Corporate Governance and Fair Value Accounting:

An International Perspective

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Abstract

Corporate Governance and Fair Value Accounting: An International Perspective

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The overall objective of this dissertation is to investigate the interface between both firm- and country-level corporate governance mechanisms and fair value accounting for a sample of international financial institutions in the post-financial crisis period. In order to meet this objective, I conduct two studies investigating different aspects of the fair value hierarchy and the role of corporate governance.

The first study investigates the impact of firm- and country-level corporate governance mechanisms on the relevance and reliability of the estimates provided by the fair value hierarchy. This is examined for a sample of publicly listed banks from Canada and the European Union and extends the scant literature on the interface between corporate governance and fair value accounting. The results show that, contrary to prior research, investors do not consider level 3 fair value estimates to be reliable enough to be incorporated into firm value and thus, are not value relevant. Further testing, however, reveals that corporate governance mechanisms act in such a manner as to increase the perceived reliability of level 3 fair value estimates such that investors do consider them to be value relevant. Moreover, the results suggest that, in the context of value relevance decisions, firm- and country-level governance mechanisms act as substitutes for one another.

The second study investigates the potential for the fair value hierarchy to act as an alternative vehicle for earnings management in banks, and the role that firm- and country-level corporate governance plays in impacting the relationship between two competing earnings management methods. Extant earnings management literature on financial institutions focuses on the use of the loan loss provision to manage earnings. However, the recent change in accounting standards towards fair value accounting has provided an alternative vehicle for earnings management, specifically through level 2 and level 3 fair value measurements. The results show that level 2 fair values do not appear to be a viable tool to manage earnings. However, after accounting for the effect of either firm- or country-level corporate governance, the results suggest that level 3 fair values can act as an alternative earnings management tool. Managers faced with high (low) governance report lower (higher) levels of discretionary loan loss provisions as the proportion of level 3 assets increases. Moreover, additional analyses provide preliminary results suggesting that, in the context of earnings management, firm- and country-level governance mechanisms act as complements for one another.

Keywords: Corporate Governance; Fair Value Accounting; Value Relevance; Earnings Management; Loan Loss Provision; Banks

Dedication

I dedicate this thesis to my wife, Marisa, and my daughter, Zelda.

Marisa, this journey has been long and arduous, and you have been my rock throughout it all. I would not have been able to complete this without your undying love or unwavering support and faith in me and my abilities. This degree belongs to you as much as it does to me. I will never truly be able to express my gratitude to you for everything that you are. My life has been infinitely better from the moment you entered it. I thank you from the bottom of my heart and I love you more than my own life.

Zelda, you came into my life right near the end of this thesis, but your smiles each morning gave me the strength I needed to persevere and see this through to completion. I hope this work stands as a testament to what you can accomplish with enough drive, desire, tenacity, and support. I love you so much and cannot wait to watch you grow and flourish.

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Chapter 1 - Introduction

While not a new concept, the use of fair value accounting for financial reporting purposes by global financial institutions continues to raise several concerns (Ford & Marriage, 2018). The increasing reach of fair value accounting reflects actions from both the Financial Accounting Standards Board (FASB) in the United States and the International Accounting Standards Board (IASB), starting with SFAS 107 and 119 about fair value disclosure and continuing with several other standards. More recently, via Accounting Standards Codification (ASC) 820 (formerly SFAS 157 and 159) for the FASB, and International Financial Reporting Standard (IFRS) 13 for the IASB, both standard setters have put forward formal definitions of fair value and outlined a framework for measuring and reporting fair values. The increased usage of fair value accounting has created a lot of controversy that has permeated through both the academic and corporate worlds. At the heart of this controversy is the trade-off between relevance and reliability. That is, fair value accounting is generally viewed as being more timely and relevant compared to historical cost accounting, however the fair value information provided by firms might also be subject to managerial input and potential bias, which can have detrimental effects on the perceived reliability of the information. Some have gone so far as to proclaim that fair value accounting is inevitable and that there is simply no better alternative currently available (Barth, 2007). On the other hand, there have been strong outspoken opponents of fair value, citing its lack of perceived reliability and its vulnerability to significant managerial influence (Benston, 2008; Penman, 2007; Watts, 2003). Much of the negative reaction towards fair value accounting appears to have been the result of speculation as to the role that it may have played in the global financial crisis. Some contend that fair value accounting introduced artificial volatility to the financial statements which was not reflective of the actual underlying economic situation

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(Benston, 2008; Laux & Leuz, 2009; Magnan, 2009). Contrary to this viewpoint, others suggest that fair value accounting merely acted as a messenger by showing the actual underlying economic instability on the financial statements that was able to remain hidden by historical cost accounting (André, Cazavan-Jeny, Dick, Richard, & Walton, 2009; Badertscher, Burks, & Easton, 2012; Véron, 2008).

While the truth of the matter is likely somewhere in between these two extremes, a resolution to this debate is beyond the scope of this paper. However, regardless of which side of the debate you are on, it appears as though fair value accounting is here to stay. As such, it is necessary to investigate the reliability of fair value accounting, and ways that it can be improved, while retaining the benefits of its increased relevance over historical cost accounting. The focus of this dissertation is to investigate the relevance and reliability concerns surrounding the use of fair value accounting by using a sample of international financial institutions. Given that much of the primary concerns about the use of fair value accounting centre around its perceived unreliability, largely due to the potential for managerial manipulation, this dissertation also examines the interface between fair value accounting and corporate governance mechanisms.

This dissertation conducts two separate studies to investigate different aspects of the relationship between fair value accounting and corporate governance for which there is currently limited evidence. More specifically, the third chapter of this dissertation investigates the effect of corporate governance on the value relevance of the fair value hierarchy and attempts to answer the following research questions: 1) How do firm-level and country-level corporate governance mechanisms *individually* affect the relevance and reliability of fair value accounting information? and 2) How do firm-level and country-level corporate governance mechanisms *jointly* affect the relevance and reliability of fair value accounting information? The fourth

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chapter of this dissertation investigates the potential role that the fair value hierarchy plays in the earnings management behaviour of banks and attempts to answer the following research questions: 1) Is fair value accounting used as an alternate vehicle for earnings management? and 2) How do firm-level and country-level corporate governance mechanisms influence this relationship?

In order to answer the first set of research questions, I use a modified Ohlson (1995) model to test the association between the different levels of the fair value hierarchy and the share price four months after the fiscal year end. This relationship is investigated for an international sample of banks during the period following the global financial crisis. Specifically, the sample period covers 2011 – 2017 and includes banks from Canada and 28 additional countries across Europe. The results of this model are used to determine whether investors find the information provided by the fair value hierarchy to be reliable enough to be incorporated into the value of a firm. I then incorporate, first individually and then jointly, the effect of firm- and country-level governance to determine the effect these governance mechanisms have on the value relevance of the fair value hierarchy. The results from this study suggest that, contrary to prior research, investors do not find level 3 fair values to be reliable enough to include in share prices. However, after the inclusion of either firm- or country-level governance, all levels of the fair value hierarchy are value relevant. Further tests reveal that while there is a significant result for the joint effect of firm- and country-level governance, in the context of value relevance, these two forms of governance act as substitutes for one another.

In order to answer the second set of research questions, I investigate the effect that the fair value hierarchy has on the most commonly used measure of earnings management in banks, the discretionary component of the loan loss provision. This relationship is investigated for a

sample of international banks from Canada and 29 additional countries from Europe for the period 2011 – 2017. Initial results suggest that the levels of the fair value hierarchy that are subject to managerial discretion do not have a significant effect on the discretionary loan loss provisions. However, after taking either firm- or country-level governance into account, the results suggest that there is a strong relationship between level 3 fair values and the discretionary loan loss provision. Moreover, the results indicate that this relationship is dependent on the level of governance, such that strong (weak) governance results in higher proportions of level 3 fair values being negatively (positively) associated with discretionary loan loss provisions. Finally, an additional analysis investigating the joint effect of firm- and country-level governance suggests that, in the context of earnings management, these two forms of governance act as complements to one another.

This dissertation builds upon and extends the literature on banks, fair value accounting, and corporate governance in four significant ways. First, due to the complex nature of financial institutions, banks are typically excluded from the accounting literature. However, by their very nature, banks are the institutions that are most affected by the accounting standards related to fair value accounting, thus making them the ideal industry in which to investigate topics related to fair value accounting. Second, the third chapter of this dissertation contributes to the fair value accounting literature by shedding additional insights into the relevance and reliability trade-off by utilizing an international sample of banks. The literature has, to this point, typically focused on country-specific samples, commonly the United States (Goh, Li, Ng, & Yong, 2015; Liao, Kang, Morris, & Tang, 2013; Song, Thomas, & Yi, 2010). This dissertation takes advantage of the fact that a large number of countries have adopted IFRS. Despite some minor differences in the application of IFRS in general, a common set of reporting standards allows for an

international comparison that was not possible under different accounting regimes. Third, despite robust individual literatures on fair value accounting, earnings management, and corporate governance, there is a significant gap when it comes to jointly investigating these topics. There is limited research investigating the fair value hierarchy as an alternative means to manage earnings and, to the best of my knowledge, none that consider the effect of corporate governance on the relationship between two competing forms of earnings management. The fourth chapter of this dissertation is, to the best of my knowledge, the first study to address this gap in the literature and to investigate the effect of corporate governance mechanisms on the relationship between alternative vehicles for earnings management in banks. Finally, this study adds to the corporate governance literature by responding to the call to investigate country-level and firm-level corporate governance mechanisms simultaneously when investigating an international sample of firms. This study is among the first to simultaneously investigate the interface between both firm-level and country-level corporate governance mechanisms and fair value accounting for an international sample of banks. Moreover, while the global financial crisis certainly represented an important period in which to study fair value accounting, periods of financial crises represent relative outliers in terms of economic times. Thus, investigating and judging fair value accounting only in terms of the recent global financial crisis is short sighted and potentially misleading. Only through investigating fair value accounting during typical economic times, in addition to periods of crisis, can the full picture of the relevance and reliability of fair value accounting truly begin to emerge.

The remainder of this dissertation proceeds as follows. Chapter 2 contains a brief review of the fair value accounting literature and is relevant to both studies contained within this dissertation. Chapter 3 develops hypotheses, presents methodologies, and discusses the results of

the study investigating the impact of firm- and country-level corporate governance mechanisms on the value relevance of the fair value hierarchy. Chapter 4 develops hypotheses, presents methodologies, and discusses the results of the study investigating the potential for the fair value hierarchy to be used as an alternative vehicle for earnings management, and the impact of firm- and country-level corporate governance on this usage. Finally, Chapter 5 presents the conclusion of this dissertation.

Chapter 2 - Literature Review

2.1 Fair Value Accounting

Fair value accounting (FVA), as defined by both the ASC 820 and IFRS 13, is "the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date" (IFRS Foundation, 2011). In attempts to improve the consistency and comparability of fair value information, a fair value hierarchy consisting of three different levels has been established. The placement of a particular financial statement item in a given level is determined by the inputs used in valuing the underlying asset or liability, with the instrument being fully classified into the level of the lowest level input that is significant to the valuation process (IFRS 13:76). In order to be classified as level 1, the valuation inputs need to be quoted prices in active markets for identical assets or liabilities. Items valued using level 1 inputs are considered to be the most reliable as management is not permitted to adjust the fair value, except in limited situations (IFRS 13:77). Moving down the fair value hierarchy, level 2 assets and liabilities are valued based on inputs other than quoted market prices, but that are observable for an asset or liability (IFRS 13:81). Oftentimes level 2 inputs will take the form of quoted prices for similar instruments in active markets or quoted prices for similar or identical assets in inactive markets. Level 2 inputs are often considered to be less reliable than level 1 inputs as there is an element of management discretion in determining the appropriate comparison or inputs to use (Kolev, 2019; Song et al., 2010). Finally, level 3 inputs are unobservable (IFRS 13:86). The fair values that are a product of level 3 inputs are generally considered to be the least reliable as they are based on model inputs and the models are determined by management and are often not disclosed to external users. Level 3 fair values are commonly referred to as mark-to-model values, but some have taken to referring to them as

mark-to-myth, which is an indication of how these values might be viewed by members external to the company (Buffett, 2003; Kolev, 2019; Magnan, Menini, & Parbonetti, 2015).

The timing of the implementation of SFAS 157 and IFRS 13 and the ensuing global financial crisis led to the inevitable linkage, and assumed causal link, between the two events. This created a significant debate in the academic literature about the role that fair value accounting may or may not have played in the global financial crisis (Laeven & Levine, 2009). Critics of fair value accounting argued that it was not only a significant contributing factor to the financial crisis itself, but that it also further exacerbated the severity of the crisis (Bhat & Ryan, 2015; de Jager, 2014; Georgiou, 2018; McDonough & Shakespeare, 2015). Proponents of fair value accounting, on the other hand, suggest that it merely delivered the news of the underlying instability that was hidden under historical cost accounting (Linsmeier, 2011; Magnan, 2009). The role that fair value accounting ultimately played in the financial crisis is likely to fall somewhere between these two extreme and opposing viewpoints (Badertscher et al., 2012; Laux & Leuz, 2009; Véron, 2008). What is important to recognize is that calls for the complete return to historical cost accounting are premature and that further changes to the accounting system may not be the most appropriate way to deal with these issues (Laux & Leuz, 2009). Much of the recent research that has been performed on fair value accounting has centered on samples around the period of the global financial crisis. This was largely out of necessity due to data availability as a result of the close proximity of the crisis to the implementation of expanded disclosures surrounding fair value. Now that the global financial crisis has passed, it is important to further investigate fair value accounting, especially its relevance and reliability in a post-crisis period. Investigating the post-crisis period is essential to gain a better understanding of the behaviour of fair value accounting in periods of economic normalcy. Combined with research performed on

fair value accounting surrounding the global financial crisis, this body of research will provide for a better understanding of the benefits and drawbacks of the standards as they currently are.

The debate on the relevance and reliability of fair value accounting, and its potential role in the global financial crisis, has been the foundation on which much of the recent fair value accounting literature has been built. Using this foundation as a starting point, I identified two specific areas for which there are still significant gaps in our knowledge. Specifically, there are gaps in the literature surrounding the value relevance of fair value accounting and in the literature on its potential to be used as an alternative form of earnings management. These gaps are particularly prevalent for international samples and for the post-global financial crisis period. Moreover, within the limited literature that is available on these topics, the important role of firm- and/or country-level governance is often omitted. This dissertation builds upon this foundation and attempts to fill both of these gaps in our knowledge.

Chapter 3 – Value Relevance of the Fair Value Accounting Hierarchy and the Impact of Firm- and Country-Level Corporate Governance Mechanisms

3.1 Introduction

In this chapter, I analyze the value relevance of the fair value accounting hierarchy and both the individual and joint impact that firm- and country-level corporate governance mechanisms have on the value relevance of fair value information. Even though there is significant debate in the academic literature about the reliability of fair value accounting estimates, research investigating methods by which these estimates can be improved is sparse. This study builds on the limited research available to improve our understanding of the relationship between corporate governance and fair value accounting. Specifically, this study builds on and extends research conducted by Song et al. (2010), Siekkinen (2016, 2017), and Mechelli and Cimini (2018). I extend this research by investigating an international sample of banks for a seven year period following the global financial crisis, and by simultaneously investigating the impact of firm- and country-level governance on the value relevance of the fair value hierarchy. Contrary to prior research, I find that level 3 fair value estimates are not value relevant without considering the impact of corporate governance. Moreover, I find that firm- and country-level governance act as substitutes for one another in the context of determining the value relevance of the fair value hierarchy.

This study contributes to the literature in several ways. First, it contributes to the fair value accounting literature and provides evidence on how investors view the fair value hierarchy during periods of economic normalcy, as opposed to periods of financial crises. It is necessary to conduct research during both periods to gain a complete understanding of the benefits and drawbacks of fair value accounting. Moreover, studying the value relevance over time provides

more information about the value relevance of the fair value hierarchy than is gained by studying it for a snapshot in time such as Song et al. (2010) or Siekkinen (2017) who use a sample covering three quarters of a single year, and only two years, respectively.

Second, this study contributes to the corporate governance literature by investigating the ability of firm- and country-level governance mechanisms to improve the value relevance of the fair value estimates for a sample of international banks. Moreover, this study is among the first to simultaneously investigate the joint effect of firm- and country-level governance on the value relevance of the fair value hierarchy and, to the best of my knowledge, is the first to do so within a single regression specification.

Finally, this study has practical implications for standard setters, regulators, and boards of directors. This study highlights concerns surrounding the decision usefulness of level 3 fair values and inconsistent disclosure practices that, contrary to the intentions of the standard setters, appears to lead to less transparency and comparability of the fair value hierarchy. Regulators will be interested in the finding that focusing on enacting quality, thoughtful regulations can help to improve the value relevance of the fair value estimates provided by firms within their country. Boards of directors will be interested in the finding that firm- and country-level governance mechanisms, within the context of value relevance, act as substitutes for one another. Thus, boards of directors for firms in countries with low country-level governance can enact stronger firm-level governance mechanisms to increase the transparency of the fair value hierarchy, thereby enriching the information environment of a firm and leading to a lower cost of capital.

The remainder of this chapter proceeds as follows. Section 3.2 reviews relevant literature on corporate governance and the interface between corporate governance and fair value accounting. Section 3.3 develops the hypotheses and section 3.4 presents the sample and model

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used to test the hypotheses. Section 3.5 presents the main results of the paper and section 3.6 details the robustness tests that have been performed. Finally, section 3.7 provides a discussion of the results and concludes the chapter.

3.2 Literature Review

3.2.1 Corporate Governance

One of the major concerns about fair value accounting is the lack of reliability of level 2 and especially level 3 estimates due to their potential for managerial bias and/or manipulation. The concern about level 2 and level 3 fair value estimates is compounded by information asymmetry and the agency problem. In light of this concern, corporate governance measures are an important mechanism by which these reliability concerns can be mitigated. The importance of corporate governance mechanisms in mitigating the principal-agent problem is well documented in the literature (Armstrong, Guay, & Weber, 2010). Moreover, corporate governance attributes have been shown to enhance monitoring over financial reporting (Lin & Hwang, 2010). In keeping with Zingales (1998), I define firm-level corporate governance as a set of mechanisms used by shareholders to ensure the efficient use of corporate resources by the managers of the firm. While similar to other companies in many respects, financial institutions are unique in many ways, which presents additional corporate governance challenges. Financial institutions tend to be much more complex and suffer a greater level of opaqueness when compared to other industries (Adams & Mehran, 2012; Macey & O'Hara, 2003; Prowse, 1997). The complexities of financial institutions make it difficult for stakeholders to monitor the bank, thus exacerbating the governance problem (de Andres & Vallelado, 2008).

In addition to differences in governance issues at the firm level, financial institutions draw a disproportionate amount of interest by governments because of the importance of the relationship between the performance of financial institutions and the overall health of a country's economy (Adams & Mehran, 2003; Levine, 2004). Due to this relationship, banks are subject to much greater regulation and government intervention than is typical of other industries (Adams & Mehran, 2003; de Andres & Vallelado, 2008; Levine, 2004). While regulations can have implications at the level of the individual bank, they are applied at the industry level and can be expected to differ between, but not within, countries (Barth, 2007). Moreover, extant research has found that regulatory oversight can act as a monitoring mechanism that can partially substitute the external audit (Boo & Sharma, 2008). Thus, in the context of financial institutions, the regulations associated with this industry can act as a measure of country-level corporate governance (Boo & Sharma, 2008; de Andres & Vallelado, 2008).

While regulations are especially important to consider when investigating the financial industry from an international perspective, research has identified the importance of additional country-level factors in corporate governance (Doidge, Karolyi, & Stulz, 2007). Previous studies have used a range of proxies to investigate differences in country and institutional settings. Some of the most common proxies used as a measure of country-level governance are the origin and attributes of the legal system, specifically those items that proxy for investor protection i.e. judicial efficiency, rule of law, and corruption (Brown, Preiato, & Tarca, 2014; La Porta, Lopez-de-Silanes, Shleifer, & Vishny, 1998). Building on this early research, studies then began to distinguish between public (state funded securities regulators) enforcement and private enforcement measures (Jackson & Roe, 2009; La Porta, Lopez-De-Silanes, & Shleifer, 2006). Still further research investigated enforcement activity designed to promote compliance with

accounting standards (Christensen, Hail, & Leuz, 2013; Hitz, Ernstberger, & Stich, 2012; Preiato, Brown, & Tarca, 2013).

Recently, studies use an index created by Kaufmann, Kraay, and Mastruzzi (2011) designed to capture country-level governance. This index is created using hundreds of individual items that are factor analyzed and reduced to six key factors. These six factors are then typically reduced to a single variable through a simple average. Beltratti and Stulz (2012) utilize the Kaufmann et al. (2011) index and find that the "institutions" of a country are significantly and positively associated with the buy and hold returns during the period July 2007 to December 2008. Erkens, Hung, & Matos (2012) also use the Kaufmann et al. (2011) index as well as an index representing anti-director rights, which was developed by Spamann (2010), to investigate the relationship of country-level governance on firm performance. In contrast to Beltratti and Stulz (2012), Erkens et al. (2012) do not find a significant relationship between the measures of country-level governance and performance. Finally, Bonetti, Magnan, and Parbonetti (2016) use the Kaufmann et al. (2011) measure to investigate the interplay between firm-level governance and country-level governance in shaping financial reporting quality for a sample of European firms around the adoption of IFRS. Their findings indicate that firm-level and country-level governance mechanisms act as substitutes when the legal system in a country is lax, but act as complements when the legal system is strong. Overall, this research highlights the importance of considering both firm-level and country-level corporate governance mechanisms when investigating an international sample.

3.2.2 Intersection of Fair Value Accounting and Corporate Governance

Even though many of the concerns surrounding fair value accounting could seemingly be addressed by strong corporate governance mechanisms, the literature investigating the

intersections of these two areas is limited. Although this paper's focus is not on the financial crisis, much of the recent research on banking has been shaped by this event. The research that has subsequently emerged has primarily focused on either corporate governance or fair value accounting, but rarely focuses on these two topics simultaneously. Song et al (2010) stands in stark contrast to the bulk of the recent literature focusing on financial institutions in that they investigate the impact that corporate governance mechanisms had on value relevance of fair value accounting during the financial crisis. Song et al. (2010) recognize that information asymmetry is at the heart of questions about the relevance and reliability of fair value accounting (Riedl & Serafeim, 2011), and that corporate governance mechanisms can be used to increase the richness and quality of the information environment of a firm (Verriest, Gaeremynck, & Thornton, 2013). Using a sample of U.S. financial institutions, the initial results show that the information provided by the fair value hierarchy outlined in SFAS 157 is value relevant and considered to be reliable enough to be incorporated into share prices. Furthermore, the results show that the coefficient on level 3 assets (liabilities) is significantly less positive (more negative) than the coefficient on level 1 and level 2 assets (liabilities). The introduction of the governance mechanisms to the study shows that governance has a significant impact on level 2 and level 3 fair values.

