Journal of Finance and Bank Management
June 2015, Vol. 3, No. 1, pp. 11-24
ISSN: 2333-6064 (Print), 2333-6072 (Online)

Published by American Research Institute for Policy Development
DOI: 10.15640/jfbm.v3n1a2
URL: http://dx.doi.org/10.15640/jfbm.v3n1a2

The Value Relevance of Fair Value Financial Assets During and After the 2008 Financial Crisis: Evidence from the Banking Industry

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Abstract

Statement of Financial Accounting Standard 157 defines a hierarchy of three levels for reporting the fair of financial assets. In this paper we examine value relevance of the three levels of fair value assets and of non-fair value assets during the financial crisis of 2008-2009 and compare the results to the value relevance during the normal economic period of 2012-2013. Using quarterly data from the banking industry we find that, first, although both fair value disclosure and non-fair value disclosure provide investors with decision-related information, the value relevance of fair value assets is slightly greater than value relevance of non-fair value assets, and this difference is larger during recession period. Second, the value relevance of Level 3 financial assets, which are computed using the greatest amount of management discretion, is lower than the value relevance of Level 1 and Level 2 financial assets, and lower than the value relevance of non-financial assets. This result is true in the recession period and the normal economic period. Finally, corporate governance appears to have a positive impact on bank stock prices, and fair value disclosure is more useful for firms with weak corporate governance.

Keywords: Value relevance, fair value disclosure, financial crisis, corporate governance

1. Introduction

The Financial Accounting Standard Board issued Statement of Financial Accounting Standard No. 157 to provide a clear definition for the fair value of financial assets and establishes three levels of fair value: Level 1, Level 2, and Level 3 (FASB, 2006). Level 1 requires that fair value assets and liabilities be evaluated based on observable inputs such as quoted prices of identical assets and liabilities in active markets. Level 2 requires that, if quoted price of identical item is not available, fair value evaluation should base on observable inputs that other than quoted prices for identical assets and liabilities. Level 3 allows using unobservable inputs for fair value disclosure when observable inputs in Level 1 or Level 2 are not available (FASB, 2006). Firms must disclose the fair value of financial assets and liabilities for each of the three levels. Whether this fair value disclosure requirement provides investors with reliable and relevant information is debatable. This paper investigates whetherFAS157 provides relevant information for investment decisions, especially during financial crisis period of 2008-2009. Some researchers argue that fair value disclosure is subject to management discretion and therefore management is optimistic in their estimation on fair values (Aboody, Barth, & Kasznik, 1999; Bartov, Mohanram, & Nissim, 2007). The information asymmetry between management and investors makes it difficult for investors to verify whether the numbers disclosed are accurate and reasonable, particularly for Level 3 assets. Moreover, information asymmetry will lead adverse selection and bring moral hazard problems, which may lower the value relevance of accounting information (Penman, 2007; Landsman, 2007).

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On the other hand, if managers disclose fair value truthfully, then the fair value disclosure provides investors with more accurate and current corporate values (Song, Thomas, & Yi, 2010; Dietrich, Harris, & Muller 2000; Aboody et al., 1999; Easton, Eddy, & Harris, 1993). Because fair values in active market are observable for investors, investors are able to verify the fair value disclosure. By using fair value, investors could clearly understand a company's operations and economic situation. Therefore, compared with non-fair value disclosure, fair value disclosure has higher value relevance. To contribute to this debate we examine the banking industry because banks have large amounts of financial assets and liabilities which need to be disclosed under SFAS 157. First, we test whether the value relevance of fair value assets differs with value relevance of non-fair value and whether value relevance of each level of fair value (i.e., Level 1, Level 2, and Level 3) differs with one another. Second, we test whether value relevance of fair value in financial crisis period differs from that in a normal period. FAS157 was implemented in 2007, and companies whose fiscal year beginning after November 15, 2007 were required to measure their fair value assets and liabilities (FASB, 2006).Since the fair value disclosure is based on different inputs from both active and inactive markets, the value relevance of each level of fair value is impacted by the declining economy (Song et al., 2010), especially for fair values in Level 3 whose inputs are not observable for investors. Prior research examines the value relevance of fair value disclosure during the financial crisis period (Songet al., 2010; Bhat, 2009; Goh, Li, Ng, &Yong, 2009). However, these papers do not compare the financial crisis period to a period of normal economic activity. Thus it is not clear if the results of the prior literature are only valid during the financial crisis period, or if they hold in all types of economic periods.

Therefore, the second main purpose of this paper is to understand whether value relevance of fair value disclosure in financial crisis period differs from value relevance of fair value disclosure during and after the recession period. Third, we consider whether the quality of corporate governance will affect value relevance of non-fair and fair value disclosures. The important difference between Level 1 and Level 3 fair value is the observability of fair value inputs. Since input of Level 1 is fair market value of identical assets and liabilities, investors are able to monitor how correctly the management evaluates and discloses fair values. In contrast to Level 1, inputs of fair value Level 3 are unobservable and subjective inputs, such as management estimations or company-generated values (Songet al., 2010). As a result of lack of observability, Level 3 fair value disclosure may be subject to greater management manipulation. As for non-fair value disclosure, book values may also depend on calculations made by management and may also suffer from manipulation by management (Aboodyet al., 1999). Therefore, it is necessary for investors to consider the quality of corporate governance. Certain corporate governance mechanisms may provide investors with confidence about the evaluations made by the company itself, and thereby reduce the impact of information asymmetry (Songet al., 2010). The value relevance of fair value disclosure of companies with good corporate governance may be higher than that of company with poor corporate governance, especially for Level 3 fair value assets. Therefore, in the third part of this paper, we analyze whether any difference exists between value relevance of fair value disclosures between firms with high quality corporate governance and firms with low quality corporate governance.

