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# **The impact of legal efficacy on value relevance of the three-level fair value measurement hierarchy**

## **Abstract**

We examine whether the three-level fair value measurement hierarchy in IFRS 13 is value relevant in banks internationally, and whether that value relevance is moderated by country-level legal system, enforcement, and the interaction of legal system and enforcement (legal efficacy). Legal system, enforcement and legal efficacy, we argue, provide a parsimonious way of grouping countries that yields country classifications similar to more complex classification schemes. In a large sample of banks from 35 IFRS-adopting countries over 2012-2016, we find that fair value estimates are most value relevant in countries with the strongest combination of legal system and enforcement, monotonically decreasing to least value relevant in countries with the weakest combination of legal system and enforcement. In addition, these associations matter the most (least) for the least (most) reliable fair value estimates. We also show that bank size positively moderates value relevance of fair value estimates but only in countries without the strongest combination of legal system and enforcement. Our study contributes to understanding of the value relevance of fair value estimates internationally.

**Keywords:** Fair value measurement hierarchy, value relevance, legal system, enforcement

JEL Classification: M41

## 1. Introduction

We examine whether the three-level fair value measurement hierarchy (three-level hierarchy, hereafter) in International Financial Reporting Standards (IFRS) is value relevant<sup>1</sup> in a large sample of international banks over the period 2012-2016. Specifically, we examine whether such value relevance is associated with two important country-level institutional factors, legal system and enforcement, and whether legal system and enforcement combined, referred to as *legal efficacy*, moderate value relevance of fair value estimates.

Fair value remains a controversial issue because of concerns about: the reliability of fair values (Benston, 2008); how fair value impacts market operatives (Magnan et al., 2015); the impact of country-level differences on fair value estimates (De George et al., 2016); and, the impact of fair value on bank stability in times of crisis (Barth and Landsman, 2010; Laux and Leuz, 2009, 2010). Prior research, primarily on US financial institutions, shows that the three-level hierarchy is value relevant (e.g. Song et al., 2010; Goh et al., 2015).

However, comparatively little is known about the value relevance of the three-level hierarchy in banks *internationally*. The US-based findings may not apply in other countries where transparency and liquid markets are absent so that opportunities arise to manipulate fair values opportunistically (De George et al., 2016; Fiechter and Novotny-Farkas, 2017). For example, Yao et al. (2018) show that banks' use of the most opaque level in the three-level hierarchy is negatively associated with the country characteristics of capital market development and liquidity, enforcement, and disclosure level (plus several firm-level characteristics). The issue is also of interest because the use of fair values in other industries, such as real estate (Quagli and Avallone,

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<sup>1</sup> Accounting amounts are value relevant if they are significantly associated with market value because they contain relevant information for the valuation of a firm with sufficient reliability to be reflected in its stock price (Barth et al., 2001).

2010) and agriculture (Huffman, 2018), is influenced by country-level institutional features. However, there is disagreement in the literature about which country-level institutional features are best for classifying countries. We argue that legal system, enforcement and legal efficacy provide a parsimonious classification of countries that is consistent with other country classifications that use more complex sets of variables.

We find that fair value estimates are most value relevant in countries with the strongest combination of legal system and enforcement (common law system *and* high enforcement; Common-High, hereafter), monotonically decreasing to least value relevant in countries with the weakest combination of legal system and enforcement (code law system *and* low enforcement; Code-Low, hereafter). In addition, these associations matter the most (least) for the least (most) reliable fair value estimates.

Fair value is not a new concept in accounting and controversy about it can be traced back to at least the 1930s (Walker, 1992; Christensen and Nikolaev, 2013). In the past, most official pronouncements on fair value have been limited to *what* was to be measured at fair value rather than on *how* to measure it (Liao et al., 2013). It was not until the introduction of SFAS 157<sup>2</sup> in 2006, effective from 2007, in the US that a standard prescribed how to measure fair value using a three-level hierarchy. The International Accounting Standards Board (IASB) also introduced equivalent requirements in IFRS 7 *Financial Instruments: Disclosures*, effective from 2009. These requirements were subsequently moved from IFRS 7 to IFRS 13 *Fair Value Measurement* (issued in 2011, effective from January 2013).

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<sup>2</sup> As part of the Accounting Standards Codification (ASC), the FASB updated its Statements of Financial Accounting Standards (SFAS), effective from September 2009. SFAS 157 was superseded by ASC 820. For brevity, we refer to SFAS 157 when comparing to the equivalent IFRS throughout the paper.

The three-level hierarchy uses fair value inputs ranging from the most reliable inputs that are directly obtained from active asset markets and are independent of the reporting entity (Level 1), the inputs from similar assets to those held by the firm (Level 2), and the least reliable inputs based on the firm's own assumptions and estimates when active markets do not exist, sometimes called "mark-to-model" (Level 3). Firms are now required to disclose the three-level hierarchy used to measure their assets and liabilities at fair value. The varying reliability and conceptual eclecticism of the three-level hierarchy, however, have been criticised (Benston, 2008) and remain a weakness.

Whether or not the three-level hierarchy is value relevant to investors is a debate that intensified following claims that fair values injected excessive, artificial volatility into financial markets during the 2008 financial crisis and adversely impacted the solvency of financial institutions (Allen and Carletti, 2008; Plantin et al., 2008; Laux and Leuz, 2009, 2010; Barth and Landsman, 2010; Badertscher et al., 2012). Despite these concerns, the IASB has remained enthusiastic about issuing fair value-based accounting standards and is moving towards full fair value accounting (Cairns, 2006; Barth, 2014).

In the US, prior studies have examined the value relevance of the three-level hierarchy under SFAS157 (Kolev, 2008; Song et al., 2010; Goh et al., 2015; Freeman et al., 2017). They usually find that while all fair value assets and liabilities are value relevant, the value relevance decreases as one descends the hierarchy. However, Fargher and Zhang (2014) report that an increase in permitted managerial discretion with fair value level classification in 2009 in the US was associated with a higher probability of earnings management and lower earnings informativeness. US security analysts regard Level 2 fair values as conveying useful information from managers, but Level 3 fair values are considered opportunistic (Magnan et al., 2015).

Outside the US, the quality of accounting information varies across countries and is dependent on country-level differences such as legal system, investor protection, enforcement, and culture (Leuz et al., 2003). Consequently, value relevance of fair value numbers, even when they are regulated by a common set of accounting standards (i.e., IFRS), may also be dependent on country characteristics. There is, however, limited empirical evidence on the impact of country factors on the value relevance of fair value. Exceptions are Siekkinen (2016), who finds that fair value measures for banks are value relevant in countries with a strong or medium investor protection environment, and Fiechter and Novotny-Farkas (2017) who find that value relevance of fair values in banks is influenced by whether banks are from market-based or bank-based economies.

In this paper, we address how two of the most important institutional differences across countries, legal system and enforcement, and their interaction, legal efficacy, influence the value relevance of fair value estimates based on the three-level hierarchy. Prior literature finds that, compared to code law countries, investors in common law countries demand greater public disclosure, which significantly reduces information asymmetry and enhances shareholder and creditor protection (La Porta et al., 1998; Ball et al., 2000). In addition, Leuz et al. (2003) demonstrate that strong legal enforcement can effectively restrict management opportunistic behaviours and earnings management. Therefore, given that firms operating in common law or strong legal enforcement countries generally provide higher quality financial reporting than that of code law or low enforcement countries (Ball et al., 2003), informativeness or decision-usefulness of fair value information is expected to be higher in common law or high enforcement countries.

Our sample comprises 1,227 non-US bank-year observations from 35 IFRS-adopted countries with available three-level hierarchy information from the *BANKSCOPE* database over the period 2012-2016. Consistent with our hypotheses, we find that the value relevance of fair value assets and liabilities depends on the three-level hierarchy as well as on legal system and enforcement. In addition, our findings indicate that legal system and enforcement *together* moderate the value relevance of fair value information.

Our paper makes the following contributions. First, we provide new evidence about the value relevance of the three-level hierarchy for banks in an international setting. Most of the prior studies focusing on value relevance of three-level hierarchy are conducted within a single country, mainly the US (Kolev, 2008; Song et al., 2010; Goh et al., 2015). The generalisability of their results to countries using IFRS, therefore, is limited. Due to the world-wide adoption of IFRS, it is important to understand how variations in institutional factors can affect the value relevance of fair value information. In this study, we find that the value relevance of the three-level hierarchy varies significantly across different jurisdictions.

Second, we consider two of the most important institutional factors that may impact accounting quality and value relevance: legal system and enforcement. We consider them separately and then together (i.e., legal efficacy) to find that legal efficacy moderates value relevance of fair value assets and liabilities. We argue that these factors parsimoniously explain cross-country institutional differences and may be used in place of more complex arrays of institutional differences.<sup>3</sup>

Third, we provide further evidence that mere adoption of IFRS without considering institutional factors will not lead automatically to an improvement in accounting quality (Ball,

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<sup>3</sup> Our argument is based on an extensive comparison of the legal system/enforcement classification with alternative country classification schemes documented in the prior literature. This is available from the authors upon request.

2006). Holthausen (2009) argues that the effect of accounting standards *alone* on the quality of financial reporting may be weak relative to the effects of a country's institutional features (see also Ali and Hwang, 2000; DeFond et al., 2007). Our study provides additional evidence using a setting where all firms follow the same requirements for fair values (i.e. IFRS 13) but have different institutional backgrounds. Because legal system cannot be *changed* easily, enhanced enforcement levels may be required to obtain benefits from the adoption of high-quality accounting standards.

Fourth, our paper contributes beyond two recent studies by Siekkinen (2016) and Fiechter and Novotny-Farkas (2017). Compared to Siekkinen (2016), we argue that our selection of country-level variables is superior and our results reveal aspects of the value relevance of fair value estimates masked in Siekkinen (2016). We resolve his anomalous result about the value relevance of Level 2 fair values (Siekkinen finds, counterintuitively, that Level 2 fair value assets usually have significantly higher value relevance, than fair value assets Levels 1 and 3) and test for differences in value relevance of fair value estimates between countries based on legal efficacy. Unlike Siekkinen (2016), we show that bank size positively moderates value relevance of fair value estimates but only in countries outside the Common-High group. Compared to Fiechter and Novotny-Farkas (2017), who only empirically test the value relevance of Level 1 fair value assets between 2006 to 2009 due to data limitations, our study covers all three levels of the three-level hierarchy, as intended by the accounting standards, over the period 2012-2016.<sup>4</sup>

The rest of the paper is organised as follows. Section 2 reviews relevant accounting standard and literature on fair value measurements and develops hypotheses to be tested in the paper. Section 3 outlines research methodology, which is followed by results and discussion in Section 4. Concluding remarks are presented in Section 5.

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<sup>4</sup> A detailed discussion is provided in Sections 2.2 and 2.3.



## **2. Literature review and hypothesis development**

### **2.1 Background information on IFRS 7 and IFRS 13**

The IASB issued IFRS 7 *Financial Instruments: Disclosures* in 2005 to replace the disclosure requirements for financial instruments previously set out in IAS 32 and other standards. IFRS 7 was applicable for accounting periods beginning on or after 1 January 2007. Generally speaking, IFRS 7 sets out disclosure requirements that are intended to enable users to evaluate the significance of financial instruments for an entity's financial position and performance, and to understand both qualitative and quantitative risk information with regard to financial instruments (IFRS 7, para. 1).

