

DID THE "FAIR VALUES" REQUIRED UNDER GAAP AND IFRS DEEPEN THE RECENT FINANCIAL CRISIS?

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Statements of Financial Accounting Standards No. 157

Statement of Financial Accounting Standards No. 157, *Fair Value Measurements*, commonly known as "FAS 157", is an accounting standard issued in September 2006 by FASB and became effective for entities with fiscal years beginning after November 15, 2007.

FAS 157 define "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.”*

The definition is based on the *exit price* (for an asset, the price at which it would be sold (bid price)) rather than an entry price (for an asset, the price at which it would be bought (ask price)), regardless of whether the entity plans to hold the asset for investment or resell it later.

Statements of Financial Accounting Standards No. 157

FAS 157 emphasizes that fair value is market-based rather than entity-specific. Thus, the optimism that often characterizes an asset acquirer must be replaced with the skepticism that typically characterizes a dispassionate, risk-averse buyer.

FAS 157's fair value hierarchy underpins the concepts of the standard. The hierarchy ranks the quality and reliability of information used to determine fair values, with level 1 inputs being the most reliable and level 3 inputs being the least reliable.

Information based on direct observations of transactions (e.g., quoted prices) involving the same assets and liabilities, not assumptions, offers superior reliability; whereas, inputs based on unobservable data or a reporting entity's own assumptions about the assumptions market participants would use are the least reliable.

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An *orderly transaction* is a transaction that assumes exposure to the market for a period prior to the measurement date in order to allow for usual and customary marketing activities for transactions involving such assets or liabilities. From the perspective of a market participant that holds the asset or owes the liability, the decision to sell the asset or transfer the liability is a hypothetical transaction at the measurement date.

The mark-to-market accounting rule stipulates that all institutions required by GAPP to fair-value their financial assets should do so by valuing them down to the securities' exit values (current sales value).

Financial Reporting Implications of FAS 157

1. If the market is illiquid, securities will be written down to near-zero amounts thus decreasing the quantification of equity and, in the case of securities classified as part of a trading portfolio, decreasing income as well.
2. Losses or increases in the debt-equity ratios caused by write-downs typically trigger rating downgrades, which in turn automatically trigger requirements for additional capital; if capital is scarce the institution may then be faced with insolvency.
3. The use of exit-value-based fair value accounting during illiquid markets can lead to excessive asset write-downs, cause equity values to decline, and spike up prices of CDS written on the associated assets and liabilities.

Financial Reporting Implications of FAS 157

4. Quantifying financial assets at exit values rather than at DCF when markets are illiquid misleads investors, potentially leading to decisions that adversely affect resource allocation.

To illustrate the potentially adverse impact of mark-to-market write-downs when the market is illiquid, consider the announcement made by Credit Suisse:

“Credit Suisse on Tuesday, 20th, February, 2008, announced new write-downs of \$2.8 billion, in a stunning reminder of the difficulty banks face in valuing complicated financial instruments under current market conditions. In morning trading on the Swiss Stock Exchange, the bank’s shares slide 5.1 Swiss Francs, or 9 percent to 51.65 francs, or \$47.12. The “fair value” reduction of the positions is estimated at about \$2.85 billion, the bank said. Fair value pricing means a financial instrument is assigned an estimated price when no market price is readily available.”

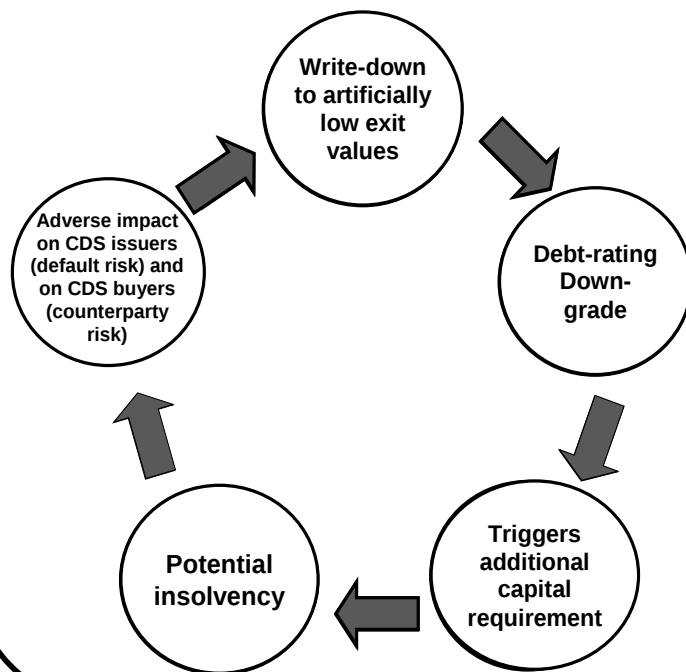
Financial Reporting Implications of FAS 157

