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Subordinated Debt for Credit Unions

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Printed in U.S.A.

Filene Research Institute and Center for Credit Union Research



The Filene Research Institute is a non-profit organization dedicated to scientific and thoughtful analysis about issues affecting the future of consumer finance and credit unions. It supports research efforts that will ultimately enhance the well-being of consumers and will assist credit unions in adapting to rapidly changing economic, legal, and social environments.

Deeply imbedded in the credit union tradition is an ongoing search for better ways to understand and serve credit union members and the general public. Credit unions, like other democratic institutions, make great progress when they welcome and carefully consider high-quality research, new perspectives, and innovative, sometimes controversial, proposals. Open inquiry, the free flow of ideas, and debate are essential parts of the true democratic process. In this spirit, the Filene Research Institute grants researchers considerable latitude in their studies of high-priority consumer finance issues and encourages them to candidly communicate their findings and recommendations.

The name of the institute honors Edward A. Filene, the “father of the U.S. credit union movement.” He was an innovative leader who relied on insightful research and analysis when encouraging credit union development.

The Center for Credit Union Research is an independent academic research center located in the School of Business at the University of Wisconsin–Madison. The Center conducts research and evaluates academic research proposals on subjects determined to be priority issues by the Research Council of the Filene Research Institute. The Center also supervises Filene Research Institute projects at other universities and institutions. The purpose of the Center’s research is to provide independent analysis of key issues faced by the credit union movement, thus assisting credit unions and public policymakers in their long-term planning.

Progress is the constant replacing of the best there is with something still better!

— Edward A. Filene

Acknowledgements

The author would like to thank a number of people for their valuable help and comments on earlier drafts of this report. They include John Davis, Stanford Federal Credit Union; John Wagner, Ebtel Credit Union; Chris Owen, Meriwest Credit Union; Ken Burns, Technology Credit Union; Tim Kramer, AEA Credit Union; Steve Lumm, Addison Avenue Federal Credit Union; Luis Dopico; Mark Flannery, University of Florida; Bill Hampel, CUNA & Affiliates; Bill Kelly, Center for Credit Union Research; Keith Peterson, CUNA Credit Union; Ken Sayre-Peterson; and the Filene Research Institute's Research Council.

Table of Contents

| | |
|--|-----------|
| Executive Summary | 1 |
| I. Introduction | 3 |
| II. Capital and Net Worth Requirements | 7 |
| A. Rationale for capital and net worth requirements | 7 |
| B. Capital requirements in the banking industry | 8 |
| 1. The leverage ratio | |
| 2. The core capital ratio | |
| 3. The total capital ratio | |
| C. Net worth requirements in the credit union industry | 11 |
| 1. "Standard" credit unions | |
| 2. Complex credit unions | |
| 3. Low-income credit unions | |
| 4. New credit unions | |
| 5. Credit unions under net worth restoration plans | |
| D. Net worth requirements may impede credit union growth | 16 |
| III. A Brief Review of Reform Proposals for Credit Union Net Worth Requirements | 21 |
| A. Membership capital shares | 21 |
| B. Member investment shares | 22 |
| C. Leased capital | 22 |
| D. Member paid-in capital | 22 |
| IV. Using Subordinated Debt to Meet Credit Union Net Worth Requirements | 23 |
| A. Advantages of subordinated debt for credit union regulators | 24 |
| 1. Direct market discipline | |
| 2. Indirect market discipline | |
| 3. Transparency and disclosure | |
| 4. Increased size of the financial cushion to the deposit insurer | |
| 5. Reducing supervisory forbearance | |
| B. Proposals for the use of subordinated debt toward net worth requirements | 27 |

| | |
|--|-----------|
| 1. Legislative change through Congress | |
| a. Subordinated debt as net worth on a 1-for-1 basis | |
| b. Subordinated debt as net worth on less than a 1-for-1 basis | |
| 2. Regulatory change through the NCUA | |
| a. Subordinated debt as net worth on a 1-for-1 basis | |
| b. Subordinated debt as net worth on less than a 1-for-1 basis | |
| C. Special purpose vehicles (SPVs) | 33 |
| 1. SPVs as means to overcome illiquid debt markets | |
| 2. The analogy between Fannie Mae and Freddie Mac and SPVs | |
| 3. An example of a SPV | |
| 4. Safety options for SPVs: over-collateralization | |
| 5. The effects of subordinated debt (SD) defaults | |
| a. The effects of a SD default on the purchasing SPV | |
| b. The effects of a SD default on other credit unions in an SPV | |
| c. The effects of a SD default on the defaulting credit union | |
| V. Conclusion | 43 |
| References | 45 |
| Appendix 1: Subordinated Debt as a Means to Reduce Interest Rate Risk | 47 |
| Appendix 2: The Use of Subordinated Debt Reduces Credit Union ROA | 51 |
| Appendix 3: Differences in ROA and ROE in Stock and Mutual Institutions | 53 |
| About the Author | 55 |
| Filene Research Institute Administrative Board/Research Council | 57 |
| Filene Research Institute Publications | 61 |

Executive Summary

PURPOSE

This study evaluates the public policy implications and the feasibility of allowing credit unions to count debt toward capital requirements. This debt would be subordinated to the interests of members and the share insurance fund.