In order to facilitate fair value measurements, the IASB has adopted the US FASB's three-level hierarchy prescribed in SFAS 157, which ranks the inputs of fair value measurement based on their reliability. According to paragraph 27A of IFRS 7, the first level of inputs is quoted prices (unadjusted) in active markets for identical assets or liabilities (Level 1). Obviously, these inputs are directly observed from liquid asset markets and are publicly available without management's manipulation. Therefore, this level of inputs is regarded as the most reliable and transparent.

In addition, the IASB considers that active markets do not always exist for certain financial assets and liabilities, and even if such markets do exist, they might be too illiquid to provide relevant and reliable information to measure fair value. In this case, IFRS 7 requires the entity to use the next level of fair value inputs (Level 2), which are inputs other than quoted prices included within Level 1, either directly (as prices) or indirectly (derived from prices).

The last level of fair value inputs (Level 3) is the inputs for the asset or liability that are not based on observable market data (unobservable inputs). These inputs are computed by using price

models, discounted cash flow methodologies, or other information reflecting a reporting entity's own assumptions and judgements. As a result, they are less precise and more subject to managements' manipulation.

The three-level hierarchy requirements are now prescribed in IFRS 13 *Fair Value Measurement* (issued in 2011, effective from January 2013) paragraphs 72-90. In IFRS 7, the three-level fair value disclosure hierarchy applied only to financial assets and liabilities recognized at fair value on the balance sheet. However, IFRS 13 requires such hierarchy disclosures for all fair value measures, and so also covers financial assets and liabilities recognised at historical cost on the balance sheet with their fair value disclosed in notes.

## **2.2 *Fair value measurements and value relevance***

Whether fair value measures are value relevant has been extensively investigated, although the results are equivocal. For instance, Barth (1994) and Barth et al. (1996) find that fair value estimates are value relevant to investors. On the other hand, Eccher et al. (1996) show that it is only in limited settings that fair value disclosures provide incrementally value-relevant information. Nelson (1996) does not find a significant relationship between fair value of loans and market value of equity (of banks) when profitability and growth are controlled for (see also Eng et al., 2009).

In their recent study on the impact of the institutional environment on value relevance, Fiechter and Novotny-Farkas (2017) find that value relevance of fair value assets depends on the type of assets (e.g. held-for-trading and available-for-sale). Further, they also find information environment and market sophistication in different countries, proxied by market- and bank-based economies, have a moderating effect on value relevance. In addition, they consider whether valuation inputs (i.e. the three-level hierarchy) differ across fair value categories and institutional environments, although their univariate analyses are restricted to a small number of observations

due to the sample period covering 2006-2009 and their multivariate analysis to Level 1 fair value inputs only. Based on their limited sample, the authors conclude that differences in fair value inputs contribute to variation in the value relevance of fair values.

However, Beck and Levine (2002, p.149) note that compared to bank-based versus market-based dichotomies, “the first-order issue is the ability of the financial system to ameliorate information and transaction costs, not whether banks or markets provide these services (Levine, 1997)”. Therefore, to the extent that legal system can effectively boost financial development and facilitate capital allocation, distinguishing countries by the efficiency of the legal system is more useful and significant than classifying countries by financial structure (La Porta et al., 2000; Beck and Levine, 2002). We show that the market-based and bank-based classification is better covered by our legal system and enforcement classification scheme. Furthermore, due to data limitations, Fiechter and Novotny-Farkas (2017) only empirical test the value relevance of Level 1 fair value assets between 2006 to 2009. Given that IFRS 7 is operative from 2009, it is highly likely that their sample for the test is concentrated in that year. Complementing their results, we examine not only the value relevance fair value Level 1, but also Levels 2 and 3, but also the difference in their value relevance across countries over the period 2012-2016.

### **2.3 *Three-level hierarchy***

The ongoing debate on value relevance of fair value measurements in the aftermath of the 2008 financial crisis has motivated researchers to explore the value relevance of the fair value three-level hierarchy under SFAS 157 in the US. Kolev (2008), Song et al. (2010), and Goh et al. (2015) follow the research methodology adopted by Barth (1994) and Barth et al. (1996, 2001) and find consistent evidence to support the argument that fair value estimates are value relevant

across all three levels mandated by SFAS 157 and Level 3 is less value relevant than Levels 1 and 2.

Different from the above studies conducted in the US setting, Siekkinen (2016) examines the influence of investor protection on the value relevance of the three-level hierarchy using a sample of international firms. He shows that fair values are value relevant only in strong or medium investor protection countries. Our study contributes beyond Siekkinen (2016) in the four following ways.

First, Siekkinen (2016) uses one cross-country institutional factor, labelled investor protection, where investor protection is proxied by an average score based on board independence, enforcement of securities laws, protection of minority shareholders' interest, enforcement of accounting and auditing standards, judicial independence and freedom of press, based on Houque et al., (2012), and then cluster-analysed to divide 34 countries into three classes (strong, medium and weak). One of the issues of selecting country-level variables is that most of the selection processes result in very similar, if not the same, classifications of countries, regardless of the number or complexity of country-level variables. We, on the other hand, invoke the principle of parsimony (among other things) to argue that legal system and enforcement give a simpler and more useful classification of countries.

Second, our results reveal aspects of the value relevance of fair value estimates that are masked in Siekkinen (2016). He reports that all fair value estimates are value relevant in strong and medium protection countries, except for fair value Level 3 assets and liabilities in medium protection countries, while in weak protection countries only fair value assets Level 1 are value relevant. In our sample, Siekkinen's (2016) strong and medium protection countries are classified as high enforcement countries, while weak protection countries are all low enforcement countries,

regardless of whether they have common or code legal systems<sup>5</sup>. Unlike Siekkinen (2016), we test for differences in value relevance of fair value estimates between countries based on legal efficacy by using four combinations of legal system (common/code) and enforcement (high/low), which can be ranked from highest (Common-High subsample) to lowest (Code-Low subsample) in terms of investor protection. Our results show a monotonically decreasing pattern of value relevance from Common-High subsample banks to Code-Low subsample banks, consistent with our expectations.

Third, Siekkinen (2016) reports that Level 2 fair value assets usually have significantly higher value relevance, than fair value assets Levels 1 and 3, both overall and in strong and medium protection countries. This result for Level 2 fair value assets is counterintuitive because Level 1 estimates are, by definition, more reliable than Level 2 and thus should be more value relevant than Level 2, all else equal. When we partition countries by legal efficacy, that anomalous result disappears, and Level 1 fair value assets are value relevant in all legal efficacy groups except Code-Low; Level 2 fair value assets are value relevant only in Common-High and Code-High groups, and Level 3 fair values are value relevant only in the Common-High group.

Finally, Siekkinen (2016) reports that fair value estimates in small banks are more value relevant than those in large banks. This is a counter-intuitive result as we would expect larger banks to have more expertise in estimating fair values. In contrast, we show that bank size has influence on fair values, but only in countries not in the Common-High subsample. Investors appear not to differentiate the value relevance of fair value estimates between large and small banks in countries with common law systems and high enforcement, but they do so in other countries. We interpret

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<sup>5</sup> The only exceptions are three out of 34 countries in our sample: South Africa, classified as “strong investor protection” is classified as low enforcement in our sample (38 bank-year observations); Brazil (24 bank-years) and Jordan (47 bank-years), classified as “medium investor protection” are classified as low enforcement in our sample.

our finding as indicating that, when investor protection is not at its strongest, that is in poorer protected countries, larger banks are perceived as having more trustworthy fair values, perhaps because they have better expertise to make reliable fair value estimates.

#### **2.4 *Institutional factors and value relevance***

Commentators have observed that cross-country differences in accounting quality were likely to remain after IFRS adoption because accounting quality is a function of country-level institutional variables including legal and political systems (Soderstrom and Sun, 2007), and that IFRS adoption may not produce high quality financial statements because of political and legal barriers to successful implementation at the country level (Ball, 2006). Comparing value relevance of fair value estimates under IFRS across countries thus necessitates controlling for relevant cross-country differences. The extensively cited law and finance literature (La Porta et al., 1997, 1998) argues that cross-country differences in legal system, usually common law versus code law, explain observed differences in share market development, law enforcement, ownership dispersion, investor rights and accounting practices across countries (Tarca, 2012).

Countries have also been classified using other criteria, for example insider vs outsider economies (Nobes, 1998), market-based and bank-based financial systems (Beck and Levine, 2002), variables derived from the legal system classification such as financial market development, capital structure, ownership patterns, and tax (Soderstrom and Sun, 2007), or classification schemes seemingly independent of legal systems (e.g. accounting system classifications by Nobes, 2008); Gray's 1988 model of the influence of culture on accounting systems internationally). In turn, these alternative country classifications have been adopted by researchers to explain accounting practices globally (e.g. Leuz et al., 2003; Leuz, 2010; Houque et al., 2012; Siekkinen,

2016; Fiechter and Novotny-Farkas, 2017; Morris and Tronnes, 2018). Isidro et al. (2019) identify 72 different country-level variables that have been used to classify countries in previous studies.

While there are many institutional variables by which countries could be classified, we use legal system, enforcement and legal efficacy as our main country-level institutional variables for the following related reasons. First, many country-level institutional variables are highly correlated. The relationship between all such institutional variables and accounting practices has to be considered correlational, because the causal paths by which these variables impact accounting practices are difficult to demonstrate empirically (Leuz, 2010). Therefore, we apply the principle of parsimony<sup>6</sup> in choosing a small number (legal system, enforcement and legal efficacy) from among many correlated institutional variables.

Second, the parsimonious combination of legal system, enforcement and legal efficacy produces classifications of countries very close to those obtained using an array of country-level variables combined using cluster analysis as in Leuz et al. (2003), Leuz (2010) and Siekkinen (2016) and factor analysis as in Isidro et al. (2019); or an alternative simple classification such as bank- versus market-oriented economies as in Fiechter and Novotny-Farkas (2017). In addition, legal system, enforcement and legal efficacy produce outcomes for fair value consistent with independent corroborating evidence; and for the purpose of evaluating IFRS accounting practices, legal system and enforcement are relatively well defined and measured variables compared to many other country-level variables.

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<sup>6</sup> The principle of parsimony dates back to the middle ages (from whence it is known as Occam's razor) and can also be found in the writings of Aristotle. A modern formulation is: "Where we have no reason to do otherwise and where two theories account for the same facts, we should prefer the one which is briefer, which makes assumptions with which we can easily dispense, which refers to observables, and which has the greatest possible generality." (Epstein, 1984, 119).

Third, Leuz (2010) argues that country-level characteristics are an equilibrium combination of historical and path-influencing variables. Legal system is the main historical variable here for influencing accounting practices. Fourth, enforcement, a concept linked to legal system, has also been frequently used in the literature (Brown et al., 2014; Preiato et al., 2015) to explain cross-country differences in accounting practices on the premise that even the best laws are ineffective unless they are properly enforced (Christensen et al., 2013).

