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Safer ratios, riskier portfolios: Banks' response to government aid[☆]

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ABSTRACT

Using novel data on bank applications to the Troubled Asset Relief Program (TARP), we study the effect of government assistance on bank risk taking. Bailed-out banks initiate riskier loans and shift assets toward riskier securities after receiving government support. However, this shift in risk occurs mostly within the same asset class and, therefore, remains undetected by regulatory capital ratios, which indicate improved capitalization at bailed-out banks. Consequently, these banks appear safer according to regulatory ratios, but show an increase in volatility and default risk. These findings are robust to controlling for credit demand and account for selection of TARP recipients by exploiting banks' geography-based political connections as an instrument for bailout approvals.

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1. Introduction

The financial crisis of 2008–2009 resulted in an unprecedented liquidity shock to financial institutions in the U.S. (Gorton and Metrick, 2012) and abroad (Beltratti and Stulz, 2012). To stabilize the banking system, governments around the world initiated a wave of capital assistance to financial firms. Many economists and regulators argue that this wave altered the perception of the government safety net (Kashyap, Rajan, and Stein, 2008) and created a precedent that will have a profound effect on the future behavior of financial firms. At the forefront of this debate is the effect of the bailout on bank risk taking (Flannery, 2010), since risk taking, coupled with inadequate regulation (Levine, 2012), is often blamed for leading to the crisis in the first place. This debate has broad policy implications, since the relation between government intervention and bank risk taking is at the core of financial system design (Song and Thakor, 2011). This paper studies whether and how the recent bailout affected risk taking in credit origination and investment activities of U.S. banks.

Our empirical analysis exploits an economy-wide liquidity shock during the 2008–2009 financial crisis, which simultaneously affected an unusually large cross-section of firms and resulted in a bailout of hundreds of firms. In particular, we study the effect of the Capital Purchase Program (CPP), which invested \$205 billion in U.S. financial institutions, becoming the first and largest initiative of the Troubled Asset Relief Program (TARP). Using hand-collected data on the status of bank applications for federal assistance, we observe both banks' decisions to apply for bailout funds and regulators' decisions to grant assistance to specific banks. This setting allows us to account for selection of bailed firms and to study the risk taking implications of both bailout approvals and bailout denials. Our risk analysis spans three channels of bank operations: (1) retail lending (mortgages), (2) corporate lending (syndicated loans), and (3) investment activities (financial assets).

Our empirical analysis begins with the retail credit market. By examining both approved and denied loan applications for nearly all residential mortgages in 2006–2010, our empirical strategy distinguishes the supply-side changes in bank credit origination from the demand-side changes in potential borrowers. In difference-in-difference tests, where the first difference is between banks that were granted and denied government assistance, and the second difference is from before to after the bailout, we find no significant effect of CPP on the volume of credit origination at approved banks, compared to their denied peers. We also find no significant change in the distribution of borrowers between approved and denied banks. Our main finding is that after being approved for federal assistance, banks shifted their credit origination toward riskier mortgages. This result holds whether we compare approved banks to denied banks, to non-applicant banks, or to all CPP-eligible banks. In economic terms, we find that relative to banks that were denied federal assistance, approved banks increased their origination rates on riskier mortgage applications (measured by the loan-to-income ratio) by 5.4 percentage points.

Our findings are qualitatively similar for large corporate loans. Using a similar difference-in-difference framework, we find a robust shift by approved banks toward higher-yield, riskier loans. After being approved for federal assistance, banks increased credit issuance to riskier firms, as measured by borrowers' cash flow volatility, interest coverage, and asset tangibility, and reduced credit issuance to safer firms. Altogether, our findings for both retail and corporate loans suggest that the bailout was associated with a shift toward higher-yield loans at approved banks rather than an expansion in credit volume.

We find a similar increase in risk taking by approved banks in their investment activities. After being approved for federal assistance, banks increased their investments in risky securities, such as non-agency mortgage-backed securities, and reduced their allocations to low-risk securities, such as Treasury bonds. For the average bank approved for federal assistance, the total weight of investment securities in bank assets increased by 9.7% after CPP relative to unapproved banks. Moreover, approved banks increased their allocations to risky securities, while, at the same time, reducing their allocations to lower-risk securities relative to unapproved banks. Overall, our analysis at the micro-level indicates a robust increase in risk taking in both lending and investment activities by banks approved for government assistance.

After providing micro-level evidence on the drivers of risk taking, we examine aggregate bank risk. First, we show that federal capital infusions improved capitalization levels of approved banks, with their average Tier-1 capital ratios increasing by approximately 160 basis points relative to unapproved banks. Second, we find that the reduction in leverage at approved banks was more than offset by their shift toward riskier assets. The net effect was a marked increase in the aggregate risk of approved banks compared to observably similar unapproved banks. This result holds robustly whether bank risk is measured by earnings volatility, stock volatility, market beta, or distance to default. For example, after the bailout, approved banks show a 20.9% increase in default risk (measured by the z-score) and a 15.3% increase in beta relative to unapproved banks.

We provide evidence that the shift in risk taking at approved banks is attributable to the treatment effect of government support rather than selection of approved firms. First, we explicitly control for proxies of the declared CPP selection criteria. We also capture any time-invariant heterogeneity between approved and unapproved banks via bank fixed effects. Second, we use propensity score matching of approved and unapproved banks based on firm fundamentals to allow for various functional forms of the relation between bank characteristics and risk. Finally, we use an instrumental variable approach, which relies on banks' geography-based political connections as an instrument for bailout approvals. In particular, we show that banks located in election districts of House members who served on key finance subcommittees during the development of CPP were more likely to be bailed out, while being virtually indistinguishable from unconnected banks based on other observable characteristics *ex ante*. We obtain similar results across these specifications.

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