

**FINANCIAL MANAGEMENT DECISION-MAKING  
AT A COMMUNITY BANK: A CASE STUDY OF TWO BANKS**

**John S. Walker, Kutztown University of Pennsylvania  
Henry F. Check, Jr., Kutztown University of Pennsylvania**

---

**ABSTRACT**

The effective use of financial leverage is fundamental to sound financial management, and no industry exemplifies leverage's importance more than banking. Commercial banks typically have returns on assets (ROA) in the range of one to two percent and sometimes less, and they use equity multipliers of five to 20 times to leverage that modest return into returns on equity (ROE) of around 15 percent.

But suppose a bank is *over-leveraged* or *under-leveraged*? How does that affect the stockholders' rate of return? What can a bank do to adjust its leverage position?

This case study examines two banks with leverage problems that are polar extremes. The effect on the banks' stock returns is examined and corrective measures are proposed.

---

**Introduction**

This case study looks at two community banks, both in the asset range of less than \$5 billion. Each bank is at the opposite end of the spectrum in terms of capitalization, which provides an interesting contrast for a case study. At the time of our consulting work, Lowlander Bank had an equity-to-assets ratio (E/A) close to five percent, while Highlander Bank had an E/A ratio around 20 percent.<sup>1</sup> Both banks want to manage their equity in such a way that will maximize shareholder value over the long term. We organize the case study into two parts. First, in Part I, we examine the financial management issues at Lowlander Bank and then in Part II we examine the issues at Highlander Bank.

The management and board of each bank were focused on particular issues that led them to seek outside consulting. In this case study, we present the issues and outline the analysis done to assist these two banks. Both banks were interested to hear an outside perspective regarding their stock performance. Specifically, Lowlander Bank was interested in our comments regarding recent performance, while Highlander Bank was focused on

the future, as it had just completed an initial public offering (IPO) of stock.

Part I of this case study looks at how to value a community bank. Often community banks are publicly traded, but the volume of shares exchanged is modest compared to large banks, such as Bank of America. Management teams at community banks often seek an outside opinion on the "value" of their bank. When valuing a bank, there are valuation techniques that mirror those used in other industries. However, there are unique considerations when an analyst tries to find the intrinsic value of a bank, and these will be discussed in this case.

Part II of this case study looks at capital management when a bank has "excess" capital. There are several strategies to consider—each with its own implications. Finance students are taught that capital structure doesn't affect firm value. Yet, in banking, the use of a high degree of leverage is needed to generate a solid ROE, so capital structure does matter.

**Part I: Lowlander Bank's Issues**

The management and board at Lowlander Bank have thought for several years that the market value of their bank trails its intrinsic value. Moreover, they

---

<sup>1</sup> The names of both banks have been changed and some of the numbers have been altered to conceal their identities.

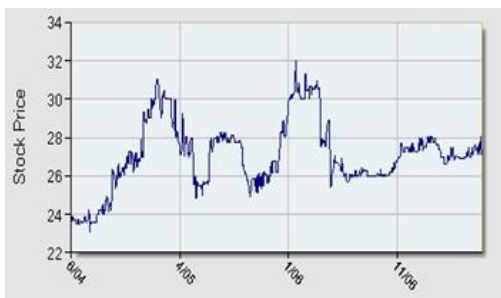
were concerned that this undervaluation by the market has been detrimental to shareholders. They wanted an outside financial expert to help them answer these questions:

1. Is their stock trading below its intrinsic value? If so, by how much?
2. Has this been detrimental to shareholders in terms of stock performance?
3. If we believe the stock is undervalued, what might explain this?

### Stock Performance

How do you fairly evaluate a firm's stock performance? People tend to have short memories and will focus on the most recent performance. Often, we focus on price appreciation, forgetting that dividends paid are an important and, in many cases, a significant component of return. Lowlander Bank schedules board retreats every three years to discuss certain strategic issues, including stock performance. Therefore, management's request to us was to examine the bank's stock performance for the prior three years. Exhibit 1 shows the stock price performance for Lowlander Bank over the three years prior to the meeting with management in the 3Q07. For the three-year period, the stock price was up 14.77 percent, but the trend was anything but steady.

**Exhibit 1: Three-Year Stock Price Performance**



Source: SNL Financial

Exhibit 1 provides limited information. There are two questions that need addressing when assessing the bank's stock performance. First, what is a "fair" timeframe for comparison? Is it one year, three years, five years, or a longer period? Investment professionals will often assert that an investor's

timeframe should be at least 5-10 years if he plans to invest in equities. We know that stocks can exhibit dramatic volatility, so returns over short periods can be very good or very poor. Yet, when returns for longer periods are considered, equities generally do better than any other asset class, such as bonds and cash-equivalents. Therefore, we suggested to the bank that evaluation of their stock should be over a longer timeframe, such as five years.

In addition to selecting a suitable timeframe, the second question that needs to be addressed is how to select an appropriate benchmark. If a student scores a 65 percent on an exam, has he performed poorly? If the average score is 75 percent, then a 65 percent is not a good score. However, if the average is 50 percent, then a 65 percent is quite good. Stock performance, like exam grades, is relative. Lowlander Bank is accustomed to comparing their stock to the S&P 500, as shown in Exhibit 2. For the five years shown, the bank's stock (top line) is up 86.18 percent on a cumulative basis. This cumulative return far exceeds the 51.88 percent gain by the S&P 500 (bottom line). When the board first considered the prior three years, the stock performance appeared lackluster. Yet, when we stretched the interval to five years and inserted the S&P 500 for comparison, frowns turned to smiles around the board table.

**Exhibit 2: Five-Year Stock Price Comparison to S&P 500**



Source: SNL Financial

While the comparison to the S&P 500 is valid in that it tells investors how the stock compared to the overall market—or, at least, 500 widely-held companies which represent more than 70 percent of the U.S. stock market—it does not tell them how the stock compared to the bank's peers. Sectors of the

economy can go in and out of favor from year to year. Therefore, we explained to the board at Lowlander Bank that there are two more changes to the comparison that we recommended. First, it makes sense to select a peer group of *banks* of comparable size. Bank efficiency is linked to size, so larger banks should be more efficient and this will impact earnings and stock performance. The peer group that was selected was the group of banks with assets between \$1 billion to \$5 billion, compiled by SNL Financial. There are other bank benchmarks that can be used for comparison. For example, America’s Community Bankers and the NASDAQ Stock Market created a broadly diversified stock index for community banks termed the “ACB NASDAQ Index.”

A noteworthy omission from Exhibits 1 and 2 is dividends. Investors and boards will sometimes forget the importance of a regular dividend when evaluating their stock performance. Community banks tend to be reliable payers of dividends, so a complete stock performance comparison should include dividends. Thus, in addition to comparing a bank’s stock to an adequate peer group, the second adjustment we recommend is to make a comparison using total return; dividends paid should be included along with changes to share price (adjusted for stock splits).

Exhibit 3 shows Lowlander Bank’s overall stock performance (top line)—on a total return basis—relative to its peers (bottom line). This comparison finds the bank’s five-year total return (105.24 percent) is nearly double the return for the peers (55.95 percent). In the next section, we do a valuation of the bank. However, regardless of what the valuation shows, the conclusion is definitive: over the last five years, Lowlander Bank has delivered outstanding stock performance to its shareholders. That perhaps explains why management and the board are puzzled by the perceived undervaluation of the bank’s shares. What will our valuation and fundamental analysis reveal?

**Exhibit 3: Five-Year Total Return Comparison to Peers**



Source: SNL Financial

### Stock Valuation Of Lowlander Bank

There were three broad categories of valuation methodologies that we considered when we valued Lowlander Bank: (1) a dividend discount model, (2) a residual income model, and (3) price ratio analysis. Jordan and Miller (2008) present the residual income model as “a simple model that we can use [when] companies don’t pay dividends.” In the case of Lowlander Bank, it has paid an ever-increasing dividend, although the year-to-year growth rate has not been constant. Exhibit 4 shows the bank’s dividend history from 2001 to 2006; based on these numbers, the average growth in dividends leading up to the valuation was 7.0 percent.

**Exhibit 4: Dividend History From 2001-2006**

	2001	2002	2003	2004	2005	2006
<b>Dividends</b>	0.4000	0.4067	0.4401	0.4900	0.5300	0.5600
<b>Core EPS</b>	1.39	1.86	2.21	2.19	2.24	2.48

Source: SNL Financial

Before we step through the valuation, we want to tell a story. The first bank valuation that we did was in the mid 1990s. The bank decided to have two valuation firms perform a valuation. We were not aware of this until after we did our valuation work. We arrived at an opinion of value of \$34.25 per share. After the opinion of value was given to the bank, the CEO said that he thought “our valuation was better than the valuation done by our

competitor.” We were curious why he had made this judgment. He went on to comment that “Our valuation was 25 cents higher than our competitor’s valuation and closer to the bank’s own valuation.” The point we made to the CEO was that valuations are imprecise. If two valuation firms are within 25 cents of one another, that is remarkable. The fact that our valuation was slightly higher was meaningless. While we wanted the client to be pleased with our valuation, someone who understands the valuation process knows that many assumptions go into a valuation. It’s impossible for it to be exact.

### Price Ratio Analysis

Financial data for 160 banks in the \$1 billion to \$5 billion peer group was obtained from SNL Financial. The average price-to-earnings (P/E), price-to-tangible-book (P/TB) and dividend-to-price (D/P) ratios are given in Exhibit 5, along with the median, high, and low. The data are based on the last four quarters (L4Q) ending 2Q07. Even though the dataset contains 160 banks—which is a fairly large sample of banks—there is noticeable positive skew in the P/E multiple. (See Mason et al., p. 86, for useful discussion on skewed distributions.) To avoid problems with skew in our valuation work, we usually use the median values for a valuation.

**Exhibit 5: Selected Ratios**

	P/E	P/TB	D/P
<b>Median</b>	15.0x	2.1x	2.3%
<b>Average</b>	17.5x	2.2x	2.4%
<b>High</b>	111.1x	4.9x	6.4%
<b>Low</b>	7.0x	1.0x	0.0%

Source: SNL Financial

At the time of the valuation, Lowlander Bank’s earnings per share (EPS) for the L4Q were \$2.59 per share. By multiplying the median P/E of 15.0 times this EPS, the P/E-based valuation is found to be \$38.85. At this point, some analysts will adjust the estimate for factors such as perceived earnings

quality, management abilities, and other such factors that tend to be more qualitative. Making qualitative adjustments is subjective, so we rarely do it.

The method of using the peers’ P/E multiple to estimate value is repeated for the P/TB and D/P ratios. Lowlander Bank has approximately 3.2 million shares outstanding, with a price-to-tangible-book-value-per-share (BVPS) of \$17.26. Applying this to the median P/TB of 2.1 for the peers leads to an estimate of \$36.57. Likewise, the bank’s most recent quarterly dividend per share (DPS), annualized, was \$0.57 per share. Applying this to the median D/P of 2.3 percent for the peers leads to an estimate of \$25.03.

Another method for utilizing the price ratios in an estimate of value is to find a regression equation that gives the best fit between banks’ EPS, BVPS, and DPS values. The regression model is used to estimate a bank’s value by substituting its fundamentals into the equation. Using the peer group data, the following model is obtained:

$$\text{Price} = 6.93 + 6.61 \times \text{EPS} + 0.42 \times \text{BVPS} + 3.09 \times \text{DPS}$$

When Lowlander Bank’s fundamentals are substituted into the equation, the price estimate found is \$32.99. Note that simple substitution of the numbers provided in this case will likely give a slightly different estimate due to rounding errors. The actual valuation was done in an Excel workbook, which preserves all of the trailing digits generated from each calculation.

