

Questions on case study of hillside bancorp a finance essay



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1. Determine the implicit amount actually charged off by Marcy State Bank during 1996 (this simply entails the change in allowance for loan losses during the year and the provision for loan losses for the year).

Implicit amount actually charged off during 1996

Opening Balance 1st January 1996 = \$350, 000

Provision for Loan Losses (PLL) for 1996 = \$840, 000

\$1190, 000

Closing balance 31st December 1996 = \$960, 000

Therefore implicit amount actually charged off by Macy State Bank during 1996 is $\$1190, 000 - \$960, 000 = \$230, 000$

2. Using the same methodology, determine Forbes' projected charge-offs for 1997 and 1998 from his pro forma statements.

Projected charge offs during 1997

Opening Balance 1st January 1997 = \$960, 000

Provision for Loan Losses (PLL) for 1997 = \$250, 000

\$1210, 000

Closing Balance 31st December 1997 = \$200, 000

Therefore implicit amount actually expected to be charged off by Macy State Bank during 1997 is $\$1210, 000 - \$200, 000 = \$1010, 000$

Projected charge offs during 1998

Opening Balance 1st January 1998 = \$200, 000

Provision for Loan Losses (PLL) for 1998 = \$200, 000

\$400, 000

Closing Balance 31st December 1998 = \$200, 000

Therefore implicit amount actually expected to be charged off by Macy State Bank during 1998 is $\$400, 000 - \$200, 000 = \$200, 000$

3. Determine the expected risk-based capital ratios and the tier I leverage ratios for Marcy Bank for pro forma years 1997 and 1998. Discuss the bank's regulatory capital adequacy.

Risk weighted assets are calculated by assigning each asset and off balance sheet item to one of four broad risk categories. These categories are assigned risk weights of 0%, 20%, 50% and 100%. Riskier assets are placed in the higher percentage categories. The following is a calculation of the risk-adjusted assets for Marcy State Bank's forecasts.

Weight

Risk-adjusted Assets

1997

1998

(000's)

(000's)

Cash and Federal Balances

0.00%

—

—

Placements with banks

20.00%

120

120

Investment Securities:

Treasuries

0.00%

—

—

Govt-sponsored agencies

20.00%

380

400

Federal Funds Sold

20.00%

600

200

Loans:

Residential Mortgages

50.00%

7,000

8,000

Consumer and Commercial

100.00%

10,000

11,600

Allowance for loan losses

—

—

—

Premises and Equipment

100.00%

900

900

Other Real Estate Owned

100.00%

500

600

Intangible Assets

—

—

—

Goodwill

—

—

—

Other Assets

100.00%

500

600

Loan Commitments

50.00%

1,500

2,250

Total Risk-Weighted Assets

21,500

24,670

Tier 1 risk-based capital ratio is tier 1 capital divided by risk-weighted assets.

Tier 1 capital is the sum of core capital elements, which in our case, shareholder's equity, less goodwill and other intangible assets.

1997: Tier 1 Capital = \$2,540,000 - \$225,000 - \$725,000 = \$1,590,000

1998: Tier 1 Capital = \$2,980,000 - \$200,000 - \$700,000 = \$2,080,000

Tier I ratio

1997

1998

Total risk-based capital ratio is the sum of tier 1 and tier 2 capital divided by risk-weighted assets, where Tier 2 capital is the sum of the allowance for loan and lease losses, perpetual preferred stock not qualifying as tier 1 capital, subordinated debt and intermediate term preferred stock. Shown below is the calculation of the numerator for this ratio, which is also known as the qualifying capital.