5. The unavailability of the market price could drive down the estimated *exit* values mandated by FAS 157 to a degree that may have misled investors about the value of financial assets intended to be held to maturity. More importantly, the consequence of mark-to-exit value can be far more serious if contagion sets in.

6. The insolvency or near insolvency of institutions that are forced to write down their assets would give rise to write-downs in connected institutions. For example, institutions that wrote credit default swaps on the risky debt of the firms taking write-downs would need to write-down the value of these derivatives emanating from default risk. The insured (buyers of the credit default swaps) would then in turn need to write-down the CDS contracts to reflect the counterparty risk generated by the additional write-down-induced losses to the insurers. These additional consequent write-downs of the interlinked institutions would ignite a new round of this vicious cycle (see Figure 1).

Indeed, marking down securities to exit values can result in a profound domino-like effect on credit default swap spreads and prices of debt and equity.

Figure 1: Systemic Effects (externalities) of Exit Values



Testable Hypothesis:

Information Content of Mark-to-Market or Write-Down Announcements:

Do write-downs represent fresh news to the marketplace? if the write-downs do carry new information, *and* it is also the case that sound theoretical arguments militate against the mark-to-exit-value principle, there would be some justification in blaming the accounting rule during the recent financial crisis for aggravating what already was a dire financial crisis. Consequently, the equity market response to write-down announcements is anticipated to be negative and statistically significant.

Furthermore, write-downs lower anticipated earnings and, therefore, increase firm credit-risk as well as CDS spreads. CDS spreads are thus expected to react positively to write-down announcements.

Testable Hypothesis:

Contagion Effect: we anticipate that a write-down announcement in one institution would elicit a negative market response in a matching non-announcing institution, consistent with the contagion effect. We therefore expect both equity and CDS markets' responses to write-down announcements to be associated with negative equity returns and positive CDS spreads for a matched sample of non-announcing firms.

Illiquidity: FAS No. 157 creates a “fair value hierarchy” that distinguishes amongst three levels of value based on the inputs that are used to measure assets and liabilities and thus indirectly reflect the level of liquidity of those assets and liabilities. A negative relation is anticipated between the level of assets' illiquidity and the market reactions to write-down announcements; correspondingly, a positive relation is expected with CDS abnormal spreads.

Testable Hypothesis:

Degree of Financial Leverage:

Assets' write-downs inevitably lead to deterioration of the institutions' equity positions; this in combination with the regulatory-imposed solvency requirement, may force these institutions to dispose of assets at unfavorable prices and/or issue equity which can further depress prices and lead to additional disposals. We anticipate a negative (positive) relationship between leverage and CAR (abnormal CDS spread).

