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Banc One Corporation

Asset and Liability Management

[Derivatives are] simply another Wall Street-developed house of cards.
—Representative Joseph Kennedy[1]

You can call it [the use of derivatives] whatever you want, but in my book it's gambling.
—Representative Henry Gonzalez, Chairman, House Banking Committee[2]

Our use of derivatives is just one more step in the evolution of banking.
—John B. McCoy, Chairman and CEO, Banc One Corporation

On November 15, 1993, Dick Lodge, Banc One Corporation's (Banc One's) chief investment officer (CIO), gathered his notes and headed for a meeting with John B. McCoy, Banc One's chairman and CEO. On the way, he recalled the lunchtime conversation on the golf course six weeks earlier, during which McCoy had first voiced concern over Banc One's falling share price—from a high of $48 3/4 in April 1993 to just $36 3/4 (see **Exhibit 1**). McCoy attributed the decline to investor concern over Banc One's large and growing interest rate derivatives portfolio. During their discussion in September, McCoy had asked Lodge, who was responsible for managing the bank's investment and derivatives portfolio, to think about ways to deal with this problem.

McCoy had been prompted into action not only by the continued price decline, but also by the comments of equity analysts who covered Banc One:

> The increased use of interest rate swaps is creating some sizable distortions in reported earnings, reported earning assets, margins, and the historical measure of return on assets. . . Were Banc One to include [swaps] in reported earning assets, the adjusted level would be 26% higher than is currently reported. . . . Given its large position in swap[s], Banc One overstates its margin by 1.31% [and its] return on assets in excess of 0.20%. . . . Adjusted for [swaps], Banc One's tangible equity-to-asset ratio would decline by 1.55%.[3]

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[1] As quoted by Barbara A. Rehm, "Regulators Try to Reassure Lawmakers on Swaps," *American Banker*, October 29, 1993, p. 3.

[2] Ibid.

[3] David N. Pringle, "Swaps Revisited, or, How I Learned to Stop Worrying and Love the Derivative," Lazard Frères Equity Research, October 26, 1993, pp. 4–14.

Professors Ben Esty and Peter Tufano and Research Associate Jonathan S. Headley prepared this case. HBS cases are developed solely as the basis for class discussion. Cases are not intended to serve as endorsements, sources of primary data, or illustrations of effective or ineffective management.

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> Banc One's investors are uncomfortable with so much derivatives exposure. Buyers of regional banks do not expect heavy derivatives involvement. . . . Heavy swaps usage clouds Banc One's financial image [and is] extremely confusing. . . . It is virtually impossible for anyone on the outside to assess the risks being assumed.[4]

What made this situation more perplexing was that Banc One already had attempted to pre-empt concern over its growing derivatives portfolio. Along with its second-quarter results, it distributed a booklet detailing its asset and liability management policies and describing its derivatives portfolio, which had grown during the quarter from $23.4 billion to $31.5 billion in notional principal.[5] Lodge and others believed that the information in the booklet would help assuage any investor's concerns. Yet, given these kinds of comments from the analysts, the message was clearly not getting through.

In Lodge's mind, there was a simple explanation for the large size of Banc One's derivatives portfolio: swaps were attractive investments that lowered the bank's exposure to movements in interest rates. Why the market was penalizing Banc One for something that *reduced* its exposure to risk remained a mystery to him. Earlier in the year, Lodge had expressed his puzzlement to a reporter: "Why in the world more banks don't look at interest rate swaps. . . . I don't know. It's not an esoteric phenomenon anymore."[6] Nevertheless, he knew that McCoy attributed the decline to the derivatives portfolio and wanted to discuss alternatives for dealing with the situation.

Banc One Corporation[7]

Banc One Corporation, headquartered in Columbus, Ohio, truly epitomized the spirit of regional banking. With $76.5 billion in assets, it was the largest bank holding company based in Ohio and the eighth largest in the country. Unlike the more traditional bank holding company structure, in which the parent corporation controlled subsidiary banks, Banc One had a three-tiered organizational structure operating across 12 states. The parent, Banc One Corporation, controlled five state bank holding companies (in Arizona, Indiana, Ohio, Texas, and Wisconsin), which in turn owned 42 subsidiary banks, or "affiliates." Through its Regional Affiliate Group, Banc One owned another 36 subsidiary banks—for a total of 78 banking affiliates. In addition to its banking affiliates, Banc One controlled 10 nonbanking organizations in various businesses ranging from insurance to venture capital to data processing.

For its banking business, Banc One had a very well defined, three-pronged strategy: concentrate on retail and middle-market commercial customers; use technology to enhance customer service and to assist in the management of banking affiliates; and grow rapidly by acquiring profitable banks.

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[4] George Salem, "Rating for Banc One Reduced to Hold from Buy Based on Confusion from Heavy Exposure to Interest Rate Swaps," Prudential Securities, November 1993, p. 2, as quoted by First Call.

[5] "Notional" referred to the fictional principal amount on which swap payments were based. For example, if a swap counterparty paid a fixed 7% rate on a swap with a notional value of $100 million, its payment would be $7 million. Likewise, the party paying a floating rate would multiply the prevailing floating-rate index by the notional amount to calculate its payment.

[6] Steven Lipin, "Many Banks Change Strategies to Manage Rate Risk," *The Wall Street Journal*, February 10, 1993, p. B4.

[7] See the HBS cases "Banc One Corporation 1989" (HBS No. 390-029), "Banc One Corporation 1989 (Abridged)" (HBS No. 390-208), and "Banc One Corporation 1991" (HBS No. 392-018) for details on the management and history of Banc One.

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Since 1969, it had completed 76 acquisitions involving 139 banks. In just the 10 years since 1982, it had completed 50 acquisitions, making it one of the top 10 corporate acquirers in the country.[8] As of November 1993, Banc One had ten pending acquisitions that would bring an additional $9 billion in assets to the corporation. One of the largest pending acquisitions was Liberty National Bancorp, a bank holding company in Louisville, Kentucky with $4.7 billion in assets.

This deal highlighted many of the principles that guided Banc One's acquisitions. The target, Liberty National, had a strong retail focus, had a solid management team, and was the market leader. In addition, the deal was structured like most of its previous acquisitions: it would be accounted for as a pooling of interests, be paid for with stock, and consist of a tiered offer that depended on the value of Banc One's stock price. The terms of the Liberty National Bancorp deal were as follows:

Banc One's stock price	Ratio of Banc One's Shares to Liberty National's Shares
Under $41.57	0.8421
$41.57 to $44.00	$35.00 worth of stock
Above $44.00	0.7954

As of mid-November, Banc One's stock was trading near the "walkaway" price of $34.55. If it was below $34.55 in the second quarter of 1994, when the deal was expected to be consummated, one of two things would happen. Either Liberty National would cancel the deal or Banc One would end up using stock that it felt was undervalued to pay for the deal. Thus, a low stock price would either bring Banc One's acquisition program to a halt or cause it to violate one of its cardinal rules of acquisitions: acquisitions should not be dilutive. According to John McCoy, Banc One has "very strong pricing discipline. We just don't do dilutive acquisitions."[9] William Boardman, an Executive Vice President at Banc One, elaborated: "When we talk to prospects, we tell them we want the deal to be non-dilutive when we do it, but that we also want it to be non-dilutive next year, and the year after that. Basically, what that means is that you have to grow your earnings at the same rate we're [Banc One] growing our earnings."[10]

While a strict set of principles guided Banc One's acquisition strategy, another well-defined set of principles guided its operating strategy. Internally, the operating strategy was known as the "uncommon partnership," which described the relationship among the affiliate banks and the various parts of the corporation. According to this partnership, the corporation decentralized the "people" side of the business and centralized the "paper" side. To capture the local knowledge of customers and markets, Banc One retained existing management in acquisitions and gave affiliate managers complete autonomy in running their banks. In contrast, Banc One centralized all of the affiliates' data processing, record keeping, and back office operations. This centralization fit well with Banc One's growth strategy. According to Boardman, "Growing just to become larger is not part of our strategy. Growing our economies of scale is."[11] The centralization of operations also capitalized on Banc One's vast experience with computer systems.

[8] Grimm's *Mergerstat Review*.

[9] Steve Cucheo, "What's So Good about Banc One?" *ABA Banking Journal*, July 1991: 57.

[10] J. Christopher Svare, "Acquiring for Growth and Profit: The Banc One Experience" *Bank Management*, November 1990, p. 24.

[11] Cucheo, op. cit.

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Over the years, Banc One had invested heavily in technology and information systems to support the uncommon partnership. Starting at the top with John B. McCoy, there was the belief that information was critical to running such a decentralized organization. One of the most important jobs of Banc One was to gather information from and disseminate it to the affiliates using the Management Information and Control System (MICS). This database tracked financial, productivity, and performance data for all affiliates. Every month, affiliates entered into the database their results and their revised budgets. In return, all affiliate presidents received a one-inch-thick report containing comparative statistics ranking all affiliates. The objective of this system was to encourage friendly competition among banking affiliates and to encourage managers to share information about effective banking products and practices.

Although it was an extremely complicated and highly decentralized organization, Banc One had one of the best financial track records of any bank in the country. Compared with the financial performance of the country's 25 largest bank holding companies in the decade since 1982, it had the highest average return on assets, the highest average return on equity, and the highest ratio of common equity to assets. Even more incredible was that Banc One had a string of 24 years of increasing earnings per share; none of the other large banks had a string of more than 7.[12]

Exhibit 2 summarizes Banc One's operating results and financial performance during the period 1983 to 1992.

Asset and Liability Management

A typical U.S. bank's liabilities consisted of floating-rate liabilities (such as federal funds borrowings) and long-term fixed-rate liabilities (such as certificates of deposit, or CDs). Assets included floating-rate assets (such as variable-rate mortgages and loans, as well as floating-rate investments) and long-term fixed-rate assets (such as fixed-rate mortgages and securities). Asset and liability management involved matching the economic characteristics of a bank's inflows and outflows. For example, a bank could match the maturity of its assets and liabilities. It also could look at the duration, the contractual fixed/floating nature of its commitments, or an estimate of the period in which its commitments would be repriced in response to changes in market rates as the basis upon which to judge just how well it was matched.

