

DID EXIT PRICING UNDER FASB 157 CONTRIBUTE TO THE SUBPRIME MORTGAGE CRISIS?

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ABSTRACT

The current financial crisis has revived the debate surrounding fair value accounting especially in the case of illiquid markets and for assets that lack marketability. Many analysts argue that it was issuance of FASB 157 (ASC 820) and the use of fair value accounting that caused the financial crisis to spread from the subprime mortgage market to the rest of the economy. The move by FASB to present all financial assets at fair market value is appropriate as this improves the reliability, relevance and transparency of the financial statements. Presenting assets at historical cost when unrealized losses are material is not proper financial reporting and distorts the current financial position of a firm. However, the exit price requirement under FASB 157 is too strict and results in an overly conservative financial presentation. The use of exit prices to define fair value was the problem, had a negative effect on the economy, and contributed to the financial crisis as it forced firms to overstate their losses. Instead of exit prices, the IFRS definition of fair market value should be adopted. The IFRS definition does not use entry or exit price but is an arm's length exchange price between unrelated parties.

JEL: G10, G21, M41

KEYWORDS: Fair-value accounting, FASB 157, ASC 820, IFRS definition of fair value, mark-to-market, subprime mortgage crisis

INTRODUCTION

The current economic recession and financial crisis can be traced to the collapse of the subprime mortgage market caused by a sharp decline in housing prices that began in 2007 (Wingall, 2008). What surprised many market participants is how the crisis spread from the subprime mortgage market to the rest of the financial market and then the overall economy. What caused the crisis to become so serious? Should we blame individual borrowers, overleveraged financial institutions, exotic financial products or a failure in regulation? In fact, many questions about the effectiveness of the accounting and regulatory framework for banks have been raised. In particular, the role played by fair value accounting has been the source of much debate. Banks and many Wall Street professionals argue that it was the implementation of FASB 157 (ASC 820) that accentuated the financial and economic crisis. The argument is that fair value accounting resulted in large unnecessary write-downs of assets, distorted the value of assets on the balance sheet of financial firms and caused the demise of the entire investment banking industry. This is especially true for the many exotic financial instruments and securitized products created during the mortgage boom. These products were especially difficult to value under FASB 157. The write-downs caused by FASB 157 (ASC 820) created a vicious cycle of falling prices that caused the subprime mortgage crisis to spread throughout the economy.

In recent studies, Harris and Kutasovic (2011 and 2010) examined the role played by FASB 157 and concluded that fair value accounting and FASB 157 (ASC 820) played only a small role in the financial and economic crisis. In fact, the results indicate that fair value accounting is the preferred accounting framework over other approaches such as historic cost accounting. Using other accounting methodologies such as historic cost accounting during the financial crisis would have probably increased the severity of the crisis due to a lack of transparency involved in the valuation of complex mortgage securities. However, there is another important issue dealing with FASB 157 that may have contributed to the crisis.

The issue that needs to be examined is in implementation of FASB 157 and specifically the use of exit prices to define fair value. The question is whether the use of exit prices caused firms to overstate their losses and thus increased the severity of the financial crisis.

This paper examines the role played by FASB 157 (ASC 820) in the crisis focusing on the role of exit prices. The study looks at alternative definitions of fair value focusing on the definition of the International Financial Reporting Standard (IFRS). A comparison of FASB 157 with the IFRS definition of fair value is made. The study is organized as follows: section 2 provides a literature review of fair value accounting, section 3 discusses issues involving exit prices, section 4 discusses the impact on level 3 assets, and the paper ends with conclusions and suggestions for future research in section 5.

LITERATURE REVIEW

Contrary to views expressed in the media and by the critics, mark-to-market accounting is not new. For decades, financial institutions have used fair value accounting to value financial assets. In addition, financial institutions do not have to report all of their assets at fair value. For example, banks report trading and available-for-sales assets at fair value while assets held-to-maturity are reported at historic costs. Prior to FASB 157 (ASC 820), there was no single consistent measure of fair value and the guidance for applying these definitions was limited and inconsistent. What is new is that FASB 157 (ASC 820) issued new guidelines on how to measure fair value, especially in the case where there is not much of a market for the assets. Under FASB 157 (ASC 820), firms should report the fair value of their assets and liabilities using a three-level hierarchy starting with observable prices and moving to unobservable inputs and the use of models.