In a similar vein to Song et al. (2010), Kolev (2019) also investigates the association between stock price and the fair value hierarchy, with a particular interest on level 2 and level 3 fair values. Using a large sample of U.S. financial institutions, the results show that, similar to Song et al. (2010), there is a positive association between share price and the fair value hierarchy estimates. Moreover, Kolev (2019) documents results that are suggestive of investors placing less weight on mark-to-model estimates relative to mark-to-market estimates. Finally, Kolev

(2019) finds that investors perceive mark-to-model estimates to be more reliable for firms with: high equity capital, more than one financial expert on the audit committee, and for when the estimates are obtained from an independent third party. That is, when management either has less ability to influence the reported fair values, or for instances when their incentives are more closely aligned with the shareholders, investors perceive the reported model based fair values to be comparatively more reliable.

Bhat (2013) investigates the relationship between disclosures about risk management, corporate governance, and the market pricing of fair value gains and losses. In contrast to the previous studies mentioned, this one investigates the relevance and reliability of the reported fair value accounting gains and losses rather than the specific amount of fair values reported. Using data on U.S. banks from both a pre- and during crisis period, the results show that the market price of fair value gains and losses increases as the level of risk management disclosure increases. Moreover, the results show that strong corporate governance is associated with increased risk management disclosure, which in turn results in market participants finding the fair value gains and losses to be more relevant and reliable. Overall, this paper links the importance of corporate governance to fair value accounting in a similar vein as Song et al. (2010) and Kolev (2019).

More recently, three papers focus on the post crisis period. Siekkinen (2016) investigates the impact of different investor protection environments on the value relevance of fair values. Using an international sample of banks from 2012 – 2014, the results suggest that firms from countries with stronger investor protection environments disclose more value relevant fair value estimates. Siekkinen (2017) investigates the impact of individual board characteristics on the value relevance of fair values for a sample of international banks. Using data from 2012 and

2013, Siekkinen (2017) finds mixed results on the effect of individual board characteristics on the value relevance of fair values. More specifically, this study finds that board independence, gender diversity, and board size have a significant effect on the value relevance of level 3 assets only. However, the frequency of audit committee meetings has a marginal effect on level 1 assets only and the presence of a risk committee has a significant positive effect on level 2 assets, but a significant negative effect on the value relevance of level 1 assets. Finally, Mechelli and Cimini (2018) is, to my knowledge, the first paper to investigate the joint effect of firm- and country-level governance on the value relevance of fair value estimates. Using a sample of 91 international banks over the period 2011 – 2015, and running independent regressions on four sample clusters, results show that the country-level legal system affects both the value relevance of fair value estimates and the effectiveness of firm-level corporate governance mechanisms in alleviating concerns surrounding fair value estimates.[1]

3.3 Hypothesis Development

In setting the standards surrounding FVA, both the FASB and IASB have explicitly considered the trade-off between relevance and reliability (Landsman, 2007). Fair value accounting information is considered to be relevant if the information provided in the FVA disclosures is found to be incrementally useful, over recognized book values, to users of financial statements. In order to test this incremental usefulness, academics typically investigate whether FVA is incrementally associated with either share prices or returns (Landsman, 2007). The relevance of fair value accounting has been studied fairly extensively within the academic literature, in both the context of the United States and internationally, and some general

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[1] The four sample clusters represent the combinations of high/low quality governance and high/low quality legal system, split at the median. Cluster sizes range from 104 firm-year observations (approximately 20 firms) to 123 firm-year observations (approximately 25 firms).

conclusions have been reached. Prior to the introduction of the fair value hierarchy, the literature has found that FVA information is incrementally useful over recognized book values, and is thus considered to be value relevant to users of financial statements (Barth, 1994; Barth, Beaver, & Landsman, 1996; Barth & Clinch, 1998; Eccher, Ramesh, & Thiagarajan, 1996; Venkatachalam, 1996).

Since the introduction of the fair value hierarchy, a few studies have investigated the value relevance of each level of the hierarchy. The results from this literature, while performed primarily on U.S. financial institutions, is consistent with prior research in that the additional information provided by separating fair values into different levels is considered to be value relevant to investors. Specifically, Song et al. (2010) and Kolev (2019), both using a sample of U.S. financial institutions from 2008, find that each of the fair value estimates provided by the fair value hierarchy are significantly associated with the firms' share price. Similarly, Liao, Kang, Morris, & Tang (2013), find that changes in fair value assets, as reported under the fair value hierarchy, are significantly associated with changes in the bid-ask spread when it is rising, but not when it is falling. They conclude that the fair value hierarchy offers additional information to investors (Magnan et al., 2015). Thus, my first hypothesis is:

H1a: The fair value estimates, as defined by the fair value hierarchy, are value relevant to investors

While it is hard to argue that fair value accounting information is less relevant than historical cost accounting, from either a conceptual or an empirical point of view, arguments against the reliability of FVA are easier to come by. Indeed, Watts (2003, p. 219) suggests that standard-setters need to focus on the core competence of accountants, which is "providing

verifiable conservative information that market participants can use both as inputs in their own valuation and as calibration for their own and others' unverifiable information". Ramanna and Watts (2012) provide further arguments for the unverifiable nature of FVA with respect to the magnitude of goodwill impairments. Fair value accounting, with its three-level approach, and the ability to mark-to-model, does lead to more opportunities, relative to historical cost accounting, for managerial discretion as the model inputs are unable to be verified (Kolev, 2019; Ramanna & Watts, 2012).

The reliability concerns surrounding the fair value hierarchy appear to have some support within the literature. Specifically, both Song et al. (2010) and Kolev (2019), while finding that each of the fair value level estimates are value relevant, document a decrease in the coefficient values further away from their theoretical value of one. Thus, while still deemed value relevant by investors, it would appear as though investors place less weight on fair value estimates that are the result of managerial models (level 3) compared to the weight placed on estimates that are the result of market values (level 1). This finding is consistent with the notion that investors are concerned that management, due to the information asymmetry between managers and owners, might have a bias or be acting opportunistically in the calculation of the level 3 estimate. Liao et al. (2013) directly test the impact of the fair value hierarchy on information asymmetry during the financial crisis. Their results find a positive relationship between the fair value hierarchy and the bid-ask spread. That is, the bid-ask spread is the lowest for level 1 fair value estimates and highest for level 3 fair value estimates.

On the surface, the reliability concerns appear to be well founded. However, Altamuro and Zhang (2013) highlight an inherent flaw in the fair value hierarchy. The hierarchy implies, and was indeed written with the intention, that recording an asset at a higher numerical level (i.e.

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at level 3 instead of level 2) is worse than if it were recorded at a lower numerical level. That is, the natural assumption is that an asset recorded at level 2 is *necessarily* better and more reliable than an asset recorded at level 3. Using an admittedly specialized asset, Altamuro and Zhang (2013) empirically present a scenario that demonstrates level 3 mortgage servicing rights better reflect the cash flow and risk factors of the underlying asset than level 2 mortgage servicing rights. Moreover, their study shows that, because of the assumption the level 2 estimates are necessarily better than level 3 estimates, 25% of their sample firms actually record this highly specialized asset that, for all intents and purposes, *should* be recorded as a level 3 asset, as a level 2 asset. Thus, rather than using level 3 estimates opportunistically, managers can also use this estimate as a signalling device to convey private information to investors.

Goh et al. (2015) investigate a sample of U.S. financial institutions for a period covering the financial crisis and the early years of the recovery. The pattern of results are consistent with those in Song et al. (2010) in finding that investors more heavily discount level 3 fair value estimates. However, Goh et al. (2015) are able to investigate this relationship over time and they find that, as market conditions began to stabilize, so did the value that investors placed on level 3 fair value estimates, such that by 2011, the value investors placed on the different levels of the fair value hierarchy were not statistically different from one another. In keeping with this finding, Siekkinen (2017) investigates a sample of international financial institutions for the years 2012 and 2013 and documents that, while all three levels of the hierarchy are value relevant, they were not statistically different from one another.

The research on the reliability of the fair value hierarchy is still rather limited in both volume and in scope. Both Song et al. (2010) and Kolev (2019) focus strictly on a sample of U.S. banks and is exclusively during the global financial crisis. Liao et al. (2013) and Goh et al.

(2015) also focus on a sample of U.S. banks with their samples encompassing the financial crisis and extending into the early stages of recovery. Finally, Siekkinen (2017) is the first paper to consider an international sample. Siekkinen (2017) documents a pattern of results that is consistent with Goh et al. (2015), but for which the coefficients on the fair value hierarchy differ significantly from the theoretically predicted value of 1 (Song et al., 2010). It is clear from the conflicting evidence that additional research is necessary to understand the value relevance of the fair value hierarchy. Thus, I hypothesize:

H1b: The value relevance of each level of the fair value hierarchy is contingent on its

perceived reliability

Level 3 and, to a lesser extent level 2, fair value estimates are susceptible to managerial influence by their very definition. These estimates require the judgement and expertise of managers, which raises moral hazard concerns (Kothari, Ramanna, & Skinner, 2010). The judgements made by managers can be used to signal their private information to investors or managers could use their informational advantage over investors by acting opportunistically. Even still, managers could unintentionally impart their own bias into the estimates. Extant literature has found that firm-level corporate governance mechanisms are essential to align the interests of managers with those of the shareholders in an effort to minimize moral hazard concerns. One of the reasons that moral hazard arises is due to information asymmetry. That is, the manager has more information than the shareholders have and has the ability to provide misleading information to the shareholder as a result of having a richer information environment. Verriest et al. (2013) find that firms with stronger corporate governance disclose more, and better quality, information to shareholders and use IAS 39's carve-out provision less opportunistically. Disclosing more and better quality information to shareholders ultimately increases the richness

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of the information environment for investors, which can result in fewer concerns surrounding more opaque assets. Riedl and Serafeim (2011) examine a sample of U.S. financial institutions and find evidence consistent with the notion that more level 3 financial assets (more opaque) are associated with an increased cost of capital, but that differences in the information environment is an important factor that can mitigate this information risk.

Song et al. (2010) investigate the effect of corporate governance on the value relevance of the fair value hierarchy and find evidence consistent with the notion that stronger corporate governance is associated with higher value relevance of level 3 fair values. The major caveat to this finding is that the sample investigated U.S. banks during the period of the financial crisis. Laux and Leuz (2010) find evidence that transfers of assets to level 3 increased significantly as the crisis deepened. Thus, it is unclear if the relationship between corporate governance and more opaque fair value estimates is an ongoing concern, or if it is an artifact of the time period and distressed markets. Concerns surrounding the persistence of the influence of corporate governance mechanisms on fair value estimates subject to managerial input are exacerbated by the findings in Goh et al. (2015) and Siekkinen (2017). Without investigating the impact of corporate governance mechanisms, Goh et al. (2015) find that the pricing of the different fair value levels began to stabilize over time. Siekkinen (2017) finds inconsistent evidence for the impact of corporate governance mechanisms on the fair value hierarchy. Testing five different corporate governance mechanisms independently resulted in the predicted effect on level 3 estimates under three of the five scenarios, the predicted effect on level 2 estimates under only one of the five scenarios, and the opposite effect on level 1 estimates in one of the five scenarios (Siekkinen, 2017). The role that firm level corporate governance mechanisms plays in the pricing of fair value estimates remains an empirical question. Thus, my second hypothesis is:

H2: Stronger firm-level corporate governance mechanisms has a positive impact on the

value relevance of level 2 and level 3 fair value estimates, with a greater impact on level

3 estimates

Institutions do not operate in a vacuum. In addition to their responsibilities to

shareholders and other stakeholders, institutions are subject to the laws and regulations of the

country in which they operate. The seminal work by La Porta et al. (1998) highlights the

importance of the legal environment of a country in situations where managers might act in their

own interest rather than the interests of the shareholders. Countries with a strong legal

environment provides shareholders with the means and power to protect their investment from

managerial opportunism. Moreover, managers operating firms in a country with a strong legal

environment have additional incentives, beyond firm-level corporate governance mechanisms, to

act in a manner consistent with the interests of the shareholders. Research has strongly supported

the view that stronger legal environments and stronger investor protection regimes is important

for financial markets, has a negative effect on earnings management, a positive effect on

earnings quality, and is a determinant of high quality financial statement numbers (Ball, Kothari,

& Robin, 2000; Ball, Robin, & Wu, 2003; Cai, Rahman, & Courtenay, 2014; Daske, Hail, Leuz,

& Verdi, 2008; Francis & Wang, 2008; Hope, Jin, & Kang, 2006; La Porta et al., 2006, 2000,

1998; Leuz, Nanda, & Wysocki, 2003).

Despite the concerns surrounding potential managerial manipulation of fair value

estimates, and the documented importance of country-level governance in curbing managerial

opportunism, research investigating the impact of country-level governance on the value

relevance of fair value estimates is almost non-existent. Siekkinen (2016) and Mechelli and

Cimini (2018) are, to the best of my knowledge, the only studies that investigate this impact to

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date. Splitting a sample of international banks from 2012-2014 into three clusters based on strong, medium, and weak country-level governance, Siekkinen (2016) finds that all levels of the fair value hierarchy are value relevant under the strong and medium investor protection regimes, whereas only level 1 fair value estimates are value relevant in a weak investor protection environment. Interestingly, in the strong investor protection environment, the value relevance of level 2 estimates is greater than both level 1 and level 3 estimates, which are not significantly different from one another. In the medium protection environment, level 1 and level 2 estimates are not significantly different from one another, but both are greater than the level 3 estimate. Unfortunately, the results presented in Siekkinen (2016) do not make it possible to compare the coefficients across regression specifications. It appears as though the results are generally consistent with the notion that investor protection is positively associated with the value relevance of fair values, the medium protection environment appears to provide results most closely aligned with expectations. That is, the value relevance of level 2 and level 3 fair value estimates appears to be highest under the medium protection environment, rather than the strong protection environment. Similar to Siekkinen (2016), Mechelli and Cimini (2018) split a small sample of international banks from 2011 – 2015 into two clusters based on high- and low-quality legal system. Mechelli and Cimini (2018) find that level 1 and level 2 assets are positive and significant under the high-quality legal system, but only level 1 fair values are significant under the low-quality legal system. Thus, I formulate my third hypothesis as follows:

H3: Stronger country-level governance mechanisms will have a positive impact on fair value estimates, with the greatest effect being on level 3 estimates

The literature demonstrating the importance of both firm- and country-level governance is robust, but despite this, these topics are often investigated independently of one another

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(Bebchuk & Weisbach, 2010). Recently the literature has begun to close this gap by recognizing the importance of simultaneously investigating firm- and country-level governance (Bebchuk & Hamdani, 2009). Doidge et al. (2007) find evidence that firm- and country-level governance mechanism act as complements to one another. Conversely, Durnev & Kim (2005) find that firm-level governance can substitute for country-level governance when the latter is weak. Similarly, Ernstberger and Grüning (2013) also find that firm- and country-level governance mechanisms can act as substitutes for one another. Chen, Chen, and Wei (2009) and Bruno and Claessens (2010) both document that the positive effect of strong firm-level governance is greater in countries that have weak legal environments. Bonetti et al. (2016) helps to bridge the gap in the conflicting research with their finding that firm-level governance acts as a substitute for country-level governance when enforcement is weak, but complements country-level governance when enforcement is strong. Finally, Mechelli and Cimini (2018) partition a sample of international banks into four clusters representing the combinations of high and low firm-level and country-level governance. In their study, level 3 assets are only positive and significant when both firm- and country-level governance is high, which suggest a complementary effect when governance is high. Furthermore, the result that level 2 assets are positive and significant when firm-level governance is high (low) and country-level governance is low (high), suggests a substitutive effect. Taken together, these results support the notion that studying the joint effect of firm- and country-level governance is important and necessary to gain a better understanding of the overall impact of governance. Thus, my fourth hypothesis, which I formulate as follows:

H4a: Firm-level governance mechanisms will complement strong country-level governance in impacting the value relevance of the fair value hierarchy.

H4b: Firm-level governance mechanisms will substitute weak country-level governance in impacting the value relevance of the fair value hierarchy

3.4 Data and Research Design

3.4.1 Sample Selection

In order to maximize the power of my value relevance tests, I focus on the financial services industry as these firms have significant levels of assets and liabilities reported at fair value on a recurring basis (Song et al., 2010). I identified my sample of firms first using the screener tool provided by the SNL Financial "Companies" database. From this database, I obtained a list of all Banking and Specialty Finance companies covered by SNL Financial for Canada and Europe, regardless of the coverage level.[2] During the course of my sample collection, S&P Capital IQ Market Intelligence platform subsumed the SNL Financial database. As part of this process, the SNL Financial database remained intact and was accessed through the "Companies" database as above. However, the merger provided access to previously unavailable information through the "Companies (Beta)" database, available through the same screener tool. This database provided access to the original SNL Financial database information as well as access to information provided by S&P Capital IQ Fundamentals. As a result, the process of identifying my sample firms was repeated on this secondary database with the results of the two databases being combined and duplicates being removed. This provided the base number of observations in my sample.

The period covered by this study is 2011 – 2017 and this period was selected for two main reasons. First, as this study is covering an international sample of firms, and taking

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[2] SNL Financial covered firms at two different levels: Full Coverage and Summary Coverage. Firms that are covered at a summary level are still included in the initial stages as many of these companies have the required information available, albeit in a different database or through manual collection.

advantage of the fact that IFRS are used across Europe and in Canada, it is necessary to ensure that IFRS had been adopted in a given country. While the majority of Europe adopted IFRS in 2005, Canada did not adopt it until 2011, when it became the standard for most publicly accountable enterprises (IFRS Foundation, 2017). Second, the global financial crisis had ended by 2011 with countries well on the road to recovery. As a result, the time period of this study allows for an investigation of FVA during a period where global capital markets are not distressed.

The initial sample from the SNL Financial and S&P Capital IQ Fundamentals database consisted of 3241 firm-year observations from 46 countries. Of this sample, 968 observations were determined to be either missing, or have unreliable (as explained in Financial Variables section below), fair value information. However, of those 968 observations, 859 observations remained in the sample due to hand collection/verification. Of the initial sample, the share price four months after the fiscal year end was missing for 626 observations. Focusing on firms that had strictly incomplete share price information, 70 observations were hand collected. Finally, complete firm-level governance information was missing for 2,557 observations of the initial sample. Again, focusing on firms that had incomplete information, 388 observations were hand collected. In order to exclude as few observations as possible, relevant portions of non-English annual reports were translated into English for hand collected observations.

Table 1, Panel A details the sample selection process. From the initial sample of 3,241 firm-year observations, after hand collection, 556 observations were removed due to the lack of share price information four months after the fiscal year end, 689 observations were dropped due to a lack of information on the fair value hierarchy, and 1,064 observations were removed because of a lack of firm-level corporate governance data. Firms with a share price less than

$0.10 USD or greater than $1,000 USD, representing 35 observations, were also removed from the sample. The extreme nature of share prices outside these ranges, relative to the minimum absolute share price change, could introduce noise to the value relevance equation (Siekkinen, 2017). Finally, in order to avoid the effect of extreme outliers, 27 observations with studentized residuals from Equation (1) greater (less) than two standard deviations above (below) the mean were removed.[3] This procedure resulted in a final sample of 870 firm-year observations across 29 countries available to test the hypotheses. See Table 1, Panel B for the distribution of observations by country and Table 1, Panel C for the distribution of observations by year.

[Insert Table 1 About Here]

3.4.2 Value Relevance Model

In order to investigate my research hypotheses, I use a modified Ohlson (1995) model to test the association between share prices and the fair value of assets and liabilities per share. This model has been used extensively in the literature (Barth & Clinch, 2009; Mechelli & Cimini, 2018; Siekkinen, 2017; Song et al., 2010; Tsalavoutas, André, & Evans, 2012) and evidence provided by Barth and Clinch (2009) demonstrates that share deflated specifications better reduce scale effects associated with the Ohlson (1995) model than do alternative specifications. The specification used to test H1a and H1b is as follows:

$$SP4_{i,t} = \beta_0 + \beta_1 BV_{i,t} + \beta_2 NI_{i,t} + \beta_3 FVA1_{i,t} + \beta_4 FVA2_{i,t} + \beta_5 FVA3_{i,t}$$
$$+\beta_6 FVL12_{i,t} + \beta_7 FVL3_{i,t} + \varepsilon_{i,t} \qquad\qquad (1)$$

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[3] Siekkinen (2017) and Song et al. (2010) classify outliers as observations whose studentized residuals have an absolute value greater than 2. Untabulated results using this definition resulted in the removal of an additional 110 observations from the current sample, but did not affect interpretation of the coefficients of interest.

where SP4 is the closing share price four months after the end of the fiscal year; BV is the per share book value of assets less liabilities that are not carried at fair value on a recurring basis; FVA1 is the fair value of assets disclosed in level 1 on a recurring basis; FVA2 is the fair value of assets disclosed in level 2 on a recurring basis; FVA3 is the fair value of assets disclosed in level 3 on a recurring basis; FVL12 is the fair value of liabilities disclosed in both level 1 and level 2 on a recurring basis; FVL3 is the fair value of liabilities disclosed in level 3 on a recurring basis; and NI is the net income available to common shareholders. All financial values in equation 1 have been deflated by the number of common shares outstanding. Fair value liabilities reported in level 1 and level 2 have been aggregated in keeping with prior studies (Mechelli & Cimini, 2018; Siekkinen, 2017; Song et al., 2010).

In order to test H2 and investigate the impact of firm-level corporate governance mechanisms on the value relevance of the fair value levels I use the following specification of the modified Ohlson (1995) model:[4]

$$SP4_{i,t} = \beta_0 + \beta_1 BV_{i,t} + \beta_2 NI_{i,t} + \beta_3 FVA1_{i,t} + \beta_4 FVA2_{i,t} + \beta_5 FVA3_{i,t}$$
$$+ \beta_6 FVA1_{i,t} * GOV_{i,t} + \beta_7 FVA2_{i,t} * GOV_{i,t} + \beta_8 FVA3_{i,t} * GOV_{i,t}$$
$$+ \beta_9 FVL12_{i,t} + \beta_{10} FVL3_{i,t} + \varepsilon_{i,t} \qquad (2)$$

Equation 2 is essentially equivalent to equation 1 except for the fair value asset levels being interacted with a dummy variable, GOV, representing firms with either high (1) or low (0) firm-level corporate governance.

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[4] It could be argued that the firm-level governance variable should be included in the model as in Siekkinen, 2017 and Song et al., 2010. Alternatively, as this is a valuation model, including the governance variable on its own implies a direct effect of corporate governance on the share price of a firm, rather than the effect of modifying the fair value assets. Untabulated results show that the interpretation of the coefficients of interest are not affected by the inclusion or exclusion of the firm-level governance variable on its own.

In order to test H3 and investigate the impact of country-level governance on the value relevance of the fair value levels, the following specification of the modified Ohlson (1995) model is used:

$$SP4_{i,t} = \beta_0 + \beta_1 BV_{i,t} + \beta_2 NI_{i,t} + \beta_3 FVA1_{i,t} + \beta_4 FVA2_{i,t} + \beta_5 FVA3_{i,t}$$
$$+\beta_6 FVA1_{i,t} * RULE_{i,t} + \beta_7 FVA2_{i,t} * RULE_{i,t} + \beta_8 FVA3_{i,t} * RULE_{i,t}$$
$$+\beta_9 FVL12_{i,t} + \beta_{10} FVL3_{i,t} + \varepsilon_{i,t} \qquad (3)$$

Equation 3 is equivalent to equation 2 except that the firm-level governance variable has been replaced by a country-level governance variable representing firms whose headquarters reside in a country with either high (1) or low (0) country-level governance.

