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Panacea, Pandora's box, or placebo: Feedback in bank mortgage-backed security holdings and fair value accounting ☆

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ABSTRACT

We examine the relation between bank holdings of mortgage-backed securities (MBS) and MBS prices. Theory suggests feedback between MBS holdings and underlying asset markets can be aggravated by mark-to-market accounting. We measure feedback by the relation between asset returns and the changes in bank MBS holdings. Consistent with the existence of feedback effects related to mark-to-market, we find that for banks with high MBS, more nonperforming loans, and lower total capital ratio, changes in bank MBS positions are positively associated with changes in MBS prices and that this relation is reduced after the April 2009 mark-to-market rule clarification. To assess the effect of feedback on shareholder value, we test whether the stock-price response of banks to the announcement of the mark-to-market accounting rule clarification is associated with the intensity of feedback behavior. We find that the stock market reaction to the rule change is more positive for banks with more MBS, higher nonperforming loans and higher pre-rule-change feedback. We also find positive bond-price reactions to the rule change. Overall, our results suggest feedback related to mark-to-market accounting had a measurable effect on shareholder value.

1. Introduction

We examine how changes in commercial bank mortgage-backed-securities (hereafter MBS) holdings relate to changes in MBS prices and how the easing of mark-to-market accounting affects this relation during the Financial Crises of 2007.[3] The purpose of this study is to understand how mark-to-market accounting influences the ability and incentives of banks to provide liquidity in debt securities markets during crises. We define feedback as an increased tendency of banks to liquidate asset holdings when they confront liquidity driven asset-price declines. We provide evidence of feedback effect in that banks are more likely to sell MBS when market prices decline. Our results also indicate that the easing of mark-to-market accounting

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[3] The period we study is characterized by market-price declines. In this context, fair-value accounting is similar to impairment accounting. Ryan (2008) notes that "…even amortized cost accounting is subject to asset impairment write-downs, and so these feedback effects likely would have been similar in the absence of FAS No. 157 and other fair value accounting standards." We use the term "mark-to-market" rather than "impairment" or "fair value" because the emphasis on fair-value accounting by standard setters has lead to controversy and a key issue in the debate surrounding fair-value accounting is the role that should be played by market prices in the determination of book values.

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rules was associated with a reduction in banks' feedback trading. However, the magnitude of these effects makes it unlikely that such feedback leads to significant economy-wide consequences.

Theory suggests that banks can be forced to sell securities when prices fall in an illiquid market (Shleifer and Vishny, 2009; Allen and Carletti, 2008; Brunnermeier and Pedersen, 2009) and that mark-to-market accounting can accentuate this "feedback" effect (Plantin et al., 2008; Allen and Carletti, 2008). When liquidity shocks depress prices, mark-to-market accounting can force banks to recognize other-than-temporary impairments on securities holdings, leading to reduced earnings and regulatory capital. Because of the possibility of regulatory intervention or because they focus on accounting performance, managers are concerned about these effects. Such concerns can prompt managers to sell securities into liquidity shocks to avoid these consequences. For example, in the Plantin et al. (2008) managers benefit by selling before feedback effects are fully priced. By doing so, they maximize earnings-based compensation. In the case of banks, easing mark-to-market accounting rules allows banks to reduce the amount of unrealized losses recognized in their income statements alleviating managers' incentives to sell.

Using banks' data between 2006 and 2009 and ABX.HE index to measure the market price of MBS, we run three categories of tests that focus on bank holdings of non-agency MBS[4]: (1) We correlate changes in banks' MBS positions with MBS returns to understand whether price declines are associated with MBS sales and examine cross-sectional variation in this correlation. The purpose of these tests is to identify whether feedback effects are related to the importance of MBS to the bank's balance sheet and bank performance. (2) We investigate whether the correlation between changes in MBS holdings of banks and MBS returns differs before and after April 2009 to understand whether the accounting-rule change was associated with diminished pressure to reduce these positions. (3) We examine cross-sectional variation in bank stock returns around four events leading up to and including the announcement of the Financial Accounting Standards Board's (FASB) April 2, 2009 decision to clarify mark-to-market requirements. Our goal in these tests is to isolate the effect of feedback on shareholder value, by relating market reactions to variables associated with the intensity of feedback prior to the rule change. We also test bank bond returns around the four events to determine if bondholders benefit from the rule change.