- Level 1 assets are traded in active markets with observable quoted prices. An example of this would be the stock of Exxon. Exxon is traded on the NYSE, its price is easily and objectively observed and thus a mark-to-market approach can be used.
- Level 2 assets are those which do not have a quoted price but whose price can be observed either directly or indirectly. This would include assets, which have similar assets traded in an active market, as well as assets traded in a market with low liquidity.
- Level 3 assets have unobservable inputs due to their illiquid nature and have traditionally been valued by companies by the use of internal sophisticated models, which require the use of many assumptions. These assets are largely the complicated mortgage-related securities developed by Wall Street firms and showed rapid growth over the last decade. Now, under FASB 157(ASC 820), these assets must be reported at a fair market value along with enhanced disclosure about the processes used to arrive at a fair value.

The accountancy board to define fair market value established a framework for measuring fair value and expanded disclosure about fair market value measurements issued FASB 157, effective for fiscal years ending after November 15, 2007. Under 157, the definition of fair market value retains the exchange price notion in earlier definitions. “This Statement clarifies that the exchange price is the price in an orderly transaction between market participants to sell the asset or transfer the liability in a market in

which the reporting entity would transact for the asset or liability, that is, the principal or most advantageous market for the asset or liability. The transaction to sell the asset or transfer the liability is a hypothetical transaction at the measurement date, considered from the perspective of a market participant that holds the asset or owes the liability. Therefore, the definition focuses on the price that would be received to sell the asset or paid to transfer the liability (an exit price), not the price that would be paid to acquire the asset or received to assume the liability (entry price)” (FASB 157 Section 5:15).

As an alternative, there are other possible measures of fair value using entry value (the acquisition price that would be paid to buy an asset or received from issuing a liability) or value in use (the entity-specific value to the current holder of an asset or liability). Private equity and hedge funds, prior to FASB 157, used an entry price approach to value unquoted holding of illiquid securities and complex derivative products. FASB argues that the use of exit prices most closely corresponds to the firm's solvency. This means that if assets and liabilities on a firm's balance sheet are measured at fair value, then owner's equity equals the cash generated if the firm liquidated all the items on the balance sheet. However, the use of exit prices can be problematic in the case of illiquid markets and disorderly transactions in a dysfunctional market.

FASB 157 versus IFRS

In the international literature, International Financial Reporting Standard (IFRS) defines fair value as the amount for which an asset would be exchanged or a liability settled between knowledgeable, willing parties in an arm's length transaction. There are five differences between the FASB and IFRS definitions of fair value (PricewaterhouseCoopers, 2007, White, 2008):

First and most important, FASB 157 specifically uses exit price in its determination, whereas the IFRS does not specifically refer to either an entry or exit price but is an arm's length exchange price between unrelated parties. Second, IFRS does not provide guidance about which market should be used to measure fair value when more than one exists. FASB 157 assumes the transaction occurs in the principal market or the most advantageous market.

Third, fair value measurements under FASB 157 (ASC 820) include the concept of highest and best use, which refers to how market participants would use the asset to maximize the value of the asset. IFRS has no equivalent definition. Fourth, the fair value definition of a liability under FASB 157 (ASC 820) is based on a transfer concept. The fair value definition of a liability under IFRS uses a settlement concept.

Finally, under IFRS the fair value of a financial instrument should account for the credit quality of the instrument and the credit risk of the firm. FASB 157 (ASC 820) has no equivalent definition.

Because of these differences, fair values for assets and liabilities can differ under FASB 157 (ASC 820) and IFRS. The most important difference and the focus of this study is the role of exit prices. The question is whether the use of exit prices under FASB 157 contributed to the financial crisis that began in 2007.

ISSUES INVOLVING EXIT PRICES

The critical issue that arises is that the use of the exit pricing procedure may lead to fair value estimates that are different from other methods such as entry prices. Using exit prices as a proxy for fair market value would always result in a lower value than entry prices or any other definition of fair market value. The extent of the difference in the measurement of fair value would depend on the marketability and the liquidity of the asset in question. Marketability refers to the ability to sell an asset in an established market place. Brockman (2009) has shown that the lack of marketability discount ranges from 25%-40%.

