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# Equity Returns to Small Bank Investors

James P. Bedingfield, Robert D. Johnston, and A. J. Stagliano

Unlike most other small firms, there is an excellent record of the initial equity capitalization details of banking organizations when they are formed, as well as subsequent changes, because of the chartering application and reporting requirements of the banking regulatory authorities. By combining these records with the actual approved acquisition price of small banks, the return received by small bank investors from the time of organization through acquisition is determined. For small banks organized after 1972 and acquired from 1980 and through 1988, yearly mean rates of return ranged from 23.07 percent to 10.49 percent. Generally, these returns exceed S&P 500 returns for similar holding periods, but on a Sharpe Performance Index risk adjusted basis were inferior to S&P portfolios in six of nine holding periods and consistently weaker by the same measure to small company investment on the NYSE for this entire period. This inferior risk adjusted performance was unexpected.

One of the classic questions in small firm finance has been and remains, "What is the cost of equity capital for these firms?" Due to the nature of the formation process of most small firms, it is difficult, if not impossible, to track returns on equity investment from the firm's initiation. However, because of the chartering application and reporting requirements of banking regulatory authorities, there is an excellent record of the initial equity capitalization details of banking organizations when they are formed. Even though these firms are rarely publicly traded immediately following their formation, banking organizations must report subsequent changes in their capital structure to the regulatory authorities. Thus, unlike most other new/start-up organizations, there is a continuous record of equity capital changes.

Even though the required equity investment for a new commercial bank is substantial relative to many other small businesses, and the importance of bank holding companies in most markets has continued to expand, from

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1976 through 1987 an average of 252 new banks were chartered each year [1]. While there may be several objectives for acquiring bank stock, evidently the equity investors in these new banking organizations believed they would be adequately compensated for the capital they committed to these enterprises. The objective of this research project is to determine the return earned on the equity investments in new (small) banks. This determination is made for those banks chartered from 1972 through 1986 which were either subsequently acquired by, or merged into, another bank or banking organization from 1980 through 1988.

The issue of actual returns earned on small bank investment has not been directly addressed in the literature. Related work might be classified into the following three areas: performance of small banks, characteristics of acquired banks in mergers/acquisitions, and returns earned by bank holding companies given an acquisition. Arshadi and Lawrence's [2] recent paper covers the first of these areas. Stephen Rhoades' [6] 1986 study addresses the second and Desai and Stover's [3] work examines the third area.

The following section of this note provides an explanation of the data sources and approach employed. The results of this effort along with some commentary on the results is then presented. The last section includes limitations and conclusions.

## DATA AND APPROACH

Following the approval of the formation of a bank, this new organization must file call reports of condition with the regulatory agencies. The first of these reports provides an initial record of the amount of paid-in equity capital invested by the bank's shareholders. Subsequent changes in capital, including dividends paid, must also be reported. Banks submit call reports four times a year, thus providing a continuous record of changes in capital as well as distributions to shareholders. Since the vast majority of bank stocks are not publicly traded, there is not an ongoing market assessment of the performance of most banks. It is only when there is a reported market transaction in a bank's shares that analysis beyond accounting measures of return/performance is possible.

Before a bank may be acquired by or merged with another banking organization, the transaction must be approved by certain regulatory authorities. The approval review process requires a formal application for merger or acquisition. As part of an individual application the effective terms proposed are defined. Golembe Associates, Incorporated of Washington, D.C., a financial institutions publishing and consulting firm, reviews all of these applications which are filed and publishes the key elements of the proposed transaction. From *Golembe Bank Expansion Quarterly* [4], a file containing all the approved mergers and acquisitions from 1980 through 1988 with reported values paid for the acquired banks was developed. This file includes the individual banks and/or banking organizations by name, location, approval date, and acquisition terms, totaling 1,968 combined mergers and acquisitions during these nine years. Those 278 banks formed after 1972 and merged or acquired from 1980 through the end of 1988 for which there is a record of the acquisition price are the banking organizations upon which this study is based.

