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Information asymmetry of fair value accounting during the financial crisis

Lin Liao^a, Helen Kang^{a,*}, Richard D. Morris^a, Qingliang Tang^b^aThe University of New South Wales, Australia^bThe University of Western Sydney, Australia

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ABSTRACT

We examine whether US banks' fair value net assets, measured according to the three-level hierarchy introduced in SFAS 157, are associated with information asymmetry during the 2008 financial crisis. Our results show that bid–ask spread, a proxy for information asymmetry, is positively associated with fair value net assets, and the degree of association is contingent upon the three-level hierarchy, with bid–ask spreads being lowest for Level 1 (the most transparent valuation inputs) and highest for Level 3 (the least observable). Also, there is some evidence that SFAS 157 led to a reduction in bid–ask spread, and we find that quarterly changes in Level 1 and Level 2 fair value net assets are significantly associated with changes in bid–ask spread in 2008 when the spread was rapidly rising, but not in 2009 when it was falling. Our findings suggest that the three-level hierarchy under SFAS 157 provides investors with useful information, and fair value is associated with uncertainty, as measured by bid–ask spread, before and during the financial crisis.

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1. Introduction

Fair value accounting (FVA) has been linked to injecting excessive, artificial volatility into financial markets during the 2008 financial crisis,¹ and adversely impacting the solvency of financial institutions (Allen and Carletti, 2008; Plantin et al., 2008). Markets for certain financial assets “froze” in the financial crisis, thereby yielding fair value estimates allegedly prone to distortion from thin trading or greater managerial manipulation and, consequently, to increased information opacity and risks (Landsman, 2007; Penman, 2007). The claim that FVA may have contributed to the severity of the financial crisis (known as the procyclical argument) strikes at the heart of an accounting measurement method that has long been championed by normative accounting theorists (e.g. Chambers, 1966; Sterling, 1970). In contrast, the US Securities and Exchange Commission (SEC), the Financial Accounting Standards Board (FASB), the International Accounting Standards Board (IASB), and various other global accounting professional bodies, have supported the use of FVA. US GAAP and International accounting standards require FVA for financial instruments, debt securities and marketable investments, provisions, biological assets and insurance contracts. Proponents of FVA argue that, even without FVA, many toxic loans would still have been made, and the crisis would still have had severe consequences.²

* Corresponding author. Address: School of Accounting, The University of New South Wales, Sydney 2052, Australia. Tel.: +61 (2) 9385 5824; fax: +61 (2) 9385 5925.

E-mail address: helen.kang@unsw.edu.au (H. Kang).

¹ For this study, we take the financial crisis as beginning in 2008, even though we acknowledge that it had its origins in the earlier sub-prime mortgage crisis in the US. The crisis certainly worsened substantially and spread globally in 2008.

² Arguments for and against FVA are summarized in Laux and Leuz (2009), as well as in Barth and Landsman (2010).

The issue of whether FVA played a positive or a negative role in the financial crisis has not yet been resolved in the literature. We are thus motivated to consider one of the issues regarding FVA: whether US banks' assets and liabilities, reported under SFAS 157 *Fair Value Measurements* (effective for fiscal years beginning on or after 15 November 2007), are associated with information asymmetry among equity investors during the financial crisis. SFAS 157 provides a universal definition of "fair value" and establishes a three-level measurement hierarchy that ranks fair value inputs based on their reliability. These inputs range from the most reliable inputs that are directly obtained from active asset markets and are independent of the reporting entity (Level 1, hereafter FVL1), the inputs from similar assets to those held by the firm (Level 2, FVL2), and the least reliable inputs based on the reporting entity's own assumptions and estimates when active markets do not exist, sometimes called "mark-to-model" (Level 3, FVL3). Firms are required to disclose the amounts of their assets and liabilities measured using each of the three levels.

Information reliability is an important issue, because all firms suffer from some information asymmetry (Flannery et al., 2004). Insiders have superior knowledge about the firm compared to outsiders and some investors have information advantages over others. For example, informed investors may have access to undisclosed private information or have superior knowledge and experience to efficiently process sophisticated information, while uninformed traders do not (Verrecchia, 1983; Glosten and Milgrom, 1985). This is especially true in the banking industry, because some banks' assets, such as loans, assets held in trading accounts, and collateralized debt obligations, are informationally opaque and thus difficult for outside investors to assess their value and underlying risks (Flannery et al., 2004; Haggard and Howe, 2007).