Banks' needs to match assets to liabilities arose from their strategic decisions regarding interest rate exposure. If their assets and liabilities were perfectly matched, then a rise or fall in interest rates would have equal and offsetting impacts on both sides of the balance sheet. In principle, perfect matching would leave a bank's earnings or market value unaffected by changes in interest rates. Alternatively, a bank could adjust its portfolio of assets and liabilities to profit when rates rose, but lose when they fell. It could also position itself to make the opposite bet.

In practice, banks typically had relatively more long-term fixed-rate liabilities (such as CDs) than they had long-term fixed-rate assets (such as loans). To make up for this shortfall, banks that wished to match assets and liabilities complemented their loan portfolios with fixed-rate investments commonly called balancing assets, such as Treasury securities. By adjusting the characteristics of the balancing assets, a bank could better match its assets to its existing liabilities.

As chief investment officer of Banc One, Dick Lodge managed the firm's portfolio of balancing assets. His staff of approximately 100 people, with 12 engaged in asset and liability management

[12] Banc One Corporation 1992 Annual Report, p. 2.

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activities, measured the degree to which the bank's assets and liabilities were matched and made profitable investments consistent with the bank's policy of managing its interest rate exposure. Specifically, they had an official mandate to (1) invest funds in conventional investments and derivatives to conserve the funds' principal value yet provide a reasonable rate of return; (2) keep enough funds in liquid investments to allow the bank to react quickly to demands for cash; (3) control the exposure of Banc One's reported earnings to swings in interest rates; and (4) achieve these objectives without unnecessarily increasing the bank's capital requirements.[13]

In carrying out this mandate, Banc One used investments and derivatives as substitutes for one another. For example, if it wanted to increase its share of fixed-return investments, it could sell a floating-rate investment (or borrow at a floating rate) and use the proceeds to buy a three-year fixed-rate Treasury note. The initial net outflow of these two transactions would be zero, but the transactions would increase the relative magnitude of the bank's fixed-rate portfolio. Alternatively, Banc One could enter into an interest rate swap in which it paid a floating rate of interest and received a fixed rate in return. The initial net outflow of such a swap also would be zero. As in the first example, such a transaction would increase the bank's fixed-rate inflows and reduce its periodic net floating-rate inflows. Because the security transactions and the swap produced similar interest rate exposure, they had to be compared on other dimensions, such as yield, credit risk, capital requirements, transaction costs, and liquidity.

Defining and Measuring Interest Rate Exposure

Banc One, like other banks, defined its exposure to interest rate risk by calculating its earnings sensitivity, or the impact of interest rate changes on reported earnings. For example, if a gradual 1% upward shift in interest rates during the year increased that year's base earnings by 5%, the bank would have an earnings sensitivity of 5%. If earnings sensitivity was positive, the bank was said to be *asset sensitive* (i.e., the interest rate on assets reset more quickly than liabilities, resulting in increased income if rates rose). If earnings sensitivity was negative, the bank was said to be *liability sensitive* (i.e., liabilities reset more quickly than assets, resulting in a decrease in income if rates rose). If the bank had a 0% earnings sensitivity, then an upward or downward shift in interest rates would have no effect on its earnings.

Like many banks, Banc One's basic portfolio (excluding its balancing assets) was asset sensitive. Its asset sensitivity arose because a large proportion of its assets, such as commercial loans, were indexed to the prime rate and therefore varied contractually with market rates. However, the bank's liabilities included mostly fixed-rate items such as fixed-rate CDs as well as "sticky-fixed" savings and demand deposits whose rates changed much more slowly than market indices. Banc One's relative overabundance of fixed-rate liabilities would make its earnings increase as rates rose. This natural asset-sensitivity was exacerbated by its acquisition program because many of the banks it acquired were highly asset sensitive.

Over the years, Banc One's evolving program to measure interest rate risk mirrored best practice in the U.S. banking industry. Prior to the 1980s, the bank did not precisely measure its exposure to changes in interest rates. Instead, it generally avoided investing in longer-maturity securities, feeling that these investments could add undue risk to the liquidity of its investment portfolio. By the early 1980s, it had become clear to Banc One's management that measuring interest rate risk was a critical

[13] U.S. regulation demanded that banks hold capital against a fraction of their risk-adjusted assets. In principle, capital requirements, as set out by law, differed by riskiness of investments. For example, Banc One was required to hold no capital against its investments in U.S. Treasury securities, but 50¢ on each dollar invested in municipal revenue bonds. The U.S. risk-based capital regulation was consistent with the Basel Accord, a 1988 agreement among the major industrialized nations.

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task. The second oil shock of the 1970s had increased the level and volatility of interest rates. For example, the prime rate soared to more than 20% in late 1980, twice the average for the 1970s and four times as large as the average in the 1960s. In 1980 alone, the prime rose to 19.8% in April, fell to 11.1% in August and rebounded to more than 20% at the close of the year. To determine the bank's exposure to interest rate movements in this new, more volatile interest rate environment, Banc One began measuring its *maturity gap* in 1981.

Maturity gap analysis compared the difference in maturity between assets and liabilities, adjusted for their repricing interval. Repricing interval referred to the amount of time over which the interest rate on an individual contract remained fixed. For example, a three-year loan with a rate reset after year one would have a repricing-adjusted maturity of one year. Banc One grouped its assets and liabilities into categories, or "buckets," on the basis of their repricing-adjusted maturities (less than 3 months, 3 to 6 months, 6 to 12 months, and more than 12 months). The maturity gap for each category was the dollar value of assets less liabilities. If the bank made short-term floating-rate loans funded by long-term fixed-rate deposits, it would have a large positive maturity gap in the shorter categories and a large negative maturity gap in the longer periods.

The maturity gaps could then be used to predict how the bank's net interest margin (the difference between the weighted average interest rate received on assets and the weighted average interest rate paid on liabilities)—and therefore earnings—would be affected by changes in interest rates. For example, if interest rates dropped sharply, a large positive maturity gap for the short maturity buckets would predict a drop in interest income and therefore earnings, because the bank would immediately receive lower rates on its loans while still paying higher fixed rates on its deposits.

Unfortunately, implementing the initial maturity gap measurement program was extremely time consuming. By the time each gap report was collected from the affiliates, consolidated, and analyzed, the information was dated. Lodge himself constructed the first gap management report in 1981, and it took almost a year to complete.

In 1984, Banc One began using asset and liability simulations as a more accurate method to measure its exposure to interest rates. By using exact asset and liability portfolios rather than grouping each asset or liability according to its repricing interval, Banc One was able to measure how interest rate changes would affect earnings. To do so, it created an "on-line balance sheet" that contained up-to-date information on its assets and liabilities, which complemented the MICS process. The key features of each contract, including principal amounts, interest rates, maturity dates, and any amortization schedules of assets and liabilities, were recorded. Then, Banc One used historical data to estimate such items as the maturity of demand-deposit (checking) accounts, the speed with which its bank managers would reprice deposits and loans in response to interest rate shifts, and the rate at which its borrowers might refinance fixed-rate loans if rates dropped.

Once the model was complete, Banc One could simulate how any shift in interest rates would affect its balance sheet and earnings, as well as run sensitivity analyses on its assumptions. Although the model had been refined since 1984, it served as the basis for measuring the bank's interest rate risk and senior management reviewed its predictions monthly. In 1993, this on-line balance sheet was redesigned to include a monthly down-load of each of over 3 million loans or deposits, that is, a discrete asset and liability database on each customer that included prepayment, optionality, and convexity estimates.[14]

[14] All three estimates were merely tools for predicting how the core characteristics (such as maturity, interest rate, etc.) of each of the assets and liabilities would change with any shift in market interest rates.

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Investments for Managing Interest Rate Exposure

Banc One's evolving sophistication in managing interest rate exposure mirrored its sophistication in measuring it. In the early 1980s, it managed its exposure to interest rate risk by adding balancing assets to its investment portfolio until it felt it had enough fixed-rate investments to offset its fixed-rate liabilities. In 1981, 13% and 21% of Banc One's earning assets were money market investments and longer-term securities, respectively. Initially, Banc One invested in short- and medium-term U.S. Treasuries and high-quality municipal bonds. Municipal bonds were an especially attractive investment because prior to 1986, banks could deduct 80% of the interest expense incurred on monies raised to buy them. Because the income earned on the bonds was free of state and federal taxes, banks could enjoy a large after-tax spread on their leveraged municipal bond investments.

In 1983, Banc One began using interest rate swaps as part of its investment portfolio. Originally, swaps were used to lock in high after-tax yields on municipal securities. By buying the municipal bonds, Banc One received an after-tax yield of 9.50%. By then entering into an interest rate swap in which it paid a fixed rate of 7.00% and received the London Interbank Offered Rate (LIBOR), a commonly used floating-rate index, it ended up with a net position of receiving LIBOR + 2.50%. The bank's net cash flow from the investment and swap resembled a floating-rate investment with an above-market yield. During the course of 1983 and 1984, Banc One became increasingly comfortable with the use of swaps as a tool to tailor individual investments to suit its needs.

In 1986, Congress passed the Tax Reform Act, which eliminated for banks the deduction of interest expense on the financing for municipal bond investments.[15] Banks turned to other investments that would provide the same high yield they had grown accustomed to receiving. Banc One replaced many of its municipal investments with mortgage-backed securities (MBSs), which were fixed-income investments whose payment stream was backed by pools of mortgage loans and which were typically guaranteed by the federal government. MBSs provided a slightly lower promised after-tax yield than did municipal bonds and carried an additional risk of prepayment. If interest rates fell, borrowers typically refinanced their mortgages by prepaying their existing mortgages. The owner of a pool of mortgages was forced to reinvest precisely when market yields were relatively low and was left with a submarket yield when rates rose.

