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Interest Rate Risk Management at South Dakota Banks



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With higher inflation rates in the 1960's and 1970's, the phasing out of the regulation of interest rates, the elimination of state usury laws, and the 1979 change in operating procedures by the Federal Reserve, interest rate fluctuations increased significantly. As interest rates rose and fell, dollar denominated assets and liabilities became subject to sudden and corresponding changes in net worth or capital. Such value changes are greater for long term securities than for short term securities. Banks, with most of their assets and liabilities valued at fixed dollar amounts and relatively narrow capital bases, are particularly susceptible to such interest rate risk. In addition to the effect on capital, banks must offer higher returns to retain deposits when interest rates rise. If these cannot be matched by earning a higher rate of return on longer term assets, the bank's profitability will be damaged. Therefore, bank managers have found it necessary to carefully monitor their asset and liability portfolios and their exposure to interest rate risk.

To measure the degree to which a bank's portfolio may be exposed to interest rate risk, two tools are frequently used. One is called gap and measures the extent to which the maturity and riskiness of the assets fails to match that of the liabilities. Minimizing the gap insulates net income from unexpected changes in interest rates. Since many securities such as loans are retired periodically rather than at maturity, using maturity in calculating the gap may not accurately measure the expected life of a security. Duration is the measure of the average life of a security. Duration gap management is used to insulate net worth from fluctuations in interest rates by matching the duration of assets and liabilities.

The results presented here are based on an interest rate risk management survey of commercial banks in rural agricultural communities conducted in June 1986. Survey questionnaires were sent to 131 South Dakota banks with asset sizes ranging from \$10 million to over \$50 million. Sixty surveys were returned, a response rate of forty-six percent.

Survey Results

Ninety percent of the responding banks were concerned about the significant effects of interest rate risk. Of these, fifteen percent were primarily concerned about the effect on both net income and capital. Eighty-five percent were concerned about the effect on net income or investment, but not both. The portfolio composition of individual banks may explain why some are mainly concerned about the effect on net income or capital, and others the effect on both income and capital.

Several management methods can be used to limit a bank's exposure to interest rate risk; e.g., matching maturities of groups of assets and liabilities; shortening the maturity of assets; making variable rate loans; changing the share of securities in total assets; reducing the loan to deposit ratio; increasing the capital to asset ratio; and hedging in the financial futures or options markets. These methods can be used in several combinations depending on bank management goals and implementation costs.

To limit their exposure to interest rate risk, seventy-five percent of the responding banks report matching maturities of groups of assets and liabilities and shortening the maturity of assets. Approximately thirteen percent have not matched maturities but have shortened the maturity of their assets. Five percent match maturities but have not shortened the maturity of their assets.

Sixty-two percent of the banks that responded had not changed the share of securities in total assets nor reduced their loan to deposit ratio. Eighteen percent reduced the loan to deposit ratio, but did not change the share of securities in total

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assets. Banks' target ratios of loans to deposits ranged from 40% to 75%. Sixty-seven percent of these banks changed the share of securities in total assets but have not reduced their loan to deposit ratio. The target share of assets invested in securities ranged from 15% to 60%. These results imply that a majority of banks preferred changing the share of securities in total assets rather than reducing their loan ratio. Some banks (about 10%) used both methods; i.e., changing the share of securities in total assets and reducing the loan to deposit ratio. The target share of assets invested in securities of these banks ranged from 25% to 50%, and the target ratio of loans to deposit ratio was within the 45% to 60% range. Another method used to limit the exposure of a bank to interest rate risk was to increase the capital to asset ratio. Fifty-seven percent of the responding banks used this method and their target ratio ranged from 7.5% to 20%.

Hedging their exposure to interest rate risk in financial futures or option markets had not been used by any of the responding banks. This may be because the costs of learning, obtaining information, and efficiently using these tools are too great for the benefits available to a small bank.

Fifty-eight percent of the banks responding used gap to calculate their exposure to interest rate risk. This indicates that these banks were primarily concerned about the effect on net income. Five percent of the banks used only duration gap to calculate their exposure to interest rate risk implying a primary concern for the

impact bank capital. Twenty-two percent made use of both the gap and duration gap reflecting a balanced concern for both net income and capital.

Conclusion

Most banks are concerned about the effects of interest rate risk. This concern has led all the banks to adopt management methods to limit their exposure to interest rate risk. The effect on net income is of greater concern to more banks than the effect on capital. This may be because rural South Dakota banks have traditionally been conservatively capitalized.

Management methods widely used by banks are: matching maturities of groups of assets and liabilities; shortening maturities of assets; reducing loan to deposit ratios; and increasing capital to asset ratios. The majority of banks recognize and use gap to calculate exposure to interest rate risk with few using duration gap or both methods. Lack of use of duration gap may be because it is a more complicated and costly statistic to calculate and adopt, requiring more information and training of management personnel.

Survey responses showed that most banks in rural agricultural communities of South Dakota have similar asset/liability management policies regardless of asset size or location in the state. This implies a similarity of approaches to interest rate risk management in the banking industry regardless of the variation of industry and agriculture across South Dakota.