"Our books are balanced. 50% of our numbers are real and 50% are made up."

Incentives for earnings management with fair value in the 2008 financial crisis

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Summary

This research is based on the Fiechter and Meyer (2011) paper, they concluded that banks use fair value accounting to manage their earnings in the 2008 financial crisis. This paper investigates the incentives from bank managers to use fair value accounting for managing their earnings in the 2008 financial crisis. The sample period is from Q1 2008 through Q1 2009, as in the Fiechter and Meyer (2011) paper and contains 254 banks and 869 observations. To test the hypotheses, the research model from Fiechter and Meyer (2011) is used, only with some small modifications. I found two significant results from the four hypotheses. First, bank managers recognizes a negative fair value income when banks makes big losses. With additional analysis, I found evidence that banks not had an incentive to take a big bath for a better tomorrow, but the fair value estimates of financial instruments were declining. Second, bank managers recognizes a negative fair value income when banks makes a profit and even more profit then the period before. With additional analysis, I found evidence that banks try to smooth their earnings in the next quarter too, which confirms the hypothesis that banks smooth their earnings. The incentive for bank managers is that they doesn't want to create high expectations and set the bar low for the next period.

I. Introduction

This paper is based on the paper of Fiechter and Meyer (2011). They found evidence that banks manage their earnings in the 2008 financial crisis with fair value accounting. The fact that banks manage their earnings with fair value accounting is investigated, but the reasons and the incentives from bank managers isn't investigated at all. This paper focus on the incentives from bank managers to manage their earnings in the 2008 financial crisis with fair value accounting. The research question for this research is:

Which incentives had bank managers to manage their earnings in the 2008 financial crisis with fair value accounting?

These days is fair value accounting a much-discussed topic in the accounting world. Fair value is a measurement for assets and liabilities on the balance sheet. Economist around the world discuss about the role of fair value accounting in the financial crisis. In the financial crisis there are a lot of uncertainties about the valuation of assets and liabilities, especially the assets and liabilities of banks with complex banking products. Corporate governance mechanisms and auditors couldn't even detect the easiest estimation errors because of the uncertainties that exist in the financial markets. This makes it the perfect opportunity for the management of banks to misuse these uncertainties and to manage or smooth their earnings. Fiechter and Meyer (2011) founds empirical evidence that U.S. banks with low (high) earnings before fair value recognize higher (lower) discretionary total fair value and level 3 income. In addition, they find a significant negative correlation between changes in earnings before fair value and discretionary fair value income. These findings are consistent with banks smoothing their earnings.

The research method for this is research is to analyze empirical data with the research models of Fiechter and Meyer (2011), only with some small modifications. The data period for testing the hypotheses is the same as the sample in the Fiechter and Meyer (2011) paper, Q1 2008 through Q1 2009. The data is collected with the COMPUSTAT database and with hand-collected data from 10-Q and 10-K fillings from EDGAR[1]. The initial sample contains 511 banks and 2457 observations, finally 254 banks and 869 observations are left to test the four hypotheses.

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[1] http://www.sec.gov/edgar.shtml

The results of the regressions analysis provides two significant results. First, banks with a big loss recognizes a negative fair value income. The reason that bank managers recognizes a negative fair value income is that bank managers had nothing to lose anymore. They don't reach their goals or targets anyway and how big the loss will be doesn't matter anymore. But after additional analysis, I found evidence that bank managers doesn't have an incentive to take a big bath, since a lot of banks reports a big loss in the next quarter too, and thus no evidence for big bath accounting. The negative fair value incomes is probably caused by the declining of fair value estimates from financial instruments. Second, banks with a profit and a positive change in earnings, recognize a negative fair value income. This means that bank managers had incentives to recognize a negative fair value income to temper the expectations and set the bar lower for the next period. This is an example from banks that smooth their earnings. With additional analysis, I found evidence that banks try to smooth their earnings in the next quarter too. This confirms the hypothesis that banks smooth their earnings and doesn't want to create high expectations about the future. The other hypotheses didn't had any significant result and thus no further evidence of incentives from bank managers. A reason for the insignificant results is the statistical power of the test that has been reduced because of the many exclusion to construct the sample. Also a reason is the possibility to recognize a fair value gain is much harder than a fair value loss.

The academic relevance of this paper is that there is more knowledge about earnings management by banks, the possibility of earnings management with fair value accounting and the incentives from bank managers to manage their earnings.

This paper is organized as follow. In section II will the studied literature be described. The research method will be discussed in section III and the construction of the sample will be described in section IV. The descriptive statistics will be analyzed in section V and the empirical results in section VI. Section VII concludes the paper and discussed the limitations of this research.

II. Literature and hypothesis

Research question

This research is based on recent paper of Fiechter and Meyer (2011), they found evidence that banks manage their earnings in the 2008 financial crisis. The paper of Fiechter and Meyer (2011) mainly focused on the existence of earnings management with fair value accounting and not specifically on the incentives from bank managers to manage their earnings. This research will focus only on the incentives from bank managers to manage their earnings. The research question is:

Which incentives had bank managers to manage their earnings in the 2008 financial crisis with fair value accounting?

Fair value accounting, the financial crisis and earnings management

These days is fair value accounting a much-discussed topic in the accounting world. Fair value is a measurement for assets and liabilities on the balance sheet. FAS 157 defines fair value as "the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date."[2] or as IAS 39 would define "the amount for which an asset could be exchanged, or a liability settled, between knowledgeable, willing parties in an arm's length transaction."[3]. To increase consistency and comparability in fair value measurements and related disclosures, the fair value hierarchy prioritizes the inputs to valuation techniques used to measure fair value into three broad levels. The first level are quoted prices in active markets for identical assets and liabilities that the reporting entity has the ability to access at the measurement date. A quoted price in an active market provides the most reliable evidence of fair value. The second level applies to cases when there are quoted prices for similar assets and liabilities in active markets, quoted prices from identical or similar assets and liabilities in markets that are not active, inputs other than quoted prices that are observable for the assets or liability, inputs that are derived principally from or corroborated by observable market data by correlation or other means. Level 3 inputs are unobservable inputs for the asset and liability. Unobservable inputs shall be used to measure fair value to the extent that relevant observable inputs

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[2] Statement of Financial Accounting Standards (SFAS) No. 157, section 22
[3] International Accounting Standard (IAS) 39. 2011. *Financial instruments and measurement.* Section 39

are not available, thereby allowing for situations in which there is little, if any, market activity for the asset of liability at the measurement date. Unobservable inputs shall be developed based on the best information available in the circumstances, which might include the reporting entity's own data. The assets and liabilities will often be measured with model assumptions, like option pricing models, discounted cash flow models and yield curves.