ADVANTAGES OF SUBORDINATED DEBT TO CREDIT UNION REGULATORS

Allowing credit unions to use subordinated debt to meet their capital requirements could provide a number of advantages for regulators:

1. Direct market discipline. The higher interest costs associated with debt of riskier credit unions would reduce the temptation of excessive risk taking.
2. Indirect market discipline. The higher yields imposed by financial markets would send a forward-looking signal to regulators if credit unions' riskiness rose. Early signals provide regulators with more time to seek corrective action.
3. Transparency and disclosure. Marketing of subordinated debt, directly or via a pooling arrangement, would require increased transparency and disclosure about credit unions' conditions.
4. Larger cushion for the share insurance fund. A subordinated debt regulation could be structured to increase the size of the buffer between the fund and credit union losses.
5. Increased incentives for prompt action by supervisors. Holders of subordinated debt would encourage regulators to act promptly if credit unions became excessively risky or troubled.

ADVANTAGES OF SUBORDINATED DEBT TO CREDIT UNIONS

The passage of the Credit Union Member Access Act in 1998 replaced credit unions' minimum required transfers to reserve accounts with minimum capital requirements. Minimum capital requirements may require some credit unions to shrink in the face of reduced income or quickly raise capital in the face of rapid growth. Having the flexibility to raise capital quickly from outside

the credit union in the face of losses or growth could reduce the amount of capital that credit unions often hold above the minimum requirement.

FEASIBILITY

The analysis presented here shows how current regulatory authority could be used to allow subordinated debt to count toward credit unions' capital requirements.

The analysis presented here also illustrates how subordinated debt could be issued at reasonable cost via a pooling arrangement that combines the debt issues of several credit unions. A second study currently underway is developing a more detailed analysis of the costs and practicality of pooling arrangements.

I. Introduction

Most credit unions currently have net worth ratios that are far above regulatory requirements. As of December 2001, the net worth-to-assets ratio for the average credit union was 10.8 percent. Only 1.3 percent of institutions were classified as less than adequately capitalized (a net worth ratio below 6 percent); only 3.8 percent were classified as less than well capitalized (a net worth ratio below 7 percent and required to make quarterly additions to net worth). Table 1 shows the numbers and assets of credit unions across net worth ratios.

| Net worth ratio (%) | Number of credit unions | Percent of credit unions | Cumulative percent of credit unions | Assets (in millions of dollars) | Percent of assets | Cumulative percent of assets |
|----------------------------|--------------------------------|---------------------------------|--|--|--------------------------|-------------------------------------|
| 0 - 2% | 24 | 0.2 | 0.2 | 96 | 0.02 | 0.02 |
| 2 - 4% | 33 | 0.3 | 0.6 | 350 | 0.07 | 0.09 |
| 4 - 5% | 17 | 0.2 | 0.8 | 181 | 0.04 | 0.1 |
| 5 - 6% | 56 | 0.6 | 1.3 | 797 | 0.2 | 0.3 |
| 6 - 7% | 245 | 2.5 | 3.8 | 10,358 | 2.1 | 2.4 |
| 7 - 8% | 609 | 6.2 | 9.9 | 52,978 | 10.6 | 12.9 |
| 8 - 9% | 835 | 8.4 | 18.4 | 76,325 | 15.2 | 28.2 |
| >9% | 8,091 | 81.6 | 100.0 | 359,880 | 71.8 | 100.0 |
| Total | 9,910 | 100.0 | 100.0 | 500,965 | 100.0 | 100.0 |

Source: CUNA & Affiliates

Net worth levels are not likely to fall to their regulatory minimums at most credit unions in the short term. For most credit unions to become constrained by net worth requirements, they would have to experience consistently fast asset growth, anemic earnings, and/or large loan losses. As an example of sustainable asset growth rates, a credit union with a net worth ratio of 7 percent and return on assets (ROA) of 1.00 percent could sustain an (atypically high) asset growth rate of 14.28 percent indefinitely and still maintain its net worth ratio.¹ As an example of anemic

¹ In the first half of 2001, the industry average ROA was 0.98 percent. The average growth rate in savings deposited in the credit union industry over the last 10 years was 7.5 percent.

earnings, a credit union with an average net worth ratio (10.8 percent) and an ROA of zero could maintain an asset growth rate of 7.5 percent per year for 6 years before its net worth ratio fell to 7 percent. The amount of loan losses, beyond allowances, that would cause the average credit union to become constrained by net worth requirements is also large ($10.84 - 7.00 = 3.84$ percent of assets).

However, current fortunate conditions should not preclude the exploration and reform of what more trying times might reveal as weaknesses in credit union regulations. The credit union industry has seen extended periods of low net worth ratios before. For instance, during the mid-1980s, the industry experienced years of net worth ratios below the 7 percent that currently qualifies as well capitalized.² For credit unions with net worth ratios close to regulatory requirements, these requirements would restrict the ability to respond to opportunities for growth or to negative shocks such as anemic growth or large loan losses. In such circumstances, credit unions would have to reduce share dividends or even shrink.

This report begins with a comparison of the structure of credit union net worth requirements and bank capital requirements. We find that requirements imposed on credit unions are more onerous and less flexible than those imposed on banks. We then briefly review some of the existing proposals to reform credit union net worth requirements. Next, we argue that permitting the use of subordinated debt³ to meet credit union net worth requirements along the lines currently allowed for banks would give credit unions valuable flexibility both during times of rapid asset growth and during times of economic distress.