The ratios used above are common to most if not all industries. One example of an exception is DPS. When the “dot-com” industry was in its infancy, there were plenty of firms paying zero dividends. Obviously, these firms could not be valued based on their dividend yield. One ratio that has emerged in banking as a common but unique metric for value is the “franchise-premium-to-core-deposit ratio” (FPCD). This ratio is defined as:

$$= \frac{\text{Share Price} - \text{Tangible Book Value per Share}}{\text{Core Deposits per Share}}$$

The logic behind this ratio and the reason that merger and acquisition (M&A) analysts focus on it is because the value of a bank is thought to be linked strongly to the volume of “core deposits” that are on the balance sheet, which are all deposits excluding jumbo CDs. Banks are said to be in the “spread business” because their profits are largely driven by the difference between the yields obtained on their assets minus the rates paid on their funding. The market for loans and investments is extremely competitive, so banks have difficulty generating better asset yields than their peers. On the other hand, some banks are better than others at building large balances of inexpensive core deposits. The FPCD ratio reflects the premium-over-tangible-book-value-per-dollar-of-core-deposits. By using this as a metric of value, it assumes reversion to the mean, implying that the market is paying a similar premium for each dollar of core deposit on a bank’s balance sheet.

The peers’ franchise-premium-to-core-deposit ratio was found to be 13.61 percent. Based on Lowlander Bank’s tangible BVPS (given above as \$17.26) and its core deposits per share of \$210.70, the implied premium is \$28.68. In turn, this provides an estimate of value of \$45.94 per share.

### **Dividend Discount Model**

When using the dividend discount model (DDM) to estimate the value of a company, an analyst needs to decide which version of the model is most appropriate. Generally, there are two versions of the model to select: (1) constant perpetual growth and (2) two-stage dividend growth. The two-stage dividend growth model is suitable for young companies growing very quickly in early years that expect growth to level off sometime in the future. Our feeling is that the constant perpetual growth DDM is reasonable for community banks that have been operating for a number of years. If the bank were a “de novo” bank, then another model would be needed. It is not uncommon to find a community bank that has been in existence for 50 or more years. These mature banks tend to follow a steady growth trend. The constant perpetual growth model is given as:

$$V_0 = \frac{D_0 \times (1+g)}{k-g}$$

To use this model, an analyst needs to estimate the bank’s risk-adjusted discount rate and the expected growth rate in dividends. There are several ways to estimate the bank’s future growth rate: (1) use the bank’s historical dividend growth rate, (2) use a forecast for the industry, or (3) calculate the bank’s sustainable growth rate. We choose to use the bank’s average growth rate in dividends (7 percent) based on the data shown earlier in Exhibit 4.

In order to estimate the bank’s risk-adjusted rate of return, we utilize the Capital Asset Pricing Model (CAPM), which says that the discount rate should equal the time value of money plus a risk premium (see p. 406 in Jordan & Miller). This requires an estimate of the bank’s beta. To do this, we obtained return data for Lowlander Bank for the period 2/4/2002 to 8/1/2007 along with market returns for the same period. Using this data, we plotted the excess returns for Lowlander Bank versus the excess returns for the market (using the S&P 500 as our proxy for the market), and then estimated beta by finding the slope of the regression line. Once we estimated the bank’s beta, the only other figures needed were the risk-free rate and the risk premium for the market. At the time of our valuation, the 90-day Treasury bill rate was 4.81 percent (<http://www.federalreserve.gov/releases/>); for the risk premium, we used 9.0 percent. Note that there are various sources for obtaining an estimate of the market risk premium and there can be significant differences depending on the source and the exact period studied (see p. 177 in Jordan & Miller). We are now able to make the substitutions into the CAPM:

$$k = R_f + \beta \times (\text{Market Risk Premium})$$

$$8.35\% = 4.81\% + 0.3935 \times 9\%$$

In turn, once we have a discount rate and a growth rate, all that is needed is the bank’s prior four quarters’ dividend. This is \$0.57. Now we can estimate the stock’s value using the DDM:

$$\$45.13 = \frac{\$0.57 \times (1 + 0.07)}{0.0835 - 0.07}$$

Once an analyst has his various estimates of stock value, the obvious question is how to weight them to arrive at a final opinion of value. Often, we find the DDM-based estimate to be much higher or lower than the other estimates. The DDM is quite sensitive to the values of  $k$  and  $g$ . The decision whether or not to use the DDM estimate, in our view, is a judgment call. When we value a bank, we are doing it at a point in time. It might be the first and last time we value the institution. In contrast, a stock analyst on Wall Street will track a stock for an extended period. He can monitor risk premiums, dividend announcements, market pricing, and different variations of the DDM to determine the most accurate model to use.

The valuation produces a range of estimates from a low of \$25.03 (based on dividend yield) to a high of \$45.94 (based on the franchise-premium-to-core-deposit ratio). A summary of the valuation estimates is shown in Exhibit 6. The average of the six estimates is \$37.42. The peer data and the bank's data are for the end of 2Q07, so the appropriate comparison to use is the stock's price at the end of June 2007. The close on 6/29/07 was \$27.12. Thus, our average, which we term the "opinion of value," is 38 percent higher than the closing price. This valuation exercise supports the notion shared by management and the board that the market is undervaluing the company. However, unless you believe in market inefficiency, you have to ask: What is the market seeing about Lowlander Bank that could explain this low pricing? In the next section of our case study, we examine key fundamentals on the bank in search for clues.

### Exhibit 6: Valuation Summary

Valuation based on:	
1. P/E Ratio	\$38.85
2. P/TB Ratio	\$36.57
3. Dividend Yield	\$25.03
4. Econometric Model	\$32.99
5. Franchise Premium	\$45.94
6. DDM	\$45.13
<b>Average</b>	<b>\$37.42</b>

### What The Bank's Fundamentals Tell Us

If you look at a Uniform Bank Performance Report (UBPR), you find a plethora of statistics that can be analyzed when assessing a bank. UBPRs are prepared by the Federal Financial Examination Council, which, according to their tagline, "promotes the uniformity and consistency in the supervision of financial institutions." Moreover, the UBPR is

"An analytical tool created for bank supervisory, examination, and management purposes. In a concise format, it shows the impact of management decisions and economic conditions on a bank's performance and balance-sheet composition. The performance and composition data contained in the report can be used as an aid in evaluating the adequacy of earnings, liquidity, capital, asset and liability management, and growth management. Bankers and examiners alike can use this report to further their understanding of a bank's financial condition and, through such understanding, perform their duties more effectively." (<http://www.ffiec.gov/UBPR.htm>)

With so much information available for a bank, where should an analyst begin? When looking at accounting data, a bank's return on assets and return on equity are the two main performance ratios to examine. The "drilldown" analysis should look at three primary areas: (1) net interest income, (2) net



overhead, and (3) capital, and three secondary areas: (4) the mix of earning/nonearning assets, (5) provisioning for loan losses, and (6) the tax burden. Further drilldown into the operations is possible, but these six areas give a balanced snapshot of the bank's performance.

In Exhibit 7 we show the bank's return on average assets (ROAA), return on average equity (ROAE), and return on average tangible equity (ROTE). Banks are constantly writing new loans, seeking deposits and adding retained earnings. Consequently, their balance sheets—and, specifically, the level of assets and equity—are normally growing quickly, even from one quarter to the next. This is why analysts use *average* assets and *average* equity when calculating return ratios. The difference between ROAE and ROTE is that a bank's average equity and average tangible equity is primarily accounted for by the intangibles on the balance sheet. When one bank acquires another bank, the premium over book value is accounted for as goodwill. Historically, banks would use the pooling or purchase method when accounting for an acquisition. Starting in 2001, banks were required to begin using the purchase method for all acquisitions. Intangible assets on the books explain why ROAE figures are less than ROTE.

#### Exhibit 7: Return Comparisons

	Bank Value	Percentile Ranking	50 <sup>th</sup> Percentile
<b>ROAA</b>	0.69%	16th	1.03%
<b>ROAE</b>	13.06%	68th	11.45%
<b>ROTE</b>	15.50%	52nd	14.98%

Source: SNL Financial

The data reveal that Lowlander Bank's ROAA is in the 16<sup>th</sup> percentile. Recall from statistics that this means that the bank's ROAA is higher than (or equal) to just 16 percent of the banks in its peer group. This ranking is low and could explain the low price on Lowlander Bank's stock. However, what is more important—a high ROAA or ROAE? This

debate among bankers is never-ending. We believe that both are important, but the return to equity is somewhat more important, arguably, because it's the (book) return to the providers of capital. The bank's ROAE and ROTE are both above the median 50<sup>th</sup> percentile, so this would indicate that the bank is ahead of its peers in these categories. However, the market might feel that the bank has used excessive leverage to boost its low ROAA figure to an above median ROAE.

The next step is to drill down to the fundamentals that determine the bank's ROAA and ROAE. A bank's revenues are a combination of net interest income and noninterest income. There are two statistics commonly used to compare a bank's performance to other banks: net interest *margin* and net interest *spread*. The net interest margin is defined as the difference between interest income and interest expense divided by the bank's average assets or average *earning* assets. In contrast, the net interest spread is defined as the difference between a bank's yield on earning assets and cost of funds. From Exhibit 8, we find that Lowlander Bank's margin ranks low, leading to the next drilldown question. Is the low margin a result of a low yield on earning assets (YEA) and/or a high cost of funds (COF)? The bank is well below the median YEA and above the median COF meaning that, relative to its peers, its asset yields are low while its funding costs are high. Further analysis can be done; the next step is to look at the mix of assets and liabilities and the rates offered by the bank.

#### Exhibit 8: Net Interest Income Analysis

	Bank Value	Percentile Ranking	50 <sup>th</sup> Percentile
<b>Margin</b>	2.94%	8th	3.83%
<b>YEA</b>	6.78%	23rd	7.18%
<b>COF</b>	3.49%	38th	3.30%

Source: SNL Financial

When evaluating a bank's cost structure, bankers usually examine the net overhead or efficiency ratio.

We see from Exhibit 9 that the efficiency ratio for Lowlander Bank is in the 12<sup>th</sup> percentile. The definition of the efficiency ratio is noninterest expense divided by revenue; the lower the ratio, the better. The weak percentile ranking in efficiency, along with the margin ranking, suggest that the bank is showing weakness in both revenue generation and its cost structure. Yet, keep in mind that the bank's ROAE is above the median for the peer group.

**Exhibit 9: Efficiency, Capital, Provisioning, and Taxes**

	<b>Bank Value</b>	<b>Percentile Ranking</b>	<b>50<sup>th</sup> Percentile</b>
<b>Efficiency</b>	70.95%	12th	61.33%
<b>E/A</b>	5.30%	100th	9.04%
<b>PRO</b>	0.08%	73rd	0.15%
<b>TAX</b>	26.19%	84th	32.28%

Source: SNL Financial

So how is the bank accomplishing a strong ROAE and good stock performance? Exhibit 9 shows that the bank is in the 100<sup>th</sup> percentile for its equity-to-assets (E/A) ratio. This means that there is no bank in its peer group that is more leveraged. Yet, the bank is meeting the regulatory minimums needed for the well-capitalized designation, so an analyst could argue that Lowlander Bank is fully utilizing its capital without carrying any excess capital on the balance sheet. Moreover, the bank's provisioning—money put aside to cover loans that go bad—and tax burden are better than the median values, indicating strength of performance in those areas.

Valuation depends heavily on the expected growth rates of earnings, dividends, and the size of the institution. Five-year compound annualized growth rates (CAGR) for important fundamentals are given in Exhibit 10. At 10.81 percent, the bank's EPS growth has been well above the median for its peers; yet, the dividend growth has not kept pace. The earnings have been needed to generate new capital in order to support the higher than median asset growth.

The key asset category—loans—has grown a notch faster than the median, while crucial deposit funding has been robust. The main indicator from the income statement (i.e., EPS) and the three major categories on the balance sheet (i.e., assets, loans and deposits) all support a strong stock performance.

**Exhibit 10: Five-Year Growth Rates in Key Areas**

	<b>Bank Value</b>	<b>Percentile Ranking</b>	<b>50<sup>th</sup> Percentile</b>
<b>EPS</b>	10.81%	60th	8.73%
<b>DPS</b>	7.34%	37th	9.06%
<b>Assets</b>	13.10%	57th	11.98%
<b>Loans</b>	14.73%	51st	14.40%
<b>Deposits</b>	13.45%	58th	11.97%

Source: SNL Financial

**Summary of Part I: Lowlander Bank**

Over the last five years (measured up till the end of 2Q07) Lowlander Bank has delivered a total return performance on its stock that has exceeded the bank's peer group and the overall market, as measured by the S&P 500. At least for now, that should be sufficient to please shareholders. Yet, management and the board believe the stock is undervalued, and our analysis supports that belief. Or does it?