In 1983, Wall Street created a new type of mortgage security: the CMO, or collateralized mortgage obligation. CMOs took a pool of mortgage loans and carved the principal and interest outflows into a set of different securities, or tranches. The tranches differed from one another only in their priority for repayments of principal. For example, the first tranche of a CMO would receive all of the mortgage prepayments until its principal was returned to its holders. At that point, the second tranche would begin to receive prepayments until its principal was fully paid out, and so on. With a large pool of mortgages, investors could statistically estimate the likely speed of prepayment and therefore the likely time at which each tranche would be fully paid down and stop paying interest. Each tranche paid a different yield to compensate for the various amount of prepayment risk a buyer faced, as well as for the different average life of the investments. By investing in CMOs, Banc One could still receive the high yields associated with mortgage securities, assuming it was comfortable with the prepayment risk it would bear. In 1993, Banc One had $4.5 billion invested in CMOs, or about a third of their investment portfolio. Earlier in the 1980s, as much as two-thirds of their investment portfolio was held in CMOs.

[15] For individuals, the interest paid on debt incurred to purchase tax-exempt obligations was never deductible.

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Swaps as Synthetic Investments

After using swaps in the mid-1980s to tailor cash flows of individual municipal investments, Banc One realized that it could also use swaps as a proxy for some of its conventional fixed-rate investments. Instead of investing in medium-term U.S. Treasury obligations, it could simply enter into a medium-term receive-fixed swap and put its money into short-term floating-rate cash equivalents. There were several advantages of this "synthetic investment" over conventional investments.

First, the swap greatly improved the bank's liquidity. Banks need cash to accommodate customer withdrawals and to repay existing liabilities, such as CDs, as they mature. Investing in long-dated securities could increase a bank's yield, but if the bank needed to raise cash suddenly, these investments might not be easily liquidated or their liquidation might expose the bank to a large loss in principal. With a swap, the bank could invest in short-term, highly liquid securities with stable principal values. By layering a receive-fixed swap onto this investment, the bank could obtain the economics of the longer-term investment, while still enjoying the high liquidity of the short-term instrument.

Second, unlike investments and borrowings, swaps were off-balance-sheet transactions. If Banc One were to buy a fixed-rate bond and sell a floating-rate security, both would appear on its balance sheet, and the spread between the two would appear as income. However, if it was to enter into a receive-fixed swap with the same cash flow implications, the swap would not appear as either an asset or liability, but would be disclosed only in footnotes to the financial statements. Yet the current net income or loss from the swap transaction still would appear on its income statement. This accounting treatment would tend to overstate traditional profitability measures such as a bank's return on assets in comparison to the identical securities transactions.

Finally, in comparison to a conventional securities investment, swaps could also reduce the amount of capital needed to meet regulatory requirements. These minimum capital requirements grew out of an international agreement, the Basel Accord, signed by the central bankers of the major industrialized countries. In agreement with the Accord, U.S. banking regulators implemented risk-based capital standards beginning in December 1990. The new regulations dictated the amount of capital banks needed to hold as a function of their total risk-based assets.[16] As of year-end 1992, U.S. regulators raised the minimum capital levels and strengthened their power to close institutions that failed to meet these minimums.

Stricter capital standards led banks to prefer assets with lower capital requirements, all else being equal. Some observers attributed the rising growth in bank investments in Treasury securities to their zero risk weighting in the calculation of risk-adjusted assets. Under the capital guidelines, swaps contributed little to the risk-adjusted assets against which the bank had to hold capital.[17] Were a bank to create exposure similar to the swap using securities (other than U.S. Treasury securities), its need to hold capital would be 20% to 100% of the principal value of the assets.[18]

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[16] The regulations assigned each asset and some off-balance sheet items a risk weighting from 0% to 100%. The product of the risk weighting times the dollar value of assets in the class determined the dollar value of risk-adjusted assets.

[17] For interest rate swaps with maturities of more than one year, the bank was required to hold capital equal to (the swap's market value [if positive] plus .5% of its notional principal) times a factor reflecting the counterparty of the swap. This factor was .5 for corporate counterparties and .2 for banks. Thus, if it had a two-year swap with a bank counterparty, with a notional principal amount of $100 million and a current market value of $20,000, Banc One would have to count as risk-adjusted assets [$20,000 + .005($100 million)] *.2, or $104,000.

[18] The risk-adjusted weightings set by the 1992 guidelines included the following:

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During the late 1980s, Banc One began replacing many of its maturing conventional investments with synthetic investments. As part of this trend, it began to investigate whether it could create a synthetic CMO, which would have the advantages of other swaps, yet deliver the risk/return characteristics of CMO investments. Specifically, a synthetic CMO would allow Banc One to enjoy high yields in exchange for taking on prepayment risk. After a few false starts and discussions with various investment banks, Banc One and its counterparties developed a product called Amortizing Interest Rate Swaps (AIRS).[19]

Because AIRS replicated investments in mortgage securities, they needed to have similar prepayment features. With low interest rates, consumers prepay their mortgages, and mortgage investors receive back their principal. In the AIRS, the notional amount of the swap would be reduced or amortized if interest rates fell. As interest rates declined, the AIRS would amortize faster, thereby leaving the bank to reinvest just when market yields were low. Likewise, when interest rates increased, the maturity of an AIRS would end up longer than expected, thereby leaving the bank with a below-market yield on its investment. In early AIRS, the amortization of the notional principal balance was tied to the performance of a particular pool of actual mortgages, but with later AIRS, the amortization schedule was set by a formula. **Exhibit 3, panel A,** gives the terms for the latter type of AIRS.

As synthetic investments, AIRS produced attractive yields. In these transactions, Banc One would receive a fixed rate of interest and pay LIBOR. In 1993, this fixed rate, called a swap spread, was perhaps 120 basis points over a Treasury security of the same maturity. In comparison, the bank could buy a comparable CMO and receive a yield of 100 basis points over Treasuries. If Banc One was to enter into a standard (nonamortizing) swap of the same term, it might receive a fixed rate of 20 basis points over Treasuries.

With Banc One's mortgage portfolio as well as its investments in CMOs and AIRS, prepayment risk complicated the task of measuring interest rate risk. The embedded options that Banc One sold to its mortgage borrowers, certain depositors, and to its swap counterparties made its earnings sensitivity nonlinear. With a rise in rates, the earnings from its fixed-rate investments would not change. However, a drop in rates which precipitated prepayments of mortgages or amortization of the AIRS forced the bank to reinvest the early repayment of principal at the lower market rates. Furthermore, steep rate drops typically increased the rates of prepayment or amortization. For example, though earnings might drop 1% for a 1% increase in rates, a 2% increase in rates might reduce earnings by 3% or 4%, not 2%.

Swaps as a Tool for Risk Management

Banc One had a long-standing stated policy of "minimizing the impact of fluctuating interest rates on earnings and market values,"[20] and in 1986, its senior management adopted guidelines for allowable earnings sensitivity. This first policy stated that earnings could not change more than 5%

Cash and U.S. government obligations	0%
Municipal general obligation bonds and agency securities	20%
Municipal revenue bonds	50%
CMOs, mortgage pass-throughs, and mortgage whole loans	50%
Other loans and other balance sheet assets	100%
Standby letters of credit	100%

[19] These swaps are known also as index amortizing rate swaps.

[20] Banc One Corporation Third Quarter Report, September 1993, p. 12.

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for a 1% immediate change in interest rates. Because Banc One was more asset sensitive than its policy would permit, the bank considered alternatives for adjusting its earnings sensitivity, finally using swaps as its solution.

Although in the past the bank had entered into pay-fixed swaps to transform the cash flows on its municipal investments, the exact opposite swap was required to shift it away from an asset-sensitive position and toward more liability sensitivity. By entering into an interest rate swap in which it paid a floating rate and received a fixed rate in return, it was as if the bank was incurring a floating-rate liability while investing in a fixed-rate asset. This combination would move the bank toward a liability-sensitive (or negative earnings-sensitive) position. Were interest rates to rise, the floating-rate payments on the swaps would increase the bank's interest expense while interest income remained constant, thus reducing earnings and producing liability sensitivity. As Banc One gradually enlarged its interest rate swap portfolio in the mid-1980s, its earnings sensitivity moved to within the specified 5% boundary. See **Exhibit 4** for historical information on Banc One's investment portfolio, swap portfolio, maturity gap, and earnings sensitivity during the period 1988 through 1992.

Because the swaps were designed to adjust the bank's **earnings** sensitivity, the greater its earnings, the more swaps it would need. Also, the more its natural earnings sensitivity strayed from the policy guidelines, the more swaps it would need. Both of these factors contributed to the subsequent growth in its swap portfolio. For example, in 1989, Banc One acquired banks with $12 billion in assets from MCorp, a failed Texas bank. These banks were 23.4% asset sensitive when they were bought, far outside Banc One's policy target range and well above its then-slight liability sensitivity. To bring the new banks in line, Lodge had to enter into a large notional volume of swaps. The bank's continued acquisition strategy, as well as its earnings growth, would increase its need for swaps.[21]

Managing Basis Risk

Though synthetic investments reduced Banc One's earnings sensitivity to overall shifts in interest rates, they created a heightened sensitivity to mismatches *between* floating-rate interest rates, or basis risk. Most of Banc One's floating-rate assets were based on the prime rate. However, most conventional interest rate swaps as well as its AIRS used three-month LIBOR as an index for floating-rate payments. LIBOR was an actively traded global market rate that changed daily. In contrast, the prime rate was an administered U.S. or local rate that changed infrequently at bankers' discretion. Because of these differences, the spread between the two rates changed dramatically over time. (See **Exhibit 5** for a graph of prime and three-month LIBOR.)