We then present a menu of proposals that shows how subordinated debt could be incorporated in net worth requirements. Some of the proposals involve legislative change through Congress and state legislatures. Others involve regulatory changes by the National Credit Union Administration (NCUA) and state credit union regulators for which they seem already to

² See data available at the CUNA website: www.cuna.org.

³ Subordinated debt refers to debts that are (1) not supported by pledged assets and are junior (i.e. subordinated) to the claims holders of credit union share accounts and (2) that would not be backed by NCUSIF in the event of insolvency. An in-depth description follows in section II B3.

have the authority to make. Finally, we present proposals on how subordinated debt could be pooled and securitized in ways that would make this instrument viable not only for the largest credit unions, but for smaller ones as well.

II. Capital and Net Worth Requirements

The following sections explain the rationale for capital and net worth requirements in stock-owned financial institutions and in mutually owned financial institutions. The chapter closes with examples that show how, if the credit unions' current net worth ratios decline, the current structure of net worth requirements places the credit union industry at a disadvantage when faced with potential growth opportunities and with adverse economic conditions.

A. RATIONALE FOR CAPITAL AND NET WORTH REQUIREMENTS

The widespread problems in the banking and thrift industries during the 1980s and early 1990s brought the role of capital in financial institutions into sharp focus. Various stakeholders may disagree widely about what levels of capital are appropriate. For instance, the interests of shareholders of stock-owned financial institutions may favor low capital-to-asset ratios. An industry with relatively low returns on assets (ROAs), such as banking, may favor using the greater leverage afforded by lower capital ratios to produce sufficiently high returns on equity (ROEs). Banks' shareholders earn part of their returns from the spread between the average interest rate received from loans and the average rate that banks pay for funds, which are largely provided by depositors. By increasing the ratio of deposits to the shareholders' equity investments, shareholders can raise their ROEs.

In contrast, government regulators may prefer that financial institutions have higher capital-to-asset ratios. Banks with very low capital are subject to a high risk of insolvency if, for instance, more loans become nonperforming during a downturn. Even a highly profitable, but lightly capitalized bank, say a bank with a two percent capital-to-assets ratio, would become insolvent if loan losses beyond existing reserves for loan losses exceeded two percent of assets. In a regime of government deposit insurance, such bank insolvencies can impose direct and indirect costs on other banks and even on taxpayers. Among other goals, bank capital requirements aim to minimize the costs that insolvencies impose on stakeholders other than the insolvent institutions' shareholders and creditors. For instance, as a bank's capital-to-assets ratio falls, a series of Prompt Corrective Actions (PCA) are triggered. These actions range from restricting managements' risk-

taking options, to removing management and, in the extreme, closing institutions.

Over the past two decades, the analogs to banks' capital (i.e., net worth) requirements and PCA have been extended by FIRREA in 1989 and FDICIA in 1991 to cover thrifts and CUMAA in 1998 to cover credit unions. The massive losses incurred by the thrift industry during the 1980s led Congress to impose net worth-based requirements on mutual institutions that were similar the PCA schedules imposed on banks. Mutual ownership may temper somewhat the adversarial nature of the relationship between bank shareholders and government regulators. Since owners of share accounts in mutual institutions have interests that partly mirror those of bank depositors and partly mirror those of bank shareholders, they may not be as single-minded about increasing ROE as bank shareholders are. Nonetheless, as is discussed below in section II D, net worth requirements may limit credit unions' abilities to pay dividends and to seize growth opportunities.

B. CAPITAL REQUIREMENTS IN THE BANKING INDUSTRY

Bank capital requirements are riddled with legal and accounting minutia. Banks and regulators engage in constant debate to determine how new financial instruments and activities will affect bank capital requirements. Some questions that arise include:

- Should new products be on or off the balance sheet statement?
- Should they count as assets against which capital must be held?
- Do new sources of funds more closely approximate short-term liabilities or stable, capital-like instruments that might cushion depositors and their insurer?

The details of bank capital requirements are not only complex, but also constantly evolving. The remainder of this section describes the general pattern of current U.S. bank capital requirements. Banks must meet three minimum capital requirements to avoid stricter regulation and, potentially, closure. The three requirements are:

-
1. a leverage ratio based on total assets;
 2. a core capital (Tier 1) ratio; and
 3. a total capital (Tier 1 plus Tier 2) ratio.

These requirements were established in conjunction with the 1988 Basle Accord agreement among international bank regulators.

1. The leverage ratio

To qualify as adequately capitalized, a bank must hold a minimum of three percent of Tier 1 capital relative to (unweighted) total assets. Tier 1 capital includes common equity, plus retained earnings, noncumulative perpetual preferred stock, limited amounts of cumulative perpetual preferred stock, and minority interests in the equity accounts of consolidated subsidiaries.

2. The core capital (Tier 1) ratio

To qualify as adequately capitalized, a bank must hold a minimum of four percent of Tier 1 capital relative to risk-weighted assets. The asset risk-weighting system assigns each class of assets a risk weight of 0 percent, 20 percent, 50 percent, or 100 percent. Cash and securities issued by governments of most developed (specifically, OECD) countries receive a weight of 0 percent. Claims on banks and securities issued by the U.S. government or agencies that do not have the backing of the full faith and credit of the United States receive a weight of 20 percent. Some mortgage loans, certain asset-backed securities, and most derivative transactions receive a weight of 50 percent. Typically, commercial loans receive the standard weight of 100 percent. Some off-balance sheet items may be included in the four risk categories.