In order to test H4a and H4b and investigate the interplay between firm- and country-level governance, I use the following specification of the modified Ohlson (1995) model:[5]

$$SP4_{i,t} = \beta_0 + \beta_1 BV_{i,t} + \beta_2 NI_{i,t} + \beta_3 FVA1_{i,t} + \beta_4 FVA2_{i,t} + \beta_5 FVA3_{i,t}$$
$$+\beta_6 FVA1_{i,t} * GOV_{i,t} + \beta_7 FVA2_{i,t} * GOV_{i,t} + \beta_8 FVA3_{i,t} * GOV_{i,t}$$
$$+\beta_9 FVA1_{i,t} * RULE_{i,t} + \beta_{10} FVA2_{i,t} * RULE_{i,t} + \beta_{11} FVA3_{i,t} * RULE_{i,t}$$
$$+\beta_{12} FVA1_{i,t} * GOV_{i,t} * RULE_{i,t} + \beta_{13} FVA2_{i,t} * GOV_{i,t} * RULE_{i,t}$$
$$+\beta_{14} FVA3_{i,t} * GOV_{i,t} * RULE_{i,t} + \beta_{15} FVL12_{i,t} + \beta_{16} FVL3_{i,t} + \varepsilon_{i,t} \qquad (4)$$

Equation (4) builds on Equation (2) and Equation (3) by including three-way interactions between the fair value asset levels and firm- and country-level governance mechanisms which will allow for the effects of firm- and country-level governance to be investigated simultaneously.

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[5] As with equation 2 and equation 3, untabulated results show that the inclusion or exclusion of standalone versions of either the firm- or country-level variables has no effect on the interpretation of the variables of interest.

3.4.3 Financial Variables

The financial data for the sample firms is collected from the SNL Financial database, the S&P Capital IQ Fundamentals database, and Bloomberg. As the various countries report in different currencies, data is obtained from SNL Financial and S&P Capital IQ in USD in order to maintain a common currency throughout. Data from Bloomberg is obtained in the reported currency and is manually converted to USD using the exchange rate provided by SNL Financial/S&P Capital IQ.[6] Since the data on total assets/liabilities, fair value level information, and net income is collected from three separate primary sources, it is necessary to prioritize the sources. For the fair value level data, this study is concerned with the fair value of assets and liabilities recorded at fair value on a recurring basis. This information is available, with consistency, in the SNL Financial database for "Full" coverage firms and in the Bloomberg database. SNL Financial data is given priority over Bloomberg data as SNL Financial is my primary source. The S&P Capital IQ database was useful in identifying companies for which additional fair value level information is available (i.e. firms SNL Financial covers at a "Summary" level). However, the fair value level information contained in this database is inconsistent and inaccurate for the purposes of this study. More specifically, IFRS 13, which became effective for annual periods beginning on or after January 1, 2013, implemented new fair value measurement and disclosure requirements that resulted in many companies disclosing the fair value hierarchy for assets and liabilities that are measured at fair value on a recurring or *non-recurring* basis (IFRS 13.91A). S&P Capital IQ Fundamentals reports the fair value level for the

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[6] While the difference in exchange rates between SNL Financial/S&P Capital and Bloomberg is minor, a common exchange rate is used to eliminate concerns of a difference in rates influencing the results.

sum of assets/liabilities measured at fair value on a recurring basis and non-recurring basis.[7] See Appendix 1 – 6 for different examples of the change in disclosure. There is no identifiable way to determine, from the database alone, if the firm reported the fair value hierarchy for assets/liabilities measured at amortized cost, thus the fair value hierarchy information from S&P Capital IQ for years 2013 – 2017 is not considered reliable for this study. However, the existence of hierarchical information in the S&P Capital IQ database is evidence that this information is readily available in the annual report of the firms in question. Thus, firms in my sample for which no hierarchical information is available through SNL Financial or Bloomberg, but is available from S&P Capital IQ, are identified and this information is manually collected from the annual reports.

Data on total assets, total liabilities, and net income, is not expected to differ among the three databases.[8] As a result, SNL Financial data was given priority, followed by S&P Capital IQ Fundamentals, and finally Bloomberg data was used if neither of the first two databases had the required information.[9] Total assets (total liabilities) are utilized for the sole purpose of calculating the value for non-fair value assets (non-fair value liabilities) and is calculated as total assets (total liabilities) less the sum of the fair value assets (liabilities) hierarchy. Non-fair value assets and non-fair value liabilities are used to calculate the book value of equity excluding assets and liabilities carried at fair value. The net income figure used was net income available to common shareholders.

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[7] The inclusion of this data, as is, would result in significant concerns surrounding the integrity of the data. Most of these assets were classified as Level 3 assets and would often result in a scenario where the fair value of assets exceeded the total value of assets reported on the balance sheet.

[8] The database values are compared to one another and no significant differences are found.

[9] S&P CapitalIQ Fundamentals is given priority over Bloomberg for these variables as this negated the requirement of manually incorporating the exchange rate to convert the values to USD.

The share price data is obtained, as above, from multiple databases. More specifically, the databases used, in order of priority given to the data, are SNL Financial, S&P Capital IQ, Compustat, and Bloomberg. SNL Financial, S&P Capital IQ, and Bloomberg all retroactively adjust their share price variables based on stock splits and reverse stock splits, but Compustat does not. However, Compustat does provide an adjustment factor to account for the retroactive effect of stock splits. The share price is the closing price four months after the fiscal year end, which is consistent with (Barth, Landsman, Young, & Zhuang, 2014; Siekkinen, 2017; Tsalavoutas et al., 2012), who use samples composed of European firms. These studies investigate alternative dates for share price and find that the closing share prices four months after the fiscal year end ensures that the accounting information for the previous fiscal year has entered the public domain.

The total number of common shares outstanding at the end of the fiscal year is used to deflate all financial variables in this study. As with the share price data above, I use multiple databases to obtain the common shares outstanding and maintain the same database priority. Bloomberg data is treated as the lowest priority as this data is presented in thousands of shares, as opposed to the full number of shares.[10] The adjustment factor provided by Compustat is incorporated into the data to ensure the effect of stock splits is taken into account. The retroactive adjustment of shares outstanding means that the number of shares outstanding used as a deflator is not necessarily the number of shares that were outstanding during a specific period. However, it does ensure that the number of shares outstanding is proportionally the same over time. Moreover, it also ensures that any changes in the number of shares outstanding are the

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[10] The common shares outstanding value provided by Bloomberg is manually adjusted for this difference. Although the effect of this is minor, it is less accurate than the alternative sources.

result of actual transactions (i.e. issuances/share buybacks) rather than artificially introduced changes.

3.4.4 Firm- and Country-level Corporate Governance Variables

The strength of firm-level governance is measured by combining five commonly used attributes of governance through factor analysis (Bonetti et al., 2016; Mechelli & Cimini, 2018; Siekkinen, 2017; Song et al., 2010). To the extent stronger performance on individual facets of corporate governance results in stronger firm-level governance as a whole, this method should better reflect the actual underlying strength of corporate governance than a single measure (Bonetti et al., 2016; Bushman, Chen, Engel, & Smith, 2004; DeFond, Hann, & Xuesong, 2005). The firm-level governance data is collected from Bloomberg and the Datastream Asset4 databases. The five governance attributes are: 1) board independence, measured as the number of independent directors divided by board size (INDEPENDENCE); 2) audit committee, represented as a dummy variable equal to one if the firm has an audit committee (AUDIT); 3) audit committee size (AC_SIZE); 4) audit committee independence, measured as the number of independent board members on the audit committee, divided by the size of the audit committee (AC_INDEPENDENCE); and 5) institutional ownership, represented as a dummy variable equal to one if the percentage of shares held by institutions is greater than 5% (INST_OWN).[11]

Table 2, Panel A provides descriptive statistics for the firm- and country-level governance attributes. I then apply a principal component factor analysis on the five firm-level variables (Bonetti et al., 2016; Song et al., 2010). The first and primary factor exhibits the expected loadings, generating an eigenvalue of 2.032 and accounting for approximately 40.63%

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[11] As in Bonetti et al. (2016), board size is not included in the governance factor score due to the mixed evidence on the effectiveness of board size on monitoring and the fact that board size is subjected to different national legislations

of the total variance in the original variables (Table 2, Panel B). The appropriateness of factor analysis was determined through a test of the intercorrelation between the governance variables. Using Bartlett's (1951) test of sphericity, the null hypothesis that the variables are not intercorrelated was rejected at the 1% level (p < 0.000). Based on Horn's (1965) parallel analysis, and a Monte Carlo extension by Glorfeld (1995) one factor was retained (Dinno, 2009). Descriptive statistics for the GOVSCORE variable generated by the factor analysis are reported in Table 2, Panel C. Finally, I take the firm-specific mean of GOVSCORE across the sample years and create a binary variable (GOV) based on the sample median of the firm-specific mean of GOVSCORE in order to create a time-invariant measure of the strength of firm-level corporate governance Bonetti et al. (2016).[12] Firms with a score above (below) the sample median of the firm-specific mean of GOVSCORE are considered to have strong (weak) firm-level corporate governance. Table 2, Panel D provides a breakdown of the sample firms by the strength of both firm-level and country-level governance mechanisms. Specifically, a binary variable (RULE) is created such that firms from countries with a rule of law score above (below) the sample mean are considered to have strong (weak) country-level governance.

[Insert Table 2 About Here]

3.5 Results

Table 3, Panel A reports the descriptive statistics for the financial variables used in the analyses. The mean book value (BV) of non-fair value assets is -30.782 USD, which is consistent with prior literature investigating the value relevance of fair values (Goh et al., 2015; Mechelli & Cimini, 2018; Siekkinen, 2017; Song et al., 2010). While the mean net income available to

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[12] As in Bonetti et al. (2016), this method does "not assume that board monitoring intensity does not vary over time. Instead [it] assumes that cross-sectional difference in board monitoring intensity across firms [does] not" (p. 1069)

common shareholders of -8.054 USD is skewed negative due to the presence of an extreme negative value, the median is 0.542 USD.[13] The mean of Levels 1, 2, and 3 fair value assets is 89.294, 117.214, and 18.04 USD, respectively. The mean of Levels 1 and 2, and Level 3 liabilities is 146.869 and 16.793 USD, respectively. Finally, the mean share price four months following the fiscal year end is 21.428 USD.

Table 3, Panel B reports the correlation coefficients for the financial variables used in the regression analyses. The correlations between the fair value asset levels are, as expected, positively associated with the share price four months after the fiscal year end. The fair value asset levels are positively associated with one another, indicating that firms that report higher values of level 1 assets, tend to report higher values for level 2 and level 3 assets. Finally, the correlation table offers preliminary evidence supporting the first hypothesis. Specifically, while all three levels of the fair value hierarchy are positively associated with share price, the correlation between level 3 fair value assets and share price is weaker than that of either level 1 or level 2 fair value assets and share price.

[Insert Table 3 About Here]

3.5.1 Multivariate Analyses

Table 4 reports the results from estimating Equation (1), which is used to test H1a and H1b. The results demonstrate mixed support for H1a, which is in contrast to prior literature (Goh et al., 2015; Mechelli & Cimini, 2018; Siekkinen, 2017; Song et al., 2010). As expected, the fair value of assets is positively associated, and the fair value of liabilities is negatively associated, with share prices. More specifically, while the coefficients for FVA1 and FVA2 are positive and

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[13] Untabulated results eliminating this observation from the sample does not change the interpretation.

significant (0.303, p < 0.000; 0.304, p < 0.000 respectively), the coefficient for FVA3 is positive, but not statistically significant (0.075, p < 0.146). Thus, hypothesis H1a is only partially supported as the results indicate that, while investors view the fair value of level 1 and level 2 assets to be value relevant, they do not view the fair value of level 3 assets to be value relevant. Table 4 also presents the results of F-tests used to test the hypothesis that the value relevance of the fair value asset levels is contingent on the perceived reliability. The results of the F-tests provide mixed support for H1b. The coefficient on FVA1 is not significantly larger than that of FVA2 (F = 0.00; p < 0.969), however, the difference between FVA2 and FVA3 is statistically significant (F = 32.66, p < 0.000). Moreover, the difference between FVA1 and FVA3 is also statistically significant (F = 77.77, p < 0.000).

[Insert Table 4 About Here]

The results testing the second hypothesis, estimating Equation (2), are presented in Table 5. The coefficients of interest in this table are the sum of the coefficient on the individual fair value level and its corresponding coefficient interacted with the GOV binary variable. Consistent with hypothesis 2 the sum of the fair value level coefficients and the interaction with GOV is positive and significant. For level 1 assets, the sum of coefficients β_3 (0.477) and β_6 (-0.107) is 0.370, which is positive and significant (F = 44.74; p < 0.000). The sum of coefficients for level 2 assets, β_4 (0.359) and β_7 (0.040) is 0.399, which is positive and significant (F = 50.35; p < 0.000). Finally, the sum of coefficients for level 3 assets, β_5 (0.219) and β_8 (0.056) is 0.275, which is positive and significant (F = 9.98; p < 0.002). These results suggest that considering firm-level governance when assessing the value relevance of fair value is particularly important for assets reported at level 3. Results for the first hypothesis showed that investors did not consider level 3 assets to be value relevant, but taking the firm-level governance into account

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results in level 3 assets being value relevant, thus supporting the second hypothesis. Moreover, comparing the summed coefficients across levels of the fair value hierarchy indicates no significant difference in the value relevance between level 1 and level 2 or between level 1 and level 3 assets. Level 2 assets are marginally greater than level 3 assets.

[Insert Table 5 About Here]

Table 6 reports the results from estimating Equation (3), which is used to test the third hypothesis. As with the test of hypothesis 2, the coefficients of interest are the sums of the fair value level and the corresponding interaction with the RULE binary variable. The results from this test supports the third hypothesis. For level 1 assets, the sum of coefficients β_3 (0.279) and β_6 (0.054) is 0.333, which is positive and significant (F = 68.99; p < 0.000). The sum of coefficients for level 2 assets, β_4 (0.383) and β_7 (-0.107) is 0.276, which is also positive and significant (F = 31.27; p < 0.000). Finally, the sum of coefficients for level 3 assets, β_5 (0.081) and β_8 (0.097) is 0.178, which is also statistically significant (F = 13.13; p < 0.000). The third hypothesis posits that the greatest effect of country-level governance on the fair value estimates will be seen on level 3 estimates. Comparing the results to Equation (1) shows significant improvement in the value relevance of level 3 assets. Specifically, taking into consideration a strong legal environment results in investors determining that level 3 estimates are value relevant, which is not the case when country-level governance is not considered. Overall, the results support the third hypothesis.

[Insert Table 6 About Here]

The results from estimating Equation (4) are presented in Table 7. The coefficients of interest in this table are the sum of the coefficient on the individual fair value level and all

corresponding interaction coefficients. For level 1 assets, the sum of coefficients β_3 (0.478), β_6 (-0.077), β_9 (0.046), and β_{12} (-0.052) is 0.395, which is positive and significant (F = 55.08; p < 0.000). The sum of coefficients for level 2 assets, β_4 (0.555), β_7 (-0.036), β_{10} (-0.169), and β_{13} (0.085) is 0.435, which is positive and significant (F = 3676; p < 0.000). Finally, the sum of coefficients for level 3 assets, β_5 (-0.393), β_8 (0.749), β_{11} (0.743), and β_{14} (-0.699) is 0.400, which is positive and significant (F = 9.96; p < 0.002). Moreover, comparing the summed coefficients across the fair value hierarchy indicates that no significant differences exist in the value relevance of level 1, level 2, or level 3 fair value assets. That is, strong firm-level and strong country-level governance mechanisms are necessary for investors to consider the value relevance of each level of the fair value hierarchy to be equivalent.

[Insert Table 7 About Here]

The significant negative coefficient on the three-way interaction term for level 3 assets provides support for H4b and suggests that firm- and country-level governance act as substitutes for one another when they are both considered to be high. Table 8 contains the results of testing the difference in summed coefficients for level 3 fair value assets when both firm- and country-level governance is high compared to when only one is high. When only firm-level governance is high, compared to both firm- and country-level governance, the relevant coefficients to test are β_8 and β_{14}. The sum of these coefficients is 0.050 and is not significantly different from zero (F = 0.28; p = 0.595). Similarly, when only country-level governance is high, compared to both firm- and country-level governance, the relevant coefficients to test are β_{11} and β_{14}. The sum of these coefficients is 0.044 and is not significantly different from zero (F = 0.01; p = 0.915). Thus, either strong firm- or country-level governance appears to be sufficient to ensure that level 3 fair value assets are value relevant and adding more governance does not improve the valuation.

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3.6 Additional Analyses

To assess the robustness of my main results, I re-estimate each model using alternative variable specifications. First, I use two different specifications for my dependent variable to ensure that my results are not a product of my selected time period, similar to Barth et al. (2014) and Siekkinen (2017). The current study incorporates firms from Canada, which report quarterly as opposed to half-year reporting for European firms. As a result of using the closing share price four months after the fiscal year end, it could be argued that a small subset of firms provide additional guidance that is not provided for the whole sample. Untabulated results redefining my dependent variable to be the closing share price three months after the fiscal year end provides results that are qualitatively similar to my primary results, with a few exceptions. When estimating Equation (1), I find that there is a significant difference between the coefficients on level 1 and level 2 fair value assets, but I do not find a significant difference between level 1 and level 3 or level 2 and level 3 fair value assets. Estimating Equation (2) results in no significant differences between the summed coefficients for level 2 and level 3 fair value assets. Estimating Equation (3) results in no significance on the summed coefficients for level 3 assets and no significant difference between the summed coefficients for level 2 and level 3 fair value assets. In all regression specification tests using the three month share price as the dependent variable, the standard error associated with level 3 assets is substantially higher than with the four month share price and the explanatory power of the model is more than 20% lower. Higher explanatory power using the four month share price is consistent with Barth et al. (2014).

An additional alternative specification for my dependent variable is to use the three month share price for Canadian firms and the four month share price for European firms.

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Untabulated results are identical to my main results with one minor difference. Specifically, the difference between the summed coefficients for level 1 and level 3 assets in Equation (2) is statistically significant at the 10% level (p = 0.0997 compared to p = 0.1099). The consistency of my main results, and the increased explanatory power, suggests that my results are not driven primarily by the time period of my dependent variable.

In addition to redefining my dependent variable, I also investigate two alternatives for my country-level governance variable. First, following Mechelli and Cimini (2018) I use principal component factor analysis to obtain a composite score of country-level governance, which I use to create a binary variable in the same manner as the main results. This score is comprised of all six dimensions of governance outlined in the Worldwide Governance Indicators project (Kaufmann et al., 2011). The six dimensions are: Voice and Accountability, Political Stability and Absence of Violence/Terrorism, Government Effectiveness, Regulatory Quality, Rule of Law, and Control of Corruption. Untabulated results are consistent with the main results with one minor difference. In Equation (4), there is a marginally significant difference between the summed coefficients for level 2 and level 3 assets, whereas this result is not significant in the main results.

Finally, instead of using a rule of law variable to measure country-level governance, I use the Financial Freedom attribute from the Index of Economic Freedom provided by The Heritage Foundation. The Financial Freedom attribute looks at banking efficiency, independence from government control, and the extent of regulations of financial services. As with the main results, a binary variable is created such that countries scoring above (below) the mean are considered to

have strong (weak) country-level governance.[14] Untabulated results using a country-level variable representing regulations instead of rule of law are consistent with the main results with one minor difference. As with the previous robustness test using a factor analysis for the Worldwide Governance Indicators, there is a marginally significant difference between the summed coefficients for level 2 and level 3 fair value assets when estimating Equation (4).

3.7 Discussion

This chapter investigates the value relevance of the fair value hierarchy, and the individual and joint effect of firm- and country-level corporate governance on this value relevance, for a sample of international financial institutions in the post global financial crisis period. I find results for the value relevance of level 1 and level 2 fair values this is consistent with prior literature, but results for the value relevance of level 3 assets that is inconsistent with prior research. Specifically, in the absence of any form of corporate governance, I do not find level 3 fair values to be independently value relevant. A goal of IFRS is to enhance comparability and quality of financial information through increased transparency and an IFRS 13 post implementation review, while noting some implementation challenges, concludes that the standard is working as intended (IFRS Foundation, 2018). However, the lack of significance for level 3 fair values, which are arguably the least transparent element of the fair value hierarchy, suggests this goal has not been met. The evidence provided in this study suggests that investors do not perceive level 3 fair values to be sufficiently reliable to include in their valuation of a firm.

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[14] The index is constructed such that a higher score represents less government intervention. Notably, while this is often associated with fewer regulations, the regulations that exist are typically related to enforcing contractual obligations and preventing fraud. Thus, a greater absolute number of regulations is not considered to be indicative of strong country-level governance. This is consistent with findings that suggest tighter restrictions on bank activities and stringent regulations have negative effects on bank efficiency and performance (Barth, Lin, Ma, Seade, & Song, 2013; Bruno & Claessens, 2010).

One notable element of IFRS 13 disclosures that appears to be problematic is that IFRS 13.97 requires banks to disclose the fair value hierarchy level for assets and liabilities that are not carried at fair value on a recurring basis, but for which fair value is otherwise disclosed (IAS Plus, 2011). The lack of standardization in disclosure practices results in a lack of clarity and comparability across companies. Appendix 1 provides an example of a subtle change in disclosure practices that resulted from IFRS 13. While it is stated, it is not immediately clear that the additional assets and liabilities disclosed at the bottom of the table in the 2014 annual report should not be viewed the same as the assets and liabilities presented at the top of the table. Additional examples in Appendix 2 – 6 provide alternative methods of presentation of the fair value hierarchy and the incorporation of IFRS 13. The small selection of alternative presentations provided in the appendix resulted in either errors or omissions from the databases used. As a result of the disclosure required under IFRS 13, information on the fair value hierarchy obtained from the S&P Capital IQ Fundamentals database included assets and liabilities carried at amortized cost, despite this not being disclosed by the database itself. The disclosure requirements, without standardization, resulted in numerous errors and misleading entries in the database, which compromised the integrity of the data and necessitated extreme levels of care, caution, and hand collection/verification. Rather than increase transparency, the disclosure requirements in IFRS 13 have arguably decreased it. This is compounded by the fact that many of the assets and liabilities carried at amortized cost, when classified into the fair value hierarchy, fall into the level 3 category. As a result, investors appear to be further discounting the reliability of level 3 fair values to the point that they are not considered to be independently value relevant.

This study also highlights the importance of corporate governance mechanisms when investigating the fair value hierarchy. At the firm-level, corporate governance mechanisms have a strong effect and result in minimal differences in the value relevance of the different fair value levels. There is only a marginally significant difference between level 2 and level 3 assets, and no statistical difference between level 1 and level 2 or level 1 and level 3 assets. Country-level governance also has a strong effect and again results in all levels of the fair value hierarchy being value relevant. However, the effect does not appear to be as strong as the results for firm-level governance as there are statistically significant differences in the value relevance between all levels, even after considering the effect of country-level governance. The joint effect of firm- and country-level governance also has a strong effect on the value relevance of the fair value hierarchy with all levels being statistically significant and with no statistical differences between the different levels of the hierarchy. Firms with strong firm-level and strong country-level governance enhance value relevance in a similar manner across levels. An additional test, however, finds that there does not appear to be any additional benefit to having both strong firm-level and strong country-level governance. That is, I find evidence that firm- and country-level governance act as substitutes for one another and investors view having either strong firm- or strong country-level governance to be sufficient to consider level 3 value relevant. This finding of firm- and country-level governance mechanisms acting as substitutes for one another supports results in Durnev and Kim (2005) and Ernstberger and Grüning (2013).