We valued the bank and arrived at an opinion of value of \$37.42. The market price at the time of the valuation, which was based on end of 2Q07 financials, was \$27.12—nearly 30 percent lower than our valuation. The valuation work that we did three years prior showed the same result. However, unless you don't believe in market efficiency, there should be an explanation. (Actually, there are those working in the community bank sector who do believe in market inefficiency, as community bank stocks often are thinly traded.)

What exactly does the valuation tell us? It basically gives the median value of an institution that has similar fundamentals to Lowlander Bank, in terms of



EPS, BVPS, DPS, core deposits per share and growth rates. Yet, like a fingerprint, each bank is unique. The market probably sees things that have led it to discount the bank's value. Our fundamental analysis helped show what areas might be a concern to those tracking the bank's stock. An analyst would likely probe more deeply into the bank's operation by asking management key questions about the loan and borrowings portfolios and the cost structure.

A bank's net interest income is the dominant component of revenues, often more than double the noninterest income. Lowlander Bank's earning assets are producing low yields. If the creditworthiness of the assets on the balance sheet are better than average, then low yields might be okay. On the other hand, if the bank is pricing credit risk too low, then the low yields are not justified. To draw a correct conclusion would require more analysis and, perhaps, insider information.

The same thought process applies to the funding side of the balance sheet. If a bank's cost of funds is high, this points to an expensive mix of liabilities and/or rates that might be too generous relative to the local deposit market. Banks are under constant pressure to grow their deposit base, so higher-than-average deposit rates—if that is the case—can be explained, if not justified.

On the cost side of the equation, a bank that has a lower spread and margin than its peers will need to make up ground by winning the efficiency game. When we see lower-than-average efficiency, we sometimes find a commercial loan operation with costly overhead that might be under-producing. The efficiency ratio reflects a bank's revenues and costs, so when a bank is lagging in that ratio, it should determine if it has a problem with revenues, high costs, or a combination of both.

Finally, we often hear in business that "cash is king." Well, in banking, a close cousin to that saying is "capital is king." Banking is a leverage business, so lean capital helps generate a strong ROAE, yet there is always a concern that growth will be constrained by a lack of capital. Certainly, Lowlander Bank is pushing the envelope in terms of its capitalization.

The market might see that as an impediment to growing the bank—whether that is "organic" growth or growth through M&A. The fact that EPS has been growing faster than DPS shows that management is constraining dividend growth in order to preserve capital for asset growth. If the bank can improve its return on assets, this will correspondingly increase return on equity and earnings retention, provided that the payout ratio is not increased.

## **Part II: Highlander Bank's Issues**

Highlander Bank recently went through a mutual-to-stock conversion. When this occurs, the institution shifts from mutually-owned to stock-owned, through an initial public offering (IPO). It is believed that this change in ownership form and corporate governance dramatically alters management's incentives to operate more efficiently and grow profits. Often, when a bank goes through a conversion process, there is an influx of capital that exceeds regulatory requirements and short-term growth needs. This is the case at Highlander Bank, as its equity jumped from roughly \$82 million to more than \$280 million.

A mutual-to-stock conversion changes an institution's stakeholders and priorities. As a mutual bank, the most important stakeholders are regulators and depositors. Upon conversion, stockholders are added to the list of stakeholders and value maximization becomes one of the top priorities if not the number one goal. Highlander Bank wanted our input on the following questions:

1. How much capital is needed for the next 10 years?
2. If there is excess capital, how should it be utilized?
3. What is the likely impact of a stock buyback?
4. What financial goals, such as EPS and DPS make sense?
5. How do we objectively measure our progress now that we're a stock institution?

### **Estimating Excess Capital**

Exhibit 11 gives a quick snapshot of Highlander Bank's excess capital. The bank has \$1,306.5 million in assets and \$282.7 million in equity—thus, an equity-to-assets (E/A) ratio of more than 21 percent.

### Exhibit 11: Estimating Excess Capital (\$000)

Assumptions:	
Target Equity/Assets	8%
Target Asset Growth	7%
Assets	1,306,544
Equity	282,672
Equity Reduction	91,451
Net Equity	191,222
Retention Ratio	0%

Scenario 1: Status Quo			
	Assets	Equity	Excess
2008	1,306,544	104,523	178,149
2009	1,398,002	111,840	170,832
2010	1,495,862	119,669	163,004
2011	1,600,572	128,046	154,627
2012	1,712,612	137,009	145,663
2013	1,832,495	146,600	136,073
2014	1,960,769	156,862	125,811
2015	2,098,023	167,842	114,831
2016	2,244,885	179,591	103,082
2017	2,402,027	192,162	90,510
2018	2,570,169	205,614	77,059

Scenario 2: Reduce Equity			
	Assets	Equity	Excess
2008	1,215,093	97,207	94,014
2009	1,300,149	104,012	87,210
2010	1,391,160	111,293	79,929
2011	1,488,541	119,083	72,138
2012	1,592,739	127,419	63,803
2013	1,704,230	136,338	54,883
2014	1,823,527	145,882	45,340
2015	1,951,173	156,094	35,128
2016	2,087,756	167,020	24,201
2017	2,233,898	178,712	12,510
2018	2,390,271	191,222	0

Suppose the bank wants to target an E/A ratio of eight percent and expects assets to grow by seven percent over the next 10 years. (These figures are hypothetical and created for illustrative purposes.) Scenario one shows that the bank begins with excess capital of \$178.1 million and ends (10 years later) with excess capital of \$77.1 million. The excess is calculated as the difference between actual equity minus target equity (eight percent of assets). This is an enormous amount of excess capital, and one of the assumptions is that all earnings are paid out as a dividend. If the bank decides to retain a portion of its earnings, then the excess capital would be even greater. Once the bank makes its assumptions for growth and arrives at a target capital ratio, it can estimate the true level of excess capital. We recommend to banks that they arrive at a target equity ratio by allocating a prudent amount of equity for credit, interest-rate, and other relevant risks. Regulatory input on capital requirements is also suggested.

Scenario two in Exhibit 11 shows the excess capital that would exist if there is an immediate reduction of capital in 2008. We don't specify how that reduction occurs—it could be through a stock buyback or a special dividend. Excel enables an analyst to do “what if” analyses. By using the “goal seek” function, we asked Excel to find the equity reduction needed to eliminate all excess equity by year 10. Based on a target E/A ratio of eight percent and asset growth of seven percent, Highlander Bank would need to reduce equity by \$91.5 million at the outset.

#### Uses For Excess Capital

When consulting with banks that have excess capital, we discuss their options for utilizing this capital. Unlike debt financing, which has an explicit cost (i.e., the interest rate paid to lenders), paid-in capital and retained earnings have no explicit cost. Nevertheless, there is an opportunity cost of excess capital; to allow it to sit idle on the balance sheet is not consistent with maximization of shareholder wealth. We have compiled the various capital management options discussed with clients through

the years. There are, in no particular order, at least nine options to consider:

1. Do nothing with the excess capital;
2. Capitalize growth that exceeds sustainable growth;
3. Leverage the excess capital;
4. Acquire a branch or several branches;
5. Do a bank merger or acquisition;
6. Do a stock split or stock dividend;
7. Grow the dividend faster than earnings;
8. Pay a special dividend; and
9. Do a stock buyback.

#### *Do nothing with the excess capital*

We are reminded of the proverb that says “any decision is better than no decision” and that might be true when it comes to capital management. Students of finance will likely realize that “do nothing with the excess capital” is often a suboptimal option to consider. Yet, we have visited many banks that “sit” on their excess capital for years. The problem is that banks are not sure how much excess capital they hold. Burns (2004) discusses the assessment of capital adequacy as it pertains to credit risk in the loan portfolio. Through the development of Basel II capital requirements and the lessons learned from the subprime debacle, regulators continue to refine the process for evaluating a bank’s capital requirement. Generally, unless a bank has a high concentration of risky loans, we believe an E/A ratio around eight percent is sufficient. Assuming that this is adequate, a bank needs \$8 million of equity for every \$100 million of assets. The “do nothing” option leads to high capital ratios and enables management to sidestep the process of calculating its minimum capital requirement, which can be a technically daunting task. Moreover, maintaining high capital should enable the bank to receive more favorable deposit insurance premiums, as the higher the capital the lower the risk of default (all else equal). The following explains recent changes in the deposit insurance fund (FDIC, 2008):

“The FDIC merged the Bank Insurance Fund (BIF) and the Savings Association Insurance Fund (SAIF) to form the Deposit Insurance Fund (DIF) on March 31, 2006 in accordance with the Federal Deposit

Insurance Reform Act of 2005. FDIC maintains the DIF by assessing depository institutions an insurance premium. The amount each institution is assessed is based upon statutory factors that include the balance of insured deposits as well as the degree of risk the institution poses to the insurance fund.”

Certainly, the more capital a bank has, the lower the risk it poses to the insurance fund. However, regulators have not told Highlander Bank whether its deposit insurance will be adjusted for its high capital ratio.

#### *Capitalize growth that exceeds sustainable growth*

A firm’s sustainable growth rate (SGR) is found by multiplying its return on equity (ROE) by its earnings retention ratio (rr). There can be a wide variation from bank to bank in their SGRs. For example, suppose a high-performing bank with a 20 percent ROE retains all of its earnings for growth purposes. Its SGR is  $0.20 \times 1.00 = 0.20$  or 20 percent. As a second example, suppose a poor-performing bank with a paltry ROE of 5 percent is retaining just 25 percent of its earnings, which means that 75 percent is paid out as a dividend. This bank’s sustainable growth rate is  $0.05 \times 0.25 = 0.0125$  or 1.25 percent. Banks’ earnings can change significantly from year to year, as they are sensitive to interest-rate changes as well as other factors. Consequently, ROEs and the percentages of earnings retention are volatile, which means that banks’ SGRs are ever-changing. Management will not know its SGR with certainty, but can make a projection.

We find that bank management and boards often are not aware of the implications of managing asset growth using the bank’s SGR as a benchmark. If a bank grows its assets faster than its SGR, its E/A ratio will decrease and the balance sheet becomes more leveraged and vice versa. Once a bank achieves its optimal or target E/A ratio, it needs to grow assets at the same rate as equity; otherwise, its E/A ratio will drift up or down, creating an underleveraged or overleveraged balance sheet. Maintenance of a bank’s E/A ratio is part of risk management, because the level of E/A is a determinant of the bank’s financial risk. Moreover, the reciprocal of the E/A

ratio is the equity multiplier. A bank's ROE is equal to its ROA times its equity multiplier (A/E). Therefore, from a profitability management standpoint, maintaining a steady and efficient equity multiplier is important.

Highlander Bank's ROE has shifted downward since the IPO because of the large influx of equity. Assume that management projects a 3.5 percent ROE for the next year. Then, the highest SGR feasible would be a scenario of 100 percent earnings retention producing an SGR of 3.5 percent. Anything less than 100 percent retention will produce an SGR of less than 3.5 percent. If the bank projects growth exceeding 3.5 percent, then it will use some of the excess capital to capitalize that growth. The time it takes to utilize excess capital depends on (1) the amount of excess capital and (2) the divergence between asset growth and equity growth. Each year, management can project how much excess capital will be used by (1) projecting the upcoming year's ROE, (2) deciding on how much earnings to retain, and (3) by projecting asset growth. As long as asset growth exceeds the SGR, excess capital will diminish.

#### *Leverage the excess capital*

Banking is a leverage business, characterized by low returns on assets (ROAs for banks are typically less than two percent) that are magnified by a high equity multiplier. It is not uncommon to find banks with equity multipliers (i.e., an assets-to-equity ratio) exceeding 10x or even 15x. For example, First Star Savings Bank's (ticker FSSB) 1Q08 E/A ratio is 6.1 percent and its equity multiplier is 16.4x. In contrast, non financial firms will typically have equity multipliers in the range of just 2x to 3x. For example, AT&T's (T) 4Q07 equity multiplier is 2.4x. The two-step process to finding potential asset growth from leverage is to decide on the bank's E/A target and then apply that to the equity on the balance sheet to arrive at the asset base that can be supported by the bank's equity. In Exhibit 12, we show the total assets that Highlander Bank's capital could support at various E/A ratios. For example, if the bank decides to target a conservative E/A ratio of 10 percent, its balance sheet could expand by a factor of 2.2x, or to

a total of more than \$2.8 billion. On the other hand, if the bank is comfortable with a "leaner" E/A ratio of 6 percent, then the assets could swell to over \$4.7 billion. When considering E/A ratios in this low range, a one percent to two percent difference has a huge impact to overall assets.