3. The total capital (Tier 1 plus Tier 2) ratio

To qualify as adequately capitalized, a bank must hold a minimum of eight percent of total capital (Tier 1 and Tier 2) relative to risk-weighted assets. Tier 2 (also known as supplementary capital) capital may consist of intermediate-term and/or cumulative preferred stock, allowances for loan losses, hybrid instruments that combine equity and debt characteristics, unrealized gains on equity securities, and subordinated debt. The total amount of these components that may be counted toward Tier 2 capital cannot exceed the amount of Tier 1 capital. Additional amounts of

the components of Tier 2 capital may be held, but they do not count toward the capital requirement.

There are various restrictions on the maximum qualifying amounts of the different components. In particular, the amount of subordinated debt plus intermediate-term preferred stock that qualifies as Tier 2 capital cannot exceed 50 percent of Tier 1 capital. There are also other reasons why subordinated debt may not qualify as Tier 2 capital. In order to qualify, subordinated debt must:

1. not contain provisions that permit holders to accelerate the payment of principal prior to maturity (i.e. not contain put options).
2. not be credit-sensitive (i.e. not make increased interest payments in near-default situations),
3. have an original weighted average maturity of no less than five years. Issues with a remaining maturity of between 4 and 5 years are weighted to be counted as capital at 80 percent of face value, between 3-4 years at 60 percent, between 2-3 years at 40 percent, between 1-2 years at 20 percent. Issues with remaining maturity of less than one year receive a 0 percent weight.

Technically, subordinated debt may be viewed as part of the financial intermediation process in which savers place funds in financial institutions to be lent to borrowers. Thus, subordinated debt is another source of funds to banks that fit in the spectrum of funds between deposits and common stock. It is possible that banks would raise funds by issuing subordinated debt even if it didn't count toward capital requirements. It is worth noting, however, surveys reveal that many market participants believe that banks issue subordinated debt primarily because it is included as a component of Tier 2 and thus can be used by banks to satisfy their risk-based capital requirements (Federal Reserve 1999: 49).

C. NET WORTH REQUIREMENTS IN THE CREDIT UNION INDUSTRY

Prior to the passage of the Credit Union Member Access Act (CUMAA) of 1998, National Credit Union Administration (NCUA) regulations did not impose any explicit net worth requirements on credit unions. Instead, credit unions were required to periodically transfer a percentage of earnings to reserve accounts. Credit unions whose reserves reached a specified, prudential level were not required to make further additions to their reserves. No regulation stipulated that the prudential level must be reached.

Prior to CUMAA, credit unions in operation for more than four years and having at least \$500,000 in assets had to transfer annually 10 percent of gross income to a reserve account until that account reached four percent of risk assets.⁴ Credit unions in operation for less than four years or having less than \$500,000 in assets were required to transfer 10 percent of gross income until their reserves reached 7.5 percent of their risk assets. After reaching the 7.5 percent reserves target, the transfer requirement declined to five percent of gross income until reserves reached 10 percent of risk assets.

CUMAA introduced net worth requirements for five categories of credit unions: (1) standard, (2) complex, (3) low-income, (4) new, or (5) those under a net worth restoration plan. The basis for categorizing credit unions and the net worth requirements that apply to each category is explained below.

For the purposes of this report, the main difference between bank capital requirements and credit union net worth requirements is that, for most credit unions, only retained earnings as determined under GAAP can be used to meet net worth requirements.

1. Net worth requirements for “standard” credit unions

Current legislation establishes a net worth requirement that applies to credit unions that do not qualify as either complex, low-income, new, or under a net worth restoration plan. For simplicity, we refer to these institutions as “standard” credit unions.

⁴ Risk assets were defined by NCUA regulations to include certain investments plus most, but not all, loans.

Depending on their ratio of net worth to total assets, standard credit unions are further classified into five categories: well capitalized, adequately capitalized, undercapitalized, significantly undercapitalized, and critically undercapitalized (U.S. Treasury 2001a: 52-4).

To be classified as well capitalized, a credit union must maintain a ratio of at least seven percent of net worth to total assets. Credit unions failing to meet that goal are required, on a quarterly basis, to set aside at least 0.1 percent of their total assets as net worth. To be adequately capitalized, a credit union must maintain a ratio of at least six percent of net worth to total assets. Credit unions with less than six percent of net worth become subject to Prompt Corrective Actions that become increasingly severe as their net worth ratio falls.

2. Net worth requirements for complex credit unions

Over the last two decades, many credit unions have begun to provide members an increasing variety of services beyond consumer loans. The increasing scope of credit union products and services means that the standard net worth requirement does not reflect the different levels of risk that credit unions may incur. Thus, CUMAA provided the NCUA with a broad mandate to develop separate Risk-Based Net Worth Requirements (RBNWR) that apply to complex credit unions.

Under NCUA regulations, a credit union is defined as complex if: (1) it has more than \$10 million in assets and (2) its RBNWR exceeds six percent. A complex credit union is classified as undercapitalized if its net worth ratio falls below its RBNWR. The RBNWR is either six percent or the sum of eight components that reflect the credit union's risk portfolio, whichever is higher.