Overall, the results from this study should be of interest to standard setters, regulators, and boards of directors. From the perspective of standard setters, this study provides evidence that, despite the results of the post implementation review, there appear to be issues with the disclosures surrounding the fair value hierarchy. This finding is important as the goal of

increased transparency and comparability, which is particularly salient to level 3 fair values, does not appear to have been achieved. On the contrary, the lack of standardization in the disclosure practices appears to be exacerbating concerns surrounding level 3 fair values and additional clarifications in disclosure practices might be warranted to improve the decision usefulness of the fair value hierarchy.

The results testing country-level governance, and specifically the sensitivity analysis using the Financial Freedom variable, provide insights on the importance of regulations in the banking sector. Specifically, limited government interference in the banking process, but maintaining regulations focused on enforcing contractual obligations and preventing fraud, are important elements to improve the decision usefulness of reported fair value information. Furthermore, the finding that strong country-level governance mechanisms can act as a substitute for firm-level corporate governance provides regulators with incentives to enact thoughtful regulations and improve the regulatory environment in a country.

Finally, the results are of interest to boards of directors as they highlight the importance of firm-level governance in increasing the value relevance of fair values for their investors. Boards of directors for firms in countries with low country-level governance can take advantage of the substitutive nature of firm- and country-level governance to adopt strong firm-level corporate governance mechanisms. Strong firm-level governance leads to better and more informative disclosures, which enriches the information environment of a firm and leads to less concerns surrounding more opaque level 3 assets. The decreased concerns surrounding level 3 assets could lead to these firms having a lower cost of capital (Riedl & Serafeim, 2011).

Chapter 4 – The Fair Value Accounting Hierarchy as an Alternative Vehicle for Earnings Management and the Impact of Firm- and Country-Level Corporate Governance Mechanisms

4.1 Introduction

In this chapter, I test whether the proportion of assets held at level 2 and level 3 of the fair value hierarchy, which are susceptible to managerial bias and/or manipulation, has an impact on the earnings management behaviour of banks. Moreover, I also investigate the impact that firm- and country-level corporate governance mechanisms have on this relationship. Despite one of the main concerns about the implementation of fair value accounting being its vulnerability to significant managerial influence, there is a significant gap in the literature investigating the potential for the fair value hierarchy to be used as an alternative earnings management tool (Benston, 2008; Penman, 2007, Watts, 2003).

This study builds on the limited research available to improve our understanding of the potential role the fair value hierarchy plays in the earnings management behaviour of banks. Specifically, this study builds on and extends research conducted by Bratten, Causholli, and Myers (2017) and Xu (2019). I extend this research by separately investigating the two levels of the fair value hierarchy that are susceptible to managerial manipulation, and by investigating the ability of firm- and country-level corporate governance mechanisms to impact the relationship between two competing forms of earnings management. I find that the additional context provided by considering the effect of corporate governance mechanisms is necessary to reveal the relationship between the fair value hierarchy and the established practice of managing earnings through the loan loss provision. In the case of high governance, there is a negative association between the proportion of level 3 fair value assets and the discretionary component

of the loan loss provision, and this relationship is positive when governance is low. This relationship is consistent with managers believing that current governance mechanisms will be focused on curbing earnings management behaviour through the loan loss provision. As a result, managers appear to adjust their primary earnings management tool depending on the level of corporate governance. Moreover, results from additional analyses provide preliminary evidence to suggest that, in the context of earnings management, firm- and country-level governance mechanisms complement one another.

This study contributes to the literature in several ways. First, it contributes to the fair value accounting and earnings management literatures as it raises concerns that the fair value hierarchy appears to be a viable tool that managers can use to engage in earnings management. This result extends Bratten et al. (2017) by focusing on the fair value hierarchy, rather than a more general approach of measuring fair value exposure, and it extends Xu (2019) by investigating the individual levels of the hierarchy for which managers have the opportunity to manipulate the fair value estimates. Xu (2019) finds evidence for the combined proportion of level 2 and level 3 fair values having an impact on the level of discretionary loan loss provisions. However, the degree to which managers have the potential to manipulate these two levels varies considerably. The current study suggests that the source of the earnings management potential from the fair value hierarchy is primarily through level 3 fair values.

Second, this study contributes to the corporate governance literature by investigating the effect of firm- and country-level governance in the face of two alternative forms of earnings management. The results suggest that considering the effect of corporate governance is integral to understanding the relationship between competing forms of earnings management. Also, the results suggest that managers believe that current corporate governance techniques are more

concerned with earnings management through the loan loss provision and less focused on attempts to manage earnings through the fair value hierarchy. Moreover, this study is, to the best of my knowledge, the first to provide preliminary evidence on the joint effect of firm- and country-level governance mechanisms on the relationship between two alternative forms of earnings management.

Finally, this study has practical implications for standard setters and boards of directors. Standard setters should be concerned by the apparent use of the fair value hierarchy to engage in earnings management behaviour and that additional guidance and disclosures, especially pertaining to level 3 fair values, might be warranted. Boards of directors will be interested in the finding managers appear to use level 3 fair values to manage earnings specifically when corporate governance is high. Thus, this suggests that boards might need to expand their monitoring of managers to include the fair value hierarchy as a potential vehicle for earnings management.

The remainder of this chapter proceeds as follows. Section 4.2 reviews relevant literature on income smoothing, earnings management and fair value accounting, and corporate governance and earnings management in banks. Section 4.3 develops the hypotheses and section 4.4 presents the sample and model used to test the hypotheses. Section 4.5 presents the main results of the paper, section 4.6 presents an additional analysis, and section 4.7 details the robustness tests that have been performed. Finally, section 4.8 provides a discussion of the results and concludes the chapter.

4.2 Literature Review

4.2.1 Income smoothing in the Banking Industry

The literature investigating income smoothing in the banking industry has a robust and substantial history dating back several decades (Greenawalt & Sinkey, 1988; Ma, 1988; Scheiner, 1981). However, the uniqueness of financial institutions typically leads to their almost systematic exclusion as an industry group from the mainstream earnings management literature (Bushman & Williams, 2012). As a result, despite a substantial history, the income smoothing literature focusing on financial institutions is lacking relative to the broader earnings management literature. The number of bank failures towards the end of the 1970s led, justifiably, to regulators and academics alike paying significant attention to the quality of bank earnings (Ma, 1988). Similarly, the recent global financial crisis shone a spotlight back on the banking industry, which has led to a significant increase in research in recent years (Cohen, Cornett, Marcus, & Tehranian, 2014). Aside from research focusing on the financial crisis and/or fair value accounting, the banking industry also provides a setting in which significant contributions to the already robust earnings management literature can be made (Lobo, 2017).

Prior research in earnings management advances several reasons as to why managers prefer to manage, or smooth, their earnings (Collins, Shackelford, & Wahlen, 1995; Liu & Ryan, 2006). Smoother earnings have been associated with improved access to external financing, lower risk premiums, and increased compensation for managers (Barth, Landsman, & Wahlen, 1995; Ramanna & Watts, 2012; Watts & Zimmerman, 1978). The mechanism by which managers can smooth earnings is the discretion and flexibility afforded to them under accrual based accounting systems (Lobo, 2017). More specifically, the loan loss provision (LLP) is the largest and most salient accrual to financial institutions. As a result, the majority of prior

research focuses on this accrual, and often on the abnormal or discretionary element of this accrual, when evaluating the income smoothing of a bank (Beatty & Liao, 2014; Bhat, 1996; Bratten et al., 2017; Leventis, Dimitropoulos, & Anandarajan, 2011; Lobo, 2017; Ma, 1988). The LLP itself is a managerial estimate of the amount of loans that will be uncollectible in the future. The forward looking nature of this estimate relies on extensive judgement on the part of managers, which provides for ample opportunity for managerial discretion. As the LLP is an expense, management can use their discretion to overestimate (underestimate) this account, thereby decreasing (increasing) their income during particularly good (bad) periods of time (Lobo, 2017).

Prior research investigating the use of the LLP to smooth earnings provides mixed evidence, but is generally supportive of the income smoothing hypothesis. (Ma, 1988) provides some of the earliest evidence that U.S. commercial banks use the LLP as a mechanism to smooth earnings. Greenawalt and Sinkey (1988) use a large sample of bank holding companies after the period in which a judgemental approach to calculating the LLP was implemented and find evidence of income smoothing. Similarly, Bhat (1996) also investigates the use of the LLP to smooth the earnings of a large sample of banks and finds evidence consistent with this hypothesis. Kanagaretnam, Lobo, and Mathieu (2003) investigate alternative reasons for managers of banks to use the LLP to smooth earnings. More specifically, they document that concerns over their job security is a significant factor for managers when using the LLP to smooth earnings.

A considerable number of other studies also document the use of the LLP to manage earnings in banks (Beatty, Ke, & Petroni, 2002; Chang, Shen, & Fang, 2008; Fonseca & González, 2008; Liu & Ryan, 2006). For a more detailed review of the substantial existing

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earnings management literature on the banking industry, see reviews provided by Beatty and Liao (2014) and Lobo (2017). Although there is a substantial literature on earnings management and banking, there are some notable gaps in our current knowledge. More specifically, research investigating alternative earnings management tools is surprisingly limited, despite early identification that the use of one form of earnings management might depend on the use of another form (Beatty, Chamberlain, & Magliolo, 1995). The recent shift in accounting practices towards fair value, and the associated managerial discretion this shift provides, is potentially an alternative tool that managers can use to smooth earnings. A second area that is under researched is the effect that corporate governance mechanisms have on the earnings management behaviour of banks. I review the literature on the relationship of earnings management with fair value accounting and with corporate governance in the following two sections.

4.2.2 Earnings Management and Fair Value Accounting

The literature investigating the intersection of fair value accounting and earnings management is less developed relative to the broader earnings management literature. Despite significant room for discretion afforded to managers through the use of level 2 and level 3 fair value models, the earnings management literature in banks still focuses primarily on the loan loss provision. This is likely due to a large focus being placed on income smoothing, which can be performed through discretion over an expense account, but which is not directly smoothed via discretion over an asset account. However, Dechow, Myers, and Shakespeare (2010) investigate how managers value the retained interest from securitizations, which is an asset account. The accounting rules for securitizations afford managers significant discretion over elements such as discount rates, default rates, and prepayment rates (Dechow et al., 2010). They interpret the discretion provided by the accounting rules as providing managers with the means to influence

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the reported gains from securitization, thereby acting as a transaction-based earnings management tool.

Mazza, Hunton, and McEwen (2011) suggest that accounting for level 3 assets falls into a category that Nelson, Elliott, and Tarpley (2002) refer to as imprecise standards. Moreover, Nelson et al. (2002) find that managers tend to attempt earnings management more under these types of imprecise standards, which highlights the importance of investigating what role, if any, the fair value hierarchy plays in the earnings management of banks. More recently, Bratten et al. (2017) and Xu (2019) more directly investigate the role that fair value accounting plays in the earnings management of banks. Using a sample of U.S. banks from 2000 – 2008, Bratten et al. (2017) investigate the extent to which overall exposure to fair value influences the use of the LLP to manage earnings. They find that the overall fair value exposure of a bank is negatively associated with the discretionary component of the LLP and is positively associated with the extent that banks trade off LLP-based and transaction-based earnings management techniques (Bratten et al., 2017). Xu (2019) also uses a U.S. sample to investigate the extent to which fair values influence the use of the LLP to manage earnings. Using a sample from 2009 – 2016, Xu (2019) is the first study that I am aware of to investigate the effect of the fair value hierarchy as an alternative earnings management mechanism. Xu (2019) finds that banks reporting a larger combined value of level 2 and level 3 assets have a lower discretionary component of the LLP.

Taken together, the literature is starting to recognize the important role that fair value accounting has in acting as an alternative vehicle for earnings management. Understanding the extent of the role that fair value accounting plays in income smoothing is necessary to improve our overall understanding of the earnings management behaviour of banks. Moreover, understanding the different processes by which banks manage earnings is a necessary step to

evaluate the particular corporate governance mechanisms that will be effective in curbing this behaviour.

4.2.3 Corporate Governance and Earnings Management in Banks

As discussed in the previous chapter, there is a rich literature on the role of corporate governance in curbing managerial bias, opportunism, and, by extension, earnings management behaviour. There is also a robust literature investigating the earnings management behaviour of banks, with a focus being on the loan loss provision. Despite these two substantial literatures, there is not a significant amount of overlap between these two important research streams (Leventis & Dimitropoulos, 2012). This is further evidenced by the general lack of mention in recent review papers provided by Beatty and Liao (2014) and Lobo (2017). This is particularly notable in Beatty and Liao (2014) as there are substantial sections devoted to separately reviewing the earnings management and the corporate governance literatures as they relate to the banking industry.

Even though the intersection of corporate governance and earnings management in banking is not a focus of recent reviews, there are studies that have jointly investigated these two important topics. Fonseca and González (2008) look at an international sample of banks covering the period of 1995 – 2002 and determine that banks in countries with stronger investor protection have lower levels of income smoothing. Furthermore, they also find that the extent of accounting disclosures is negatively related to the level of income smoothing (Fonseca & González, 2008). Similarly, Kanagaretnam, Lim, and Lobo (2014) also use an international sample of banks and find that, in the pre and during crisis period, banks in countries with stronger legal, extra-legal, and political systems have higher earnings quality and lower reported LLPs. Investigating a sample of U.S. banks from 1994 – 2002, Cornett, McNutt, and Tehranian (2009) find evidence

that greater levels of board independence is negatively associated with earnings management behaviour. Leventis and Dimitropoulos (2012) investigate the effect of corporate governance on the earnings management behaviour for a sample of U.S. banks. Using an aggregate measure of corporate governance for a sample of banks over the period of 2003 – 2008, they find that banks with efficient corporate governance report fewer instances of small positive income, and engage in less aggressive earnings management practices than banks with weak governance (Leventis & Dimitropoulos, 2012). Finally, Miller, Minoiu, Wang, and Yang (2019) investigates the effect of institutional investors on the earnings management behaviour of banks. Using an international sample from 2001 – 2013, they find evidence that institutional ownership is negatively related to earnings management, and that this is especially true for banks in countries with weaker investor protection environments.

While not directly an element of corporate governance, Kanagaretnam, Krishnan, and Lobo, (2010) and Kanagaretnam, Lim, and Lobo (2010) investigate the role of the auditor in curbing earnings management behaviour. Investigating a sample of U.S. banks from 2000 – 2006, Kanagaretnam, Krishnan, et al. (2010) find that auditor independence, as proxied for by audit fees, is not related to earnings management for large banks, but that it is related to earnings management for small banks. Kanagaretnam, Lim, et al. (2010) investigate a sample of international banks and find that auditor type (Big 5 vs. non-Big 5) and auditor specialization help to curb earnings management behaviour. In further tests, it is determined that the results are primarily driven by the effect of auditor specialization (Kanagaretnam, Lim, et al., 2010). Similarly, Bratten et al. (2017) also find evidence that auditor industry specialization is associated with decreased LLP-based earnings management for a sample of U.S. banks.

Overall, both firm-level and country-level governance mechanisms appear to be effective in curbing the use of the LLP to smooth income. However, as mentioned in the previous section, the LLP is not the only method by which managers can engage in earnings management. I am not aware of any research in the banking literature that simultaneously investigates the effect of governance mechanisms in the face of an alternative form of earnings management. Addressing this gap in the literature is one of the main contributions of the current study.

4.3 Hypothesis Development

Within the academic literature, the focus on the LLP as one of the main sources of earnings management in banks is well deserved. One of the unique factors about the banking industry is the level of regulatory attention and scrutiny to which it is subjected (Adams & Mehran, 2003; Andres & Vallelado, 2008; Levine, 2004). Regulators are aware of, and have taken steps to intervene, in the use of the LLP to manage earnings (Bratten et al., 2017). The creation of the Federal Deposit Insurance Corporation Improvement Act of 1991 and the Sarbanes-Oxley Act of 2002 are two examples of interventions made in the banking industry with the intention of improving internal controls and financial reporting quality (Bratten et al., 2017). Additionally, the U.S. Securities and Exchange Commission and the Government Accountability Office have also raised concerns and/or directly intervened with respect to the LLP of banks (Bratten et al., 2017; Liu & Ryan, 2006).

Given the awareness and scrutiny of the LLP as an earnings management device, banks that still wish to smooth their income via this method are at a greater risk of enforcement actions. However, Beatty et al. (1995) find that the use of one form of earnings management in banks depends on the use, or availability, of another form. That is, because there is a substantial focus on the LLP as an earnings management tool, managers that are looking to smooth their income

might look to alternative earnings management tools available to them, in order to avoid additional scrutiny or potential enforcement actions. I argue that the discretion afforded to managers by level 2, and especially level 3, fair value measurements provide managers with such an alternative earnings management vehicle. Drawing on the judgement and decision-making literature, Martin, Rich, and Wilks (2006) discuss a number of ways in which management might intentionally or unintentionally introduce bias into the determination of the fair value measurements. The introduction of bias or manipulation of fair value measurements is supported by the value relevance literature that finds investors discount the value of reported level 2 and level 3 fair values (Siekkinen, 2017; Song, Thomas, & Yi, 2010).

Bratten et al. (2017) presents early evidence that the greater the overall fair value exposure of U.S. banks is associated with a decreased discretionary component of the LLP. Similarly, Xu (2019) finds that the combined level 2 and level 3 fair value measurements of U.S. banks is also associated with a smaller discretionary LLP. Level 2 and level 3 fair value measurements are, however, quite different in their composition and in the level of discretion managers have in determining the final values. Moreover, findings from the banking industry in the U.S. are not necessarily reflective of banking industry practices in other countries. For instance, while SFAS 157 (now ASC 820) requiring the disclosure of the fair value hierarchy became effective in 2008 in the United States, its equivalent at the international level, IFRS 13, became effective only in 2013.[15] While banks reporting under IFRS were able to learn from the U.S. experience, their own reporting was subject to much less guidance than U.S. banks between

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[15] Statement of Financial Accounting Standard 157 – Fair Value Measurement, now replaced by Accounting Standard Code Topic 820, requires the disclosure of the fair value levels within the fair value hierarchy. At the international level, International Financial Reporting Standard (IFRS) 7 on Financial Instruments Disclosure provides the foundation for the disclosure of the fair value hierarchy, but IFRS 13 (Fair Value Measurement) formalizes disclosure practices. Since IFRS 7 was not explicit on various measurement aspects, fair value hierarchy disclosure arising from its enactment is subject to some caveats, which IFRS 13 has resolved.

2007 and 2013. As such, which levels of the fair value hierarchy act as alternative earnings management tools and whether previous results are generalizable to countries outside of the U.S. remain as empirical questions. Thus, my first hypotheses, stated in the null, are:

H1a: The proportion of level 2 fair value estimates is not associated with a banks' use of the LLP to smooth earnings

H1b: The proportion of level 3 fair value estimates is not associated with a banks' use of the LLP to smooth earnings

Corporate governance measures, at both the firm-level and the country-level, have been identified as being effective at curbing earnings management behaviour and increasing financial reporting quality (Bonetti, Magnan, & Parbonetti, 2016; Mechelli & Cimini, 2018; Siekkinen, 2016, 2017; Song et al., 2010). Cornett et al. (2009) specifically investigate the independence of bank boards and find that a greater level of board independence is negatively associated with earnings management behaviour. In a similar vein, Siekkinen (2017) and Song et al. (2010) find that the independence of bank boards is positively related to the value relevance of level 3, but not level 1 or level 2, fair value assets. Greater value relevance associated with level 3 assets is indicative of investors believing that there has been less managerial manipulation or bias of the fair value estimate. The earnings management behaviour and value relevance of the fair value hierarchy has also been investigated from the perspective of a composite measure of corporate governance. Specifically, Leventis and Dimitropoulos (2012) find that a composite measure of firm-level governance is associated with less aggressive earnings management attempts and Song et al. (2010) find that a composite measure of corporate governance is positively associated with the value relevance of both level 2 and level 3 fair value assets.

In addition to the results at the firm-level, Fonseca and González (2008) and Kanagaretnam et al. (2014) find that stronger investor protection and stronger legal environments, respectively, lead to less income smoothing via the LLP. As it relates to fair value, Siekkinen (2016) finds that stronger investor protection environments lead to increased value relevance of both level 2 and level 3 fair value estimates. Mechelli and Cimini (2018), on the other hand, find that stronger legal systems are only associated with increased value relevance of level 2 fair value estimates. From the literature, it is clear that both firm-level and country-level corporate governance mechanisms are effective in curbing both earnings management and additional forms of managerial manipulation and bias. However, it is not clear how these systems would affect the trade-off between different earnings management tools. For example, corporate governance measures could be effective in acting individually on each tool such that a relationship no longer exists between the LLP and fair value estimates. Alternatively, governance measures may have a greater effect on curbing one form of earnings management, compared to an alternative, such that managers may opt to rely more on the alternative tool to smooth income. Thus, I formulate the following two hypotheses, presented in the null form:

H2: Firm-level governance mechanisms will have no impact on the association between the use of fair value measurements and LLP to smooth income

H3: Country-level governance mechanisms will have no impact on the association between the use of fair value measurements and LLP to smooth income

4.4 Data and Research Design

4.4.1 Sample Selection

In order to test the proposed hypotheses, I focus on the financial services industries due to the significant levels of assets and liabilities reported at fair values on a recurring basis. My initial sample was identified by selecting all Canadian and European publicly traded companies in the financial services sector from within the screener tool provided by the SNL Financial "Companies" database and the S&P Capital IQ "Companies (Beta)" database. The period covered by this study is 2011 – 2017 and was selected for two primary reasons. First, because this study is covering an international sample of banks, it was important to ensure that IFRS had been adopted in each country in order to rule out the effect of different underlying accounting regimes. The majority of European countries adopted IFRS in 2005, but Canada did not adopt IFRS until 2011 (IFRS Foundation, 2017). Second, the global financial crisis had ended by 2011, with countries on the road to recovery. This allows for an investigation of earnings management practices and behaviours during periods of economic normalcy, while limiting the effect of extenuating circumstances.

Table 9, Panel A details the sample selection process. The initial sample from the SNL Financial/S&P Capital IQ Fundamentals database consists of 3,241 firm-year observations from 46 countries. In order to test the hypotheses, I require the banks to have necessary information to calculate discretionary loan loss provisions and discretionary realized securities gains and losses. I find that 989 firm-year observations do not have the required information to calculate the discretionary loan loss provision and an additional 71 firm-year observations are missing the information necessary to calculate the discretionary realized securities gains and losses. I further require information on the fair value accounting levels to be available in the databases, which

results in a loss of an additional 327 firm-year observations. Finally, complete firm-level governance information is missing for 987 observations. The final sample available to calculate the discretionary loan loss provision is 2,252 and the final sample to calculate the discretionary realized securities gains and losses is 2,181.[16] The final sample available to test the proposed hypotheses is 867. See Table 9, Panel B for the distribution of observations by country, and Table 9, Panel C for the distribution of observations by year.