We conduct our analyses using quarterly financial data from the banking industry, which is available in COMPUSTAT database. We define the economic crisis period as2008 to 2009 and normal economic period from2012 to 2013. Our results are as follows. First, we find the value relevance of fair value disclosure is slightly greater than that of non-fair value disclosure. Our results imply investors will price one dollar fair value net asset for $0.78, while they price one dollar non-fair value net asset for $0.71.We also find that the value relevance of Level 1 and Level 2 financial assets is significantly greater than that of Level 3. Investors price one dollar disclosed Level 3 asset at$0.53. Next, we find that during recession period, the value relevance of Level 1 and Level 2 asset are similar and both significantly greater than that of Level 3 assets. The value relevance of non-fair value asset in the financial crisis period is greater than Level 3 but less than Level 1 and Level 2. Moreover, we find that, after financial crisis(i.e., during the normal economic period), the incremental value relevance of non-fair value asset is significantly greater than that of Level 1 and Level 2, and value relevance of Level 3 asset remains the same as in recession period. Since this result shows that investors will increase their valuation on non-fair value asset after recession period, it indicates the usefulness of Level 1 and Level 2 fair value disclosure requirement. It also indicates that fair value accounting did not exacerbate the financial crisis, since Level 3 assets have the same value relevance during and after the crisis period. Finally, the result shows that corporate governance seems to impact share price and the value relevance of accounting information. This paper contributes to our understanding of the banking industry during the financial crisis. This paper contributes to the existing air value accounting literature by providing more current and sufficient data of fair value and non-fair value disclosure in the banking industry.

Our results suggest fair value accounting rules did not exacerbate the financial crisis or bank liquidity problems. This paper also contributes to the literature on corporate governance of banking industry. We find a positive relation between corporate governance quality and share price, but a negative relationship between corporate governance and the value relevance of fair value in the banking industry. It is possible that fair value information is more useful to investors when governance is poor. It is also possible that traditional measures of corporate governance are not applicable to the banking industry, and corporate governance in banks should be measured using other variables. The next section reviews relevant literatures, and discusses the relationships among fair value disclosure, FAS No. 157, the financial crisis, and corporate governance of the banking industry. Section 3 develops three sets of hypothesis. Section 4 presents the models employed in the statistical tests. Section 5 outlines the sample selection process and provides descriptive statistics. Section 6 describes the empirical results and Section 7concludes.

2. Literature Review

2.1Fair Value, Value Relevance and FAS No. 157

Fair value accounting is also called mark-to-market (Gohet al., 2009). The fair value method requires company to disclose its assets and liabilities at the market value rather than historical costs. Prior literature provides mixed evidence about whether fair value disclosure is more useful to investors than non-fair value disclosure. Two important characteristics of accounting information are relevance and reliability. Accounting information is relevant if it would affect information users' decisions, such as the decision to buy equity in a firm. Accounting information is reliable if it is faithfully represents the reality of a firm's economics, and measurement error and manipulation are minimized from disclosure (Songet al., 2010). Fair value disclosure is more timely and more accurately reflect current market values, making it quite relevant. However, the potential for management discretion and manipulation may hurt its reliability. The trade-off between reliability and relevance of fair value generates substantial disagreement between advocators and critics of fair value accounting (Songet al., 2010). Supporters of fair value state that fair value measurement provides users with decision-related and relevant information about a company that may affect users' future investment decision. Therefore reasonable management estimates can be involved in fair value disclosure to increase the relevance of accounting information (Gohet al., 2009; Barth &Clinch, 1998). On the other hand, critics insist the reliability of accounting information depends on whether disclosure mirrors reality. Since management manipulation and private information may impact the reliability of fair value disclosure, investors will be reluctant to make decisions based on the fair value disclosure that is estimated by controversial inputs (Beaver& Venkatachalam, 2003). Thus, fair value disclosure lowers the reliability of accounting information.

Prior research suggests that certain fair value disclosure are not only value relevant, but also more relevant than non-fair value disclosure. Barth (1994) finds that compared with historical cost, fair value of security gains and losses are more powerful in explaining share prices. Barth, Beaver, & Landsman (1996) finds that fair value estimates of loans, securities and long-term debt are more value-relevant compared with related book value. However, evidence also suggests that during periods of financial crisis, the relevance of non-fair value increases. Davis-Friday, Eng, and Liu (2006) find evidence that, in Indonesia and Thailand, the value relevance of earnings was significantly reduced during the Asian financial crisis, while the value relevance of book value increased. Therefore, both non-fair value and fair value disclosure may be relevant for decision, but which is more relevant is an empirical question which depends on the setting. While not all previous research finds strong evidence that supports the use of fair value over book value (Nelson 1996; Eccher, Ramesh, & Thiagarajan, 1996), Barth (1994) argues that a confounding factor is imperfect methods of fair value estimation by management, which may reduce the value relevance of fair value disclosure. Hence, as long as fair value is evaluated on an accurate and credible basis, fair value disclosure will be value relevant (Songet al., 2010; Altamuro & Zhang, 2013).FAS 157 establishes a framework for evaluating and disclosing fair value, and was designed to improve the reliability of fair value information by increasing the transparency of the valuation process. According to FAS157, companies are required to classify their fair value financial assets and liabilities into three levels, based on the observability of inputs. Level 1 requires that fair value assets and liabilities be evaluated based on observable inputs such as quoted prices of identical assets and liabilities in active markets, or the market price of the asset itself (e.g., the market price of a common stock held by the firm). Level 2 requires that, if quoted price of identical item is not available, fair value evaluation should base on observable inputs that other than quoted prices for identical assets and liabilities.

For example, the firm may report it values financial assets using LIBOR or the US Treasury 10 year rate, which are observable inputs. Level 3 allows using unobservable inputs for fair value disclosure when observable inputs in Level 1 or Level 2 are not available. Level 3 inputs are based on company's own assumptions which are not observable for investors (FASB, 2006). The differences in observability allow for different levels of management judgment and manipulation, which may result in different value relevance among the three levels of fair value disclosure.

2.2 Financial Crisis and Fair Value Disclosure

Critics of fair value accounting claim that fair value accounting exacerbated the severity of the financial crisis or even was one major contributor to the financial crisis (Barr, 2008; Cathey, Schauer, & Schroeder, 2012). However, a more balanced and complete review of the data finds little evidence that recession is the result of fair-value accounting (Laux & Leuz, 2010). In addition, Songet al. (2010) find that Level 1 and Level 2 assets have greater value relevance than Level 3 asset. They find the market places a lower value on fair value financial assets than the fair value accounting. Their results suggest that fair value accounting did not artificially depress asset prices, and thus did not contribute to the recession. However, since FAS No.157 was established just prior to the financial crisis period, early investigation of the value relevance of three levels of fair value were conducted with limited data(Song et al., 2010; Gohet al., 2009; Bhat, 2009). These papers only examined the financial crisis period, and could not compare the financial crisis period to a more normal economic period. Other research suggests the state of the economy impacts value relevance. For example, Devalle (2012) finds that comprehensive income has more value relevance than net income and a financial recession is positively related to value relevance. Graham, King, & Bailes (2000) find that the value relevance of Thai accounting information is lowered by economic turmoil. Thus while the value relevance of fair value financial assets and liabilities in the early part of the financial crisis in known (e.g., Son et al., 2010) the value relevance of fair value financial assets in a normal economic time period is unknown. A purpose of this paper is to refine previous analysis by using adequate data during the recession and extend the analysis by adding data in a normal economic period.

