

# Banking Recovery Could Be Vulnerable to Interest Rate Increases

By Kenneth J. Robinson

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**A**fter being hit hard by the financial crisis and resulting recession, the banking industry is bouncing back amid a prolonged low-interest-rate environment. Still, even as profitability rose last year and asset quality problems continued to recede, questions remain about what will happen when interest rates return to more normal levels, challenging bank performance.

The traditional business of banking can result in a mismatch in the maturity structure of assets and liabilities. For example, banks may offer 30-year mortgages or long-term loans to businesses and fund these loans with short-term deposits that either have no explicit maturity, such as savings accounts, or maturities that might last five years or less, such as certificates of deposit. This type of asset and liability structure exists because customers often want long-term loans but relatively quick access to their savings.

Because of this mismatch, banks are exposed to what is known as interest rate risk. In particular, an institution with more long-term assets than liabilities is vulnerable to rising interest rates. In this scenario, the earnings on assets—generally loans—may not respond as rapidly as the cost of funds—deposits—leading to declining profits. Banks can cushion the impact of rising rates in several ways, including with various hedging strategies.

Available data on banks' balance sheets indicate that the maturity structure of assets has lengthened considerably and has not been offset with a corresponding lengthening among liabilities. As such, the "gap" facing banks has increased. The good news is that banks appear to have sufficient capital to mitigate the potential impact of higher interest rates.

## The Recovery Continues

In 2013, banks based in the Federal Reserve's Eleventh District earned a return on assets of 1.14 percent, up from 1.09 percent in 2012.<sup>1</sup> Across the U.S., banks recorded a return of 1.09 percent in 2013, up from 1.01 percent the previous year. Eleventh District banks continued their recent performance trend, outperforming their counterparts across the nation, although the differential narrowed (*Chart 1*). Since the financial crisis, the biggest contributor to profitability gains has been a reduction in provision expense—the amount banks set aside to cover potential bad loans.

Asset quality, as measured by the noncurrent loan rate, also strengthened. After peaking in 2009 across the country and in 2010 in the district, the noncurrent loan rate has declined steadily and now stands at 2.6 percent for banks nationwide and 1.3 percent at district banks. The largest category of noncurrent loans has been residential real estate nationally, while commercial real estate made up the largest group in the Eleventh District.<sup>2</sup>

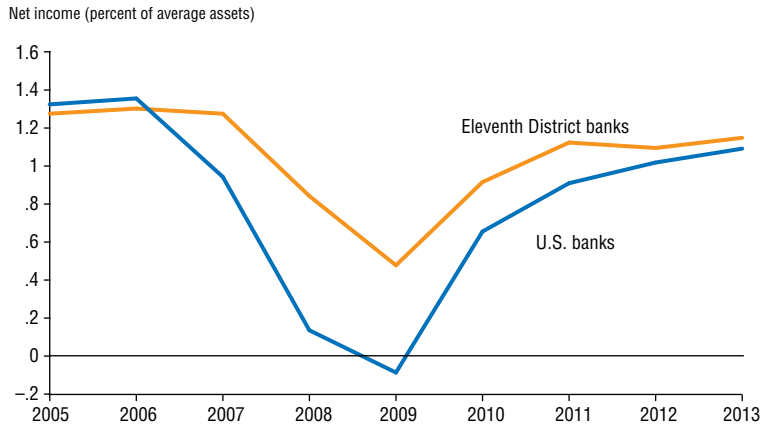
Despite the good news regarding profitability and asset quality, banks have struggled with a traditional core element of their business. Their net interest margin—the interest earned on assets minus the interest paid on deposits—has continued to decline (*Chart 2*). As a result, banks face the challenge of finding alternative sources of revenue.<sup>3</sup>

## Reaching for Yield?

One potential strategy to boost revenue is lengthening the maturity structure of assets. Bonds and loans with longer-term maturities tend to offer a higher return to compensate for less liquidity and greater risk. The current low-interest-rate environment could make such a "reach for yield" particularly