[Insert Table 9 About Here]

4.4.2 Earnings Management Models

In order to estimate the discretionary components of both the loan loss provision and the realized securities gains and losses, I follow Beatty et al. (2002), Bratten et al. (2017) and Xu (2019) and take the residual from the following regression models: [17]

$$LLP_{i,t} = \beta_0 + \beta_1 LnTA_{i,t} + \beta_2 \Delta NPL_{i,t} + \beta_3 LLR_{i,t-1} + \beta_4 LoanRM_{i,t} + \beta_5 LoanCon_{i,t}$$
$$+\beta_6 LoanCom_{i,t} + \beta_7 LoanOth_{i,t} + Country\ dummies_{i,t}$$
$$+Year\ dummies_{i,t} + \varepsilon_{i,t} \qquad\qquad (1)$$

$$RSGL_{i,t} = \beta_0 + \beta_1 LnTA_{i,t} + \beta_2 UNGL_{i,t-1} + Country\ dummies_{i,t}$$
$$+Year\ dummies_{i,t} + \varepsilon_{i,t} \qquad\qquad (2)$$

For Equation (1), LLP is the loan loss provision scaled by average total gross loans outstanding during the year; LnTA is the natural logarithm of total assets; ΔNPL is the change in nonperforming loans scaled by average total gross loans; LLR is the loan loss reserve balance at

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[16] Calculating the discretionary loan loss provision and discretionary realized securities gains and losses on a greater number of observations is consistent with (Xu, 2019).

[17] The discretionary realized gains and losses equation included here is for the purpose of calculating a pre-managed earnings variable to be included in my main hypothesis tests.

the beginning of the year scaled by the beginning total gross loans; and LoanRM, LoanCon, LoanCom, and LoanOth are, respectively, the proportions of residential mortgages, consumer loans, commercial loans, and other loans, each scaled by average total gross loans. The proportions of loan variables have been included because the ability of management to accurately estimate the loan loss provision might vary by loan type (Bratten et al., 2017).[18] For Equation (2), RSGL is the realized securities gains and losses at the end of the year scaled by total assets at the beginning of the year, LnTA is as previously defined, and UNGL is the unrealized securities gains and losses at the beginning of the year scaled by total assets at the beginning of the year.

4.4.3 Fair Value and Earnings Management Model

In order to investigate my first hypothesis and test the association between fair value measurements and the use of the LLP to manage earnings, I estimate the following regression equations, which are similar to Bratten et al. (2017) and Xu (2019):

$$DLLP_{i,t} = \beta_0 + \beta_1 FVA2_{i,t} + \beta_2 FVA3_{i,t} + \beta_3 High\_PME_{i,t} + \beta_4 FVA2_{i,t} * High\_PME_{i,t}$$

$$+\beta_5 FVA3_{i,t} * High\_PME_{i,t} + \beta_6 LnTA_{i,t} + Country\ dummies_{i,t}$$

$$+Year\ dummies_{i,t} + \varepsilon_{i,t} \qquad (3a)$$

$$DLLP_{i,t} = \beta_0 + \beta_1 FVA2_{i,t} + \beta_2 FVA3_{i,t} + \beta_3 Low\_PME_{i,t} + \beta_4 FVA2_{i,t} * Low\_PME_{i,t}$$

$$+\beta_5 FVA3_{i,t} * Low\_PME_{i,t} + \beta_6 LnTA_{i,t} + Country\ dummies_{i,t}$$

$$+Year\ dummies_{i,t} + \varepsilon_{i,t} \qquad (3b)$$

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[18] The loan types included differ from those included in either Bratten et al. (2017) or Xu (2019). This is due to the different samples used (U.S. vs. Canada/Europe) as well as labeling differences among databases. The variables I have included are the closest variables to which I had access.

where DLLP represents the discretionary component of the loan loss provision and is the residual from Equation (1); FVA2 is the fair value of assets carried at level 2 scaled by total assets; FVA3 is the fair value of assets carried at level 3 scaled by total assets; High_PME is an indicator variable set to 1 when pre-managed earnings is in the top quintile of observations each year and 0 otherwise; Low_PME is an indicator variables set to 1 when pre-managed earnings is in the bottom quintile of observations each year, and 0 otherwise; pre-managed earnings is defined as return on assets plus the discretionary loan loss provision less the discretionary realized securities gains and losses; and LnTA is as previously defined.

I investigate my second and third hypotheses by splitting my sample on either firm- or country-level governance measures. More specifically, my second hypothesis is investigated by generating an indicator variable, GOV, to measure the strength of firm-level corporate governance. I split the sample based on firms that are considered to have high (1) or low (0) firm-level corporate governance and re-run equations (3a) and (3b). My third hypothesis is investigated by generating an indicator variable, RULE, to measure the strength of country-level corporate governance. As before, I split my sample based on firms residing in countries that are considered to have high (1) or low (0) country-level corporate governance and re-run equations (3a) and (3b). All regression models control for country and year fixed effects and all reports robust standard errors.[19]

4.4.4 Financial Variables

The financial data for the sample firms is collected from multiple databases, including SNL Financial/S&P Capital IQ Fundamentals, Bloomberg, and FactSet. As this sample includes

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[19] Alternative methods of calculating standard errors, including clustering by firm, clustering by country, and clustering by year are also used. In all cases, and all regression specifications, there is not sufficient degrees of freedom to simultaneously test all the model coefficients after adjusting for the respective number of clusters. As a result, the model F-statistic is not reported for these tests.

firms from multiple countries that report in different currencies, the data has been obtained in USD in order to maintain a common currency throughout. The primary data source is SNL Financial/S&P Capital IQ, where it was obtained directly in USD. Data obtained from Bloomberg and FactSet was retrieved in the firms' reported currency and was converted to USD using the exchange rate provided by SNL Financial/S&P Capital IQ.[20] As the data was collected from multiple primary sources, it was necessary to prioritize the sources. The fair value level data from SNL Financial was given priority, which was followed by Bloomberg, and was additionally supplemented with hand collected/verified data. Fair value level information was not available from FactSet and the S&P Capital IQ Fundamentals data was deemed unreliable for the purposes of this study.[21]

The remaining financial variables are not expected to differ among the databases.[22] As a result, except for the loan type variables, SNL Financial data was given priority, followed by S&P Capital IQ, and FactSet.[23] For the loan type variables, FactSet was given priority over SNL Financial/S&P Capital IQ Fundamentals as the "types" most closely aligned with prior research.

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[20] While the difference in exchange rates between SNL Financial/S&P Capital and Bloomberg or FactSet is minor, a common exchange rate is used to eliminate concerns of a difference in rates influencing the results.

[21] IFRS 13 became effective for annual periods beginning on or after January 1, 2013. This standard implemented new fair value disclosure requirements, resulting in many firms also disclosing the fair value hierarchy for assets and liabilities that are measured at amortized cost. The S&P Capital IQ Fundamentals database opted to disclose these values, if available, after this change in reporting standard. This resulted in significant inconsistencies in the fair value data for years 2013 – 2017 from the S&P Capital IQ Fundamentals database. For a more detailed discussion, refer to page 31

[22] Bloomberg was only used to obtain fair value level information and total assets. Loan loss provisions, nonperforming loans, loan loss reserve, loan type information, and realized and unrealized securities gains and losses was not originally obtained from Bloomberg and was subsequently unable to be collected due to the COVID-19 pandemic

[23] S&P Capital IQ Fundamentals was given priority over Bloomberg or FactSet because this negated the requirement of manually incorporating the exchange rate to convert the values to USD.

4.4.5 Firm- and Country-level Corporate Governance Variables

The strength of firm-level governance is measured by combining five commonly used attributes of governance through factor analysis (Bonetti et al., 2016; Mechelli & Cimini, 2018; Siekkinen, 2017; Song et al., 2010). To the extent stronger performance on individual facets of corporate governance results in stronger firm-level governance as a whole, this method should better reflect the actual underlying strength of corporate governance than a single measure (Bonetti et al., 2016; R. Bushman, Chen, Engel, & Smith, 2004; DeFond, Hann, & Xuesong, 2005). The firm-level governance data is collected from Bloomberg and the Datastream Asset4 databases. The five governance attributes are: 1) board independence, measured as the number of independent directors divided by board size (INDEPENDENCE); 2) audit committee, represented as a dummy variable equal to one if the firm has an audit committee (AUDIT); 3) audit committee size (AC_SIZE); 4) audit committee independence, measured as the number of independent board members on the audit committee, divided by the size of the audit committee (AC_INDEPENDENCE); and 5) institutional ownership, represented as a dummy variable equal to one if the percentage of shares held by institutions is greater than 5% (INST_OWN).

Table 10, Panel A provides descriptive statistics for the firm- and country-level governance attributes. I then apply a principal component factor analysis on the five firm-level variables (Bonetti et al., 2016; Song et al., 2010). The first and primary factor exhibits the expected loadings, generating an eigenvalue of 1.946 and accounting for approximately 38.92% of the total variance in the original variables (Table 10, Panel B). The appropriateness of factor analysis was determined through a test of the intercorrelation between the governance variables. Using the Bartlett (1951) test of sphericity, the null hypothesis that the variables are not intercorrelated was rejected at the 1% level ($p < 0.000$). Based on Horn's (1965) parallel

analysis, and a Monte Carlo extension by Glorfeld (2016), one factor was retained (Dinno, 2018). Descriptive statistics for the GOVSCORE variable generated by the factor analysis are reported in Table 10, Panel C. Finally, I take the firm-specific mean of GOVSCORE across the sample years and create a binary variable (GOV) based on the sample median of the firm-specific mean of GOVSCORE in order to create a time-invariant measure of the strength of firm-level corporate governance (Bonetti et al., 2016).[24] Firms with a score above (below) the sample median of the firm-specific mean of GOVSCORE are considered to have strong (weak) firm-level corporate governance. The measure of country-level corporate governance, RULE, is a binary variable such that firms from countries with a Rule of Law (Kaufmann, Kraay, & Mastruzzi, 2011) score above (below) the sample mean are considered to have strong (weak) country-level corporate governance.

[Insert Table 10 About Here]

4.5 Results

Table 11, Panel A reports the descriptive statistics for the variables used in the calculation of discretionary loan loss provision and discretionary realized securities gains and losses and Table 11, Panel B reports the descriptive statistics for the variables used in the main analyses. All continuous financial variables are winsorized at the 1st and 99th percentiles. On average, the loan loss provisions represent 1.4% of average total gross loans and realized securities gains and losses represent 0.1% of beginning total assets. Sample banks are large, with average assets at $115,000 million. Retaining only banks which are publicly traded explains this result. The mean change in nonperforming loans is -0.4% of average total gross loans and the

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[24] As in (Bonetti et al., 2016), this method does "not assume that board monitoring intensity does not vary over time. Instead [it] assumes that cross-sectional differences in board monitoring intensity across firms [does] not" (p. 1069)

average reserve for loan losses is 5.7% of beginning total gross loans. The loan composition is distributed among the categories with residential mortgages, consumer loans, commercial loans, and other loans accounting for 17.8%, 22.4%, 27.9%, and 28.9% of average total gross loans, respectively. For the fair value measurements, assets held at level 2 account, on average, for 9.3% of total assets and level 3 assets account, on average, for 0.9% of total assets.[25]

Table 11, Panel C contains the Pearson correlation coefficients. Discretionary loan loss provision is positively associated with total assets, and negatively associated with return on assets. Fair value level 2 is positively associated with total assets and fair value level 3 is negatively associated with return on assets. Neither level 2 nor level 3 fair value assets are significantly correlated with the discretionary loan loss provision, which provides some preliminary evidence against a rejection of the null hypotheses of no association between fair value accounting and discretionary loan loss provision, as outlined in H1a and H1b. This relationship will be investigated further in multivariate tests.

[Insert Table 11 About Here]

4.5.1 Multivariate Analyses

Table 12 contains the results from the estimation of the discretionary components of the loan loss provision and the realized securities gains and losses. Model 1 estimates the discretionary loan loss provision and has an adjusted R-square value of 24.1%. The coefficients on ΔNPL and LLR are 0.046 (p < 0.01) and 0.130 (p < 0.000), respectively. These results suggest that banks that increase their nonperforming loans during the year, or that have a higher proportion of loan loss reserves at the beginning of the year, are associated with higher loan loss

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[25] Level 1 assets are not included in the model as these are not subject to managerial manipulation and, as such, are not theoretically expected to be associated with the use of the loan loss provision to manage earnings.

provisions. Loan loss provisions are also significantly associated with bank size and loan types.

Bank size is negatively associated with loan loss provisions (-0.002, $p < 0.001$), and residential

mortgages (-0.012, $p < 0.01$) and commercial loans (-0.007, $p < 0.10$) are also negatively

associated with loan loss provisions. Other loans, which include interbank loans, is not

significantly related to loan loss provisions, which is consistent with Bratten et al. (2017) and Xu

(2019). Model 2 estimates the discretionary realized securities gains and losses and finds that,

consistent with prior research, beginning unrealized securities gains and losses is positively

associated (0.140, $p < 0.10$) with realized securities gains and losses (Bratten et al., 2017; Xu,

2019).[26]

[Insert Table 12 About Here]

Table 13 presents the regression analyses investigating the effect of fair value accounting

on the use of the discretionary loan loss provision. Model 1 does not find any significant direct

effect of either fair value level 2 or level 3 assets on the discretionary loan loss provision. Models

2 and 3 expand model 1 by investigating if there is a different effect after considering the level of

pre-managed earnings at a bank. In model 2, the coefficient on High_PME is negative and

significant (-0.005, $p < 0.10$), but neither of the fair value levels, nor their interaction with

High_PME are statistically significant. Finally, in model 3, the coefficient on fair value level 3

assets is negative and significant (-0.071, $p < 0.05$) which suggests that banks with a higher

proportion of fair value assets at level 3 exhibit a significantly lower level of discretionary loan

loss provisions. Moreover, the coefficient for the interaction between Low_PME and level 3

assets is positive and significant (0.669, $p < 0.10$), suggesting that banks with lower pre-managed

earnings, relative to their peers, and a higher proportion of level 3 fair value assets exhibits

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[26] Discretionary realized securities gains and losses is calculated in order to calculate the pre-managed earnings variable used in the main analyses.

higher discretionary loan loss provisions. Taken together, these results do not provide evidence that supports the rejection of H1a and offers mixed evidence to support rejecting H1b. That is, there does not appear to be evidence to support the claim that a greater proportion of level 2 fair value assets is associated with a banks' use of the discretionary loan loss provision to smooth earnings. However, there does appear to be some evidence, at least is certain contexts, to support the notion that a greater proportion of level 3 fair value assets is associated with a banks' use of the discretionary loan loss provision to smooth earnings.

[Insert Table 13 About Here]

The results investigating the second hypothesis, which considers the impact of firm-level corporate governance on the association between fair value accounting and the loan loss provision to smooth income, are presented in Table 14. In addition to testing the impact of firm-level corporate governance, these tests will also provide additional context to help interpret the results for H1a and H1b. The results for model 1 and model 2 of Table 14 investigate the direct effect of level 2 and level 3 assets, for firms with either high (GOV = 1) or low (GOV = 0) firm-level governance. The results suggest that, when firm-level governance is high, having a higher proportion of assets at level 3 is negatively associated with discretionary loan loss provisions (-0.125, $p < 0.01$), but there is no significant relationship when firm-level governance is low. Model 3 and model 4 include control variables for banks with high pre-managed earnings and provide similar results. Specifically, there is a significant negative relationship between the proportion of level 3 assets and discretionary loan loss provisions (-0.094, $p < 0.000$). Finally, model 5 and model 6 once again split the sample on high and low firm-level governance, but include control variables for banks with low pre-managed earnings. The results show a significant negative relationship between the proportion of level 3 fair value assets and the

discretionary loan loss provision (-0.128, p < 0.01) when firm-level governance is high. Moreover, model 6 shows a significant positive relationship between the proportion of level 3 fair value assets and the discretionary loan loss provision (0.222, p < 0.05). The additional context that considers the effect of firm-level corporate governance provides additional evidence in support of rejecting H1b. Moreover, the significant result found in models 1 and 3, but not in models 2 and 4, and the switching of signs between model 5 and model 6, offers evidence that firm-level corporate governance has a significant effect on the relationship between level 3 fair value measurements and discretionary loan loss provisions. This evidence allows me to reject the null hypothesis, H2.

[Insert Table 14 About Here]

The results investigating the third hypothesis, considering the impact of country-level governance on the association between fair value accounting and the loan loss provision to smooth income are presented in Table 15. As with the previous results, these tests also provide an additional context for interpreting the results for H1a and H1b. The results for model 1 and model 2 in Table 15 investigate the direct effect of level 2 and level 3 fair value assets, for firms in countries with either high (RULE = 1) or low (RULE = 0) country-level governance. The results suggest that when country-level governance is high, having a higher proportion of fair value level 3 assets is associated with less discretionary loan loss provisions (-0.108, p < 0.01). Additionally, for firms in countries with low country-level governance, there is a positive association between the proportion of level 3 assets and discretionary loan loss provisions (0.653, p < 0.10). Model 3 and model 4 in Table 15 include control variables for banks that have high pre-managed earnings. Once again, the results show a significantly negative association between the proportion of level 3 assets and discretionary loan loss provisions (-0.076, p <

0.000) when country-level governance is high, but a significantly positive association (0.723, p < 0.10) when country-level governance is low. Finally, model 5 and model 6 in Table 15 includes control variables for banks that have low pre-managed earnings. As before, when country-level governance is high, the proportion of level 3 assets is significantly negatively associated with the level of discretionary loan loss provisions (-0.120, p < 0.01) but significantly positively associated (0.158, p < 0.05) when country-level governance is low.

In addition to the significant direct results for level 3 fair values, there is also a significant positive effect on the interaction between the proportion of level 3 fair values and having low pre-managed earnings. When country-level governance is high, the coefficient on this interaction is 0.194 (p < 0.10) and is 1.001 (p < 0.10) when country-level governance is low. Despite the apparent difference in magnitude between the coefficients, a seemingly unrelated estimation test was performed to test the cross-model difference. Using a chi-square test with 1 degree of freedom, the result of this test determined that the coefficients on the interaction between level 3 fair values and low pre-managed earnings from model 5 and model 6 are not statistically different from one another (χ^2 = 2.36, p = 0.12).[27] Considering the effect of country-level governance offers an important context with which to interpret the hypotheses and offers additional support for rejecting the null hypothesis, H1b. Moreover, the switching of signs on the coefficient for the proportion of level 3 assets, depending on the level of country-level governance, offers evidence that country-level governance has a significant effect on the relationship between the proportion of level 3 fair values and the discretionary loan loss provisions. This evidence allows me to reject the null hypothesis, H3.

[Insert Table 15 About Here]

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[27] A seemingly unrelated estimation test performed with standard errors clustered by firm does result in a significant difference between the two coefficients, $\chi^2(1)$ = 4.15, p < 0.05

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4.6 Joint Governance – Preliminary Analysis

The results for the main hypotheses offer strong support for the individual effects of either firm-level or country-level governance on the relationship between the proportion of level 3 fair value assets and the discretionary loan loss provisions of a bank. However, there is also literature showing the importance of investigating the joint effect of firm- and country-level governance (Bebchuk & Hamdani, 2009; Bonetti et al., 2016; Bruno & Claessens, 2010; Chen, Chen, & Wei, 2009; Doidge, Karolyi, & Stulz, 2007; Durnev & Kim, 2005; Ernstberger & Grüning, 2013). In order to test the joint effect of firm- and country-level governance, I use an approach similar to testing hypotheses 2 and 3. Specifically, I split the sample based on the combinations of high/low firm-level governance and high/low country-level governance and re-estimate equations (3a) and (3b). The GOV and RULE variables are as previously defined and the distribution of observations into the firm- and country-level governance pairs are presented in Table 16. Splitting the sample in such a manner has a significant effect on the number of observations available to estimate each regression, so all results in this additional analysis, while informative, should be interpreted with caution.

[Insert Table 16 About Here]

The results testing the joint effect of firm- and country-level governance are presented in Table 17. Models 1 – 4 investigate the direct effect of the proportion of level 2 and level 3 fair value assets, models 5 – 8 include control variables for banks with high pre-managed earnings, and models 9 – 12 include control variables for low pre-managed earnings. Each set of regressions represent a combination of either high (G1) or low (G0) firm-level governance and high (R1) or low (R0) country-level governance. The results for models 1 – 4 suggest that there is a significant negative relationship for the proportion of level 3 assets (-0.134, $p < 0.01$) when

both firm- and country-level governance are high, but a significant positive relationship when both firm- and country-level governance are low (0.737, p < 0.10). There is no significant relationship when only one of the governance mechanisms is high and the other is low.

Models 5 – 8 provide results consistent with models 1 – 4. When both firm- and country-level governance are high, there is a significant negative relationship between the proportion of level 3 fair value assets and the discretionary loan loss provisions (-0.093, p < 0.000), but a significant positive relationship when both firm- and country-level governance are low (0.785, p < 0.10). In addition to these results, there is also a significant relationship for the interaction between banks with high pre-managed earnings and the proportion of assets held at level 2. Specifically, the coefficient on the interaction between the proportion of assets held at level 2 and high pre-managed earnings is positive and significant (0.100, p < 0.01) when firm-level governance is high but country-level governance is low (model 6), but negative and significant (-0.070, p < 0.01) when firm-level governance is low but country-level governance is high (model 7).

Models 9 – 12 also provide generally consistent results. When both firm- and country-level governance are high, there is a significant negative relationship between the proportion of level 3 fair value assets and the discretionary loan loss provisions (-0.141, p < 0.01), but a significant positive relationship when both firm- and country-level governance are low (0.183, p < 0.05). There is also a significant positive relationship between the proportion of level 3 assets and discretionary loan loss provisions (0.137, p < 0.10) when firm-level governance is low, but country-level governance is high (model 11). In addition to the significant direct effects, there are also significant relationships observed when the fair value levels are interacted with banks having low pre-managed earnings. The interaction between the proportion of level 2 assets and

low pre-managed earnings is significant and negative when either firm- or country-level governance, but not both, is high (model 10: -0.067, p < 0.10; model 11: -0.036, p < 0.05). There is also a significant negative coefficient on the interaction of the proportion of level 3 assets and low pre-managed earnings when firm-level governance is low, but country-level governance is high (-0.195, p < 0.10). Finally, when both firm- and country-level governance is low, there is a significant positive relationship between the interaction between the proportion of level 2 assets and low pre-managed earnings (0.263, p < 0.05) and the interaction between the proportion of level 3 assets and low pre-managed earnings (0.997, p < 0.10).

[Insert Table 17 About Here]

Taken together, the results suggest the firm- and country-level governance mechanism primarily act as complements to one another. When both elements of governance are either present or absent, there is a significant effect on the relationship between the proportion of level 3 fair value assets and the level of discretionary loan loss provisions. However, when only one of the governance elements is present, there typically is no effect on the relationship, except for a weakly positive effect in model 11. As mentioned previously, these results should be interpreted with caution due to the limited sample sizes, but the results are generally consistent with the main analyses. Specifically, in the proper context, there appears to be evidence to reject the null hypothesis of no relationship between the proportion of level 3 assets and the discretionary loan loss provisions (H1b). Moreover, the differing effects, including the switching of signs, suggests that both firm- and country-level governance complement one another in their impact on the relationship between the proportion of level 3 fair value assets and the discretionary loan loss provisions.