Qualifying Capital

1997

1998

(000's)

(000's)

Stockholder's Equity

2540

2980

+ Loan loss reserve

+ 200

+ 200

- Intangible assets

– 225

– 200

– Goodwill

– 725

– 700

Risk-Weighted Capital Ratio

1790

2280

Tier I and II ratio

1997

1998

The leverage ratio measures the ratio of a bank's book value of its core capital to the average total consolidated assets. Average total consolidated assets are defined as the quarterly average total assets (defined net of the allowance for loan and lease losses) reported on the financial statements, less goodwill; other intangible assets; any investments in subsidiaries or associated companies; deferred tax assets dependent upon future taxable income; and the amount of the total adjusted carrying value of non-financial equity investments that deducted from Tier 1 capital. The calculation is shown below:

1997: Tangible assets = Total Assets – Goodwill – Intangible Assets

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$$= \$35,750,000 - \$725,000 - \$225,000$$

$$= \$34,800,000$$

$$1998: \text{Tangible assets} = \text{Total Assets} - \text{Goodwill} - \text{Intangible Assets}$$

$$= \$38,000,000 - \$700,000 - \$200,000$$

$$= \$37,100,000$$

Leverage Ratio

1997

1998

The total risk based capital ratio and the leverage ratio indicate that in 1997, the bank should be classified as adequately capitalised. Furthermore the calculated Tier 1 ratio is greater than 6% and this means that the bank is well capitalised. The capital injection of \$1.2 million required by the regulator will allow the bank to obtain this good level of capital adequacy.

In 1998, the bank is expected to improve its position further with the Tier 1 ratio exceeding 6% and the leverage ratio exceeding 5%. Thus according to these two ratios, the bank classifies as well capitalised. The total risk-based capital ratio is at 9.24% which ranks the bank as adequately capitalised.

Thus we can conclude that in both years the level of capital adequacy for the bank is satisfactory.

4. Evaluate the purchase price paid by Hillside Bancorp for Marcy State. Provide your own valuation. You should establish a range of values (based on capitalisation of earnings and comparable price-earnings ratios applied to potential earnings, the perpetual growth dividend model, application of the market-to-book comparable ratios to the economic value of Marcy's capital). Defend the purchase price you believe to be appropriate.

The purchase price calculated by Hillside Bancorp for Marcy State was \$2.4 million and it represents the book value of the bank for 1996 i. e. the shareholder's equity or the net asset value of the bank. This valuation has been done from an accounting point of view.

Empirical studies have shown that a merger premium i. e. the price paid to acquire a bank is usually higher for target banks with high quality loan portfolios. From the case study we know that in 1997, Marcy State Bank's lending activity is expected to shrink resulting in a lower loan portfolio. This could be a justification for Hillside Bancorp not to pay such a high price for the acquired bank.

The following are the methods we have used to obtain the valuation of the purchase price for Marcy State Bank.

Method 1: Multiple of Book Value

The case study shows that recent acquisitions have been priced at 1.2 to 1.8 times total book value of the bank. Using the figures of December 1996, a range of values were obtained:

Total Book Value = Total Assets - Total Liabilities

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$$= \$38,100,000 - \$35,700,000$$

$$= \$2,400,000$$

$$1. 2 \text{ times total book value from balance sheet} - 1.2 \times \$2,400,000 = \$2,880,000$$

$$1. 8 \text{ times total book value from balance sheet} - 1.8 \times \$2,400,000 = \$4,320,000$$

Method 2: Dividend Growth Model

A number of assumptions were made to be able to use this model:

Retention Rate will equal 25%. This implies that in 1997 expected dividend will equal \$105,000 (25% x \$140,000) and in 1998 dividend equals \$330,000 (25% x \$440,000).

We assume a required rate of return of 12%

Using these assumptions we calculate the growth rate as:

$$\text{Growth Rate} = \text{Retention Rate} \times \text{Required Rate of Return}$$

$$= 25\% \times 12\%$$

$$= 3\%$$

Thus we are saying that as from 1998 onwards, dividends will be growing at a constant rate of 3%. (This growth rate does not apply to 1997 since we already know how dividends have grown from 1997 to 1998)

Since we are saying that in 1998, growth will level off, then we can calculate the value for the Bank using the following formula:

$$P_0 =$$

In the above equation, P_2 can be found by using the constant growth DDM:

$$P_2 =$$

$$=$$

$$=$$

$$= \$3,777,000$$

Therefore, the value for Marcy State Bank equals:

$$P_0 =$$

$$= \$93,750 + \$3,274,075$$

$$= \$3,367,825 \text{ i. e. } \hat{\%}^{\wedge} \$3.3 \text{ million}$$

Method 3: Steady State Net Income – Perpetual Bond Valuation

We are assuming that as from 1998, the bank is going to be paying a dividend of \$330,000 growing at a rate of 3% p. a. Therefore we make use of the formula for the present value of a growing perpetuity.

$$P_0 =$$

$$=$$

$$= \$3,666,667 \text{ i. e. } \hat{\%}^{\wedge} \$3.7 \text{ million}$$

Final Note

The values obtained from these methods are based on the assumptions made and on the limitations of the models used. Thus based on the three methods, in our opinion, a higher price should have been paid for Marcy State Bank. Our calculations indicate that the price should be in the region of \$3 million.