Year/ Quarter	Freq (%)	Amount \$Billions	US/Foreign		Country of Institution		Industry Classification	
			US (%)	FRN (%)	Country	Freq (%)	Industry Group	Freq (%)
2007-Q3	13 (8.28)	0.3678	11 (7.01)	2 (1.27)	Canada	14 (8.92)	Commercial Banks	104 (66.24)
2007-Q4	50 (31.85)	3.1036	35 (22.29)	15 (9.55)	Germany	3 (1.91)	Saving Institutions	6 (3.82)
2008-Q1	34 (21.66)	3.6707	20 (12.74)	14 (8.92)	Japan	10 (6.37)	Business Credit Institutions	2 (1.27)
2008-Q2	13 (8.28)	4.6707	6 (3.82)	7 (4.46)	Switzerland	11 (7.01)	Security Brokers and Dealers	15 (9.55)
2008-Q3	15 (9.55)	4.5417	10 (6.37)	5 (3.18)	UK	17 (10.83)	Insurance	26 (16.56)
2008-Q4	16 (10.19)	5.1115	6 (3.82)	11 (7.01)	USA	97 (61.78)	Offices of Bank Holding Comp.	5 (3.18)
2009-Q1	9 (5.73)	4.860	6 (3.82)	3 (1.91)	Others	5 (3.18)	Real Estate Investment Trusts	2 (1.27)
2009-Q2	6 (3.82)	0.6802	3 (1.91)	3 (1.91)	na.	na.	Others	3 (1.91)
2009-Q3	3 (1.91)	5.2867	1 (0.64)	2 (1.27)	na.	na.	na.	na
Total	157 (100)	\$506.61	97 (61.74)	60 (38.22)		157 (100)		157 (100)

Method of Analysis

We estimate the abnormal stock return around the write-down announcements using the Fama-French (1993) three-factor model as the return-generating process.

In addition to return analysis, the announcement's effect on daily relative trading volume is examined. This analysis is similar to the returns analysis, but the log-transformed relative volume replaces the daily rate of returns which is similar to procedures followed by Campbell and Wasley (1996).

Method of Analysis

To estimate abnormal changes in CDS spreads (AAS) in response to write-down announcements, we use a multi-factor model to calculate AAS, the multi-factor model is specified as:

$$R_{CDSt} = \alpha_i + \beta_1 R_{mt} + \beta_2 R_{rt} + \beta_3 R_{vt} + \epsilon_{it},$$

Where R_{CDSt} is the period t change in the level of the CDS spread for firm i , R_{mt} is the change in the CDS market index, R_{rt} is the period t return on 10-year government bond, and R_{vt} is the change in implied volatility of the stock market index. The AAS for firm (i) is the difference between the actual change and the predicted change based on this multi-factor model. Cumulative average abnormal changes in CDS spread (CAS) is calculated in the same manner as the abnormal equity returns

Results: Table 1

Out of the total number of write-down announcements of 157, 97 were made in the US and 60 in foreign countries listed on US exchanges.

In terms of the average amount of write-downs (in billions of US dollars), the fourth quarter of 2008 had the highest (\$5.11 billion) – excepting the single announcement during the third quarter of 2009 – followed closely by the first quarter of 2009 (\$4.86 billion).

Among the foreign countries whose institutions announced write-downs, the UK had the most (17) with the highest average write-down amount (\$5.852 billion) followed by Canada, Switzerland, and Japan in that order.

In terms of the distribution of the institutions taking write-downs, a majority of 104 are commercial banks, followed by 26 insurance companies, and 15 securities brokers and dealers.

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Total	157 (100)	\$506.61	97 (61.74)	60 (38.22)		157 (100)		157 (100)

Results (Table 2): Mean Median Comparison

Table 2 compares the means and medians of the variables used in our analysis across the write-down sample and the two-firm matched sample of 314 firms. The results show that:

The write-downs sample has higher degree of financial leverage, highly illiquid, and is associated with a significantly higher bid ask spread.

The write-down sample has higher Level 2 and level 3 net assets ratios suggesting that the financial assets subject to mark-to-market accounting of the write-down firms are less liquid and less amenable to objective measurement, i.e. associated with greater information risk.

Results: Table 3-Impact of Write-Downs and Contagion in Equity Markets:

The equity market reaction is negative and statistically significant. The three days CAR is highly significant at -8.22% which is consistent our prediction that write-down announcements is associated with negative valuation effect.

For the first (second) matched sample, the three days CAR is -2.61% (-2.09) and significant. This demonstrates the existence of contagion: the peers of the write-down firms suffer significant declines in their equity prices upon the announcements by the institutions recording the charges

For subsequent (relative to initial) announcements, the three-day CAR is -3.490 and it is statistically significant. This is consistent with the notion that initial announcements of write-downs, the associated credit rating downgrades, and asset devaluations instigate further write-downs that trigger significant market reactions.

