evidence for a negative relationship between fair value option assets and audit fees. Taken together, the findings for the assets side do not suggest that the influence of fair value financial instruments on audit fees differs between the IAS 39 financial instrument categories. The same holds when regarding the liabilities side in models (8a) and (8b), where none of the estimated coefficients on *FVOL*, *HFTL*, *FVOLMedian*, and *HFTLMedian* are significant.[32]

In order to analyze whether the influence of level 3 fair values differs between the IAS 39 fair value categories, we partition them accordingly and estimate models (9) and (10).[33]

[Insert Table 8 here]

With regard to the assets side, model (9) fails to provide evidence for differences in the influence of level 3 assets on audit fees between IAS 39 categories. In contrast, the results of model (10) suggest that held-for-trading level 3 liabilities (*HFTL3*) exhibit an influence on audit fees (21.623; t-statistics = 1.85), while fair value option liabilities (*FVOL3*) do not. However, the results presented in Table 8 have to be interpreted cautiously due to the small number of observations with values different from zero regarding the variables of interest, ranging from 39 observations for *FVOL3* to 133 observations for *AFS3*.[34]

Finally, we include *RECLASS* in our model in order to test for H3b with the results being reported in Table 9:

[Insert Table 9 here]

[32] The results are also robust when using *FVOLMean* and *HFTLMean.*

[33] The total number of observations is reduced to 199 since for 2009 and 2010 Banco Santander discloses in its annual report only aggregated values for level 2 and 3 regarding financial instrument types. Also, we approximate the partition of level 3 fair value financial asset (liabilities) categories in 33 (2) cases since in these cases the information given in the annual reports is incomplete.

[34] This rather small number of observations with values different from zero regarding the variables of interest is also the reason why we do not calculate these models with median and mean values.

Here, the estimated coefficient on *RECLASS* (0.347; t-statistic = 2.79) is statistically significant at the one percent level, which strongly suggests that reclassifications under the IAS 39 amendment increase audit fees as hypothesized under H3b.

6.2 Additional Analysis – Institutional Variables

Following Kim et al. (2012), we use an alternative variable to control for regulatory strength and replace *REGQUAL* by *ENFORCE*, which equals the public enforcement index created by La Porta et al. (2006). While this reduces our observations to a total number of 181, *ENFORCE* does not exhibit any statistical significant influence on audit fees across all our models. The same holds when additionally including *CIVILLAW*, which equals one if the bank's domicile country has a civil law legal origin. Civil law countries have weaker legal investor protection than common law countries (La Porta et al., 1998), which might have an influence on auditors' litigation risk (Kim et al., 2012). We also follow Goncharov et al. (2013) and replace *REGQUAL* by the anti-self-dealing index (*ANTISDI)* from Djankov et al. (2008) to control for differences in legal protection and add the La Porta et al. (2006) liability standard index (*LIABSTAN*). The latter captures the procedural difficulty in recovering losses in a civil liability case. This proceeding yields a reduced sample size of 179. However, with the exception of a marginally significant negative estimated coefficient for *LIABSTAN* in one case, none of these variables exhibits any statistical significant influence on audit fees.

We additionally control for cross-country differences regarding regulatory requirements that bank auditors have to adhere to. The underlying assumption is that with an increase of regulatory requirements also the auditor's cost and litigation risk increase, which in turn increases audit fees. We make use of a database provided by The World Bank (see Barth et al. (2001) for an overview) in order to quantify country-specific regulatory requirements. This database covers information on bank regulation and supervisory across 101 countries, including data about country-specific external auditing requirements. The extent of these requirements is evaluated with a questionnaire that encompasses 11 questions (e.g. "Are external auditors legally required to report to the supervisory agency any other information discovered in an audit that could jeopardize the health of a bank?"). We construct an index that equals the sum of all questions answered with "yes". The resulting country-specific values range from 0 to 11, whereby high values indicate high regulatory requirements. However, we do not find any

statistically significant influence of *AUDITINDEX* in our analyses. In summary, the results indicate that differences in the regulatory environment captured by variables other than *REGQUAL* do not exhibit any significant influence on audit fees. A possible explanation is that these differences are rather reflected in non-audit fees for other attestation services.

We also use a more audit market-specific variable (*AFPL*) instead of *CPL* as an alternative control for country differences in price levels. *AFPL* equals the 2009 audit fee price levels published by the European Commission (European Commission, 2011) in a study on the European audit market. The audit fee price levels are calculated as average audit and audit-related fees paid by main index companies divided by the average turnover of these companies. Including *AFPL* in our models reduces the sample size to a number of 155, which is due to the fact that the audit market study only provides audit fee price levels for 19 countries. Similar to *CPL* none of the model estimations yields a statistically significant coefficient for *AFPL.*

6.3 Robustness - France and Joint Audits

Following Goncharov et al. (2013), we exclude our 8 French bank observations from the sample. The French audit market differs from other European countries in that more strict rules concerning, for instance, non-audit services are in place (Maijoor and Vanstraelen, 2012). Excluding French banks leads to some minor variations across the presented result of our models. Accordingly, the statistical significance of *CHGOFF* (-0.543; t-statistic = -2.30) in the base model (1) drops to the 5 percent level while the significance of the estimated coefficients on *FVL3* (18.622; t-statistic = 1.97) in model (6a) decreases to the 10 percent level and on *FVOA* (-1.011; t-statistic = -2.07) in model (7a) increases to the 5 percent level. As already mentioned, we regard these as minor changes and since all other results remain qualitatively unchanged this further strengthens the robustness of our results overall.

Another consideration is that the presence of a joint audit might exhibit an influence on audit fees. Maijoor and Vanstralen (2012) note that while currently the EC does not mandate joint audits, they were voluntarily established by some countries such as Denmark. Our sample comprises a total number of 17 joint audits. Consequentially, we add the control variable *JOIAUD* to our models, which equals one if the respective bank is jointly audited by more than one audit firm and zero otherwise. However, neither is

JOIAUD of statistical significance in any of the models nor do the results presented in the main analysis experience any qualitative changes.

6.4 Treatment effects model for reclassification

Banks individually decide whether to make use of IAS 39 reclassifications, which might lead to endogeneity concerns. In order to address these concerns, we follow prior literature (e.g., Leuz and Verrecchia, 2000; Fiechter, 2011b) by employing a two-stage treatment effects model (Heckman, 1979). Inspired by prior studies (Bischof et al., 2011; Paananen et al., 2012) that identify determinants of the banks' decision to reclassify, we run the following first stage probit regression:[35]

$$PR(RECLASS=1)_{t,i} = \beta_0 + \beta_1 MTB_{t,i} + \beta_2 SMALL\_PROFIT_{t,i} + \beta_3 \Delta DEPOSITS_{t,i} + \beta_4 RISK_{t,i} + \beta_5 RQ_{t,i} + \varepsilon_{t,I} \quad (2)$$

Market-to-book ratio (*MTB*) reflects the banks' investment opportunities. Following Paananen et al. (2012), we predict a negative association, as banks with lower *MTB* ratios are stronger incentivized to communicate favorable signals. The authors also argue, that banks reporting small profits are more likely to be reclassifying banks. The variable *SMALL_PROFIT* takes the value of one if the bank's net income, scaled by total assets at the beginning of the financial year, is smaller than 1% or equal to 0% (Cohen et al., 2008). In line with Paananen et al. (2012), we predict a positive sign for *SMALL_PROFIT*. Hypothesizing that banks, which are confronted with decreasing customer deposits are more prone to carry out reclassifications (Bischof et al., 2011), we predict a positive influence of *ΔDEPOSITS*. The latter variable equals one if the change in customer deposits between the current and the prior year is negative. The bank's risk is captured by the inclusion of beta (*RISK*). As banks with larger risk are more inclined to decrease earnings volatility by reclassifications, we expect a positive sign for this coefficient (Paananen et al., 2012). Finally, *RQ* proxies the bank's reporting quality, computed as the median ratio of annual accruals to cash flows from operations over the current and prior four financial years. Since Bischof et al. (2011) show that banks with lower values of *RQ* are more prone to carry out reclassifications, we expect a negative sign for the estimated coefficient of this variable.

[35] In contrast to our paper, the studies by Bischof et al. (2011) and Paananen et al. (2012) are set in the financial crisis year 2008. Therefore, we only use those determinants in the first stage which we consider relevant for our sample period and setting.

Panel A of Appendix 2 reports the results from the first stage regression.[36] All independent variables turn out to be statistically significant and have the predicted signs. Panel B of Appendix 3 shows the results derived from the second stage regression including the inverse Mills ratio (*IMR*). The results are qualitatively unchanged, compared to the main analysis. Most importantly, *RECLASS* remains statistically significant indicating that our findings are not affected by endogeneity.