2.3 Corporate Governance and Value Relevance

In final section of the paper, we investigate whether corporate governance mechanisms have a positive or negative effect on the value relevance of fair value disclosure. As discussed above, information gaps in fair value disclosure between management and users may vary, because fair values are calculated by various inputs. Information gaps may create information asymmetry. Certain fair value assessments rely on management's estimation. Thus managers may be diligent and use private information to benefit investors (Barth& Clinch, 1998), managers may also use private information to manipulate earnings or for personal gain (Aboodyet al., 1999; Bartovet al., 2007). The extent to which managers are willing and able to use estimations and private information for personal gain is likely constrained by the quality of corporate governance in the firm. Corporate governance has many functions and among them are reducing information asymmetry, improving company performance, and increasing shareholders' confidence in management (Song et al., 2010).There is an extensive prior literature regarding the usefulness of corporate governance mechanisms. Minton, Taillard, & Willianmson (2010) finds that, for banking firms, financial expertise in the board and board independence is positively related to bank performance, except in a financial crisis period. Gompers, Ishii, & Metrick (2003) finds that shareholder rights have positive effects on firm value and profit. These papers indicate that high quality corporate governance may benefit both companies and investors. In addition, prior literature find suggests that corporate governance quality is positively related with value relevance of fair value disclosure. Bhat (2009) indicates that, since qualified corporate governance helps investors evaluate the usefulness of fair value assessment, investors will regard fair value disclosure of companies with strong corporate governance as more reliable and relevant compared to companies with poor corporate governance. Songet al.(2010) also find that value relevance of all levels of fair value disclosure from companies with better corporate governance is higher than that from low quality corporate governance companies.

These results intuitively make sense. Companies in a recession are more likely to struggle to meet their financial performance goals, and therefore have a larger incentive to use their discretion to manipulate their fair value estimates. Directors in companies with poor corporate governance may not detect intentionally mis-valued asset and liabilities, while high corporate governance companies will still provide users with credible and relevant information. Davis-Fridayet al.(2006) find the level of corporate governance mechanisms does have an impact on the value relevance of book values. Thus, the value relevance of fair value financial disclosure is positively related to corporate governance.

However, Erkens, Hung, and Matos (2012) provide evidence that financial firms with higher institutional shareholders and more independent directors suffer greater losses during the 2008 crisis period. Aebi, Sabato, and Schmid (2012) find that standard corporate governance measures such as CEO ownership, institutional shareholders, board size, competence of directors and board independence are insignificantly or even negatively related to the bank's performance in the 2008 financial crisis. These results suggest that for banks in a financial crisis period, either good governance is negatively related to performance, or that the standard measures of good governance do not actually measure good governance for banks in a recession. In either case, these papers imply the value relevance of financial disclosure of banks with "good" corporate governance could be lower than of banks with "poor" corporate governance (Aebiet al., 2012).

3. Hypothesis Development

In order to understand the relationship between air value disclosures, the financial crisis, and the quality of corporate governance, our research consists of three steps. The first step is to verify the differences of value relevance between non-fair value and fair value assets and liabilities, and any difference in value relevance between the levels of fair value disclosure. As mentioned above, supporters of fair value claim that since investor can observe the value of similar or identical items in active market, fair value is more relevant than historical cost book value. Prior research provides evidence that investors price fair value disclosure more than book value disclosure (Songet al., 2010).To verify our data and methods are consistent with prior research, our first hypothesis is similar to other related paper.

H1.1: The value relevance of fir value assets is greater than the value relevance of non-fair value assets

Next, fair values computed under Level 1, Level 2 and Level 3 may have different value relevance. Level 1 inputs are more observable to investors than Level 3 inputs, which leads to ournext hypothesis:

H1.2: The value relevance of Level 1 fair value assets is greater than the value relevance of Level 3 fair value assets.

The second step is completed by comparing the financial crisis period to a normal economic period. On one hand, investors in a recession may rely more on financial disclosure that can be easily verified by investors in active market (for example, quote price); thus, the value relevance of fair value measured by observable inputs(such as Level 1)in recession would be same as in normal period, while value relevance of unobservable inputs(such as level 3) and non-fair value would decrease. On the other hand, investors may have additional concerns about the credibility of management in a recession period. If investors favor historical cost book value (which is more objective than fair value) over fair value (which may be intentionally manipulated by management), investors may place more weight on book values. Since air value estimation is based on orderly active markets, whether fair value accounting can still be functional during financial crisis period so that investors can rely on inputs from a disorderly markets is debatable (Gohet al., 2009). The reliability and relevance of fair value disclosure may be reduced. If markets are not active and orderly, investors may price fair value assets lower than usual. The relative value investors place on fair value versus historical cost value during and after a recession is an empirical question. Our second hypothesis is as follows:

H2.1: The change in value relevance of non-fair value disclosure from the financial crisis period to the normal economic period will be different from the change for fair value disclosure.

As for the three levels of fair value disclosure requirement, the value relevance will vary with the observability of inputs. As mentioned above, active markets may be disorderly in the financial crisis period (Gohet al., 2009); therefore, investors may lack confidence in fair value disclosure. This is especially for assets with the least observable inputs, that is, Level 3 fair value disclosure. Therefore, difference in value relevance may exist between Level 1 and Level 3.

H2.2:The change in value relevance of Level 3 fair value assets from financial crisis period to the normal economic period will be different from the change for Level 1 fair value assets.

The final step is adding corporate governance as an additional factor. One important goal of corporate governance is to eliminate the impact of asymmetric information. Nonetheless as discussed above, corporate governance may bring mixed effects. We assume that high quality of corporate governance will provide investors with greater confidence in the reliability of fair values. Thus the final hypothesis is:

H3: The value relevance of fair value disclosure for good corporate governance firms is larger than that of weak corporate governance firms.

