



Trading by bank insiders before and during the 2007–2008 financial crisis[☆]



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ABSTRACT

This paper sheds new light on the role bank executives played in the financial crisis. It examines whether they foresaw the poor performance of their own bank by analyzing their insider trading patterns. Insider trading during 2006 predicts stock returns during the crisis: a portfolio strategy based on insider trading information earns a risk-adjusted return of over 40% during the crisis. Further, banks with a high exposure to the housing market and banks with a low exposure exhibit different insider trading patterns starting in mid-2006, when US housing prices first decline: insiders of high-exposure banks are 20% more likely to sell stock than insiders of low-exposure banks. This pattern is more pronounced for CEOs than other insiders. However, insider trading patterns of high- and low-exposure banks do not differ before 2006. Replacing high-exposure banks by too-big-too-fail banks yields similar results. This evidence indicates that insiders of high-exposure and too-big-too-fail banks revised their assessment of their banks' investments following the reversal in the housing market.

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Introduction

The extent to which bank executives consciously took excessive risks in the run-up to the recent financial crisis is a source of considerable controversy. Much of the debate has focused on the role of bank executives' incentives in the financial meltdown, with the view that incentives led to excessive risk-taking prominent in

policy circles. Recent compensation reforms, beginning with the Dodd-Frank Act, reflect that view.

The academic literature is divided on the subject, however. On the one hand, [Fahlenbrach and Stulz \(2011\)](#) do not find strong evidence to support the notion that incentive packages contributed to the crisis. Their results indicate that CEOs were holding sizeable equity stakes even as the crisis hit, and did not reduce their ownership in 2007 or during the peak of the crisis in 2008. They conclude that CEOs, acting in the interest of shareholders, took risks that they believed the market would reward, and had no foresight of the impending crisis. On the other hand, several papers dispute the claim that poor performance in the crisis was the result of an unforeseen shock, and argue that executive compensation arrangements induced excessive risk-taking. [Bebchuk et al. \(2010\)](#) criticize the incentive structures of bank managers. They point out that the top managers of Bear Stearns and Lehman Brothers cashed out a substantial amount of options in the period prior to the crisis. [Bhagat and Bolton \(2014\)](#) also dispute the view that managers had no awareness of the large risks they were facing. They analyze the compensation structure and CEO payoffs of the 14 largest US banks and argue that managerial incentives led to excessive risk-taking. This view is also supported by [Cheng et al. \(2009\)](#), who find a positive relation between excess executive compensation and risk taking.

The analysis in this paper provides a reconciliation of the views on these studies. To that end, I develop an empirical framework

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to measure abnormal insider trading in an accurate way,¹ and relate it to how banks fared during the crisis. My paper focuses on the individual trades of bank executives and independent directors, not only yearly aggregate changes in ownership. This allows me to analyze their trading at a higher frequency than in prior work, identify changes in their trading behavior, and accurately pinpoint when their insider trading patterns changed. Although the financial sector as a whole performed poorly during the crisis, the performance of banks showed wide variation (Beltratti and Stulz (2012)). Given this heterogeneity, instead of using the selling activity or the equity holdings of the average bank executive, I look at whether executives of banks that performed poorly during the crisis sold more of their personal stakes than executives of banks that performed relatively well. Further, I link trading by bank insiders to the developments in the housing market, which played a crucial role in starting the crisis.

Given the potential concern that insider trades are motivated not only by information about the bank's prospects, but also by a number of other factors that may have been different across banks prior to the crisis, the empirical analysis controls for characteristics that have been shown to influence insider trading patterns. Here, I consider differences in the compensation structures of the banks, the existing stock and option holdings of insiders, contrarian trading, portfolio rebalancing following price increases, riskiness of the bank's stock, time-invariant bank heterogeneity, and differences in executive turnover. These variables explain up to 50% of the variation in insider trading activity.

The first main finding of the paper is that there are large differences in insider trading behavior between high- and low-exposure banks starting in 2006, when US housing prices indices first decline. During 2006, the number of insiders reducing their ownership of bank stock increases by 20% in high-exposure banks, compared to low-exposure banks. Further, insiders of high-exposure banks sell \$7 million more of their bank's stock, on average, than insiders of low-exposure banks. In relative terms, this represents an increase of 39% in the total yearly value of stock sales. These results are strongest for CEOs, followed by executives, followed by independent directors. This increase in insider sales precedes the drop in banks' stock prices and the surge in banks' CDS spreads by at least 12 months. A portfolio strategy based on 2006 insider trading information earns an annualized, risk-adjusted return of 40–60% during the crisis.