6.5 Principal component factoring

In our main analyses we regard five types of risk that are hypothesized to have an impact on audit fees in the banking industry. Also, we define seven different variables to proxy for said risk categories as well as two proxy variables capturing the variation in the institutional environments and price levels across countries. Since we use multiple variables for each type of risk as well as for the country-specific variations there might be potential overlaps across the risk categories and between the variables within these categories. Therefore, we employ a principal component analysis to address this issue.

Following the Kaiser criterion we retain four factors with eigenvalues higher than one. Panel A of Appendix 3 reports the four associated scoring coefficients, which are based on varimax rotated factors. Factor one solely loads on *REGQUAL* and *CPL*, i.e. both country-specific variables. Factor two loads most strongly on *INTANG* and *EFFIC*, while factor three loads most heavily on *CHGOFF* and *LIQUID*. Our final factor 4 loads exclusively on *NONPERFORM*. In sum, none of our proxy variables loads on more than one factor with *SENSITIVE* and *CAPRATIO* not loading on any of the four factors. Next, we rerun our main analysis replacing our individual risk and country-specific proxies with the four factors. As reported in Panel B of Appendix 2, only factors one and two are significantly related to audit fees. The significance levels of all variables not involved in principal component factoring as well as the adjusted R-squared are comparable to the model specifications of the main analysis. This also holds for all other models (untabulated). Overall, the factor analysis shows that the main analysis results are not affected by overlapping effects regarding our set of country-specific and risk proxy variables.

[36] Compared to the main analysis, we lose two observations due to data unavailability, thus arriving at a total of 199.

7. Conclusion

After controlling for general and bank-specific determinants of European IFRS banks' audit fees, this paper analyzes whether and to what extent fair values and financial instrument reclassifications exhibit an influence on audit fees. To this end, we first introduce two dimensions of fair value exposure, namely the number of different IAS 39 fair value financial instrument categories used by a bank and the proportion of fair value financial instruments to total assets. Our evidence consistently shows that the former exhibits a significant influence on audit fees since they increase with the number of categories. In contrast to existing studies set in a US banking environment, we do not find evidence suggesting that the deflated amount of fair valued assets or liabilities has an impact on audit fees. After having partitioned these amounts according to the three IAS 39 fair value levels, our results indicate that audit fees increase with more complex and less reliable level 3 assets and liabilities, which is in line with prior literature. Further analyses do not support the notion that the influence of fair values on audit fees varies between the different IAS 39 financial instrument categories. Finally, we find that banks which carry out financial instrument reclassifications under the IAS 39 amendment exhibit higher audit fees than other banks. We attribute this finding to potential earnings management implications and the incremental audit effort induced by reclassifications.

Overall, our findings demonstrate that fair value measurements are not associated *per se* with higher contracting costs, i.e. audit fees. Rather, a more differentiated view is required, as the nature of fair values measurements as well as certain audit mandate characteristics are of considerable importance in the determination process of audit fees and should therefore deserve special attention. This evidence adds to the ongoing debate on the pros and cons of fair value accounting with regard to its economic effects and may assist regulators as well as researchers interested in assessing and designing regulatory measures in the European bank audit market. One of the main limitations of our paper is the relatively small sample size. Other issues that have already been laid out in the research design section include the rather weak proxy variables for liquidity and market risk. However, we believe that these are the most suitable proxies available in light of the given bank disclosures.

References

Alali, F. (2011). Audit fees and discretionary accruals: compensation structure effect. *Managerial Auditing Journal*, 26 (2), 90-113.

Antle, R., Gordon, E., Narayanamoorthy, G., and Zhou, L. (2006). The joint determination of audit fees, non-audit fees, and abnormal accruals. *Review of Quantitative Finance and Accounting*, 27 (3), 235-266.

Ashbaugh-Skaife, H., Collins, D. W., and LaFond, R. (2006). The effects of corporate governance on firms' credit ratings. *Journal of Accounting and Economics*, 42 (1-2), 203-243.

Ball, R., Jayaraman, S., and Shivakumar, L. (2012). Mark-to-Market Accounting and Information Asymmetry in Banks. *Working paper*, The University of Chicago Booth School of Business.

Barth, M. E. (1994). Fair Value Accounting: Evidence from Investment Securities and the Market Valuation of Banks. *The Accounting Review*, 69 (1), 1-25.

Barth, J. R., Caprio, G., and Levine, R. (2001). The Regulation and Supervision of Banks around the World: A New Database. *Working paper*, The World Bank.

Basel Committee on Banking Supervision (2004). International Convergence of Capital Measurement and Capital Standards – A Revised Framework. Available from: http://www.bis.org/publ/bcbs107.pdf. Accessed 15 September 2013.

Bedard, J. C. and Johnstone, K. M. (2004). Earnings Manipulation Risk, Corporate Governance Risk, and Auditors' Planning and Pricing Decisions. *The Accounting Review*, 79 (2), 277-304.

Bell, T. B. and Griffin, J. B. (2012). Commentary on Auditing High-Uncertainty Fair Value Estimates. *Auditing: A Journal of Practice & Theory*, 31 (1), 147-155.

Bischof, J., Brüggemann, U., and Daske, H. (2011). Fair Value Reclassifications of Financial Assets during the Financial Crisis. *Working paper*, University of Mannheim and Humboldt University of Berlin.

Caramanis, C. and Lennox, C. (2008). Audit effort and earnings management. *Journal of Accounting and Economics*, 45 (1), 116-138.

Chen, F., Lam, K., Smieliauskas, W., and Ye, M. (2010). Fair Value Measurements and Auditor versus Management Conservatism: Evidence from the Banking Industry. *Working paper*, University of Toronto and Chinese University of Hong Kong.

Christensen, B. E., Glover, S. M., and Wood, D. A. (2012). Extreme Estimation Uncertainty in Fair Value Estimates: Implications for Audit Assurance. *Auditing: A Journal of Practice & Theory*, 31 (1), 127-146.

Cohen, D. A., Dey, A., and Lys, T. Z. (2008). Real and Accrual-Based Earnings Management in the Pre- and Post-Sarbanes Oxley Periods. *The Accounting Review*, 83 (3), 757-787.

De George, E. T., Ferguson, C. B., and Spear, N. A. (2013). How Much Does IFRS Cost? IFRS Adoption and Audit Fees. *The Accounting Review*, 88 (2), 429-462.

Deis, D. R. and Giroux, G. (1996). The Effect of Auditor Changes on Audit Fees, Audit Hours and Audit Quality. *Journal of Accounting and Public Policy*, 15 (1), 55-76.

Djankov, S., La Porta, R., Lopez-de-Silanes, F., and Shleifer, A. (2008). The law and economics of self-dealing. *Journal of Financial Economics*, 88 (3), 430-465.

Enhanced Disclosure Task Force (2012). Enhancing the risk disclosures of banks. Available from: http://www.financialstabilityboard.org/publications/r_121029.pdf. Accessed 15 September 2013.

Ettredge, M., Xu, Y., and Yi, H. (2011). Fair Value Measurements and Audit Fees: Evidence from the Banking Industry. *Working paper*, The University of Kansas – School of Business and Korea University – Business School.

European Commission (EC) (2006a). Directive 2006/43/EC of the European Parliament and of the Council of 17 May 2006 on statutory audits of annual accounts and consolidated accounts, amending Council Directives 78/660/EEC and 83/349 EEC and repealing Council Directive 84/253/EEC. Available from: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2006:157:0087:0107:EN:PDF. Accessed 15 September 2013.

European Commission (EC) (2006b). Directive 2006/48/EC of the European Parliament and of the Council of 14 June 2006 relating to the taking up and pursuit of the

business of credit institutions. Available from: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2006:177:0001:0200:EN:PDF. Accessed 15 September 2013.

European Commission (EC) (2010). Audit policy: Lessons from the Crisis. Green paper. Available from: http://ec.europa.eu/internal_market/consultations/docs/2010/audit/green_paper_audit_en.pdf. Accessed 15 September 2013.

European Commission (EC) (2011). Study on the effects of the implementation of the acquis on statutory audits of annual and consolidated accounts including the consequences on the audit market. Available from: http://ec.europa.eu/internal_market/auditing/docs/other/full_study_en.pdf. Accessed 15 September 2013.

Fiechter, P. (2011a). Reclassification of Financial Assets under IAS 39: Impact on European Banks' Financial Statements. *Accounting in Europe*, 8 (1), 49-67.

Fiechter, P. (2011b). The Effects of the Fair Value Option under IAS 39 on the Volatility of Bank Earnings. *Journal of International Accounting Research*, 10 (1), 85-108.

Fiechter, P. and Meyer, C. (2011). Discretionary Measurement of Financial Assets During the 2008 Financial Crisis. *Working paper,* University of Zürich.

Fields, L. P., Fraser, D. R., and Wilkins, M. S. (2004). An investigation of the pricing of audit services for financial institutions. *Journal of Accounting and Public Policy*, 23 (1), 53-77.

