



Anticipating the financial crisis: Evidence from insider trading in banks

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There is a broad discussion surrounding the excessive risk-taking by banks and whether this constitutes a reliable early warning signal for future banking problems. This column presents evidence that many top executives of US banks sold their own shares in the buildup to the Global Crisis. This trends appears to be stronger for banks with higher real estate exposure, and weaker for independent directors or middle officers. Although the top bankers in riskier banks sold more shares, thus furthering their own interests, they did not reduce bank risk exposure.

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Excessive risk-taking by banks is often followed by a financial crisis and associated with economic recession. The challenge facing policymakers and researchers is understanding why banks take on such high risks, and whether there are any ex ante indicators that can predict serious banking problems.

There are two views on banks' excessive risk-taking (Freixas et al. 2015). The first 'moral hazard' view suggests that conflicts of interest make it rational for banks to take on excessive risk. This is due to the existence of explicit and implicit bank guarantees such as deposit insurance, central bank liquidity, and government bailouts (Allen and Gale 2007, Freixas and Rochet 2008, Admati and Hellwig 2013). The bottom line is that bankers understand the risks involved but find it optimal to take excessive risks.

The second 'behavioural' view suggests that banks take on excessive risks because they neglect the possibility of extreme events (unlikely tail risks), or have overly optimistic beliefs (Akerlof and Shiller 2010, Gennaioli et al. 2012, Kahneman 2011). The bottom line of this view is that bankers may not be aware of the excessive risk that they undertake.

It remains a challenge to understand the reasons behind the excessive risk-taking behaviour exhibited by banks. In a recent paper (Akin et al. 2020), we contribute to this debate by analysing the share-purchasing behaviour of the executives at top banks, focusing on the transactions involving shares for the banks they themselves represent. We use the trading in their own portfolios to proxy their understanding of excessive risk and explore its relationship with bank performance during the 2007-2008 Global Crisis.

For our analysis, we follow the approach suggested in the insider trading literature, which focuses on insiders' use of non-public information with regards to their private trades. Since we do not have data on their private information (or any variable that is perfectly related to this), we use forward-looking variables. To the extent that insider trades are based on private information about their company (not just the insiders' need for cash), these trades will have a predictive power of the firm's future performance, such as the return during subsequent periods

Although the average bank return was very poor during the crisis, there was substantial heterogeneity in returns (riskiness) across the banking sector. Riskier banks typically demonstrate more frequent negative expected returns before the crisis, given the insiders' private information, and with weaker returns during the crisis. If bank insiders understood the risks that they were taking, and did not reduce the bank's risk exposure, we should find that, compared with bank insiders in less risky banks, insiders in the riskier group sold more shares prior to the public 'bad news' in the real estate sector (the peak and reversal in real estate prices that became publicly observed in 2006Q2). Moreover, this effect should be stronger both with the degree of bank exposure to the real estate sector prior to the crisis, and with the amount and quality of information sold by insiders (top-five executives such as the CEO and CFO versus independent directors and middle officers).



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The three predictions about insider sales in the previous paragraphs – insider sales being larger for insiders in banks with worse returns during the crisis, for insiders in banks with greater exposure to real estate, and for better-informed insiders – are shared by all models of asset trading with asymmetric information and (noisy) rational expectations. This remains the case in instances where insider selling is larger the more negative the expected return is (the more overpriced the stock is perceived) and persists the more precise the insiders' information happens to be. It is also true in models such as that of Marin and Olivier (2008), where insider trading is subject to trading constraints and can be illegal.

The choice of the measurement period (before the peak and reversal in real estate prices that became publicly observed in 2006Q2) for insider trading is based on economic reasoning and recent literature that models insider trading prior to crisis periods (periods of large price corrections or crashes). In particular, in Marin and Olivier (2008), insiders face trading constraints (even implicitly) such as not selling beyond some point that could be perceived as misaligning the insider's incentives or that could alert other members of the firm, such as the Board. It is also notable that these individuals are aware that insider trading is illegal when executed in possession of non-public material information. In equilibrium, a large price correction is preceded by large sales in a period relatively far in the past, and no sales in the period immediately prior to the crash. As a result, based on the model outlined by Marin and Olivier (2008), we conjecture that under the hypothesis of anticipating bank insiders, we should expect unusually high sales in the period immediately preceding 2006Q2 and no unusual sales between this point (the start of the real estate crash) and the start of the financial crisis in 2007.