The relationship between information asymmetry and fair value estimates is crucial to understanding the role of accounting in the financial crisis. The origins of the financial crisis lie in the collapse of the US sub-prime mortgage market from 2007, investors' exposure thereto via opaque, complex securitisations of mortgage loans, and the unexpected, widespread unravelling of these securitisations (Kothari and Lester, 2011; Mishkin, 2011).³ As a result, fair values from inactive markets caused by the financial crisis became increasingly unreliable and unrealistic. The suspension of FVA was called for by some market participants (e.g. American Bankers Association, 2008). In addition, economic theory suggests that a commitment to increased levels of disclosure can reduce the private benefits of information gathering and can also reduce the potential for information asymmetry among investors (Ertimur, 2004). The FASB states that SFAS 157 could provide investors with enhanced and transparent information about assets and liabilities reported at fair value.

We investigate the relationship between information asymmetry and fair value net assets measured using the three-level hierarchy in SFAS 157. If the disclosures under SFAS 157 improve the informativeness of fair value measures according to the input levels, information asymmetry is expected to be lower overall after introduction of SFAS 157, all else being equal. In addition, we expect that, relative to FVL2 net assets, information asymmetry will be higher for net assets measured at FVL3 and lower for FVL1. Our study is based on the quarterly data of US banks with SIC codes between 6000 and 6100 in the fiscal years 2007–2009.

To measure information asymmetry, we use one of the market microstructure measures, bid–ask spread, since it is a well-developed and often-employed proxy in the accounting and finance literature (Krinsky and Lee, 1996; Leuz and Verrecchia, 2000; Roger, 2008; Bhat and Jayaraman, 2009; Ball et al., 2012). Bid–ask spread has good theoretical underpinnings and the component attributable to information asymmetry can be isolated (Muller et al., 2011, p. 1144). When information asymmetry among equity investors is high, informed investors can exploit their information advantage at the expense of uninformed investors. Uninformed investors realize that they are faced with an adverse selection problem, and are motivated to increase the bid–ask spread to protect themselves against losses expected from trading with more informed investors (Venkatesh and Chiang, 1986; Chae, 2005). Output measures, such as bid–ask spread, equity betas, and share market impact (value relevance) are often used together in the literature (e.g. Riedl and Serafeim, 2011), and bid–ask spreads and equity betas are both positively associated with stock excess returns (Amihud and Mendelson, 1989). These three measures, however, are not equivalent. For example, an accounting measure may have a high bid–ask spread and yet still have value relevance, and vice versa. In particular, bid–ask spread is a better measure of information asymmetry among market participants, making it especially useful as a dependent variable in a setting characterized by rapidly changing levels of market uncertainty; i.e. during financial crises.

Our findings show that bid–ask spread is positively and significantly related to total fair value net assets and to each of the three-level designations under SFAS 157 during 2008 and 2009. In addition, we find that information asymmetry increases according to the degree of opacity of fair value inputs. That is, FVL3 fair values have the largest coefficient and FVL1 fair values the lowest coefficient relative to other levels. This finding is consistent with our expectation that assets and liabilities measured at FVL3 are less precise than the other two levels, and that market investors respond accordingly. The introduction of SFAS 157, however, only led to an immediate *reduction* in the association between bid–ask spread and fair value for FVL2. We also find that *changes* in FVL1 and FVL2 are significantly associated with *changes* in bid–ask spread across adjacent quarters in 2008 when bid–ask spread was rapidly increasing, but not in 2009 when bid–ask spread was falling. Our results are controlled for size, profitability, loss incurrence, default risk, and capital adequacy.

We contribute to the accounting literature in three ways. First, we complement existing studies which explore the role of FVA in the financial crisis. We show that bid–ask spread is positively associated with fair value estimates, before and during

³ After the failure of Lehman Brothers in September 2008, the then largely US-focussed crisis transformed into a global crisis of confidence in which a rapidly spreading and severe financial contagion effect set in, the consequences of which are still being experienced in many countries.

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