Furthermore, initial write-down announcements are more of a surprise than subsequent ones; that is, a significant write-down may trigger an expectation of more to follow.

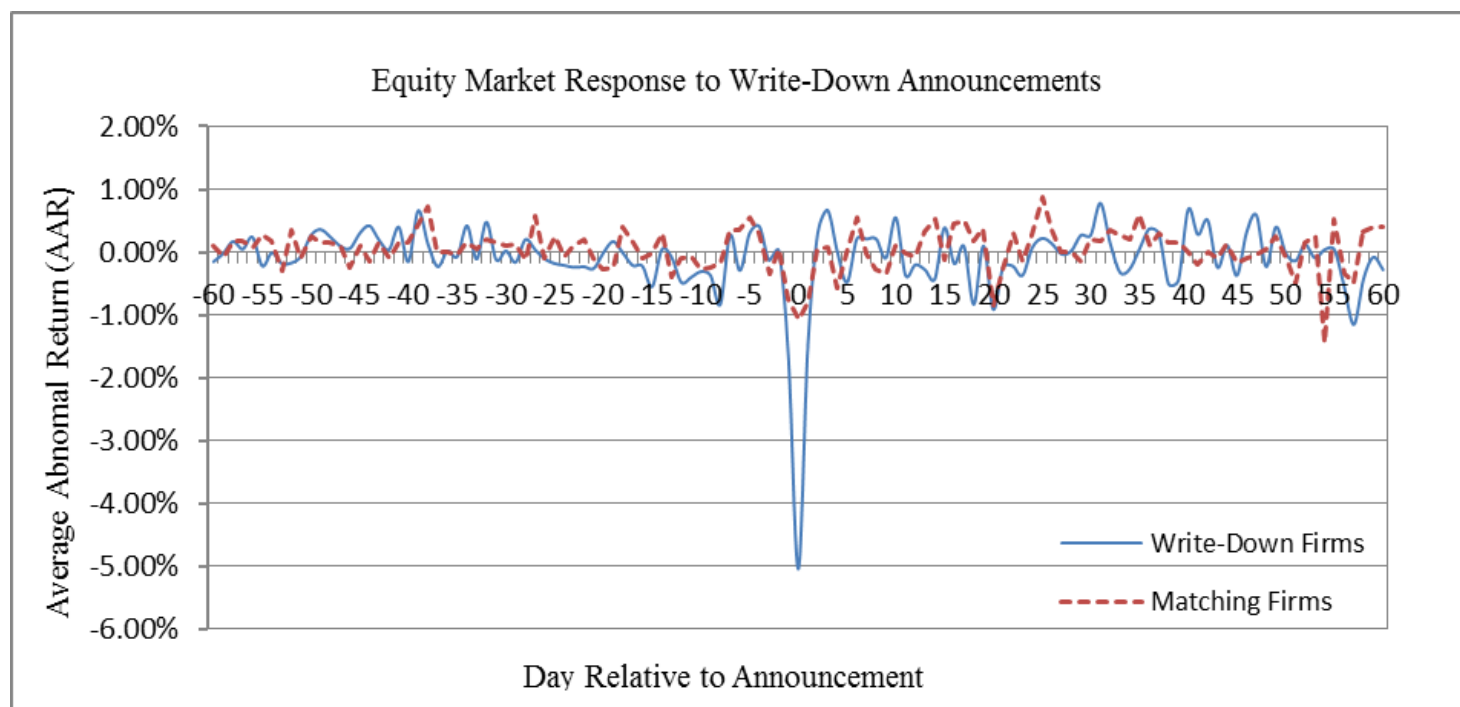


Table 5: Impact of Write-Downs and Contagion in Credit Default Swap Markets

Table 5: CDS market reaction to the 135 write-down announcements is positive and statistically significant; the three days cumulative average abnormal spread is 5.09% with a T statistic of 7.594 which is significant at 1 percent level.

For the matched sample of no-write-downs firms, we observe significant average abnormal spread; this confirms the existence of a contagion effect in both the equity and credit default swap markets and is consistent with our hypotheses.