Economist around the world discuss about the role of fair value accounting in the financial crisis. The chief concern is that fair value accounting is pro-cyclical, it exacerbates swings in financial systems, and that it may even cause a downward spiral in financial markets. Magnan (2009) concludes that fair value accounting is not more than just a messenger carrying bad news and, therefore, may have contributed to the acceleration of the crisis, especially in the financial sector. Based on the findings of Badertscher et. al (2010), it is unlikely that fair value accounting caused "fire-sales" of assets and that fair value accounting affected the banking industry in the ways commonly alleged by critics. Amel-Zadeh and Meeks (2011) investigates the allegation of fair value accounting have contributed significantly to the financial crisis. They focused on the failure of banks and concludes that the failure of Lehman Brothers and Northen Rock cannot be attributed to fair value accounting, but to cash flow problems. Laux and Leuz (2009) concludes that it is unlikely that fair value accounting added to the severity of the 2008 financial crisis in a major way. Although there is a little evidence that fair value accounting contribute to the downward spiral or asset-fire sales in certain markets. Also they found little support for claims that fair-value accounting leads to excessive write-downs of bank' assets. If anything, empirical evidence to date points in the opposite direction, that is, towards overvaluation of bank assets. Huizinga and Laeven (2009) founds evidence that banks use accounting discretion to overstate the value of distressed assets, confirming the paper of Laux and Leuz (2009).

Overstating the bank's assets could be result of earnings management. Burgstahler and Dichev (1997) provides evidence that earnings decreases and losses are frequently managed away. They present nonparametric evidence that the distribution of earnings is "bunched" just above zero. Degeorge et. al (1999) founds also evidence that earnings falling just short of thresholds will be managed upward. There are several ways to manage earnings of companies. The most common way is too manage earnings with accruals (Dechow et. al 1995), with the modified Jones model as the most powerful model in detecting earnings management. Beatty et. al (1995) and Collins et. al (1995) uses an industry specific model (for banks) of accounting discretion in the loan loss provision and realized security gains and losses to develop powerful tests of earnings

management associated with small earnings changes. A other possibility is fair value accounting (unrealized gains or losses). In the financial crisis are a lot of uncertainties about the valuation of assets and liabilities, especially the assets and liabilities of banks with complex banking products. Corporate governance mechanisms and auditors couldn't even detect the easiest estimation error, because of the uncertainties that exist in the financial markets. This makes it the perfect opportunity for the management of banks, to misuse these uncertainties and to manage or smooth their earnings. Fiechter and Meyer (2011) founds empirical evidence that U.S. banks with low (high) earnings before fair value recognize higher (lower) discretionary total fair value and level 3 income. In addition, they find a significant negative correlation between changes in earnings before fair value and discretionary fair value income. These findings are consistent with banks smoothing their earnings.

Hypotheses

To date, there isn't any research about the incentives of bank managers to manage their earnings with fair value accounting, especially in the financial crisis. Based on the literature of Burgstahler and Dichev (1997) and Degeorge et. al (1999) firms will manage their earnings if they fall short of the threshold and will be managed upward. More specific, Fiechter and Meyer (2011) founds evidence of earnings management with fair value accounting in the financial crisis. This could mean that banks with a small loss before considering fair value changes, will try to manage their earnings upwards with recognizing a positive fair value income. An example: Bank X has a small loss of $2 million before considering fair value changes. The bank manager thinks that the financial assets are undervalued and recognizes a $2.5 million gain on the financial assets from the bank. With the opinion from the bank manager and the uncertainty in the financial crisis, which make it more difficult for auditors to verify the value of bank assets, the bank manager has created a small profit of $0.5 million. To test if banks with a small loss will managing their earnings upwards, banks with a small profit after considering fair value changes will be tested, because banks with a small loss after fair value changes weren't able to manage their losses upwards. The expectation will be that banks with small losses before considering fair value changes, will turn this into a profit with fair accounting. The first hypothesis will be:

H1: Banks with a small loss before considering fair value changes, creates a positive fair value income.

There are more reasons for bank managers to manage their earnings. Degeorge et. al (1999) found two other reasons. The first reason is when earnings are far away from the low threshold, managers will create a bigger loss because they don't reach their goals anyway, so why wouldn't they create a bigger loss? With the bigger loss they create a save for a better tomorrow, also called big bath accounting. The results in Healy (1985) suggests that managers are more likely to take a bath, that is, select income-decreasing accruals, when the lower bound of their bonus plan is binding than when it is not. In the study of Moehrle (2002), evidence was found that managers using restructuring charge reversals to manage earnings. Also the study of Riedl (2004) and Christensen et. al (2008) founds evidence of big bath accounting. Banks with heavy losses could use big bath accounting to save for a better tomorrow. The expectation will be that banks with heavy losses will take a big bath, so they have in the future a (bigger) profit. Therefore, the hypothesis will be as follow:

H2: Banks with a big loss before considering fair value changes, creates a negative fair value income and takes a big bath.

The other reason of Degeorge et. al (1999) was when banks reaches their goals, further earnings increases will be rewarded little, generating an incentive to rein in today's earnings that is, shift them forwards, making future thresholds easier to meet (Healy 1985; Holthausen et. al 1995). Executives may also be reluctant to report large gains in earnings because they know their performance target will be ratcheted up in the future. Gaver et. al (1995) did also research on this topic and concluded that their results suggest earnings management, but they are more consistent with income smoothing than with Healy's bonus maximization hypothesis. Bank managers has incentives to reduce their earnings because if they don't, they will create high expectations about the future performances of their banks. The expectation will be that banks with a profit and a positive change in earnings will reduce their profits, but still has a positive earnings and change in earnings. So they don't create high expectations, but still show that they grow. Therefore, the hypothesis will be as follow:

H3: Banks with a profit and a positive change in earnings, creates a negative fair value income.

Beatty et al. (2002) founds evidence that earnings smoothing is important for banks, because banks will be penalized by the stock market if they report inconsistent earnings (DeAngelo et al. 1996; Barth et. al 1999). Amiram et al. (2010) show that, in 2008, U.S. capital markets strongly reacted to announcements of losses on loans, write-downs on asset-backed securities, and impairments on retained interest. Barth et al. (1999) claims a other reason, they suggest that firms are rewarded for reporting positive earnings changes. Based on the literature above, banks has incentives to smooth their earnings. They will report positive earnings and a positive change in earnings, because they want to show that they are profitable and grow. The stock market will react that with an increase of the share prices from banks. Bank managers has often shares and options from the banks, because of the stock- and option based executive compensation. Bergstresser and Philippon (2005) founds evidence that more "incentivized" CEO's, those whose overall compensation is more sensitive to company share prices, lead companies with higher levels of earnings management. I expect that banks with a profit, but a negative change in earnings has an incentive to recognize a positive fair value income. Therefore, the last hypothesis will be:

H4: Banks with a profit, but a negative change in earnings, creates a positive fair value income.