For example, assume the bank entered into a swap in which it received 7% and paid LIBOR. Ignoring the difference between prime and LIBOR, it would effectively transform its prime-based floating-rate assets into fixed-rate investments paying 7%. However, if three-month LIBOR increased 150 basis points but prime was unchanged, Banc One would have transformed its prime-based floating-rate asset into a fixed-rate asset paying not 7% but 5.5%, and it would have created basis risk through its exposure to swings in the prime-LIBOR spread.

To counter this basis risk, Banc One entered into basis swaps that reduced the floating-rate mismatch (see **Exhibit 3, panel B,** for typical basis swap terms). In a basis swap, Banc One would pay a floating rate based on the prime rate and receive a floating rate based on three-month LIBOR. This

[21] To meet its anticipated need for swaps, because of expected earnings increases as well as the maturing of existing swap obligations, Banc One began using forward interest rate swaps in the early 1990s. A forward swap contract merely set the terms for a swap contract that would become effective at some future date.

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contract would offset the spread differential between prime and three-month LIBOR. Using a basis swap in conjunction with an AIRS in which it paid LIBOR, Banc One could confidently transform prime-based floating-rate assets to fixed-rate investments.

Managing Counterparty Risk

The credit risk of investing in swaps differed from that of traditional investments. If Banc One bought a U.S. Treasury bond, for example, it would face no credit risk. However, if it entered into a swap transaction in which it received the fixed rate, it would be exposed to the default of its counterparty.

This credit risk was mitigated in three ways. First, the positive swap spread (i.e., yields on swaps were higher than on Treasury securities) gave the bank a higher return to compensate for its credit risk. Second, in an investment, the bank's entire principal was at risk (if the issuer was not the U.S. government), whereas in a swap, only the net payment (fixed less floating) was at risk of default. Third, Banc One established strict policies for managing its counterparty exposure.

In all instances, its counterparties were rated no lower than single-A. To understand its potential exposure, Banc One continually monitored its mark-to-market exposure to each counterparty. Its total exposure to any entity, whether through derivatives or direct lending, was limited by clear policy guidelines. In addition, to protect itself against the default of a swap counterparty, Banc One required its counterparties to post collateral, in the form of bank-eligible securities or cash, against the bank's exposure.[22] Investment bank counterparties posted collateral at the initiation of the swap equal to Banc One's possible losses from an extreme one-month move in interest rates.[23] All counterparties were required to post additional collateral as the market value of the swap changed over time.[24] This practice meant that Banc One was not exposed to swap payments for which it did not have collateral, and were the swap to default, the mark-to-market collateral would allow the bank to enter into a new swap that was economically identical to the one that had defaulted. Banc One's counterparties—and its exposures to each—are shown in **Exhibit 6**. Banc One's collateral requirements were unique, as most large money-center banks and commercial banks were extremely reluctant to post any kind of collateral for swaps, regardless of the counterparty. Yet, because of the magnitude of its derivatives portfolio and because of its solid credit rating, Banc One was almost always able to secure such collateral agreements, even from AAA-rated counterparties.

Controlling the Asset and Liability Management Process

Banc One's careful handling of counterparty risk was indicative of its long-standing, well-defined investment policies. In late 1993, the investment policies of many banks (including Banc One), and especially their use of derivatives portfolios, came under public scrutiny.

In mid-1993, a consortium of leading financial service firms, known as the Group of Thirty, released a report in which it recommended a set of practices that all derivatives dealers and users follow to ensure that these instruments were used prudently. This report was commonly seen as a proactive effort at self-regulation to fend off governmental regulation of derivatives. Later that year,

[22] Bank eligible securities are liquid securities for which the market value can be easily ascertained, and would include a wide range of Treasury securities, bank deposits, and CMOs.

[23] Banking regulations prohibited commercial banks from posting collateral in advance.

[24] Banc One would deliver collateral to its counterparties if the market value of the swap was negative.

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in October, the U.S. Comptroller of the Currency, the regulator of national banks, issued its own set of guidelines for the use of swaps. The guidelines focused on the role of senior management and boards of directors in ensuring that users of swaps acted safely. The report charged banks with managing market risk, counterparty credit risk, liquidity risk, and operations and systems risk while remaining mindful of the impact of swaps on the banks' capital base and accounting. Politicians seized on the issue and made their own statements concerning the swap market. The statements of the industry, regulators, and politicians pushed the banking sector's use of derivatives onto the front pages of leading newspapers and made the issue one of general interest.

This newfound interest in the management of derivatives positions came as no surprise to Banc One. For years, senior management had made the prudent use of derivatives and other investments, as well as management of its assets and liabilities, a top priority. Its Asset and Liability Management Committees (ALCOs) were responsible for establishing and implementing policies relating to asset and liability management. The process was governed by a 70-page policy document, updated in April 1993, which outlined an exact system of control and oversight of the bank's asset and liability management policies, including its management of swaps, an integral part of its investment portfolio. The ALCO process was a system for consistently managing interest rate risk, credit risk, funding risk, and capital adequacy. A committee of the most senior bank executives reviewed and ratified major investment decisions, recommended changes to existing policy, and monitored compliance with policy guidelines.

The ALCO process consisted of regular meetings at several levels of the bank. Affiliate banks reviewed their cash position and funds management activities daily. For each state, asset and liability committees were established to monitor that state's activities. At the corporate level, three committees met weekly or monthly to monitor and oversee the overall asset and liability system: the corporate funds management activity committee; the working ALCO committee, which included Lodge, McCoy, and many other senior executives; and the corporate ALCO committee, which included the working ALCO as well as the chairmen of Banc One's holding companies and its chief credit officer. The operation of the MICS system made timely and appropriate information available to each committee.

All policy decisions regarding Banc One's earnings sensitivity were made at the corporate level. Furthermore, the firm's investment activities, including both securities and swaps, were executed at the corporate level by CIO Dick Lodge and his group. Thus, the affiliate and state ALCO groups monitored local deposit and lending activities and their impact on the units' liquidity and interest rate exposure. Corporate ALCO activities overlaid investments and derivatives onto the aggregated activities of the local banks in order to manage the bank's overall exposure.

When it was established in 1986, the bank's policy was to stay within a 5% earnings sensitivity boundary for an *immediate* 1% shock to interest rates. However, Lodge had recently persuaded the working ALCO committee that such a shock was unrealistic. He believed the committee should instead focus on the impact of a *gradual* 1% in the level of interest rates during the year (i.e., rates would slowly rise 1%, so that on average they would have risen 1/2%). The working ALCO committee agreed to this change, and it also set a new boundary for the bank at 4% sensitivity. In addition, the committee set other guidelines:

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Earnings Sensitivity	Policy	November 1993 Banc One Position
1st-year impact for a +1% rate change	(4.00)%	(3.30)%
1st-year impact for a +2% rate change	(9.00)%	(8.00)%
1st-year impact for a +3% rate change	(15.00)%	(13.20)%
2nd-year impact for a +1% rate change	(4.00)%	(1.30)%
2nd-year impact for a +2% rate change	(9.00)%	(7.90)%
1st-year impact for a -1% rate change	4.00%	4.00%

Within these strategic guidelines, Lodge was permitted, with the working ALCO group's approval, to make tactical decisions on exactly what the bank's earnings sensitivity should be. Although there were several guidelines and Lodge had to comply with each one, both he and the ALCO groups focused mainly on the first-year impact of a gradual 1% change in rates because, historically, it had been rare for interest rates to change much more than 1% in any given year.

In November 1993, if it did not have its $12 billion in fixed-rate investments and $22 billion in receive-fixed swaps, the bank would have been 13% asset sensitive. With them, it was positioned to be 3.3% liability sensitive. This conscious decision to be modestly liability sensitive was the bank's strategic exposure to interest rates. As Lodge explained, "Banks are paid to be liability sensitive," meaning that the yield curve was almost always upward-sloping. By having a controlled amount of long-term fixed-rate income-producing assets exceeding its short-term floating-rate liabilities, the bank could earn the interest differential as long as the yield curve remained upward-sloping and did not shift up dramatically. However, this net position left the bank liability sensitive as a rise in rates would reduce its income.

Although a sudden rise in rates would depress the bank's earnings, the investment portfolio was set up so that this exposure was controlled. Specifically, the swaps in place were level over the next year, but would virtually all mature within two years. Thus, if the bank did not add new swaps to its position, its existing swaps would fall to $17.5 billion by year-end 1994 and $3.6 billion by year end 1995. Its projected earnings sensitivity would drop to -.2% by the end of 1994, effectively making its earnings unaffected by interest rate swings, and the bank would be asset sensitive by 1995. See **Exhibit 7**.

Although the bank focused primarily on the impact of interest rates on its earnings, the ALCO committee also examined the effect of interest rates on the value of the firm and its common equity. The asset and liability database allowed it to measure the duration[25] of assets and liabilities. Lodge's figures for the bank's key duration measures, as of September 30, 1993, were 1.73 years for on- and off-balance sheet assets and 1.51 years for its liabilities. Because the difference between assets and liabilities was a residual equity account, Lodge could also calculate a rough duration of equity (by weighting each category by its total dollar amount). As of September 30, residual equity had a duration of +4.00 years. For each 1% rise in rates, this duration measure suggested that Banc One's equity value would drop by 4.0%. As interest rates rose, its slightly longer-duration asset base would

[25] Duration can be defined as the change in value of an asset or liability due to a given small parallel shift in interest rates or, alternatively, as the weighted average time until repayment of the asset or liability. The duration of a portfolio of assets or liabilities measures the net change in value of the entire portfolio due to movements in interest rates or, alternatively, the weighted average time until repayment of the entire portfolio. Because duration assumed a linear response between interest rate shifts and value over a small change in rates, it had to be interpreted with caution for instruments with embedded options as well as for large interest rate movements.

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decline in value faster than its shorter-duration liabilities, leading to a magnified drop in the market value of its equity.