When talking about leveraging capital, there are the theoretical and practical issues to consider. Suppose Highlander Bank's management and board of directors decide to pursue an eight percent E/A target. That means the bank needs to expand by roughly \$2.2 billion in assets. There are two ways to achieve that growth—"organically" or by "buying" the growth. The term organic growth means to expand the bank's assets and funding without any growth from takeovers, acquisitions or mergers. In order to expand by this amount organically, the bank would need to purchase investments and write loans to add this amount of assets to the balance sheet. It could also purchase loans in the open market or do loan participations, but that would require due diligence by the bank which is time-consuming and costly. Moreover, this ignores the funding side of the equation. For every \$1 of assets that it adds to the balance sheet, the bank needs to obtain \$1 of funding, either deposits or borrowings. Highlander Bank already has a loan-to-deposit (L/D) ratio of 180 percent. For comparison, Lowlander Bank's L/D ratio is 96 percent, which is also high *but not nearly as high as Highlander Bank's*. Currently, one of Highlander Bank's concerns is its deposit growth. In order to improve its spread and margin, it needs to shift the proportion of deposit funding up quite a bit. When banks look to leverage their balance sheet quickly, they often look to the borrowings market in the short term. However, with such a high L/D ratio, it does not make sense for Highlander Bank to borrow more at this time. It will need to find a way to stimulate the supply of deposits or to acquire deposits from other banks.

**Exhibit 12: Leveraging of Capital**

<b>Current Assets: \$1,306.5 million</b>			
<b>Equity (\$000)</b>	<b>E/A</b>	<b>Assets (\$000)</b>	<b>Factor</b>
282,672	6.0%	4,711,208	3.6x
282,672	6.5%	4,348,807	3.3x
282,672	7.0%	4,038,178	3.1x
282,672	7.5%	3,768,966	2.9x
282,672	8.0%	3,533,406	2.7x
282,672	8.5%	3,325,558	2.5x
282,672	9.0%	3,140,805	2.4x
282,672	9.5%	2,975,499	2.3x
282,672	10.0%	2,826,725	2.2x

*Acquire Growth*

If a bank is not able to expand fast enough in its own market to utilize its capital, it can look to purchase assets and liabilities through acquisition of branches and/or banks. When you hear that a bank wants to purchase liabilities, that always sounds a bit odd. Why would a profit-maximizing institution pay money to purchase liabilities? In fact, what the bank seeks is the deposit funding. As discussed in Part I of this case study, banks strive to improve their spreads and margins by obtaining low-cost funding. For example, in 1999-2000, Sovereign Bank purchased 279 branches from FleetBoston in the New England area. When a bank pays cash for branches, this leverages the balance sheet and creates the opportunity for further deposit growth at those new locations.

From a growth standpoint, purchasing a bank has a similar impact as purchasing a network of branches. However, buying a bank is a more complicated transaction as the bank needs to consolidate its existing operations with those of the acquired institution. This can lead to the firing of redundant personnel and the sale of fixed assets that are no longer necessary. A tremendous amount of due diligence is needed prior to purchasing a branch or a bank. Our consulting with Highlander Bank did not involve in-depth discussions about branch or bank acquisitions. An investment bank offers expertise in

this area when needed. The options to buy branches or a bank are beyond the scope of this case study.

*Do a stock split or stock dividend*

Occasionally, bank boards will inquire about stock splits and stock dividends as a method for managing capital. Although we include stock splits and stock dividends as one of the options to consider, we note that the level of book equity is not changed by either. Thus, they do not help a bank control the level of capital; their effect on a bank's capital ratios is neutral. One has to question the value of a stock split when one of the world's greatest investors—Warren Buffet—is not a proponent of them. It is reported (Jubak, 2006) that “[Buffett is] on record as saying he doesn't believe in stock splits since a high stock price, he insists, discourages buying by short-term traders.” In the case of class A shares of Berkshire Hathaway, “fewer than 1,000 shares trade a day.”

However, some believe that bank-stock prices tend to react favorably to the news of a stock split or a stock dividend. SNL Securities (later renamed SNL Financial), a firm that monitors the banking industry, published an article (Winslow, 1994) that supports the conclusion that something which neither creates nor removes economic value—a stock split or dividend—does, frequently, push stock prices higher. Specifically, they found that over intervals of five and 20 trading days, stock returns for banks which did either a stock split or a stock dividend exceeded the stock returns for the entire banking industry. They believe that their research shows that “financial markets are, indeed, imperfect.” Some argue that market imperfections are more common in the markets handling community bank stocks because of fewer transactions and less coverage by analysts.

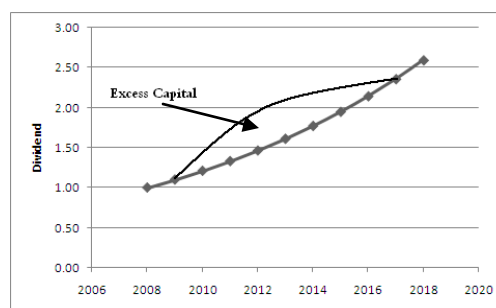
It is worth recalling one example when a stock split inadvertently resulted in an eventual reduction in a bank's retained earnings. The bank implemented a 2:1 stock split. Some time after the split, the board noticed that the level of retained earnings was not growing as quickly as before the split. We found that the bank had forgotten to reduce its dividend by a factor of two at the time of the split. So each shareholder received another 100 shares for each 100

shares owned, and the DPS was inadvertently left the same. The result was that each shareholder's aggregate dividend doubled when the stock split. This simple mistake underscores the importance of requiring at least one "financial expert" to sit on the audit committee of the board of directors, as required by Section 407 of the Sarbanes-Oxley Act.

#### *Grow the dividend faster than earnings*

Generally, a bank can either put excess capital to work or give it back to shareholders. There are several ways to put capital back into the hands of shareholders. One is by paying dividends at payout ratios exceeding 100 percent. In Exhibit 13 the bottom line shows a \$1 per share dividend growing at 10 percent per year. If EPS are also \$1 and growing at 10 percent, then the growth in dividends are supported by earnings growth. If, however, the dividend growth follows the top line, then a portion of the dividends paid would come from retained earnings, reducing the excess capital on the balance sheet. Notice that at some point the dividend paid would diverge from the 10 percent growth line, meaning that payout is above 100 percent. In Exhibit 13, we show this occurring in 2009. Then, at a later date (in 2017 for this example), the dividend paid would converge to the 10 percent growth line. The "bulge" shown above the bottom line represents excess capital—namely, capital that is paid as a dividend that exceeds earnings growth. The duration and degree of divergence from the 10 percent growth line determine how much retained earnings are used to supplement the regular dividend growth. In the case of Highlander Bank, it could pay out excess capital in the form of dividends for many years.

#### **Exhibit 13: Alternate Dividend Payment Scenarios**



The stock market reacts to information, both positive and negative news. Thus, a bank should consider the informational content of dividend announcements. Generally, shareholders like to hear about dividend increases, and prefer not to hear about dividend cuts. Although the dividends paid are different for both paths followed in Exhibit 13, the news can be similar. For both lines, the dividend is increasing. Mathematically, dividend increases are at a constant rate along the bottom line. For the top line, the dividend growth accelerates at the point of separation; later, the dividend growth decelerates in order to merge with the constant dividend path. Importantly, despite the different path, the dividend is increasing each year along the top line, so the bank never has to announce a dividend reduction. The potential risk is that the market will eventually price a dividend slowdown into the stock price. However, once the dividend growth resumes its constant growth pattern, the stock valuation should be independent of the dividend history, as valuations are forward-looking.

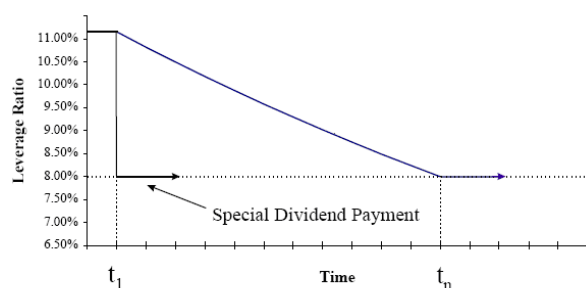
#### *Pay a special dividend*

For a bank such as Highlander Bank that might elect to shed a large block of excess capital, one option to consider is to pay a special dividend to "shift" the bank down to the target level of capitalization. A special dividend is a quick way to take the bank to an efficient level of capital. In Exhibit 14, we show two paths to a more efficient capital level. For this example, we assume the bank's E/A ratio is above 11 percent, and it wants to target eight percent. To follow the more gradual path down to eight percent, the bank has to continually grow the balance sheet



faster than its sustainable growth rate for a sustained period shown as the interval from time  $t_1$  to  $t_n$  in the exhibit. Growing faster than the SGR does not reduce retained earnings, but it does reduce the E/A ratio. In time, this will drop the ratio down to the target. Alternatively, with a special dividend, management can pay out a lump sum to immediately shift the bank down to its capital target. (However, dividend payments—including special dividends—must be paid from retained earnings and not paid-in capital.) Exhibit 14 illustrates that a special dividend enables a bank to shift to its capital target much more quickly, in fact instantaneously. Once the bank reaches its target, it must then grow assets at its SGR in order to maintain the desired E/A ratio.

**Exhibit 14: Reducing Leverage with a Special Dividend**



When planning for a sizable special dividend, management needs to decide what assets will be used to make the dividend payment to shareholders. If earning assets are converted to cash, there will be a reduction in earnings. For example, if Treasury securities are liquidated, this will have a smaller impact to earnings than a liquidation of loans. Moreover, the special dividend needs to be done in conjunction with liquidity management, because the bank does not want to deplete its liquidity sources. While the bank's balance sheet will be smaller after the special dividend, its deposit base will be the same size and liquidity needs similar.

#### *Do a stock buyback*

In corporate finance textbooks, discussion on stock buybacks and repurchases is typically presented in the chapter on dividend policy. For example,

excellent treatment of the topic can be found in Chapter 15 of *Corporate Finance* by Smart, Megginson and Gitman (2007). There are two ways to return capital to shareholders—through a dividend or a stock buyback. If the tax rate on capital gains is the same as the rate paid on dividends, then investors should be essentially indifferent between being paid a dividend and selling their shares. However, when taxes on dividends are higher than the capital gains tax, investors should prefer a stock buyback. Yet, to explain why firms continue to pay healthy dividends, Smart et al. (p. 548) explain, “[that] dividends exist to overcome unchanging human problems with trust, communication, and commitment. As a mutually-owned institution, Highlander Bank’s board did not have to deal with dividend and buyback decisions, as there were no shares outstanding. Once the conversion to stock-owned was complete, both of these capital-related issues were on the agenda for discussion.

The management and board at Highlander Bank are considering a large stock buyback as a way to reduce its excess capital. In fact, prior to our visit, they obtained authorization to repurchase up to 20 percent of its shares. They looked to us to provide some guidance on this decision. Certainly, anytime a bank finds itself with significant excess capital, a stock buyback should be considered. In the next section, we analyze the impact from a stock buyback.

#### **Analysis of A Stock Buyback: The Impact To Bvps And Eps**

In order to shift Highlander Bank from extremely over capitalized to a more leveraged equity-to-assets level, the bank will either need to return a lot of capital to shareholders or find a way to leverage the bank significantly. Holding excess capital for a long period of time has a growing opportunity cost. Moreover, management believes that unless it can produce a satisfactory return on the capital, shareholder dissatisfaction is likely to emerge. Generally, when management attempts to maximize shareholder returns, this implies that it will make intelligent capital allocation decisions. We are taught in finance classes that firms use net present value

(NPV) and internal rate of return (IRR) to ensure that they meet the firm's cost of capital. However, we have not seen a community bank utilize these analytical tools. Instead, they tend to focus on budgeted growth and accounting-based return on equity goals. Financial managers, regardless of how they allocate capital to internal projects, should assume that shareholders are able to reinvest capital that is returned to them into other worthwhile investments. Thus, it does shareholders no favor to retain capital indefinitely when a use is not evident.