The second main finding of the paper is that there is no observable difference in insider trading behavior between high- and low-exposure banks in 2004–2005, before the US housing market weakened. These results suggest that the prescience of bank executives regarding the consequences of their policies was limited. Recent empirical evidence suggests that banks altered their policies and started taking more risk well before the onset of the crisis in 2007 (Landier et al., 2011; von Lilienfeld-Toal and Mookherjee, 2010). I find no evidence of abnormal selling activity prior to 2006. Thus, although my paper supports the argument put forward by Bebchuk et al. (2010) and Bhagat and Bolton (2014) that bank executives sold substantial amounts of stock preceding the crisis, it contrasts with their evidence regarding the timing of these sales. Specifically, my findings indicate that bankers were not perfectly aware of the risks associated with their policies right from the outset. Even so, bank managers had more than 12 months to reduce their equity positions before the market gradually learned about the subprime risk exposures of their banks' portfolios.

Too-big-too-fail (TBTF) banks are the focus of many of the regulatory reforms since the crisis. Managers of TBTF banks may expect to be bailed out by taxpayer funds if their banks enter financial distress. As a result, they are likely to choose different corporate policies and different insider trading strategies than managers who have no reasonable expectation of a bailout. Following Bhagat and Bolton (2014), I check whether insider trading patterns differ between TBTF banks and smaller (non-TBTF) banks. Sorting on TBTF status allows me to test whether executives in TBTF banks knowingly took excessive risks before the crisis and cashed out before prices fell. The results show that insiders of TBTF banks sold significantly more stock in 2006 than did insiders of non-TBTF banks. The effect is also large and significant for CEOs of TBTF banks. The increase in selling by CEOs of TBTF banks is larger than the increase in selling by other insiders of TBTF banks.

Different types of insiders may have varying levels of information about the strategies of their firms (Seyhun, 1986; Lin and Howe, 1990; Ravina and Sapienza, 2010; Cohen et al. 2012). To show that the results of the paper are not specific to a certain group of insiders, I disaggregate trades of independent directors and executive officers, and particularly chief executive officers. The economic effects are sizeable for all insider groups, and are largest for bank CEOs. In 2006, CEOs of high-exposure banks sold 1.5 percentage points more of their holdings than CEOs of low-exposure banks, a 30% increase in selling compared to all other years. The timing of stock sales in 2006 coincided with the fall in housing prices. In the first two quarters following housing price declines, insiders of high-exposure banks sold \$1.63 and \$2.66 million more stock in the open market, a relative increase of 28% and 46%, respectively. These results are stronger for CEOs of high-exposure banks who sold \$3.92, and \$2.87 million more stock in the first two quarters following housing price declines.

Executives may decrease their ownership in response not only to a decrease in expected future returns, but also in response to an increase in perceived risk. In contrast, independent directors tend to hold much smaller equity stakes, in part because they usually have no obligation to hold company stock (Bhagat and Tookes, 2012), and should therefore respond less to an increase in risk. I find that, similar to executives, independent directors also sold large amounts of stock after the housing market started to cool in 2006. While it is difficult to glean what insiders responded to, large sales by independent directors, are difficult to explain by changes in perceived risk alone.

The results of the paper are relevant to the debate regarding the origins and the unfolding of the recent financial crisis (Gorton, 2009). The evidence suggests that while bank managers regarded investments in mortgage-backed securities as profitable given the housing price growth, they altered their views regarding the profitability of these investments following the reversal in the housing market. From a broader perspective, understanding bank executives' thinking before the crisis is an important starting point for designing compensation contracts that seek to avert such failures in the future (John et al., 2000; Bebchuk and Spamann, 2010; Bolton et al., 2006, 2010; Edmans and Liu, 2011; Jarque and Prescott, 2010; Thanassoulis, 2012). The results of this paper can help inform the incentive design issue of how to restructure executive compensation packages in the financial services sector.

Placing these results in the context of other contributions to the literature, Fahlenbrach and Stulz (2011) show that CEOs did not reduce their ownership in 2007 or during the peak of the crisis in 2008. Other studies use different empirical strategies to support the view that bank managers did not foresee the crisis. Cheng et al. (2014) use data on personal home transactions of mid-level managers in securitized finance. Adebambo et al. (2015) compare insider trading in financial and non-financial firms.

¹ Based on the definition of the Securities and Exchange Commission, I refer to legal, reported trades of corporate insiders as "insider trading" (<http://www.sec.gov/answers/insider.htm>). Illegal transactions of insiders, albeit relevant in the context of the financial crisis, are not the focus of the paper.

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