Finally, legal system and enforcement remain the two most popular country-level institutional variables in the literature. For example, a recent meta-analysis by Ahmed et al. (2013) used them as moderating variables by which to assess the impact of IFRS adoption across numerous studies.<sup>7</sup>

#### *2.4.1 Legal system*

International research classifies countries broadly into two traditions: common law and code law. Common law was developed in England, following consolidation of the King's powers and a judicial system which centralizes the court's control (Soderstrom and Sun, 2007). The legal precedents from judicial decisions by judges who resolve disputes shape common law (La Porta et al., 1998). On the other hand, code law originates in Roman law and heavily relies on statutes and comprehensive codes. It allows governments to control setting and interpretation of laws (Soderstrom and Sun, 2007). There is evidence that common law judges apply discretion in favour of outside shareholders. Protection of outside investor rights is especially important in creating incentives for external investments and the development of financial markets (Ball, 2006).

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<sup>7</sup> Ahmed et al. (2013) also used measures of distance between IFRS and previous domestic GAAP as at 2001 as a moderating variable. Given that our data cover IFRS adopting countries in years from 2012 to 2016, these distance measures for 2001 are unlikely to be relevant for us.



Prior literature has considered how certain properties of accounting information and their value relevance are shaped by legal system. For instance, La Porta et al. (1998) provide early evidence showing that accounting reporting and protection of creditors and shareholders in common law countries are better than those in the code law countries. Ball et al. (2000) investigate the impact of the legal system (common law versus code law) on the properties of accounting earnings, in particular, timeliness and conservatism. Using a sample comprising common law countries (Australia, Canada, the UK and the US), and code law countries (France, Germany and Japan), they find that accounting earnings in the common law countries are more timely and conservative than those in the code law countries. Ball et al. (2000) argue that investors in the common law countries demand greater public disclosures.

Devalle et al. (2010) test whether the introduction of IFRS improves value relevance of earnings and book value of equity for 3,721 firms listed on five European stock exchanges: Frankfurt, Madrid, Paris, London and Milan. By regressing stock price on earnings and book value of equity, they find that value relevance of accounting information following IFRS adoption is different in each country. In Germany and France, the value relevance of earnings increases, but the book value of equity's value relevance decreases. In Italy and Spain, the value relevance of both earnings and book value of equity decreases. In the common law country (UK), the introduction of IFRS is found to increase the value relevance of both earnings and book value of equity. That is, UK companies have a larger improvement in value relevance following IFRS adoption than do companies from code law countries.

Anandarajan et al. (2011) focus on the influence of country factors on the value relevance of earnings and book value of equity in the banking industry. Their sample consists of 813 banks with 28,786 observations from 38 countries over the period 1993-2004. By regressing market

prices on earnings and book value of equity, the authors find that earnings and book values are more value relevant in countries with a common law legal system, but also greater levels of mandatory disclosure, greater involvement of private sector in the economy, or if they belong to the British-American accounting cluster.

Based on these findings, we argue that the value relevance of fair value disclosures should be greater in common law countries than it is in code law countries. The first hypothesis is therefore stated as follows:

***H1:** The value relevance of Fair Value Levels 1-3 is higher in banks from common law countries than in banks from code law countries.*

However, there are also arguments for the null hypothesis of no difference in value relevance of Fair Value Levels 1-3 between common law countries and code law countries. Reliance on this legal system classification has been criticised by Lindahl and Schadewitz (2013) as masking a rich tapestry of differences between countries. They argue that the evidence does not support accounting quality being higher in common law than in code law countries. While there is a difference between common law and code law on average for a large sample of countries, the variation within each country grouping is considerable. That is, judgements about an accounting issue, such as the three-level hierarchy and its value relevance between the common law and code law countries in a more limited sample of countries, such as ours, may be affected by factors that result in no superiority of common law over code law being observed. As alleged by Lindahl and Schadewitz (2013), these factors include: the varying ways that the common law legal system has been applied, such as its transplant via colonial conquest and its local adjustment for cultural factors (Milhaupt 2001) ; narrowing of differences over time between common and code laws; the interweaving over time of elements of common law and code law within some countries; and the

fact that the code law category subsumes French, German and Scandinavian versions of code law, which arguably are quite different. In short, what applies on average in a large sample of countries may not be true of our sample. It is thus an empirical issue whether *H1* or the null hypothesis is supported.

#### 2.4.2 *Enforcement*

The IASB issues IFRS but does not have enforcement powers (Soderstrom and Sun, 2007). Consequently, enforcement power resides in the security exchanges, regulators and courts of countries where firms are listed. Enforcement has been considered part of legal system (La Porta et al., 1998), but its differential importance was not always emphasised sufficiently. Coffee (2007) and Mahoney (2009) argue that legal classification used in prior literature might fail to capture large differences in legal institutions because coding rules do not reflect how these laws are actually used and understanding how enforcement is carried out is much more important for understanding differences in countries than the laws *per se*.

After 2005, early studies of IFRS adoption have taken the adoption of IFRS as an exogenous event unrelated to enforcement changes and included the level of enforcement as one of several country-level control variables. For example, Daske et al. (2008) investigate market liquidity and cost of capital (capital market effects) around the adoption of IFRS in 26 countries. They find that capital market benefits around the mandatory IFRS occur only in countries with strong legal enforcement. Later studies suggest that some of the positive effects observed immediately after IFRS adoption might be due to other concurrent changes, such as enforcement changes (De George et al., 2016). For example, Christensen et al. (2013) find that improvements in liquidity following IFRS adoption are limited to countries that also had an increase in enforcement at the time IFRS was adopted.

Therefore, due to differences in enforcement levels, accounting quality is expected to vary around the world even when a single set of accounting standards is adopted by all, and even in countries where the legal system, for example common law, is the same. Thus, we hypothesise that the value relevance of fair value accounting depends on individual country's implementation of accounting rules and its proper (higher) enforcement. As such, fair values will be more value relevant for companies from high enforcement countries. Our second hypothesis is thus stated as: ***H2:** The value relevance of Fair Value Levels 1-3 is higher in banks from high enforcement countries than in banks from low enforcement countries.*

As with H1, there are arguments for the null hypothesis of no observable difference in value relevance of Fair Value Levels 1-3 between high enforcement and low enforcement countries. First, enforcement is a difficult concept to measure accurately. The literature from La Porta et al. (1998) onwards presents many ways of measuring enforcement, with no single way being accepted as superior for all applications. Second, many commonly used measures, such as those in La Porta et al. (2006) and the widely cited Worldwide Governance Indicators' (WGI) Rule of Law dimension<sup>8</sup> are very general and not directly focussed on accounting and auditing. Third, the only enforcement index that is accounting- and auditing-focussed (Brown et al., 2014; Preiato et al., 2015), is available only for the years 2002, 2005 and 2008 and so does not cover our study's sample period 2012-2016. Because enforcement can change over time much more readily than legal system, an index that stops in 2008 could measure enforcement in our sample period with error. As with H1, it is an empirical issue whether H2 or the null hypothesis are supported.

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<sup>8</sup> The Worldwide Governance Indicators (WGI) Project reports "aggregate and individual governance indicators for over 200 countries and territories over the period 1996–2018" (<https://info.worldbank.org/governance/wgi/>).

### 2.4.3 *Legal efficacy (effectiveness of the legal system)*

The early work by La Porta et al. (1998) argues that legal system alone is an effective way of dividing countries into those with strong investor protection and those with weaker investor protection, with an implicit assumption that stronger investor protection is necessary for capital market development. As mentioned, enforcement is a part of legal system, but later studies point out the importance of enforcement as a stand-alone factor in investor protection (e.g. Brown et al, 2014; Preiato et al., 2015).

Prior studies have experimented with how effectiveness of the legal system (i.e. legal efficacy) can be measured (e.g. see Klapper and Love, 2004). Some of these studies use variables more proximal to accounting practices than legal system and enforcement. Leuz et al. (2003) consider the strength of legal environment based on efficiency of the judicial system, rule of law and corruption (see also Francis et al., 2016). Hung (2001) examines whether value relevance of financial items (e.g. earnings and return on equity) is affected by shareholder protection measured by anti-director rights and legal system scores based on La Porta et al. (1998) and Ball et al. (2000). The author finds value relevance of earnings and return on equity for countries with low anti-director rights and a code law legal system (i.e. weak shareholder protection) is significantly reduced by accrual accounting. This result is supported by Lang et al. (2006), who show that firms from countries with weak investor protection, usually represented by weaker enforcement and code law legal system, are more likely to engage in earnings management activities, resulting in a lower level of earnings' value relevance.

Consistent with our argument for parsimony, we focus on the interaction of legal system and enforcement and consider whether legal system (Common or Code) and enforcement (High

or Low) taken together reinforce each other. Arguments and evidence about the impact of each on accounting quality suggest that they should.

We address the issue in the context of the value relevance of the three-level hierarchy, by exploring the following four subsamples of our sample countries: Common-High; Code-High; Common-Low; and Code-Low. We argue that value relevance of the three-level hierarchy will be highest in countries where legal efficacy is highest (Common-High) and lowest in countries where legal efficacy is lowest (Code-Low). However, it is impossible *a priori* to predict which of the two other legal efficacy categories (Code-High and Common-Low) will show greater value relevance. All that we can safely hypothesise of them is that they will show less value relevance than Common-High and more value relevance than Code-Low countries. Based on the above discussion, our third hypothesis is stated as:

**H3:** *The value relevance of Fair Value Levels 1-3 is highest in banks from countries with common law system and high enforcement (Common-High) and lowest in banks from countries with code law system and low enforcement (Code-Low).*

Despite our argument above, it is *ex ante* unclear whether we will empirically observe the impact of legal efficacy on value relevance of fair value estimates. We have claimed that legal system, enforcement and legal efficacy provide a parsimonious way of classifying countries that is consistent with more complex classification schemes. However, legal system, enforcement and legal efficacy are a simplification of what is undoubtedly a set of complex interactions among country-level characteristics, as mentioned previously. For example, the Anandarajan et al. (2011) study cited above illustrates that other country-level forces, besides legal system, are also associated with the value relevance of accounting information. Isidro et al. (2019) identify 72 country-level variables that have been used in other studies. Further, Leuz (2010) acknowledges

that country groupings are complexly caused. Therefore, omitting an important explanatory variable from a regression specification can bias the resulting findings (Hodder et al. 2013). To the extent that our parsimonious classification of countries based on legal efficacy omits some determinant of country characteristics which may impact value relevance, our hypotheses will not be supported.

### **3. Research design**

#### ***3.1 Sample selection***

The original sample is obtained from the *BANKSCOPE* database and we identify non-US banks worldwide applying IFRS. We focus on the banking industry for the following reasons. Prior US studies on the value relevance of fair values have been based mainly on bank holding companies (Eccher et al., 1996), commercial banks (Evans et al., 2014) and a mix of various other US banking institutions (Song et al., 2010). Banks have significant amounts of financial assets and liabilities to which IFRS 13 disclosure requirements are applicable. Also, bank's fair value measurements are usually more homogeneous than firms in other industries.