If a firm does a share repurchase, what does it hope to accomplish? Bank managers tend to focus on book value per share (BVPS) and earnings per share (EPS) as important ratios, so the goal is to improve these ratios. Although valuation tends to hinge far more on a bank's EPS, some community bank managers track their BVPS just as closely. In Exhibit 15 we show how the bank's BVPS depends on two variables: (1) the buyback price and (2) the percent of shares repurchased. The bank board at Highlander Bank approved a buyback of up to 20 percent of the outstanding shares as a first step. The assumptions box shows that 22,924,215 shares are outstanding and the equity on the balance sheet is \$282,672,450. The original BVPS is simply the ratio of those two numbers. To find the resultant BVPS after the repurchase, the numerator is reduced by the cost of the shares repurchased. The formula is the product of the percent repurchased times the total shares outstanding times the price paid per share. Not all of the shares would have to be repurchased at the same time or price, so the buyback price can be thought of as the average price paid. Likewise, the denominator would be reduced by the number of shares purchased, which is found by subtracting the shares repurchased from the original shares outstanding.

From a BVPS standpoint, if repurchases are done at a price equal to the original BVPS, then the impact is neutral. If the repurchase price paid is less than the BVPS, then the impact is accretive to BVPS, meaning that the value increases. Conversely, if the repurchase price paid is more than the BVPS, then the impact is dilutive to BVPS, meaning that the value decreases. The shading in Exhibit 15 highlights

when the buyback is dilutive to BVPS. Every cell that is not shaded is a combination of buyback price and percent buyback that is accretive, while the shaded cells are combinations that are dilutive to BVPS. The changes shown to BVPS in Exhibit 15 aren't too significant. We find the most accretive value to be \$12.913, based on a repurchase price of \$10/share and the full 20 percent of shares repurchased. At the other extreme, we find the most dilutive value to be \$11.663, based on a repurchase price of \$15/share and, again, the full 20 percent of shares repurchased. From a financial management decision-making perspective, the changes to BVPS are modest.

**Exhibit 15: Analysis of Impact to Book Value per Share**

<b>Assumptions:</b>	
Equity	\$282,672,450
Shares Outstanding	22,924,215
BVPS	\$12.331

BVPS (\$) as a Function of Percent Buyback and Price										
Buyback Price (\$)	2%	4%	6%	8%	10%	12%	14%	16%	18%	20%
10.00	12.378	12.428	12.480	12.533	12.590	12.649	12.710	12.775	12.842	12.913
10.50	12.368	12.407	12.448	12.490	12.534	12.580	12.629	12.679	12.733	12.788
11.00	12.358	12.386	12.416	12.446	12.479	12.512	12.547	12.584	12.623	12.663
11.50	12.348	12.365	12.384	12.403	12.423	12.444	12.466	12.489	12.513	12.538
12.00	12.337	12.345	12.352	12.359	12.367	12.376	12.385	12.394	12.403	12.413
12.50	12.327	12.324	12.320	12.316	12.312	12.308	12.303	12.298	12.294	12.288
13.00	12.317	12.303	12.288	12.273	12.256	12.239	12.222	12.203	12.184	12.163
13.50	12.307	12.282	12.256	12.229	12.201	12.171	12.140	12.108	12.074	12.038
14.00	12.297	12.261	12.224	12.186	12.145	12.103	12.059	12.013	11.964	11.913
14.50	12.286	12.240	12.192	12.142	12.090	12.035	11.978	11.918	11.855	11.788
15.00	12.276	12.220	12.160	12.099	12.034	11.967	11.896	11.822	11.745	11.663

A stock analyst is more interested in changes to a bank's EPS than BVPS. The value of a firm is the discounted value of expected future dividends, and sustainable future dividend growth is a result of

future earnings growth. As EPS increase, DPS can increase as well. A shareholder's total return from his investment is derived from dividends paid plus capital appreciation on the stock. However, capital appreciation is a result of a firm's ability to pay a growing stream of dividends. This is accomplished by growing the firm's EPS. The impact to EPS from a stock buyback is not as clear-cut as finding the impact to BVPS. The impact to EPS critically depends on how much earnings are lost when assets are liquidated and cash is paid out to purchase the shares. Keep in mind the accounting identity: assets = liabilities + equity. As equity is reduced through the buyback, assets are reduced dollar for dollar. In fact, the buyback has immediate and, for a bank, significant impact to the equity-to-assets ratio, which we will look at later. If a bank believes it is adequately leveraged and wants to maintain its E/A ratio post buyback, then it needs to reduce its assets as a multiple of the equity reduction. For instance, if a bank desires to maintain an E/A ratio of 10 percent, a \$10 million buyback means the bank must reduce assets by 10 times that amount or \$100 million. A buyback of \$10 million will immediately reduce assets by \$10 million, meaning that the bank would need to reduce assets by another \$90 million, along with the funding liabilities. The reduction in liabilities would impact earnings favorably, with the amount of the gain depending on the cost of funds.

Highlander Bank is under-leveraged and is looking to reduce its excess capital, so it hopes to see a decline in its E/A ratio. When an under-leveraged firm does a buyback, the reduction in assets is equal to the reduction in equity. In Exhibit 16 we show the impact from a \$40 million buyback assuming that the bank does not deleverage the balance sheet after the stock repurchase.<sup>2</sup> The exhibit shows the EPS for different combinations of buyback price and marginal yield on earning assets (YEA). To project the impact, the challenge for management is to estimate the earnings

<sup>2</sup> When the E/A ratio falls, a bank becomes more leveraged. The term "deleverage" means to sell assets or raise more equity in order to push the bank's E/A ratio back up to its original level. When a bank does a stock buyback, its E/A ratio falls and the bank becomes more leveraged. If the bank subsequently sells assets, this will reverse the reduction in the E/A ratio. If enough assets are sold, this can totally offset the reduction to the E/A ratio attributable to the buyback.

power of the assets that would be lost from the balance sheet. We show the bank's YEA of 5.74 percent. This is an average. Some of the earning assets are higher-yielding; some are lower-yielding. You'd expect management to use low-yielding assets to pay for the buyback in order to minimize the impact to net income. However, the bank does not want to deplete its liquidity as a result of the buyback, and low-yielding assets tend to be more liquid. Immediately after the buyback, the bank will be facing the same level of deposit volatility and loan demand, so maintaining a stable level of liquidity is important.

**Exhibit 16: Analysis of Impact to Earnings per Share (No Deleveraging)**

Assumptions:	
Buyback Amount	\$40,000,000
Shares Outstanding	22,924,215
Quarterly Earnings	2,232,900
YEA	5.74%
EPS	\$0.0974
Marginal Tax Rate	34%

EPS (\$) Impact as a Function of Marginal Yield and Price										
Buyback Price (\$)	0.00%	1.00%	2.00%	3.00%	4.00%	5.00%	6.00%	7.00%	8.00%	9.00%
10.00	0.1180	0.1145	0.1110	0.1075	0.1040	0.1006	0.0971	0.0936	0.0901	0.0866
10.50	0.1168	0.1134	0.1099	0.1065	0.1030	0.0996	0.0961	0.0926	0.0892	0.0857
11.00	0.1158	0.1123	0.1089	0.1055	0.1021	0.0987	0.0952	0.0918	0.0884	0.0850
11.50	0.1148	0.1114	0.1080	0.1046	0.1012	0.0979	0.0945	0.0911	0.0877	0.0843
12.00	0.1140	0.1106	0.1072	0.1039	0.1005	0.0971	0.0938	0.0904	0.0870	0.0837
12.50	0.1132	0.1099	0.1065	0.1032	0.0998	0.0965	0.0931	0.0898	0.0864	0.0831
13.00	0.1125	0.1092	0.1059	0.1025	0.0992	0.0959	0.0926	0.0892	0.0859	0.0826
13.50	0.1119	0.1086	0.1052	0.1019	0.0986	0.0953	0.0920	0.0887	0.0854	0.0821
14.00	0.1113	0.1080	0.1047	0.1014	0.0981	0.0948	0.0915	0.0882	0.0850	0.0817
14.50	0.1107	0.1075	0.1042	0.1009	0.0976	0.0944	0.0911	0.0878	0.0845	0.0813
15.00	0.1102	0.1070	0.1037	0.1005	0.0972	0.0939	0.0907	0.0874	0.0842	0.0809

The opposite corners of Exhibit 16 show the best- and worst-case scenarios. If the buyback is at \$10/share and the assets used are paying zero percent interest (for example, a cash account paying no interest), then the buyback is accretive as EPS jump from \$0.0974 to \$0.1180. Moving to the opposite corner of the matrix, if the buyback is at \$15/share and the assets used are paying nine percent interest (which is well above the bank's current YEA), then the buyback is dilutive, as EPS fall from \$0.0974 to \$0.0809. The shading in Exhibit 16 highlights when the buyback is dilutive to earnings. Every cell that is not shaded is a combination of buyback price and yield that is accretive to EPS, while the shaded cells are combinations that are dilutive. To forecast the impact from the buyback, the bank's finance department would need to earmark the assets that would be liquidated to cash for the transaction and determine their yields. As for the average price of the buyback, this will be market-driven and will depend on how the market responds during the buyback and what price the bank is willing to pay for shares. The reduction to earnings (the numerator of EPS) is calculated as the assets used to repurchase shares times the marginal YEA times one minus the marginal tax rate. This reduction is multiplied by 0.25 to convert it to a quarterly basis. The reduction to the shares outstanding (the denominator of EPS) is calculated as the buyback amount—\$40 million for our illustration—divided by the buyback price.

One of the tenets of financial operation of a bank is that high leverage is generally a prerequisite for generating a strong ROE. Consequently, if a bank is fully-leveraged and does not have excess capital, and desires to maintain its E/A ratio, then a stock buyback is much more likely to be dilutive to EPS. The reason is that the bank loses assets quickly as a result of a buyback. To find the amount of assets lost, multiply the buyback amount by the bank's equity multiplier (EM). Earlier we gave an example of a \$10 million buyback for a bank with an EM of 10x. Suppose that Highlander Bank wanted to do a \$40 million buyback and maintain an E/A ratio of 8 percent. (Obviously, this is a contrived example

because Highlander Bank's equity ratio is over 20 percent.) An E/A ratio of 8 percent means that the EM is 12.5x (the inverse of the equity ratio). So the bank's assets would be reduced by \$40 million times 12.5 or \$500 million. In contrast, a bank that has excess capital and does not need to deleverage the bank after the buyback would see its assets fall by just \$40 million.

Exhibit 17 shows the EPS impact to the fully-leveraged bank, using the same variables as in Exhibit 16. Compared to Exhibit 16, there are fewer nonshaded cells meaning that fewer scenarios are accretive to EPS. One way to ensure an accretive buyback for the leveraged bank is to fund the buyback from assets that are in cash paying zero percent interest. In this case, the explicit opportunity cost of the cash is zero, so it makes sense to use the cash in a buyback. Of course, this would depend on whether the bank has sufficient cash to fund the buyback and whether the post buyback liquidity position would be sufficient to meet the bank's obligations. Seeing all shaded cells in the four percent marginal YEA column might seem curious. Suppose the bank does a \$40 million buyback at \$10/share and four percent yield. The bank would lose \$500 million in assets (after deleveraging) yielding four percent. After taxes, this translates into \$461,340 in lost earnings (on a quarterly basis); so earnings would fall by 20.7 percent. As for the share reduction, \$40 million would purchase four million shares (at \$10/share), so the outstanding shares would decrease by 17.4 percent. The resulting EPS would be \$0.0936 or 3.9 percent less than before the buyback. For the under-leveraged bank, the reduction in earnings from a \$40 million buyback is just \$264,000 (again, assuming a four percent YEA). The share reduction is identical for the fully-leveraged and under-leveraged banks, while the fully-leveraged bank's net income reduction is 1.75x the amount lost by the under-leveraged bank.