III. Research method

To test the four hypotheses written above, the research model of Fiechter and Meyer (2011) will be used. Fiechter and Meyer (2011) founds evidence of earnings management with fair value accounting in the financial crisis. The research model and data of the Fiechter and Meyer paper would be the perfect opportunity to test these hypotheses. They tested their first hypothesis (Discretionary fair value income and earnings before fair value income are negatively correlated) with the following model:

$$
\begin{aligned}
FVINC_{it} = \ &\beta0 + \beta1 NIBFV_{it} + \beta2 NPA_{it-1} + \beta3 SIZE_{it-1} + \beta4 LEVERAGE_{it-1} + \beta5 MBS\_HTM_{it-1} \\
&+ \beta6 MBS\_AFS_{it-1} + \beta7 MBS\_HFT_{it-1} + \beta8 FVA1_{it-1} + \beta9 FVA2_{it-1} + \beta10 FVA3_{it-1} \\
&+ \beta11 FVL1_{it-1} + \beta12 FVL2_{it-1} + \beta13 FVL3_{it-1} + \beta14 NR\_FVA1_{it-1} + \beta15 NR\_FVA2_{it-1} \\
&+ \beta16 NR\_FVA3_{it-1} + \beta17 QUARTER_t + \beta18 SUBIND_i + \varepsilon_{it}
\end{aligned}
$$

This model will be used to test hypothesis 1 and 2, with only some small adjustments. A dummy variable and an interaction variable will be added to the regression to test hypothesis 1 and 2. The dummy variables will separate banks with a small and a big loss. For hypothesis 1, banks with a loss that is between 0 and -0,05 (net income scaled by lagged equity) will get a 1 and banks with a profit or a loss greater -0,05 will get a 0. The interaction variable will consist the new dummy variable and the variable net income before fair value (NIBFV). The modified model will be:

$$
\begin{aligned}
FVINC_{it} = \ &\beta0 + \beta1 D1 + \beta2 NIBFV_{it} + \beta1 D1 * \beta2 NIBFV_{it} + \beta3 NPA_{it-1} + \beta4 SIZE_{it-1} \\
&+ \beta5 LEVERAGE_{it-1} + \beta6 MBS\_HTM_{it-1} + \beta7 MBS\_AFS_{it-1} + \beta8 MBS\_HFT_{it-1} \\
&+ \beta9 FVA1_{it-1} + \beta10 FVA2_{it-1} + \beta11 FVA3_{it-1} + \beta12 FVL1_{it-1} + \beta13 FVL2_{it-1} \\
&+ \beta14 FVL3_{it-1} + \beta15 NR\_FVA1_{it-1} + \beta16 NR\_FVA2_{it-1} + \beta17 NR\_FVA3_{it-1} \\
&+ \beta18 QUARTER_t + \beta19 SUBIND_i + \varepsilon_{it}
\end{aligned}
$$

To test hypothesis two, the same model will be used that tested hypothesis 1. There will be only one some small adjustment compared to model 1. Dummy variable 1 will be replaced by dummy variable 2 and the interaction variable $\beta1 D1 * \beta2 NIBFV_{it}$ will be replaced by $\beta1 D2 * \beta2 NIBFV_{it}$. With dummy variable 2 ($\beta1 D2$), banks with a loss that is greater than -0,05 will get a 1 and banks with a smaller loss or a profit will get a 0.

Fiechter and Meyer (2011) test hypothesis 2 from their paper with a different model. The main difference with the first model is that $\beta1 NIBFV_{it}$ is changed by $\beta1 \Delta NIBFV_{it}$. In other words, the net income before fair value is changed by the *change* in net income before fair value. On the second model of Fiechter and Meyer (2011) will also be some

adjustments. Two dummy variables and an interaction variable will be added to the second model of Fiechter and Meyer (2011). Dummy variable 3 ($\beta 1D3$) is to separate banks with a profit (1) and banks with a loss (0). The second dummy variable ($\beta 2D4$) will separate banks with a positive change in earnings (1) and banks with a negative change in earnings (0). The interaction variable consist the two new dummy variables and the *change* in net income before fair value (ΔNIBFV). The following research model will be used:

$$
\begin{aligned}
FVINC_{it} = \ & \beta 0 + \beta 1D3 + \beta 2D4 + \beta 3\Delta NIBFV_{it} + \beta 1D3 * \beta 2D4 * \beta 3\Delta NIBFV_{it} + \beta 4NPA_{it-1} + \beta 5SIZE_{it-1} \\
& + \beta 6LEVERAGE_{it-1} + \beta 7MBS\_HTM_{it-1} + \beta 8MBS\_AFS_{it-1} + \beta 9MBS\_HFT_{it-1} \\
& + \beta 10FVA1_{it-1} + \beta 11FVA2_{it-1} + \beta 12FVA3_{it-1} + \beta 13FVL1_{it-1} + \beta 14FVL2_{it-1} \\
& + \beta 15FVL3_{it-1} + \beta 16NR\_FVA1_{it-1} + \beta 17NR\_FVA2_{it-1} + \beta 18NR\_FVA3_{it-1} \\
& + \beta 19QUARTER_t + \beta 20SUBIND_i + \varepsilon_{it}
\end{aligned}
$$

To test hypothesis 4, the same model will be used that tested hypothesis three, only with a small adjustment. Dummy variable 3 stays in the regression, but dummy variable 4 will be replaced by dummy variable 5. Dummy variable 5 ($\beta 2D5$) will separate banks with a negative change in earnings (1) and banks with a positive change in earnings (0). The interaction variable will automatically change too, $\beta 1D3 * \beta 2D4 * \beta 3\Delta NIBFV_{it}$ will be replaced by $\beta 1D3 * \beta 2D5 * \beta 3\Delta NIBFV_{it}$

Where:

FVINC = unrealized (fair value) gains or losses on financial instruments scaled by lagged equity;

NIBFV = net income *before* fair value income scaled by lagged equity;

ΔNIBFV = net income *before* fair value income from the current quarter less net income *before* fair value income from the previous quarter;