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4.7 Additional Analyses

To assess the robustness of my main results, I re-estimate each model using alternative variable specifications. First, I exclude the country fixed effects from regression models that are split by country. The overall interpretation of the results untabulated is similar, but there are some differences, primarily related to the level 2 fair values. When just country-level governance is considered, fair value level 2 becomes positive and significant in model 1, model 3, and model 5 ($p < 0.01$; $p < 0.05$; $p < 0.01$), but fair value level 3 is not significant in model 2 and model 6. When the joint effect of firm- and country-level governance is considered, fair value level 2 becomes positive and significant in model 3 and models 9 – 11, fair value level 3 becomes positive and significant in model 6 and model 7, but fair value level 3 in model 4, model 8, and models 11 – 12 is no longer significant. The interaction between fair value level 2 and high pre-managed earnings in model 7 is no longer significant and the interaction between level 2 and low pre-managed earnings in model 11 is also no longer significant. Finally, the positive coefficient on the interaction between fair value level 3 and low pre-managed earnings becomes significant in model 9 ($p < 0.10$), but is no longer significant in model 11.

Second, Xu (2019) includes a lagged discretionary loan loss provision variable as an additional predictor variable. Untabulated tests are largely consistent with the main results, with some minor differences. Without considering any form of governance, level 3 fair values, and the coefficient on the interaction between level 3 and low pre-managed earnings, is no longer significant in model 3. When considering only firm-level governance, the positive coefficient on level 3 fair value assets becomes significant in model 2 ($p < 0.10$) and the negative coefficient on the interaction between level 2 fair values and low pre-managed earnings becomes significant in model 5 ($p < 0.10$). When considering only country-level governance, the coefficient on fair

value level 3 in model 4 is no longer significant. The coefficient on the interaction between fair value level 3 and low pre-managed earnings is also no longer significant in model 5 and model 6, whereas the coefficient on fair value level 2 and low pre-managed earnings is negative and significant in model 5 ($p < 0.10$) and positive and significant in model 6 ($p < 0.10$). However, it should be noted that there are not sufficient degrees of freedom to simultaneously estimate all of the coefficients in model 1, model 3, or model 5. When considering the joint effect of firm- and country-level governance, the coefficient on the interaction between level 3 fair values and high pre-managed earnings is negative and significant in model 7 ($p < 0.05$), but the coefficient on level 3 fair values in model 8 is no longer significant. The coefficient on level 3 fair values is positive and significant in model 10 ($p < 0.05$), but is no longer significant in model 11. The coefficients on the interaction between fair value level 2 and low pre-managed earnings is no longer significant in model 10 or model 11, and the coefficient on the interaction between fair value level 3 and low pre-managed earnings is negative and significant in model 10, but is no longer significant in model 11 or model 12. However, it should again be noted that there are not sufficient degrees of freedom to simultaneously estimate all of the coefficients in model 3, model 7, and model 11.

Third, rather than use continuous variables for level 2 and level 3 fair value assets and the respective interactions, I split each level at the median for the year and classify values above (below) the median as having high (low) levels of fair value assets. I then compute the interaction terms using the binary fair value data. The use of continuous data for the direct effect of fair values and binary level data for fair value interaction terms is consistent with the main

analyses (Xu, 2019).[28] Untabulated results are generally consistent with my main results, with a few minor differences. Without considering any form of corporate governance, the negative coefficient on level 3 fair values and the positive coefficient on the interaction between level 3 and low pre-managed earnings are no longer significant in model 3. Considering only firm-level governance, the positive coefficient for level 3 fair value assets in model 6 is no longer significant.[29] Considering only the effect of country-level governance, the negative coefficient on the interaction between level 3 fair values and low pre-managed earnings is no longer significant in either model 5 or model 6. Finally, when considering the joint effect of firm- and country-level governance, the significant coefficients on the interaction between level 2 fair values and low pre-managed earnings in models 10 – 12 are not significant, the coefficient on the interaction between level 3 fair values and low pre-managed earnings is model 11 and model 12 is not significant, but the positive coefficient on this interaction in model 9 becomes significant (p < 0.05).[30]

A second alternative specification for the fair value levels is to split each level into quintiles by year and classify values in the top quintile as having high levels of fair values, with all other values being considered to have low levels of fair values. I then use the binary fair value level variables to compute the interaction terms.[31] Untabulated results are largely consistent with my main results, with a few exceptions. Without considering the effect of governance, the negative coefficient on level 3 fair value assets and the positive coefficient on the interaction

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[28] A robustness test using binary data, split at the median, for both the direct effect of fair value levels and for the interaction terms is also performed and the results are similar.

[29] The positive coefficient on level 3 fair values in model 2, model 4, and model 6 is significant (p < 0.05; p < 0.05; p < 0.01) when binary fair value levels are used for the direct effect.

[30] The use of indicator variables, rather than continuous variables, for level 2 and level 3 fair values resulted in the interaction between level 3 fair values and high pre-managed earnings to be omitted due to collinearity in model 7 of the joint test of firm- and country-level governance.

[31] A robustness test using binary data, split at the top quintile, for both the direct effect of fair value levels and for the interactions terms is also performed and the results are similar.

between level 3 fair value assets and low pre-managed earnings is no longer significant. Considering only the effect of firm-level governance, the fair value level 2 interaction with high pre-managed earnings coefficient is omitted from model 3 due to collinearity. Considering only the effect of country-level governance, neither the positive coefficient on fair value level 3 nor the positive coefficient on the interaction between fair value level 3 and low pre-managed earnings is significant in model 6, but the positive coefficient on the interaction between fair value level 2 and low pre-managed earnings is significant ($p < 0.01$) in model 6. Finally, when considering the joint effect of firm- and country-level governance, the information lost through dichotomization, coupled with the small sample size, results in interaction terms being omitted from models 5 – 7 and model 10 due to collinearity. Moreover, there is not enough degrees of freedom to simultaneously test all variables in model 12. Thus, while the results of the remaining variables of interest are generally consistent with the main results, a direct comparison to the main results is inappropriate.[32]

In addition to using alternative specifications for the fair value levels, I test an alternative cut-off for the pre-managed earnings variable. Specifically, I split pre-managed earnings at the median each year and classify firms with a value above (below) the median as having high (low) pre-managed earnings. Untabulated results are again generally consistent with the main results with a few exceptions. Without considering any form of governance, the interaction on fair value level 3 and low pre-managed earnings is no longer significant. When just country-level governance is considered, the coefficient on fair value level 3 in model 3 and model 4 is no longer significant, but maintains the same sign, and the coefficient on the interaction between

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[32] Using binary variables, based on the top quintile, for the direct effect of the fair value levels and the interaction terms compounds this issue such that, when considering the joint effect of firm- and country-level governance, the direct effect of fair value level 2 is omitted from model 2, model 6, and model 10 due to collinearity.

level 3 fair value and low pre-managed earnings is no longer significant for model 6. When considering the joint effect of firm- and country-level governance, the positive coefficient on level 3 in model 8 and model 11 is no longer significant, the coefficient on the interaction between level 2 fair value and low pre-managed earnings is positive and significant in model 11 but is not significant in model 12, and the coefficient on the interaction between level 3 and low pre-managed earnings in model 11 and model 12 is not significant. Finally, the coefficient on fair value level 2 is positive and significant in model 10 ($p < 0.01$) and negative and significant in model 11 ($p < 0.05$).

I also test an alternative country-level governance variable. Specifically, I use the Financial Freedom attribute from the Index of Economic Freedom provided by The Heritage Foundation. Rather than look at the rule of law dimension of a country, financial freedom looks at banking efficiency and the extent of regulations of financial services within a country. A binary country-level governance variable is created such that countries scoring above (below) the mean are considered to have strong (weak) country-level governance. Untabulated results using a country-level governance variable representing regulations are largely consistent with the main results. When considering only country-level governance, the coefficient on fair value level 3 in model 2, and model 4, while still positive, is no longer significant, and the coefficient on the interaction between level 3 and low pre-managed earnings is no longer significant in model 6. When considering the joint effect of firm- and country-level governance the negative coefficient on fair value level 2 and the positive coefficient level 3 become significant in model 3 (both $p < 0.01$), but the coefficient on fair value level 3 in model 4 is no longer significant. There is a positive significant coefficient on fair value level 2 in model 6 ($p < 0.05$) and the negative coefficient on fair value level 2 and positive coefficient on fair value level 3 become significant

in model 7 ($p < 0.05$ and $p < 0.01$, respectively). The coefficient on the interaction between level 2 and high pre-managed earnings in model 7 and the coefficient on fair value level 3 in model 8 are no longer significant. The coefficient on fair value level 2 is positive and significant ($p < 0.01$) in model 10 and negative and significant ($p < 0.01$) in model 11. Finally, the coefficient on the interaction between fair value level 2 and low pre-managed earnings in model 11 and the coefficient on fair value level 3 and low pre-managed earnings in model 12 are no longer significant.

4.8 Discussion

This chapter investigates the potential for the fair value hierarchy, specifically the levels subject to managerial discretion, to be used as an alternative vehicle for earnings management in banks and the impact, if any, of firm- and country-level governance on this potential. Across all of my main analyses, I find no evidence of a direct effect of the proportion of level 2 fair value assets influencing the level of discretionary loan loss provisions of a bank. Absent from the influence of either firm- or country-level governance, I find evidence of a direct negative effect for level 3 fair values on the use of the discretionary loan loss provision in banks when controlling for banks having low pre-managed earnings. However, accounting for either firm- or country-level governance provides important context with which to interpret the results.

Splitting the sample into firms with high or low firm-level corporate governance results in a consistently significant negative relationship between the proportion of fair value assets held at level 3 and the level of discretionary loan loss provision when firm-level governance is high. Moreover, the sign on the proportion of level 3 fair value assets is consistently positive when firm-level governance is low, although it is only significant after controlling for banks with low pre-managed earnings. I interpret this result as managers of a firm being aware of the monitoring

role of firm-level governance and altering their earnings management behaviour in a way that is dependent on this monitoring. Specifically, the primary method by which banks manage earnings is through discretionary loan loss provisions, so managers in a firm with a high degree of monitoring expect that governance mechanisms in place will focus the discretionary loan loss provision. Thus, in an effort to avoid detection of earnings management behaviour, managers will decrease the use of the loan loss provision and will instead try to manage earnings via alternate means, such as level 3 fair values.

The results for splitting the sample into firm originating in countries with high or low country-level governance provides results consistent with the results found when splitting the sample on firm-level governance. There is consistently a significant negative relationship between the proportion of level 3 fair values and the level of discretionary loan loss provisions when country-level governance is high. Moreover, in the case of country-level governance, there is a consistently positive and significant relationship between the proportion of level 3 fair value assets and the level of discretionary loan loss provisions when country-level governance is low. This result is consistent with managers believing that current forms of governance will focus on curtailing managerial discretion pertaining to the loan loss provision, but that perhaps do not currently view earnings management through the fair value hierarchy as a primary concern. When governance is low, managers appear to focus on the already established process of using their discretion in the loan loss provision to manage earnings. I interpret this result to suggest that managing earnings through the fair value hierarchy is more costly for managers than using the loan loss provision and that managers recognize this cost and limit their use of this form of earnings management to situations where scrutiny of the loan loss provision is high.

Finally, the results from the additional analysis of splitting the sample into groups based on joint firm- and country-level governance should be interpreted with caution, but are nevertheless consistent with the main analyses. There is consistently a significant negative relationship between the proportion of level 3 fair value assets and the level of discretionary loan loss provisions when both firm- and country-level governance is high, and a consistently significant positive relationship when both firm- and country-level governance is low. However, if either firm- or country-level governance is high and the other is low, there is no significant relationship between the proportion of level 3 fair value assets and the level of discretionary loan loss provisions except when controlling for low pre-managed earnings in countries with low firm- but high country-level governance. This result provides preliminary evidence that, as it relates to the potential for the fair value hierarchy to act as an alternative vehicle for earnings management, firm- and country-level governance act as complements to one another.

Overall, the results from this study should be of interest to standard setters and boards of directors. From the perspective of standard setters, the results of this study provide evidence that the discretion afforded to managers in the fair value hierarchy may be used to manage earnings. This is particularly important because managers appear to be using the fair value hierarchy to manage earnings specifically when firm- and country-level governance is high. This suggests that managers do not believe current corporate governance practices are focused on or equipped to detect earnings management through the fair value hierarchy. Despite the recent post-implementation review suggesting that IFRS 13 is complete and does not require further work (IFRS Foundation, 2018), this result suggests adjustments to the standard, including expanded disclosures for level 3 fair values might be warranted.

From the perspective of the board of directors, the results of this study suggest a need to expand their monitoring of managers to include the fair value hierarchy as a possible tool for earnings management. Specifically, managers appear to consider their governance environment, from both a firm- and country-level perspective, and take this into account when making earnings management decisions. Moreover, the shift in behaviour towards less reliance on discretionary loan loss provisions when governance is high implies that managers believe that efforts to curb earnings management will be focused primarily on the loan loss provision. This focus on the loan loss provision leaves managers with relatively greater freedom to manage earnings through the fair value hierarchy, with less risk of detection.

Chapter 5 - Conclusion

Overall, the purpose of this dissertation is to investigate the interface between both firm- and country-level corporate governance mechanisms and the fair value accounting hierarchy for a sample of international banks in the post-financial crisis period. In the first paper I investigate the value relevance of the fair value hierarchy and the impact that firm- and country-level governance has on the value relevance of the hierarchy. I find that, contrary to prior research, investors do not find level 3 fair values to be sufficiently reliable to be used in the valuation of a firm, absent the consideration of some form of corporate governance. Moreover, I find evidence that not only supports the importance of individually considering firm- or country-level governance, I find evidence that contributes to the joint firm- and country-level governance literature. Specifically, I find that, in the case of value relevance of the fair value hierarchy, firm- and country-level governance mechanisms act as substitutes for one another.

In the second paper, I investigate the potential for the fair value hierarchy to be used as an alternative vehicle to manage earnings and the impact that firm- and country-level governance might have on the usage of this alternative earnings management method. First, without considering the effect of governance, I find only moderate support for the notion that the fair value hierarchy acts as an alternative earnings management tool. However, splitting the sample to consider the effect of either firm- or country-level governance reveals the underlying relationship. Specifically, level 2 fair values, except under one robustness test, do not appear to be a viable alternative earnings management method that managers are currently using, but level 3 fair values do appear to be a viable alternative earnings management tool. When either firm- or country-level governance is high, firms with a higher proportion of level 3 fair values is associated with lower levels of discretionary loan loss provisions. Alternatively, when firm- or

country-level governance is low, a higher proportion of level 3 fair values is associated with higher levels of discretionary loan loss provisions. This result is consistent with managers believing that current governance mechanisms will be focused on established earnings management practices and not focused on alternative means, such as the fair value hierarchy. This result also suggests that managers alter their use of earnings management techniques depending on their specific governance environment. Moreover, the additional analysis suggests that, in the context of earnings management, firm- and country-level governance mechanisms act as complements to one another.

Taken together, the results of these two studies suggest that, contrary to the conclusion in the post-implementation review of IFRS 13, there is room for improvement in areas relating to the disclosure requirements for level 3 values and for the fair value hierarchy in general. The standard would benefit from additional guidance to increase the transparency of level 3 values, and additional guidance on presentation standards to enhance comparability. Furthermore, the results of this dissertation underscore the importance of context in general, and in fair value accounting research specifically. Especially from the perspective of the second study, without the additional context of considering governance, the conclusion drawn would have been that the fair value hierarchy does not act as an alternative vehicle for earnings management. However, the additional context provided by considering governance revealed the underlying relationship that would have otherwise remained hidden. Considering different forms of corporate governance when studying fair value accounting is important. Moreover, it is integral for analyses involving a cross-country sample to consider how these two different levels of governance interact with one another.

The results of this dissertation provide evidence on the importance of firm- and country-level governance when investigating the fair value hierarchy. These results suggest that future research could focus on additional implementation concerns arising from IFRS 13 to develop concrete suggestions to improve fair value disclosures. This dissertation also provides some preliminary evidence on the possibility of the fair value hierarchy to be used as an alternative vehicle for earnings management, but future studies could address this further in alternative samples and with alternative forms of governance. The current studies focused only on public banks, but there is a large literature investigating alternative forms of bank ownership structures, such as co-operatives or credit unions. These banks operate in the same market as public banks, but have very different governance structures. As such, it is unclear if the inferences applicable to fair value and governance are generalizable and research investigating this relationship would be valuable.

This dissertation is also subject to limitations. First, the sample sizes are relatively small, which is primarily due to the lack of available firm-level governance data. Second, data breaking down the fair value hierarchy is difficult to come by and, as a result of IFRS 13 and depending on the source database, is subject to concerns for observations related to annual periods beginning on or after January 1, 2013. Every attempt was made within this dissertation to identify and hand collect/verify observations that appeared to suffer integrity concerns. However, to the extent that any observations were not identified, the results should be interpreted with caution. Third, as these studies use an international sample of banks that report in multiple currencies, a common base currency (USD) was used for all observations. To the extent that exchange rate fluctuations might alter the underlying relationships, the results should be interpreted with caution. However, it was determined that concerns surrounding exchange rate

fluctuations were less of a concern than not using a common base currency for all observations. Finally, for the second paper, it could be argued that the loan loss provision and level 3 fair values are jointly determined by an omitted variable. This concern is largely addressed through the analyses concentrating on corporate governance, and the inclusion of extensive fixed effects, but the possibility that these are jointly determined by an omitted variable nevertheless exists.

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Tables

Table 1

Panel A: Sample Selection	
Listed financial institutions in Canada and Europe from SNL Financial/S&P Capital IQ Fundamentals database	3,241
Less: Missing share price information	559
Less: Missing fair value hierarchy information	686
Less: Missing firm-level corporate governance information	1,064
Less: Extreme share price values	34
Less: Outliers	27
Final sample	871

Panel B: Distribution of Sample by Country

Country Name	Freq.	%	Country Name	Freq.	%	Country Name	Freq.	%
Austria	14	1.61	Germany	24	2.76	Portugal	17	1.95
Belgium	17	1.95	Greece	22	2.53	Romania	14	1.61
Canada	93	10.68	Hungary	14	1.61	Russia	28	3.22
Croatia	13	1.49	Ireland	21	2.41	Slovakia	3	0.34
Cyprus	5	0.57	Italy	84	9.64	Spain	48	5.51
Czech Republic	9	1.03	Kazakhstan	14	1.61	Sweden	35	4.02
Denmark	21	2.41	Malta	7	0.80	Switzerland	35	4.02
Finland	7	0.80	Netherlands	17	1.95	Turkey	77	8.84
France	33	3.79	Norway	26	2.99	United Kingdom	99	11.37
Georgia	2	0.23	Poland	72	8.27			

Panel C: Distribution of Sample by Year

Year	Freq.	%
2011	118	13.55
2012	120	13.78
2013	117	13.43
2014	124	14.24
2015	130	14.93
2016	132	15.15
2017	130	14.93

Table 2

Panel A: Descriptive Statistics of Governance Variables

	N	Mean	St.Dev	min	max	p25	Median	p75
Firm-level								
INDEPENDENCE	871	0.556	0.261	0	1	0.333	0.563	0.762
AUDIT	871	0.972	0.164	0	1	1	1	1
AC_SIZE	871	3.923	1.601	0	14	3	4	5
AC_INDEPENDENCE	871	0.783	0.305	0	1	0.625	1	1
INST_OWN	871	0.944	0.231	0	1	1	1	1
Country-level								
Rule of Law	871	1.091	0.801	-0.818	2.1	0.403	1.413	1.805

Panel B: Governance Factor Score

Variable	Factor Loading Coefficients
INDEPENDENCE	0.671
AUDIT	0.669
AC_SIZE	0.701
AC_INDEPENDENCE	0.786
INST_OWN	0.142
Variation Explained	40.56%
Eigenvalue	2.028
Bartlett's Test of Sphericity	
Chi-Square	753.349
Degrees of Freedom	10
p-value	0.000

Panel C: Descriptive Statistics of the Firm-Level Governance Factor Score

	N	Mean	St.Dev	min	max	p25	Median	p75
GOVSCORE	871	0	1	-4.795	2.280	-0.426	0.148	0.582

Panel D: Distribution of GOV by Strength of Legal Enforcement

		GOV		
		LOW (0)	HIGH (1)	Total
RULE	LOW (0)	304 / 35%	100 / 12%	404
	HIGH (1)	126 / 14%	341 / 39%	467
	Total	430	441	871

Table 3

Panel A: Descriptive Statistics for Hypothesis Tests

	N	Mean	St.Dev	min	max	p25	Median	p75
BV	871	-30.782	378.126	-7480.734	4569.342	-21.839	-2.687	0.577
NI	871	-8.054	121.565	-2973.593	92.843	0.083	0.542	1.860
FVA1	871	89.294	639.075	0.000	10659.755	1.944	11.224	39.361
FVA2	871	117.214	1023.396	0.000	25380.789	0.320	5.208	45.131
FVA3	871	18.040	320.339	0.000	8092.128	0.022	0.374	2.464
FVL12	871	146.869	1307.820	0.000	26491.557	0.125	3.569	41.239
FVL3	871	16.793	375.403	0.000	10779.590	0.000	0.000	0.307
SP4	871	21.428	45.859	0.139	902.797	3.373	9.631	28.239

Panel B: Correlation Coefficients

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) SP4	1.000							
(2) BV	-0.072*	1.000						
(3) FVA1	0.656*	-0.169*	1.000					
(4) FVA2	0.347*	-0.386*	0.696*	1.000				
(5) FVA3	0.042	-0.242*	0.497*	0.925*	1.000			
(6) FVL12	0.499*	-0.261*	0.842*	0.965*	0.843*	1.000		
(7) FVL3	0.013	0.277*	0.603*	0.574*	0.701*	0.628*	1.000	
(8) NI	-0.550*	0.659*	-0.711*	-0.460*	-0.168*	-0.531*	-0.023	1.000

* shows significance at the .05 level

Table 4
Value Relevance of Fair Values

Independent variables		Coef.	Robust SE	t-value	p-value
BV	β_1	0.216	0.035	6.22	0.000***
NI	β_2	0.031	0.043	0.72	0.472
FVA1	β_3	0.303	0.043	7.01	0.000***
FVA2	β_4	0.304	0.046	6.61	0.000***
FVA3	β_5	0.075	0.052	1.46	0.146
FVL12	β_6	-0.287	0.053	-5.47	0.000***
FVL3	β_7	-0.262	0.036	-7.34	0.000***
Constant	β_0	74.877	9.407	7.96	0.000***
n				871	
Adj. R^2				0.856	
Regression Model: F-statistic				330.497	0.000***
H1b: F-statistic					
$\beta_3 = \beta_4$				0.00	0.969
$\beta_3 = \beta_5$				77.77	0.000***
$\beta_4 = \beta_5$				32.66	0.000***

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 5
Value Relevance of Fair Values and Firm-Level Governance