Liquidity refers to the asset selling below the prevailing market value as measured by the rate price of an instantaneous sale versus holding the asset for a better sales price. The spread between bid and ask prices measures a cost of liquidity. A wide bid-ask spread indicates a lack of liquidity in the market. The study by Officer (2006) provides strong evidence supporting the notion that the lack of liquidity affects sales prices. As shown by Block (2007) and Officer (2006), discounts for liquidity typically can range from 15%-30% and in the extreme case discounts of up to 70% are possible. Trading volume is essential to a

liquidity discount with large publicly traded firms having an insignificant discount while thinly traded firms having a much greater discount. The issue of marketability and liquidity is critically important in the pricing of bank assets. During the housing boom from 2002 to 2007, the relative importance of real estate assets in the average bank’s balance sheet increased significantly. These assets consisted of mortgage loans held on the balance sheet and mortgage related securities. Thus, bank capital became very sensitive to the value of real estate and housing prices. Under FASB 157 (ASC 820), many of these assets were classified as level 3 assets. This resulted in the following issues:

First, commercial banks were large holders of mortgage-backed-securities (MBS) backed by subprime and Alt-A loans. These MBS trade in the OTC market with other financial institutions and the markets are thin and very illiquid. Pooling thousands of mortgage loans together and repackaging them repeatedly created securities that were difficult to trace to their underlying cash flow and thus made it almost impossible to find their value. Furthermore, these securities are extremely illiquid and essentially have no trading activity. The illiquidity of MBS backed by subprime loans created a problem for fair value accounting. Table 1 provides data from the Federal Reserve flow of funds on US bank holding of MBS.

In 2008, US commercial banks held over one trillion dollars of MBS and \$3.7 trillion of mortgage loans. These securities include both collateralized debt obligations (CDOs) and residential mortgage backed securities (RMBS) and represented over 10% of total bank assets in 2008.

Table 1: US Commercial Bank Holdings of Mortgage Backed Securities (MBS) (Billions of Dollars)

	2000	2005	2006	2007	2008
Mortgage-backed-securities	\$626.5	\$992.7	\$1040.3	\$928.9	\$1068.7
Mortgage loans	\$1627.0	\$2902.1	\$3338.9	\$3564.6	\$3754.7
Total bank assets	\$4998.6	\$7392.5	\$8189.5	\$8840.8	\$10247.7
MBS % of total assets	12.5%	13.4%	12.7%	10.5%	10.5%
Loans % of Total assets	32.5%	39.3%	40.8%	40.3%	36.6%

This table presents data on the level of MBS and mortgage loans held on the balance sheet of banks for selected years from 2000 to 2008. It also presents the data as a percentage of total bank assets. The data was taken from the Federal Reserve flow of funds database from June 2010.

The amount of mortgage-backed-securities held by US commercial banks increased by over \$440 billion from 2000 to 2008. Mortgage loans rose sharply between 2000 and 2006 and accounted for 40.8% of all assets in 2006. At its peak in 2006, mortgage related assets accounted for 53.5% of all bank assets compared to 45% in 2000.

The problem was that size of the mortgage-backed-securities held on the balance sheets of the commercial banks far exceeded their level of bank capital. Levels of bank capital from the Federal Reserve flow of funds data are provided in Table 2. In 2008, bank capital for US commercial banks was \$494.4 billion and less than half of the value of MBS held by the commercial banks. Large losses on MBS caused significant write-downs of bank capital and forced banks to raise equity externally and restrict lending in order to meet global Basel capital requirements.

Second, banks also had large holdings and exposure to collateralized debt obligations (CDOs) and structured investment vehicles (SIV). Bonds that are backed by pools of bonds are CDOs. SIVs are similar to CDOs except they are financed through short-term debt (asset-backed commercial paper, rather than the long-term debt of most CDOs). The problem is that there is essentially no market for CDO or SIV assets. Thus, in valuing these assets one would expect a large marketability and liquidity discount.

Table 3 provides data on US bank holdings of CDOs and structured investment vehicles. Banks held over \$379 billion in CDOs and SIVs in 2008.