D1 = Banks with a loss that is between 0 and -0,05 (net income scaled by lagged equity) will get a 1 and banks with a profit or a loss greater -0,05 will get a 0;

D2 = Banks with a loss that is greater than -0,05 will get a 1 and banks with a smaller loss or a profit will get a 0;

D3 = Banks with a profit will get a 1 and banks with a loss will get a 0;

D4 = Banks with a positive change in earnings will get a 1 and banks with a negative change in earnings will get a 0;

D5 = Banks with a negative change in earnings will get a 1 and banks with a positive change in earnings will get a 0;

D1 * NIBFV = interaction variable between dummy variable 1 and net income before fair value scaled by lagged equity;

D2 * NIBFV = interaction variable between dummy variable 2 and net income before fair value scaled by lagged equity;

D3 * D4 * ΔNIBFV = interaction variable between dummy variable 3, dummy variable 4 and the change in net income before fair value scaled by lagged equity;

D3 * D5 * ΔNIBFV = interaction variable between dummy variable 3, dummy variable 5 and the change in net income before fair value scaled by lagged equity;

NPA = non-performing assets at the beginning of the quarter scaled by lagged total assets;

SIZE = natural logarithm of total assets at the beginning of the quarter;

LEVERAGE = debt-to-assets ratio (leverage) at the beginning of the quarter;

MBS_HTM = mortgage-backed securities classified as held-to-maturity at the beginning of the quarter scaled by lagged total assets;

MBS_AFS = mortgage-backed securities classified as available-for-sale at the beginning of the quarter scaled by lagged total assets;

MBS_HFT = mortgage-backed securities classified as trading securities at the beginning of the quarter scaled by lagged total assets;

FVA1 = Level 1 assets at the beginning of the quarter scaled by lagged total assets;

FVA2 = Level 2 assets at the beginning of the quarter scaled by lagged total assets;

FVA3 = Level 3 assets at the beginning of the quarter scaled by lagged total assets;

FVL1 = Level 1 liabilities at the beginning of the quarter scaled by lagged total assets;

FVL2 = Level 2 liabilities at the beginning of the quarter scaled by lagged total assets;

FVL3 = Level 3 liabilities at the beginning of the quarter scaled by lagged total assets;

NR_FVA1 = non-recurring Level 1 assets at the beginning of the quarter scaled by lagged total assets;

NR_FVA2 = non-recurring Level 2 assets at the beginning of the quarter scaled by lagged total assets;

NR_FVA3 = non-recurring Level 3 assets at the beginning of the quarter scaled by lagged total assets;

QUARTER = quarter fixed effects for each quarter from Q2 2008 through Q1 2009;

SUBIND = sub-industry fixed effects; and

ε = error term.

IV. Sample description

To construct the database, there has been searched for banks that apply SFAS 157 (Fair value measurement). The data is collected from the COMPUSTAT database. More specifically, the COMPUSTAT bank fundamentals quarterly database. The initial sample contains 511 banks that apply SFAS 157. The period for this is research January 2008 through March 2009 (Q1 2008 through Q1 2009). This leads to a sample of 2457 observations.

Table 1 presents how the sample is constructed. Most of the variables were collected by the COMPUSTAT database, others were hand collected with 10-Q and 10-K fillings from EDGAR. The hand collection is necessary, because COMPUSTAT gives not always reliable results, or it isn't possible at all to collect the data from COMPUSTAT. For example, the data from "Total Fair Value Changes Including Earnings" (TFVCEQ) gives hardly any results. Not from every bank that apply SFAS 157 were 10-Q or 10-K filling available, therefore 252 observations were excluded. Most of the variables in the model are calculated with lagged data, but US GAAP doesn't require specifications about certain data in 2007, for example level 1, 2 and 3 assets. The 2007 data is necessary for Q1 2008 FVINC and NIBFV variables, therefore 279 observations were excluded from the sample. Unrealized fair value income (FVINC) is collected through the specification of the consolidated cash flow statement[4]. Items that were collected as fair value income were: Other-than-temporary impairments on investment securities, changes in held for trading accounts and changes in fair value estimates, such as derivatives and financial assets for which the fair value option has been elected. 89 observations were excluded, because some banks doesn't make a specification about their net operational cash flow activities and thus no information about fair value changes. Data about mortgage-backed securities were not available through COMPUSTAT. Fiechter and Meyer (2011) uses the database Bank Regulatory, but the database don't use a TIC or CIK number, so data collecting would be difficult and takes a lot of time, therefore mortgage-backed securities were hand collected. 787 observations were excluded, because not all banks didn't specify their amount of (mortgage-backed) securities.

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[4] According to the indirect method of SFAS 95 (FASB 1987)--Which is disclosed even in the company chooses the direct method--the net income is adjusted by non-cash positions (e.g., unrealized holding gains or losses on trading securities) to net cash flow from operating activities.

Non-recurring assets data wasn't available too on COMPUSTAT and therefore hand collected with 10-Q and 10-K fillings from EDGAR. Also 84 observation were excluded because the non-recurring assets weren't mentioned in the fillings. 65 observations were excluded from the database due to missing fair value data of banks with annual reporting periods ending in March, June and September. The last 32 observations were excluded due to missing non-performing assets data. The sample for model 1 and 2 contains 869 observations from 254 banks. For model 3 and 4, the variable NIBFV will be replaced by ΔNIBFV. Therefore 252 observations were excluded because of the missing data from the previous quarter.

V. Descriptive statistics

Table 2 presents the descriptive statistics for the regression analysis. The means of net income (NI) and net income before fair value (NIBFV) are negative. This says on average that banks had small losses on a period from Q2 2008 through Q1 2009. These small losses were realized even before considering fair value income. The fair value income is -0,0079 and thus creates banks on average a bigger loss in their net incomes. The negative net incomes before fair value and fair value incomes aren't surprisingly at all. During the 2008 financial crisis, small and big banks has problems to survive the crisis and massive write downs were made. The average numbers tells that banks with negative incomes, can't turn this into a small profit with fair value accounting. This doesn't say anything so far, but the likelihood is that banks will take a bath, rather than managing their losses upwards. Also the *change* in net income before fair value (ΔNIBFV) is negative. This means that the banks on average has a worse current quarter than the previous quarter and that there was a decline in the results of banks.