We find that top-five executives' sales of shares in the period prior to the peak and reversal in housing prices predict bank performance during the financial crisis. However, the sales in the period immediately before the crisis (between the peak and reversal in housing prices and the start of the financial crisis) are not related to the bank crisis performance.

Furthermore, if bank insiders understood the risks they were taking on, not only should we find that bank insiders in the riskier banks sell more shares, but effects should be stronger both with higher bank exposure to the real estate sector prior to the crisis and with insiders who have better information. We find that the effects are insignificant for independent directors' and middle-officers' sales of shares. This contrasts with the behaviour pattern for top-five executives, for which the estimated effect is significant both statistically and economically. We also find that the impact of pre-crisis top-five executives' sales on bank performance during the crisis is stronger for banks with higher pre-crisis exposure to the real estate sector.

For banks with higher-than-average real estate exposure, we find that an increase of one standard deviation of insider sales leads to a 13.33 percentage point drop in stock returns during the crisis period, which accounts for almost one-third (32%) of the total drop in the return of these banks. Our results are not only driven by overall measures of exposure to real estate, but also to real estate in the areas with higher real estate growth (i.e. in 'bubbly' areas).

Finally, we further investigate the link between bank insiders' sales before April 2006 and bank-level risk-taking (leverage and real estate exposure) and pay-out policy (dividends) immediately after the real estate price peak. We find no reaction in any of these variables, even when controlling for variation in insider sales across banks. This suggests that the insiders of riskier banks (as executives in their banks) did not react differently to the insiders of the other banks in terms of risk-taking and pay-out policy.

In summary, our research provides robust evidence that the sales by bank insiders with access to more precise information on their own bank's risk-taking (and with executive responsibilities in the case of top-five executives) can predict future bank returns during the crisis. The results are consistent with those bank insiders being aware of the high risks their banks were taking (and selling before the crisis).

From a supervisory perspective, our results suggest that supervisors and policymakers should use the sales of top-tier management staff in banks as an early warning signal of potential excessive risk-taking in banks. But once bankers are aware that this measure is being used, it may lose its predictive power (Goodhart's law).

These results also have public policy implications, especially for the recent prudential policy measures on both sides of the Atlantic. Our evidence is consistent with agency problems in the banking industry being an important driver of risk-taking. Our results support the idea that the recent policy initiatives requiring higher bank capital (including Basel III), or macroprudential policies around the world (Freixas et al. 2015, Jiménez et al. 2017), may be useful for limiting excessive bank risk-taking. If high risk-taking in banks was exclusively due to behavioural reasons, then some of the new prudential policies providing better ex ante incentives for bankers would not matter significantly. They would, however, be useful ex post as a post-crisis capital buffer, for example.

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Moreover, our results may also yield policy implications for insider trading regulation in banking institutions, particularly the FSB-developed Principles of Sound Compensation Practices and Implementation, as well as in relation to several proposals on board oversight, variable versus fixed salary schemes, and stock options. The ability to engage in insider trading (selling shares of their own bank when they anticipate that their excessive risk-taking may materialise) may exacerbate conflicts of interest.

Banning trading by bank insiders may result in less risk-taking by banks and operate as a (partial) substitute for bank capital regulation or macroprudential policies. But banning trading by bank insiders on these grounds would not be fully justified, as there are many other important costs and benefits to consider.

Our finding that bankers acted in their own self-interest (by selling shares), but did not do anything in the bank's interest (by not reducing bank exposure to real estate), also has policy implications. We suggest several explanations for this finding, but ultimately the result is that no banker has an incentive to deviate from his current behaviour. It appears that the costs of calling the market too early (which perhaps even include the firing of the banker and the end of his career as a banker), seem to outweigh the benefits associated with correctly timing the market (a salary increase in the current and/or future years).

In this context, reports issued by the central banks and other agencies on building up risks and vulnerabilities in the financial system may play a key role, as they will serve as a justification for the deviation of some bankers at an early stage. Other bankers may follow, which will drastically ameliorate the severity of the crisis on the banking system.

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