As of September 30, Banc One had $37.7 billion in notional volume of interest rate swaps on its books. Both Lodge and McCoy felt that the bank had drawn some of its unwanted attention because its swap portfolio had grown so dramatically. One analyst identified Banc One as having the second-largest growth in an existing swap portfolio of all regional banks. At the end of 1990, Banc One had only $4.7 billion in swaps on its books. This figure had grown to $13.5 billion at the end of 1991 and $21.0 billion at the end of 1992. Looking forward, Banc One saw continued growth in its swap portfolio as long as its earnings grew, it continued to acquire banks that were more asset sensitive than itself, and the yield curve remained upward-sloping.

Disclosure

As of November 1993, the Financial Accounting Standards Board (FASB) required minimal disclosure of the details of a company's swap portfolio because swaps were classified as off-balance-sheet items. Generally, the total notional volume of swaps was reported as a footnote to reported financial statements. Under accounting guidelines, though, notional volume had to include *all* swaps, regardless of their purpose or whether they offset one another. Thus, if Banc One entered into a $100 million receive-fixed swap and then a $100 million basis swap to adjust the floating-rate index it paid, the swaps would be reported as $200 million of notional amount, even though they economically replicated only $100 million of a fixed-rate investment. Likewise, if it entered into a $100 million pay-fixed swap and then entered into an exactly offsetting receive-fixed swap, it would report $200 million in swaps.

Even though FASB required minimal swap disclosure, Banc One had voluntarily disclosed additional information, consistent with its reporting policies. In addition to reporting the total notional volume of swaps on its books, it reported the unrealized net gain or loss on its swap portfolio. Banc One's disclosures of its swaps activities for 1993 are shown in **Exhibit 8**.

The Meeting

As Banc One's earnings grew, so too did its swap position. With its growing swap portfolio, it caught the attention of bank analysts. Some applauded the bank's use of swaps to manage its interest rate exposure. Other—more vocal—analysts, were critical, accusing Banc One of using swaps to inflate earnings, inflate capital ratios, and offset declines elsewhere in the bank. These critics saw the rapidly growing swap positions as heading out of control. One analyst was quoted as saying of the bank's swap activities, "Does that look like hedge activity? They use this stuff to keep the game going." A few analysts had downgraded the stock.

Though it was impossible to pin the recent decline in Banc One's stock price solely on its growing derivatives portfolio, both insiders and outsiders felt that the $10 drop in its stock price was due in large part to the market's reaction to the bank's use of derivatives. One analyst supportive of the company wrote:

> One likely reason for the price weakness is a recent focus on Banc One's liberal use of derivatives to achieve its asset/liability management goals. Since derivatives are relatively new financial instruments, and since their use requires a high degree of financial sophistication and quantitative expertise, there is an understandable aversion to them on the part of many

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investors. . . . Although (Banc One's swap position) is a large notional amount for a regional bank, we think Banc One's use of derivatives has been prudent.[26]

As the meeting began, McCoy voiced his concern about Banc One's falling stock price. From his perspective, he and Lodge faced a dilemma. On the one hand, he felt that swaps were hurting shareholder value because the investment community did not understand how they were being used. On the other hand, he believed that they were an invaluable tool in managing risk. Given the distance between his beliefs and what he was hearing from the market, he wondered what, if anything, the bank should do.

In an attempt to answer this question, McCoy and Lodge discussed three possible options. First, they could do nothing and hope that Banc One's stock price would recover over time as investors realized that derivatives were actually helping the bank manage interest rate and basis risk. Second, they could abandon or severely limit their derivatives portfolio. Third, they could attempt to educate investors about how they used derivatives. Their most recent quarterly disclosure gave the market a great deal of data on the bank's swap portfolio, but perhaps even more information might dispel the misconceptions. What information would the market want to see? And how could Banc One credibly present it so as to convince its skeptics and educate swap novices? Perhaps analysts would understand Banc One's ALCO process and use of swaps if they could compare the bank to a hypothetical Banc One that had no swaps or no investments. In preparation, they had created a set of analyses showing this comparison (see the **Appendix**).

None of the alternatives was riskless. Doing nothing might give the impression that the bank was hiding something, thereby confirming investors' worst suspicions. If it caused Banc One's stock price to stay low or fall even further, the bank's ability to continue its stock acquisitions would be jeopardized. Eliminating its derivatives portfolio would leave the bank with greater interest rate exposure and few tools to manage it. Disclosing even more information was not a guaranteed solution. In drawing even greater attention to its derivatives portfolio, the bank might raise investors' concerns or increase their confusion.

[26] K. F. Puglisi, "Banc One Corporation," unpublished analyst report, The Chicago Corporation, October 29, 1993.

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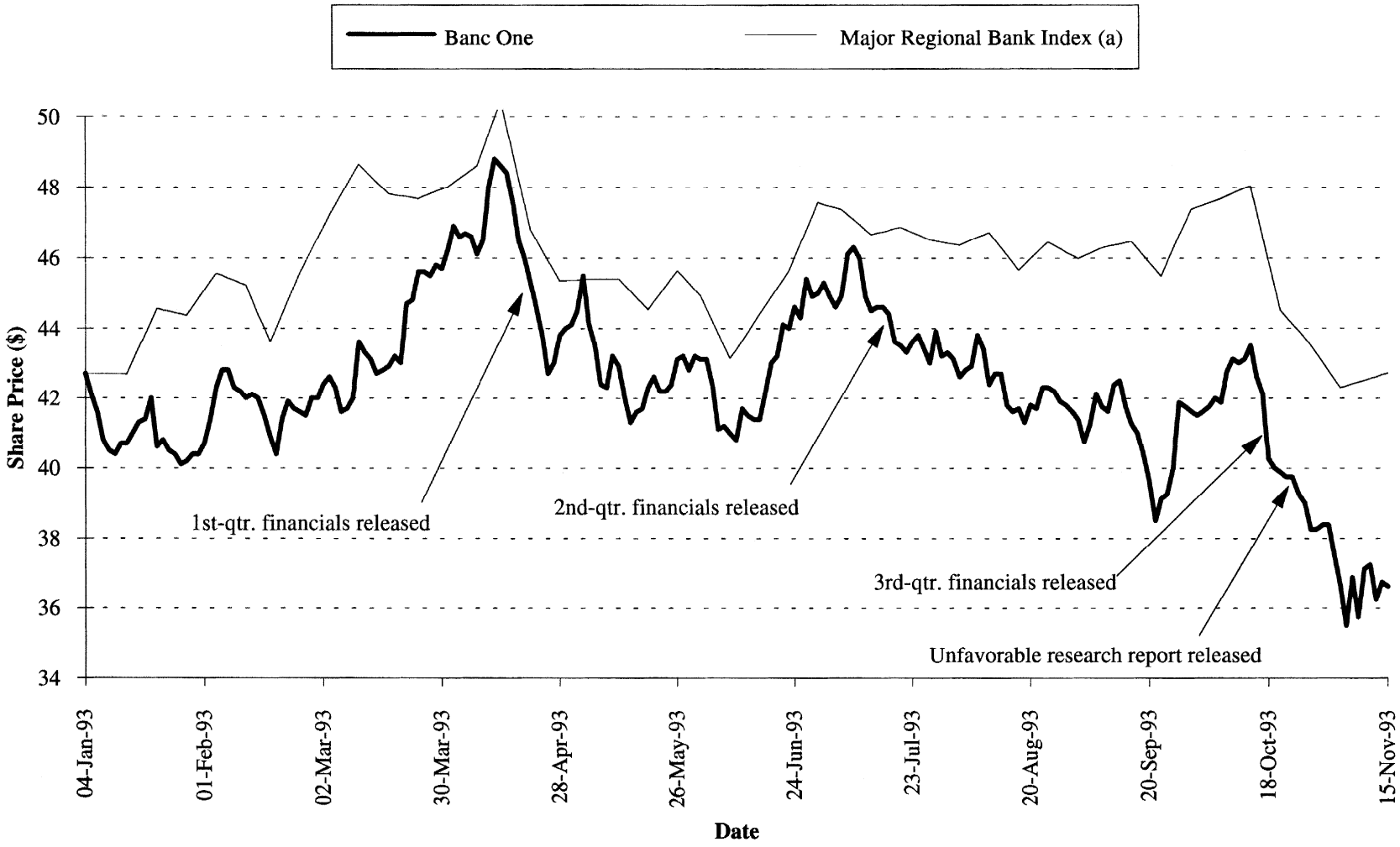
Exhibit 1 Banc One Corporation, Common Stock Price and the Price of Other Regional Bank Stocks, January 4, 1993 through November 14, 1993



Sources: Datasheet, Standard & Poor's Corporation.

(a) The major regional bank index is an equal-weighted index of 17 banks including Banc One.

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Exhibit 2 Banc One Corporation, Financial Performance, 1983 through 1992

		Total Assets ($ millions)	Net Income ($ millions)	Net Income Per Share	Return on Average Assets	Return on Common Equity	Stock Price	Total Market Capital ($ millions)	Average Common Equity to Assets	Net Interest Margin[a]	Credit Rating on Senior Debt
1983		$6,153	$83	$1.16	1.35%	18.42%	$10.66	$802	7.06%	5.78%	AA
1984		8,088	108	1.31	1.33	17.84	11.67	929	7.10	6.30	AA
1985		9,539	130	1.51	1.37	17.77	17.59	1,491	7.37	6.22	AA
1986		16,299	200	1.60	1.23	16.49	17.19	2,082	7.23	5.73	AA
1987		17,538	209	1.64	1.19	15.12	18.04	2,360	7.82	5.80	AA
1988		23,484	340	2.15	1.45	17.69	18.39	2,876	8.12	5.42	AA
1989		25,518	363	2.29	1.42	16.79	26.76	4,239	8.41	5.20	AA
1990		27,654	423	2.51	1.53	16.24	25.23	4,408	9.36	5.33	AA
1991		33,861	530	2.91	1.56	16.58	47.85	8,833	9.16	6.09	AA-
1992		58,249	781	3.28	1.34	16.26	53.13	12,331	8.04	6.22	AA-
1993	1Q	73,868	287	0.83	1.58	18.94	46.20	11,956	8.18	6.57	AA-
	2Q	73,686	282	0.81	1.53	17.91	45.00	12,278	8.44	6.30	AA-
	3Q	74,226	285	0.82	1.52	17.43	41.50	11,323	8.60	6.22	AA-

Source: Banc One Corporation.