A notable finding is that mortgage-backed securities are measured often at available for sale, consistent with the findings of Huizinga and Leuven (2009). Other securities were measured at held to maturity, but there are hardly any securities measured at held for trading. The fact that the number of mortgage-backed securities measured at held for trading is so low, doesn't surprise at all. Mortgage-backed securities were the major source of risk during the 2008 financial crisis. When banks measures their mortgage-backed securities at held for trading, the changes in fair value estimates are recognized in the income statement. That means in uncertain times, especially in the 2008 financial crisis, banks will shows huge swings in their income statements. That banks measure their mortgage-backed securities at available for sale make sense, because the changes in fair value estimates doesn't affect the income statement, but are recognized directly in equity. When an asset or liability measured at available for sale is sold, the realized profit or loss will be recognized in the income statement. An exception are other-than-temporary impairments, in this case unrealized losses on securities are recognized in net income when the decline is not temporary. Measuring at available for sale prevents that banks will show huge losses or profits and contributes to earnings smoothing, which is important for banks as noticed in the literature section.

Other notable finding is that the majority of financial assets are classified as level 2 assets, consistent with Goh et al (2009) and Song et. al (2010). Example of level 2 assets are (mortgage-backed) securities. It is also remarkable that banks rarely uses fair value for financial liabilities, as the means of level 1 and level 3 liabilities are equal or almost equal to zero.

Most of the descriptive statics are in common with the Fiechter and Meyer (2011) paper, but there are some small differences. The biggest difference with the Fiechter and Meyer (2011) paper is that they found that banks on average has a small profit before considering fair value (NIFBV), this is in contrast with the small loss in this paper. Explanation for this difference is that in this research the sample is not exactly the same as in the Fiechter and Meyer (2011) paper. The sample of Fiechter and Meyer (2011) is bigger with 1517 observations versus the 869 observations in this paper.

VI. Empirical results

Main results

In table 3 are the results presented of the regression analysis. In all the models is fair value income (FVINC) the dependent variable. From the four models that are tested, two are significant, model 2 and 3 respectively. Model 2 finds a highly significant result (t-statistic = 15,780) that banks with a big loss recognize a negative fair value income, confirming hypothesis 2. This means that banks recognizes bigger losses, because bank managers can't reach their goals or targets anyway. The R^2 of 57% is the highest of all the models and slightly worse than the model that Fiechter and Meyer (2011) uses with an R^2 of almost 68%. Model 3 finds also a highly significant result (t-statistic = -4,641) that banks with a profit and a positive change in earnings, recognizes a negative fair value income. The R^2 of 44% is slightly worse than the R^2 from model 2, but better than the R^2 of model 1 and 4. The significant results aren't surprisingly at all for several reasons. First, the results in the descriptive statistics say that banks on average has a negative fair value income (FVINC), which is an indicator that banks recognize a negative fair value income, especially when banks has an incentive. Second, in the financial crisis banks has to make huge write-downs on their financial instruments, the likelihood of a negative fair value income is greater than a positive fair value income. Third, it is easier to recognize a unrealized fair value loss then a fair value gain, as Basu (1997) called "conservatism". Basu (1997) defines conservatism as: "Capturing accountants' tendency to require a higher degree of verification for recognizing good news rather than bad news in financial statements. For instance, unrealized loss are typically recognized earlier than gains.". The perfect example in this case are mortgage-backed securities classified as available for sale. Fair value changes on these securities are recognized in equity, so it doesn't affect the income statement. The only exception is when the fair value is below the amortized cost. If the decline in fair value is judged to be other than temporary, the cost basis of the individual security shall be written down to fair value as a new basis and the amount of the write-down shall be included in earnings[5]. This makes it easier for banks to recognize a unrealized loss, then recognize a unrealized gain, in case of mortgage-backed securities classified as available for sale it isn't possible at all to recognize a unrealized gain.

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[5] Statement of Financial Accounting Standards (SFAS) No. 115, section 16

The other two hypotheses doesn't have a significant result. Remarkable is that the coefficient of model 4 is positive. This means that bank managers recognizes a negative fair value income when they have a profit, but a negative change in earnings. There could be several reasons for recognizing a negative fair value income, but since the result was insignificant and thus no evidence, it is not important at all. There are several explanations for the insignificant results. First, the possibility to recognize a positive fair value income is much more difficult than to recognize a negative fair value income, as mentioned earlier. Second, the statistical power of this research isn't great due the many exclusions in the research sample.

There are more notable findings in table 3. The variable NIBFV is highly significant in model 1 as model 2. Therefore, banks with a negative earnings before fair value income improve their earnings by recognizing fair value gains, and vice versa. This result is consistent with Fiechter and Meyer (2011). Table 3 presents also a highly significant negative coefficient for the variable ΔNIBFV by model 4. The significant and negative coefficient indicate that bank report larger fair value gains when they face more negative changes in earnings before fair value, and vice versa. Remarkable is that the variable ΔNIBFV is not significant in model 3, especially since the interaction variable $D3 * D4 * \Delta NIBFV$ is highly significant. Other notable findings are that banks with a high amount of non-performing assets relative to total assets tend to report lower fair value income (FVINC) following model 1, 3 and 4. Also there is significant evidence that banks with a high asset-to-debt ratio tend to report a higher fair value income following the models 1, 3 and 4. FVA3 is negatively associated with fair value income for all the models, which is as expected due the high degree of illiquidity associated with level 3 assets and the sensitivity for earnings management. FVL2 is positive associated for model 1 and 2, FVL3 is positive associated with fair value income for all the models. FVL1 is deleted by SPSS in model 3 and 4 results, because the variable is constant or has missing correlation.

Additional analysis

To explain the main results in the paragraph above, there have been done some additional analysis. In model 2 is dummy variable 3 changed by dummy variable 6. Dummy variable 6 is replaced to investigate the consequences of fair value income (FVINC) and the net income before fair value (NIBFV) for the next quarter. Banks that reported a big loss in the current quarter will get a 1 in the next quarter (if these is available in the sample), others will get a 0. For example, banks that made a big loss in Q3 2008 will get a 1 in Q4 2008, but banks that made a big loss in Q1 2009 doesn't get a 1 in Q2 2009, because these is not available in the initial sample. According to Healy (1985) and Degeorge et. al (1999), firms takes a big bath for a better tomorrow. The prediction is that banks will have a better tomorrow and thus a positive earnings.