5. Evaluate the Basel 1 risk-based capital ratio system as a risk management methodology. How would you deploy it as a management technique?

The soundness of the banking system is one of the most important issues for the regulatory authorities. The soundness of a bank can be defined as the likelihood of a bank becoming insolvent. The lower this likelihood the higher is the soundness of a bank.

Bank capital essentially provides a cushion against failure. If bank losses exceed bank capital the bank will become capital insolvent. Thus, the higher the bank capital the higher is the solvency of a bank.

Basel 1 is the term which refers to a round of deliberations by central bankers from around the world, and in 1988, the Basel Committee on Banking Supervision (BCBS) in Basel, Switzerland, published a set of minimal capital requirements for banks. This is also known as the 1988 Basel Accord, and was enforced by law in the Group of Ten (G-10) countries in 1992. Basel 1 is now widely viewed as outmoded, and this framework has now been replaced by a new and significantly more complex capital adequacy framework commonly known as Basel 2.

Basel 1, that is, the 1988 Basel Accord, was aimed to standardize the computation of risk based capital across banks and across countries. The capital ratio is the percentage of a bank's capital to its assets, as weighted by ratios dictated under the relevant Accord. Assets of banks were classified and grouped in five categories according to credit risk, carrying risk weights of zero (for example home country sovereign debt), ten, twenty, fifty, and up to one hundred percent (in this category has, as an example, most corporate debt). Banks with international presence were required to hold capital equal to 8% of the risk-weighted assets.

According to the Basel accord the risk-based capital ratio can be measured as:

Risk-based capital is the minimum level of capital a bank should hold based on the measured volume of its risk exposures. It should not go below minimum capital which serves as financial buffer to enable a bank to ride out earnings volatility. The greater the potential for earnings volatility (i. e. the more risky), the more capital a bank should hold. But since capital is more costly than other sources of funds, banks have more incentive to choose a level of capital that may not be appropriate to the risks they take. This is the underlying concern addressed by risk-based capital regulations.

Basel 1 weighting of assets resulted, at best, in a crude measure of economic risk, primarily because degrees of credit risk exposure were not sufficiently calibrated as to sufficiently differentiate between borrowers' differing default risks. Another related and increasing problem with Basel 1 was the ability of banks to arbitrage their regulatory capital requirement and

exploit differences between true economic risk and risk measured under the Accord. Regulatory capital arbitrage can occur in various ways, for example, through some forms of securitization, and can lead to a shift in banks' portfolio concentrations to lower quality assets. Because of a flat 8% charge for claims on the private sector, banks have an incentive to move high quality assets off the balance sheet (capital arbitrage) through securitization, thus reducing the average quality of bank loan portfolios.

One question to consider, under Basle I, was whether the level of capital relative to risk-weighted assets at that time and under that Accord was appropriate. Historical evidence on bank capital structure, as well as evidence on how banks and other financial institutions today choose capital ratios when they are subject to market discipline, suggested that minimum capital ratios should be higher than those in place.

Another weakness of the Basel 1 was that it did not take into consideration the operational risk of banks, which become increasingly important with the increase in the complexity of bank activities. Also, the 1988 Accord did not sufficiently recognize credit risk mitigation techniques, such as collateral and guarantees.

The risk-based capital ratio tends to mis-measure asset risk, and hence could create potential distortions in the banking system. Distortions in bank decision making occur when regulatory constraints determine a bank's choice of capital (that is, when bank capital ratios reflect regulatory requirements rather than market requirements). Inaccurate risk weights offer opportunities to arbitrage risk standards. It is not obvious whether it is more

incorrect to set uniform (and, therefore, necessarily inaccurate) risk weights (as in a simple leverage requirement) or to set varying (but also inaccurate) risk weights. To the extent that risk varies across loans, and to the extent that risk weights capture much of that variation, it may be desirable to maintain a capital standard based on regulatory risk weights.