4. Research Design

To test our first set of hypotheses, we employ a regression based on a modified version of the Ohlson model, which is commonly used in related literature (Songet al., 2010). To increase accuracy, net income and earnings per share are included as control variance.

$$Price = \alpha 0 + \alpha 1FVAL1 + \alpha 2FVAL2 + \alpha 3FVAL3 + \alpha 4NFVA + \alpha 5NI + \alpha 6EPS + \varepsilon \quad (1)$$

In this model, the dependent variable Price is the stock price of a particular bank. FVAL1indicates fair value of Level 1 assets scaled by outstanding common shares. Similarly, FLAL2 and FVAL3indicate fair value of Level 2 assets and Level 3 assets per share, respectively. NFVA indicates non-fair value asset per share, which is total assets minus Level 1, Level 2, and Level 3 asset, then divided by outstanding common shares. NI represents net income per share, and EPS represents earning per share. Since independent variables are scaled on the amount of outstanding shares, the dependent variable and independent variables are on per share base. Therefore, if any type of asset is value relevant, its coefficient should be different from zero, showing that this particular asset has an effect on investors' decisions. Theoretically, the coefficient of fair value Level 1would be one, representing shareholders will price one dollar for each dollar of Level 1 fair value assets disclosed (Song, Thomas, & Yi, 2010). Coefficient of Level 3 should be less than one, and coefficient of non-fair value should also be less than one, representing shareholders discount Level 3 fair value assets and non-fair value assets (Songet al., 2010). To test our second set of hypotheses, we make a slight addition to the model. Specifically, we add a new independent dummy variable AFTER to the model. AFTER equals one for the normal economic period and AFTER equals zero for the financial crisis period. The coefficient on AFTER will indicate if, on average, share prices are higher during the normal economic period. To test whether fair value disclosure requirements affect investors' decision differently between normal period and financial crisis period, we interact AFTER with each level of fair value assets.

$$Price = \alpha 0 + \alpha 1FVAL1 + \alpha 2FVAL2 + \alpha 3FVAL3 + \alpha 4NFVA + \alpha 5AFTER + \beta 1FVAL1 * AFTER + \beta 2FVAL2 * AFTER + \beta 3FVAL3 * AFTER + \beta 4NFVA * AFTER + \alpha 6NI + \alpha 7EPS + \varepsilon \quad (2)$$

The interaction of AFTER with the different fair value levels indicates whether there is a significant difference in value relevance exists between the financial crisis period and the normal economic period. If the coefficients on the interaction terms are greater not zero, it indicates the fair value assets have different value relevance in the different time periods. If the coefficient is positive, it means investors would discount fair value disclosure in financial crisis period more than they would do in normal period. Similarly, if the coefficient is negative, investors regard fair value assets disclosure in financial crisis period more value relevant than in normal period. That is, FAS 157, a required fair value disclosure, does provide investors with more relevant information in financial crisis period. To test the third hypothesis, we add the new variable CG, which represents corporate governance score. As we explain in more detail in section six, CG is based on an index of four corporate governance items, and is converted to a scale from zero to one.

$$Price = \alpha 0 + \alpha 1FVAL1 + \alpha 2FVAL2 + \alpha 3FVAL3 + \alpha 4NFVA + \gamma 1FVAL1 * CG + \gamma 2FVAL2 * CG + \gamma 3FVAL3 * CG + \gamma 4NFVA * CG + \alpha 5CG + \alpha 6NI + \alpha 7EPS + \varepsilon \quad (3)$$

By adding CG, it is possible to analyze whether corporate governance will affects the value relevance of fair value disclosure. Each level of fair value disclosure interacts with the corporate governance score. Therefore, $\alpha 1$, $\alpha 2$, $\alpha 3$, $\alpha 4$ will represent how investors price fair value disclosure reported by firms with a CG score of 0, while $\gamma 1$, $\gamma 2$, $\gamma 3$, $\gamma 4$ represent difference of fair value disclosure for firms with a CG score of 1. Therefore, if quality of corporate governance has an impact on the value relevance of fair value disclosure, coefficients on interactions will be different from zero.

5. Sample Selection and Descriptive Statistics

5.1 Sample Selection

Since the banking industry was at the center of the financial crisis, this paper focuses on the banking industry. We consider the years 2008 to 2009 as the financial crisis period, and the years 2012 to 2013 as the normal economic period. We intentionally omit the years 2010 to 2011 because while the financial crisis was over, the country was still in a recession. In both periods, we use the Compustat Bank database to collect quarterly financial data of all public banks, including fair value Level 1 assets (liabilities), Level 2 assets (liabilities), Level 3 assets (liabilities), total asset (liabilities), net income and EPS from operation. Available information in the database givesus5,690 observations per period. We measure corporate governance using the scores from Quick Score 3.0 provided by Institutional Shareholder Services. Quic kScore 3.0 provides quantified corporate governance information, which including global governance standards and ISS voting policy. The score consists of four major elements: board structure, executive compensation, shareholder rights, and audit &risk oversight. By weighting the four components, ISS assigns score 1 to a company with lowest corporate governance risk, while a company with highest governance risk is assigned with score 10. The score is straightforward and comprehensible. However, since only recent scores are available, in this paper, we make the assumption that the quality of corporate governance of each company has remained the same during financial crisis period and subsequent period. To eliminate the effect of firm size and capital capacity, which may affect types and valuation of assets (Songet al., 2010), and investors' confidence and evaluation, we select the 220 banks with highest total asset as the initial sample. Then we manually match each observation with hand-collected average quarterly stock closing prices found in Yahoo Finance. In addition, we eliminate companies that do not disclose information about fair value levels, companies that d0 not disclose liability information, companies whose stock price are not available, and companies that do not have Quick Score information. The above steps leave a final sample of1, 282quarterly observations in 2008 to 2009 period and 1,481quarterly observations in 2012 to 2013 period from a final sample of 186 banking firms.

5.2 Descriptive Statistics

Table 1 provides descriptive statistics about the portion of assets at each fair value level.