Gebhardt, G. and Novotny-Farkas, Z. (2011). Mandatory IFRS Adoption and Accounting Quality of European Banks. *Journal of Business Finance & Accounting*, 38 (3-4), 289-333.

Goh, B. W., Ng, J., and Yong, K. O. (2009). Market Pricing of Banks' Fair Value Assets Reported under SFAS 157 during the 2008 Economic Crisis. *Working paper*, Singapore Management University and Massachusetts Institute of Technology.

Goncharov, I., Riedl, E. J., and Sellhorn, T. (2013). Fair Value and Audit Fees. *Review of Accounting Studies,* forthcoming.

Gul, F. A., Chen, C. J. P. and Tsui, J. S. L. (2003). Discretionary Accounting Accruals, Managers' Incentives and Audit Fees. *Contemporary Accounting Research*, 20 (3), 441-464.

Hay, D. (2013). Further evidence from meta-analysis of audit fee research. *International Journal of Auditing*, forthcoming.

Hay, D. C., Knechel, W. R., and Wong, N. (2006). Audit fees: A Meta-analysis of the Effect of Supply and Demand Attributes. *Contemporary Accounting Research*, 23 (1), 141-191.

Heckman, J. J. (1979). Sample selection bias as a specification error. *Econometrica,* 47 (1), 153-161.

Hitz, J.-M. (2007). The Decision Usefulness of Fair Value Accounting – A Theoretical Perspective. *European Accounting Review,* 16 (2), 323-362.

Humphrey, C., Kausur, A., Loft, A., and Woods, M. (2011). Regulating Audit beyond the Crisis: A Critical Discussion of the EU Green Paper. *European Accounting Review*, 20 (3), 431-457.

International Accounting Standards Board (IASB) (2008). Reclassification of Financial Assets – Amendments to IAS 39 Financial Instruments: Recognition and Measurement and IFRS 7: Disclosures, October 2008, London.

International Auditing and Assurance Standards Board (2008). Challenges in auditing fair value accounting estimates in the current market environment. Staff audit practice alert. Available from: http://www.ifac.org/sites/default/files/publications/files/challenges-in-auditing-fair.pdf. Accessed 15 September 2013.

Jensen, M. C. and Meckling, W. H. (1976). Theory of the firm: managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3 (4), 305-360.

Kanagaretnam, K., Mathieu, R., and Shehata, M. (2009). Usefulness of comprehensive income reporting in Canada. *Journal of Accounting and Public Policy*, 28 (4), 349-365.

Kaufmann, D., Kraay, A., and Mastruzzi, M. (2009). Governance Matters VIII: Aggregate and Individual Governance Indicators 1996-2008. *Policy research working paper 4978*, The World Bank.

Kim, J.-B., Liu, X., and Zheng, L. (2012). The Impact of Mandatory IFRS Adoption on Audit Fees: Theory and Evidence. *The Accounting Review*, 87 (6), 2061-2094.

Kolev, K. (2009). Do Investors Perceive Marking-to-Model as Marking-to-Myth? Early Evidence from FAS No.157 disclosure. *Working paper*, New York University.

Landsman, W. R. (2007). Is fair value accounting information relevant and reliable? Evidence from capital market research. *Accounting and Business Research*, 37 (supplement 1), 19-30.

La Porta, R., Lopez-de-Silanes, F., and Shleifer, A. (2006). What Works in Securities Laws? *The Journal of Finance*, 61 (1), 1-32.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., and Vishny, R. W. (1998). Law and Finance. *Journal of Political Economy*, 106 (6), 1113-1155.

Larcker, D. F. and Richardson, S. A. (2004). Fees Paid to Audit Firms, Accrual Choices, and Corporate Governance. *Journal of Accounting Research*, 42 (3), 625-658.

Laux, C. and Leuz, C. (2010). Did Fair-Value Accounting Contribute to the Financial Crisis? *Journal of Economic Perspectives*, 24 (1), 93-118.

Leuz, C. and Verrecchia, R. E. (2000). The Economic Consequences of Increased Disclosure. *Journal of Accounting Research*, 38 (supplement), 91-124.

Libby, R., Nelson, M. W., and Hunton, J. E. (2006). Recognition v. Disclosure, Auditor Tolerance for Misstatement, and the Reliability of Stock-Compensation and Lease Information. *Journal of Accounting Research*, 44 (3), 533-560.

Maijoor, S. and Vanstraelen, A. (2012). "Research Opportunities in Auditing in the EU," Revisited. *Auditing: A Journal of Practice & Theory*, 31 (1), 115-126.

Martin, R. D., Rich, J. S., and Wilks, T. J. (2006). Auditing Fair Value Measurements: A Synthesis of Relevant Research. *Accounting Horizons*, 20 (3), 287-303.

Paananen, M., Renders, A., and Shima, K. M. (2012). The Amendment of IAS 39: Determinants of Reclassification Behavior and Capital Market Consequences. *Journal of Accounting, Auditing & Finance*, 27 (2), 208-235.

Ramos, M. J. and Delahanty, L. C. (1998). Auditing Estimates and Other Soft Accounting Information. New York, American Institute of Certified Public Accountants.

Riedl, E. J. and Serafeim, G. (2009). Information Risk and Fair Value: An Examination of Equity Betas and Bid-Ask-Spreads. *Working paper 10-008*, Harvard Business School.

Riedl, E. J. and Serafeim, G. (2011). Information Risk and Fair Values: An Examination of Equity Betas. *Journal of Accounting Research*, 49 (4), 1083-1122.

Rogers, W. H. (1993). Regression standard errors in clustered samples. *Stata Technical Bulletin*, 3 (13), 19-23.

Russo, J. E. and Schoemaker, P. J. H. (2002). Winning Decisions: Getting It Right the First Time. New York, Doubleday.

Saunders, A. and Cornett, M. M. (2011). Financial Institutions Management – A Risk Management Approach, Seventh Edition, New York, McGraw-Hill Irwin.

Schneider, F. (2012). Capital Market Reactions to the Reclassification of Financial Assets under IAS 39 – Evidence from European Banks. *Working paper*, University of Cologne.

Sikka, P. (2009). Financial crisis and the silence of the auditors. *Accounting, Organizations and Society*, 34 (6-7), 868-873.

Simon, H. A. (1955). A behavioral model of rational choice. *The Quarterly Journal of Economics*, 69 (1), 99-118.

Simon, H. A. (1956). Rational choice and the structure of the environment. *Psychological Review*, 63 (2), 129-138.

Simunic, D. A. (1980). The Pricing of Audit Services: Theory and Evidence. *Journal of Accounting Research*, 18 (1), 161-190.

Song, C. J., Thomas, W. B., and Yi, H. (2010). Value Relevance of FAS No. 157 Fair Value Hierarchy Information and the Impact of Corporate Governance Mechanisms. *The Accounting Review*, 85 (4), 1375-1410.

Standard & Poor's and MSCI (2010). GICS – Global Industry Classification Standard. Available from: http://www.standardandpoors.com/servlet/BlobServer?blobheadername3=MDT-Type&blobcol=urldata&blobtable=MungoBlobs&blobheadervalue2=inline%3B+filename%3DGICS_MAPBOOK_electronic_0711.pdf&blobheadername2=Content-Disposition&blobheadervalue1=application%2Fpdf&blobkey=id&blobheadername1=content-type&blobwhere=1243945221356&blobheadervalue3=UTF-8. Accessed 15 September 2013.

United States Securities and Exchange Commission (2008). Report and Recommendations Pursuant to Section 133 of the Emergency Economic Stabilization Act of 2008: Study on Mark-To-Market Accounting. Available from: http://www.sec.gov/news/studies/2008/marktomarket123008.pdf. Accessed 15 September 2013.

Valencia, A. (2011). Opportunistic behavior using level 3 fair-value under SFAS 157. *Dissertation*, Florida State University – Department of Accounting. Available from: http://etd.lib.fsu.edu/theses/available/etd-04212011-111347/unrestricted/Valencia_A_Dissertation_2011.pdf. Accessed 15 September 2013.

Table 1: Sample selection

Bankscope: IFRS Banks for FY 2009/10	236
Less	
Subsidiaries of other banks in the sample	-56
No annual report found (in English, German or French)	-16
Not publicly traded or out of existence	-13
	151
Plus	
Datastream	
Additional European IFRS Banks for FY 2009/10 after filters	32
	183
Less	
Banks without audit fee disclosures	-43
	140
Potential firm year observations (140 banks times 2 fiscal years)	280
Less	
Firm-years with insufficient data	-79
Remaining firm-year observations	201
Number of different banks	114
	Observations
FY 2009	102
FY 2010	99

Table 2: Country statistics

Country	2009	2010	Total
Austria	5	5	10
Belgium	2	2	4
Cyprus	4	4	8
Denmark	8	7	15
Finland	1	1	2
France	4	4	8
Germany	9	9	18
England	7	8	15
Greece	4	4	8
Ireland	2	2	4
Italy	15	13	28
Malta	1	1	2
Netherlands	4	4	8
Norway	10	10	20
Poland	4	4	8
Portugal	3	3	6
Scotland	1	1	2
Slovenia	2	2	4
Spain	6	5	11
Sweden	5	5	10
Switzerland	5	5	10
Sum	102	99	201

This table depicts the sample distribution by country and by year.