[a]Net interest income on a fully taxable equivalent basis expressed as a percentage of average earning assets.

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Exhibit 3 Representative Swap Transactions

PANEL A: AMORTIZING INTEREST RATE SWAP (AIRS), SEPTEMBER 1993

Notional amount	$500 million
Final maturity (if not amortized early)	3 years
Payment frequency	Quarterly
Banc One pays	3-month LIBOR (3.25% at initiation of swap)
Banc One receives	4.5%
Lockout period	1 year

(During the lockout period, there is no amortization of the swap.)

Cleanup provision 10% of original notional amount
(If the notional amount falls to $50 million or less through amortization, the swap is canceled.)

Amortization schedule: Each quarter, after the lockout period, the notional principal of the swap is reduced by the following amount for the following quarter, depending on the level of interest rates:

If 3-month LIBOR	Notional Principal Amount	Average Life of Swap
Stays at 3.35% or falls	Completely amortized	1.25 years
Rises to 4.35%	Reduced by 31%	1.75 years
Rises to 5.35%	Reduced by 10.5%	2.5 years
Rises to 6.35 or higher	Not reduced	3.25 years

PANEL B: LIBOR-PRIME BASIS SWAP

Notional amount	$200 million
Final maturity	4 years
Payment frequency	Quarterly
Banc One pays	Daily average prime rate - 270 basis points (At initiation, prime was 6%)
Banc One receives	3-month LIBOR (subject to caps) (At initiation, 3-month LIBOR was 3.375%)
Caps	In no quarterly period can the rate Banc One receives exceed 25 basis points over the rate received the prior quarter.

Source: Banc One Corporation.

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Exhibit 4 Banc One's Investment Portfolio and Interest Rate Sensitivity, 1988 through 1992 ($ in millions)

	Investments							Swaps[a]			
	Amount Outstanding				Gross Income Received						
	Earning Assets	Loans	Short-term Investments	Securities	Loans	Short-term Investments	Securities	Amount Outstanding	Gross Income Received[b]	Maturity Gap Measure[c]	Earnings Sensitivity
1988	$22,531	$17,325	$581	$4,625	$1,876	$28	$368	N/A	N/A	-6.67%	-1.00%
1989	23,568	17,909	525	5,133	2,167	39	446	$3,299	$291	-3.59%	-1.00%
1990	26,680	20,363	628	5,272	2,303	58	441	3,231	292	-10.07%	-1.55%
1991	41,482	31,168	2,324	7,989	2,747	61	484	11,214	887	-7.33%	-2.30%
1992	54,766	39,142	1,740	13,884	3,872	86	870	10,492	766	-15.70%	-2.60%
1993:Q1	61,807	45,361	1,382	15,064	1,159	11	231	14,132	240	-2.34%	-2.50%
1993:Q2	66,796	48,845	1,978	15,973	1,173	9	235	17,280	275	-2.65%	-2.60%
1993:Q3	68,116	50,105	1,217	16,794	1,189	10	216	22,515	335	-3.64%	-3.30%

Sources: Banc One Corporation, Annual Reports, 10-Ks.

[a]Includes only receive-fixed swaps.

[b]Notional volume of outstanding receive-fixed swaps multiplied by average fixed rate received on such swaps.

[c]Maturity gap over the first one-year horizon as a percentage of earning assets, where maturity gap is defined as total assets with adjusted maturity of one year or less minus total liabilities with adjusted maturity of one year or less.

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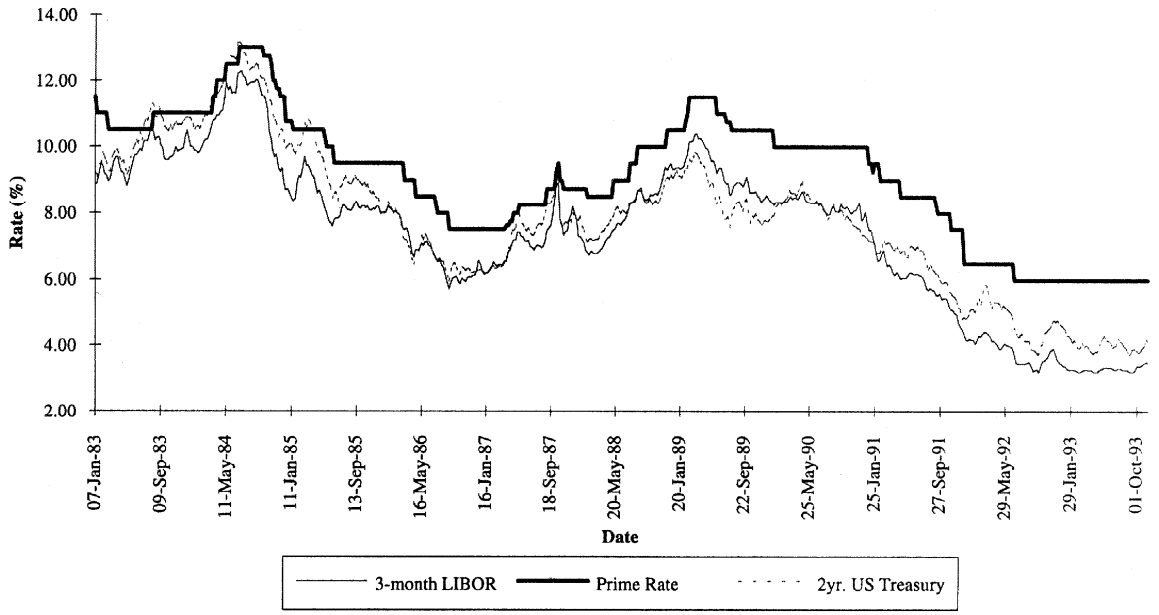
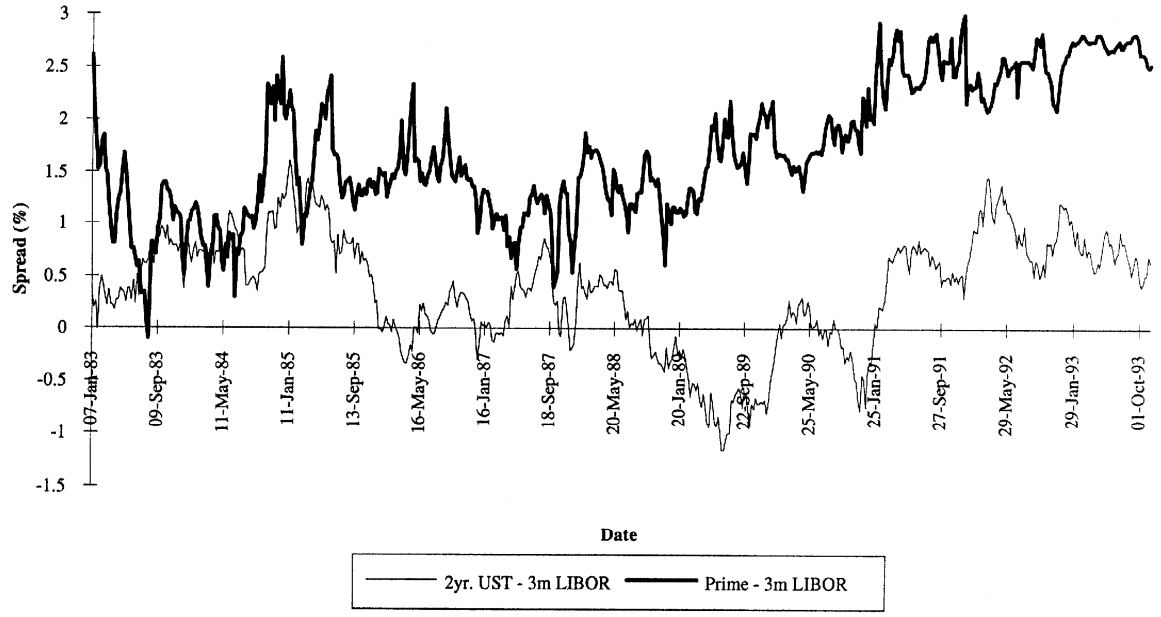
Exhibit 5 Interest Rates and Spreads, 1983 through 1993





Sources: Citibase, IDC Datasheet, Banc One Corporation.

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Exhibit 6 Banc One's Exposure to Its Major Swap Counterparties, October 31, 1993 ($ in millions)

	Notional Amount	Average Maturity	Mark to Market Exposure[a]	Collateral Posted[b]	Net MTM Exposure[c]	Potential Exposure[d]	Net Credit Exposure[e]
Bankers Trust	$12,142	1.77	$123	$132	($9)	$68	$59
Union Bank of Switzerland	$6,976	1.87	$49	$49	$0	$92	$92
Goldman Sachs	$6,163	1.57	$58	$122	($64)	$26	($38)
Lehman Brothers	$4,058	2.32	$16	$81	($65)	$26	($39)
Merrill Lynch	$3,347	2.17	$59	$104	($45)	$10	($35)

Source: Banc One Corporation.

[a]Mark to market exposure measured as the market value of swap positions with counterparty. A positive exposure indicates that Banc One's swaps have a market value greater than zero.

[b]Collateral is posted in the form of cash or bank-eligible securities. A positive number indicates that Banc One's counterparties have deposited collateral with Banc One.

[c]Represents mark to market exposure less collateral posted by Banc One's counterparties.

[d]The bank estimated its potential exposure if it experienced a large movement in interest rates relative to historical experience. Specifically, using historical data, it calculated the distribution of interest rate moves over 30 days. It then calculated how much it could lose, if rates moved against Banc One's favor, and if the size of the rate move was equal to a three-standard deviation change in rates. 99% of all rate moves would be within three standard deviations, so this potential exposure was considered a conservative estimate of the bank's exposure.