Table 1: Relative Size of Fair Value and Non-Fair Value Assets and Liabilities

	Count	Mean	Median	Standard Deviation	75th	25th
Asset Level 1/Total Asset	2763	1.02%	0.06%	2.76%	9.49%	0.00%
Asset Level 2/Total Asset	2763	18.58%	16.46%	12.49%	47.97%	0.00%
Asset Level 3/Total Asset	2763	1.06%	0.07%	6.60%	5.24%	0.00%
Non-Fair asset/Total Asset	2763	79.34%	82.16%	14.66%	96.45%	0.00%
Lia. Level 1/Total Lia	2763	0.07%	0.00%	0.41%	0.64%	0.00%
Lia. Level 2/Total Lia	2763	1.19%	0.00%	8.12%	5.29%	0.00%
Lia. Level 3/Total Lia	2763	0.60%	0.00%	7.35%	0.77%	0.00%
Non-Fair Lia./Total Asset	2763	98.10%	99.99%	11.42%	100.00%	6.35%

The results show that, on average, Level 1 fair value asset and Level 3 fair value asset consist 1.02% and 1.06% of total assets, respectively. 18.58% of total asset is reported as Level 2 fair value assets, which composes 89.93% of total fair level asset disclosed. Thus, most of fair value assets disclosed by banks are Level 2 fair value. Nearly 80% of total assets are disclosed as non-fair value asset, while 98% of total liabilities are disclosed as non-fair value liabilities. For the rest 2% liabilities, 0.07% is Level 1 liabilities, 1.19% is Level 2 liabilities, and 0.6% is Level 3 liabilities. Due to the low frequency of fair value liabilities, we subtract Level 1 fair value liabilities from Level 1 fair value assets to generate a net fair value asset measure, and define the net value as FVAL1 in the regression model. This method is also engaged in a research conducted by Goh (2009). Therefore, FVAL1, FVAL2, and FVAL3 represent net fair value asset of Level 1, Level 2, and Level 3, and NFVA represents net non-fair value asset. A negative variable FVAL1, FVAL2, and FVAL3 indicates a bank has more fair value liabilities than fair value asset, and a negative NFVA indicates a bank has more non-fair liabilities than non-fair assets. Table 2 shows the descriptive statistics of each important variable employed in the regression model.

As it shows, on average, 31.86 dollars of Level 2 fair value asset per outstanding share, 3.40 dollars of Level 1 fair value assets and 1.19 dollars of Level 3 fair value assets per outstanding share. NFVA is negative 17.79, which indicates banks have more non-fair value liabilities than non-fair value asset, and for each outstanding common share, it owes17.79 dollars non-fair value liabilities. EPS increases from average 0.07 in 2008 period to 0.42 in 2012 period (untabulated), so it gives me an average EPS of 0.26. Sample banks average corporate governance score is 5.59. The average stock price during 2008 to 2009 is 18.79 dollars while during 2012 to 2013 it is 22.34 dollars (untabulated), and total average stock price for these two periods is 20.70 dollars.

Table 2: Per Share Value of Each Variable

	Count	Mean	Median	Standard Dev.	75th	25th
FVAL1/Share	2763	3.40	0.08	24.08	19.03	-0.02
FVAL2/Share	2763	31.86	22.08	35.17	111.12	0.00
FVAL3/Share	2763	1.19	0.08	3.82	11.26	-0.86
NFVA/Share	2763	-17.79	-7.92	34.55	12.57	-183.36
NI/Share	2763	0.25	0.26	0.91	1.30	-3.29
EPS	2763	0.26	0.25	0.65	1.22	-1.89
CG	2763	5.59	6.00	2.76	10.00	1.00
price/share	2763	20.69	15.77	18.37	61.97	1.59

6. Result of Regression

6.1 Value Relevance of Non-fair Value and Fair Value Hierarchy

In our first set of hypotheses, we analyze the value relevance of fair value Level 1, Level 2, Level 3, and non-fair value disclosure. For hypothesis 1.1, the value relevance of fair value assets is larger than value relevance of non-fair value assets, we sum up the three levels of fair value as total fair value net asset (TFVA), and modify the first model as follows.

$$Price = \alpha 0 + \alpha 1 TFVA + \alpha 2 NFVA + \alpha 3 NI + \alpha 4 EPS + \varepsilon \quad (4)$$

The coefficients on TFVA and NFVA provide evidence on whether investors price total fair value asset and non-fair value asset differently. Table 3 indicates the regression result for hypothesis 1.1.

Table 3: Value Relevance of Total Fair Value Net Assets and Non-Fair Value Net Assets

Dependent Variable: Price	Coefficients	P-value	Lower 95%	Upper 95%
Intercept	3.3613	0.0000	2.8632	3.8593
TFVA	0.7804	0.0000	0.7543	0.8065
NFVA	0.7144	0.0000	0.6811	0.7478
NI	-0.0772	0.7811	-0.6219	0.4675
EPS	6.1591	0.0000	5.3588	6.9595
			R Square	0.7808
			Observations	2763

Based on this table, we first notice that the adjusted R square is 0.78. It means that, in the regression model, 78% of the variation of stock price is explained by the four independent variables. The coefficients of total fair value asset and non-fair value asset are both positive and significantly different from zero, indicating both fair value and non-fair value disclosures are value relevance. The coefficient of TFVA is 0.78 while coefficient of NFVA is 0.71 indicates that 1) the value relevance of fair value disclosure and that of non-fair value disclosure are different from each other and 2) indicates investors price assets disclosed as fair value asset higher than non-fair value asset. Moreover, the difference between fair value and non-fair value disclosure is significant. The above table shows that, at the 95% confidence level, the confidence interval of TFVA is [0.75, 0.81] and the confidence interval of NFVA is [0.68, 0.74]. Since these two confidence intervals do not overlap each other, we can say that, at a 95% confidence level, there is significant difference between value relevance of fair value asset and that of non-fair value disclosure. In addition, the coefficients on TFVA and NFVA are significantly lower than one, indicating that, although these disclosures provide investors with value relevance information, investors do discount the firms' values. This result is consistent with prior related research (e.g., Song et al. 2010, Goh et al. 2009, Bhat 2008).

For hypothesis 1.2, the value relevance of Level 1 fair value is larger than value relevance of Level 3 fair value, we pool all 2,763 observations and run regression model (1) to test whether differences exist between each level of fair value disclosure. Results are as follows.

Table 4: Value Relevance of Fair Value Net Assets and Non-Fair Value Net Assets

Dependent variable: Price	Coefficients	P-value	Lower 95%	Upper 95%
Intercept	2.5696	0.0000	2.0099	3.1293
FVAL1	0.7901	0.0000	0.7638	0.8164
FVAL2	0.8429	0.0000	0.8118	0.8741
FVAL3	0.5283	0.0000	0.4406	0.6160
NFVA	0.7630	0.0000	0.7271	0.7989
NI	-0.0717	0.7942	-0.6108	0.4674
EPS	5.8816	0.0000	5.0868	6.6764
			R Square	0.7858
			Observations	2763

The coefficients on FVAL1, FVAL2, FVAL3, and NFVA are positive and significantly greater than zero, meaning that each level of fair value asset and non- fair value assets provides investors with value relevant information which may have effects on investors' decision. The coefficient on FVAL1means that for each dollar reported as Level 1 fair value, investors will price it for only 0.79 dollars. Similarly, investors will price one dollar Level 2 fair value reported for 0.84 dollars, and will price one dollar Level 3 fair value reported for 0.53 dollars. Based on the 95% confidence intervals, the coefficient of Level 3 fair value is significantly lower than that of Level 1 and Level 2, indicating that investors discount Level 3 fair value asset more than other levels of fair value. The coefficient of non-fair value disclosure is 0.76, indicating that non-fair value disclosure also provides investors with decision-related information, and investors will price one dollar of non-fair for 0.76 dollars. With this high coefficient, non-fair value disclosure provides more value relevance than Level 3 fair value, indicating when making financial decisions investors will weight non-fair value disclosure more than Level 3 fair value disclosure. In sum, these results support the first two hypotheses that fair value disclosures provide more value relevance than non-fair value disclosures, and that Level 1 assets have higher value relevance than Level 3 assets.