Table 2 summarizes current RBNWR guidelines.⁵ Column 3 lists the multiplying factor, which is the minimum percentage of each asset or activity that a credit union is required to hold as net worth. In general, credit unions engaging in riskier activities are required to have larger net worth ratios. Table 2 shows that credit unions are required to hold net worth equivalent to six percent of their

⁵ Credit unions have the option to choose among a number of alternative methods to calculate their net worth requirements. For instance, to calculate their RBNWRs, credit unions may use, instead of assets, the average of assets over the last four quarters or assets over the last three semi-annual reports.

long-term real estate loans (row 1) up to 25 percent of total assets. Long-term real estate loans in excess of 25 percent of total assets require net worth holdings equal to 14 percent of those loans. Lower risk assets, such as cash (row 4), require no holdings of net worth. Table 3 illustrates this requirement through an example.

The eight components are weighted as a percentage of assets, but entries other than assets are included in the RBNWR. For instance, off-balance sheet items such as unused lines of credit require additional holdings of net worth. Lines of credit for member business loans (row 7) require six percent. Lines of credit that will not reprice or mature within five years, excluding those for member business loans, are included within the heading of long-term real estate loans (row 1). Finally, allowances for loan losses (row 8) are counted as a “contra asset.” Each dollar of allowances for loan losses, up to 1.5 percent of total loans, reduces the RBNWR by one dollar. In that regard, the loan loss allowance offsets the RBNWR on a 1-for-1 basis.

| Risk Portfolio Component (1) | Allocation of Risk Portfolios (as a % of total assets) (2) | Multiplying Factor (3) |
|--|---|-----------------------------------|
| 1. Long-term real estate loans | 0 to 25 | .06 |
| | over 25 | .14 |
| 2. Outstanding member business loans | 0 to 12.25 | .06 |
| | over 12.25 | .14 |
| 3. Investments | 0 to 1 year | .03 |
| | 1 to 3 years | .06 |
| | 3 to 10 years | .12 |
| | over 10 years | .20 |
| 4. Low risk assets | All | .00 |
| 5. Average-risk assets | All | .06 |
| 6. Loans sold with recourse | All | .06 |
| 7. Unused member business loan lines of credit | All | .06 |
| 8. Allowance for loan losses | Up to 1.5% of total loans (as % of assets) | -1.00 |

Table 3 provides an example of the calculation of the RBNWR for a complex credit union. Column 4 shows a credit union that holds 30 percent of its total assets in long-term real estate loans, 30 percent in business loans, 25 percent in investments of different maturities (government bonds, etc.), seven percent in low risk assets (cash), and 10 percent in average-risk assets, such as consumer loans or loans for business purposes with values under \$50,000. These amounts include gross loans before netting an allowance for loan losses of two percent of total assets, thus adding to 102 percent of total assets. The credit union in Table 3 also has unused member business loan lines of credit that amount to six percent of assets. For simplicity in this example, this credit union has no long-term lines of credit (which would be included in row 1) or loans sold with recourse (which would be included in row 6). Having more unused lines of credit or loans sold with recourse would raise net worth requirements.

| Table 3 | | | | |
|--|---|-------------------------------|------------------------------|------------------|
| Example of the calculation of the RBNWR | | | | |
| Risk Portfolio Component (1) | Allocation of Risk Portfolios (as a % of total assets) (2) | Multiplying Factor (3) | % of total assets (4) | RBNWR (5) |
| 1. Long-term real estate loans | 0 to 25 over 25 | .06 .14 | 25 5 | 1.5 0.7 |
| 2. Outstanding member business loans | 0 to 12.25 over 12.25 | .06 .14 | 12.25 17.75 | 0.735 2.485 |
| 3. Investments | 0 to 1 year | .03 | 10 | 0.3 |
| | 1 to 3 years | .06 | 5 | 0.3 |
| | 3 to 10 years | .12 | 5 | 0.6 |
| | over 10 years | .20 | 5 | 1 |
| 4. Low risk assets | All | .00 | 7 | 0 |
| 5. Average-risk assets | All | .06 | 10 | 0.6 |
| 6. Loans sold with recourse | All | .06 | 0 | 0 |
| 7. Unused member business loan lines of credit | All | .06 | 6 | 0.36 |
| 8. Allowance for loan losses | Up to 1.5% of total loans (as % of assets) | -1.00 | 1.5% of 70% loans | -1.05 |
| RBNWR calculated adding across all 8 components: | | | | 7.53 |

Multiplying column 3 by column 4 produces the net worth ratio requirement for each asset type and activity, which is shown in column 5. At the bottom of column 5, the RBNWR, which is the sum of the net worth requirements due to the different activities

and assets, is shown. For the credit union depicted in Table 3, the RBNWR is 7.53 percent, which becomes the binding requirement since it is higher than the standard six percent.

As of December 2001, there were 4,662 credit unions with over \$10 million in assets, accounting for 46.6 percent of credit unions, but for 96.3 percent of credit union assets. Among those 4,662 larger credit unions, 400 credit unions had RBNWRs larger than six percent and thus qualified as complex. These complex credit unions represented four percent of the total count of 9,910 credit unions, but accounted for 13 percent of credit union assets. Most of the complex credit unions met their RBNWRs by ample margins as of December 2001, when only 10 credit unions fell short of their RBNWR and 337 exceeded their RBNWR by more than two percent of assets. Among the 400 complex credit unions, only 92 credit unions had RBNWRs above seven percent. Those 92 credit unions accounted for 2.4 percent of total credit union assets and 18 percent of complex credit unions' assets. As the scope and sophistication of the products and services offered by credit unions increases, and to the extent that assets grow rapidly, more credit unions will be classified as complex and subjected to the associated higher net worth requirements.