[e]Represents Banc One's potential exposure less the collateral it currently has on hand.

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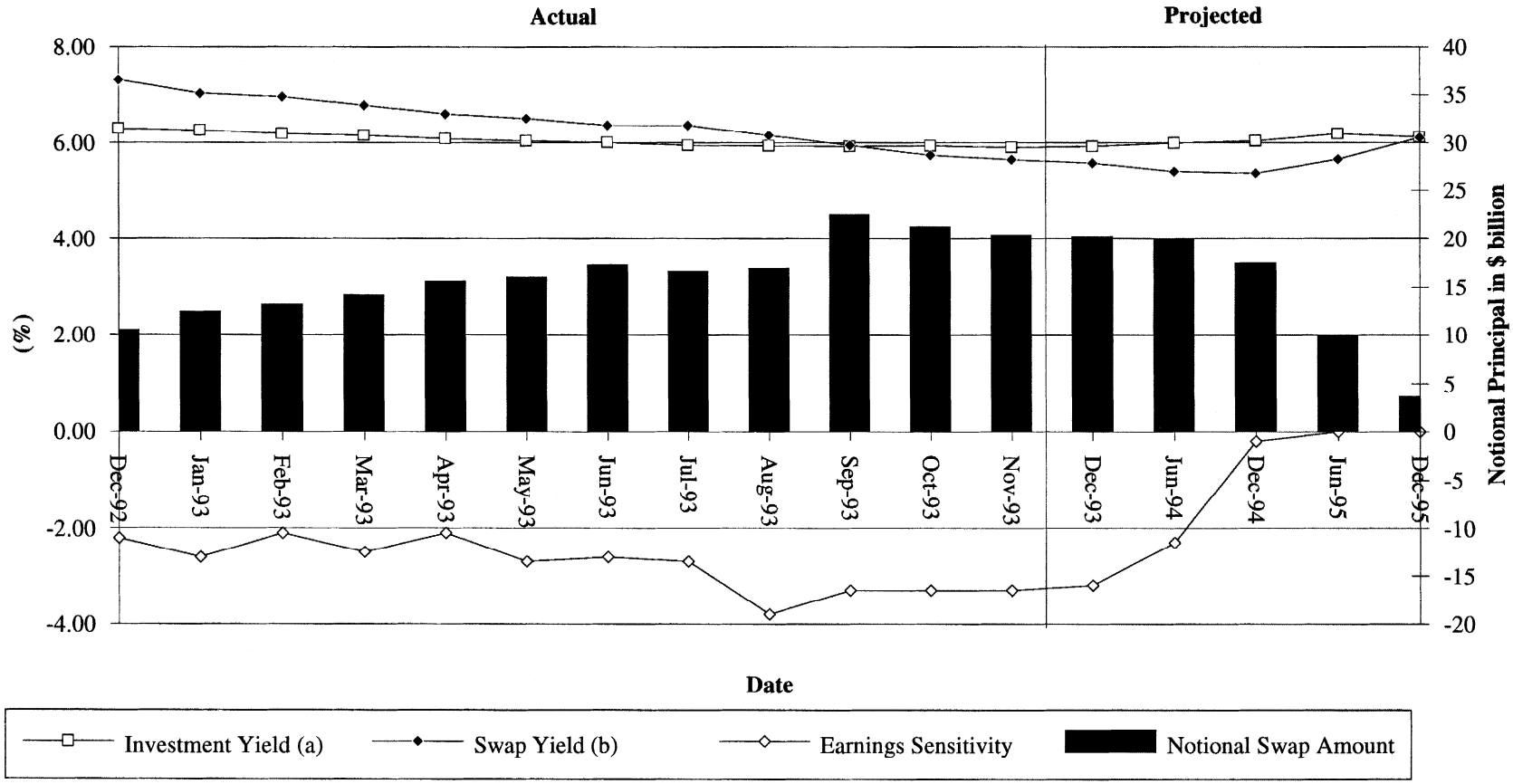
Exhibit 7 Banc One's Recent Swap Portfolio and Projected Swap Portfolio if No New Positions Added, October 1993



Source: Banc One Corporation.

(a) Average yield received on investment portfolio (excluding swaps). For projected period, assumes no new investments made.

(b) Average rate received on receive-fixed swap portfolio. For projected period, assumes no new positions added.

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Exhibit 8 Banc One's 1993 Disclosure of Its Interest Rate Management Activities (10-Q Filings)

Panel A: 1993 First Quarter

BANC ONE manages interest rate sensitivity within a very small tolerance through the use of off-balance sheet interest rate swaps and other instruments, thereby minimizing the effect of interest rate fluctuations on earnings and market values. The use of swaps resulted in BANC ONE being slightly liability-sensitive at March 31, 1993, countering the natural tendency to be asset-sensitive. The use of swaps to manage interest rate sensitivity increased interest income by $54 million and $50 million, and decreased interest expense by $47 and $34 million in the first quarter of 1993 and 1992, respectively. The notional amount of swaps increased from $8.3 billion to $23.4 billion from March 31, 1992 to March 31, 1993.

Panel B: 1993 Second Quarter

BANC ONE manages interest rate sensitivity within a very small tolerance through the use of off-balance sheet interest rate swaps and other instruments, thereby minimizing the effect of interest rate fluctuations on earnings and market values. The use of swaps resulted in BANC ONE being slightly liability-sensitive at June 30, 1993, adjusting the natural tendency to be asset-sensitive. Swaps increased interest income by $59 million and $113 million for the three and six month periods ending June 30, 1993 as compared to $46 million and $95 million for the same periods in 1993. Swaps decreased deposit and other borrowing cost by $48 million and $96 million for the three and six month periods ended June 30, 1993, compared to decreases of $45 million and $80 million for the same periods in 1992. The notional amount of swaps increased to $31.5 billion from $20.8 billion and $18.4 billion at December 31, and June 39, 1992, respectively. Accruing fixed rate swaps represented $17.4 billion, $10.5 billion and $11.2 billion for the same respective periods.

Along with the second quarter report, Banc One made available to its investors a 10-page brochure entitled *Banc One Corporation Asset and Liability Management*. This brochure described how the corporation uses swaps and other derivatives to maintain its strong capital position, manage its liquidity, and manage the bank's interest rate exposure.

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Panel C: 1993 Third Quarter

The following information supplements Management's Discussion and Analysis in Part 1. The notional amount of swaps shown below represents an agreed upon amount on which calculations of interest payments to be exchanged are based. BANC ONE's credit exposure is limited to the net difference between the calculated pay and receive amounts on each transaction which are generally netted and paid quarterly. BANC ONE's policy is to obtain sufficient collateral from swap counterparties to secure receipt of all amounts due. At September 30, 1993, the market value of interest rate swaps and the related collateral was approximately $536 million and $623 million, respectively. As indicated below, the notional value of the interest rate swap portfolio increased from $21 billion to $38 billion during the nine months ended September 30, 1993. This increase was primarily associated with swaps acquired to replaced fixed rate, on-and off-balance sheet instruments which have or will mature or amortize and to manage interest rate risk in newly acquired affiliates. These new affiliates did not use swaps to manage their exposure to interest rate risk to as great a degree as BANC ONE. Exposure to interest rate risk is determined by simulating the impact of prospective changes in interest rates on the results of operations. Management seeks to insure that over a one-year horizon, net income will not be impacted by more than 4 percent and 9 percent by a gradual change in market interest rates of 1 percent and 2 percent, respectively. At December 31, 1992, a 2.3 percent reduction in forecasted earnings would have resulted from a gradual 1 percent increase in market rates. Due to the increase in the notional value of the swap portfolio noted above, the sensitivity to such a rate increase changed to 3.8 percent at September 30, 1993. BANC ONE believes that both on-balance sheet securities and off-balance sheet derivatives may be used interchangeably to manage interest rate risk to an acceptable level. Various factors are considered in deciding the appropriate mix of such securities and derivatives including liquidity, capital requirements and yield.

During the nine months ended September 30, 1993, BANC ONE entered into $3.8 billion notional amount of basis swap contracts where payments based on the prime rate and LIBOR are exchanged. The variable rate used in the non-basis swap contracts entered into by BANC ONE is based on LIBOR, while many of the variable rate assets being synthetically altered are based on the prime rate. Basis swap contracts, therefore, improve the degree to which the swap portfolio acts as a hedge against the impact of changes in rates on BANC ONE's results of operations.

The table below summarizes by notional amounts the activity for each major category of swaps. For all periods presented, BANC ONE had no deferred gains or losses relating to terminated swap contracts. The terminations shown in the following table for the year ended December 31, 1991 resulted in losses of $1.8 million which were recognized during that year in accordance with BANC ONE's accounting policy at that time. The terminations in 1993 related to swaps which had been carried at market value and, therefore, resulted in no deferred gain or loss at termination.

$(millions)	Receive Fixed	Pay Fixed	Basis	Forward Starting	Total
Balance, December 31, 1990	**$ 3,114**	**$ 937**	**$ 550**	**$ 117**	**$ 4,719**
Additions	9,797	509			10,306
Maturities/Amortizations	(1,171)	(322)			(1,493)
Terminations	(3,102)				(3,102)
Forward Starting-Becoming Effective	117			(117)	
Acquisitions and Other (net)	2,764	277			3,041
Balance, December 31, 1991	**11,519**	**1,401**	**550**		**13,470**
Additions	2,002	501		11,656	14,159
Maturities/Amortizations	(6,059)	(182)	(350)		(6,591)
Terminations					
Forward Starting-Becoming Effective	3,201	1,005		(4,206)	
Acquisitions and Other (net)	289	(296)			(7)
Balance, December, 31, 1992	**10,952**	**2,429**	**200**	**7,450**	**21,031**
Additions	4,428	1,237	3,800	12,000	21,465
Maturities/Amortizations	(3,545)	(861)	(204)		(4,610)
Terminations	(250)	(250)			(500)
Forward Starting-Becoming Effective	10,480			(10,480)	
Acquisitions and Other (net)	450	15	20	(150)	335
Balance, September 30, 1993	**$22,515**	**$2,570**	**$3,816**	**$ 8,820**	**$37,721**

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The table below summarizes expected maturities and weighted average interest rates to be received and paid on the swap portfolio at September 30, 1993. A key assumption in the preparation of the table is that rates remain constant at September 30, 1993 levels. To the extent that rates change, both the periodic maturities and the variable interest rates to be received or paid will change. Such changes could be substantial. The maturities change when interest rates change because the swap portfolio includes $23.6 billion of amortizing swaps. Amortization is generally based on certain interest rate indices.