We collect data from 2012 to 2016 from *BANKSCOPE*, because the earliest comprehensive three-level hierarchy data is available in *BANKSCOPE* from 2012 and IFRS 13 was operative from 2013<sup>9</sup>. First, we identify 3,511 bank-year observations (non-US banks) applying IFRS 13 and disclosing sufficient information on the three-level hierarchy. Next, we collect the legal system (common law vs code law) data from La Porta et al. (1998) and legal enforcement data from the WGI Project. We drop 1,908 observations for which either the legal system, legal enforcement or other country-level control variables data is not available. Then, the sample is further reduced by

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<sup>9</sup> The sample period ends in 2016 due to the Bankscope database being cancelled and replaced at the end of 2016. In order to maintain consistency in data and due to the new Bankscope database still being updated, we chose to end the sample period in 2016.

284 bank-year observations because of missing values on one or more of variables (e.g. share prices, number of outstanding shares, and net income).

Finally, to avoid bias from extreme outliers, 92 bank-year observations that fall in the top and bottom 1 percent of variables are excluded. The final sample consists of 1,227 bank-year observations from 35 countries worldwide, namely Austria, Australia, Belgium, Brazil, Canada, Chile, Denmark, Finland, France, Germany, Greece, Hong Kong,<sup>10</sup> Ireland, Israel, Italy, Jordan, Malaysia, Mexico, Netherlands, Norway, Pakistan, Peru, Philippines, Poland, Portugal, South Korea, Singapore, South Africa, Spain, Sweden, Switzerland, Taiwan, Thailand, Turkey, and the UK. The sample selection procedure is outlined in Table 1.

[Insert Table 1]

### 3.2 *Models and variables*

We follow Song et al. (2010) and Goh et al. (2015) and estimate the association between share prices and fair values of assets and liabilities per share using a modified Ohlson (1995) model that has been extensively employed in the value relevance literature. Barth and Clinch (2009) suggest that share-deflated specifications perform the best in reducing scale effects in the modified Ohlson (1995) model. Therefore, all independent variables in the model are deflated by the number of shares outstanding<sup>11</sup>.

$$\begin{aligned}
 \text{Price}_{it} = & \beta_0 + \beta_1 \text{EPS}_{it} + \beta_2 \text{NFVA}_{it} + \beta_3 \text{NFVL}_{it} + \beta_4 \text{L1A}_{it} + \beta_5 \text{L2A}_{it} + \beta_6 \text{L3A}_{it} + \beta_7 \text{L12L}_{it} \\
 & + \beta_8 \text{L3L}_{it} + \beta_9 \text{BANKSIZE}_{it} + \beta_{10} \text{ANALYSTS}_{it} + \beta_{11} \text{PD}_{it} + \beta_{12} \text{IND}_{it} + \beta_{13} \text{MAS}_{it} \\
 & + \beta_{14} \text{UA}_{it} + \beta_{15} \text{AUDIT}_{it} + \beta_{16} \text{EXPERTISE}_{it} + \text{Year}_t + \text{Country}_i + e_{it} \quad (1)
 \end{aligned}$$

<sup>10</sup> Hong Kong is a special administrative region of the People's Republic of China (PRC). However, for ease of presentation, it is included here as a country. Nevertheless, the authors acknowledge Hong Kong's special status as part of the PRC.

<sup>11</sup> As a robustness check, we also run the analyses using the market capitalisation (i.e., market value of equity) as a deflator. The results are consistent with our main results (refer to Section 4.2.5).



The dependent variable,  $Price_{it}$ , is the share price of a firm three months after the financial year-end.  $NFVA_{it}$  and  $NFVL_{it}$  are, respectively, assets and liabilities measured using non-fair values per share of firm  $i$  at the end of the financial period  $t$ . The variables of interest are  $L1A_{it}$ ,  $L2A_{it}$ ,  $L3A_{it}$ ,  $L12L_{it}$ <sup>12</sup>, and  $L3L_{it}$ . They are the fair values of assets and liabilities per share of firm  $i$  estimated based on Levels 1, 2, or 3 valuation inputs at the end of the fiscal period.  $EPS_{it}$  is defined as earnings per share of firm  $i$  at the financial year-end  $t$ . We control for the quality of firm's information environment using two firm-level variables: bank size ( $BANKSIZE$ ) and analysts following ( $ANALYSTS$ ) (Bhushan, 1989; Barth et al., 2001; Baik et al., 2018; Zhang and Toffanin, 2018).  $BANKSIZE$  is a dummy variable equal to 1 if natural logarithm of total assets is greater than the sample median, and 0 otherwise.  $ANALYSTS$  is a dummy variable equal to 1 if natural logarithm of (1+ number of analysts following) is greater than the sample median, and 0 otherwise. We also include several country-level control variables: audit environment (Brown et al, 2014), country-level auditor industry expertise (Yao et al., 2018), and four cultural dimensions from Hofstede (2001). Our Model (1) is estimated as a fixed-effect model with year and country dummy variables to control for systematic time and country effects.

## 4. Results

### 4.1 Descriptive statistics

Table 2 reports the distribution of sample banks by country (Panel A) and by year (Panel B). As reported in Panel A, UK banks make up 10.27 percent of the sample, and banks in France (8.07%), Hong Kong (6.44%) and Italy (6.28%) account for approximately 20 percent of observations. The remaining observations are distributed across the other countries. Panel B shows

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<sup>12</sup> Due to the low frequency of Level 1 fair value liability reporting in our sample (see Table 3), we follow the methodology adopted by Song et al. (2010) and combine Level 1 and Level 2 fair value liabilities to create a variable  $L12L$ .

that firm-year observations are spread evenly over the sample period with the exception of 2012 (171 observations).

[Insert Table 2]

In addition, Table 2 Panel C provides a summary of institutional characteristics of each country in the sample. Legal system and Rule of Law (our enforcement proxy) are extracted from La Porta et al. (1998) and World Governance Indicators (WGI 2012-2016), respectively. 11 sample countries are classified as common law countries: Australia, Canada, the UK, Hong Kong, Malaysia, Ireland, Israel, Singapore, Pakistan, Thailand, and South Africa, with the remaining 24 countries classified as having a code law legal system. The Rule of Law index captures the ‘extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, the police, and the courts, as well as the likelihood of crime and violence’ (Kaufmann et al., 2010, p.4)<sup>13</sup>.

Rule of Law is particularly important to accounting systems as it reflects the degree to which contracts can be expected to be enforced, the degree to which laws can be relied upon, as well as the extent to which property rights are respected.

The countries with Rule of Law index scores above the sample median are categorised as the ‘High Enforcement’ subsample and the other countries as the ‘Low Enforcement’ subsample. The High Enforcement subsample consists of banks from Finland, Norway, Sweden, Denmark, Netherland, Switzerland, Austria, Canada, Australia, Singapore, the UK, Germany, Ireland, Hong Kong, Belgium, and France. In general, the Rule of Law index is significantly higher in common

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<sup>13</sup> The Rule of Law index ranges approximately from -2.5 (weak) to +2.5 (strong) and is estimated annually as part of the WGI Project. For the purpose of the current study, we take the average Rule of Law index of each country for the sample period, 2012-2016. Note that there is little variation in the index for each country over the three-year sample period; in other words, there is no discernible improvement or reduction in Rule of Law over the sample period.

law countries, consistent with the argument that common law countries tend to have stronger capital market orientation, shareholder governance models and public sources of finance (Brown et al., 2014).

The institutional characteristics used as control variables are also reported in Panel C: Hofstede's (2001) four cultural dimensions (Power distance; Masculinity; Individualism; Uncertainty avoidance), audit environment index (Brown et al. 2014), and audit industry expertise identified as the auditor with the greatest number of clients in the banking industry of each country (Yao et al. 2018).

Table 3 provides descriptive statistics for the test variables based on 1,227 bank-year observations over the sample period. Panel A provides descriptive statistics on the relative size of fair value assets and liabilities. In Panel A, all variables are deflated by total assets or total liabilities at the end of the fiscal year. The average value of total assets is US \$139 billion. The means of assets (*FVA*) and liabilities (*FVL*) measured at fair value are 27 percent of total assets and 13.7 percent of total liabilities, respectively. The fair value amounts are mainly based on Level 1 and Level 2 inputs, consistent with prior studies (e.g. Song et al., 2010; Liao et al., 2013). Specifically, 10.7 (1.8) percent and 10.8 (8.3) percent of total assets (liabilities) are classified as Level 1 and Level 2 assets (liabilities) respectively, whereas, on average, only 5.5 (3.6) percent of total assets (liabilities) are measured using Level 3 inputs.

[Insert Table 3]

Table 3 Panel B provides descriptive statistics of variables used in Model (1) to test the value relevance of fair values using the three-level hierarchy. All variables are deflated by the number of outstanding shares and presented as per share values. The mean share price (*Price*) is 13.068 USD and the mean of earnings per share (*EPS*) is 1.376 USD. On average, Level 1 (*LIA*),

Level 2 (*L2A*), and Level 3 (*L3A*) fair value assets per share are 27.534, 33.940, and 10.471 USD, respectively. The mean of Levels 1 and 2 (*L12L*), and Level 3 (*L3L*) fair value liabilities per share are 26.391 and 3.566 USD, respectively.

We also report a comparison of relative size of fair value assets and liabilities based on legal system (common versus code) and enforcement (high versus low). As seen in Table 3 Panel C, the size of Level 1 assets (*L1A*) is significantly larger in code law countries compared to common law countries (mean difference=-0.022,  $p<0.01$ ). On the other hand, Level 2 assets (*L2A*) and Level 3 assets (*L3A*) are significantly larger in common law countries (mean difference=0.016,  $p<0.10$  and mean difference=0.038,  $p<0.01$ , respectively). In terms of liabilities, only Level 1 liabilities (*L1L*) are significantly larger in common law countries (mean difference=0.010,  $p<0.05$ ).

The size of fair value assets at any input levels, however, is not significantly different between the high and low enforcement groups. Level 1 liabilities (*L1L*) and Level 2 liabilities (*L2L*) are significantly larger in the high enforcement group (mean difference=0.009,  $p<0.05$ , mean difference=0.018,  $p<0.10$ , respectively), while Level 3 liabilities (*L3L*) are larger in the low enforcement group (mean difference=-0.017,  $p<0.10$ ).

## **4.2 Multivariate regression results**

### *4.2.1 Legal system: common law versus code law*

Table 4 reports the regression results from testing of Hypothesis 1, which states that the value relevance of fair value measurements of banks from common law countries is higher than those from code law countries.

[Insert Table 4]

Table 4 Panel A shows that, for the Common Law subsample, the coefficients on fair value assets measured using inputs from Level 1 ( $\beta=0.101$ ,  $p<0.01$ ), Level 2 ( $\beta=0.069$ ,  $p<0.01$ ) and

Level 3 ( $\beta=0.048, p<0.01$ ) are statistically significant. Further, it is interesting to note the F-statistics of coefficient for *L1A* is statistically larger than the coefficients for *L2A* (F-stat=2.79,  $p<0.10$ ) and *L3A* (F-stat=8.42,  $p<0.01$ ) while the coefficients for *L2A* and *L3A* are not significantly different from each other. This suggests that investors from the Common Law subsample consider Level 1 fair value assets to be more value relevant than Levels 2 and 3 fair value assets.

