



## Loan growth and bank valuations



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### ABSTRACT

This paper examines the relation between loan growth and bank valuations. Using publicly-traded bank holding companies in the US from 2002:Q1 to 2013:Q4, we find that faster loan growth is associated with higher bank valuations. This finding holds both in normal times and during the financial crisis of 2007–2009. When we divide banks into several size groups, we find that faster loan growth is associated with higher valuations at small and medium banks, but not at large banks. Further analyses show that large banks (1) have a lower ratio of loans to total earning assets, (2) have a higher ratio of nonperforming loans to total loans, and (3) are more likely to engage in securitization activity. These characteristics help explain why the relation between loan growth and bank valuations differs at small and large banks.

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### 1. Introduction

Loans are the main earning assets for banks, and the interest rates on loans are usually higher than those on securities. For example, loans accounted for 52% of all the assets held by US banks at year-end 2013. The average interest rate on loans was 4.7%, while the average interest rate on securities held by banks was only 2.3%<sup>1</sup>. One may thus conjecture that, if a bank is able to grow its loan portfolio at a faster pace, its valuations will increase.

But loan growth can occur for a variety of reasons. For example, a bank seeking to grow its loan portfolio may maintain a liberal credit policy: reducing collateral requirements, weakening covenants, and providing loans to borrowers rejected by other banks (see, e.g., Rajan, 1994; Dell'Ariccia & Marquez, 2006; Foos, Norden, & Weber, 2010). In such cases, faster loan growth needs not lead to higher valuations.

In this paper, we empirically examine the relation between loan growth and bank valuations. Our sample contains quarterly observations on a large number of publicly traded bank holding companies (“banks”) in the US from 2002:Q1 to 2013:Q4. We use Tobin’s  $q$  as a measure of bank valuations (e.g., Laeven & Levine, 2007). To measure loan growth, we use the quarterly growth rate of total loans and leases adjusted for unearned income (e.g., Kupiec, Lee, & Rosenfeld, 2014).

Using the full sample, we find a positive relation between loan growth and bank valuations. This positive relation is economically large and statistically significant and holds after controlling for various bank characteristics such as size, capital, asset diversification, and profitability, as well as time fixed effects.

We perform a variety of robustness checks. For example, we (1) use alternative measures of valuations and loan growth, (2) control for bank fixed effects, and (3) use an instrumental variable approach to address the concern that loan growth and bank valuations could both be affected by an omitted variable. Throughout, we find a positive relation between loan growth and bank valuations.

Calomiris and Nissim (2014) show that the relations between many bank characteristics and bank valuations have changed during the financial crisis of 2007–2009. To see whether the positive relation between loan growth and bank valuations holds under different market conditions, we run separate regressions for the periods before, during, and after the financial crisis of 2007–2009. We find that faster loan growth is associated with higher valuations in each period.

Small and large banks differ along many dimensions (see, e.g., Demsetz & Strahan, 1997; Berger & Udell, 2002; Berger & Bouwman, 2013; Bertay, Demircuc-Kunt, & Huizinga, 2013; Zemel, 2015). To see whether the relation between loan growth and bank valuations differs at small and large banks, we divide banks in our sample into several size groups, and run regressions separately for each group. Interestingly, we find that faster loan growth is associated with higher valuations at small and medium banks, but not at large banks.

To understand the reasons behind this result, we first show that large banks differ from small and medium banks in the following

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<sup>1</sup> These numbers are calculated using data from the Statistics on Depository Institutions, available on the Federal Deposit Insurance Corporation website.

ways. First, large banks have a lower ratio of loans to total earning assets. Second, large banks have a higher ratio of nonperforming loans to total loans. Finally, large banks are more likely to engage in securitization activity. We then show that these differences help explain why faster loan growth is associated with higher valuations at small and medium banks, but not at large banks.

Our paper is related to the literature that examines the consequences of loan growth. A robust finding from this literature is that faster loan growth is often associated with higher loan losses in the future (e.g., Clair, 1992; Keeton, 1999; Salas & Saurina, 2002; Jimenez & Saurina, 2006; Hess, Grimes, & Holmes, 2009; Foos et al., 2010; Amador, Gomez-Gonzalez, & Pabon, 2013). In addition, Foos et al. (2010) show that loan growth has a negative impact on the risk-adjusted interest income. Amador et al. (2013) show that excessive loan growth over a prolonged period of time reduces bank solvency.

Our paper is also related to the literature that examines the valuation effect of bank loan announcements on the lending banks. Kracaw and Zenner (1996) find that the announcements of highly leveraged transactions result in positive wealth effects for the lending banks. Mosebach (1999) finds that the announcements of large lines of credit also result in positive wealth effects for the lending banks. In contrast, Waheed and Mathur (1993) document that bank stock prices react negatively to the announcements of foreign lending agreements. Megginson, Poulsen, and Sinkey (1995) find that bank stock prices react negatively to the announcements of loans to Latin American borrowers. Kang and Liu (2008) consider a sample of bank loan announcements in Japan. They find that the abnormal returns for borrowing firms are significantly positive, but those for lending banks are sometimes significantly negative. They also find that there is often a wealth transfer from Japanese banks to borrowing firms.