**Exhibit 17: Analysis of Impact to Earnings per Share (with Deleverage)**

<b>Assumptions:</b>	
Buyback amount	\$40,000,000
Shares Outstanding	22,924,215
Quarterly Earnings	2,232,900
YEA	5.74%
COF	3.74%
EPS	\$0.0974
Equity-to-Assets	8%
Marginal Tax Rate	34%

EPS (\$) Impact as a Function of Marginal Yield and Price										
Buyback Price (\$)	0.00%	1.00%	2.00%	3.00%	4.00%	5.00%	6.00%	7.00%	8.00%	9.00%
10.00	0.2680	0.2244	0.1808	0.1372	0.0936	0.0500	0.0064	-0.0372	-0.0808	-0.1244
10.50	0.2653	0.2222	0.1790	0.1358	0.0927	0.0495	0.0064	-0.0368	-0.0800	-0.1231
11.00	0.2629	0.2202	0.1774	0.1346	0.0918	0.0491	0.0063	-0.0365	-0.0792	-0.1220
11.50	0.2608	0.2184	0.1760	0.1335	0.0911	0.0487	0.0063	-0.0362	-0.0786	-0.1210
12.00	0.2589	0.2168	0.1747	0.1325	0.0904	0.0483	0.0062	-0.0359	-0.0780	-0.1201
12.50	0.2571	0.2153	0.1735	0.1316	0.0898	0.0480	0.0062	-0.0357	-0.0775	-0.1193
13.00	0.2555	0.2140	0.1724	0.1308	0.0893	0.0477	0.0061	-0.0354	-0.0770	-0.1186
13.50	0.2541	0.2127	0.1714	0.1301	0.0887	0.0474	0.0061	-0.0352	-0.0766	-0.1179
14.00	0.2527	0.2116	0.1705	0.1294	0.0883	0.0472	0.0061	-0.0351	-0.0762	-0.1173
14.50	0.2515	0.2106	0.1697	0.1288	0.0879	0.0469	0.0060	-0.0349	-0.0758	-0.1167
15.00	0.2504	0.2096	0.1689	0.1282	0.0875	0.0467	0.0060	-0.0347	-0.0755	-0.1162

When a bank decides to do a stock buyback, but then deleverage the bank to return to the initial E/A ratio, we have shown that this results in a much larger reduction of assets. As mentioned earlier, when the additional assets are eliminated, this requires the bank to also reduce liabilities. In order to project the impact to earnings, an assumption about the cost of funding (COF) is needed. For simplicity, we assumed in the analysis shown in Exhibit 17 that the COF on liabilities removed from the balance sheet is the same as the bank’s current COF of 3.74 percent. However, the COF assumption could be varied by management to examine the impact more thoroughly. Just as it makes sense to reduce the bank’s lowest-yielding assets, it likewise makes sense to reduce the bank’s highest-costing liabilities. The EPS adjustment requires a similar calculation as described earlier,

with one modification. The analyst needs to adjust earnings (the numerator of EPS) for the reduction in interest expense. This is calculated as the reduction in liabilities times the cost of funds for those liabilities times one minus the marginal tax rate. Again, this reduction is multiplied by 0.25 to convert it to a quarterly basis.

At the beginning of this section, we asked the question, “What does [a firm] hope to accomplish from a stock buyback?” The management of a bank with excess capital might use a stock repurchase as a way to shift the bank to a more highly-leveraged position (i.e., a lower E/A ratio). In order to arrive at the appropriate size of the repurchase, the board needs to find a consensus as to the optimal capital structure for the bank. Few community banks do rigorous analysis to arrive at a target. Proactive banks will want to push the E/A ratio down as far as possible in order to yield a high EM. This requires a thorough risk analysis and documentation to justify the bank’s capital ratio. When a bank approaches regulatory limits for its capital ratios, it needs to demonstrate its quantitative and qualitative rationale for why a lean capital structure is sufficient vis-à-vis the bank’s overall risk profile. With the introduction of Basel II capital requirements—which do not directly pertain to community banks—there are changes to the ways regulators view capital management. Basel II and the subprime debt debacle will probably launch a new paradigm for managing bank capital for all banks, regardless of size. Earlier, we used an equity ratio of eight percent. For this case study, we will assume that this target is compatible with Highlander Bank’s credit, interest-rate and operational risk profiles.

When a firm’s board authorizes a share repurchase, often it will give limits on the number of shares. In the case of Highlander Bank, the initial decision was to allow for repurchase up to 20 percent of outstanding shares. When the bank steps in to purchase shares, the buying will put upward pressure on the price. Exhibit 18 shows the impact to the bank’s E/A ratio as a function of two variables—the average share price paid by the bank for the purchased shares and the percentage of shares

repurchased. Obviously, the bank wants to buy back shares at the lowest price possible. Earlier, our analysis showed that the impact to BVPS and EPS is more favorable the lower the price paid. The opposite is true for the equity ratio. As the price paid climbs, the rate of capital transfer to shareholders goes up, as does the rate of descent in the E/A ratio. The greatest impact to the E/A ratio is seen in the lower-right-hand corner of Exhibit 18. If all 20 percent of the shares authorized are bought at \$15/share, the bank's E/A ratio will drop from 21.6 percent to 17.3 percent. This will leave the bank with an EM of just 5.8x, which is still low. If the bank wants to move closer to a target E/A ratio of 8 percent using a buyback, it'll need to consider a repurchase of shares on a much grander scale. Earlier, we outlined other methods for utilizing excess capital that should also be considered.

**Exhibit 18: Analysis of Impact to Equity-to-Assets Ratio of Buyback**

<b>Assumptions:</b>	
Equity	\$282,672,450
Shares Outstanding	22,924,215
Assets	\$1,306,543,500
E/A Ratio	21.6%

E/A Ratio Impact as a Function of % of Shares Repurchased and Price										
Buyback Price (\$)	2%	4%	6%	8%	10%	12%	14%	16%	18%	20%
10.00	21.4%	21.1%	20.8%	20.5%	20.2%	19.9%	19.7%	19.4%	19.1%	18.8%
10.50	21.3%	21.1%	20.8%	20.5%	20.2%	19.9%	19.6%	19.3%	18.9%	18.6%
11.00	21.3%	21.0%	20.7%	20.4%	20.1%	19.8%	19.5%	19.1%	18.8%	18.5%
11.50	21.3%	21.0%	20.7%	20.3%	20.0%	19.7%	19.4%	19.0%	18.7%	18.3%
12.00	21.3%	21.0%	20.6%	20.3%	19.9%	19.6%	19.3%	18.9%	18.5%	18.2%
12.50	21.3%	20.9%	20.6%	20.2%	19.9%	19.5%	19.2%	18.8%	18.4%	18.0%
13.00	21.3%	20.9%	20.5%	20.2%	19.8%	19.4%	19.1%	18.7%	18.3%	17.9%
13.50	21.3%	20.9%	20.5%	20.1%	19.7%	19.3%	18.9%	18.5%	18.1%	17.7%
14.00	21.2%	20.9%	20.5%	20.1%	19.7%	19.3%	18.8%	18.4%	18.0%	17.6%
14.50	21.2%	20.8%	20.4%	20.0%	19.6%	19.2%	18.7%	18.3%	17.9%	17.4%
15.00	21.2%	20.8%	20.4%	19.9%	19.5%	19.1%	18.6%	18.2%	17.7%	17.3%

The shares acquired through a stock buyback program can eventually be used as "currency" if the bank decides to acquire another bank. Often, merger and acquisition (M&A) deals are done with a combination of cash and stock. If Highlander Bank plans M&A activity, the stock buyback will help management lower the bank's E/A ratio plus provide shares for future deals. Highlander Bank's board thought that a 20 percent buyback would reduce excess capital more significantly. If more reductions in the bank's excess capital is the goal, then a larger scale buyback should be considered. Exhibits 19 and 20 show the impact to the E/A ratio and the equity multiplier, respectively, from buybacks ranging from five percent to 50 percent. The two exhibits tell the same story, as the equity multiplier is simply the inverse of the equity ratio. Incredibly, even with a 50 percent buyback, the bank won't achieve an eight percent E/A ratio, unless the repurchase price exceeds \$15/share.

**Exhibit 19: Analysis of Impact to E/A Ratio from a Larger-Scale Buyback**

<b>Assumptions:</b>	
Equity	\$282,672,450
Shares Outstanding	22,924,215
Assets	\$1,306,543,500
E/A Ratio	21.6%

E/A Ratio Impact as a Function of % of Shares Repurchased and Price										
Buyback Price (\$)	5%	10%	15%	20%	25%	30%	35%	40%	45%	50%
10.00	20.9%	20.2%	19.5%	18.8%	18.0%	17.3%	16.5%	15.7%	14.9%	14.1%
10.50	20.9%	20.2%	19.4%	18.6%	17.9%	17.1%	16.2%	15.4%	14.6%	13.7%
11.00	20.9%	20.1%	19.3%	18.5%	17.7%	16.8%	16.0%	15.1%	14.2%	13.3%
11.50	20.8%	20.0%	19.2%	18.3%	17.5%	16.6%	15.7%	14.8%	13.8%	12.8%
12.00	20.8%	19.9%	19.1%	18.2%	17.3%	16.4%	15.4%	14.4%	13.4%	12.4%
12.50	20.8%	19.9%	19.0%	18.0%	17.1%	16.1%	15.1%	14.1%	13.1%	12.0%
13.00	20.7%	19.8%	18.9%	17.9%	16.9%	15.9%	14.8%	13.8%	12.7%	11.5%
13.50	20.7%	19.7%	18.7%	17.7%	16.7%	15.6%	14.6%	13.4%	12.3%	11.1%
14.00	20.7%	19.7%	18.6%	17.6%	16.5%	15.4%	14.3%	13.1%	11.9%	10.7%
14.50	20.6%	19.6%	18.5%	17.4%	16.3%	15.2%	14.0%	12.8%	11.5%	10.2%
15.00	20.6%	19.5%	18.4%	17.3%	16.1%	14.9%	13.7%	12.4%	11.1%	9.8%



**Exhibit 20: Analysis of Impact to the Equity Multiplier from a Larger-Scale Buyback**

<b>Assumptions:</b>	
Equity	\$282,672,450
Shares Outstanding	22,924,215
Assets	\$1,306,543,500
Equity Multiplier	4.6x

Equity Multiplier as a Function of % of Shares Repurchased and Price										
Buyback Price (\$)	5%	10%	15%	20%	25%	30%	35%	40%	45%	50%
10.00	4.8x	4.9x	5.1x	5.3x	5.5x	5.8x	6.1x	6.4x	6.7x	7.1x
10.50	4.8x	5.0x	5.2x	5.4x	5.6x	5.9x	6.2x	6.5x	6.9x	7.3x
11.00	4.8x	5.0x	5.2x	5.4x	5.7x	5.9x	6.3x	6.6x	7.1x	7.5x
11.50	4.8x	5.0x	5.2x	5.5x	5.7x	6.0x	6.4x	6.8x	7.2x	7.8x
12.00	4.8x	5.0x	5.2x	5.5x	5.8x	6.1x	6.5x	6.9x	7.4x	8.1x
12.50	4.8x	5.0x	5.3x	5.5x	5.9x	6.2x	6.6x	7.1x	7.7x	8.3x
13.00	4.8x	5.0x	5.3x	5.6x	5.9x	6.3x	6.7x	7.3x	7.9x	8.7x
13.50	4.8x	5.1x	5.3x	5.6x	6.0x	6.4x	6.9x	7.4x	8.1x	9.0x
14.00	4.8x	5.1x	5.4x	5.7x	6.1x	6.5x	7.0x	7.6x	8.4x	9.4x
14.50	4.8x	5.1x	5.4x	5.7x	6.1x	6.6x	7.2x	7.8x	8.7x	9.8x
15.00	4.9x	5.1x	5.4x	5.8x	6.2x	6.7x	7.3x	8.1x	9.0x	10.2x

The analysis shows that the bank needs to conduct a massive stock buyback if it intends to reduce excess capital significantly in the short term. To put the buyback into perspective, a 50 percent repurchase at \$12/share equates to \$137,545,290. This size of buyback would certainly push the price higher on Highlander Bank’s shares, but by how much? That depends on the price elasticity of the supply curve for the bank’s shares. The IPO price was \$10/share, so \$12 would give shareholders a quick 20 percent return, during a period when other bank stocks yielded losses. If a 50 percent buyback were done, the bank’s BVPS would be far more sensitive to the average purchase price. We estimate that the resultant BVPS would be \$9.66 (down from \$12.33) if the average price paid on a 50 percent buyback were \$15/share. If the average price were \$14, then the

BVPS would drop to \$10.66. As for EPS, the accretive/dilutive line shown in Exhibit 16 would remain the same. The difference that would be seen is the magnitude of EPS changes. There are many managerial issues that would need to be addressed if a larger buyback were considered, such as:

1. Could the bank liquidate enough low-yielding assets to produce sufficient funds for the buyback?
2. Would the bank’s liquidity position be satisfactory after a massive buyback?
3. The bank’s borrowing/assets ratio would spike—would the bank violate a lending limit?