3. Net worth requirements for low-income credit unions

Credit unions that are classified as low-income credit unions are permitted to use uninsured secondary capital accounts to meet their net worth requirements. (These accounts are explained in further detail in chapters III and IV.) Secondary capital accounts are structured so that their claims are subordinate to those of other creditors, shareholders, and the NCUSIF.

4. Net worth requirements for new credit unions

A credit union is classified as a new credit union if: (1) it has been in operation for less than 10 years and (2) it has \$10 million or less in assets. In contrast to banks, which are required to obtain a minimum investment of capital to begin operation, most credit unions essentially neither have nor are required to have any net worth when they begin operation. NCUA regulations "recognize that credit unions, as cooperatives that do not issue capital stock, initially have no net worth, and give new credit unions reasonable time to accumulate net worth" (U.S. Treasury 2001a: 7). NCUA rules require new credit unions to accumulate within five years net

worth of at least two percent of assets and to become adequately capitalized (by having net worth of at least six percent of assets) within 10 years.

5. Net worth requirements for credit unions under net worth restoration plans

Under Prompt Corrective Action (PCA) regulations, credit unions that are less than adequately capitalized may be placed under “net worth restoration plans” to bring them into compliance with net worth requirements. These plans place restrictions on the activities and choices available to the credit union, including removal of management or closure of the credit union if it fails to improve sufficiently. Until adequate net worth levels are reached, the NCUA may allow different forms of regulatory capital to play a role as “a criterion in evaluating net worth restoration plans” (U.S. Treasury 2001a: 14). The NCUA has the discretion to temporarily classify entries other than retained earnings as regulatory capital if it believes that would help the credit union eventually reach adequate net worth levels.

D. NET WORTH REQUIREMENTS MAY IMPEDE CREDIT UNION GROWTH

Minimum credit union net worth requirements are higher than minimum bank capital requirements. Perhaps more importantly, credit union net worth requirements can be much more onerous due to the difficulty and inflexibility of raising net worth to meet those requirements. The standard net worth requirement for credit unions is six percent of total assets. If a credit union diversifies its activities substantially beyond traditional consumer loans, it also faces the very real possibility of a RBNWR that exceeds six percent. In contrast, banks are required to hold three percent of total assets as Tier 1 capital, four percent of risk-weighted assets as Tier 1 capital, and eight percent of risk-weighted assets as total regulatory capital (Tier 1 plus Tier 2).

Banks’ higher eight percent total capital requirements are made less onerous by counting Tier 2 components, some of which current law or regulations prohibit credit unions from using to meet net worth requirements. Banks’ eight percent requirement is also based on risk-weighted assets, which can be considerably below (unweighted) assets. Among the largest 50 bank holding

companies (BHCs), risk-weighted assets represented only 79 percent of total assets in 1999 (Board 2000: 23). Thus, the eight percent ratio translated for these BHCs to an average requirement of only 6.32 percent of total assets as capital (79% of 8%). Further, banks need to hold only half of the total (3.16 percent in this example) as Tier 1 capital, which is the category that is most analogous to credit unions' accumulation of net worth.

Perhaps more important than the differences in effective capital and net worth ratio requirements is that banks have greater flexibility than credit unions in the choices and mixes of instruments that they can use to meet their regulatory capital requirements. In addition to retained earnings, banks can use the proceeds of issues of common stock, preferred stock, subordinated debt, and a variety of equity-debt hybrids. Banks can often arrange issuing these securities with relative ease and on relatively short notice.⁶ Credit unions are permitted only to use retained earnings to meet their net worth requirements. Unlike the instruments that banks are permitted, retained earnings typically cannot raise capital quickly.

The disparity between the flexibilities of banks and credit unions to raise capital can become particularly acute when capital (net worth) threatens to fall below regulatory requirements and, thus, when additions to capital are needed on short notice. These situations may arise both in particularly good and particularly bad times. During times of sustained economic growth, savers may make more deposits and businesses may undertake new business ventures. The associated increased business lending can be both safe and profitable, since creditworthy borrowers are willing and able to pay higher interest rates. In that situation, credit union growth would better serve their borrowing members by expanding lending to them and their depositing members by paying higher dividends.

⁶ In practice, very few (only 35 out of 1,157) banks with assets between \$250 million and \$1 billion have issued subordinated debt directly. Typically, subordinated debt issues are dominated by bank holding companies (BHCs), which in practice own subordinated debt on behalf of the smaller banks. The choice to issue debt at the BHC level is linked to the greater liquidity and better terms that are available to larger issues. Section IV C discusses these gains from size and how special purpose vehicles may be designed to purchase and pool the subordinated debt issues of smaller credit unions.

However, if a credit union is operating at or near its minimum net worth requirement, it might well be forced to forego increases in shares and loans. The standard means to turn away depositors is to maintain or reduce interest paid on deposits at a time when other financial institutions are increasing interest payments. In practice, net worth requirements would limit a credit union's ability to accept deposits from its members to a fixed multiple of its ability to retain earnings. For instance, a credit union with a net worth ratio of six percent and ROA of one percent could maintain a rate of asset growth of 16.67 percent while maintaining its net worth ratio. A credit union experiencing an ROA of 0.1 percent could only maintain a rate of asset growth of 1.67 percent.