Three key findings are documented. First, we find a positive and significant relation between quarterly changes in banks' non-agency-MBS holdings and the liquidity component of the ABX.HE return. This result suggests that for the average bank, MBS holdings exhibit a feedback effect. Further investigation finds that certain types of banks drive the relation. It is significant for banks that have above median non-agency-MBS holdings but not for those with below median non-agency-MBS holdings. Similarly, it is significant for banks that have lower total capital ratio or higher nonperforming loans. These results suggest feedback is more pronounced when a bank exhibits weak performance and when non-agency MBS holdings are economically significant.

Second, we find that feedback trading associated with the liquidity component of the ABX.HE return is significantly reduced after 2009. Thus, the evidence indicates that the April 2009 accounting-rule clarification reduced feedback-related trading of non-agency MBS by banks.

Third, we find higher abnormal bank-stock returns on event dates related to the rule change for banks with more non-agency MBS holdings and more non-performing loans during events leading up to and including April 2, 2009, when the FASB announced the mark-to-market accounting rule change. These results suggest that shareholders of subsamples of banks associated with feedback trading benefit from the rule change. We also find positive bond-price reactions to the rule change albeit the statistical significance is moderate. These results imply that banks' bondholders benefit from the accounting rule change and we are unable to reject the null that no significant wealth transfer from bondholders to shareholders (net of any government subsidy) occurred as a result of the relaxation of the accounting rules. Furthermore, we find that banks' stock-price reaction is positively associated with feedback trading prior to the rule changes. In sum, we find evidence that the change in mark-to-market accounting rules alleviates feedback effects and these effects have measurable impact on bank shareholder wealth for banks previously exhibiting feedback effects. We conclude that regulatory forbearance and efficiency effects can jointly explain these results.[5]

We conduct a series of robustness tests. Our results are robust to the exclusion of banks receiving TARP assistance, to alternative deflator, and to the adjustments of the change in non-agency MBS holdings by OTTI. Overall, this study lends credibility to the belief that financial reporting rules have real effects. The pressure placed on the FASB to alter the valuation of distressed assets and change the accounting treatment of unrealized losses is indicative of these effects. Our tests suggest a specific consequence for a bank's trading activities.

[4] Agency MBS are those issued by Fannie Mae and Freddie Mac, or guaranteed by a government-sponsored entity (e.g., Ginnie Mae). Non-agency or "private label" MBS are not guaranteed and were subject to significantly greater uncertainty with regard to default risk during the financial crises leading to greater price variability. For example, Wells Fargo's September 30, 2008 10K shows that fair value and historical cost are similar for agency-backed MBS ($43,904M vs. $43,074M) but differ significantly for non-agency MBS ($21,033M vs. $24,582M). On July 13, 2008, the government made its tacit guarantee of agency MBS explicit when the Treasury Department announced it would seek an unlimited credit line for Fannie and Freddie. On November 25, 2008, the Federal Reserve announced a program to purchase agency MBS. As of June 30, 2010 the Federal Reserve held in excess of $1T of Fannie Mae, Freddie Mac, and Ginnie Mae securities.

[5] We define 'regulatory forbearance' as an action by regulators reducing the probability of regulatory intervention. Forbearance has two effects. First, it results in a wealth transfer from taxpayers to bank owners and creditors by permitting continued bank access to short-term credit and other government subsidies (e.g., discount window borrowing and TARP). Second, it increases the likelihood of asset substitution by the bank (e.g., Lu et al., 2011). Given these effects, regulatory forbearance should induce increased bank share prices, but its effect on bank bond prices is uncertain.