Table 3: Descriptive statistics

Panel A: Descriptive statistics on absolute numbers

Variable	N	Mean	SD	Q1	Median	Q3
AUDFEE (€ths)	201	6160	11603	350	1154	3997
TA (€bil)	201	241	468	8	36	202
Profit b. tax (€mil)	201	806	2462	19	131	685
FVA (€mil)	201	92426	222820	1245	6093	36962
FVL (€mil)	201	59541	158442	124	1807	23097

Panel A presents descriptive statistics on absolute numbers of selected variables.

Panel B: Descriptive statistics on model variables

Variable	N	Mean	SD	Q1	Median	Q3
LogAUDFEE	201	14.12	1.78	12.77	13.96	15.20
LogTA	201	24.34	2.15	22.83	24.29	26.03
LOSS	201	0.13	0.34	0.00	0.00	0.00
STDRET	201	0.03	0.02	0.02	0.02	0.03
NONAUDIT	201	0.67	0.72	0.25	0.50	0.87
AUDSWITCH	201	0.03	0.18	0.00	0.00	0.00
COMBANK	201	0.78	0.41	1.00	1.00	1.00
REGQUAL	201	1.38	0.35	1.12	1.34	1.68
CPL	201	110.15	21.13	97.80	104.90	121.60
NONPERFORM	201	0.06	0.06	0.02	0.05	0.08
CHGOFF	201	0.40	0.32	0.21	0.33	0.51
CAPRATIO	201	14.30	4.34	11.80	13.56	15.80
INTANG	201	0.01	0.02	0.00	0.01	0.01
LIQUID	201	37.86	286.58	1.73	3.00	6.73
EFFIC	201	0.01	0.02	0.01	0.01	0.01
SENSITIVE	201	0.89	0.22	0.80	0.90	0.97
CATEG	201	4.46	0.84	4.00	5.00	5.00
FVA	201	0.24	0.17	0.12	0.20	0.29
FVL	201	0.11	0.14	0.01	0.05	0.14
AFS	201	0.08	0.08	0.02	0.06	0.12
FVOA	201	0.06	0.13	0.00	0.02	0.06
HFTA	201	0.10	0.13	0.01	0.05	0.12
FVOL	201	0.05	0.11	0.00	0.01	0.05
HFTL	201	0.06	0.09	0.00	0.02	0.07
FVA1	201	0.12	0.12	0.05	0.09	0.16
FVA2	201	0.11	0.11	0.03	0.07	0.13
FVA3	201	0.01	0.02	0.00	0.00	0.01
FVL1	201	0.02	0.07	0.00	0.00	0.01
FVL2	201	0.09	0.12	0.01	0.04	0.12
FVL3	201	0.00	0.01	0.00	0.00	0.00
RECLASS	201	0.14	0.35	0.00	0.00	0.00

Panel B presents descriptive statistics on the variables used in the models. See Appendix 1 for definition of variables.