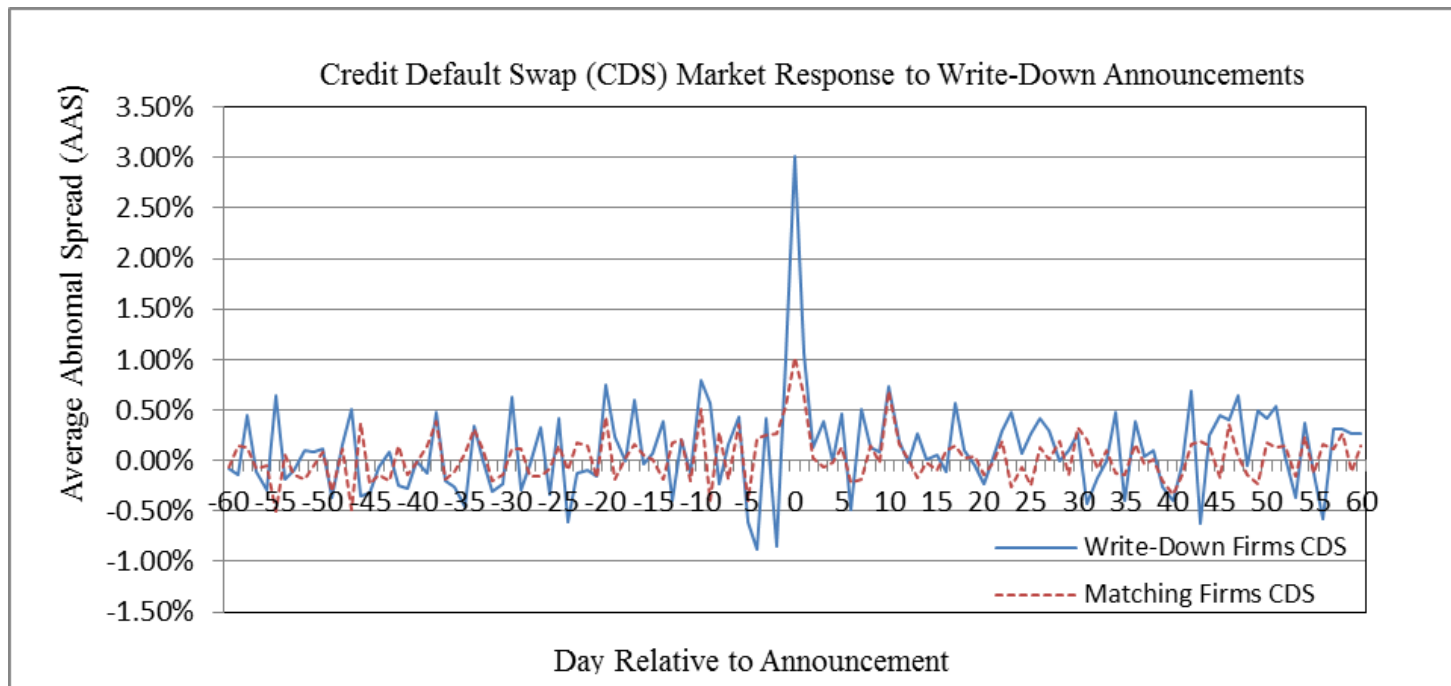


Table 6: Determinants of Equity Market Reactions

As expected, measures of illiquidity *L3NATA*, *L23NATA*, and the overall Amihud (2002) measure of illiquidity *ILLIQ* carry the expected negative coefficient and are significant. This confirms our hypothesis that the greater information uncertainties surrounding *L3NATA* and *L23NATA* exacerbate the negative reaction to write-downs.

The proportion of the write-down amount to net income (*AMNTNI*) also loads negatively and significantly suggesting that larger write-down amounts are reacted to with greater severity.

The change in rating scores (*RATINGCHG*) is positive (the lower the rating score, the higher the risk of default, the lower the market response to write-downs, and vice versa) and significant.