6. Summarise the managerial implications of Basel 2. Consider whether this will (and how) improve the capital allocation efficiency of banks.

Starting in June 1999, the Basle Committee on Banking Supervision released several proposals to reform the original 1988 Basel Accord. These efforts have culminated in what bank supervisors refer to as Basel 2, which is based on 3 pillars.[1]

The new capital adequacy framework has been crafted following a lengthy and inclusive consultation process, and offers several approaches of varying degrees of sophistication aimed at being applicable to diverse banking and supervisory systems.

Managerial Implications of Basel 2

Pillar 1 intends to link capital requirements more closely to actual risk. It does so by specifying many more categories of risk with different weights in its so-called standardized approach. It allows sophisticated banks to pursue an integral ratings-based approach that permits banks to use their own model of credit risk. Therefore, Pillar 1 deals with maintenance of regulatory capital calculated for three major components of risk that a bank faces which are credit risk, operational risk & market risk.

The credit risk component can be calculated in three different ways of varying degree of sophistication, namely Standardized Approach, Foundation IRB and Advanced IRB. IRB stands for Internal Rating Based Approach. For operational risk, there are three different approaches namely the Basic Approach, Standardized Approach, and Advanced Measurement Approach or AMA. For market risk the preferred approach is VaR that is, Value at Risk.

The implications for Pillar 1 are the significant investment in technology, especially for institutions that plan to use the more sophisticated approaches to risk measurement i. e. the Internal Ratings Based Approach for credit risk and the Advanced Measurement Approach for operational risk. Amendments of existing credit scoring systems will be required and an implementation of new credit scoring applications for business with limited credit scoring capabilities have to be employed.

Pillar 2 focuses on strengthening the supervisory process, particularly in assessing the quality of risk management in banking institutions and in evaluating whether these institutions have adequate procedures to determine how much capital they need. It also provides a framework for dealing with all the other risks a bank may face, such as reputation risk, liquidity risk and legal risk, which the accord combines under the title of residual risk.

The implication for bank's management is to develop an internal capital assessment process and set targets for capital that are commensurate with the bank's particular risk profile and control environment. This internal process would then be subject to supervisory review and intervention, where

appropriate. Member countries currently employ a variety of approaches to supervisory review, including:

On-site examinations or inspections;

Requirements for policy statements on risk management issues;

Off-site review;

Discussions with bank management;

Commission and review of work done by external auditors (provided it is adequately focused on the necessary capital issues); and

Periodic reporting

Having carried out the review, supervisors should take appropriate action if they are not satisfied with the results of the bank's own risk assessment and capital allocation process. Actions may include, but are not limited to:

Increased monitoring of the bank;

Requiring improvements in the controls environment and risk management process of the bank; and/or

Additional capital requirements above the basic minimum

Pillar 3 focuses on improving market discipline through increased disclosure of details about the bank's credit exposures, its amount of reserves and capital, the officials who control the bank and the effectiveness of its internal ratings system.

Therefore, market discipline imposes strong incentives on banks to conduct their business in a safe, sound and efficient manner. It also provides a bank with an incentive to maintain a strong capital base as a cushion against potential future losses arising from its risk exposures.

The implications for banks are many. First and foremost banks should have a formal disclosure policy approved by the board of directors which describes the bank's objective and strategy for the public disclosure of information on its financial condition and performance. In addition, banks should implement a process for assessing the appropriateness of their disclosure, including the frequency of disclosure. A bank should, at least annually and more frequently where possible and appropriate, publicly disclose summary information about its capital structure and components of capital and the terms and conditions of the main features of capital instruments, its accounting policies for the valuation of assets and liabilities, provisioning and income recognition. These together with publicly disclose qualitative and quantitative information about its risk exposures, including its strategies for managing risk.

Amongst other things a bank should also provide an analysis of factors impacting on its capital adequacy position. These would include changes in capital structure and the impact on key ratios and overall capital position, its contingency planning, should it need to access the capital markets in times of stress and its capital management strategy and consideration of future capital plans (where appropriate).