For these sample banks the ratio of book value of equity to the price paid for the bank's stock was determined from the Golembe publication. Given the book value of equity reported on the most recent call report prior to the acquisition, it is possible to determine the market value of the acquisition/merger received by the bank's investors. With this final element, the actual returns earned, *ex post*, from start up through acquisition/merger of the individual sample banks are determined as a standard internal rate of return (IRR) calculation. Specifically, the initial paid-in equity capital is taken from the first call report filed and treated as a cash outflow from the investors. Subsequent paid-in capital transactions, as reported from the call reports, are also treated as cash outflows/inflows in the specific year of the payments. Cash dividends paid by the banks are recognized as inflows to investors in the respective years paid with the price received at buy out/acquisition as the final cash inflow to investors.

Of the 278 banks identified, 11 were not included in the analysis. Two were deleted because the approved applications were withdrawn before the actual merger was undertaken. Two other banks began operations and were acquired in the same year, within two months in one instance. For one bank, there is a three year period for which no year-end equity capital is reported on the call report tapes even though the bank continued to operate. Another acquired bank, whose name from the Golembe publication could not be matched with a bank from the call report file, was also deleted. Finally, there were five banks for which subsequent changes in paid-in equity capital were so extraordinary, both positive and negative changes, that the authors concluded that there must be data tape errors for these five banks.

By location, 183 of the 267 sample banks were concentrated in the following four Federal Reserve Districts: Fifth (Richmond), Sixth (Atlanta), Seventh (Chicago), and Eleventh (Dallas). One hundred two of these acquisitions occurred in the states of Florida, Illinois, and Texas. The average initial paid-in equity capital was highest ($2.045 million) for those banks acquired in 1980, whereas, the average dollar value of acquisition was greatest for the 1987 sample banks at $7.254 million. Table 1 presents these mean equity capital financial data by year.

**Table 1**
**Mean Equity Capital Data by Year of Acquisition**
**(in millions of dollars)**

| | *Initial Equity*[1] | *Final Equity*[2] | *Buy-Out Ratio*[3] | *Acquisition Cost of Equity*[4] |
|---|---|---|---|---|
| 1980 | $2.045 | $3.101 | 2.15 | $6.667 |
| 1981 | 1.163 | 2.419 | 1.94 | 4.693 |
| 1982 | 1.094 | 1.937 | 1.75 | 3.390 |
| 1983 | 1.188 | 1.986 | 1.54 | 3.058 |
| 1984 | 1.199 | 2.041 | 1.64 | 3.347 |
| 1985 | 1.419 | 2.550 | 1.68 | 4.284 |
| 1986 | 1.379 | 2.912 | 2.32 | 6.756 |
| 1987 | 1.751 | 3.818 | 1.90 | 7.254 |
| 1988 | 1.431 | 2.185 | 1.67 | 3.649 |

*Notes:* [1] At time of formation.
[2] Year-end book value before acquisition.
[3] Dollars per book value of final equity.
[4] Final Equity Capital times the Buy-Out Ratio.

## RESULTS

Table 2 summarizes the number of acquisitions, mean returns, and the standard deviation of these returns by both the year of acquisition and the year of formation. There were significantly more acquisitions in the period from 1981 through 1984, 65 percent of the total, than in the other years. As might have been expected, most of the acquired banks had been established in the initial years, 1972 through 1975. By year of purchase, returns ranged from a high of 23.07 percent for the 15 banks in 1980 to a low of 10.49 percent for the ten 1988 acquisitions. In the major acquisition years of 1981-1985, this range was narrower from 11.94 percent (1984) to 19.39 percent (1981).

