The Quarterly Review of Economics and Finance 59 (2016) 83–98

Contents lists available at ScienceDirect

The Quarterly Review of Economics and Finance

journal homepage: www.elsevier.com/locate/qref

The fair value option for liabilities and stock returns during the financial crisis

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ARTICLE INFO

Article history:
Received 21 July 2014
Received in revised form 27 March 2015
Accepted 8 June 2015
Available online 2 July 2015

Keywords:
Stock returns
Financial institutions
Financial crisis
Adverse selection
Credit risk
Fair value option
SFAS 159

JEL classification:
G14
G30
G32

ABSTRACT

We analyze the stock returns following the adoption of fair value option for liabilities (FVOL) embedded in the SFAS 159 by financial institutions during the financial crisis. We find that FVOL adopters exhibit *ex post* negative abnormal returns. Moreover, we find that financially vulnerable firms are more likely to adopt the FVOL and that adopters are more likely to receive TARP bailout funds. These results suggest that FVOL adoption reveals information not priced by markets at the time of adoption, and that regulators and investors ought to better utilize private information revealed through financial reporting options.

1. Introduction

In the wake of the 2008 financial crisis, detecting early signs of financial vulnerability has become an increasingly urgent task. The events of the financial crisis provide a timely, market-wide setting for examining how managers of financially vulnerable firms respond to discretionary financial reporting opportunities. Prior studies that examine the link between financial markets, financial reporting, and financial vulnerability find managers frequently use discretion in financial reporting to "manage the flow of information to capital markets" by temporarily hiding economic underperformance (Hutton, Marcus, & Tehranian, 2009, p. 68, see also Cohen, Cornett, Marcus, & Tehranian, 2014). The fair value option for financial liabilities (FVOL) was implemented in 2007 as part of a broader fair value option facilitating a more accurate reflection of economic performance on complex hedges. However, the media accused large banks of adopting the FVOL to disguise financial vulnerability (Rapoport, 2012; Boyd, 2008). The purpose of our study is to investigate this accusation by examining *ex post* (post-adoption) stock returns of FVOL-adopting firms in the financial industry.

The FVOL is a unique and potentially informative mechanism because a firm's own credit risk affects the fair value of its liabilities. If, for example, a firm experiences an increase in credit risk, FVOL adoption results in a decrease in reported liabilities and an increase in reported earnings. However, because the option is irrevocable, a subsequent decrease in credit risk will have the opposite effect. Overall, the net effects on financial statements tend to be more positive for firms that have experienced, or expect to experience, an increase in credit risk. These changes have no direct impact on economic cash flows, but only affect reported liabilities and earnings. Nevertheless, the numbers affected are frequently used in compensation contracts that are either based directly on earnings (Guidry, Leone, & Rock, 1999) or related indirectly through stock-based compensation (Cornett, Marcus, & Tehranian, 2008; Fahlenbrach & Stulz, 2011). If managers are more informed about their firm's prospects than the market, the decision to adopt the FVOL may itself reveal private information about a firm's financial vulnerability, information that is not impounded in the market price at the time of adoption. We thus conjecture that managers of financially vulnerable firms will be more likely to adopt the FVOL, and that this vulnerability should manifest itself in the form of

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http://dx.doi.org/10.1016/j.qref.2015.06.002
1062-9769/

negative abnormal stock returns during the unfolding of the financial crisis.

We analyze *ex post* stock returns at one-, two-, and three-year horizons with a sample of financial firms starting in 2007, when the FVOL was first available, through 2010. We focus especially on 2008, the year with the highest concentration of FVOL adoption. We first use *ex ante* (pre-adoption) data to estimate a probit model and find that measures of financial vulnerability predict FVOL adoption, after controlling for proxies of firm risk, growth opportunities, and the need for fair value reporting. Following the two-stage methodology of Heckman (1979) to control for treatment effects, we estimate the inverse Mills ratio from the probit model and use it in a second stage regression with buy-and-hold abnormal return as the dependent variable and, as explanatory variables, an indicator for FVOL adoption along with other control variables. In particular, we control for the following: *ex ante* financial vulnerability measured by the expected default frequency measure from Bharath and Shumway (2008), leverage, and prior abnormal stock returns; common risk factors measured by size and the book-to-market ratio, and factors linked to financial firms' performance during the financial crisis measured by the Tier 1 capital ratio, derivatives, and loan loss provisions. We find that FVOL adoption has significant, negative explanatory power for subsequent abnormal returns.

Second, we directly study the holding-period returns of adopters and non-adopters matched on the basis of propensity scores constructed from our probit regressions for FVOL adoption (Rosenbaum & Rubin, 1983; Chava & Purnanandam, 2011). This propensity-score matching (PSM) technique provides an alternative method of accounting for treatment effects. As a robustness check, following the method in Lyon, Barber, and Tsai (1999), we match adopters and non-adopters according to industry, size, and book-to-market ratios. Both studies of the holding-period returns show that FVOL adoption leads to significantly negative abnormal returns and adopters underperform at one-, two-, and three-year horizons after adoption. We interpret these results as evidence that managers adopted the FVOL based on negative private information about their firm's financial vulnerability, and that the market did not immediately react to the signal embedded in FVOL adoption.