Table 4 presents the additional analysis for model 2. In this model is the interaction variable D6 * NIBFV highly significant with a much lower R^2 than model 2 in table 3. After studying the sample, I can conclude that a lot of the bank quarters in the first sample (D2) are also in current sample (D6), so apparently banks that made a big loss for example in Q2 2008, made also a big loss in Q3 2008. This explains the positive coefficient in model 2. The high number of banks that has a big loss in more than one quarter, tells that banks not had an incentive to take a big bath for a better tomorrow. The reason that banks recognizes a negative fair value income is probably the declining in fair value estimates of financial instruments. Remarkable is that a lot of banks that had a big loss, made this loss in the last quarter of their book year (Q4 2008). The most likely reason is that the (most) 10-Q fillings are unaudited and the 10-K fillings are audited. The financial statements of banks is a part of the 10-K fillings, while the quarter report is a part of the 10-Q fillings. The audit of the financial statements is mandatory for (almost) all of the banks in the sample. Items in the financial statements like goodwill will get an impairment test by the auditor, while during the year there will be no impairment test held. Therefore, banks will recognize (bigger) losses at the end of the book year than during the book year.

For model 3 there have been done also some additional analysis. In model 3 is the interaction variable D3 * D4 * ΔNIBFV replaced by D7 * ΔNIBFV. Dummy variable 7 is replaced to investigate the consequences of fair value income (FVINC) and the *change* in net income before fair value (ΔNIBFV) for the next quarter. Banks that reported a profit and a positive change in earnings will get a 1 in the next quarter, others will get a 0. According to hypothesis 3, the prediction is that banks try to continue to smooth their earnings and recognizes negative fair value incomes.

Table 4 presents the additional analysis for model 3. The interaction variable D7 * ΔNIBFV is significant at a 5 percent level, with an R^2 16,4%, which is lower as model 3 in table 3. The significant and negative coefficient indicate that bank report fair value losses when they face more positive changes in earnings before fair value, and vice versa. This means that banks continue to smooth their earnings. The significance can be explained by the number of observations that was in the initial sample, but also in the current sample. For example, a bank makes a profit and a positive change in earnings in Q2 2008 but also in Q3 2008, in this case Q3 2008 as Q4 2008 will be in the current sample, while Q3 2008 was in the initial sample too. Also banks with a negative change in earnings and a fair value gain, creates a significant result. This confirms the hypothesis that banks smooth their earnings and doesn't want to create high expectations for the future.

Remarkable is that the variable ΔNIBFV isn't significant in model 3 from table 3. While the variable is highly significant in model 3 from table 4. For this difference I have no explanation.

In my opinion there is no mechanical relation between FVINC and NIBFV. FVINC and NIBFV are both a part of net income and therefore no mechanical relation. FVINC consist of impairments charges on investments securities and changes in fair value estimates, such as derivatives, trading securities and financial assets for which the fair value option has been elected. These impairments and fair value estimates has nothing to do with the operational activities of banks and changes only by the supply and demand for these banking products. On the other hand, NIBFV consist only on the operational activities of banks. Examples are: interest on loans and securities, credit card fees, ATM and other service fees, service charges on deposits and trading services. With these banking activities, changes in fair value estimates doesn't play a role at all. The only way that changes in fair value estimates could play a role, is in case with realized gains or losses on investments securities. In this case, changes of fair value estimates on investments securities measured at available for sale will be recognized in equity. When an investment security is sold for example, the changes in fair value will be reclassified in net income and thus a gain or loss will be realized. These realized gains or losses on investments securities are often small amounts and not significant for the revenues of banks.

VII. Conclusion

This research investigates which incentives bank managers had to manage their earnings in the 2008 financial crisis. Based on the literature in the literature section, there are four hypotheses developed. The first hypothesis is: Banks with a small loss before considering fair value changes, creates a positive fair value income. There is no significant result on this hypothesis, and therefore no evidence that bank managers did manage their losses upwards. The second hypothesis is: Banks with a big loss before considering fair value changes, creates a negative fair value income and takes a big bath. I found a significant result on this hypothesis, which indicates that bank managers had incentives for big bath accounting. However, I found also evidence that bank managers didn't take a big bath for a better tomorrow, since a lot of banks also reports a big loss in the next quarter. The reason that banks reports a negative fair value income is probably because the declining in fair value estimates during the financial crisis. The third hypothesis is: Banks with a profit and a positive change in earnings, creates a negative fair value income. I found a significant result on this hypothesis too. This means that bank managers will manage their earnings downwards to temper high expectation and set the bar low for the next quarter. The additional analysis confirms the significant result from table 3, and therefore evidence that banks smooth their earnings with fair value accounting. The last hypothesis is: Banks with a profit, but a negative change in earnings, creates a positive fair value income. The last hypothesis didn't have a significant result. There are a couple of reason for the insignificant results. First, the statistical power of the test has been reduced because of the many exclusions. Also the possibility to create a fair value gain is much harder than to create a fair value loss, in case of hypothesis 1 and 4.

The results from the hypotheses can answer the research question of this research: Which incentives had bank managers to manage their earnings in the 2008 financial crisis with fair value accounting? The only incentive that bank managers had, is recognizing a negative fair value income when banks makes a profit and even more profit then the period before. The reason for recognizing a negative fair value income is that bank managers doesn't want to create high expectations about their future performances and set the bar low for the next quarter. Also bonus schemes could be a reason that bank managers set the bar low for the next quarter.

This study has also a big limitation. Measuring earnings management is hard. For example, the result of hypothesis 3 is significant. This means that bank managers creates a negative fair value income to temper the expectations for (potential) investors or stock holders. The results in the descriptive statistics say that banks on average has a negative fair value income. This could mean that banks with a profit and a positive change in earnings had a negative fair value income anyway. In this case, bank managers didn't need to recognize a negative fair value income, because it was already there. It is also possible that bank managers didn't have the incentive to recognize a negative fair value income and this was just a decline in fair value estimates, like hypothesis 2.

There are some possibilities for future research. First, there are probably more incentives for bank managers to recognize a positive or negative fair value income. Some examples are the expectations of analysts or minimum capital requirements for banks. Banks must hold at least 4 percent core capital relative to total risk-weighted assets (Tier 1 ratio), as well as a total capital ratio (Tier 2 ratio). Second, expanding the sample could lead to more significant results. This research is based on the Fiechter and Meyer (2011) paper and thus exact the same period is used to test the hypotheses. When the sample period was larger, for example Q1 2008 to Q4 2009, this could lead to more significant results.