For fair value liabilities of the Common Law subsample (Table 4 Panel A), the coefficients on fair value liabilities measured at all three levels are statistically significant. Further, F-statistics show that coefficients on *L12L* and *L3L* are significantly different from each other (F-stat=2.88,  $p<0.10$ ).

Table 4 Panel B reports the results for the Code Law subsample which also demonstrate that fair value assets measured using Level 1 ( $\beta=0.046, p<0.01$ ), and Level 2 ( $\beta=0.038, p<0.01$ ) inputs are value relevant. Level 3 fair value assets (*L3A*) are, however, not value relevant in Code Law subsample ( $\beta=0.000, p>0.10$ ). F-statistics show that while there is no significance difference between coefficients of *L1A* and *L2A* (F-stat=0.41,  $p>0.10$ ), *L3A* is less value relevant than *L1A* (F-stat=23.14,  $p<0.01$ ) and *L2A* (F-stat=14.54,  $p<0.01$ ). For fair value liabilities, *L12L* ( $\beta=-0.016, p<0.10$ ) is significant, while the coefficient on *L3L* ( $\beta=-0.025, p>0.10$ ) is not statistically significant, indicating that liabilities measured using Level 3 inputs are not value relevant. In addition, coefficients for *L12L* and *L3L* are not statistically different from each other (F-stat=0.13,  $p>0.10$ ). The overall results indicate that in code law countries, investors considerably decrease the weight they place on less reliable Level 3 fair value assets in their equity pricing decisions, but there is no difference in how investors value fair value liabilities across the three-level hierarchy.

In terms of the control variables, our results show that estimated coefficients on non-fair value assets (*NFVA*) and non-fair value liabilities (*NFVL*) are statistically significant only in the code law subsample, indicating their value relevance. In contrast, *EPS* is not value relevant in both subsamples. *BANKSIZE* is significantly positive only in Common Law subsample, and *ANALYSTS* is not significant in both subsamples. As for the country-level control variables, the coefficient for audit environment index (*AUDIT*) is positive and significant in both subsamples, but *EXPERTISE* is not. In addition, individualism (*IND*), one of the Hofstede's (2001) cultural dimensions is also positive and significant. Uncertainty avoidance (*UA*) is significant but in code law countries only while masculinity (*MAS*) is negatively significant only in common law countries.

Hypothesis 1 considers whether the coefficients on Level 1, Level 2 and Level 3 fair value assets and liabilities are more value relevant for the Common Law subsample than for the Code Law subsample. Results for the comparison between the two subsamples are reported in Table 4 Panel C. Level 1 fair value assets (*L1A*) and Level 3 fair value assets (*L3A*) are significantly more value relevant in common law countries than in code law countries (Chi-square=3.87,  $p=0.050$  and Chi-square=26.01,  $p=0.000$ , respectively). In addition, there is a significant difference between the two subsamples for Level 3 liabilities (*L3L*; Chi-square=2.93,  $p=0.087$ ). Value relevance of L2 fair value assets is higher in common law than in code law countries, while the difference is insignificant (Chi-square=1.50,  $p=0.221$ ). In summary, the results show that fair value assets measured using Levels 1 and 3, and liabilities measured using Level 3 inputs of banks from common law countries have higher value relevance than those from code law countries, suggesting legal system plays a positive role in increasing the value relevance of Level 1 and Level 3 fair value measurement. Hypothesis 1 is therefore supported for Level 1 fair value assets and Level 3 fair value measurements.

#### 4.2.2 Enforcement: high enforcement versus low enforcement

Hypothesis 2 considers whether the value relevance of fair value assets and liabilities measured using the three-level hierarchy is higher for banks from high enforcement countries than those from low enforcement countries. The hypothesis is tested by partitioning the sample into two subsamples based on the rank of Rule of Law index of our sample countries as previously discussed. Regression results are presented in Table 5.

[Insert Table 5]

Table 5 Panel A reports the results for the High Enforcement subsample showing that coefficients on Level 1, Level 2 and Level 3 assets and liabilities are all statistically significant at 1 percent level, suggesting that they are all value relevant. Further, F-statistics show that the coefficients of the three-level hierarchy assets (*L1A*, *L2A* and *L3A*) are not significantly different from each other. Hence, it appears that investors do not perceive significant reliability concerns with respect to the valuation of fair value assets. However, Levels 1 and 2 liabilities (*L12L*) are significantly more value relevant than Level 3 liabilities (F-stat=5.72,  $p < 0.01$ ), indicating that investors still price fair value liabilities differently.

In contrast, for banks in the Low Enforcement subsample reported in Table 5 Panel B, only Level 1 fair value assets based on observable valuation inputs (*L1A*) are significantly reflected in the market price per share ( $\beta=0.060$ ,  $p < 0.01$ ). In addition, F-statistics support the notion that the coefficient of *L1A* is significantly higher than both *L2A* (F-stat=7.73,  $p < 0.01$ ) and *L3A* (F-stat=16.56,  $p < 0.01$ ). Taken together, results reported in Table 5 Panels A and B suggest that fair value measurements based on Level 2 (indirect observable inputs) and Level 3 (unobservable inputs) are value relevant to investors only when the country's legal enforcement is stronger.

In addition, when the coefficients for each level of fair value assets and liabilities are compared across High Enforcement and Low Enforcement subsamples (Table 5 Panel C) there are significant differences between subsamples for *L2A*, *L3A* and *L3L* but not for *L1A* or *L12L*. In other words, our findings provide strong evidence that legal enforcement is associated with increased transparency and reliability of discretionary fair value inputs (Level 2 and Level 3), which in turn enhances their value relevance. Therefore, our Hypothesis 2 is supported for Levels 2 and 3 fair value asset measurements and Level 3 liability measurements.

#### 4.2.3 *Legal efficacy*

Hypothesis 3 considers whether country's legal system and enforcement together (i.e. legal efficacy) matter in relation to value relevance of fair value estimates. We expect fair value estimates to be most value relevant in countries with the strongest combination of legal system and enforcement (Common-High) and least value relevant in the weakest combination (Code-Low). We test this by partitioning our sample into the following four groups: (1) Common-High; (2) Code-High; (3) Common-Low; and, (4) Code-Low. We re-estimate Model (1) for these four subsamples and regression results are reported in Table 6 Panels A to D, respectively.

[Insert Table 6]

Table 6 Panels A and B report on the value relevance of fair value assets and liabilities using the three-level hierarchy for common law countries with high enforcement level (Panel A) and for code countries also with high enforcement level (Panel B). Results reported in Table 6 Panel A show that coefficients on Levels 1, 2 and 3 assets and liabilities are all statistically significant when banks operate in a country with both a common law legal system and a stronger enforcement environment (Common-High subsample). In addition, F-statistics show that the coefficients of *L1A* and *L2A* are significantly higher than *L3A* (F-stat=9.09 and 5.85, respectively),



indicating that investors perceive reliability concerns for Level 3 assets and thus discount their valuation significantly.

Table 6 Panel B reports, however, that results are statistically significant only on Levels 1 and 2 fair value assets and liabilities, and only marginally on Level 3 liabilities when banks are from countries with high legal enforcement, but a code law legal system (Code–High subsample).

Table 6 Panels C and D report the value relevance of fair value assets and liabilities measured using the three-level measurement hierarchy for common law countries with low enforcement level (Panel C) and code countries with low enforcement level (Panel D). The coefficients on Levels 1 and 2 fair value assets (*L1A* and *L2A*) are statistically significant only for Common-Low subsample (Panel C). Interestingly, we find the coefficient on *L3A* is significantly negative, suggesting that investors in the Common-Low countries are substantially sceptical about level 3 fair value assets. Furthermore, none of the fair value measurements are found to be value relevant in Code-Low subsamples. Comparing these results to those reported in Table 6 Panels A and B, these findings strongly imply that both legal enforcement and legal system play important roles in determining the value relevance of fair value estimates. More specifically, when the legal enforcement is low, fair values provide low quality information to investors even in countries with a common law tradition. Hypothesis 3 is therefore supported.

While not part of our hypothesis, we also consider the difference in value relevance of the three-level hierarchy assets and liabilities for the different subsamples, where most of them are value relevant individually. An interesting overall observation is that, in code law subsamples (Code-High and Code-Low), investors seem to not differentiate the three-level hierarchy, whereas in common law subsamples (Common-High and Common-Low), they are more likely to find levels 1 and 2 assets to be more relevant than level 3 assets.

In summary, results reported in this section provide three interesting findings. Firstly, results consistently suggest that legal efficacy influences the value relevance of fair value measurements. For example, results from the Common–High subsample show that coefficient on Levels 1, 2 and 3 assets and liabilities are all statistically significant, indicating their value relevance. In contrast, results for the Code-Low subsample show that none of coefficients on Levels 1, 2 and 3 assets and liabilities are significant. That is, fair value assets and liabilities are the most (least) value relevant when the combination of the strength of legal systems and their effectiveness of implementation is strongest (weakest).

Secondly, when legal enforcement is low, results show that fair value assets are value relevant only in common law countries and fair value liabilities are not value relevant in either common or code law countries, indicating that legal efficacy matters in determining value relevance of fair value assets. Thirdly, while hypothesis 3 only compared Common-High and Code-Low countries, and was silent about the other two groups, note that there is a monotonic decrease in the number of significantly value relevant fair value items from Panels A to D, with Common-High having the largest number, followed by Code-High, then Common-Low, and finally Code-Low. That is, all three fair value levels for assets and liabilities are significant in Common-High countries, Levels 1 and 2 assets and liabilities, and Level 3 liabilities are significant in Code-High countries, Levels 1 and 2 assets are significant in Common-Low countries, and no levels are significant in Code-Low countries.

#### *4.2.4 Additional analyses*

There exists in the literature disagreement about the relative importance of firm-level versus country-level determinants of accounting quality, disclosure and value relevance of accounting information (Doidge et al., 2007; Gaio, 2010, Glaum et al., 2013). In an additional test,

we explore whether our findings are influenced by two important firm-level variables, namely firm size and profitability.<sup>14</sup>

Song et al. (2010) and Siekkinen (2016) argue that bank size and profitability affect the value relevance of the three-level hierarchy. Following these two studies, we modify our main analyses to include *Size*, which is a dummy variable coded one if the natural log value of total assets is greater than the sample median, and coded zero otherwise, and *Profit* which is coded as one if a firm reports positive profit, and zero otherwise. Our variable of interest is the interaction between *Size* (*Profit*) and the three-level hierarchy. Table 7 reports the regression results for the moderating effect of bank size and profitability in common law and code law countries. The coefficients on the interactions between *Size* and all levels of the three-level hierarchy are significant in code law countries while only the interaction with L3L is significant in common law countries, suggesting that bank size does not affect the value relevance of fair value measures as much in common law countries, but investors trust in three-level hierarchy fair value estimates made by larger banks in code law countries. Additionally, coefficients on the interactions between *Profit* and three-level hierarchy are insignificant in both subsamples, indicating that bank performance does not matter in determining the value relevance of the three-level hierarchy.