6.2 The Value Relevance of Non-Fair and Fair Value Assets: Comparing the Financial Crisis Period to a Normal Economic Period

To test hypothesis 2.1, we expand equation (4) to include the indicator variable AFTER. Coefficients on interaction terms indicate the incremental value relevance during the normal economic period compared to the financial crisis period.

$$Price = \alpha 0 + \alpha 1TFVA + \alpha 2NFVA + \alpha 3AFTER + \beta 1TFVA * AFTER + \beta 2FNFV * AFTER + \alpha 6NI + \alpha 7EPS + \varepsilon \quad (5)$$

Table 5 shows the regression result for hypothesis 2.1.

Table 5: Value Relevance during and after the Recession Period

Dependent variable: Price	Coefficients	P-value	Lower 95%	Upper 95%
Intercept	3.4657	0.0000	2.6948	4.2366
TFVA	0.7081	0.0000	0.6690	0.7471
NFVA	0.5647	0.0000	0.5132	0.6162
TFVA*AFTER	0.1282	0.0000	0.0782	0.1783
NFVA*AFTER	0.2412	0.0000	0.1749	0.3075
AFTER	-0.4620	0.3686	-1.4696	0.5455
NI	-0.1484	0.5896	-0.6877	0.3909
EPS	6.0980	0.0000	5.2903	6.9057
			R Square	0.7871
			Observations	2763

The coefficients on TFVA and NFVA are positive and significantly greater than zero, indicating that during financial crisis period, both fair value disclosure and non-fair value disclosure deliver decision-relevant information. The coefficients indicate investors will price one dollar of fair value asset for 0.71 dollars and price non-fair value asset for 0.56 dollars, and this difference is statistically significant, meaning that investors price fair value asset more than price non-fair value asset. This evidence supports the usefulness of fair value accounting. The coefficients on interaction terms indicate that after financial crisis, the value relevance of fair value disclosure increase by 0.13 dollars, while value relevance of non-fair value increase by 0.24 dollars. The 0.11 difference is statistically significant, indicating that, in the normal period, investors increase their pricing of non-fair value asset compared to fair value assets. This is evidence that investors will rely more on fair value disclosure during crisis period. Thus result supports the usefulness of fair value disclosure and also supports hypothesis 2.1,the change in value relevance of non-fair value disclosure from the financial crisis period to the normal economic period will be different from the change for fair value disclosure. Next, we use equation (2) to test hypothesis 2.2, the change in value relevance of Level 3 fair value assets from financial crisis period to the normal economic period will be different from the change for Level 1 fair value assets. Table 6provides the regression results.

Table 6: Value Relevance of Levels of Fair Value and Non-Fair Value Asset

Dependent variable: Price	Coefficients	P-value	Lower 95%	Upper 95%
Intercept	3.3108	0.0000	2.3920	4.2295
FVAL1	0.7320	0.0000	0.6930	0.7711
FVAL2	0.7329	0.0000	0.6833	0.7824
FVAL3	0.4317	0.0000	0.3270	0.5365
NFVA	0.5777	0.0000	0.5224	0.6331
FVAL1*AFTER	0.0983	0.0001	0.0483	0.1483
FVAL2*AFTER	0.2066	0.0000	0.1451	0.2681
FVAL3*AFTER	-0.0114	0.9068	-0.2021	0.1793
NFVA*AFTER	0.3108	0.0000	0.2402	0.3814
AFTER	-1.8062	0.0023	-2.9666	-0.6458
NI	-0.1796	0.5052	-0.7080	0.3488
EPS	5.9342	0.0000	5.1426	6.7258
			R Square	0.7964
			Observations	2763

During financial crisis period, the coefficient of fair value Level 1 is close to that of Level 2 and both are significantly greater than zero. However, these coefficients are significantly lower than theoretical value of one, meaning that investors put a lower valuation on the fair value financial assets than the value presented on the balance sheet. The coefficients on the interaction variables FVAL1*AFTER and FVAL2*AFTER represent the incremental value relevance of Level 1 and Level 2 asset after financial crisis period. Investors price Level 1 fair value 0.098 dollars more after recession while they will price Level 2 fair value 0.21 dollars more. The coefficient on FVAL3 means investors will price one dollar of Level 3 assets for 0.43 dollars during recession period. The coefficient on the Level 3 interaction variable is not significantly different from zero, meaning that Level 3 fair value disclosure provides investor with the same level of value relevance during and after the financial crisis. This result implies that without observable inputs, investors tend to discount the fair value amounts reported for Level 3 assets. Moreover, after the financial crisis period, the coefficient of non-fair value significantly increases by 0.31, meaning that investors will rely more on non-fair value disclosure after the recession period than they will do during recession period. This result suggests that more complete fair value disclosure will be more helpful than non-fair value disclosure during financial crisis period. In sum, the results support hypothesis 2.2.

6.3 Effect of Corporate Governance on Value Relevance

As discussed in the literature review section, corporate governance may improve the transparency of firms' financial reporting. Thus high quality corporate governance could improve the value relevance of fair value financial assets. To quantify the quality of corporate governance, we use corporate governance scores from Quick Score 3.0 provided by Institutional Shareholder Services. The score consists of four aspects of standard corporate governance mechanisms, including Board Structure, Executive compensation, Shareholder Rights, and Audit & Risk Oversight.