Table 4: Correlations among variables

	A1	B1	C1	D1	E1	F1	G1	H1	I1	J1	K1	L1	M1	N1	O1	P1	Q1	R1	S1	T1	U1	V1	W1	X1	A2	B2	C2	D2	E2	F2	G2
A1: *LogAUDFEE*		**0.8701**	0.0414	**0.4024**	-0.0801	**-0.1581**	0.0068	**0.2058**	0.0006	-0.0932	**0.1988**	-0.0051	**0.4398**	0.0322	**-0.2166**	**-0.1751**	**0.5653**	**0.3369**	**0.5800**	**0.2445**	**0.1607**	**0.5641**	**0.3358**	**0.7482**	**0.1900**	**0.4176**	**0.2257**	**0.5798**	**0.5662**	**0.6587**	**0.3685**
B1: *LogTA*	**0.8824**		-0.0073	**0.3702**	0.0185	**-0.1211**	**0.2600**	0.0878	-0.0383	**-0.0656**	**0.2294**	**-0.1547**	**0.2821**	-0.0773	**-0.4617**	-0.0801	**0.5432**	**0.3226**	**0.6442**	**0.1945**	**0.2221**	**0.5515**	**0.3839**	**0.7918**	0.1139	**0.5489**	**0.1798**	**0.5585**	**0.6569**	**0.6814**	**0.3269**
C1: *LOSS*	0.0327	-0.0127		**0.1996**	-0.0347	0.0048	-0.0032	**0.2441**	**0.1393**	**0.2537**	**0.2698**	-0.0600	-0.0898	-0.0018	0.0075	**-0.1707**	-0.0944	0.0601	-0.0551	-0.0307	0.0393	0.0336	-0.0664	0.0334	0.1121	-0.0528	0.1150	-0.0893	-0.0410	0.0841	0.0101
D1: *STDRET*	**0.2827**	**0.2444**	**0.2716**		0.0335	-0.0379	-0.0583	0.0464	0.0090	-0.0083	**0.2297**	-0.0135	**0.1565**	0.0808	**-0.1482**	-0.1008	0.1015	**0.1872**	**0.1382**	0.0558	0.0867	**0.2562**	0.0093	**0.2911**	0.0808	**0.2480**	**0.1541**	**0.1362**	**0.1603**	**0.3441**	**0.3544**
E1: *NONAUDIT*	-0.0978	0.0189	0.0101	0.0742		-0.0168	-0.0263	0.0918	-0.0404	0.0050	0.0849	-0.1034	0.0929	**-0.3021**	-0.0978	-0.0130	-0.0663	0.1106	-0.0230	-0.0408	-0.0674	0.0971	-0.1000	0.0317	**0.1259**	0.0573	-0.0510	-0.0636	-0.0236	-0.0858	-0.0437
F1: *AUDSWITCH*	**-0.1500**	**-0.1228**	0.0048	0.0181	0.0874		0.1006	-0.0507	-0.0571	0.1122	-0.0491	-0.0077	-0.1015	0.0080	0.0056	0.0393	-0.0680	-0.0543	-0.0949	-0.0721	-0.0464	-0.0482	-0.0092	**-0.1169**	-0.0323	-0.0687	-0.0169	-0.0540	-0.0823	-0.0954	-0.0764
G1: *COMBANK*	0.0039	**0.2427**	-0.0032	0.0122	0.0059	0.1006		**-0.2506**	**-0.2410**	**0.2922**	0.0122	**-0.3856**	**-0.2256**	**-0.1582**	**-0.2339**	**0.2076**	0.1009	**-0.3112**	0.0328	-0.1073	0.0559	-0.0535	0.0614	0.0624	**-0.2820**	-0.0282	-0.0550	0.0527	0.0724	**0.1664**	-0.0303
H1: *REGQUAL*	**0.2281**	0.1048	**0.2174**	**0.1510**	0.0627	-0.0652	**-0.2552**		**0.5409**	**-0.2388**	**0.4333**	**0.4989**	**-0.1420**	-0.0754	**-0.1786**	**-0.3152**	-0.0262	**0.3769**	**0.2899**	**-0.2465**	**0.2166**	**0.3285**	**0.1534**	**0.3204**	**0.1948**	**0.2196**	**0.1283**	**0.1511**	**0.2569**	0.0391	-0.0298
I1: *CPL*	-0.0597	-0.0973	**0.1213**	0.0109	0.0320	-0.0018	**-0.2412**	**0.5258**		**-0.4055**	**0.1174**	**0.2341**	**-0.2148**	**-0.1773**	**-0.2806**	**-0.1597**	**-0.1296**	**0.3709**	**0.2647**	**-0.3163**	**0.3688**	**0.2896**	**0.2466**	**0.1475**	**0.1877**	**0.2975**	**0.3657**	-0.0181	**0.2829**	-0.0152	-0.0845
J1: *NONPERFORM*	**-0.2035**	**-0.2173**	**0.2737**	0.0683	**0.1594**	**0.1872**	0.0973	-0.1119	**-0.2346**		0.0312	**-0.1815**	0.0369	-0.0646	**0.2643**	0.0423	-0.0661	**-0.2525**	**-0.2419**	0.0004	**-0.2506**	-0.1023	**-0.2412**	-0.0784	-0.0630	**-0.2727**	-0.1035	**-0.1858**	**-0.1902**	-0.0463	-0.0765
K1: *CHGOFF*	**0.1675**	**0.1497**	**0.1863**	**0.2145**	0.0049	-0.0402	-0.0852	**0.3798**	**0.1634**	0.0370		**0.1192**	-0.0191	-0.0982	-0.0575	**-0.1623**	-0.0476	0.1156	**0.1944**	**-0.1658**	0.0157	**0.3317**	0.0560	**0.2728**	0.0004	**0.1972**	0.0574	0.0709	**0.1994**	0.1036	0.0832
L1: *CAPRATIO*	0.0160	**-0.1681**	-0.0934	-0.0767	-0.0474	-0.0172	**-0.4364**	**0.3989**	0.0993	-0.0293	**0.1893**		-0.0160	0.0230	0.0631	**-0.2480**	-0.0444	**0.2917**	**0.1507**	**-0.1774**	**0.1484**	**0.1995**	0.0271	**0.1953**	**0.1357**	**0.1362**	0.0049	**0.1204**	0.1077	-0.0757	-0.1009
M1: *INTANG*	**0.1184**	-0.0758	-0.0993	-0.0017	0.0137	-0.0597	**-0.2838**	**-0.1256**	**-0.1375**	-0.0710	**-0.1270**	0.1086		**0.1632**	**0.3234**	-0.0397	**0.2586**	0.0916	0.0877	**0.2648**	**-0.1497**	**0.2226**	-0.0553	**0.2817**	**0.1445**	0.0233	0.0373	**0.2912**	0.0670	**0.2820**	**0.1813**
N1: *LIQUID*	0.0168	-0.0657	-0.0419	-0.0592	-0.0765	-0.0173	**-0.2126**	0.0802	**0.1506**	-0.1122	**0.5441**	**0.1823**	-0.0192		**0.4933**	**-0.2768**	**-0.1172**	0.0824	-0.0765	**0.1787**	**-0.1216**	-0.0232	-0.0883	-0.0698	**0.2138**	**-0.1458**	-0.0192	**0.1361**	-0.1022	0.0707	0.0530
O1: *EFFIC*	**-0.1759**	**-0.4597**	-0.0445	-0.1020	-0.0478	0.0312	**-0.4079**	0.0839	-0.1026	**0.2394**	0.0563	**0.4182**	**0.5678**	0.0581		**-0.1324**	**-0.2951**	**-0.1784**	**-0.4084**	0.0378	**-0.3624**	-0.1139	**-0.3282**	**-0.3409**	0.0640	**-0.4733**	-0.0875	-0.1129	**-0.4412**	**-0.2275**	**-0.1436**
P1: *SENSITIVE*	**-0.1331**	-0.0364	**-0.1264**	-0.0368	-0.0282	0.0201	**0.1667**	**-0.2040**	-0.0183	0.0255	**-0.1722**	**-0.2965**	-0.0106	**-0.1635**	-0.0722		-0.0204	**-0.6457**	-0.0977	**-0.2483**	-0.0834	**-0.4388**	**0.1173**	**-0.2978**	**-0.5422**	**-0.2669**	**-0.1817**	**-0.2916**	-0.0441	**-0.1303**	-0.0359
Q1: *CATEG*	**0.5481**	**0.5344**	-0.0930	-0.0590	-0.0501	-0.0389	**0.1166**	-0.0376	**-0.1595**	**-0.2994**	-0.0117	-0.0021	**0.1272**	0.0587	**-0.2477**	-0.0011		0.0886	**0.3707**	**0.2914**	**0.3149**	**0.1844**	**0.3029**	**0.4390**	0.1034	**0.1853**	0.0301	**0.4728**	**0.3246**	**0.4276**	**0.1225**
R1: *FVA*	**0.3471**	**0.2957**	0.0456	0.0835	0.0381	-0.0803	**-0.3847**	**0.3511**	**0.2995**	**-0.1790**	**0.2048**	**0.3275**	0.0026	**0.2426**	-0.0370	**-0.4092**	0.0497		**0.5575**	**0.1460**	**0.3889**	**0.6335**	**0.3174**	**0.5277**	**0.7358**	**0.6286**	**0.4251**	**0.4040**	**0.5018**	**0.3107**	0.0594
S1: *FVL*	**0.4512**	**0.4391**	-0.0840	0.0512	-0.0618	-0.0676	**-0.1393**	**0.2872**	**0.1559**	**-0.2373**	**0.2233**	**0.3324**	**-0.1362**	**0.2859**	**-0.1494**	**-0.1818**	**0.1509**	**0.6887**		0.0128	**0.4860**	0.5589	**0.7967**	**0.7340**	**0.2725**	**0.6409**	**0.2613**	**0.5847**	**0.9248**	**0.5292**	0.1095
T1: *AFS*	0.1119	0.0555	-0.0286	0.0062	0.0045	-0.0644	**-0.2010**	**-0.1957**	**-0.3036**	-0.0743	**-0.1336**	-0.0926	**0.2104**	-0.0015	0.0242	**-0.2869**	**0.1791**	**0.1209**	**-0.1450**		**-0.2783**	-0.0246	-0.0289	**0.1329**	**0.3842**	-0.0054	-0.0564	**0.2285**	0.0038	**0.2975**	0.0996
U1: *FVOA*	-0.0831	-0.0588	-0.0328	-0.0441	-0.0345	-0.0296	**-0.2317**	**0.2333**	**0.3193**	**-0.2244**	**0.1512**	**0.3349**	**-0.1361**	**0.3113**	-0.0775	0.0671	-0.0708	**0.5563**	**0.5372**	**-0.3109**		0.0692	**0.5435**	**0.2521**	**0.1553**	**0.4329**	**0.2007**	**0.2512**	**0.3905**	**0.1248**	-0.0896
V1: *HFTA*	**0.4587**	**0.4022**	0.1069	**0.1460**	0.0797	-0.0359	**-0.1466**	**0.3332**	**0.2460**	0.0346	**0.1909**	**0.1437**	0.0140	0.0055	0.0145	**-0.4204**	0.0283	**0.6601**	**0.4367**	**-0.1235**	-0.0884		**0.2158**	**0.7325**	**0.4072**	**0.5140**	**0.3711**	**0.4628**	**0.5563**	**0.4644**	**0.1580**
W1: *FVOL*	0.0104	-0.0091	-0.1045	-0.0800	-0.0095	-0.0274	**-0.2007**	**0.1915**	**0.1588**	**-0.1748**	**0.1616**	**0.3914**	**-0.1331**	**0.3553**	-0.0348	-0.0592	-0.0335	**0.4455**	**0.7792**	**-0.1754**	**0.7182**	-0.0328		**0.3243**	**0.1307**	**0.4046**	**0.1470**	**0.4489**	**0.6926**	**0.2903**	-0.0621
X1: *HFTL*	**0.7069**	**0.7112**	-0.0079	**0.1780**	-0.0871	-0.0747	0.0201	**0.2270**	0.0569	**-0.1674**	**0.1611**	0.0578	-0.0565	0.0273	**-0.1962**	**-0.2184**	**0.2811**	**0.5606**	**0.6544**	-0.0196	-0.0099	**0.7359**	0.0360		**0.2604**	**0.6175**	**0.2731**	**0.5685**	**0.7581**	**0.6641**	**0.2201**
A2: *FVA1*	0.0445	-0.0957	0.0969	-0.0094	0.1030	-0.0448	**-0.4393**	**0.2197**	**0.1488**	0.0032	**0.1241**	**0.4023**	**0.1477**	**0.2770**	**0.2200**	**-0.5112**	-0.0449	**0.7170**	**0.3616**	**0.3011**	**0.3793**	**0.3677**	**0.4432**	0.0419		0.0883	**0.2193**	**0.3169**	**0.2039**	**0.1804**	-0.0131
B2: *FVA2*	**0.4658**	**0.5333**	-0.0372	**0.1328**	-0.0405	-0.0583	-0.0897	**0.2696**	**0.2261**	**-0.2528**	**0.1931**	0.0649	**-0.1285**	0.0858	**-0.2605**	-0.0769	**0.1460**	**0.6857**	**0.6153**	-0.1159	**0.3931**	**0.5569**	**0.1836**	**0.7595**	-0.0021		**0.2509**	**0.3402**	**0.6612**	**0.3561**	**0.1317**
C2: *FVA3*	0.0590	0.0458	0.0820	0.0607	-0.0806	-0.0699	-0.1157	0.0801	**0.3420**	-0.0767	-0.0465	0.0223	-0.0781	-0.0628	-0.0986	-0.0360	-0.0674	**0.2544**	0.0770	-0.0616	**0.1459**	**0.2174**	-0.0391	**0.1700**	0.0934	**0.1187**		**0.1622**	**0.2393**	**0.4550**	0.1086
D2: *FVL1*	**0.1605**	0.0991	-0.0655	-0.0148	-0.0323	-0.0519	-0.1070	**0.1928**	0.0106	-0.0753	0.0659	**0.6043**	-0.0377	-0.0171	0.0646	**-0.2319**	**0.1666**	**0.3050**	**0.5020**	-0.0843	**0.3781**	0.0678	**0.5809**	0.0996	**0.3377**	0.1038	0.0069		**0.3985**	**0.5125**	0.0741
E2: *FVL2*	**0.4186**	**0.4416**	-0.0649	0.0594	-0.0479	-0.0480	-0.1031	**0.2297**	**0.1762**	**-0.2313**	**0.2306**	0.0608	**-0.1399**	**0.3461**	**-0.2061**	-0.0814	0.0737	**0.6292**	**0.8836**	**-0.1329**	**0.4266**	**0.4619**	**0.5958**	**0.6900**	**0.2381**	**0.6506**	0.0737	0.0406		**0.5279**	**0.1508**
F2: *FVL3*	**0.5117**	**0.4468**	0.0599	**0.2124**	**-0.1259**	-0.0760	-0.0161	0.1109	0.0761	**-0.1329**	-0.0503	0.0088	-0.0076	-0.0463	-0.1095	**-0.1525**	**0.2234**	**0.3207**	**0.3568**	**0.1602**	-0.0814	**0.3953**	0.0062	**0.5614**	0.0792	**0.3477**	**0.2700**	0.0654	**0.3388**		**0.1800**
G2: *RECLASS*	**0.3791**	**0.3326**	0.0101	**0.2947**	-0.0685	-0.0764	-0.0303	-0.0041	-0.0859	**-0.1275**	0.0850	-0.1113	0.0601	-0.0449	**-0.1237**	-0.0097	**0.1400**	0.0675	0.0641	0.0350	-0.0920	**0.1557**	**-0.1175**	**0.2439**	-0.0745	**0.1665**	0.0795	-0.0639	0.1040	**0.1180**	