Independent variables		Coef.	Robust SE	t-value	p-value
BV	β_1	0.302	0.048	6.35	0.000***
NI	β_2	0.175	0.049	3.61	0.000***
FVA1	β_3	0.477	0.066	7.22	0.000***
FVA2	β_4	0.359	0.057	6.28	0.000***
FVA3	β_5	0.219	0.073	2.98	0.003***
FVA1*GOV	β_6	-0.107	0.022	-4.86	0.000***
FVA2*GOV	β_7	0.040	0.021	1.91	0.057*
FVA3*GOV	β_8	0.056	0.073	0.77	0.444
FVL12	β_9	-0.370	0.065	-5.71	0.000***
FVL3	β_{10}	-0.452	0.062	-7.26	0.000***
Constant	β_0	95.285	12.166	7.83	0.000***
n				871	
Adj. R^2				0.876	
Regression Model: F-statistic				3295.347	0.000***
H2: F-statistic					
$\beta_3 + \beta_6 = 0$				44.74	0.000***
$\beta_4 + \beta_7 = 0$				50.35	0.000***
$\beta_5 + \beta_8 = 0$				9.98	0.002***
$\beta_3 + \beta_6 = \beta_4 + \beta_7$				2.60	0.107
$\beta_3 + \beta_6 = \beta_5 + \beta_8$				2.56	0.110
$\beta_4 + \beta_7 = \beta_5 + \beta_8$				3.36	0.067*

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 6
Value Relevance of Fair Values and Country-Level Governance

Independent variables		Coef.	Robust SE	t-value	p-value
BV	β_1	0.186	0.030	6.28	0.000***
NI	β_2	0.145	0.064	2.29	0.023**
FVA1	β_3	0.279	0.043	6.48	0.000***
FVA2	β_4	0.383	0.077	4.96	0.000***
FVA3	β_5	0.081	0.211	0.39	0.699
FVA1*RULE	β_6	0.054	0.018	2.97	0.003***
FVA2*RULE	β_7	-0.107	0.041	-2.60	0.010**
FVA3*RULE	β_8	0.097	0.245	0.39	0.693
FVL12	β_9	-0.299	0.058	-5.12	0.000***
FVL3	β_{10}	-0.274	0.026	-10.37	0.000***
Constant	β_0	78.751	9.498	8.29	0.000***
n				871	
Adj. R^2				0.868	
Regression Model: F-statistic				1804.977	0.000***
H3: F-statistic					
$\beta_3 + \beta_6 = 0$				68.99	0.000***
$\beta_4 + \beta_7 = 0$				31.27	0.000***
$\beta_5 + \beta_8 = 0$				13.13	0.000***
$\beta_3 + \beta_6 = \beta_4 + \beta_7$				10.46	0.001***
$\beta_3 + \beta_6 = \beta_5 + \beta_8$				45.45	0.000***
$\beta_4 + \beta_7 = \beta_5 + \beta_8$				13.60	0.000***

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 7
Value Relevance of Fair Values and Firm- and Country-Level Governance

Independent variables		Coef.	Robust SE	t-value	p-value
BV	β_1	0.310	0.051	6.13	0.000***
NI	β_2	0.334	0.139	2.41	0.016**
FVA1	β_3	0.478	0.097	4.94	0.000***
FVA2	β_4	0.555	0.074	7.48	0.000***
FVA3	β_5	-0.393	0.210	-1.87	0.062*
FVA1*GOV	β_6	-0.077	0.051	-1.52	0.129
FVA2*GOV	β_7	-0.036	0.062	-0.57	0.566
FVA3*GOV	β_8	0.749	0.231	3.23	0.001***
FVA1*RULE	β_9	0.046	0.057	0.80	0.426
FVA2*RULE	β_{10}	-0.169	0.025	-6.73	0.000***
FVA3*RULE	β_{11}	0.743	0.255	2.91	0.004***
FVA1*GOV*RULE	β_{12}	-0.052	0.059	-0.89	0.376
FVA2*GOV*RULE	β_{13}	0.085	0.064	1.32	0.186
FVA3*GOV*RULE	β_{14}	-0.699	0.259	-2.69	0.007***
FVL12	β_{15}	-0.435	0.080	-5.43	0.000***
FVL3	β_{16}	-0.481	0.051	-9.39	0.000***
Constant	β_0	106.169	13.634	7.79	0.000***
n				871	
Adj. R^2				0.891	
Regression Model: F-statistic				1735.677	0.000***
H4: F-statistic					
$\beta_3 + \beta_6 + \beta_9 + \beta_{12} = 0$				55.08	0.000***
$\beta_4 + \beta_7 + \beta_{10} + \beta_{13} = 0$				36.76	0.000***
$\beta_5 + \beta_8 + \beta_{11} + \beta_{14} = 0$				9.96	0.002***
$\beta_3 + \beta_6 + \beta_9 + \beta_{12} = \beta_4 + \beta_7 + \beta_{10} + \beta_{13}$				1.64	0.201
$\beta_3 + \beta_6 + \beta_9 + \beta_{12} = \beta_5 + \beta_8 + \beta_{11} + \beta_{14}$				0.00	0.960
$\beta_4 + \beta_7 + \beta_{10} + \beta_{13} = \beta_5 + \beta_8 + \beta_{11} + \beta_{14}$				0.15	0.697

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 8
Test of Governance Substitution Effect

Independent variables		Coef.	Robust SE	t-value	p-value
FVA3	β_5	-0.393	0.210	-1.87	0.062*
FVA3*GOV	β_8	0.749	0.231	3.23	0.001***
FVA3*RULE	β_{11}	0.743	0.255	2.91	0.004***
FVA3*GOV*RULE	β_{14}	-0.699	0.259	-2.69	0.007***
H4b: F-statistic					
$\beta_8 + \beta_{14} = 0$		$\sum = 0.050$		0.28	0.595
$\beta_{11} + \beta_{14} = 0$		$\sum = 0.044$		0.01	0.915

	Strong country governance	Weak country governance
Strong firm governance	$\beta_5 + \beta_8 + \beta_{11} + \beta_{14}$	$\beta_5 + \beta_8$
Weak firm governance	$\beta_5 + \beta_{11}$	β_5

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 9

Panel A: Sample Selection	
Listed financial institutions in Canada and Europe from SNL Financial/S&P Capital IQ Fundamentals database	3,241
Less: Missing data to calculate discretionary loan loss provision	989
Sample to calculate discretionary loan loss provision	2,252
Less: Additional missing data to calculate discretionary realized securities gains and losses	71
Sample to calculate discretionary realized securities gains and losses	2,181
Less: Missing fair value hierarchy information	327
Less: Missing firm-level corporate governance information	987
Final Sample	867

Panel B: Distribution of Sample by Country

Country Name	Freq.	%	Country Name	Freq.	%	Country Name	Freq.	%
Austria	14	1.61	Germany	24	2.77	Portugal	17	1.96
Belgium	21	2.42	Greece	28	3.23	Romania	14	1.61
Canada	80	9.23	Hungary	13	1.50	Russia	35	4.04
Croatia	14	1.61	Ireland	14	1.61	Slovakia	14	1.61
Cyprus	4	0.46	Italy	88	10.15	Spain	47	5.42
Czech Republic	9	1.04	Kazakhstan	14	1.61	Sweden	28	3.23
Denmark	21	2.42	Malta	7	0.81	Switzerland	34	3.92
Finland	7	0.81	Netherlands	14	1.61	Turkey	77	8.88
France	35	4.04	Norway	17	1.96	Ukraine	11	1.27
Georgia	2	0.23	Poland	76	8.77	United Kingdom	88	10.15

Panel C: Distribution of Sample by Year

Year	Freq.	%
2011	114	13.15
2012	118	13.61
2013	119	13.73
2014	124	14.30
2015	129	14.88
2016	134	15.46
2017	129	14.88

Table 10

Panel A: Descriptive Statistics of Governance Variables

	N	Mean	St.Dev	min	max	p25	Median	p75
Firm-level								
INDEPENDENCE	867	0.534	0.269	0	1	0.333	0.538	0.750
AUDIT	867	0.983	0.130	0	1	1	1	1
AC_SIZE	867	4.059	1.830	0	14	3	4	5
AC_INDEPENDENCE	867	0.763	0.318	0	1	0.600	1	1
INST_OWN	867	0.933	0.250	0	1	1	1	1
Country-level								
Rule of Law	867	0.994	0.828	-0.819	2.1	0.363	1.059	1.779

Panel B: Governance Factor Score

Variable	Factor Loading Coefficients
INDEPENDENCE	0.775
AUDIT	0.579
AC_SIZE	0.581
AC_INDEPENDENCE	0.800
INST_OWN	0.178
Variation Explained	38.92%
Eigenvalue	1.946
Bartlett's Test of Sphericity	
Chi-Square	608.929
Degrees of Freedom	10
p-value	0.000

Panel C: Descriptive Statistics of the Firm-Level Governance Factor Score

	N	Mean	St.Dev	min	max	p25	Median	p75
GOVSCORE	867	0	1	-4.657	1.874	-0.472	0.142	0.659

Table 11

Panel A: Descriptive Statistics for DLLP and DRSGL calculations

	N	Mean	St.Dev	min	max	p25	Median	p75
LLP	2252	0.014	0.037	-0.535	0.522	0.001	0.006	0.015
TAmillions	2252	115000	312000	6.967	1730000	1642.282	10250.36	40285.33
LnTA	2252	22.984	2.363	15.757	28.182	21.219	23.051	24.419
ΔNPL	2252	-0.004	0.087	-1.926	0.966	-0.008	0	0.006
LLR	2252	0.057	0.096	0.000	1.616	0.011	0.033	0.069
LoanRM	2252	0.178	0.282	0.000	2.081	0.000	0	0.304
LoanCon	2252	0.224	0.309	0.000	2.541	0.000	0.077	0.339
LoanCom	2252	0.279	0.302	0.000	1.941	0.000	0.188	0.489
LoanOth	2252	0.289	0.423	0.000	7.234	0.000	0.046	0.536
RSGL	2181	0.001	0.004	-0.013	0.108	0.000	0	0.001
UNGL	2181	0.001	0.003	-0.029	0.024	0.000	0	0.001

Panel B: Descriptive Statistics for Hypothesis Tests

	N	Mean	St.Dev	min	max	p25	Median	p75
FVA2	867	0.093	0.112	0	0.638	0.014	0.053	0.117
FVA3	867	0.009	0.019	0	0.23	0.001	0.003	0.01
DLLP	867	0.001	0.022	-0.086	0.432	-0.007	0.001	0.007
DRSGL	867	0	0.002	-0.01	0.011	-0.001	0	0
ROA	867	0.6	1.898	-32.128	9.93	0.192	0.616	1.156
PreROA	867	0.601	1.892	-31.91	9.91	0.199	0.611	1.159

Panel C: Correlation Coefficients

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) DLLP	1.000							
(2) FVA2	0.057	1.000						
(3) FVA3	-0.015	0.029	1.000					
(4) High_PME	-0.030	-0.206*	-0.100*	1.000				
(5) Low_PME	0.140*	-0.046	0.039	-0.247*	1.000			
(6) LnTA	0.035	0.556*	-0.010	-0.357*	0.084*	1.000		
(7) ROA	-0.290*	-0.046	-0.134*	0.453*	-0.486*	-0.160*	1.000	
(8) PreROA	-0.279*	-0.046	-0.134*	0.454*	-0.486*	-0.160*	1.000*	1.000

* shows significance at the .05 level

Table 12
Regression Results Estimating Discretionary Accounting

	(1) LLP	(2) RSGL
LnTA	-0.002***	-0.000***
	(0.001)	(0.000)
ΔNPL	0.046***	
	(0.017)	
LLR	0.130***	
	(0.027)	
LoanRM	-0.012***	
	(0.004)	
LoanCon	0.011**	
	(0.005)	
LoanCom	-0.007*	
	(0.004)	
LoanOth	-0.005	
	(0.006)	
UNGL		0.140*
		(0.079)
Constant	0.047***	0.003***
	(0.012)	(0.001)
Obs.	2252	2181
R^2	0.260	0.133
F	16.689	6.510
Adj. R^2	0.241	0.111
Country fixed effects	Yes	Yes
Year fixed effects	Yes	Yes

Robust standard errors are in parenthesis
*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 13
Regression Results

	(1) DLLP	(2) DLLP	(3) DLLP
FVA2	0.003	0.010	0.003
	(0.011)	(0.012)	(0.008)
FVA3	0.012	0.024	-0.071**
	(0.085)	(0.087)	(0.036)
High_PME		-0.005*	
		(0.003)	
FVA2*High_PME		-0.032	
		(0.025)	
FVA3*High_PME		-0.198	
		(0.208)	
Low_PME			0.007***
			(0.002)
FVA2*Low_PME			-0.024
			(0.019)
FVA3*Low_PME			0.669*
			(0.405)
LnTA	-0.000	-0.001	-0.000
	(0.001)	(0.001)	(0.001)
Constant	0.015	0.026	0.016
	(0.028)	(0.030)	(0.029)
Obs.	867	867	867
R^2	0.110	0.116	0.167
F-statistic	42.584	39.863	38.701
Adj. R^2	0.069	0.072	0.125
Country fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes

Robust standard errors are in parenthesis
*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 14
Regression Results – Firm-Level Corporate Governance

	(1) GOV = 1	(2) GOV = 0	(3) GOV = 1	(4) GOV = 0	(5) GOV = 1	(6) GOV = 0
FVA2	0.006	0.007	0.004	0.042	0.008	0.006
	(0.007)	(0.027)	(0.006)	(0.053)	(0.007)	(0.019)
FVA3	-0.125***	0.435	-0.094***	0.437	-0.128***	0.222**
	(0.040)	(0.269)	(0.020)	(0.288)	(0.042)	(0.089)
High_PME			0.007	-0.011***		
			(0.006)	(0.004)		
FVA2*High_PME			-0.067	-0.053		
			(0.116)	(0.053)		
FVA3*High_PME			-0.277	-0.122		
			(0.254)	(0.283)		
Low_PME					0.002	0.013***
					(0.002)	(0.004)
FVA2*Low_PME					-0.016	0.006
					(0.014)	(0.045)
FVA3*Low_PME					0.328	0.382
					(0.241)	(0.434)
LnTA	-0.001	0.000	0.000	0.001	-0.001	0.001
	(0.002)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)
Constant	0.033	-0.016	0.007	-0.022	0.034	-0.027
	(0.044)	(0.020)	(0.024)	(0.023)	(0.044)	(0.020)
Obs.	440	427	440	427	440	427
R^2	0.150	0.201	0.168	0.233	0.152	0.291
F-statistic	37.306	85.026	33.603	70.514	33.462	8.534
Adj. R^2	0.097	0.141	0.109	0.168	0.092	0.231
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes

Robust standard errors are in parenthesis
*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 15
Regression Results – Country-Level Corporate Governance

	(1) RULE = 1	(2) RULE = 0	(3) RULE = 1	(4) RULE = 0	(5) RULE = 1	(6) RULE = 0
FVA2	0.007	0.010	0.007	0.040	0.006	-0.010
	(0.007)	(0.034)	(0.007)	(0.076)	(0.006)	(0.011)
FVA3	-0.108***	0.653*	-0.076***	0.723*	-0.120***	0.158**
	(0.034)	(0.369)	(0.021)	(0.423)	(0.041)	(0.079)
High_PME			0.010	-0.013**		
			(0.007)	(0.005)		
FVA2*High_PME			-0.143	-0.039		
			(0.122)	(0.073)		
FVA3*High_PME			-0.312	-0.634		
			(0.291)	(0.422)		
Low_PME					0.000	0.025***
					(0.003)	(0.009)
FVA2*Low_PME					-0.000	0.160
					(0.017)	(0.126)
FVA3*Low_PME					0.194*	1.001*
					(0.114)	(0.531)
LnTA	-0.001	0.001	0.000	0.000	-0.001	0.000
	(0.002)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)
Constant	0.036	-0.007	0.005	0.001	0.037	-0.004
	(0.045)	(0.021)	(0.024)	(0.028)	(0.047)	(0.020)
Obs.	458	409	458	409	458	409
R^2	0.164	0.184	0.201	0.230	0.166	0.362
F-statistic	41.714	3.141	40.160	3.160	38.135	4.690
Adj. R^2	0.113	0.137	0.147	0.180	0.109	0.320
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes

Robust standard errors are in parenthesis
*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 16
Distribution of GOV by Strength of Legal Enforcement

		GOV		
		LOW (0)	HIGH (1)	Total
RULE	LOW (0)	314 36%	95 11%	409
	HIGH (1)	113 13%	345 40%	458
	Total	427	440	867

Table 17
Regression Results – Firm- And Country-Level Corporate Governance

	(1) G1 R1	(2) G1 R0	(3) G0 R1	(4) G0 R0	(5) G1 R1	(6) G1 R0	(7) G0 R1	(8) G0 R0	(9) G1 R1	(10) G1 R0	(11) G0 R1	(12) G0 R0
FVA2	0.013	-0.010	-0.011	0.009	0.012	-0.030	-0.009	0.077	0.014	0.023	-0.005	-0.017
	(0.009)	(0.030)	(0.012)	(0.032)	(0.009)	(0.030)	(0.012)	(0.084)	(0.009)	(0.032)	(0.011)	(0.014)
FVA3	-0.134***	0.110	0.056	0.737*	-0.093***	0.192	0.062	0.785*	-0.141***	0.118	0.137*	0.183**
	(0.043)	(0.080)	(0.042)	(0.397)	(0.021)	(0.128)	(0.042)	(0.453)	(0.047)	(0.093)	(0.071)	(0.082)
High_PME					0.015	0.004	-0.008	-0.014***				
					(0.013)	(0.004)	(0.010)	(0.005)				
FVA2*High_PME					-0.092	0.100***	-0.070***	-0.087				
					(0.199)	(0.036)	(0.025)	(0.084)				
FVA3*High_PME					-0.433	-0.169	-0.943	-0.434				
					(0.448)	(0.192)	(1.088)	(0.448)				
Low_PME									-0.000	0.001	0.010***	0.036***
									(0.004)	(0.002)	(0.004)	(0.010)
FVA2*Low_PME									-0.007	-0.066*	-0.036**	0.263**
									(0.020)	(0.036)	(0.017)	(0.120)
FVA3*Low_PME									0.503	-0.255	-0.195*	0.997*
									(0.318)	(0.275)	(0.108)	(0.555)
LnTA	-0.002	0.003***	0.005***	-0.000	-0.000	0.003**	0.006***	-0.000	-0.002	0.002***	0.006***	-0.000
	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)
Constant	0.054	-0.065***	-0.145***	0.014	0.017	-0.062**	-0.161***	0.016	0.058	-0.050***	-0.162***	0.001
	(0.053)	(0.018)	(0.035)	(0.024)	(0.027)	(0.027)	(0.037)	(0.028)	(0.055)	(0.018)	(0.038)	(0.019)
Obs.	345	95	113	314	345	95	113	314	345	95	113	314
R^2	0.148	0.578	0.674	0.227	0.186	0.611	0.680	0.268	0.150	0.628	0.736	0.419
F-statistic	33.664	16.475	92.526	3.042	30.207	25.674	99.173	2.825	28.709	17.866	40.423	4.690
Adj. R^2	0.089	0.510	0.607	0.172	0.122	0.531	0.602	0.207	0.084	0.552	0.672	0.371
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Robust standard errors are in parenthesis
*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Appendices

Appendix 1

Scotiabank Annual Report 2013

Only assets/liabilities carried at fair value are broken down into the three-level fair value hierarchy.

The following table outlines the fair value hierarchy of instruments carried at fair value.

As at October 31, 2013 ($ millions)	Level 1	Level 2	Level 3	Total
Assets:				
Trading assets				
Loans	$ –	$ 11,225	$ –	$ 11,225
Government issued or guaranteed securities – Canada and the U.S.	23,826	–	–	23,826
Government issued or guaranteed securities – Other	6,183	7,789	–	13,972
Corporate and other debt	219	10,878	31	11,128
Income trusts/funds and hedge funds	163	4,093	1,248	5,504
Equity securities	29,468	214	84	29,766
	$ 59,859	$ 34,199	$ 1,363	$ 95,421
Financial assets designated at fair value through profit or loss	$ –	$ 69	$ 37	$ 106
Investment securities[1]				
Government issued or guaranteed securities – Canada and the U.S.	$ 9,496	$ 418	$ –	$ 9,914
Government issued or guaranteed securities – Other	5,506	7,695	402	13,603
Corporate and other debt	1,211	5,083	471	6,765
Mortgage backed securities	–	116	12	128
Equity securities	2,391	217	1,113	3,721
	$ 18,604	$ 13,529	$ 1,998	$ 34,131
Derivative financial instruments				
Interest rate contracts	$ –	$ 11,893	$ 88	$ 11,981
Foreign exchange and gold contracts	2	8,846	37	8,885
Equity contracts	242	785	302	1,329
Credit contracts	–	953	13	966
Other	461	874	7	1,342
	$ 705	$ 23,351	$ 447	$ 24,503
Liabilities:				
Derivative financial instruments				
Interest rate contracts	$ –	$ 11,772	$ 15	$ 11,787
Foreign exchange and gold contracts	1	7,505	–	7,506
Equity contracts	464	2,503	745	3,712
Credit contracts	–	5,039	11	5,050
Other	371	828	1	1,200
	$ 836	$ 27,647	$ 772	$ 29,255
Obligations related to securities sold short	$ 22,441	$ 2,536	$ –	$ 24,977
Financial liabilities designated at fair value through profit or loss	$ –	$ 174	$ –	$ 174

(1) Excludes investments which are held-to-maturity of $172.

Instruments not carried at fair value on the balance sheet (i.e. carried at amortized cost) are now disclosed at their fair value. In this example, the reported value in S&P Capital IQ Fundamentals database for level 3 assets would be overstated by $248,177,000 CAD (database presented in thousands).

Fair value hierarchy

The following table outlines the fair value hierarchy of instruments carried at fair value on a recurring basis and of instruments not carried at fair value.