A score of 10 means a company has high corporate governance risk (i.e. low quality governance), while a score means a company's governance risk is lowest. Before manually matching Quick Score with each observation, we processed the score with the following formula to normalize it from 0 to 1. A of Quick Score 10 results in a CG of 1 and a Quick Score 1 results in a CG of 0.

$$CG = 1 - [\frac{10 - QuickSocre}{9}]$$

Therefore, the coefficients on non-fair value and on each level of fair value represent value the difference in stock price between firms with the highest risk corporate governance (i.e., CG=1) compared to firms with the lowest risk corporate governance (i.e., CG=0). Similarly, the coefficients on the interaction terms indicate the increment of value relevance on each disclosure for companies with the highest risk corporate governance (i.e., CG=1) compared to firms with the lowest risk corporate governance (i.e., CG=0). If any coefficient on an interaction term is significantly different from zero, it indicates corporate governance influences the value relevance of that disclosure. To test our third set of hypotheses, implement the regression model in equation (3). Table 7shows the results.

Table 7: Impact of Corporate Governance on Value Relevance of Fair Value and Non-Fair Value Asset

Dependent variable: Price	Coefficients	P-value	Lower 95%	Upper 95%
Intercept	5.2738	0.0000	4.2347	6.3128
FVAL1	0.7025	0.0000	0.6331	0.7720
FVAL2	0.6635	0.0000	0.6051	0.7218
FVAL3	0.1812	0.0103	0.0428	0.3196
NFVA	0.5191	0.0000	0.4486	0.5896
FVAL1*CG	0.0983	0.2531	-0.0703	0.2669
FVAL2*CG	0.3390	0.0000	0.2421	0.4358
FVAL3*CG	0.9048	0.0000	0.6314	1.1781
NFVA*CG	0.4475	0.0000	0.3369	0.5581
CG	-5.3316	0.0000	-7.1754	-3.4878
NI	-0.0613	0.8209	-0.5921	0.4696
EPS	5.7121	0.0000	4.9297	6.4945
			R Square	0.7942
			Observations	2763

Coefficients on FVAL1 and FVAL2 are significantly greater than zero, indicating that, for companies whose CG score is 0 (i.e., the lowest corporate governance risk firms), investors pay 0.70 dollars and 0.66 dollars for each dollar of Level 1 and of Level 2 fair value disclosed. Coefficient for Level 3 fair value is only 0.18. Although it is significantly greater than zero, it is significantly lower than that of Level 1 and Level 2. The coefficient on non-fair value asset is between the coefficients of level 2 and level 3. Therefore, for companies with safest standard corporate governance (whose CG score is 0), investor discount by approximately 30-32% the value of Level 1 and Level 2 assets, and discount by 82% the value of Level 3 assets. The coefficient on CG is negative, which suggests that on average, firms with riskiest corporate governance are associated with a lower stock price of about $5.33 compared to firms with the least risk corporate governance. The coefficient on the interaction of FVA1*CG is not different from zero. Therefore, for companies with the riskiest standard corporate governance (i.e., whose CG is 1), the value relevance of their Level 1 assets is not significantly different from that for companies with safest standard corporate governance (i.e., whose CG is 0). This is not a surprising result. Regardless of corporate governance, the inputs of Level 1 fair value are always from an active market and observable to investors. In contract, the coefficientsFVA2*CG and FVA3*CG are 0.34 and 0.90, and both coefficients are significantly greater than zero. Therefore, compared with that from the safest standard corporate governance firms, one dollar of Level 2 and Level 3 assets from the riskiest corporate governance firms will be priced by investors for 0.34 dollars and 0.90 dollars more, respectively. The result seems to show that risky corporate governance will help to improve value relevance of accounting information; however, it is the opposite of our expectation and is inconsistent with the theory and most literature in this area.

Generally, theory and evidence suggest that better corporate governance has a positive influence on firm performance, increases transparency of accounting information, eliminates management manipulation, and improves investors' confidence (e.g., Gomperset al., 2003; Antenucci, 2013; Adams& Mehran, 2003). We find the coefficient on the main effect of corporate governance is negative for firms with risky or weak corporate governance, which is consistent with theory and prior literature. However, positive coefficients on the interaction terms indicate that the disclosed fair value of financial assets has positive value relevance for firms with more risky corporate governance. One interpretation of these results is that investors place a high value on good corporate governance, hence the large negative coefficient on CG. For firms with risky corporate governance, the fair value disclosures are valuable, because they help reduce the large amount of information asymmetry between managers and investors. A second possible explanation is that the measure of corporate governance generally used in the accounting and finance literature are not valid for the banking industry. Beltratti & Stulz (2012)find that, although a company with more shareholder-friendly boards are considered to have better governance, bank with more shareholder-friendly boards performed dramatically worse during the 2008 financial crisis, indicating that widely used corporate governance measure does not positively impact the banking industry. Fahlenbrach & Stulz (2010) find that incentive compensation, which aligns CEO compensation with shareholders' interests and therefore is considered a good corporate governance mechanism, is not useful for the banking industry, especially in the crisis period.

Their result indicates that a bank whose CEO's compensation is better aligned with shareholders' interests performed worse, implying another widely used corporate governance mechanisms does not positively impact the banking industry. Aebiet al. (2012) find standard corporate governance mechanisms, which are commonly used in non-banking industries, are not significantly or even negatively related to performance for banking firms. They argue it is necessary to have another specific set of corporate governance measures for the banking industry. According to this line of research, the corporate governance measure provided by ISS does not apply to banks, or might even be the reverse of normal interpretation. This would imply that the interaction terms would have the reverse interpretation. The problem with this thinking is that the main results on CG suggest firms with weak or risky corporate governance are priced lower, which is consistent with traditional theory and interpretation. If the corporate governance measures are incorrect or reversed in the banking industry, it implies that on average, firms with weak or risky governance are priced higher by investors, which does not make much sense. In conclusion, results the results on corporate governance provide some support for hypothesis 3. There is currently disagreement among researchers regarding the most appropriate measure of corporate governance. Under the traditional interpretation, on average stock prices are higher price for bank with good, less risky corporate governance. In addition, the fair value disclosures are considered more value relevant (i.e., more reliable and timely) for banks with more risky corporate governance. This suggests that the fair value disclosures are more useful in reducing information asymmetry in poorly governed firms compared to well-governed firms. This could be because the well governed firms provide more information to investors though other disclosures so information asymmetry is generally lower.