For this study there are 108 possible unique holding periods by year. The 267 acquisitions are representative of 83 of these periods; 23 of which have returns with only one acquisition for the specific holding period. Obviously holding period returns based on a single acquisition should be viewed with caution. As might have been expected, the unique holding periods with one or two acquisitions generate both the highest returns (66.89 percent, 1982-1983) and the lowest returns (-16.80 percent, 1982-1988). By holding period length, the higher returns are for the shorter periods of one to three years, with more modest returns for longer periods. Table 3 summarizes these returns by length of holding period. For this table it may be noted that slightly more than half of the acquisitions were of banks that were purchased seven to ten years after they began operations.

**Table 2**
**Small Bank Equity Mean Returns:**
**Summary Data by Year Acquired**
**and Year Established**

| *Year Acquired* | *Sample Size** | *Mean Return* | *Standard Deviation* |
|---|---|---|---|
| 1980 | 15 | 23.07 | 14.87 |
| 1981 | 48 | 19.39 | 15.33 |
| 1982 | 46 | 14.90 | 11.79 |
| 1983 | 34 | 15.61 | 19.05 |
| 1984 | 45 | 11.94 | 8.77 |
| 1985 | 30 | 13.52 | 15.72 |
| 1986 | 17 | 17.41 | 13.24 |
| 1987 | 22 | 17.01 | 11.79 |
| 1988 | 10 | 10.49 | 25.62 |
| *Year Established* | *Sample Size** | *Mean Return* | *Standard Deviation* |
| 1972 | 38 | 15.62 | 10.68 |
| 1973 | 55 | 14.10 | 7.70 |
| 1974 | 39 | 15.13 | 12.57 |
| 1975 | 33 | 16.31 | 11.72 |
| 1976 | 22 | 14.78 | 11.54 |
| 1977 | 17 | 12.00 | 13.87 |
| 1978 | 12 | 13.28 | 28.97 |
| 1979 | 13 | 19.30 | 15.57 |
| 1980 | 10 | 6.44 | 12.78 |
| 1981 | 3 | 14.03 | 16.51 |
| 1982 | 13 | 19.26 | 31.84 |
| 1983 | 5 | 29.46 | 4.67 |
| 1984 | 5 | 37.28 | 20.90 |
| 1985 | 1 | 22.05 | — |
| 1986 | 1 | 62.82 | — |

*Note:* * Total Sample Size: 267

While these small bank equity returns provide some additional information about this particular industry segment, of further interest is the question of how these holding period returns compare to the other alternatives available to equity investors in these banks. Since these returns are developed as holding period returns, comparisons with the Ibbotson Associates' [5] S&P 500 and Small Company Stock returns series for the same holding periods were conducted. To consider these returns on a risk adjusted basis, the Sharpe Index [7] of portfolio performance was calculated for hypothetical portfolios by holding period for each of three return series. Table 4 presents these Sharpe indices values and a comparative ranking based

**Table 3**
**Small Bank Equity Returns by the Number of Years from Establishment to Acquisition**

| *Number of Years Held* | *Sample Size** | *Mean Return* | *Standard Deviation* |
|---|---|---|---|
| 1 | 3 | 60.61 | 46.95 |
| 2 | 16 | 25.66 | 16.12 |
| 3 | 13 | 29.05 | 19.53 |
| 4 | 15 | 10.67 | 16.80 |
| 5 | 17 | 19.18 | 17.75 |
| 6 | 16 | 7.35 | 11.87 |
| 7 | 35 | 15.93 | 15.12 |
| 8 | 36 | 15.08 | 9.39 |
| 9 | 40 | 12.68 | 10.68 |
| 10 | 25 | 11.88 | 8.50 |
| 11 | 13 | 15.60 | 4.93 |
| 12 | 14 | 13.85 | 8.41 |
| 13 | 12 | 16.50 | 12.33 |
| 14 | 8 | 12.13 | 7.05 |
| 15 | 4 | 9.83 | 7.18 |

*Notes:* * Total Sample Size: 267

upon these values. For 1980 through 1982 small bank portfolio investors achieved stronger risk adjusted performance than S&P 500 portfolio holders. This is not unexpected as, by definition, these were new bank enterprises without operating histories and no assured marketability for their stock. Financial risk theory requires higher returns for the lack of marketability alone. Subsequent to 1982, these hypothetical small bank portfolios were underperformers relative to the S&P 500. This relatively poor performance is inconsistent with theoretical expectations.