Expected Maturity

$(millions)	4th Quart. 1993	1994	1995	1996	1997	1998	All Other	Total
Receive Fixed Swaps								
Notional Amount	$2,436	$ 9,096	$ 8,880	$1,050	$ 90	$ 46	$ 917	$22,515
Weighted Average:								
Receive Rate	7.58%	6.00%	5.34%	6.02%	7.24%	6.22%	6.81%	5.95%
Pay Rate	3.28	3.28	3.23	3.36	3.24	3.19	3.54	3.28
Pay Fixed Swaps								
Notional Amount	$ 627	$ 970	$ 318	$ 272	$ 267	$ 109	$ 7	$ 2,570
Weighted Average:								
Receive Rate	3.25%	3.39%	3.33%	3.26%	3.44%	3.41%	3.31%	3.34%
Pay Rate	6.64	5.86	5.00	5.76	6.07	5.30	8.82	5.96
Basis Swaps								
Notional Amount	0	0	0	$2,200	$1,600	$ 16	0	$ 3,816
Weighted Average:								
Receive Rate	0.00	0.00	0.00	3.22%	3.27%	3.20%	0.00	3.24%
Pay Rate	0.00	0.00	0.00	3.33	3.34	4.80	0.00	3.34
Forward-Starting*								
Notional Amount	$ 500	$ 100	$ 6,720	$1,500	0	0	0	$ 8,820
Weighted Average:								
Receive Rate	7.20%	5.74%	4.98%	5.68%	0.00	0.00	0.00	5.24%
Pay Rate	3.38	3.38	3.38	3.38	0.00	0.00	0.00	3.38
Total	**$3,563**	**$10,166**	**$15,918**	**$5,022**	**$1,957**	**$ 171**	**$ 924**	**$37,721**
	6.77%	5.75%	5.15%	4.54%	3.47%	4.14%	6.78%	5.33%
	3.88	3.53	3.33	3.48	3.71	4.69	3.58	3.49

* All receive fixed swaps

Source: Banc One Corporation.

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Appendix

Modeling Banc One's Performance under Alternative Investment Policies

In preparation for his meeting with McCoy, Dick Lodge asked his staff to prepare a simplified set of Banc One financials that could communicate the essence of the bank's financial statements and the underlying economics of their business. This stylized set of financials would show the basic earnings sensitivity faced by the bank, and how it used swaps to solve this problem. The simplified model would also demonstrate the impact of the bank's derivative activities on its accounting ratios, such as its net interest margin as well as its returns on assets and equity. Moreover, the simplified books would show how swaps affected the bank's dependence on large short-term borrowings as well as demonstrate how the bank's swap portfolio affected the amount of risk-adjusted capital it held.

In order to explain the role that swaps played at Banc One, Lodge and his staff felt it might be instructive to compare Banc One with two hypothetical twin banks whose investment policies differed from its own. The first twin was like Banc One in all regards but one. This hypothetical bank brought its swaps onto the balance sheet by replacing the notional principal of its receive-fixed swaps with investments in fixed-rate securities[27] funded by variable-rate borrowings. Because Banc One's receive-fixed swaps were similar to an investment in fixed-rate securities funded by floating-rate borrowings, this twin would have similar interest rate exposure to Banc One. However, it would differ in its accounting performance, dependence on large liabilities, and capital levels.

A second twin would follow yet another investment strategy. In place of Banc One's fixed-rate investments, this twin would invest in floating-rate loans and investments. In place of Banc One's swaps, it would invest in floating-rate assets financed by floating-rate deposits. The second twin more closely resembles a bank that did not manage its interest rate sensitivity.

The hope was that these simple projections would demonstrate to investors how the bank's investment activities, but especially its derivatives activities, affected its earnings sensitivity, accounting results, liquidity, and capital needs.

[27] For this model, it was assumed that the swaps were replaced with investments in Treasury securities financed by floating-rate borrowing. The AIRS that make up the bulk of the bank's swap portfolio would be comparable more to investments in CMOs (with prepayment risk) funded by floating-rate borrowings.

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Appendix (continued)

$ in billions	Banc One (stylized)	Twin A (Swaps on balance sheet)	Twin B (No investment activities)
Balance Sheet			
Assets			
Floating-rate assets			
Variable-rate loans	$33.8	$33.8	$33.8
Additional money market assets	0	0	31.8
Fixed-rate Assets			
Fixed-rate loans	18.6	18.6	18.6
Fixed-rate investments	13.4	13.4	0
Additional Treasury securities	0	18.4	0
Other assets	8.4	8.4	8.4
Total Assets	$74.2	$92.6	$92.6
NOTE: Earning Assets[1]	65.8	84.2	84.2
Liabilities and Equity			
Floating-rate liabilities			
Retail deposits	19.3	19.3	19.3
Wholesale deposits[2]	8.8	8.8	8.8
Additional wholesale deposits[3]	0.0	18.4	18.4
Fixed-rate liabilities			
Fixed core deposits[4]	23.8	23.8	23.8
Large time deposits	2.3	2.3	2.3
Other liabilities	13.4	13.4	13.4
Total liabilities	67.6	86.0	86.0
Preferred shares	0.3	0.3	0.3
Common shares	6.4	6.4	6.4
Total	$74.2	$92.6	$92.6
Off-balance-sheet items			
Swaps[5]	$18.4	$0.0	$0.0

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$ in billions		Banc One (stylized)	Twin A (Swaps on balance sheet)	Twin B (No investment activities)
Income Statement				
	Rate			
Interest Income from				
Variable-rate loans	7.32%	$2.47	$2.47	$2.47
Additional money market assets	3.50%	0.00	0.00	1.11
Fixed-rate loans	11.13%	2.07	2.07	2.07
Fixed-rate investments	6.88%	0.92	0.92	0.00
Additional Treasury securities	4.30%	0.00	0.79	0.00
Total interest income		5.47	6.26	5.66
Interest expense from:				
Retail deposits	3.27%	0.63	0.63	0.63
Wholesale deposits	3.09%	0.27	0.27	0.27
Additional wholesale deposits	3.09%	0.00	0.57	0.57
Fixed core deposits	3.57%	0.85	0.85	0.85
Large deposits	3.57%	0.08	0.08	0.08
Total interest expense		1.83	2.40	2.40
Income from Swaps[6]	2.50%	0.46	0.00	0.00
Net interest		4.09	3.85	3.25
Non-interest expense		2.37	2.37	2.37
Taxable earnings		1.72	1.48	0.88
Taxes	34.00%	0.59	0.50	0.30
Net income		1.14	0.98	0.58
Performance Measures				
Net interest margin[7]		6.22%	4.58%	3.86%
Net interest margin (excluding swaps)[8]		5.52%	4.58%	3.86%
Return on assets		1.53%	1.06%	0.63%
Equity/Assets[9]		8.56%	6.86%	6.86%
Return on Equity[10]		17.89%	15.42%	9.19%
Dependence on large liabilities[11]		15.0%	33.5%	-5.4%
Risk-adjusted assets[12]		$63.2	$63.1	$74.7
Tier I capital/risk-adjusted assets[13]		10.4%	10.5%	8.8%
Earnings sensitivity[14]		-3.30%	-3.30%	12.88%
Summary				
Earnings		High	Better	Low
Capital		High	Low	Low
Risk Capital		Good	High	Low
Liquidity		Good	Low	High
Earnings Sensitivity		Liability Sensitive	Liability Sensitive	Very Asset Sensitive

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[1]Earning assets include loans and investments.

[2]"Wholesale" deposits represent liabilities to other financial institutions, e.g., federal funds borrowings.

[3]For both twin banks, additional needs for funds would be met by borrowing from other financial institutions.

[4]Fixed core deposits are the "sticky-fixed" deposits. Their rates may change with market rates (at bank management's discretion), but they are relatively stable in volume as rates change.

[5]Represents only the swaps in which Banc One receives fixed rates. Does not include its basis swaps or the relatively small amount of other interest rate derivatives in its portfolio.

[6]Represents the difference between the fixed rate that Banc One receives and the current floating rate. Does not include Banc One's basis swaps.

[7]Net interest (including income from swaps) divided by earning assets.

[8]Net interest (excluding income from swaps) divided by earning assets.

[9]Common equity/assets.

[10]Return to common equity.

[11]Equals (large time deposits + wholesale deposits - money market assets)/(earning assets - money market assets). Represents an estimate of the liabilities that the bank might be called on to honor immediately, net of its assets that could be liquidated immediately.

[12]Calculated by applying the BIS capital weights to each asset category.

[13]Banc One's equity divided by its risk-adjusted assets.

[14]Represents the percentage change in the coming year's net income in response to a gradual 1% rise in interest rates over the coming year. In this model, a gradual 1% rise in rates is the same as an immediate .5% increase in rates. The earnings sensitivity for a 2% or 3% rise in rates would not be merely two or three times the sensitivity for a 1% rise. This is because of the amortization schedule of the bank's swap contract as well as the nature of the other bank assets and liabilities. Furthermore, a 1% fall in rates would not necessarily produce the same earnings sensitivity. Banc One estimated that a 1% drop in rates would lead to a 4.0% increase in earnings, as compared to a 3.3% decline in earnings for a 1% rate increase.

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