It is unlikely that the bank will solve its capital management issues overnight. Highlander Bank is a perfect example of a bank that should create a detailed capital plan as part of its overall strategic plan. Part of the plan needs to outline management’s plans for managing shareholders’ expectations for the bank. The board knows that shareholders could become restless with the bank holding so much capital, so they need to explain how the bank’s capital will be utilized over the next five to ten years. Each time there is a “capital event,” such as an increase to the dividend, a special dividend, or a stock buyback, this is an opportunity for management to communicate to shareholders. The underlying message from management to shareholders is that steps are being taken to maximize shareholder wealth.

**Stock Performance: Fundamental Versus Speculative Return**

Management and the board are interested in a fair method for evaluating the performance of Highlander Bank’s stock. In Part I of the case study we did a thorough stock performance assessment of Lowlander Bank that included a stock valuation. Assessing Highlander Bank’s stock is more challenging because it has been in existence for such a brief period; there is no five-year look-back period. When we valued Lowlander Bank, we estimated its beta using five years of stock returns. Without a

reasonable time series of stock returns, calculating beta is difficult if not meaningless. If a discount factor were needed for valuing Highlander Bank, it would make more sense to use an average of similar banks' betas. Moreover, we used a dividend yield multiple to derive a value proxy for Lowlander Bank. Highlander Bank has no dividend history, so an alternate value metric is needed. If the bank needs to value its shares, probably the best methods to use are the price-to-book ratio and the franchise-premium-to-core-deposit (FPCD) ratio, which were introduced in Part I of the case study. The bank's small portion of deposit funding would hurt its FPCD ratio-based valuation. Although that wouldn't directly hurt its P/B ratio-based valuation, an analyst might adjust a P/B-based valuation because of the bank's less desirable funding mix.

There is often a good deal of speculation surrounding IPOs. Investors like to buy shares with the intent of "flipping" them for a quick profit. There have been many stories in the popular press about investors looking for ways to participate in IPOs of mutual banks when they convert. In some cases, bank boards have taken measures to preclude out-of-town people from making deposits into their bank with the intent of making a fast buck from the bank's anticipated conversion. Highlander Bank realizes that speculation and investor psychology could be as much a factor in its stock performance as the fundamentals. The management team and the board read recent research that we did on the difference between fundamental and speculative returns and they wanted to learn more. The following are two illustrations of how to look at a bank's returns from a fundamental and speculative perspective. For the "real-world" illustration, we chose an example that predates the subprime debacle.

#### *Fundamental vs. Speculative Return: A Simple Illustration*

In addition to budgeting and tracking earnings performance, boards can also "budget" and track their stock performance. Jack Bogle provides insight into how to explain a divergence between earnings growth and stock performance when a stock does not

meet budget. Mr. Bogle, well known for starting the mutual fund company named The Vanguard Group, divides investment returns into "fundamental returns" and "speculative returns" (see p. 129 in Ellis, 2002). The fundamental return is the growth in earnings plus the current dividend yield. The speculative return is based on the change in a stock's price-to-earnings (P/E) ratio. Total return on a stock is the change in its price (capital appreciation or depreciation) plus the dividend yield. Using Bogle's insight, we can break the price change into two parts: the change to EPS and the change to the P/E ratio.

Exhibit 21 provides the numbers needed to make a simple comparison between fundamental versus speculative return. An investor will likely assess the return of his investment by the capital appreciation and the dividend paid, which is the total return. The sum of these two components includes the fundamental and speculative returns, as defined by Bogle. For scenarios one and two, the stock prices, EPS and dividend (paid in period one) are shown. Using these figures, we can calculate the fundamental return (growth in EPS plus dividend yield) and the speculative return (the change in the P/E ratio). For both scenarios, the total return is 10.0 percent.

Which scenario would the typical investor prefer? Arguably, he would be indifferent, because both provide a total return of 10 percent. However, when you dig deeper into the numbers, you find that the return for scenario one is mostly a result of a strengthening P/E multiple. What we don't show is whether the sector's P/E multiple also increased, or is the P/E gain company-specific? If the P/E gain is company specific, perhaps it is sustainable. Yet, scenario two reflects a meaningful 6.67 percent increase in EPS not seen in scenario one. This is evidence that the firm has become more profitable, and should be capable of sustaining a larger dividend in the future. The fundamental return calculation separates the EPS gain from the P/E ratio change. Jack Bogle's approach to stock performance evaluation favors the fundamental return over the speculative return, so he would prefer scenario two.

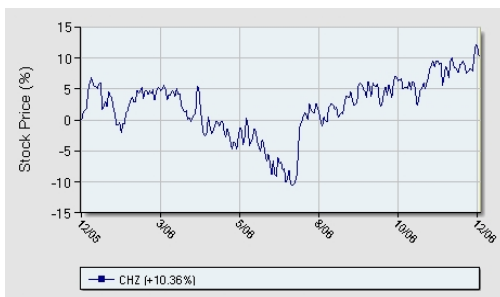
### Exhibit 21: Fundamental vs. Speculative Return

	Scenario 1	Scenario 2
$P_0 =$	\$15.00	\$15.00
$P_1 =$	\$16.00	\$16.00
$EPS_0 =$	\$1.000	\$1.000
$EPS_1 =$	\$1.000	\$1.067
$DPS_1 =$	\$0.50	\$0.50
$(P/E)_0 =$	15.0x	15.0x
$(P/E)_1 =$	16.0x	15.0x
Fundamental Return =	3.3%	10.0%
Speculative Return =	6.7%	0.0%
Total Return =	10.0%	10.0%

#### Fundamental vs. Speculative Return: A Real-Life Illustration

After a rocky first half of the year that saw its stock tumble more than 10 percent (see Exhibit 22), Chittenden Corporation gave investors a pleasant surprise by year-end 2006. The bank, which has since been bought by another bank, is located in Vermont with assets around \$6.4 billion. Although net income was up just 4.2 percent for 2006, the stock rebounded and produced a total return of 13.2 percent. If Chittenden's board of directors budgeted for a 4.2 percent growth in net income in 2006, it's unlikely that they expected a total return three times that amount. However, there are instances when investment returns and earnings performance diverge substantially. Should a bank CEO be judged on how well the stock performs or on earnings growth?

### Exhibit 22: Stock Performance for Chittenden Corporation in 2006



Source: SNL Financial

Traditionally, banks spend a lot of time creating a budget for the upcoming year. This helps them control expenses and to project revenues and earnings. If budgeting does not produce a feasible plan to grow EPS in line with the board's expectations, then management needs to make some tough and/or creative decisions in order to close the gap. One step taken by Chittenden in 2006 was to repurchase 1.8 million shares of outstanding stock. A management team might assume that the bank's share price will reflect its successes at growing earnings; yet, there is not always a perfect correlation between earnings and share price. If, for example, a bank's earnings rose by 10 percent last year, did its stock price rise by 10 percent as you would expect? Also an important question for shareholders: What total return is realized by growing earnings by 10 percent?

In Exhibit 23, key financial data for Chittenden Corporation are shown for 2005 and 2006. The bank increased EPS by 5.1 percent in 2006—an okay year. On the other hand, the bank's total return (share appreciation plus dividend yield) in 2006 was 13.2 percent—an excellent year. What grade should the board have given the CEO for performance based on 2006 results? Before we answer the question, let's quantify the fundamental and speculative returns as was done above for the simple example. The increase in EPS (5.1 percent) and the dividend yield (2.8 percent) sum to 7.9 percent to give the fundamental return. Management has a direct hand in achieving higher EPS and setting DPS (dividend per share), so it is fair to grade them on these two return fundamentals. The speculative return in 2006 was the 5.0 percent rise in the bank's P/E ratio. This made a material contribution to the bank's total return, but how much credit does management deserve?

### Exhibit 23: Financial Data for Chittenden for 2005 and 2006

	2005	2006	% Change
Share Price	\$27.81	\$30.69	10.4%
EPS	\$1.76	\$1.85	5.1%

<b>DPS</b>	\$0.72	\$0.78	8.3%
<b>Dividend Yield</b>	2.5%	2.8%	11.9%
<b>P/E Ratio</b>	15.8x	16.6x	5.0%

Sources: Chittenden Corporation's 10-K; Yahoo! Finance

Frequently we read stories in the popular press about outrageous CEO compensation. Board members should find it easier to justify a compensation package based on fundamental returns than speculative returns. To fairly grade the CEO for 2006, the board should compare the fundamental return of 7.9 percent to a pre-established guideline for returns that can be agreed to and documented in the strategic plan. If the speculative return is lumped into the overall evaluation, this could lead to "grade inflation" or "grade deflation" and, arguably, too much credit or blame assigned to the CEO.

Chittenden Corporation makes an interesting illustration of fundamental versus speculative returns because of what happened in the prior year, 2005. The total return for the stock in 2005 was *negative* 0.7 percent. If this were all you knew as a board member, you might want to reduce the CEO's compensation or even fire him because of the poor return. However, as the data show in Exhibit 24, the bank had a marvelous year, based on fundamentals. The bank's EPS were up 11.4 percent and the dividend yield was 2.5 percent, producing a fundamental return of 13.9 percent in 2005. This is well ahead of the 7.9 percent fundamental return that was achieved in 2006. The reason that the total return for 2005 was negative is because the speculative return—namely, the change in the P/E ratio—was negative 13.1 percent.

In order to evaluate the performance of their banks using a fair benchmark, boards will commonly make comparisons to peer groups of banks of similar size, location and/or business model. This makes some sense because changes to P/E ratios tend to affect the entire sector to a similar extent. Nevertheless, it is impossible to forecast or budget how P/E multiples will change year to year. Moreover, a bank's P/E

multiple can vary from industry factors and/or bank-specific factors. For instance, if the banking sector looks poised to increase future earnings growth, P/E multiples will likely rise as this expectation is priced into the market. At the bank level, earnings prospects can improve and that will help the bank's individual P/E ratio. Also, any success at lowering the bank's risk could be interpreted favorably by the market and rewarded with a higher P/E ratio. Unlike earnings growth and dividends, management's direct influence on the bank's P/E ratio is uncertain. Therefore, a board might want to differentiate between fundamental and speculative return when grading the CEO's performance.

#### **Exhibit 24: Financial Data for Chittenden for 2004 and 2005**

	<b>2004</b>	<b>2005</b>	<b>% Change</b>
<b>Share Price</b>	\$28.73	\$27.81	-3.2%
<b>EPS</b>	\$1.58	\$1.76	11.4%
<b>DPS</b>	\$0.70	\$0.72	2.9%
<b>Dividend Yield</b>	2.1%	2.5%	20.4%
<b>P/E Ratio</b>	18.2x	15.8x	-13.1%

Sources: Chittenden Corporation's 10-K; Yahoo! Finance

#### *Applying Fundamental and Speculative Return Concepts to Highlander Bank*

To see how the principles of fundamental versus speculative return can be applied to Highlander Bank, assume that the bank's price jumped from its IPO price of \$10 per share to \$12 per share in the first year. There were no dividends paid, so the total return was 20 percent. During the year, EPS rose by 30 percent. In the last section, we defined fundamental return as the combination of EPS growth and dividend yield. Therefore, because there were no dividends paid, the fundamental return is equal to the EPS growth, or 30 percent. The P/E ratio at the time of the IPO was 30.1x. One year later it was 27.8x, for a speculative return of -7.6 percent. Thus, the total

return for the first year after the IPO is 20 percent, the fundamental return is 30 percent and the speculative return is -7.6 percent. Which return figure is more meaningful when evaluating a bank's progress? The answer to this question might be different when evaluating a bank that has just done an IPO.