Table 2: Levels of Capital at US Commercial Banks (Billions of Dollars)

	2003	2005	2006	2007	2008
Bank Capital	\$209.9	\$273.0	\$429.3	\$470.7	\$494.4
Capital % of total assets	4.2%	\$3.7%	5.2%	\$5.3%	4.8%

This table presents data on the level of bank capital and bank capital as a percentage of total bank assets for selected years from 200 to 2008. The data was taken from the Federal Reserve flow of funds database from June 2010.

Table 3: Commercial Bank Holdings of CDOs and Structured Investment Vehicles (Billions of Dollars)

	2000	2005	2006	2007	2008
CDOs and SIV	\$111.0	\$298.5	\$306.0	\$366.5	\$379.3
CDOs and SIVs % of Assets	2.2%	4.0%	3.7%	4.1%	3.7%

This table presents data on the level of CDOs and SIVs held on the balance sheet of banks for selected years from 2000 to 2008. It also presents the data as a percentage of total bank assets. The data was taken from the Federal Reserve flow of funds database from June 2010.

What is important to note is the rapid rate of increase in the holdings of these securities since 2000. CDO and SIV holding by US commercial banks increased by over 240% or almost \$270 billion between the years 2000 and 2008. These financial securities suffered large losses during the financial crisis and were a major factor contributing to failure of a number of large US banks such as Countrywide Financial, Washington Mutual and Wachovia.

Third, the lack of liquidity exacerbated the downward move in the price of mortgage related securities held on the balance sheet of the US commercial banks. The process worked as follows: Banks were forced to sell assets to avoid violating regulatory capital requirements and to remove the perceived tainted assets from their balance sheets. The dumping of mortgage products created an excess supply in the mortgage market. This excess supply would push prices down. Lack of liquidity would further add to the downward spiral in prices.

Fourth, the exit price of Level 3 assets would be substantially lower in poor economic times as opposed to good economic periods, as demand would be much lower. Thus, fair values based on exit prices are “crushed” during a financial meltdown.

Estimated Impact

We can estimate that the effect of marketability and illiquidity on these assets in an economic meltdown can result in a discount of 40% and 65%; the product of discounts for marketability and liquidity (high ranges to low ranges of discounted values).

In addition, there would be an additional discount when one enters the added costs relating to the sale of the assets. These may include other transaction costs such as commission costs, bid-ask differentials, legal and regulatory costs, taxation costs and/or currency costs if applicable. Bid-ask differentials for thinly traded assets may amount to as much as ten percent (Block, 2007 and Officer, 2006). The result here is that an additional cost, known as the cost of exit, will increase cost by more than ten percent. This is in addition to the costs for marketability and liquidity, resulting in a total marketability, liquidity plus exit price discount of 45% to over 70%.

IMPACT ON LEVEL 3 ASSETS

For the level 3 assets, a decrease in fair value will occur under any model. However, measuring fair value using exit prices will exacerbate and overstate the decline. During a market decline as experienced in the subprime crisis, not only will asset values fall but also the spread between exit and entry prices will widen. Thus, the question is what is the appropriate method to value tier 3 assets in a depressed market environment? Below, four possible means of presentation are discussed.

The first case looks at the method use to estimate fair value prior to FASB 157. In this case, securities that were intended to be held-to-maturity were recorded at historical cost (net of amortization). No gain or loss was created by changes in fair market value. For available-for-sale and trading securities, gains and losses were taken on a yearly basis as these securities were recorded at fair market value. In the case of tier 3 assets, most of these securities were industry invented and valued at cost, derived from a present value of cash flow model and the intent was to hold these securities until maturity, as there was no liquid market for trade.

The result absent FASB 157 (ASC 820) would be that losses would be low and immaterial, as historical cost would continue to be the balance sheet value as most of these level 3 assets were classified as held to maturity securities. This is a problem since it ignores the problem assets and overstates the health of the financial institutions. This situation occurred in Japan in the 1990s. Japanese banks were permitted to keep nonperforming loans on their balance sheet and essentially ignored the problem of the bad assets. The result of this action was that the Japanese banks were effectively insolvent and were forced to restrict lending. Without bank lending, the Japanese economy suffered through a lost decade of extremely weak GDP growth.