[Insert Table 7]

Similarly, Table 8 reports the results for the moderating effect of bank size and profitability in high and low enforcement countries. The coefficients on all the interactions between *Size* and fair value measures are significant in Low enforcement countries, meaning that in low enforcement countries, investors find the three-level hierarchy more value relevant for large banks. In high enforcement countries, only the size interaction with L1A is significant (but at the 10% level)

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<sup>14</sup> The issue of the relative importance of country-level factors versus firm-level factors in explaining the value relevance of fair value elements is not our main focus.

Again, bank performance does not affect the value relevance of fair value estimates in both subsamples.

Table 9 (Panels A and B) presents the results for legal efficacy. It shows that bank size (Panel A), rather than profitability (Panel B), improves the value relevance of fair value measures in Code-High, Common-Low and Code-Low but not Common-High subsamples. Moreover, in Panel A, all five fair value categories are significantly moderated by size in Code-High countries, compared to three categories in Common-Low and two categories (both Level 3) in Code-Low countries. Together, Tables 7, 8 and 9 provide evidence that, compared to operating performance, bank size can significantly moderate the value relevance of fair value measures in code law and weak enforcement countries.

[Insert Tables 8 and 9]

In short, the additional analyses reveal that bank size matters in countries outside the Common-High subset. We conjecture that in countries that are not Common-High, bank size appears to act as a signal of the quality of fair value estimates where legal efficacy is lower, perhaps because larger banks are thought to have better expertise to make reliable fair value estimates.

#### 4.2.5 *Robustness tests*

We undertake several robustness tests to investigate whether our results are sensitive to the measurements of variables and model specifications. First, our dependent variable,  $Price_{it}$ , is measured as the share price of the firm three months after the financial year-end. As a robustness test, we also use the share price of the firm four months and six months after the financial year-end. Results are qualitatively similar to those reported in our Tables. Second, in place of our two firm-level information quality control dummy variables,  $BANKSIZE$  and  $ANALYSTS$ , we use their log values as a robustness check. Our results are similar to the main results (untabulated). Third,

to mitigate the size or scale effect, we deflate all variables by the number of shares outstanding. For a robustness check, we also use the market capitalisation (market value of equity). The untabulated results are similar to our main results.

Fourth, to test the sensitivity of the High-Low grouping (according to the sample median, based on the Rule of Law index) for the institutional variable, *Enforcement*, we divide our sample into high and low enforcement subsamples based on the legal enforcement index developed by Brown et al. (2014) and repeat all the analyses.<sup>15</sup> The untabulated results from these additional estimations yield inferences that are similar to those from the main estimations based on the Rule of Law index extracted from WGI (2012-2016).

Fifth, following Fiechter and Novotny-Farkas (2017), we re-estimate our regressions based on two subsamples: credit (bank) or equity-based (market) system. Results are qualitatively similar to those based on common law versus code law subsamples. In addition, Nobes and Parker (2016) measure the strength of equity markets by looking at the market capitalisation/GDP. We also use this variable to divide our sample into ‘credit’ and ‘market’ based economy; the resulting subsamples look similar to the Fiechter and Novotny-Farkas (2017) classification. We repeat the analyses and results are consistent with those reported earlier in Tables 4 to 6. Finally, we exclude countries with a small number of bank-year observations, such as Belgium, Ireland, Mexico, Portugal and Thailand. Results remain consistent. We also exclude the UK and France as these two countries account for almost 20% of our total sample. The results from the reduced sample show qualitatively similar results to those reported in Tables 4 to 6.

## **5. Conclusion**

Our paper examines whether legal system and enforcement, two important country-level

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<sup>15</sup> The legal enforcement proxy by Brown et al. (2014) captures the essential elements of promoting compliance with accounting standards from regulatory bodies but, as mentioned, is not as up to date as the Rule of Law index.

institutional factors, are associated with, and in combination (legal efficacy) moderate, value relevance of fair value estimates measured using the three-level hierarchy. Using a sample of 1,227 bank-year observations from 35 countries over 2012-2016, we find that the value relevance of fair value assets and liabilities are significantly influenced by legal system and enforcement. In particular, we find that fair value estimates are most value relevant in countries with the strongest combination of legal system and enforcement (Common-High) and least value relevant in countries with the weakest combination of legal system and enforcement (Code-Low), the decrease being monotonic across combinations of legal system and enforcement levels. Differences in value relevance across regimes are most likely to be observed for the least reliable fair value estimates (Level 3), and least likely to be observed for the most reliable (Level 1).

For countries not in the Common-High subsample, larger banks have more value relevant fair values, which we conjecture results from the market using larger bank expertise as a signal of fair value reliability where institutional protection of investors is weaker. Our results consistently show that fair value assets and liabilities are more relevant when banks are from countries with a common law legal system or with higher legal enforcement. Interestingly, the difference in legal enforcement across countries has a greater impact, in particular, on the value relevance of Level 2 and Level 3 assets and Level 3 liabilities. In addition, we find that legal efficacy enhances the value relevance of fair value assets and liabilities. This finding is consistent with La Porta et al. (1998) who conclude that governance systems are more effective in countries that combine common law tradition with a reliable enforcement mechanism.

Our results should be of interest to regulators, standard setters, the accounting profession and capital market participants. Using a sample of international banks, our study not only investigates the value relevance of the three-level hierarchy disclosures required by IFRS 13, it

also provides evidence that legal system, enforcement, and the combination of both, are significantly associated with the value relevance of fair value estimates. Our results have implications for how future standards (e.g. the joint IASB/FASB projects on financial statement presentation) can enhance existing fair value disclosures. That is, mere adoption of uniform accounting standards, without considering institutional features, will not lead to a significant improvement in accounting quality (Ball, 2006).

We acknowledge that our study has some limitations. First, care should be exercised in generalising our findings to firms beyond the banking industry. Therefore, future research can compare the results from different industry sectors, which will enhance our understanding of the implications and limitations of using IFRS 13 across industries. Second, although we control for Hofstede's cultural factors in some regressions, we do not further explore cultural factors in this study. Future research could explore the impact of culture and accounting values, for example, from Gray (1988), including country-level conservatism, transparency and flexibility on the value relevance of banks' fair value measurements. Last, Preiato et al. (2015) suggest that auditing enforcement across countries has a positive influence on the accuracy of analyst' forecasts. Future research can extend our study to explore the impact of different audit enforcement on the reliability of fair value estimates.

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**Table 1.** Sample Selection.

Initial Sample (bank-year observations applying IFRS 7 from BANKSCOPE 2012-2016)	3,511
<i>Less:</i>	
Missing values on country factors	1,908
Missing values on variables included in models	284
Outliers that fall in the top and bottom 1 percent of variables	92
<b>Final sample</b>	<b>1,227</b>

Table 1 presents the sample selection procedures.

**Table 2.** Sample Firms.**Panel A: sample distribution by country**

<b>Country</b>	<b># bank-years</b>	<b>Percentage</b>
Australia	36	2.93
Austria	28	2.28
Belgium	5	0.41
Brazil	24	1.96
Canada	43	3.50
Chile	37	3.02
Denmark	44	3.59
Finland	9	0.73
France	99	8.07
Germany	22	1.79
Greece	11	0.90
Hong Kong	79	6.44
Ireland	3	0.24
Israel	20	1.63
Italy	77	6.28
Jordan	47	3.83
Malaysia	20	1.63
Mexico	4	0.33
Netherlands	17	1.39
Norway	49	3.99
Pakistan	24	1.96
Peru	23	1.87
Philippines	66	5.38
Poland	30	2.44
Portugal	5	0.41
South Korea	30	2.44
Singapore	31	2.53
South Africa	38	3.10
Spain	33	2.69
Sweden	23	1.87
Switzerland	24	1.96
Taiwan	63	5.13
Thailand	5	0.41
Turkey	32	2.61
The UK	126	10.27
<b>Total</b>	<b>1,227</b>	<b>100</b>

**Table 2.** Sample Firms (continued).

***Panel B: Sample distribution by year***

<b>Year</b>	<b>Bank-year</b>	<b>Percentage</b>
2012	171	13.94
2013	226	18.42
2014	257	20.95
2015	283	23.06
2016	290	23.63
<b>Total</b>	<b>1,227</b>	<b>100</b>

*Panel C: Country-level Characteristics*

Country	Legal system	Rule of Law	Power distance	Masculinity	Individualism	Uncertainty avoidance	Audit environment	Industry expertise
Australia	Common	1.809	36	61	90	51	30	KPMG
Austria	Code	1.859	11	79	55	70	19	KPMG
Belgium	Code	1.451	65	54	75	94	22	Deloitte
Brazil	Code	-0.085	69	49	38	76	15	PwC
Canada	Common	1.818	39	52	80	48	32	KPMG
Chile	Code	1.332	63	28	23	86	4	Deloitte
Denmark	Code	1.962	18	16	74	23	27	Deloitte
Finland	Code	2.014	33	26	63	59	20	KPMG
France	Code	1.435	68	43	71	86	29	PwC
Germany	Code	1.715	35	66	67	65	23	KPMG
Greece	Code	0.343	60	57	35	112	17	Deloitte
Hong Kong	Common	1.650	68	57	25	29	30	PwC
Ireland	Common	1.711	28	68	70	35	29	KPMG
Israel	Common	1.040	13	47	54	81	24	KPMG
Italy	Code	0.345	50	70	76	75	27	Deloitte
Jordan	Code	0.396	70	45	30	65	6	Deloitte
Malaysia	Common	0.505	104	50	26	36	21	PwC
Mexico	Code	-0.490	80	69	30	82	12	KPMG
Netherlands	Code	1.903	38	14	80	53	24	Ernst & Young
Norway	Code	2.000	31	8	69	50	25	PwC
Pakistan	Common	-0.820	55	50	14	70	10	A. F. Ferguson & Co.
Peru	Code	-0.528	64	42	16	87	11	Ernst & Young
Philippines	Code	-0.396	94	64	32	44	11	Sycip Gorres Velayo & Co.
Poland	Code	0.785	68	64	60	93	19	Deloitte
Portugal	Code	1.108	63	31	27	104	17	Deloitte
South Korea	Code	1.001	60	39	18	85	18	KPMG



Country	Legal system	Rule of Law	Power distance	Masculinity	Individualism	Uncertainty avoidance	Audit environment	Industry expertise
Singapore	Common	1.781	74	48	20	8	20	KPMG
South Africa	Common	0.123	49	83	65	49	19	Ernst & Young
Spain	Code	0.983	57	42	51	86	26	Deloitte
Sweden	Code	2.000	31	5	71	29	25	KPMG
Switzerland	Code	1.900	34	70	68	58	27	PwC
Taiwan	Code	1.118	58	45	17	69	10	Deloitte
Thailand	Common	-0.120	64	34	20	64	11	Ernst & Young
Turkey	Code	-0.033	66	45	37	85	11	KPMG
The UK	Common	1.751	35	66	89	35	32	KPMG

Table 2 presents the sample distributions by country (Panel A) and by year (Panel B). Panel C also presents a summary of institutional characteristics of sample bank's country of origin. The classification of *Legal system* is based on La Porta et al. (1998). *Rule of Law* measures the "extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, the police, and the courts, as well as the likelihood of crime and violence" and ranges between -2.5 (weak) and 2.5 (strong). Each country's index is an average of the Rule of Law index reported in the WGI for the period 2012-2016 (<https://info.worldbank.org/governance/wgi/>). The four cultural dimensions (*Power distance*; *Masculinity*; *Individualism*; *Uncertainty avoidance*) are from Hofstede (2001). *Audit environment* is based on Brown et al. (2014) and *Industry expertise* is the auditor with the greatest number of clients in the banking industry identified at country-level (Yao et al. 2018).