Unfortunately, earnings growth does not often precede deposit and loan growth opportunities. Rather, the opposite is typically the case. Tables 4 and 5 show an example of a simplified Credit Union A faced with temporarily low earnings (ROA = 0) and growth opportunities in loans and deposits.⁷ Table 4 presents Credit Union A operating at the minimum (standard) net worth requirement of six percent. Table 5 shows how 10 percent growth in assets would cause it to fall short of the net worth requirement.

Table 4
Credit Union A: original condition

| Assets | | Liabilities | |
|--------------|-------------|-------------------------------|-------------|
| Loans | 100 million | Deposits (shares) | 94 million |
| | | Net worth (retained earnings) | 6 million |
| Total assets | 100 million | Total liabilities + Net worth | 100 million |

Net worth to assets ratio = 6 / 100 = 6%

⁷ This simplified credit union holds only loans as assets. It holds no securities or other non-interest earning assets. More realistic examples could show greater variety on the asset side and relax the assumption that increases in liabilities and equity are matched dollar-for-dollar with increases in loans.

Table 5
Credit Union A: after growth

| Assets | | Liabilities | |
|--------------|-------------|-------------------------------|-------------|
| (old) loans | 100 million | (old) deposits | 94 million |
| (new) loans | 10 million | (new) deposits | 10 million |
| Total loans | 110 million | Total deposits | 104 million |
| | | Net worth (retained earnings) | 6 million |
| Total assets | 110 million | Total liabilities + Net worth | 110 million |

Net worth to assets ratio = $5 / 99 = 5.05\%$

This case illustrates asset growth driven by deposit growth, but there are other scenarios in which asset growth could happen. A credit union could respond to profitable lending opportunities by raising funds through borrowing, if deposits could not be raised quickly. The mathematical mechanics of this scenario would be similar to those shown in the example above. In fact, the additional interest costs associated with borrowing – as opposed to using deposits – could be the driving factor for the low ROAs that accompany asset growth in Tables 4 and 5.

A variety of reasons may cause a credit union's net worth to decrease. Economic distress can also cause credit unions to fall short of net worth requirements. Appendix 1 includes a brief discussion of how adverse movements in economy-wide interest rates may negatively affect a credit union's earnings and net worth. Another clear example of a route to lower net worth levels is loan losses. Large unexpected loan defaults beyond normal allowances for loan losses can cause net worth – the gap between assets and liabilities – to fall below regulatory requirements. Thus, credit unions would need to increase their net worth ratios by retaining earnings and/or reducing deposits. One way to achieve both of these results is to reduce dividend rates. Table 6 shows Credit Union A falling short of net worth requirements due to defaults in excess of the allowance for loan losses on one percent of its assets.

Table 6
Credit Union A: after loan default

| Assets | | Liabilities | |
|---------------------|-------------------|--------------------------------------|-------------------|
| (old) loans | 100 million | Deposits (shares) | 94 million |
| Loan defaults | 1 million | (old) net worth | 6 million |
| (total new) loans | 99 million | (new) net worth | 5 million |
| Total assets | 99 million | Total liabilities + Net worth | 99 million |

Net worth to assets ratio = $5 / 99 = 5.05\%$

III. A Brief Review of Reform Proposals for Credit Union Net Worth Requirements

Capital requirements and net worth requirements are designed to prevent troubled institutions from reaching insolvency and imposing various costs on others. Once they become troubled, to achieve these public policy objectives, (1) restrictions may be placed on the choices and activities available to management; (2) management may be replaced; and (3) institutions may be closed. However, under current capital and net worth requirements, faced with profitable opportunities and low capital ratios, banks find it easier than credit unions to simultaneously expand and reach their capital targets.

Banks may, on relatively short notice, issue common stock, subordinated debt, or a variety of debt-equity hybrids that qualify toward their capital requirements. Credit unions have no flexibility on the choice of instruments that may be used to meet net worth requirements. In effect, current regulations limit the growth opportunities available to the credit union industry if net worth ratios approach net worth requirements. Several proposals have been made over the last few years to correct this situation. These proposals seek to expand the range of instruments that may be used to meet net worth requirements. The next few sections outline some of the proposals for alternative net worth instruments that have been circulated by the California Credit Union League.

A. MEMBERSHIP CAPITAL SHARES

Many credit unions require their members to maintain a small minimum in their accounts, typically between \$5 and \$100. These amounts can only be withdrawn upon terminating membership. However, credit unions with inadequate net worth levels have the legal option to refuse to pay out these minima (Alternative 2001). Thus, these amounts act as a form of capital that cannot flee in times of distress. Proponents argue that these minimum amounts should be recognized as “membership capital shares” and that their sum should qualify toward a credit union’s net worth requirements. If this proposal were approved, credit unions could manipulate their account minimums to raise capital. Credit unions could also provide discounted services to members willing to use accounts with larger minimums.

B. MEMBER INVESTMENT SHARES

A second proposal involves offering uninsured certificates of deposit to credit union members under the name of “member investment shares.” By virtue of being uninsured and unable to flee on short notice due to their being of specified maturities, these instruments could also act as a form of capital that provides an uninsured cushion for the deposit insurer.