**Chart 1**

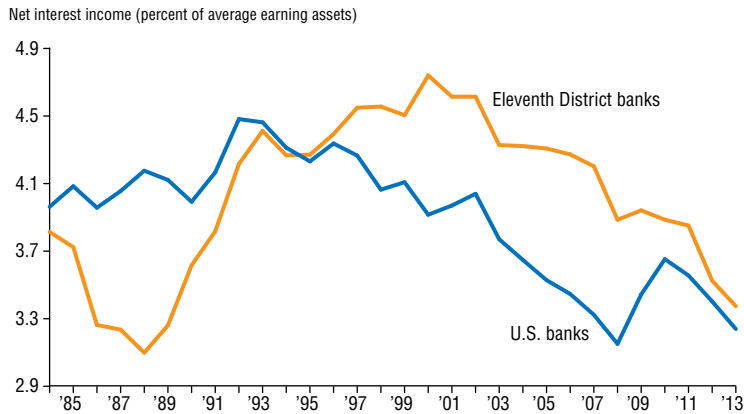
**Bank Profitability Continues to Improve**



SOURCE: Report of Condition and Income from the Federal Financial Institutions Examination Council.

**Chart 2**

**Downward Trend in Net Interest Margin Persists**



SOURCE: Report of Condition and Income from the Federal Financial Institutions Examination Council.

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appealing. In fact, it appears that banks have lengthened the maturity structure of their asset portfolios.

In the Eleventh District, holdings of loans and securities that mature or reprice in five years or more stand at almost 27 percent of assets (*Chart 3*). This is up from the recent low of 15 percent before the onset of the crisis and 21 percent in 2003, when interest rates were also quite low.<sup>4</sup>

However, U.S. banks as a group have not lengthened their maturity structure appreciably. This is because the largest institutions heavily influence the national figures. The biggest institutions often turn to alternative sources of revenue that preclude the need to reach for

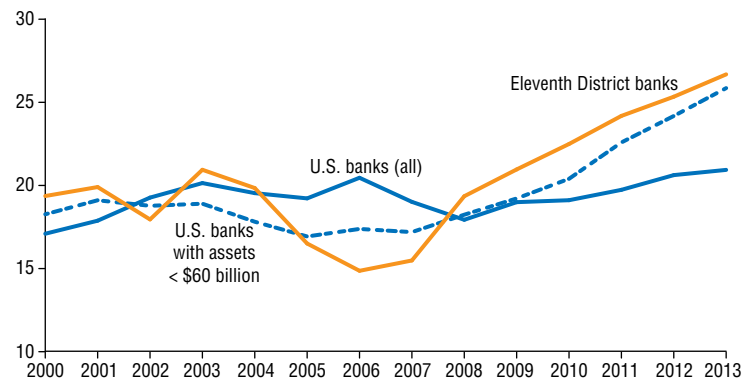
yield. Nationally, those banks with less than \$60 billion in assets—a group that resembles the makeup of the industry in the Eleventh District—recorded a significant increase in the maturity structure of their asset portfolios.

On its face, this lengthening could indicate a significant increase in interest rate risk. However, institutions have also recorded a large increase in nonmaturity deposits, defined as checking accounts, other types of transactions accounts, savings deposits and money market deposit accounts (*Chart 4*). These “core” deposits, as they are sometimes known, represent a typically stable source of funds, suggesting there may not be a mismatch between assets and liabilities.

### Chart 3

#### Banks Increase Their Long-Term Assets

Long-term assets (percent of total assets)



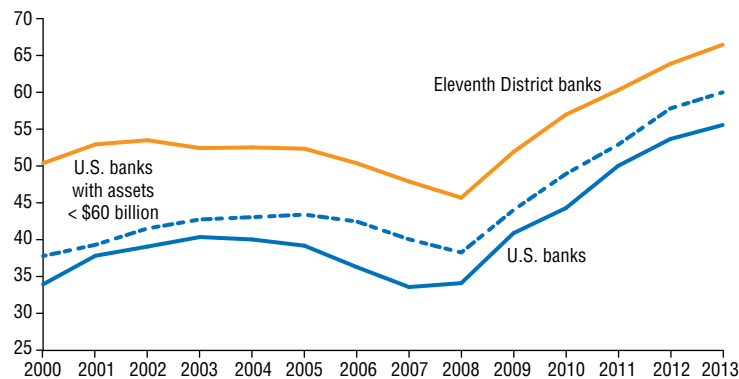
NOTE: Long-term assets are loans and securities that mature or reprice in five years or more. Data are adjusted for structural changes involving recent relocations of banks into the district.

SOURCE: Report of Condition and Income from the Federal Financial Institutions Examination Council.

### Chart 4

#### Banks' Nonmaturity Deposits Also Increase

Nonmaturity deposits (percent of total assets)



NOTE: Nonmaturity deposits are demand deposits, other transaction accounts, money market deposit accounts and other savings deposits. Data are adjusted for structural changes involving recent relocations of banks into the district.