**Table 3.** Descriptive Statistics.**Panel A: Relative Size of Fair Value Assets (Liabilities) deflated by Total Assets (Total Liabilities)**

<b>Variable</b>	<b>Obs.</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>25th</b>	<b>Median</b>	<b>75th</b>
FVA	1,227	0.270	0.262	0.089	0.181	0.352
L1A	1,227	0.107	0.142	0.017	0.067	0.137
L2A	1,227	0.108	0.154	0.009	0.055	0.130
L3A	1,227	0.055	0.169	0.000	0.002	0.012
NFVA	1,227	0.730	0.262	0.648	0.819	0.911
FVL	1,227	0.137	0.258	0.002	0.024	0.122
L1L	1,227	0.018	0.080	0.000	0.000	0.005
L2L	1,227	0.083	0.190	0.000	0.011	0.070
L3L	1,227	0.036	0.158	0.000	0.000	0.000
NFVL	1,227	0.863	0.258	0.878	0.976	0.998
Total Assets (USD millions)	1,227	139,000	332,000	3,800	18,700	80,100

**Panel B: Share Prices, Non-Fair Value, Fair Value Assets and Liabilities deflated by the number of outstanding shares**

<b>Variable</b>	<b>Obs.</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>25th</b>	<b>Median</b>	<b>75th</b>
Price	1,227	13.068	18.288	1.589	5.650	15.474
EPS	1,227	1.376	2.963	0.062	0.368	1.509
NFVA	1,227	159.812	312.222	5.681	33.885	160.544
L1A	1,227	27.534	76.764	0.188	3.217	22.659
L2A	1,227	33.940	92.430	0.203	2.382	21.538
L3A	1,227	10.471	92.416	0.000	0.068	2.028
NFVL	1,227	164.542	324.306	5.482	30.866	161.037
L12L*	1,227	26.391	81.436	0.007	0.549	14.764
L3L	1,227	3.566	19.337	0.000	0.000	0.039

\* Following the methodology adopted by Song et al. (2010), we combine fair value liabilities measured at Levels 1 and 2 in our analyses due to low frequency of liabilities measured using Level 1 inputs.

**Table 3.** Descriptive Statistics (continued).

***Panel C: Fair Value Assets (Liabilities) by Legal System Groups and Enforcement Groups***

	<b>Common</b>	<b>Code</b>		<b>High</b>	<b>Low</b>	
	<b>(n=425)</b>	<b>(n=802)</b>		<b>(n=638)</b>	<b>(n=589)</b>	
<b>Variable</b>	<b>Mean</b>	<b>Mean</b>	<b>Mean diff.</b>	<b>Mean</b>	<b>Mean</b>	<b>Mean diff.</b>
L1A	0.093	0.115	-0.022***	0.110	0.104	0.007
L2A	0.118	0.102	0.016*	0.112	0.103	0.008
L3A	0.080	0.042	0.038***	0.054	0.057	-0.002
NFVA	0.709	0.741	-0.032**	0.724	0.736	-0.012
L1L	0.025	0.015	0.010**	0.023	0.014	0.009**
L2L	0.086	0.081	0.005	0.091	0.074	0.018*
L3L	0.037	0.035	0.002	0.027	0.045	-0.017*
NFVL	0.852	0.869	-0.017	0.858	0.868	-0.009

\*\*\*, \*\*, \* indicate statistical significance at the 1, 5, or 10 % level (two-tailed), respectively.

Table 3 presents descriptive statistics. Panel A shows relative size of fair value assets (liabilities) as a percentage of total assets (liabilities) for the full sample and by legal system and enforcement (Panel B). Panel C presents descriptive statistics for firm-level variables used in regression analyses. See Appendix for variable definitions and data sources.

**Table 4:** Common Law versus Code Law.

	<i>Panel A</i> Common Law		<i>Panel B</i> Code Law		<i>Panel C</i> Common vs. Code	
	Coef.	t-stat	Coef.	t-stat		
Intercept	0.000	0.000	-34.172	-2.960***		
EPS	-0.155	-0.610	0.263	1.200		
NFVA	0.013	1.200	0.080	11.320***		
NFVL	-0.016	-1.570	-0.078	-10.850***		
L1A	0.101	6.520***	0.046	5.620***	<b>Chi-square</b>	<b>p-value</b>
L2A	0.069	4.770***	0.038	4.340***	3.87*	0.050
L3A	0.048	4.060***	0.000	0.000	1.50	0.221
L12L	-0.038	-2.450**	-0.016	-1.810*	26.01***	0.000
L3L	-0.142	-2.300**	-0.025	-1.100	0.62	0.430
BANKSIZE	4.183	2.290**	0.796	0.670	2.93*	0.087
ANALYSTS	1.208	0.770	0.399	0.330		
PD	-0.028	-0.290	0.020	0.320		
IND	0.553	6.490***	0.243	2.310**		
MAS	-0.456	-5.090***	0.047	1.080		
UA	-0.099	-0.980	0.354	4.960***		
AUDIT	0.569	3.200***	0.732	3.160***		
EXPERTISE	1.039	0.710	-0.811	-0.770		
		<b>F-stat</b>		<b>F-stat</b>		
L1A=L2A		2.79*		0.41		
L1A=L3A		8.42***		23.14***		
L2A=L3A		1.55		14.54***		
L12L=L3L		2.88*		0.13		
<b>N</b>	<b>425</b>		<b>802</b>			
<b>Adj. R<sup>2</sup></b>	<b>61.34%</b>		<b>39.44%</b>			

Table 4 presents regression results of Hypothesis 1. See Appendix for the definition of variables. \*\*\*, \*\*, \* indicate statistical significance at the 1, 5, or 10 % level (two-tailed), respectively. Country- and year-fixed effects included.

**Table 5.** High Enforcement versus Low Enforcement.

	<i>Panel A</i> High Enforcement		<i>Panel B</i> Low Enforcement		<i>Panel C</i> High vs. Low	
	Coef.	t-stat	Coef.	t-stat		
Intercept	-6.597	-0.820	-14.959	-1.400		
EPS	0.281	1.350	0.890	2.780***		
NFVA	0.034	3.360***	0.079	11.700***		
NFVL	-0.032	-3.270***	-0.083	-11.780***		
L1A	0.062	6.930***	0.060	4.400***	<b>Chi-square</b>	<b>p-value</b>
L2A	0.053	5.750***	-0.008	-0.620	0.01	0.942
L3A	0.044	3.590***	0.001	0.190	7.16***	0.007
L12L	-0.037	-3.830***	0.018	1.010	15.14***	0.000
L3L	-0.182	-3.060***	-0.030	-1.450	2.17	0.141
BANKSIZE	4.900	3.240***	1.893	3.480***	7.79***	0.005
ANALYSTS	0.453	0.320	1.098	0.880		
PD	0.055	0.600	0.158	2.440**		
IND	0.201	3.200***	0.361	3.230***		
MAS	0.006	0.100	-0.067	-0.690		
UA	0.303	3.990***	0.152	2.150**		
AUDIT	-0.429	-1.650*	-0.412	-2.030**		
EXPERTISE	1.605	1.300	-0.583	-0.520		
		<b>F-stat</b>		<b>F-stat</b>		
L1A=L2A		0.50		7.73***		
L1A=L3A		1.41		16.56***		
L2A=L3A		0.37		0.42		
L12L=L3L		5.72***		2.91*		
<b>N</b>		<b>638</b>		<b>589</b>		
<b>Adj. R<sup>2</sup></b>		<b>50.92%</b>		<b>36.87%</b>		

Table 5 presents regression results of Hypothesis 5. See Appendix for the definition of variables. \*\*\*, \*\*, \* indicate statistical significance at the 1, 5, or 10 % level (two-tailed), respectively. Country- and year-fixed effects included.

**Table 6.** Comparison of Results for Legal Efficacy Subsamples

	<b>Panel A</b>		<b>Panel B</b>		<b>Panel C</b>		<b>Panel D</b>	
	<b>(1) Common-High</b>		<b>(2) Code-High</b>		<b>(3) Common-Low</b>		<b>(4) Code-Low</b>	
	<b>Coef.</b>	<b>t-stat</b>	<b>Coef.</b>	<b>t-stat</b>	<b>Coef.</b>	<b>t-stat</b>	<b>Coef.</b>	<b>t-stat</b>
Intercept	143.030	3.180***	66.464	1.700*	-8.438	-1.560	-19.398	-1.600
EPS	-0.338	-1.150	0.469	1.330	2.832	4.000***	0.676	1.920*
NFVA	0.018	1.470	0.052	2.610***	-0.106	-4.120***	0.082	10.620***
NFVL	-0.024	-2.070**	-0.051	-2.610***	0.045	1.930*	-0.082	-10.260***
L1A	0.135	5.250***	0.059	5.720***	0.100	7.470***	0.025	1.200
L2A	0.113	4.860***	0.049	4.490***	0.033	2.410**	0.019	0.920
L3A	0.055	4.220***	0.121	0.980	-0.140	-2.430**	0.001	0.340
L12L	-0.084	-3.460***	-0.039	-3.300***	0.075	1.500	-0.004	-0.200
L3L	-0.187	-1.990**	-0.197	-1.700*	-0.021	-0.570	-0.018	-0.750
BANKSIZE	6.279	2.710***	4.301	2.150**	1.556	0.960	2.126	1.440
ANALYSTS	0.472	0.240	-0.562	-0.270	1.880	1.310	1.589	1.100
PD	-1.224	-2.620***	1.106	2.830***	-0.069	-1.380	0.171	2.020**
IND	-0.242	-1.010	0.456	1.350	-0.046	-0.310	0.279	2.810***
MAS	-1.668	-6.040***	0.781	5.220***	0.132	1.060	-0.116	-1.030
UA	-0.121	-0.690	-1.011	-3.450***	0.000		0.231	2.710***
AUDIT	1.428	2.580***	-3.976	-3.310***	0.488	1.540	-0.452	-1.780*
EXPERTISE	1.577	0.860	0.187	0.110	-0.457	-0.360	-1.266	-0.950
		<b>F-stat</b>		<b>F-stat</b>		<b>F-stat</b>		<b>F-stat</b>
L1A=L2A		0.83		0.42		10.78***		0.02
L1A=L3A		9.09***		0.24		16.55***		1.18
L2A=L3A		5.85**		0.34		8.33***		0.71
L12L=L3L		1.15		1.80		2.21		0.15
<b>N</b>		<b>318</b>		<b>320</b>		<b>107</b>		<b>482</b>
<b>Adj. R<sup>2</sup></b>		<b>61.38%</b>		<b>37.24%</b>		<b>80.65%</b>		<b>35.12%</b>

Table 6 presents regression results and coefficient comparisons for the following subsamples based on legal efficacy, with other country factors controlled for: (1) Common Law–High Enforcement; (2) Code Law–High Enforcement; (3) Common Law–Low Enforcement; and, (4) Code Law–Low Enforcement. See Appendix for the definition of variables. \*\*\*, \*\*, \* indicate statistical significance at the 1, 5, or 10 % level (two-tailed), respectively. Country- and year-fixed effects included.