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Table 1

Sample selection

	# of banks	Percent	# of bank quarters	Percent
U.S. banks in database COMPUSTAT	511	100%	2457	100%
./. Missing 10-Q and 10-K fillings			-252	
./. No specification cash flow operating activities			-89	
./. No specification about MBS			-787	
./. Non-recurring assets weren't reported			-84	
./. Different annual reporting periods			-65	
./. Missing non-performing assets data			-32	
./. Missing Q1 2008 data			-279	
= Sample for testing hypotheses	254	50%	869	35%

Table 2

Descriptive statistics

Summary statistics for Total fair value income (FVINC)

Variable	N	Mean	p1	p25	Median	p75	p99	Std. Dev.
FVINC	869	-0,0079	-0,20	0,00	0,00	0,00	0,02	0,04688
NIBFV	869	-0,0088	-0,53	0,00	0,01	0,20	0,11	0,10422
NI	869	-0,0167	-0,53	-0,01	0,01	0,02	0,06	0,10527
D1*NIBFV	869	-0,0028	-0,04	0,00	0,01	0,00	0,00	0,00827
D2*NIBFV	869	-0,0238	-0,53	0,00	0,00	0,00	0,00	0,09435
ΔNIBFV	617	-0,0069	-0,49	-0,02	0,00	0,01	0,39	0,11666
D3*D4*ΔNIBFV	617	0,0136	0,00	0,00	0,00	0,00	0,32	0,06056
D3*D5*ΔNIBFV	617	-0,0058	-0,08	0,00	0,00	0,00	0,00	0,02740
NPA	869	0,0182	0,00	0,00	0,01	0,02	0,11	0,02602
SIZE	869	7,2918	5,33	6,52	7,12	7,88	10,39	1,13099
LEVERAGE	869	1,1114	1,04	1,08	1,10	1,12	1,33	0,05517
MBS_HTM	869	0,0115	0,00	0,00	0,00	0,00	0,21	0,04203
MBS_AFS	869	0,0761	0,00	0,01	0,05	0,11	0,46	0,09031
MBS_HFT	869	0,0002	0,00	0,00	0,00	0,00	0,00	0,00281
FVA1	869	0,0098	0,00	0,00	0,00	0,00	0,14	0,02719
FVA2	869	0,1384	0,00	0,06	0,13	0,19	0,52	0,10567
FVA3	869	0,0041	0,00	0,00	0,00	0,00	0,08	0,01403
FVL1	869	0,0000	0,00	0,00	0,00	0,00	0,00	0,00000
FVL2	869	0,0010	0,00	0,00	0,00	0,00	0,03	0,00676
FVL3	869	0,0000	0,00	0,00	0,00	0,00	0,00	0,00040
NR_FVA1	869	0,0000	0,00	0,00	0,00	0,00	0,00	0,00067
NR_FVA2	869	0,0047	0,00	0,00	0,00	0,00	0,06	0,01481
NR_FVA3	869	0,0109	0,00	0,00	0,00	0,01	0,12	0,04185

FVINC is the fair value income from financial instruments scaled by lagged equity. NIBFV is the net income before fair value scaled by lagged equity and NI is the net income scaled by lagged equity. Dummy variable 1 divides banks with a loss between 0 and -0,05 (1) and banks with a profit or a loss greater -0,05 (0). D1*NIBFV is an interaction variable between dummy variable 1 and NIBFV. Dummy variable 2 divides banks with a loss that is greater than -0,05 (1) and banks with a smaller loss or a profit (0). D2*NIBFV is an interaction variable between dummy variable 2 and NIBFV. ΔNIBFV is the NIBFV from the current quarter less the NIBFV from the previous quarter. Dummy

variable 3 divides bank with a profit (1) and banks with a loss (0). Dummy variable 4 divides banks with a positive change in earnings (1) and bank with a negative change in earnings (0). D3*D4*ΔNIBFV is an interaction variable between dummy variable 3, dummy variable 4 and the *change* in net income scaled by lagged equity. Dummy variable 5 divides bank with a negative change in earnings (1) and bank with a positive change in earnings (0). D3*D5*ΔNIBFV is an interaction variable between dummy variable 3, dummy variable 5 and the *change* in net income scaled by lagged equity. NPA are the non-performing assets at the beginning of the quarter scaled by total assets. SIZE is the natural logarithm of total assets at the beginning of the quarter. LEVERAGE is the debt-to-assets ratio at the beginning of the quarter. MBS_HTM, MBS_AFS and MBS_HFT are mortgage-backed securities classified as held to maturity, available for sale and held for trading. FVA1, FVA2 and FVA3 are defined as level 1, level 2 and level 3 assets on recurring basis. FVL1, FVL2 and FVL3 are defined as level 1, level 2 and level 3 liabilities. NR_FVA1, NR_FVA2 and NR_FVA3 are defined as non-recurring level 1, level 2 and level 3 assets. All balance sheet variables are both measured at the beginning of the quarter and scaled by lagged total assets.

Table 3

Regression analysis

Dependent variable	FVINC			
	Model 1	Model 2	Model 3	Model 4
Constant	-0,103** (-2,112)	-0,057 (-1,336)	-0,121* (-1,707)	-0,114 (-1,558)
D1*NIBFV	**-0,053** **(-0,168)**			
D2*NIBFV		**0,715*** **(15,780)**		
D3*D4*ΔNIBFV			**-0,183*** **(-4,641)**	
D3*D5*ΔNIBFV				**0,117** **(1,558)**
NIBFV	-0,129*** (-7,451)	-0,720*** (-17,772)		
ΔNIBFV			-0,030 (-1,397)	-0,111*** (-5,920)
D1	0,005 (0,734)			
D2		0,006 (0,869)		
D3			-0,006 (-1,150)	-0,007 (-1,386)
D4			-0,007 (-1,450)	
D5				-0,002 (-0,478)
NPA	-0,264*** (-3,507)	-0,215*** (-3,263)	-0,074 (-0,896)	-0,143* (-1,704)
SIZE	0,000 (-0,621)	0,001 (0,717)	0,001 (0,704)	0,000 (0,186)
LEVERAGE	0,093*** (3,023)	0,033 (1,199)	0,106*** (2,750)	0,108*** (2,737)