Pearson correlations are below and Spearman are above the diagonal. The correlation table depicts pair-wise correlations between variables used in the analysis. All correlations significant at 0.1 two-tailed level are in bold. See Appendix 1 for definition of variables.

Table 5: Determinants of banks' audit fees and the influence of total fair value assets and liabilities

Variables	Predicted Sign	Model (1) Est. Coefficient	Model (1) T-Value	Model (2) Est. Coefficient	Model (2) T-Value	Model (3a) Est. Coefficient	Model (3a) T-Value	Model (3b) Est. Coefficient	Model (3b) T-Value	Model (4a) Est. Coefficient	Model (4a) T-Value	Model (4b) Est. Coefficient	Model (4b) T-Value
Intercept	?	-6.261	(-5.36)***	-6.240	(-5.66)***	-6.513	(-5.71)***	-6.384	(-5.25)***	-6.112	(-5.13)***	-6.492	(-5.49)***
LogTA	+	0.826	(24.40)***	0.774	(20.60)***	0.794	(18.21)***	0.783	(17.22)***	0.768	(15.93)***	0.784	(18.09)***
LOSS	+	0.199	(1.35)	0.137	(0.98)	0.146	(1.03)	0.135	(0.96)	0.137	(0.98)	0.134	(0.95)
STDRET	+	7.231	(2.12)**	9.969	(3.08)***	9.697	(2.89)***	9.842	(2.99)***	10.051	(3.01)***	9.840	(3.03)***
NONAUDIT	-	-0.280	(-3.11)***	-0.274	(-3.12)***	-0.271	(-3.09)***	-0.269	(-3.00)***	-0.273	(-3.12)***	-0.274	(-3.10)***
AUDSWITCH	-	-0.087	(-0.35)	-0.173	(-0.73)	-0.166	(-0.70)	-0.161	(-0.67)	-0.176	(-0.73)	-0.176	(-0.74)
COMBANK	-	-0.410	(-2.10)**	-0.432	(-2.45)**	-0.490	(-2.55)**	-0.447	(-2.56)**	-0.429	(-2.41)**	-0.421	(-2.33)**
REGQUAL	+	0.577	(2.28)**	0.554	(2.44)**	0.557	(2.44)**	0.564	(2.47)**	0.552	(2.44)**	0.556	(2.45)**
CPL	+	-0.001	(-0.30)	0.001	(0.22)	0.001	(0.49)	0.001	(0.34)	0.001	(0.20)	0.001	(0.32)
NONPERFORM	+	0.381	(0.29)	0.948	(0.75)	0.948	(0.76)	0.936	(0.74)	0.973	(0.75)	0.936	(0.74)
CHGOFF	+	-0.669	(-2.70)***	-0.583	(-2.58)**	-0.616	(-2.70)***	-0.606	(-2.58)**	-0.573	(-2.59)**	-0.604	(-2.58)**
CAPRATIO	?	0.003	(0.13)	-0.006	(-0.33)	-0.002	(-0.12)	-0.005	(-0.25)	-0.008	(-0.38)	-0.005	(-0.25)
INTANG	+	6.240	(1.28)	3.097	(0.65)	3.133	(0.66)	3.474	(0.72)	3.227	(0.67)	2.988	(0.63)
LIQUID	+	0.001	(3.24)***	0.001	(2.83)***	0.001	(3.06)***	0.001	(2.82)***	0.000	(2.63)**	0.001	(2.81)***
EFFIC	+	22.413	(2.84)***	25.264	(3.45)***	24.989	(3.43)***	25.015	(3.41)***	25.277	(3.44)***	25.439	(3.46)***
SENSITIVE	-	-0.338	(-1.17)	-0.402	(-1.51)	-0.498	(-1.88)*	-0.448	(-1.76)*	-0.401	(-1.52)	-0.403	(-1.49)
CATEG	+			0.255	(3.69)***	0.236	(3.25)***	0.244	(3.32)***	0.260	(3.33)***	0.252	(3.61)***
FVA	+					-0.470	(-1.18)						
FVAMedian	+							-0.071	(-0.48)				
FVL	+									0.131	(0.24)		
FVLMedian	+											-0.061	(-0.51)
Year Effects		Yes		Yes		Yes		Yes		Yes		Yes	
Adj. R-squared (%)		88.88%		89.70%		89.74%		89.66%		89.65%		89.66%	
N		201		201		201		201		201		201	

This table provides ordinary least square regression analysis (based on heteroskedasticity-robust standard errors) of the determinants of banks' audit fees and the influence of total fair value assets and liabilities. Model (1) presents the base model including control and bank risk variables. Model (2) shows that audit fees increase with the number of different fair value instrument categories. The results of models (3a) and (3b) indicate that the proportion of fair value assets to total assets does not influence audit fees. The results of models (4a) and (4b) indicate that the proportion of fair value liabilities to total assets does not influence audit fees. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels (two-tailed), respectively.

Table 6: Determinants of banks' audit fees and the influence of level 1-3 fair value assets and liabilities

Variables	Predicted Sign	Model (5a) Est. Coefficient	Model (5a) T-Value	Model (5b) Est. Coefficient	Model (5b) T-Value	Model (6a) Est. Coefficient	Model (6a) T-Value	Model (6b) Est. Coefficient	Model (6b) T-Value
Intercept	?	-6.771	(-5.76)***	-5.988	(-5.27)***	-5.594	(-4.36)***	-6.360	(-4.53)***
LogTA	+	0.804	(18.00)***	0.774	(19.37)***	0.752	(14.94)***	0.778	(13.45)***
LOSS	+	0.130	(0.93)	0.105	(0.81)	0.117	(0.85)	0.126	(0.88)
STDRET	+	9.638	(2.90)***	8.941	(3.16)***	8.959	(2.82)***	9.347	(2.84)***
NONAUDIT	-	-0.276	(-3.14)***	-0.249	(-2.98)***	-0.258	(-2.88)***	-0.272	(-3.02)***
AUDSWITCH	-	-0.140	(-0.59)	-0.139	(-0.71)	-0.149	(-0.64)	-0.172	(-0.73)
COMBANK	-	-0.479	(-2.48)**	-0.465	(-2.66)***	-0.438	(-2.44)**	-0.435	(-2.33)**
REGQUAL	+	0.576	(2.45)**	0.664	(3.20)***	0.592	(2.50)**	0.583	(2.59)**
CPL	+	0.001	(0.32)	-0.002	(-0.61)	0.000	(-0.10)	0.001	(0.32)
NONPERFORM	+	0.830	(0.66)	0.940	(0.83)	0.935	(0.75)	0.935	(0.74)
CHGOFF	+	-0.590	(-2.60)**	-0.591	(-2.62)**	-0.501	(-2.10)**	-0.590	(-2.43)**
CAPRATIO	?	-0.004	(-0.19)	-0.007	(-0.42)	-0.012	(-0.48)	-0.005	(-0.30)
INTANG	+	2.940	(0.63)	4.252	(0.94)	3.985	(0.84)	2.806	(0.59)
LIQUID	+	0.001	(2.90)***	0.001	(3.63)***	0.001	(2.77)***	0.001	(2.79)***
EFFIC	+	24.954	(3.41)***	23.277	(3.54)***	23.723	(3.27)***	25.051	(3.27)***
SENSITIVE	-	-0.431	(-1.57)	-0.372	(-1.51)	-0.324	(-1.21)	-0.382	(-1.27)
CATEG	+	0.231	(3.18)***	0.223	(3.29)***	0.240	(3.35)***	0.250	(3.64)***
FVA1	?	-0.181	(-0.38)						
FVA2	?	-0.829	(-1.40)						
FVA3	?	0.927	(0.33)						
FVA1Median	?			-0.100	(-0.95)				
FVA2Median	?			-0.080	(-0.55)				
FVA3Median	?			0.321	(2.76)***				
FVL1	?					0.535	(0.37)		
FVL2	?					-0.165	(-0.38)		
FVL3	?					18.856	(2.21)**		
FVL1Median	?							-0.002	(-0.02)
FVL2Median	?							-0.098	(-0.81)
FVL3Median	?							0.073	(0.44)
Year Effects		Yes		Yes		Yes		Yes	
Adj. R-squared (%)		89.71%		90.30%		89.76%		89.58%	
N		201		201		201		201	