Because previous research finds that TARP recipients are more financially vulnerable (e.g., Bayazitova & Shivdasani, 2012), and in order to better understand our analysis of FVOL adoption and subsequent stock returns, we analyze the effect of FVOL adoption on the likelihood of receiving Troubled Asset Relief Program (TARP) bailout funds. We find that FVOL-adopting firms are more likely to receive TARP bailout funds, after controlling for financial vulnerability and other firm characteristics. Moreover, we find that link between FVOL adoption and negative *ex post* abnormal stock returns is robust to controls for receiving TARP bailout funds. We interpret our results, taken together, as evidence that FVOL adoption reveals private information managers have about their own firm's financial vulnerability.

Our study contributes to and extends several strands of literature. First, a number of accounting studies aim to determine whether SFAS 159 adopters follow the stated intent, to more accurately reflect economic performance on complex hedges by mitigating earnings volatility caused by asymmetric treatment in reporting assets and liabilities (FASB, 2007, pp. 21–22). While these studies analyze whether firms followed the FASB's aims, we are concerned with the potential signal and subsequent long-run stock returns associated with the financial reporting choice. Among the accounting studies, Guthrie, Irving, and Sokolowsky (2011) and Chang, Liu, and Ryan (2011) are most closely related to our study. They find that only a limited number of firm managers acted on incentives to manage earnings using the fair value of assets embedded in SFAS 159, and that firms doing so had a history of managing earnings or were trying to meet analyst earnings targets. These accounting studies do not, however, focus on the liability component of SFAS 159, or its link to financial vulnerability. Also, these studies only look at SFAS 159 adopters in 2007 and the first quarter of 2008.

Second, our analysis contributes to "crash risk" studies investigating the relationship between financial vulnerability, financial reporting, and financial markets. Benmelech, Kandel, and Veronesi (2010), Bleck and Liu (2007), and Jin and Myers (2006) analyze theoretical models wherein asymmetric information and incomplete contracts provide managers with an incentive and the opportunity to stockpile bad news leading to subsequent stock price crashes. Empirical studies confirm these models, finding that firm managers systematically use discretion in financial reporting to conceal information from investors (Cohen et al., 2014; Hamm, Li, & Ng, 2012; Hutton et al., 2009; Kim & Zhang, 2014; Kim, Li, & Zhang, 2011; Kothari, Shu, & Wysocki, 2009). Our study differs from and extends this research in four ways. First, our results support findings that discretionary financial reporting mechanisms can induce managers to act on private information in a manner that could comprise an early warning signal to external parties (see Bleck & Liu, 2007). Second, our results support in a unique way the findings of other studies that managers hide bad news that is typically made manifest through subsequent negative financial performance (Cohen et al., 2014; Hutton et al., 2009). FVOL adoption is more transparent than the discretionary earnings management practices examined in these other studies; also, the FVOL is unique in its tight link with a firm's own credit risk. Therefore, given our interest in adverse selection and the market's impounding information about financial vulnerability over time, we focus on long-run abnormal stock returns rather than stock price crashes or immediate stock price reactions or financial statement metrics. Third, the irrevocability of the FVOL stands in contrast to the relative flexibility of other reporting mechanisms, such as discretionary accruals. In the motivation section, we use a swaption analogy to illustrate the implications of these peculiarities and the managerial incentives at work in FVOL adoption as a financial reporting choice. Fourth, we focus on a unique discretionary financial reporting mechanism that was widely used by large financial firms at the height of the financial crisis. Because of this focus, our study establishes a novel link in the literature between these crash risk studies and studies of the 2008 financial crisis.

The third strand of literature that our analysis contributes to is comprised of studies of financial firms during the financial crisis. Cohen et al. (2014), who find that firms with a history of aggressive earnings management prior to the crisis fared worse during this period. Huizinga and Laeven (2012, p. 614) report that "banks overstate the value of distressed assets and their regulatory capital during the U.S. mortgage crisis" and "distressed banks use discretion over the classification of mortgage-backed securities to inflate their books." This evidence is consistent with our finding that financially vulnerable firms systematically used financial reporting discretion during the 2008 financial crisis. However, our study is unique in analyzing financial vulnerability during the financial crisis and financial reporting discretion on a publicly observable item directly tied to the firm's own credit risk. Demirguc-Kunt, Detragiache, and Merrouche (2013) analyze stock returns of financial firms during the financial crisis, but they focus on capitalization and leverage without considering managerial discretion in financial reporting. Tong and Wei (2011) also analyze stock returns during the financial crisis, but they focus on the financial constraints of firms in emerging markets.

The remainder of this paper is organized as follows. Section 2 motivates our study using a swaption framework and develops the empirical hypothesis. Section 3 explains our methodology and data. Section 4 presents our empirical results. Section 5 concludes and discusses implications of our study.