7. Conclusion

With the establishment of FAS 157, it is mandatory for companies to classify and disclose the fair value of financial assets and liabilities. Based on the observability of inputs, fair value disclosures are classified into three levels: Level 1, such as quoted price of identical items in active market; Level 2, such as quoted price of similar items in active market or price of identical items in inactive market; Level 3, such as models and assumptions generated by management. We examine the value relevance of these air value disclosures. Using quarterly data from the banking industry from 2008 to 2009, defined as a recession period, and from 2012 to 2013, defined as normal economic period, we find the following results. First, generally, value relevance of fair value assets is slightly greater than that of non-fair value assets and this difference is larger during the financial crisis period. Second, as predicted we find the value relevance of Level 1 and Level 2 fair value assets of is greater than that of Level 3 fair value assets. Moreover, the value relevance of Level 1 and Level 2 fair value assets and non-fair value assets is greater in the normal economic period than the recession, while value relevance of Level 3 fair value assets is similar in both time periods. Third, we find good corporate governance is positively related to share price and is negatively related with value relevance of fair and non-fair value disclosure in the banking industry. These results suggest fair value disclosure is more useful to investors to firms with poor governance. However, there is disagreement in prior literature about how to measure corporate governance for banks. Therefore we interpret these results cautiously. This paper makes several contributions to the literature. First, we examine the value relevance of fair value accounting for banks during and after the financial crisis.

This contributes to the ongoing debate about the usefulness of fair value accounting, and whether fair value accounting helped contribute to the financial crisis. We also examine the impact of corporate governance. Our findings suggest that governance is positively related to share price but negatively related to value relevance. One interpretation of this result is that fair value accounting provides useful information, particularly to investors who own shares in firms with weak corporate governance.

References

Aboody, D., Barth, M. B., & Kasznik, R. (1999). Revaluations of Fixed Assets and Future Firm Performance: Evidence from the UK. Journal of Accounting & Economics, 26(1-3), 149-178.

Adams, R., & Mehran, H. (2003). Is Corporate Governance Different for Bank Holding Companies?.Economic Policy Review, 9(1), 123-142.

Aebi, V., Sabato, G., &Schmid, M. (2012). Risk Management, Corporate Governance, and Bank Performance in the Financial Crisis. Journal of Banking & Finance, 36(12), 3213-3226.

Altamuro, J., & Zhang, H. (2013). The Financial Reporting of Fair Value Based on Managerial Inputs Versus Market Inputs: Evidence from Mortgage Servicing Rights. Review of Accounting Studies, 18(3), 833-858.

Antenucci, R. P. (2013). Impact of Corporate Governance, Excess CEO Compensation, and CEO Stock Option Grants on Firm Performance during Recessionary Periods.Retrieved from ProQuest LLC.

Barr, C. (2008). Accountants in the Hot Seat: Foes of Fair-Value Accounting Will Try to Make Their Case at SEC Hearings This Week. Fortune, October 27th.

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

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

Barth, M.E., & Clinch, G. (1998).Revalued Financial, Tangible, and Intangible Assets: Associations with Share Prices and Non-Market-Based Value Estimates.Journal of Accounting Research, 36(supp), 199-233.

Bartov, E., Mohanram, P., & Nissim, D. (2007). Managerial Discretion and the Economic Determinants of the Disclosed Volatility Parameter For Valuing ESOs.Review of Accounting Studies, 12(1), 155-179.

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

Beltratti, A., &Stulz, R. (2012). The Credit Crisis Around the Globe: Why Did Some Banks Perform Better?Journal of Financial Economics, 105(1), 1-17.

Bhat, G. 2009. Impact of Disclosure and Corporate Governance on the Association between Fair Value Gains and Losses and Stock Returns in the Commercial Banking Industry.Working paper.Washington University.

Cathey, J.M., Schauer, D., & Schroeder, R.G. (2012). The Impact of FSP FAS 157-4 On Commercial Banks. International Advances in Economic Research, 18(1), 15-27.

Davis-Friday, P. Y., Eng, L., & Liu, C. (2006).The Effects of the Asian Crisis, Corporate Governance and Accounting System on the Valuation of Book Value and Earnings.The International Journal of Accounting, 41(1), 22.

Devalle, A. (2012). Value Relevance of Accounting Data and Financial Crisis in Europe: An Empirical Analysis. International Journal of Accounting and Financial Reporting, 2(2), 201.

Dietrich, J. R., Harris, M.S., & Muller, K. A. (2000). The Reliability of Investment Property Fair Value Estimates. Journal of Accounting and Economics, 30(2), 125-158.

Durnev, A. (2003). Essays on Corporate Transparency and Governance Practices.ProQuest, UMI Dissertations Publishing.

Easton, P. D., Eddey, P.H., & Harris, T.S. (1993).An Investigation of Revaluations of Tangible Long-Lived Assets.Journal of Accounting Research, 31(SUPP), 1-38.

Eccher, E. A., Ramesh, K., & Thiagarajan, S. R. (1996).Fair Value Disclosures by Bank Holding Companies.Journal of Accounting and Economics, 22(1), 79-117.

Erkens, D. H., Hung, M., & Matos, P. (2012). Corporate Governance in the 2007 - 2008 Financial Crisis: Evidence from Financial Institutions Worldwide.The Journal of Corporate Finance, 18(2), 389-411.

Fahlenbrach, R., &Stulz, R. M. (2011).Bank CEO Incentives and the Credit Crisis.Journal of Financial Economics, 99(1), 11-26.

Financial Accounting Standards Board.(2006). Statement of Financial Accounting Standards No. 157 Fair Value Measurements.

Goh, B. W., Li, D., Ng, J., & Yong, K. O. (2009). Market Pricing of Banks' Fair Value Assets Reported under SFAS 157 Since the 2008 Financial Crisis. Journal of Accounting and Public Policy, 34(2), 129.

Gompers, P. A., Ishii, J. L., &Metrick, A. (2003).Corporate Governance and Equity Prices.The Quarterly Journal of Economics, 118(1), 107-155.

Graham, B., King, R., &Bailes, J. (2000). The Value Relevance of Accounting Information during AFinancial Crisis: Thailand and the 1997 Decline in the Value of The Baht. Journal of International Financial Management and Accounting, 11(2), 84-107.

Landsman, W. R. (2007). Is Fair Value Accounting Information Relevant and Reliable? Evidence from Capital Market Research.Accounting and Business Research, 37, 19-30.

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

Minton, B.A., Taillard, J.P. ,& Williamson, R. (2014). Financial Expertise of the Board, Risk Taking, and Performance: Evidence from Bank Holding Companies. Journal of Financial and Quantitative Analysis, 49(2), 351-380.

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

Penman, S.H. (2007). Financial Reporting Quality: Is Fair Value A Plus Or A Minus?.Accounting and Business Research, 37(sup1), 33-44.

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