SOURCE: Report of Condition and Income from the Federal Financial Institutions Examination Council.

The low-interest-rate environment gives rise to uncertainty about the stability of these deposits, however. The 2002–03 period was also a time of very low interest rates. When rates began rising in 2004, banks experienced a mild decline in nonmaturity deposits relative to assets.<sup>5</sup> If banks lose nonmaturity deposits when rates begin increasing, institutions' earnings could be squeezed as they attempt to replace these funds while maintaining asset portfolios that don't adjust as rapidly.

#### The Gap Measure

The structure of assets and certain

deposit liabilities at community and regional banks suggests that exposure to interest rate risk might have increased. The extent of the maturity mismatch between assets and liabilities offers a clearer picture.

The gap measure that banks report is a "net over three-year position"—defined as loans and securities that reprice in more than (over) three years minus their liabilities that reprice in more than (over) three years, expressed as a percent of assets. A positive value indicates a greater proportion of long-term assets than long-term liabilities. When interest rates increase, a bank with a positive gap

would see its liabilities reprice faster than its assets, contributing to losses.

What is not captured by the gap measure is a bank's ability to offset its interest rate risk through hedging activities. Institutions can use instruments such as interest rate swaps and other derivatives to counteract exposure to rising rates.

To ascertain the possible extent of interest rate risk, it's useful to concentrate on community banks, those institutions with assets of less than \$10 billion. Community banks are less likely to engage in hedging activity than their larger counterparts, reflecting the less-complex structure of the smaller entities' balance sheets as well as the costs associated with hedging. Thus, the gap measure can be a more meaningful indicator of interest rate risk for community banks than for larger institutions.<sup>6</sup>

The gap measure for community banks nationally and in the Eleventh District indicates that banks' exposure to increases in interest rates rose from 2003 to 2013 (Chart 5).

During the period of low rates in 2003, community institutions nationwide and those based in the district experienced similar patterns of repricing their assets and liabilities. By the end of last year, the gap measure increased for every decile, and every grouping of community banks in the Eleventh District recorded a larger gap than their counterparts nationwide. In other words, the gap increased across the industry, and district banks were more mismatched in 2013 than were their peers nationally, leaving them potentially more exposed to rising interest rates.

#### Cushion Against Losses

While rising rates are a concern for bankers and supervisors alike, certain factors can mitigate the impact. Apart from hedging, retaining capital as a cushion against losses is another way to offset rate risk.

Community banks generally hold sufficient capital, and 98 percent of them were classified as well capitalized at year-end 2013.<sup>7</sup> Well-capitalized institutions recorded equity capital ratios—capital as a percentage of assets—of 11.2 percent nationally and 10.4 percent districtwide.

A pronounced negative relationship between capital and the gap measure could provoke some notice. In other words, are those banks that are the most mismatched in terms of their gap measure also those with the lowest capital ratios? A comparison of equity capital ratios at community banks nationwide and the gap measure at year-end 2013 reveals that this was not the case (Chart 6).

Community banks nationwide had a slightly negative and statistically significant relationship.<sup>8</sup> The good news is that equity capital ratios at the end of last year were relatively robust across the distribution of banks. Those in the decile with

the largest gap recorded average equity capital to asset ratios of 9.8 percent in the Eleventh District and 10.4 percent in the U.S. Those in the decile with the smallest gap recorded capital ratios of 10.8 percent in the district and 11.1 percent nationally.

### On the Radar

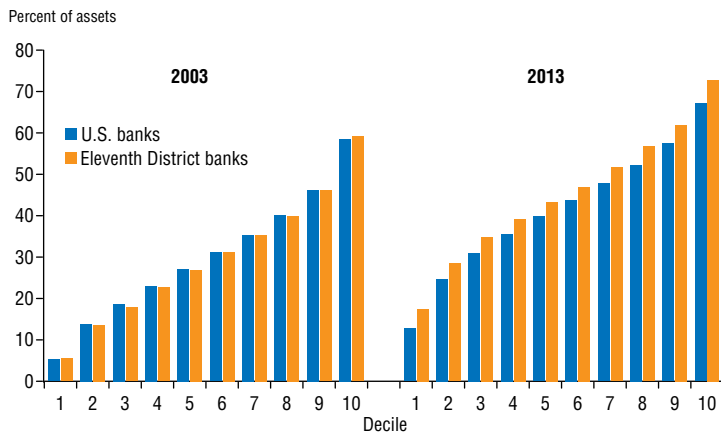
The banking industry's recovery from the financial crisis continues apace. Profitability and asset quality have steadily improved.