As at October 31, 2014 ($ millions)	Level 1	Level 2	Level 3	Total
Instruments carried at fair value on a recurring basis:				
Assets:				
Precious metals[1]	$ –	$ 7,286	$ –	$ 7,286
Trading assets				
Loans	–	14,508	–	14,508
Canadian federal government and government guaranteed debt	13,848	–	–	13,848
Canadian provincial and municipal debt	–	7,531	–	7,531
US treasury and other US agencies' debt	9,212	1,764	–	10,976
Other foreign governments' debt	8,004	2,230	–	10,234
Corporate and other debt	85	12,453	32	12,570
Income funds and hedge funds	144	2,946	1,282	4,372
Equity securities	35,564	217	51	35,832
Other[2]	3,377	–	–	3,377
	$70,234	$ 48,935	$ 1,365	$120,534
Financial assets designated at fair value through profit or loss	$ –	$ 90	$ 21	$ 111
Investment securities[3]				
Canadian federal government and government guaranteed debt	$ 5,520	$ 1,331	$ –	$ 6,851
Canadian provincial government and municipal debt	803	2,500	–	3,303
US treasury and other US agencies' debt	6,096	130	–	6,226
Other foreign governments' debt	5,793	4,779	411	10,983
Bonds of designated emerging markets	–	45	–	45
Corporate and other debt	889	5,260	500	6,649
Mortgage-backed securities	–	99	39	138
Equity securities	3,087	208	1,006	4,301
	$22,188	$ 14,352	$ 1,956	$ 38,496
Derivative financial instruments				
Interest rate contracts	$ –	$ 12,668	$ 146	$ 12,814
Foreign exchange and gold contracts	2	14,996	–	14,998
Equity contracts	237	1,547	573	2,357
Credit contracts	–	970	4	974
Other	875	1,380	41	2,296
	$ 1,114	$ 31,561	$ 764	$ 33,439
Liabilities:				
Deposits[4]	$ –	$ 136	$ 1,011	$ 1,147
Financial liabilities designated at fair value through profit or loss	$ –	$ 465	$ –	$ 465
Obligations related to securities sold short	$24,025	$ 3,025	$ –	$ 27,050
Derivative financial instruments				
Interest rate contracts	$ –	$ 13,003	$ 52	$ 13,055
Foreign exchange and gold contracts	3	13,927	–	13,930
Equity contracts	463	1,711	456	2,630
Credit contracts	–	3,947	2	3,949
Other	579	2,295	–	2,874
	$ 1,045	$ 34,883	$ 510	$ 36,438
Instruments not carried at fair value[5]:				
Assets:				
Investment securities – Held to maturity	$ –	$ 166	$ –	$ 166
Loans[6]	–	–	248,177	248,177
Liabilities:				
Deposits[6][7]	–	267,343	–	267,343
Subordinated debt	–	5,073	–	5,073
Other liabilities	–	10,318	–	10,318

(1) The fair value of precious metals is determined based on quoted market prices and forward spot prices.
(2) Consists primarily of base metal positions. The fair value of these positions is determined based on quoted prices in active markets.
(3) Excludes investments which are held-to-maturity of $166.
(4) These amounts represent embedded derivatives bifurcated from structured deposit notes.
(5) Represents the fair value of financial assets and liabilities where the carrying amount is not a reasonable approximation of fair value.
(6) Excludes floating rate instruments as carrying value approximates fair value.
(7) Excludes embedded derivatives bifurcated from structured deposit notes.

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Table listing the fair value hierarchy for assets and liabilities measured at fair value on a recurring basis. The fair value data in this table is neither clear nor intuitively presented and was not included in the database. However, the information on the following page, relating to the fair value of assets and liabilities carried at amortized cost was included.

Notes to the financial statements
for the year ended 31 December 2016

(All amounts are expressed in thousands of KM)

37. FAIR VALUE MEASUREMENT

37.1 Fair value of the Bank's financial assets and financial liabilities that are measured at fair value on a recurring basis

Some of the Bank's financial assets and financial liabilities are measured at fair value at the end of each reporting period. The following table gives information about how the fair values of these financial assets and financial liabilities are determined (in particular, the valuation technique(s) and inputs used).

Financial assets / Financial liabilities	Fair value at the date		Fair value hierarchy	Valuation techniques and inputs
	31 December 2016	31 December 2015		
1) Financial assets at FVTPL (see Note 18)	Equity securities listed on the Stock Exchange in Bosnia and Herzegovina: • Shares of private and public companies, banks and non-banking financial institutions – KM 375 thousand Debt securities listed on the Stock Exchange in Bosnia and Herzegovina: • FBiH Government bonds – KM 7,714 thousand	Equity securities listed on the Stock Exchange in Bosnia and Herzegovina: • Shares of private and public companies, banks and non-banking financial institutions – KM 859 thousand Debt securities listed on the Stock Exchange in Bosnia and Herzegovina: • FBiH Government bonds – KM 7,897 thousand	Level 1	Prices quoted on an active market.
1) Financial assets available-for-sale (see Note 19)	Equity securities listed on the Stock Exchange in Bosnia and Herzegovina without trading: • Vakufska banka d.d. Sarajevo – KM 10 thousand • Sarajevo Stock Exchange d.d. Sarajevo – KM 103 thousand • Securities Registry in FBiH – KM 15 thousand • BamCard d.d. Sarajevo – KM 226 thousand • Bank Association – KM 9 thousand Share in investment funds: • Open investment funds – KM 735 thousand Debt securities listed on the Stock Exchange in Bosnia and Herzegovina: • FBiH Government bonds – KM 30,709 thousand	Equity securities listed on the Stock Exchange in Bosnia and Herzegovina without trading: • Vakufska banka d.d. Sarajevo – KM 10 thousand • Sarajevo Stock Exchange d.d. Sarajevo – KM 103 thousand • Securities Registry in FBiH – KM 15 thousand Share in investment funds: • Open investment funds – KM 857 thousand	Level 1 Level 2 Level 1	Discounted cash flow valuation technique, considering the last available rate on owned or similar equity securities as yield rate.

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Fair value of assets and liabilities carried at amortized cost was incorrectly listed in the database.

Notes to the financial statements
for the year ended 31 December 2016

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37. FAIR VALUE MEASUREMENT (CONTINUED)

37.2 Fair value of the Bank's financial assets and financial liabilities that are not measured at fair value on a recurring basis (but fair value disclosures are required)

Except as detailed in the following table, the Management consider that the carrying amounts of financial assets and financial liabilities recognised in the financial statements approximate their fair values.

	31 December 2016		31 December 2015	
	Carrying amount	Fair value	Carrying amount	Fair value
Financial asset				
Loans and receivables:				
- Loans to customers, net	247,090	244,983	94,445	91,661
- Financial assets held to maturity	1,756	1,756	23,862	23,862
Financial payables:				
At amortized cost:				
- Due to customers and financial institutions	324,526	331,689	154,602	158,950
- Subordinated debt	8,118	7,832	-	-

Fair value hierarchy as of 31 December 2016

	Level 1	Level 2	Level 3	Total
Financial asset				
Loans and receivables:				
- Loans to customers	-	244,983	-	244,983
- Financial assets held to maturity	-	1,756	-	1,756
	-	246,739	-	246,739
Financial payables:				
At amortized cost:				
- Due to customers, other banks and financial institutions	-	331,689	-	331,689
- Subordinated debt	-	7,844	-	7,844
	-	339,533	-	339,533

The fair values of the financial assets and financial liabilities included in the level 3 category above have been determined in accordance with generally accepted pricing models based on a discounted cash flow analysis, with the most significant inputs being the discount rate that reflects the credit risk of counterparties. As the discount rate used in the weighted average interest rate on the state level, published by CBBH separately for legal entities and individuals.

Appendix 3

Sparkasse Bank dd bih 2017 Annual Report – in Bosnian

The report in the original language contains the information for the fair value hierarchy, where Nivo 1 translates to Level 1. Due to the language, the English translation on the following page was used by the database provider.

Napomene uz finansijske izvještaje
za godinu koja je završila 31. decembra 2017.
(svi iznosi su iskazani u hiljadama KM, osim ukoliko nije drugačije naznačeno)

36. MJERENJE FER VRIJEDNOSTI

Ova napomena daje informacije o mjernu na koji Banka procjenjuje fer vrijednosti različite finansijske imovine i finansijskih obaveza.

35.1 Fer vrijednost finansijske imovine i finansijskih obaveza Banke koji se mjere po fer vrijednosti na ponavljajućem nivou, iz perioda u period

Neki od finansijske imovine i finansijskih obaveza Banke mjere se po fer vrijednosti na svaki datum izvještavanja. U nastavku su informacije o tome kako se utvrđuju fer vrijednosti ove finansijske imovine i finansijskih obaveza (posebno, tehnike vrednovanja i ulazni podaci koji se koriste).

Grupa i Banka Finansijska imovina i finansijska obaveze	Fer vrijednost na dan		Hijerarhija fer vrijednosti	Tehnika vrednovanja i ulazni podaci
	31. decembar 2017.	31. decembar 2016.		
1) Finansijska imovina raspoloživa za prodaju (vidi Napomenu 22.)	Vlasnički vrijednosni papiri koji kotiraju na berzi u Bosni i Hercegovini: • BamCard d.d. Sarajevo – 115 hiljada KM	Vlasnički vrijednosni papiri koji kotiraju na berzi u Bosni i Hercegovini: • BamCard d.d. Sarajevo – 115 hiljada KM		
	Vlasnički vrijednosni papiri koji kotiraju na berzi u drugim zemljama: • Belgija – 84 hiljade KM	Vlasnički vrijednosni papiri koji kotiraju na berzi u drugim zemljama: • Belgija – 84 hiljade KM		
	Dužnički vrijednosni papiri koji kotiraju na berzi u drugim zemljama: • Hrvatska – 8.384 hiljada KM (Baa3/BBB) • Austrija – 23.082 hiljada KM (AA/AA) • Belgija – 9.619 hiljada KM (AA/AA) • Francuska – 9.840 hiljada KM (AA/AA)	Dužnički vrijednosni papiri koji kotiraju na berzi u drugim zemljama: • Hrvatska – 8.683 hiljada KM (Baa3/BBB) • Austrija – 11.585 hiljada KM (AAA/AAA)	Nivo 1	Cijene koje kotiraju na aktivnom tržištu.
	Dužnički vrijednosni papiri koji kotiraju na berzi u Bosni i Hercegovini: • Ministarstvo finansija FBIH – 26.889 hiljada KM (B+) • Ministarstvo finansija RS – 22.028 hiljada KM (B+) • Općina Hadžići – 100 hiljada KM	Dužnički vrijednosni papiri koji kotiraju na berzi u Bosni i Hercegovini: • Ministarstvo finansija FBH – 26.878 hiljada KM (B+) • Ministarstvo finansija RS – 16.846 hiljada KM (B+) • Općina Cazin – 84. hiljade KM • Općina Hadžići – 200 hiljada KM		

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Sparkasse Bank dd bih 2017 Annual Report – in English

A truncated view (to permit readability) of the English translation shows that the area that would contain "Level 1", contains the phrase "Levels of" and is missing the numerical value. This resulted in the database listing this information as N/A, despite being available.

s and finansljskih obligations.

and the period in the period

. Below are information on how to determine the fair value of these financial assets and financial liabilities (in particular, valuation

	The fair value hierarchy	Evaluation technique and input data
31. December 2016.		
Equity securities listed on the stock exchange in Bosnia and Herzegovina:		
• BamCard dd Sarajevo -115 thousand KM		
Equity securities traded on stock exchanges in other countries:		
• Belgium-64 hifed KM		
Debt securities listed on stock exchanges in other countries:	Levels of	
b Croatia - KM 8,883 thousand (Baa3 / BBB)		
• Austria -11,565 thousand KM (AAA / AAA)		Prices quoted on an active market.
Debt securities listed on the stock exchange in Bosnia and Herzegovina:		
b Ministry of Finance of the FBiH - 26,878 hfijades KM (B +)		
b Ministry of Finance RS -16,846 thousand KM (B +)		
Municipality of Cazin - 84 thousand KM Municipality of Hadzici - 200 thousand KM		

Sparkasse Bank dd bih – 2016 Annual Report

This official English translation includes this table, which lists the fair value hierarchy for assets and liabilities carried at fair value on a recurring basis. Despite this, the information was listed as 0 in the database. Discussions with the database provider indicated that this information, due to its presentation was missed. The information on the following page was viewed, but appropriately excluded as it related to assets and liabilities carried at amortized cost.

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Sparkasse Bank dd BiH
Notes to financial statements for the year ending 31 December 2016
(all amounts are expressed in thousand KM, unless otherwise stated)

35. FAIR VALUE MEASUREMENT
This note provides information about how the Bank determines fair values of various financial assets and financial liabilities.

35.1   Fair value of the Company's financial assets and financial liabilities that are measured at fair value on a recurring basis
Some of the Bank's financial assets and financial liabilities are measured at fair value at the end of each reporting period. The following table gives information about how the fair values of these financial assets and financial liabilities are determined (in particular, the valuation technique(s) and inputs used).

Group and Bank Financial assets/ financial liabilities	Fair value as at		Fair value hierarchy	Valuation technique(s) and key input(s)
	31 December 2016	31 December 2015		
1) Financial assets available-for-sale (see Note 22)	Listed equity securities in stock exchange in Bosnia and Herzegovina: • BamCard d.d Sarajevo – KM 115 thousand	Listed equity securities in stock exchange in Bosnia and Herzegovina: • BamCard d.d Sarajevo – KM 115 thousand	Level 1	Quoted bid prices in an active market.
	Listed equity securities on stock exchanges in other countries: • Belgium - KM 64 thousand	Listed equity securities on stock exchanges in other countries: • Belgium - KM 64 thousand		
	Listed debt securities in stock exchange in other countries: • Croatia – KM 8,683 thousand (Baa3/BBB) • Austria – KM 11,565 thousand (AAA/AAA)	Listed debt securities in stock exchange in other countries: • Croatia – KM 8,912 thousand (Baa3/BBB)		
	Listed debt securities in stock exchange in Bosnia and Herzegovina: • FBiH Ministry of Finance – KM 26,878 thousand (B+) • RS Ministry of Finance – KM 18,848thousand (B+) • Cazin Municipality – KM 84 thousand • Hadžići Municipality – KM 200 thousand	Listed debt securities in stock exchange in Bosnia and Herzegovina: • FBiH Ministry of Finance – KM 38,932 thousand (B+) • RS Ministry of Finance – KM 5,596 thousand (B+) • Cazin Municipality – KM 173 thousand • Hadžići Municipality – KM 301 thousand		

Sparkasse Bank dd bih – 2016 Annual Report

Presentation of fair value hierarchy by level (nivo) for items carried at amortized cost. Properly excluded from the SNL Financial database, but included in S&P Capital IQ Fundamentals database.

Sparkasse Bank dd BiH
Notes to financial statements for the year ending 31 December 2016
(all amounts are expressed in thousand KM, unless otherwise stated)

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35. 35. FAIR VALUE MEASUREMENT (CONTINUED)

35.2 Fair value of the Bank's financial assets and financial liabilities that are not measured at fair value on a recurring basis, from period to period (but fair value disclosures are required)

Except as detailed in the following table, the Management consider that the carrying amounts of financial assets and financial liabilities recognised in the financial statements approximate their fair values.

Group and Bank	31 December 2016		31 December 2015	
	Carrying amount	Fair value	Carrying amount	Fair value
Financial assets				
Loans and receivables:				
- loans to customers	844.443	845.814	794.894	791.328
Financial liabilities				
Financial liabilities held at amortised cost:				
- due to banks and customers	965.183	968.529	974.349	972.349

Group and Bank	Hijerarhija fer vrijednosti na dan 31. decembar 2016.			
	Nivo 1	Nivo 2	Nivo 3	Ukupno
Financial assets				
Loans and receivables:				
- loans to customers	-	-	845.814	845.814
	-	-	845.814	845.814
Financial liabilities				
Financial liabilities held at amortised cost:				
- due to banks and customers	-	-	968.529	968.529
	-	-	968.529	968.529

The fair values of the financial assets and financial liabilities included in the level 2 categories above have been determined in accordance with generally accepted pricing models based on a discounted cash flow analysis, with the most significant inputs being the discount rate that reflects the credit risk of counterparties.

The calculation of the fair value is determined by discounting future cash flows, using the weighted average interest rate on the state level, published by CBBH separately for corporate and individuals.

Appendix 4

Liberbank SA 2017 Annual Report

Presentation of fair value hierarchy that does not clearly delineate between assets and liabilities carried at fair value on a recurring basis and those carried at amortized cost.

The breakdown of financial instruments held by the Bank at 31 December 2017 and 2016 according to the calculation method of the fair value is as follows:

Financial assets:

| | Thousands of Euros | | | | | |
| | 31/12/2017 | | | 31/12/2016 | | |
	Level 1	Level 2	Level 3	Level 1	Level 2	Level 3
Cash, cash balances in Central Banks and other demand deposits	1,716,860	-	-	916,437	-	-
Financial assets held for negotiation:	-	22,528	-	1	30,263	-
Debt securities	-	-	-	1	-	-
Derivatives	-	22,528	-	-	30,263	-
Available-for-sale financial assets:	4,420,039	13,183	366,496	7,115,839	110,971	364,732
Debt securities	4,407,043	-	-	7,113,172	90,044	-
Equity instruments	12,996	13,183	366,496	2,667	20,927	364,732
Loans and receivables:	-	-	25,912,154	3,478	-	26,569,912
Loans and advances - Credit entities	-	-	84,206	-	-	95,190
Loans and advances - Customers	-	-	23,355,264	-	-	23,992,629
Debt securities	-	-	2,472,684	3,478	-	2,482,093
Derivatives- Hedge Accounting:	-	356,742	-	-	449,142	-
	6,136,899	392,453	26,278,650	8,035,755	590,376	26,934,644

Financial liabilities:

| | Thousands of Euros | | | | | |
| | 31/12/2017 | | | 31/12/2016 | | |
	Level 1	Level 2	Level 3	Level 1	Level 2	Level 3
Financial liabilities held for negotiation:	-	22,818	-	-	31,611	-
Derivatives	-	22,818	-	-	31,611	-
Financial liabilities at amortised cost:	-	-	32,575,842	-	-	35,422,698
Deposits - Central Banks	-	-	2,877,339	-	-	2,891,678
Deposits - credit institutions	-	-	887,069	-	-	1,521,163
Deposits- Customers	-	-	27,874,330	-	-	30,339,381
Debt instruments issued	-	-	748,055	-	-	450,986
Other financial liabilities	-	-	189,049	-	-	219,490
Derivatives- Hedge Accounting:	-	28,111	-	-	59,068	-
	-	50,929	32,575,842	-	90,679	35,422,698

Process for determining fair value

The established process of determining fair value by the Bank ensures that assets and liabilities are properly valued. Market inputs and other parameters and methodologies for assessing and

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Appendix 5

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The financial statement note on investment securities contains the fair value hierarchy of assets carried at fair value on a recurring basis. However, note 11 (on the next page) is titled Fair Value of Financial Instruments and contains information on the hierarchy. However, this information is for assets carried at amortized cost.

6. Investment securities

Fair values of investment securities held at fair value	Level 1 £'000	Level 2 £'000	Total £'000
Recurring fair value measurements			
As at 31 December 2017			
Financial investments: available for sale	289,941	70,763	360,704
As at 31 December 2016			
Financial investments: available for sale	274,027	330,100	604,127

The classification of a financial instrument is based on the lowest level input that is significant to the fair value measurement in its entirety. The two levels of the fair value hierarchy relevant to the Group are defined below.

Quoted market prices – Level 1
Financial instruments are classified as Level 1 if their value is observable in an active market. Such instruments are valued by reference to unadjusted quoted prices for identical assets or liabilities in active markets where the quoted price is readily available, and the price represents actual and regularly occurring market transactions on an arm's length basis. An active market is one in which transactions occur with sufficient volume and frequency to provide pricing information on an ongoing basis.

Valuation technique using observable inputs – Level 2
Inputs other than quoted prices included within Level 1 that are observable for the asset, either directly (as prices) or indirectly (derived from prices).

Reclassifications between categories
On 17 February 2017 £33.2 million, 18 April 2017 £60.4 million, 21 November 2017 £95 million, 19 December 2017 £87.8 million and on 22 December 2017 £46.1 million of financial assets classified as available for sale were reclassified as held to maturity. The carrying amount (excluding accrued interest) and fair value of the assets at 31 December were as follows:

	Carrying amount £'000	Fair value £'000
At 31 December 2017	313,857	323,369

A £1.2 million fair value gain was recognised with respect to the reclassified assets in 2017; had these assets not been reclassified, a additional fair value gain of £0.9 million would have been recognised in other comprehensive income. The effective interest rates on available for sale assets reclassified to held to maturity at 1 January 2017 and 31 December 2017 ranged from 0.96% to 3.65%, with all cash flows expected to be recoverable.

At 31 December 2017, financial investments classified as held to maturity were as follows:

	Carrying amount £'000	Fair value £'000
At 31 December 2017	3,553,801	3,590,350
At 31 December 2016	2,622,588	2,651,136

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Metro Bank PLC 2017 Annual Report

This note visually presents the information as representing assets and liabilities carried at fair value on a recurring basis, but actually represents items carried at amortized cost.

11. Fair value of financial instruments

The fair values of financial instruments are based on market prices where available, or are estimated using other valuation techniques. Where they are short-term in nature or re-price frequently, fair value approximates to carrying value. Apart from investment securities all other assets and liabilities are deemed to have a fair value hierarchy of level 3. Level 3 is defined as – inputs for the asset or liability that are not based on observable market data (unobservable inputs). This level includes equity investments and debt instruments with significant unobservable components.

31-Dec-2017	Carrying Value £'000	Quoted market price Level 1 £'000	Using observable inputs Level 2 £'000	With significant unobservable inputs Level 3 £'000	Total Fair Value £'000
Assets					
Cash and balances with the Bank of England	2,111,630	-	-	2,111,630	2,111,630
Loans and advances to banks	100,388	-	-	100,388	100,388
Loan and advances to customers	9,620,326	-	-	10,084,203	10,084,203
Investment securities	3,914,506	922,006	3,029,048	-	3,951,054
Liabilities					
Deposits from customers	11,668,738	-	-	11,650,419	11,650,419
Deposits from central banks	3,320,900	-	-	3,320,900	3,320,900
Repurchase agreements	121,558	-	-	121,558	121,558
31-Dec-2016					
Assets					
Cash and balances with the Bank of England	434,612	-	-	434,612	434,612
Loans and advances to banks	65,816	-	-	65,816	65,816
Loan and advances to customers	5,865,370	-	-	6,093,436	6,093,436
Investment securities	3,226,715	877,226	2,378,037	-	3,255,263
Liabilities					
Deposits from customers	7,950,579	-	-	7,946,687	7,946,687
Deposits from central banks	543,000	-	-	543,000	543,000
Repurchase agreements	653,091	-	-	653,091	653,091

For the cash and balances with the Bank of England and repurchase agreements, the carrying value approximates to the fair value, and therefore no pricing level has been identified for them above.

Information on how fair values are calculated for the financial assets and liabilities noted above are explained below:

(a) Cash and balances with the Bank of England/loans and advances to banks

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Appendix 6

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This table presents the fair value hierarchy for items carried at fair value on a recurring basis and for items carried at amortized cost, but does not clearly delineate between them.

31/12/2015	Fair value			
EUR thousand	Level 1	Level 2	Level 3	Total
Assets				
Cash and balances with central banks	13,901			13,901
Loans and advances to banks			8,646	8,646
Loans and advances to customers			35,604	35,604
Financial investments	7,649	3,303	9,068	20,020
Other assets			13,415	13,415
Liabilities				
Deposits from banks			52,389	52,389
Deposits from customers			75,274	75,274
Other liabilities			7,518	7,518
Securitised liabilities			15,446	15,446

31/12/2016	Fair value			
EUR thousand	Level 1	Level 2	Level 3	Total
Assets				
Cash and balances with central banks	90,991			90,991
Loans and advances to banks			128,859	128,859
Loans and advances to customers			44,348	44,348
Financial investments	108,454	3,331	12,919	124,705
Other assets	65		14,192	14,257
Liabilities				
Deposits from banks			54,262	54,262
Deposits from customers			372,590	372,590
Other liabilities	48	448	4,366	4,862
Securitised liabilities			27,669	27,669

In 2016, no assets were transferred between levels.

Derivative financial instruments

Total volume of derivative financial instruments not settled as at 31 December 2016

in EUR	31 December 2016	31 December 2015
	Nominal values term to maturity < 1 year	
Forward foreign-exchange transactions	6,811,437.50	999,613.79