RATINGCC and *RATINGAA* is negative (positive) and significant, which suggest that companies with rating changes that cross the rating class and those with rating changes within the A group are more likely to be associated with (more) less negative market response to write-down announcements respectively.

Table 6: Determinants of Equity Market Reactions

CARM (the three days announcement period CAR for the matching firm) is positive as anticipated: a negative market response to a write-down announcement by one company instigates a significant negative market response to another matching firm which is consistent with the contagion effect argument.

In Model 1 the interaction variables between the amount of the write-down and asset hierarchy *INTERACT23* and *INTERACT3* are significantly negative. This suggests that the valuation of which is subjectively determined by internal models, introduce higher information uncertainty that magnifies the negative market's reaction to any dollar of assets write-downs.

INTERACT1 is not significant which reinforces the role of information uncertainty with respect to the valuation of assets: when the write-down is coupled with a high proportion of precisely measured assets, a smaller magnitude of negative reaction is observed than when the assets do not lend themselves to reasonably accurate valuations.

Table 7: Determinants of the CDS Market Reactions

L2NATA, and *L3NATA* load with significant positive coefficients. The overall measure of illiquidity *ILLIQ* and the amount of the write-down also have a significant positive effect on the spread.

The coefficients on the change in rating scores (*RATINGCHG*) and *RATINGCC* are negative (positive) and statistically significant. This suggests that the credit risk increase implied by the rating downgrade (particularly in cross rating class changes) aggravates market responses to write-down announcements.

ROE loads negatively and significantly as might be expected: increased profitability mitigates the adverse impact of write-downs on CDS spreads due to diminishing credit risk.

The interaction variables *INTERACT23* and *INTERACT3* are significantly positive, implying that the adverse impact on spread of one dollar of write-down is higher when a higher proportion of assets is not accurately measurable, presumably due to higher information uncertainty. By and large, the results confirm the hypotheses regarding the effects of illiquidity, the assets levels, and ROE on CDS spreads.

Table 8: Impact of Credit Rating

For firms with rating downgrades prior to the write-down, the write-down produced significantly more severe negative reactions, both in terms of abnormal equity returns and positive abnormal CDS spreads, than those firms without downgrades (affirmed).

Similarly, the contagion effect on the matching firms is significantly stronger when the matching firms had been downgraded.

In addition, firms in the write-down sample that crossed rating classes within a letter group (for example, from AA to A) suffered greater market reactions than those that had their rating changed within a class (such as from BB+ to BB-).

Crossing within the B group or from B to below B produces stronger abnormal equity and CDS reactions as well as contagion effects.

Conclusions

We detect significant adverse average equity return reactions to the write-down announcements, significant increases in trading volume, and significant positive abnormal CDS spread effects.

As expected, measures of illiquidity are significantly and negatively associated with cumulative abnormal returns, and significantly and positively related to abnormal CDS spreads.

Finally, both the effects on returns and CDS spreads are found to be larger at the greater levels of uncertainty surrounding assets designated level 2 and level 3 than those designated level 1.

We do in fact find evidence of a contagion effect with firm write-downs significantly affecting both the equity returns (volume) negatively (positively) and CDS premiums (positively) of peers.

Interestingly, credit rating categories and changes are important determinants of both the write-down impacts and the contagion effects.

Conclusions

This paper can be seen as having important policy implications. Mark-to-market accounting, as defined by FAS 157, has been implicated as a contributor to the financial meltdown caused by the housing crisis and the consequent write-down of mortgage backed securities and collateralized debt obligations. The evidence found in this paper of contagion effects induced by the exit valuation approach to marking financial assets to market suggests that the appropriate methodology for the fair valuation of assets and liabilities should be revisited.

Conclusions

In particular, since exit values reflect only prices received for the assets in hypothetical transactions which are unlikely to occur in illiquid markets, they do not properly reflect shareholder value. Discounted cash flows predicated on management's ability and intent to hold financial assets until maturity are a better reflection of shareholder value.

While we cannot document the potential effect of using DCF rather than exit values because of the lack of data, it is plausible that DCF will have resulted in smaller write-offs, if any, hence making an extensive contagion less likely.

End of the Presentation