The long-run decline in net interest margins coupled with the current low-interest-rate environment has likely

contributed to banks seeking out higher returns by lengthening the maturity structure of asset portfolios and, thus, often boosting exposure to rising interest rates. This exposure appears to be greater than what was observed in the prior period of low interest rates but is mitigated by sufficient amounts of capital. So in spite of the relatively good banking industry news over the past few years, supervisors remain vigilant to potential risks.

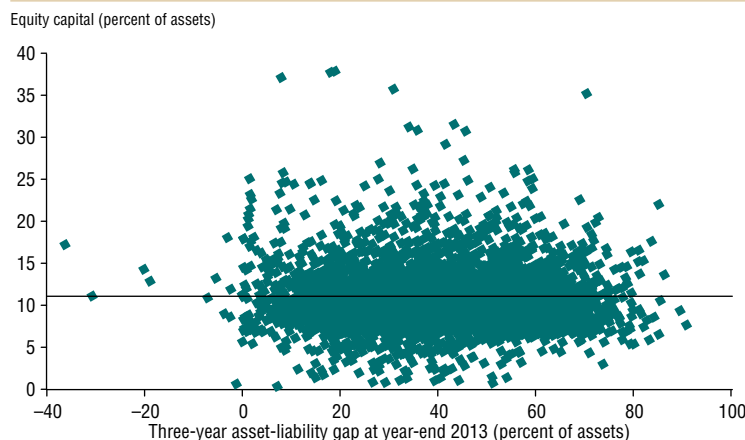
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**Chart 5** Asset/Liability Gap Increases from 2003 to 2013 for Community Banks



NOTE: Values for each decile are the mean values of the gap measure for banks within the group. Decile rank based on mean gap measure. Community banks are defined as those institutions with assets less than \$10 billion.  
SOURCE: Uniform Bank Performance Report from the Federal Financial Institutions Examination Council.

**Chart 6** Gap and Capital not Closely Related at U.S. Community Banks



NOTE: Community banks are defined as those institutions with assets less than \$10 billion.  
SOURCE: Uniform Bank Performance Report from the Federal Financial Institutions Examination Council.

### Notes

- <sup>1</sup> The Eleventh Federal Reserve District consists of Texas, northern Louisiana and southern New Mexico.
- <sup>2</sup> See "Bank Performance Strengthens," by Kelly Klemme, Federal Reserve Bank of Dallas *Financial Insights*, vol. 3, no. 1, 2014, for more evidence on the role of provision expense in earnings. Noncurrent loans are loans past due 90 days or more and loans on nonaccrual status. Data are adjusted for structural changes involving recent relocations of banks into the district.
- <sup>3</sup> Banks were able to maintain strong levels of profitability before the crisis despite continued declines in the net interest margin mostly by lowering their noninterest expense.
- <sup>4</sup> In 2003, the federal funds rate fell to 1 percent.
- <sup>5</sup> From the end of 2004 until 2007, banks' nonmaturity deposits increased 11.4 percent while their assets increased 33.1 percent. Some of this relative decline in nonmaturity deposits to assets could have found its way into money market funds. Over this same period, retail money market funds grew 20.5 percent while institutional money market funds increased 41 percent.
- <sup>6</sup> See "Interest Rate Risk Management at Community Banks," by Doug Gray, Federal Reserve System *Community Banking Connections*, Third Quarter, 2012. In addition to concentrating only on community banks, also excluded were credit card banks and bankers' banks, newly chartered banks (those less than five years old) and banks with equity capital ratios greater than 40 percent.
- <sup>7</sup> To be classified as well capitalized, a bank must have a total risk-based capital ratio of at least 10 percent, a tier 1 risk-based capital ratio of at least 6 percent and a leverage ratio of at least 5 percent.
- <sup>8</sup> In regressions of the equity capital ratio on the gap measure, the coefficient is small and negative (-0.009) but statistically significant at the 1 percent level for U.S. banks. This estimated relationship implies that a 1 percentage point increase in the gap is associated with a 0.9 basis point decline in the equity capital ratio. (100 basis points equal 1 percentage point.) The relationship is statistically insignificant when considering only Eleventh District banks. In 2003, the relationship is statistically insignificant for both bank groups.