A strong supervisory foundation should be a precondition for Basel 2 implementation – A solid infrastructure for financial services needs to be in place before a country embarks on implementing Basel 2. Banking, as well as banking supervision, can only function properly in an environment of good accounting and auditing rules and practices, a functioning legal framework for financial transactions and banking supervision, including reliable financial information, contract enforcement, loan performance data, data sharing, market transactions disclosure and collateral execution.

Higher capital requirements likely for loans to emerging markets – For many emerging and developing countries, the increased risk sensitivity in Basel 2 may lead to higher bank capital requirements for loans to these countries. The BCBS' Third Quantitative Impact Study showed that banks lending to emerging and developing markets will face higher capital charges for credit risk and operational risk. This could result in higher borrowing costs as well as reduced capital flows to higher risk countries.

Portfolio adjustments arising from Basel 2 – The application of different capital charges based on the credit risk of a type of loan (e. g. residential mortgage loans) or borrower may lead banks to change the composition of their asset portfolios. Banks may tend to increase their holding of low risk assets (with lower capital charges) and may reduce their holdings of those assets, which under Basel 2, generate a higher capital charge and put upward pressure on lending rates. These factors could shift the flow of credit from higher risk sectors (e. g. commercial real estate), to less risky sectors (e. g. residential housing). More work is needed to assess the likelihood of

the occurrence of such portfolio shifts and their potential macroeconomic consequences.

Incentives to develop credit rating agencies - Basel 2 may create an incentive for countries to facilitate the development of credit rating agencies and foster an improved credit culture. For instance, implementation of the Standardized Approach under Pillar I allows the use of borrower ratings issued by rating agencies to determine asset risk weights. This is only feasible, however, in countries with sufficient rating agency penetration. If rating agency penetration is low, and ratings are not available for major borrowers, then the standard risk weights of Basel 1 will be applied. For ratings to qualify for use under Basel 2, supervisors are expected to assess the quality of the rating agencies, based on criteria of objectivity, independence, availability to foreign and domestic institutions, disclosure of methodologies, adequacy of resources and credibility.[2] Such evaluations will require additional resources and expertise.

Increased resource pressures to build financial infrastructures - Supervisors and banks wishing to implement Basel 2, and particularly the IRB approaches, may need to build considerable additional infrastructure, i. e. data and reporting systems, and verification and validation capacity. The advanced approaches to measuring credit risk require a minimum of reliable five-year data sets on credit performance, according to the Basel Committee. Other experts argue that five years is insufficient to obtain an accurate estimation of risk. Where neither banks nor supervisors have developed their own databases, credit registries or data pooling arrangements can be used.

Shortage of trained supervisors - To build their supervisory capacity, countries will need to recruit additional specialized staff, and provide extensive training to existing staff on Basel 2. The Financial Stability Institute (FSI) Survey on Implementation of the new capital adequacy framework estimates that responding countries could require training of over 9, 000 supervisors. Demand for expertise in risk-based supervision, credit and operational risk management is likely to increase significantly in the next few years. In most countries, supervisory agencies, operating under government pay scales, will be disadvantaged in competing against the private sector for these skills. The prospect of a " brain drain" of Basel 2 trained supervisors to the private sector is very real, further challenging the ability of supervisory agencies to build the necessary capacity to implement Basel 2.

Surveillance - Countries should be advised to avoid overly ambitious schedules and the diversion of resources away from core supervisory and regulatory functions. Candid assessments will need to be made of country readiness, including sufficient implementation of the Basel Core Principles for Effective Banking Supervision (BCP), and the feasibility and comprehensiveness of roadmaps to Basel 2. In the context of surveillance, countries will not be assessed on whether or not they have implemented Basel 2, but on the basis of the quality of their supervision of banks' capital adequacy.

Surveillance and assessment methodology, and supporting guidance materials, will need to be developed by the World Bank and International Monetary Fund, based on the text of the Basel 2 framework, to serve as a

basis for an assessment whether supervisors are monitoring effectively the quality of Basel 2 implementation by banks.