Specifically, for a mutual-to-stock conversion, how do you interpret the speculative and fundamental returns in the early years, particularly the first year? Is either return figure a meaningful measure of performance? The 20 percent price gain is a product of the fundamental return (1+0.30) and the speculative return (1-0.076). It is likely that the lofty P/E ratio is partly a result of investor speculation regarding how management will employ the capital to grow profitability. The value that investors place on the shares today reflects their consensus about future profitability, specifically the increases to EPS. Inherent in the consensus is an expectation that the bank will eventually pay a growing stream of dividends that are supported by the growth in earnings. Exhibit 25 shows that the bank's P/E ratio (top line) immediately exceeded the long-running average for thrifts in its peer group. One interpretation is that the market expects Highlander Bank to grow earnings more quickly than other thrifts of comparable size. Given the massive pool of capital that the bank has, this is likely a good assumption. But should this speculation factor into the assessment of the stock performance for the latest year? Arguably, it should not.

**Exhibit 25: P/E Ratio for the Sector and Highlander Bank**



Source: SNL Financial

As for the fundamental return, any board would be delighted with a 30 percent return. But keep in mind that Highlander Bank's IPO raised roughly \$200 million in capital, so an immediate earnings boost is not a surprise. In fact, the question has to be asked whether the earnings increase was as large as it should have been given the jump in assets. Keep in mind from the accounting identity that the bank's asset base expanded as the equity account increased. The growth in assets should be dollar for dollar along with the growth in equity; however, some of the equity was a shift in funds from deposits into the equity account. Thus, the net asset base increase was equal to the new funds that flowed into the bank as a result of the IPO.

**Setting Dividend Policy And Eps/Dps Targets**

Usually, when a firm does an IPO, it needs to raise capital for growth purposes. Highlander Bank's mutual-to-stock conversion raised a tremendous amount of equity—more than it needed. Prior to the conversion, the bank's E/A ratio was below eight percent and falling. Exhibit 26 shows the compound annualized growth rate (CAGR) of the bank's loans and deposits over the 10-year period prior to the conversion. During the same period, the bank's average ROE was well below its loan growth. Because the bank was paying no dividends, the sustainable growth rate was equal to the bank's ROE. This meant that the bank's equity growth was slower than asset growth, which explains the falling E/A ratio. If the bank forecasted loan growth to continue at the 10-year rate, then raising capital was a good idea; but the actual amount raised through the IPO was excessive. It's incumbent on bank boards to create a capital management plan. Otherwise, they run the risk of having too much or too little capital.

**Exhibit 26: 10-Year Loan and Deposit Growth Rates**

	<b>CAGR</b>
<b>Loan Growth</b>	9.6%
<b>Deposit Growth</b>	8.0%

Sources: SNL Financial; Regulatory Financials

As the bank looks to the future, management should set a target return for shareholders. This will help it formulate a budget for EPS and DPS. Suppose management sets a goal of 10 percent rate of return for the next 10 years, composed of share appreciation and dividend yield. Typical returns might be eight percent share appreciation from EPS growth and two percent from dividend yield. By using the dividend discount model and the IPO price of \$10/share, we can create a dividend schedule for the next 10 years. Below we show the DDM that was introduced in Part I of the case study, substituting \$10 for  $V_0$ , 10 percent for  $k$  and eight percent for  $g$ . The numerator of the DDM,  $D_0 \times (1 + g)$ , represents  $D_1$ , the dividend paid in the first year after the IPO. Solving for that value gives \$0.20 as the first year's dividend, with eight percent growth each year in the future.

$$\$10 = \frac{D_0 \times (1 + 0.08)}{0.10 - 0.08}$$

$$D_1 = \$0.20$$

Based on the assumptions above, Exhibit 27 provides DPS and EPS targets for Highlander Bank. Management and the board can change the assumptions. For example, the model above shows a 10 percent rate of return, with eight percent share appreciation and a two percent dividend yield. Bank stocks provide an equity investment with lower-than-average risk. Therefore, a target return of eight to nine percent could be justified. With the schedule shown in Exhibit 27, the bank is paying out about 50 percent of earnings. If this schedule were adopted, then the bank's strategic plan would need to outline how the bank will grow its EPS by eight percent each year.

The DDM can be further used to project the bank's price in 10 years. Based on the model, the value would be year 10's dividend times one plus the growth rate  $(1+g)$  divided by the difference between the return and the growth rate  $(k-g)$ , or \$21.59. Whether or not this price becomes reality depends not just on the dividend paid. The market would have to reflect a consensus about the expected rate of

return continuing at 10 percent and the growth rate in dividends continuing at eight percent. This consensus will depend on the market's expectations for the bank's future earnings. Specifically: Can management continue to grow EPS at eight percent to support the eight percent growth in dividends? This will be the key question.

### Exhibit 27: DPS and EPS Targets

Year	DPS	EPS	Payout
1	\$0.200	\$0.39	51%
2	\$0.216	\$0.42	51%
3	\$0.233	\$0.45	51%
4	\$0.252	\$0.49	51%
5	\$0.272	\$0.53	51%
6	\$0.294	\$0.57	51%
7	\$0.317	\$0.62	51%
8	\$0.343	\$0.67	51%
9	\$0.370	\$0.72	51%
10	\$0.400	\$0.78	51%

During the next 10 years, changes to the bank's leverage ratio will depend on asset growth. In order to grow earnings at eight percent per year, the bank can grow assets and improve ROA. Both serve to boost earnings. Suppose, as an illustration, that the entire earnings gain in the first year comes from asset growth. That means that assets would grow by eight percent. The equity growth would be the difference between EPS and DPS (for example, in year one:  $\$0.39 - \$0.20 = \$0.19$ ) times the number of shares outstanding (e.g., 22,924,215 in year one), which gives \$4,355,601. This is a 1.5 percent increase relative to the end-of-year equity of \$282,672,000. As long as the bank's assets are growing faster than equity, the bank's E/A ratio will trend downward to a more efficient level.

Eventually, the bank's equity ratio and SGR need to stabilize to produce the growth needed to sustain the growth in EPS and DPS at an optimal capital structure. The growth rate incorporated into the DDM is eight percent. Exhibit 27 shows that the payout ratio is 51 percent. If that continues, then the retention ratio is 49 percent. Earlier, in Part II of the case, we presented the SGR as the product of the



firm's ROE times the retention ratio (rr). Based on the eight percent growth and 49 percent rr, the implied ROE for Highlander Bank is 16.3 percent. That is the ROE needed when the bank reaches its optimal E/A ratio. At that time, the bank will need to focus on the identity:  $ROA \times \text{equity multiplier} = ROE$ . It will need to determine (1) how profitable can the bank operate, as measured by ROA, and (2) what is the bank's equity multiplier target, based on the bank's risk profile and regulatory guidance? Suppose that Highlander Bank decides eight percent E/A is optimal, then the implied ROA is 1.31 percent. Can the bank lift its profitability to that level sometime in the future?

### Summary

By completing the mutual-to-stock conversion, the board and management at Highlander Bank have altered the mission of the bank. As a mutual, the bank's goal was to serve depositors, similar to the culture of a credit union. With the conversion, the bank added shareholders to the mix of stakeholders. We know in Corporate America that shareholders can often be the most vocal shareholder group. Going forward, strategic planning should include a target return for shareholders and steps to achieve it. Nevertheless, there is no reason why the other stakeholders (namely, management, employees, customers, and regulators) can't be equally well-served by a stock organization. Employee and customer satisfaction are ingredients of a successful corporation.

The IPO took the bank from a moderate capital position to being over-capitalized. However, it might be a mistake to act too quickly to reduce capital. In the last section, we laid out a DPS and EPS schedule that could produce a 10 percent long-term return for shareholders. To make it a reality, management will need to pay a consistently growing dividend and, just as importantly, demonstrate that the bank can generate the profitability needed to sustain a growing DPS. The plan calls for an ROE of 16.3 percent in the future. Suppose the bank's ROA hits a peak of one percent and the board wants to maintain 10 percent capital. Then the ROE will peak at 10 percent. In

order to maintain an SGR of eight percent, the bank's retention ratio will need to increase to 80 percent, dropping the payout ratio to 20 percent (rather than the 51 percent shown above). This would result in an immediate cut in the dividend and a drop in the share price, assuming the market price adjusts as finance theory would predict. If management and the board believe that the goals outlined are unrealistic, then a stock buyback might be considered. By reducing the shares outstanding, the overall level of earnings needed is reduced.

Earlier in the case study, we looked at the impact to EPS and BVPS from a stock buyback. The management of Highlander Bank is seriously considering a buyback as a way to reduce capital. However, before they launch a buyback, it makes sense to create a capital plan. Ultimately, a bank wants to achieve an optimal level of capital, which is sufficient to capitalize asset growth and remains stable in terms of the equity-to-assets ratio. Finance students are taught that firm value does not depend on capital structure. However, in banking this is less certain. As a bank's leverage increases, its ROE rises. Moreover, banks' EPS can be increased when they obtain a sizable portion of their funding from low-cost deposits, such as demand deposits and negotiable orders of withdraw accounts (i.e., NOW accounts). Normally, providers of capital are reluctant to invest in companies that depend on too much debt to finance their assets. In the case of banking, deposit insurance offered by the FDIC protects depositors from losses so they show little concern about the amount of financial leverage used by a bank. As Highlander Bank looks to the future, they should consider all the possible methods for utilizing capital discussed in this case study. These have to be weighed against prospects for loan and deposit growth. The overarching goal should be to use the capital to maximize shareholder returns by capitalizing profitable growth. When management makes its decisions about how much capital to invest versus the amount to return to shareholders, it has to assume that shareholders have other profitable investments they can choose. So returning a large chunk of the bank's capital might make perfect sense.

## References

- Burns, R. L. (2004). "Economic capital and the assessment of capital adequacy." *FDIC's Supervisory Insights*, [http://www.fdic.gov/regulations/examinations/supervisory/insights/siwin04/economic\\_capital.html](http://www.fdic.gov/regulations/examinations/supervisory/insights/siwin04/economic_capital.html)
- Ellis, C. D. (2002). *Winning the loser's game: Timeless strategies for successful investment*. New York, NY: McGraw-Hill.
- FDIC (2008). Risk-Based Assessment System. <http://www.fdic.gov/deposit/insurance/risk/index.html>
- Jordan, B. D. & Miller, Jr., T. W. (2008). *Fundamentals of investments: Valuation and management*. 4<sup>th</sup> edition. New York, NY: McGraw-Hill Irwin.
- Jubak, J. (2006). Why Warren Buffett's a genius again. *Jubak's Journal on MSNBC*. <http://articles.moneycentral.msn.com/Investing/Jubak'sJournal/WhyWarrenBuffettsAGeniusAgain.aspx>
- Mason, R. D., Lind, D. A. & Marchal, W. G. (1999). *Statistical Techniques in Business and Economics*, 10<sup>th</sup> edition, United States: Irwin McGraw-Hill.
- Smart, S .B., Megginson, W. L., & Gitman, L. J. (2007). *Corporate Finance*, 2<sup>nd</sup> edition, Mason, OH: Thomson South-Western.
- Winslow, S. (1994). *Stock Splits and Dividends: Do They Fool the Market? SNL Bank Securities Monthly*, published by SNL Securities, 6-8.

---

**John S. Walker** is an Associate Professor of Finance at Kutztown University of Pennsylvania. He holds masters degrees in chemical engineering from the University of Delaware and in business administration from Lehigh University, where he earned his Ph.D. in business and economics. He is a chartered financial analyst and spent 12 years as director of research for a bank advisory firm. He is co-author of a monograph titled *A Financial-Agency Analysis of Privatization: Managerial Incentives and Financial Contracting*. His research interests include privatization, banking, and portfolio management.

**Henry F. Check, Jr.** is an Instructor of Accounting and Finance at Kutztown University of Pennsylvania. He earned masters degrees in business administration and in economics from Lehigh University. His other research interests are firms with dual-class common capitalizations, the effect of dividend initiations on systematic risk, and public pension plan performance.