The second case estimates fair value under the methodology of FASB 157. FASB 157, which was implemented in November 2007, imposed a requirement to value all assets at fair market value based on exit prices. As stated in this paper, exit price would reduce the fair market value of a highly illiquid asset in excess of 10 percent when compared to an entry price (Block, 2007 and Officer, 2006). Consequently, FASB 157 increased the losses to the financial institutions by significant amounts when compared to a different fair market definition.

The third case is the IFRS implication of fair value accounting. As discussed earlier in our paper, since IFRS defines fair market value less conservatively than its US counterpart does, tier 3 assets would have a 10 percent plus higher balance sheet value than under US GAAP and the losses, although material, would be significantly lower.

Finally, the last case estimates fair value based on the present value of cash flow model. Under this case, significant company assumptions would be the basis for financial statement presentation. Allowing companies to value their assets based on internally prepared models is not appropriate and would only lead to more investor concerns.

The following example illustrates the above four cases. Let us assume that a financial institution created tier 3 securities in a totally illiquid market, and based on their model the present value of the cash flows is 150 US dollars. This is the cost of the investment and the initial balance sheet amount for this asset. Further, by year-end the fair market value based on entry prices drops to 100 US Dollars. The exit price would then be 90 US Dollars as we assume a 10 percent discount. This is a held-to-maturity security.

The impact of the four cases on the balance sheet and income statement of a financial institution are presented in Table 4.

Table 4: Impact of Valuing Level 3 Assets on Financial Institutions

Fair Value Estimates Under Different Accounting Methods	Balance Sheet	Loss on Income Statement
Pre FASB 157	150	0
IFRS definition of Fair Value	100	50
US GAAP definition (FASB 157 Result)	90	60
Fair value based on company model	Varies and based on a company's model	

The table examines different methods used to estimate fair value for tier 3 assets. The impact on the balance sheet and income statement of financial institutions is presented.

The effect of using an exit price exaggerates the loss significantly, and the results suggest that FASB should consider other measures of fair value. Changes in market liquidity, marketability and especially, the bid–ask spreads should not be allowed to have a significant effect on the financial statements and the underlying value of a firm.

CONCLUSIONS

Harris and Kutasovic (2011, 2010) provide evidence to support FASB's position to present all financial securities at fair market value, regardless of its intent, as this improves reliability, relevance and transparency of the financial statements. Reliability and relevance are the underlying goals of the FASB. Presenting assets at historical cost when unrealized losses are material is not proper financial reporting and distorts the current financial position of a firm. Additionally, it would allow a firm to pick when to sell a distressed asset, which in effect would create a loss. Firms may choose to take the losses when the financials are otherwise good and keep the assets in bad financial times. As Harris and Kutasovic (2011, 2010) show, fair value accounting is the preferred accounting framework used to value financial firms. The SEC (2008), mandated by the Emergency Economic Stabilization Act of 2008, conducted a study and found that the economic meltdown and financial crisis was due to poor internal decisions by banks and not due to fair value accounting.

However, despite the advantages of fair value accounting, making the exit price the basis for fair market value is far too strict and results in an over-conservative financial presentation. Defining fair market value based on exit prices is a problem that contributed to the financial crisis, as investment and banking firms had their asset and capital ratios reduced causing liquidity constraints. Furthermore, valuing assets that the firm has no intent to sell at fair value can be justified, but there is no justification for using the lower exit price value.

Rather than using exit prices, we favor the IFRS definition of fair market value, which if implemented would still have resulted in significant losses to the investment firms. However, the losses would have been significantly lower than under exit pricing. FASB 157 (ASC 820) was in our opinion too aggressive in its requirement of fair value application and resulted in an exit price difference of about 10 percent. The blame placed on FASB by many banks and analysts would have been mitigated simply by not imposing the exit-pricing requirement.

An interesting question for further research is whether US financial firms would have suffered the same level of losses and write-offs under the IFRS definition of fair value and whether the use of the IFRS definition would have limited the spreading of the crisis from the subprime mortgage market to the rest of the financial market. The possibility that exit prices contributed to a bank contagion needs to be addressed and is an area for future research. In addition, a comparison of the banking crisis in the US versus Europe with a focus on the different definitions of fair value is a question that needs to be examined.

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