**Table 7:** Common Law versus Code Law: the moderating effect of bank size and bank profitability

	Size effect				Profitability effect			
	Common Law		Code Law		Common Law		Code Law	
Price	Coef.	t-stat	Coef.	t-stat	Coef.	t-stat	Coef.	t-stat
Intercept	-1.549	-0.120	-45.203***	-3.930	13.068	-0.440	-37.085***	-3.120
L1A	0.111***	4.660	0.074***	7.440	0.039***	2.680	0.017	0.330
L2A	-0.061	-0.420	0.029***	2.180	0.119	1.160	0.076	0.420
L3A	-0.209*	-1.810	-0.001	-0.210	0.139	0.480	0.034	0.040
L12L	0.040	0.310	0.006	0.340	0.127	-0.690	-0.051	-0.270
L3L	0.051	0.620	0.005	0.170	0.162	-1.240	0.039	0.050
BANKSIZE	4.598***	2.730	2.537**	2.190				
L1A*BANKSIZE	-0.022	-0.720	0.089***	5.290				
L2A*BANKSIZE	0.144	1.000	0.031*	1.750				
L3A*BANKSIZE	0.260**	2.230	0.097**	2.420				
L12L*BANKSIZE	-0.085	-0.650	-0.013***	-4.620				
L3L*BANKSIZE	-0.564***	-3.270	-0.155***	-2.560				
PROFIT					2.311	0.320	3.151	1.200
L1A*PROFIT					0.045	-0.380	0.031	0.590
L2A*PROFIT					0.120	-0.670	-0.037	-0.200
L3A*PROFIT					0.140	-0.090	-0.034	-0.040
L12L*PROFIT					0.129	0.490	0.035	0.190
L3L*PROFIT					0.179	0.470	-0.072	-0.100
Controls	Included		Included		Included		Included	
N	425		802		425		802	
Adj. R <sup>2</sup>	62.28%		41.90%		60.66%		39.38%	

Table 7 presents regression results of additional test on the moderating effect of bank size and profitability on fair value relevance between common law versus code law subsamples. See Appendix for the definition of variables. \*\*\*, \*\*, \* indicate statistical significance at the 1, 5, or 10 % level (two-tailed), respectively. Country- and year-fixed effects included.

**Table 8:** High Enforcement versus Low Enforcement: the moderating effect of bank size and bank profitability

	Size effect				Profitability effect			
	High Enforcement		Low Enforcement		High Enforcement		Low Enforcement	
Price	Coef.	t-stat	Coef.	t-stat	Coef.	t-stat	Coef.	t-stat
Intercept	-10.390	-1.280	-17.510	-1.69*	-4.415	-0.530	-25.551	-1.930
L1A	0.080	6.92***	0.080	3.89***	0.109***	2.630	0.006	0.120
L2A	0.030	2.18**	-0.020	-0.360	0.030	0.270	-0.340	-1.730*
L3A	0.020	0.140	0.000	-0.200	-0.041	-0.300	1.852	3.190***
L2L	0.000	0.080	0.080	1.330	0.011	0.090	0.302	1.780*
L3L	-0.120	-1.060	0.010	0.290	-0.074	-0.440	-1.504	-3.110**
BANKSIZE	6.040	4.12***	-0.370	-0.300				
L1A* BANKSIZE	0.030	1.68*	0.080	2.92***				
L2A* BANKSIZE	0.040	0.660	0.030	1.74*				
L3A* BANKSIZE	0.030	0.210	0.200	4.81***				
L12L* BANKSIZE	-0.070	-1.090	-0.040	-1.78*				
L3L* BANKSIZE	-0.160	-0.950	-0.290	-4.81***				
PROFIT					1.313	0.590	3.207	1.190
L1A*PROFIT					-0.051	-1.210	0.037	0.700
L2A*PROFIT					0.020	0.180	0.345	0.360
L3A*PROFIT					0.093	0.670	-1.851	-1.190
L12L*PROFIT					-0.045	-0.360	-0.293	-0.090
L3L*PROFIT					-0.136	-0.750	1.472	0.400
Controls	Included		Included		Included		Included	
N	<b>638</b>		<b>589</b>		<b>425</b>		<b>802</b>	
Adj. R <sup>2</sup>	<b>51.58%</b>		<b>40.42%</b>		<b>50.13%</b>		<b>37.60%</b>	

Table 8 presents regression results of additional test on the moderating effect of bank size and profitability on fair value relevance between high enforcement versus low enforcement subsamples. See Appendix for the definition of variables. \*\*\*, \*\*, \* indicate statistical significance at the 1, 5, or 10 % level (two-tailed), respectively. Country- and year-fixed effects included.



**Table 9.** Comparison of Results for Legal Efficacy Subsamples: the moderating effect of bank size and bank profitability

*Panel A: Bank size effect on legal efficacy results*

	<b>Column (1) Common–High</b>		<b>Column (2) Code–High</b>		<b>Column (3) Common–Low</b>		<b>Column (4) Code–Low</b>	
<b>Price</b>	<b>Coef.</b>	<b>t-stat</b>	<b>Coef.</b>	<b>t-stat</b>	<b>Coef.</b>	<b>t-stat</b>	<b>Coef.</b>	<b>t-stat</b>
Intercept	146.424	3.180***	63.132	1.69	-4.723	-1.09	-18.507	-1.57
L1A	0.102	1.56	0.064	5.490***	-0.003	-0.1	-0.014	-0.34
L2A	0.059	0.16	0.037	2.600***	0.894	4.010***	0.000	0.01
L3A	-0.131	-0.6	0.453	2.440**	-1.736	-4.300***	0.000	0.03
L12L	-0.106	-0.29	0.012	0.61	0.251	4.040***	0.054	0.74
L3L	-0.017	-0.07	-0.358	-2.470**	-0.022	-0.7	0.04	1.27
BANKSIZE	5.664	2.710***	8.696	4.310***	4.283	3.290***	-1.363	-0.94
L1A*BANKSIZE	0.022	0.34	0.101	3.630***	0.021	0.53	-0.005	-0.12
L2A*BANKSIZE	0.054	0.14	0.045	1.960**	0.858	3.870***	0.032	0.45
L3A*BANKSIZE	0.186	0.84	0.900	3.770***	1.711	4.190***	0.25	5.400***
L12L*BANKSIZE	0.027	0.08	-0.056	-2.050**	-0.27	-3.230***	-0.053	-0.68
L3L*BANKSIZE	-0.267	-0.67	-0.906	-3.570***	0.035	0.31	-0.356	-5.320***
Controls	Included		Included		Included		Included	
<b>N</b>	318		320		107		482	
<b>Adj. R<sup>2</sup></b>	61.24%		44.01%		88.21%		39.41%	

**Table 9.** Comparison of Results for Legal Efficacy Subsamples: the moderating effect of bank size and bank profitability (continued).

**Panel B: Bank profitability effect on legal efficacy results**

	<b>Column (1) Common–High</b>		<b>Column (2) Code–High</b>		<b>Column (3) Common–Low</b>		<b>Column (4) Code–Low</b>	
<b>Price</b>	<b>Coef.</b>	<b>t-stat</b>	<b>Coef.</b>	<b>t-stat</b>	<b>Coef.</b>	<b>t-stat</b>	<b>Coef.</b>	<b>t-stat</b>
Intercept	155.516	3.28***	79.527	2.04**	-3.647	-0.500	-30.800	-2.050**
L1A	0.114	2.26**	0.244	1.130	-0.053	-0.540	0.017	0.300
L2A	0.102	0.780	0.010	0.030	0.000		0.097	0.310
L3A	0.021	0.140	1.816	0.990	-0.029	-0.550	-0.158	-0.130
L12L	-0.050	-0.360	0.036	0.090	0.000		-0.045	-0.180
L3L	-0.132	-0.740	-8.548	-0.970	-2.140	-4.240***	0.201	0.200
PROFIT	0.969	0.380	8.342	1.110	0.411	0.080	3.250	1.100
L1A*PROFIT	0.019	0.360	-0.189	-0.880	0.107	1.040	0.011	0.190
L2A*PROFIT	-0.002	-0.020	0.042	0.120	0.034	2.85***	-0.078	-0.250
L3A*PROFIT	0.038	0.240	-1.708	-0.930	0.000		0.159	0.130
L12L*PROFIT	-0.025	-0.170	-0.075	-0.180	-0.036	-0.680	0.042	0.160
L3L*PROFIT	-0.248	-0.900	8.361	0.950	2.135	0.390	-0.227	-0.220
Controls	Included		Included		Included		Included	
<b>N</b>	318		320		107		482	
<b>Adj. R<sup>2</sup></b>	61.24%		44.01%		88.21%		39.41%	

# Due to multicollinearity, L2A, L12L and L3A\*PROFIT were omitted from the regression analysis.

Table 9 presents regression results of additional test on the moderating effect of bank size and profitability on fair value relevance between legal efficacy subsamples. See Appendix for the definition of variables. \*\*\*, \*\*, \* indicate statistical significance at the 1, 5, or 10 % level (two-tailed), respectively. Country- and year-fixed effects included

**Appendix.** Definition of variables.

<b>Variable</b>	<b>Measurement</b>	<b>Data Source</b>
<b>Price</b>	The share price of firm three months after the financial year-end	
<b>EPS</b>	Earnings per share	
<b>FVA(L)</b>	Fair value assets (liabilities)	
<b>NFVA</b>	Non-fair value assets per share	
<b>L1A</b>	Fair value assets measured based on Level 1 inputs per share	Bankscope
<b>L2A</b>	Fair value assets measured based on Level 2 inputs per share	
<b>L3A</b>	Fair value assets measured based on Level 3 inputs per share	
<b>NFVL</b>	Non-fair value liabilities per share	
<b>L12L</b>	Fair value liabilities measured based on Level 1 and 2 inputs per share	
<b>L3L</b>	Fair value liabilities measured based on Level 3 inputs per share	
<b>Common</b>	Dummy variable equals to 1 for common law, 0 otherwise	La Porta et al. (1998)
<b>ROL</b>	Rule of Law index	WGI
<b>BANKSIZE</b>	A dummy variable equals to 1 if natural logarithm of total assets is greater than the sample median, and 0 otherwise	Bankscope
<b>ANALYSTS</b>	A dummy variable equals to 1 if natural logarithm of (1+ number of analysts following) is greater than the sample median, and 0 otherwise	Datastream and IBES
<b>PD</b>	Power distance index	
<b>IND</b>	Individualism index	Hofstede (2001)
<b>MAS</b>	Masculinity index	
<b>UA</b>	Uncertain avoidance index	
<b>AUDIT</b>	Audit environment index	Brown et al. (2014)
<b>EXPERTISE</b>	Auditor Industry expertise identified at country-level as the auditor with the greatest number of clients in the banking industry of each country	Yao et al. (2018)
<b>Profit</b>	Dummy equals to 1 if the reported profit is positive, and 0 otherwise	Bankscope