This table provides ordinary least square regression analysis (based on heteroskedasticity-robust standard errors) of the determinants of banks' audit fees and the influence of level 1, 2, and 3 fair value assets and liabilities. The results of model (5a) indicate that neither level 1, level 2 nor level 3 fair values exhibit an influence on audit fees. Model (5b) presents evidence that level 3 fair value assets exhibit a postive influence on audit fees. The results of model (6a) show that level 3 fair value liabilities exhibit a positive influence on audit fees, while model (6b) fails to provide evidence for any of the level 1, 2, and 3 fair value liabilities influencing audit fees. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels (two-tailed), respectively.

Table 7: Determinants of banks' audit fees and the influence of fair value financial instrument categories

Variables	Predicted Sign	Model (7a) Est. Coefficient	Model (7a) T-Value	Model (7b) Est. Coefficient	Model (7b) T-Value	Model (8a) Est. Coefficient	Model (8a) T-Value	Model (8b) Est. Coefficient	Model (8b) T-Value
Intercept	?	-6.163	(-4.94)***	-6.046	(-4.82)***	-5.769	(-4.07)***	-6.742	(-5.69)***
LogTA	+	0.768	(15.98)***	0.757	(16.80)***	0.752	(12.91)***	0.792	(16.98)***
LOSS	+	0.162	(1.16)	0.183	(1.33)	0.140	(1.00)	0.152	(1.10)
STDRET	+	9.805	(2.98)***	10.203	(3.21)***	9.995	(2.99)***	9.907	(3.12)***
NONAUDIT	-	-0.272	(-3.11)***	-0.285	(-3.25)***	-0.266	(-2.94)***	-0.276	(-3.09)***
AUDSWITCH	-	-0.167	(-0.72)	-0.205	(-0.88)	-0.183	(-0.78)	-0.162	(-0.69)
COMBANK	-	-0.466	(-2.54)**	-0.405	(-2.31)**	-0.426	(-2.41)**	-0.437	(-2.47)**
REGQUAL	+	0.557	(2.46)**	0.550	(2.52)**	0.552	(2.45)**	0.550	(2.41)**
CPL	+	0.001	(0.24)	0.001	(0.22)	0.000	(0.12)	0.001	(0.47)
NONPERFORM	+	0.532	(0.42)	0.806	(0.64)	0.934	(0.72)	0.849	(0.66)
CHGOFF	+	-0.617	(-2.75)***	-0.623	(-2.77)***	-0.568	(-2.54)**	-0.616	(-2.71)***
CAPRATIO	?	0.005	(0.23)	-0.004	(-0.21)	-0.006	(-0.31)	-0.003	(-0.19)
INTANG	+	3.044	(0.64)	2.547	(0.53)	3.370	(0.70)	2.625	(0.56)
LIQUID	+	0.001	(3.38)***	0.001	(2.96)***	0.000	(2.71)***	0.001	(2.90)***
EFFIC	+	22.860	(3.15)***	24.828	(3.34)***	24.569	(3.30)***	25.595	(3.55)***
SENSITIVE	-	-0.255	(-0.73)	-0.283	(-0.96)	-0.363	(-1.33)	-0.355	(-1.28)
CATEG	+	0.237	(3.23)***	0.270	(3.82)***	0.262	(3.35)***	0.258	(3.68)***
AFS	?	-0.238	(-0.25)						
FVOA	?	-0.947	(-1.95)*						
HFTA	?	0.183	(0.33)						
AFSMedian	?			0.033	(0.27)				
FVOAMedian	?			-0.093	(-0.80)				
HFTAMedian	?			0.131	(1.02)				
FVOL	?					-0.034	(-0.05)		
HFTL	?					0.581	(0.73)		
FVOLMedian	?							-0.111	(-0.93)
HFTLMedian	?							-0.023	(-0.15)
Year Effects		Yes		Yes		Yes		Yes	
Adj. R-squared (%)		89.87%		89.67%		89.62%		89.66%	
N		201		201		201		201	

This table provides ordinary least square regression analysis (based on heteroskedasticity-robust standard errors) of the determinants of banks' audit fees and the influence of fair value financial instrument categories. While the results of model (7a) present marginally significant evidence for a negative influence of FVOA on audit fees, the outcomes of model (7b) indicate that none of the fair value financial assets categories exhibits an influence on audit fees. Models (8a) and (8b) fail to provide evidence for any of the fair value financial liabilities influencing audit fees. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels (two-tailed), respectively.

Table 8: Determinants of banks' audit fees and the influence of level 3 fair value financial instrument categories

Variables	Predicted Sign	Model (9) Est. Coefficient	Model (9) T-Value	Model (10) Est. Coefficient	Model (10) T-Value
Intercept	?	-6.054	(-5.30)***	-5.434	(-4.46)***
LogTA	+	0.764	(19.05)***	0.738	(16.66)***
LOSS	+	0.133	(0.97)	0.119	(0.89)
STDRET	+	10.127	(3.07)***	9.493	(2.99)***
NONAUDIT	-	-0.290	(-3.17)***	-0.277	(-3.03)***
AUDSWITCH	-	-0.168	(-0.71)	-0.163	(-0.70)
COMBANK	-	-0.426	(-2.37)**	-0.433	(-2.46)**
REGQUAL	+	0.585	(2.47)**	0.594	(2.59)**
CPL	+	0.000	(0.12)	0.000	(-0.04)
NONPERFORM	+	0.967	(0.72)	1.069	(0.86)
CHGOFF	+	-0.597	(-2.67)***	-0.518	(-2.15)**
CAPRATIO	?	-0.007	(-0.36)	-0.007	(-0.39)
INTANG	+	2.939	(0.63)	3.692	(0.76)
LIQUID	+	0.001	(2.82)***	0.000	(2.73)***
EFFIC	+	25.029	(3.48)***	23.366	(3.21)***
SENSITIVE	-	-0.373	(-1.29)	-0.343	(-1.28)
CATEG	+	0.259	(3.70)***	0.259	(3.75)***
AFS3	?	2.019	(0.33)		
FVOA3	?	-0.062	(-0.02)		
HFTA3	?	2.419	(0.36)		
FVOL3	?			14.719	(0.80)
HFTL3	?			21.623	(1.85)*
Year Effects		Yes		Yes	
Adj. R-squared (%)		89.46%		89.73%	
N		199		199	

This table provides ordinary least square regression analysis (based on heteroskedasticity-robust standard errors) of the determinants of banks' audit fees and the influence of level 3 fair value financial instrument categories. The results of model (9) indicate that none of the level 3 fair value assets exhibits an influence on audit fees. The results of model (10) present marginally significant evidence for a positve influence of HFTL3 on audit fees. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels (two-tailed), respectively.

Table 9: Determinants of banks' audit fees and the influence of IAS 39 reclassifications

Variables	Predicted Sign	Model (11) Est. Coefficient	T-Value
Intercept	?	-6.047	(-5.56)***
LogTA	+	0.758	(20.51)***
LOSS	+	0.144	(1.09)
STDRET	+	8.732	(2.84)***
NONAUDIT	-	-0.259	(-3.12)***
AUDSWITCH	-	-0.167	(-0.72)
COMBANK	-	-0.383	(-2.22)**
REGQUAL	+	0.562	(2.51)**
CPL	+	0.001	(0.40)
NONPERFORM	+	1.090	(0.88)
CHGOFF	+	-0.600	(-2.66)***
CAPRATIO	?	-0.003	(-0.18)
INTANG	+	2.741	(0.58)
LIQUID	+	0.001	(3.00)***
EFFIC	+	25.512	(3.53)***
SENSITIVE	-	-0.399	(-1.50)
CATEG	+	0.260	(3.96)***
RECLASS	+	0.347	(2.79)***
Year Effects		Yes	
Adj. R-squared (%)		90.03%	
N		201	

This table provides ordinary least square regression analysis (based on heteroskedasticity-robust standard errors) of the determinants of banks' audit fees and the influence of IAS 39 reclassifications. The results of model (11) indicate that IAS 39 reclassifications exhibit a positive influence on audit fees. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels (two-tailed), respectively.