Basel 2 has two potential effects on stress testing – First, there will be a need to assess, in the context of surveillance or BCP assessments, the quality of stress testing practices of banks and its monitoring by supervisors, as required under the advanced approaches under Basel 2. Techniques currently applied to stress test banks and banking systems in the context of Financial Sector Assessment Program (FSAP) will probably not undergo much change, even if the data provided by the authorities as inputs to stress tests is produced differently under Basel 2.[3]

As banks implement Basel 2 and the risk weights are adjusted as a result of the new capital framework, the reported capital position of individual banks will change – These changes to a bank's reported capital ratios may occur even when the banks' portfolio and risk profile remain unchanged. In addition, Basel 2 provides countries with more than 40 options of national discretion, leading to variations in the actual frameworks among countries. As a result of such variations, assessments and comparisons of banking systems' capital positions over time will become very difficult. The IMF and the World Bank have suggested to BCBS for the Committee set up a database of countries' implementation of Basel 2, in particular with a view to compiling information on countries' use of the different areas of national discretion.

Considering Whether Basel 2 will improve the Capital Allocation Efficiency of Banks

As we can see the Basel 2 makes great strides toward limiting excessive risk taking by banking institutions. Amid other things it aims to:

Ensure that capital allocation is more risk sensitive;

Separate operational risk from credit risk, and quantifying both;

Attempt to align economic and regulatory capital more closely to reduce the scope for regulatory arbitrage

How Basel 2 will improve the Capital Allocation Efficiency of Banks

First, Basel 2 requires that firms develop more robust frameworks for capturing less liquid products and rapidly growing credit risk in the trading book.

Second, the Basel 2 framework permits firms to use their own models to measure counterparty credit risk exposures. This process can focus on how firms capture some of the more complex credit risks arising from structured credit and equity derivatives. Under Pillar 2, supervisors can assess how these risks are reflected in economic capital models.

Third, Basel 2 establishes benchmarks for recognising risk transfer and improvement in credit derivatives and securitisation structures. These provide a framework for supervisors to assess the degree of risk transfer and easing under both normal and more stressed market liquidity conditions.

Fourth, Basel 2 seeks to advance comprehensive stress testing frameworks and provides a clear benchmark for what stress testing is intended to achieve. For banks, this means demonstrating to themselves and to supervisors that they hold an adequate cushion of capital in good times to carry them through a significant credit downturn.

Finally, under Basel 2, firms must take a close look at the robustness of their economic capital models. For example, it requires banks and supervisors to discuss assumptions regarding diversification benefits, within and across business lines and risk types.

Pressure to implement Basel 2 – Some countries report pressure from their major banks and from the market to adopt Basel 2 promptly. As Basel 2 is viewed by many as the new global capital standard, it may be difficult for countries to explain to market analysts why they are not immediately moving to implement it. Hurried implementation, however, may lead to weaker rather than stronger supervision. The more sophisticated variants of Pillar 1 require data, skills, and systems that are lacking in many developing countries. Applying models with parameters that are borrowed from other countries could provide a misleading indication of required capital.

Therefore, the BCBS has emphasized that Basel 2,

“ May not be a first priority for all non-G-10 supervisory authorities in terms of what is needed to strengthen their banking supervision, and should adopt Basel 2 only in a timeframe consistent with national priorities and capacities.”[4]

Appendix

Appendix 1 – Basel 2 Main Elements

Main Features

Key Requirements & Managerial Implications

Pillar 1: Capital Adequacy

Credit Risk 1

Simplified Standardized Approach (SSA)

Greater risk sensitivity than Basel 1 through more risk buckets and risk weights for sovereigns and banks based on Export Credit Agency (ECA) risk scores.

Credit Risk 2

Standardized Approach (SA)

More risk buckets than SSA.

Risk weights for asset classes based on ratings of external credit assessment agencies (ECAIs) or ECA scores.

Enhanced credit risk mitigation available.

Ratings of ECAIs.

Ability and capacity to qualify rating agencies and map agency scores.

Credit Risk 3

Foundation Internal Ratings Based Approach (F-IRB)

Based on risk components: probability of default (PD), loss given default (LGD), exposure at default (EAD), and maturity (M).

Banks can use own PD estimates and supervisory estimates for other components.

Stress testing required.

Ability to assess banks' rating system de