For each year, the portfolios of small company stocks achieved stronger risk adjusted returns than these small bank stock portfolios. As the Small Company Stock series represents the smallest fifth by total market value of the firms listed on the NYSE, all with virtually no marketability risk, this weak performance by small bank stock portfolios is not consistent with financial risk premia expectations.

## LIMITATIONS AND CONCLUSIONS

The results presented here do begin to provide additional information about actual returns earned by investors in small banks. In terms of these results,

**Table 4**
**Comparison of Sharpe Performance Indices**
**Small Bank, S&P 500, and Small Company Equity Portfolios**

| | *Small Bank Sharpe Index* | *S&P 500 Sharpe Index* | *Small Company Sharpe Index* |
|---|---|---|---|
| 1980 | 1.0403 | 0.6863 | 1.6937 |
| 1981 | 0.6973 | −0.2333 | 2.4063 |
| 1982 | 0.5089 | 0.4412 | 2.6615 |
| 1983 | 0.3417 | 0.9231 | 3.6296 |
| 1984 | 0.3010 | 1.0000 | 3.2500 |
| 1985 | 0.2748 | 1.4722 | 2.8000 |
| 1986 | 0.6805 | 1.5714 | 1.8644 |
| 1987 | 0.7557 | 1.8621 | 1.2131 |
| 1988 | 0.1011 | 2.3704 | 1.5636 |

**Comparative Sharpe Performance Index Rankings**

| | *Small Bank Sharpe Index* | *S&P 500 Sharpe Index* | *Small Company Sharpe Index* |
|---|---|---|---|
| 1980 | 2 | 3 | 1 |
| 1981 | 2 | 3 | 1 |
| 1982 | 2 | 3 | 1 |
| 1983 | 3 | 2 | 1 |
| 1984 | 3 | 2 | 1 |
| 1985 | 3 | 2 | 1 |
| 1986 | 3 | 2 | 1 |
| 1987 | 3 | 1 | 2 |
| 1988 | 3 | 1 | 2 |

there are several limitations that should be noted. First, most of the 83 unique holding period samples are too small to evaluate individually their statistical significance as representative of a population. Certainly, conclusions based on individual unique holding periods would be tenuous. Similarly, modern portfolio theory assumes that variability in returns may be reduced to the systematic risk level by holding a naively diversified portfolio. A review of the sample sizes indicates that most of the individual holding periods do not include sufficient firms to have diversified away the non-systematic risk in these returns.

The assumptions employed for the cash flow timing in determining the individual IRRs also impose some minor limitations. The initial paid-in capital is treated as if it were committed at the beginning of the year in which the bank was established. In fact, banks are not established just at the beginning of the year as this assumption implies. Bank equity capital is actually paid in before a bank opens its doors for business. The combination of both of these factors may have influenced the results reported either positively or negatively. The cash dividend payments, subsequent paid-in capital contributions, and the final buy out/acquisition price payments are treated as year-end cash flows. In reality, some of these payments were certainly received/made before year end.

An additional factor to consider is that many of the investors in small banks are also officers and/or directors. To the extent that these officer/director investors received compensation for institutional functions beyond their economic value, such benefits would not have been recognized in the returns reported here.

The results of this effort do begin to define the returns to one industry segment of small business equity investors. For the time frame of this study, on aggregate small bank investors earned average returns of 15.77 percent, which generally were higher than they would have earned on the S&P 500 for similar holding periods. However, on a Sharpe indexed risk adjusted basis returns to small bank investors were inferior to S&P returns in six of the nine holding periods and never as strong as the Small Company Stock returns series reported by Ibbotson Associates for the same holding periods. One possible conclusion from these performance indices is that on average small bank investors were undercompensated for the holding periods in this study.

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