Appendix 1: Definition of variables

Variables	Definitions
LogAUDFEE	Log of total audit fees.
LogTA	Log of total assets.
LOSS	Indicator variable that equals one if the profit before tax is negative and zero otherwise.
STDRET	Standard deviation of the bank's stock returns measured over the 12 months preceding fiscal year end.
NONAUDIT	Non-audit fees / audit fees.
AUDSWITCH	Indicator variable that equals one if the bank switched its auditor and zero otherwise.
COMBANK	Indicator variable that equals one if the bank is classified as Commercial Bank by the Global Industry Classification Standard (GICS Code 401010) and zero otherwise.
REGQUAL	Regulatory Quality index variable for countries as presented by Kaufmann et al. (2009).
CPL	Comparative price levels as presented by the European Union. They are defined as the ratio of purchasing power parities to market exchange rates in each country.
NONPERFORM	Gross value of impaired loans / gross loans.
CHGOFF	Net charge-offs / loan loss provision.
CAPRATIO	Basel II total capital ratio.
INTANG	Intangible assets / total assets.
LIQUID	(Liabilities with maturity < 1 year) / (liabilities with maturity > 1 year).
EFFIC	Personnel expenses / total assets.
SENSITIVE	(Loans and receivables + held-to-maturity assets) / (due to banks + due to customers + issued debt + subordinated debt).
Y10	Indicator variable that equals one for observations from financial year 2010 and zero otherwise.
CATEG	Number of fair value categories (available-for-sale assets, fair value option assets, held-for-trading assets, fair value option liabilities, held-for-trading liabilities) used by a bank.
FVA	(Available-for-sale assets + held-for-trading assets + fair value option assets) / total assets.
FVL	(Held-for-trading liabilities + fair value option liabilities) / total assets.
FVA1	Level 1 fair value assets / total assets.
FVA2	Level 2 fair value assets / total assets.
FVA2	Level 3 fair value assets / total assets.
FVL1	Level 1 fair value liabilities / total assets.
FVL2	Level 2 fair value liabilities / total assets.
FVL3	Level 3 fair value liabilities / total assets.
AFS	(Available-for-sale assets) / total assets.
FVOA	(Fair value option assets) / total assets.
HFTA	(Held-for-trading assets) / total assets.
FVOL	(Fair value option liabilities) / total assets.
HFTL	(Held for trading liabilities) / total assets.
AFS3	(Level 3 available-for-sale assets) / total assets.
FVOA3	(Level 3 fair value option assets) / total assets.
HFTA3	(Level 3 held-for-trading assets) / total assets.
FVOL3	(Level 3 fair value option liabilities) / total assets.
HFTL3	(Level 3 held-for-trading liabilities) / total assets.
RECLASS	Indicator variable that equals one if the bank carried out reclassifications under the amendment to IAS 39 during the current financial year and zero otherwise.
MTB	Market value / book value of equity.
SMALL_PROFIT	Indicator variable that equals one if the bank's net income, scaled by total assets at the beginning of the financial year, is smaller than 1% or equal to 0%.
ΔDEPOSITS	Indicator variable that equals one if change in customer deposits between the current and prior year is negative.
RISK	Beta; calculated by regressing firm's monthly return on the monthly market return over a five year period (Datastream).
RQ	Median ratio of annual accruals to cash flows from operations over the current and prior four financial years.
IMR	Inverse Mills ratio

Appendix 2: Treatment effects model and revised regression model

Panel A: First stage probit (dependent variable is *RECLASS*)

Variables	Predicted Sign	Est. Coefficient	Z-Value
Intercept	?	-3.007	(-4.19)***
MTB	-	-0.991	(-2.55)**
SMALL_PROFIT	+	1.229	(2.68)***
Δ *DEPOSITS*	+	0.487	(1.81)*
RISK	+	1.134	(4.15)***
RQ	-	-0.598	(-3.44)***
Pseudo R-squared (%)		29.76%	
LR Chi-square (5)		48.11***	
N		199	

Panel A presents the results of the first stage probit regression. The first stage probit model computes the inverse Mills ratio (IMR) which is included in the second stage equation under Panel B in order to address endogeneity. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels (two-tailed), respectively.

Panel B: Second stage (dependent variable is *LogAUDFEE*)

Variables	Predicted Sign	Est. Coefficient	T-Value
Intercept	?	-5.957	(-5.48)***
LogTA	+	0.753	(20.64)***
LOSS	+	0.157	(1.19)
STDRET	+	7.515	(2.37)**
NONAUDIT	-	-0.257	(-3.13)***
AUDSWITCH	-	-0.165	(-0.70)
COMBANK	-	-0.371	(-2.14)**
REGQUAL	+	0.547	(2.42)**
CPL	+	0.001	(0.40)
NONPERFORM	+	1.010	(0.82)
CHGOFF	+	-0.608	(-2.64)***
CAPRATIO	?	0.000	(0.01)
INTANG	+	2.450	(0.53)
LIQUID	+	0.001	(2.96)***
EFFIC	+	25.601	(3.56)***
SENSITIVE	-	-0.385	(-1.47)
CATEG	+	0.254	(3.74)***
RECLASS	+	0.663	(2.34)**
IMR	?	-0.214	(-1.38)
Year Effects		Yes	
Adj. R-squared (%)		90.07%	
N		199	

Panel B reports ordinary least square regression analysis (based on heteroskedasticity-robust standard errors) of the determinants of banks' audit fees and the influence of IAS 39 reclassifications. The results indicate that IAS 39 reclassifications exhibit a positive influence on audit fees. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels (two-tailed),

Appendix 3: Factor analysis and revised regression model

Panel A: Scoring coefficients (based on varimax rotated factors)

Variables	Factor 1	Factor 2	Factor 3	Factor 4
REGQUAL	**0.53**	-0.04	-0.11	0.03
CPL	**0.38**	-0.10	-0.11	-0.29
NONPERFORM	0.02	-0.08	-0.04	**0.77**
CHGOFF	0.01	-0.08	**0.50**	0.12
CAPRATIO	0.32	0.25	0.00	0.13
INTANG	-0.15	**0.52**	-0.02	-0.30
LIQUID	-0.21	0.03	**0.63**	-0.16
EFFIC	0.06	**0.47**	-0.02	0.14
SENSITIVE	-0.15	-0.06	-0.13	-0.16

Panel B: Factor analysis and revised regression model

	Model (1)		Model (2)		Model (3a)		Model (4a)	
Variables	Est. Coefficient	T-Value	Est. Coefficient	T-Value	Est. Coefficient	T-Value	Est. Coefficient	T-Value
Intercept	-4.977	(-7.98)***	-4.758	(-7.47)***	-4.909	(-7.39)***	-4.720	(-6.49)***
LogTA	0.796	(30.94)***	0.744	(22.49)***	0.758	(19.85)***	0.742	(17.73)***
LOSS	0.213	(1.68)*	0.181	(1.50)	0.184	(1.51)	0.184	(1.53)
STDRET	7.077	(2.54)**	9.481	(3.30)***	9.204	(3.09)***	9.526	(3.17)***
NONAUDIT	-0.279	(-2.67)***	-0.274	(-2.68)***	-0.272	(-2.61)**	-0.273	(-2.71)***
AUDSWITCH	-0.050	(-0.15)	-0.118	(-0.38)	-0.108	(-0.34)	-0.120	(-0.38)
COMBANK	-0.441	(-2.27)**	-0.455	(-2.51)**	-0.505	(-2.50)**	-0.452	(-2.40)**
FACTOR 1	0.143	(2.03)**	0.160	(2.32)**	0.178	(2.46)**	0.158	(2.21)**
FACTOR 2	0.407	(7.35)***	0.376	(6.67)***	0.378	(6.74)***	0.376	(6.64)***
FACTOR 3	0.044	(0.93)	0.037	(0.83)	0.049	(1.02)	0.035	(0.71)
FACTOR 4	0.031	(0.59)	0.638	(1.33)	0.060	(1.20)	0.064	(1.29)
CATEG			0.220	(2.98)***	0.208	(2.75)***	0.221	(2.81)***
FVA					-0.361	(-0.84)		
FVL							0.059	(0.11)
Year Effects	Yes		Yes		Yes		Yes	
Adj. R-squared (%)	87.97%		88.60%		88.61%		88.54%	
N	201		201		201		201	

This table provides ordinary least square regression analysis (based on heteroskedasticity-robust standard errors) of the determinants of banks' audit fees and the influence of total fair value assets and liabilities, whereby the individual risk and country-specific proxies are replaced by the four factors. Model (1) presents the base model including control and bank risk variables. Model (2) shows that audit fees increase with the number of different fair value instrument categories. The results of model (3a) indicate that the proportion of fair value assets to total assets does not influence audit fees. The results of model (4a) indicate that the proportion of fair value liabilities to total assets does not influence audit fees. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.