MBS_HTM	0,002 (0,049)	0,042 (1,202)	0,001 (0,016)	0,005 (0,100)
MBS_AFS	0,007 (0,281)	-0,019 (-0,903)	0,012 (0,412)	0,014 (0,465)
MBS_HFS	0,398 (0,731)	0,215 (0,450)	0,934 (1,188)	0,976 (1,219)
FVA1	0,048 (0,782)	0,040 (0,728)	0,009 (0,114)	0,020 (0,234)
FVA2	-0,008 (-0,353)	0,030 (1,553)	-0,033 (-1,255)	(-0,032) (-1,197)
FVA3	-0,400*** (-3,460)	-0,379*** (-3,736)	-0,597*** (-4,497)	-0,588*** (-4,349)
FVL1	-532,994 (-0,414)	-274,434 (-0,243)		
FVL2	0,591** (2,082)	0,528** (2,123)	0,715 (2,025)	0,458 (1,288)
FVL3	12,677** (2,556)	19,305*** (4,418)	24,983*** (3,724)	20,310*** (2,995)
NR_FVA1	-0,296 (-0,126)	0,145 (-0,070)	-0,919 (-0,117)	-1,363 (-0,170)
NR_FVA2	-0,047 (-0,427)	-0,040 (-0,419)	0,126 (0,903)	0,040 (0,283)
NR_FVA3	-0,047 (-1,213)	-0,030 (-0,884)	-0,034 (-0,660)	-0,031 (-0,589)
Quarter fixed effects	Included	Included	Included	Included
Sub-industry effects	Included	Included	Included	Included
R²	0,353	0,571	0,441	0,406
F-statistic	4,992***	17,010***	5,958***	4,881***
N	867	867	617	617

***, ** and * indicate statistical significance at the 1%, 5% and 10% levels (two tailed). FVINC is the fair value income from financial instruments scaled by lagged equity. NIBFV is the net income before fair value scaled by lagged. Dummy variable 1 divides banks with a loss between 0 and -0,05 (1) and banks with a profit or a loss greater -0,05 (0). D1*NIBFV is an interaction variable between dummy variable 1 and NIBFV. Dummy variable 2 divides banks with a loss that is greater than -0,05 (1) and banks with a smaller loss or a profit (0). D2*NIBFV is an interaction variable between dummy variable 2 and NIBFV. ΔNIBFV is the NIBFV from the current quarter less the NIBFV from the previous quarter. Dummy variable 3 divides bank with a profit (1) and banks with a loss (0). Dummy variable 4 divides banks with a positive change in earnings (1) and bank with a negative change in earnings (0). D3*D4*ΔNIBFV is an interaction variable between dummy

variable 3, dummy variable 4 and the *change* in net income scaled by lagged equity. Dummy variable 5 divides bank with a negative change in earnings (1) and bank with a positive change in earnings (0). D3*D5*ΔNIBFV is an interaction variable between dummy variable 3, dummy variable 5 and the *change* in net income scaled by lagged equity. NPA are the non-performing assets at the beginning of the quarter scaled by total assets. SIZE is the natural logarithm of total assets at the beginning of the quarter. LEVERAGE is the debt-to-assets ratio at the beginning of the quarter. MBS_HTM, MBS_AFS and MBS_HFT are mortgage-backed securities classified as held to maturity, available for sale and held for trading. FVA1, FVA2 and FVA3 are defined as level 1, level 2 and level 3 assets on recurring basis. FVL1, FVL2 and FVL3 are defined as level 1, level 2 and level 3 liabilities. NR_FVA1, NR_FVA2 and NR_FVA3 are defined as non-recurring level 1, level 2 and level 3 assets. All balance sheet variables are both measured at the beginning of the quarter and scaled by lagged total assets. Quarter fixed effects are dummy variables that indicates which quarter it is. Sub-industry effects are dummy variables for the type of banks, this sample contains commercial banks, life insurances, saving institutions federal charged and not federal charged.

Table 4

Additional analysis

Dependent variable		FVINC
	Model 2	Model 3
Constant	-0,090* (-1,851)	-0,119* (-1,653)
D6*NIBFV	**0,086*** (2,653)**	
D7*ΔNIBFV		**-0,110** (-2,234)**
NIBFV	-0,158*** (-7,692)	
ΔNIBFV		-0,092*** (-5,138)
D6	-0,004 (-0,614)	
D7		-0,010 (-1,631)
NPA	-0,185** (-2,349)	-0,086 (-1,106)
SIZE	0,000 (-0,573)	0,000 (0,259)
LEVERAGE	0,084*** (2,713)	0,108*** (2,754)
MBS_HTM	0,004 (0,107)	0,004 (0,075)
MBS_AFS	0,004 (0,157)	0,019 (0,622)
MBS_HFS	0,421 (0,773)	1,032 (1,292)
FVA1	0,052 (0,840)	0,025 (0,292)
FVA2	-0,003 (-0,006)	-0,034 (-1,276)
FVA3	-0,415*** (-3,598)	-0,589*** (-4,365)

FVL1	-458,936 (-0,358)	
FVL2	0,536** (1,882)	0,292 (0,791)
FVL3	12,084** (2,448)	19,100*** (2,804)
NR_FVA1	-0,071 (-0,030)	-0,456 (-0,057)
NR_FVA2	-0,086 (-0,772)	0,040 (+0,288)
NR_FVA3	-0,041 (-1,073)	-0,028 (-0,534)
Quarter fixed effects	Included	Included
Sub-industry effects	Included	Included
R^2	0,131	0,164
F-statistic	5,313***	5,059***
N	867	617

***, ** and * indicate statistical significance at the 1%, 5% and 10% levels (two tailed). FVINC is the fair value income from financial instruments scaled by lagged equity. NIBFV is the net income before fair value scaled by lagged equity. Dummy variable 6 contains banks that reported a big loss in the current quarter and will get a 1 in the next quarter, others will get a 0. D6*NIBFV is an interaction variable between dummy variable 6 and NIBFV. ΔNIBFV is the NIBFV from the current quarter less the NIBFV from the previous quarter. Dummy variable 7 contains banks that reported a profit and a positive change in earnings in the current quarter and will get a 1 in the next quarter, others will get a 0. D7*ΔNIBFV is an interaction variable between dummy variable 7 and the *change* in net income scaled by lagged equity. NPA are the non-performing assets at the beginning of the quarter scaled by total assets. SIZE is the natural logarithm of total assets at the beginning of the quarter. LEVERAGE is the debt-to-assets ratio at the beginning of the quarter. MBS_HTM, MBS_AFS and MBS_HFT are mortgage-backed securities classified as held to maturity, available for sale and held for trading. FVA1, FVA2 and FVA3 are defined as level 1, level 2 and level 3 assets on recurring basis. FVL1, FVL2 and FVL3 are defined as level 1, level 2 and level 3 liabilities. NR_FVA1, NR_FVA2 and NR_FVA3 are defined as non-recurring level 1, level 2 and level 3 assets. All balance sheet variables are both measured at the beginning of the quarter and scaled by lagged total assets. Quarter fixed effects are dummy variables that indicates which quarter it is. Sub-industry effects are dummy variables for the type of banks, this sample contains commercial banks, life insurances, saving institutions federal charged and not federal charged.