Our paper is closely related to Zemel (2015). She finds a positive stock market reaction to loan growth in high earnings banks, but a negative stock market reaction to loan growth in low earnings banks. She also finds that the information content of loan growth depends on bank characteristics and loan types. Finally, she shows that loan growth, when taken in conjunction with earnings, predicts future nonperforming loans. Our results corroborate those of Zemel.

The remainder of this paper is organized as follows. Section 2 outlines some theoretical considerations. Section 3 describes the data. Section 4 presents the main results and robustness checks. Section 5 concludes.

## 2. Theoretical considerations

### 2.1. The relation between loan growth and bank valuations

There are strong reasons to expect a positive relation between loan growth and bank valuations. First, during the recovery and expansion phases of a business cycle, there is strong demand for bank loans (e.g., Clair, 1992; Keeton, 1999). Companies borrow more in order to undertake larger investments, and households borrow more in order to increase consumption. Moreover, business upturns improve borrowers' net worth, and thus increase their debt capacities (e.g., Bernanke & Gertler, 1989; Bernanke, Gertler, & Gilchrist, 1996). More loans translate into higher profits for banks, boosting their valuations.

Second, banks are subject to capital requirements. A large literature shows that banks cut back on lending when they perceive they are at risk of violating capital requirements (e.g., Bernanke & Lown, 1991; Furlong, 1992; Brinkmann & Horvitz, 1995; Peek & Rosengren, 1995; Gambacorta & Marques-Ibanez, 2011). Carlson, Shan, and Warusawitharana (2013) find that capital has

a positive impact on lending during the financial crisis of 2007–2009. Berger and Bouwman (2013) find that capital helps to increase market shares for small banks at all times and for medium and large banks during banking crises. Thus, all else being equal, if a bank achieves faster loan growth because it has higher capital, its valuations should be higher.

Finally, regulators examine the safety and soundness of banks and assign ratings to banks. Banks with low ratings are often subject to various constraints that may affect their ability to lend. For example, Peek, Rosengren, and Tootell (2003) find that banks with the lowest regulatory rating shrink their loans dramatically. Curry, Fissel, and Ramirez (2008) find that the impact of regulatory ratings on loan growth is period-specific as well as loan category-specific. Kupiec et al. (2014) find that regulatory ratings have a strong impact on loan growth. Thus, all else being equal, if a bank achieves faster loan growth because it has higher regulatory ratings, its valuations should be higher.

There are, however, situations in which faster loan growth is associated with lower bank valuations. Rajan (1994) presents a model in which bank managers have incentives to manipulate the bank's current earnings. An easy way to do so is for the bank to alter its credit policy. For example, the bank can reduce collateral requirements, weaken covenants, or simply provide loans to very risky borrowers. The bank receives fees and interest income from these newly issued loans, yet there is no immediate increase in loan losses because borrowers rarely default during the first year after they receive a loan (see, e.g., Clair, 1992; Berger & Udell, 2004). Thus, the bank is able to increase its current earnings at the expense of higher loan losses in the future<sup>2</sup>. Rajan's model suggests that managerial concerns for current earnings may motivate a bank to adopt a credit policy that is too liberal. In practice, such a credit policy can increase loan growth but reduce bank valuations.

Jensen (1986) analyzes the agency costs of free cash flow. He argues that managers have incentives to grow their firms beyond the optimal size. This is because growth increases the resources under managers' control and their compensation. If left unconstrained, managers may invest in low-return projects rather than returning free cash flow to shareholders. In the banking industry, loan growth is a form of investment (Megginson et al., 1995; Houston & James, 1998). Thus, the agency costs of free cash flow may cause a bank to grow its loan portfolio beyond the size that maximizes shareholder value.

Dell'Ariccia and Marquez (2006) present a model of a credit market in which banks have private information about the credit-worthiness of some borrowers ("known" borrowers) but not others ("unknown" borrowers). Banks can choose tight lending standards to avoid financing those borrowers that are rejected by their competitors. When the proportion of unknown borrowers in the market is high (e.g., during the expansion phase of a business cycle), however, banks may loosen their lending standards. This results in a banking system with a deteriorated loan portfolio and lower profits. The model by Dell'Ariccia and Marquez suggests that there are periods in which faster loan growth is accompanied by lower bank valuations.

### 2.2. Relationship lending and transaction lending

Different banks may use different lending technologies. While some banks emphasize relationship lending, others engage largely in transaction lending. Under relationship lending, loan approval is based on information collected from a variety of sources such as

<sup>2</sup> A number of studies show that faster loan growth is often followed by higher loan losses several years later (e.g., Clair, 1992; Keeton, 1999; Salas & Saurina, 2002; Jimenez & Saurina, 2006; Hess et al., 2009; Foos et al., 2010; Amador et al., 2013).

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