C. LEASED CAPITAL (NET WORTH)

A third proposal would allow credit unions with excess net worth to lease or transfer it, thereby allowing it to be counted toward the net worth requirements of credit unions that would otherwise fall short of their net worth targets. Under this proposal, a credit union faced with growth opportunities could accept increased deposits and lending, and cover the associated decrease in its net worth ratio through a “net worth lease” from a credit union with excess net worth. If the increased lending were successful, it could produce increased earnings that might be shared between the net worth lessor through fees and the net worth lessee, which could use the earnings to increase its net worth ratio to the required level.

D. MEMBER PAID-IN CAPITAL

This last proposal is a hybrid between membership capital shares and member investment shares that resembles bank common stock. Like the previous three instruments, it would not be insured and thus would provide the deposit insurer with a cushion in case of failure. The instrument is similar to membership capital shares and bank stock in that it has no stated maturity date and dividends do not have to be paid if funds are not available. The instrument is similar to member investment shares in that members may purchase any amounts they wish, but they cannot withdraw them on short notice. Members wishing to make withdrawals would be required to provide extended prior notification. For instance, members could withdraw funds for retirement according to a plan, but could not flee on short notice due to fear of problems in the institution.

IV. Using Subordinated Debt to Meet Credit Union Net Worth Requirements

Credit unions currently may only use retained earnings to meet their net worth requirements. Since earnings tend to grow slowly, credit unions close to their net worth requirements would find severe limits to their ability to respond to growth opportunities or to surges in loan losses. The previous chapter outlined several proposals that would give credit unions greater flexibility in choosing instruments with which to meet net worth requirements. Each proposal has advantages and disadvantages that may make it appropriate for different types of credit unions in different circumstances. Of concern about most alternative net worth proposals are whether (1) they offer the realistic potential for raising sufficient funds and (2) they might end up exposing some credit union members to risks inappropriately.

Like other alternative net worth instruments, subordinated debt has advantages and disadvantages. This report does not recommend subordinated debt over other alternatives for all cases. Different types of credit unions – large, small, complex, traditional, high-growth, or stable – should have a broader range of options so that each can choose the instruments that are most appropriate to its individual circumstances at each time.

The potential advantages of selling subordinated debt to non-members include (1) facilitating raising larger amounts of net worth from outside the credit union industry on relatively short notice and (2) shifting the risk of institutional failure to parties outside the credit union industry. Potential disadvantages include (1) the perception of loss of managerial control to external creditors, (2) the difficulties associated with marketing these instruments, and (3) the greater interest cost involved in subordinated debt compared to traditional deposits.

Section A below outlines some of the advantages subordinated debt would provide to credit union regulators. The arguments presented here also imply that subordinated debt should not be viewed as a threat to credit unions' control of their affairs. Rather, since subordinated debt adds a class of external creditors interested in the long-term financial well being of the institution, it may enhance managerial transparency and risk control.

Section B provides a menu of specific options of how subordinated debt could be used to meet net worth requirements. Section C recognizes that issuing subordinated debt directly to financial markets is likely to be difficult, if not prohibitively costly, for small credit unions, which would not alone provide large, liquid issues of subordinated debt. This section introduces special purpose vehicles (SPVs) as a potential solution to this problem. SPVs could be structured similarly to other SPVs that are designed to pool the debts of small borrowers, including individuals. SPVs could be used to pool the subordinated debt issues of many credit unions, both large and small, thereby allowing each of them to benefit from their common bond of having their subordinated debt in the pool.

The interest yields paid on subordinated debt are very likely higher than on any other source of funds that credit unions now use. As a result, the average cost of funds would likely be higher with subordinated debt. Appendix 2 provides some examples of the magnitude of the reduction in ROA that issuing subordinated debt would have. This short-term interest cost needs to be balanced against the gain associated with being able to grow when opportunities exist and being able to comply with regulatory pressure to raise net worth.

A. ADVANTAGES OF SUBORDINATED DEBT FOR CREDIT UNION REGULATORS

Technological innovation and financial engineering techniques are changing financial markets, providing financial institutions with new tools with which to take, measure, and control risks. Financial institutions are designing increasingly sophisticated financial services to meet the needs of their customers. In many cases, such services contain imbedded options or contingent liabilities that may expose the provider to losses, unless they are offset by other contracts or positions (Board 2000:1).

The development of more complex credit unions fits in this pattern, as does the development of risk-based net worth requirements for them. However, such Basel-style requirements are increasingly being arbitrated away and are becoming less an

issue of institutional safety and more an issue of compliance.⁸ To assess the true risk exposure undertaken by financial institutions, investors and regulators need to use increasingly sophisticated and complex tools. An example of this type of practice involves investors and supervisors keeping track of and studying the yields of subordinated debt in primary and secondary markets.

Subordinated debt could serve five regulatory objectives, including: (1) direct market discipline, (2) indirect market discipline, (3) improving transparency and disclosure, (4) increasing the size of the financial cushion provided to the federal deposit insurer, and (5) reducing supervisory forbearance (Board 2000: v).

1. Direct market discipline

Direct market discipline would be enhanced if a credit union's expected cost of issuing subordinated debt were directly related to purchasers' perceptions of the riskiness of the institution. The anticipation of higher funding costs due to increased risk would provide an incentive for the issuing credit union to refrain from taking excessive risk.

2. Indirect market discipline

Indirect market discipline would be enhanced if secondary market prices for a credit union's debt were related to its risk. Discipline would be exerted if investors interpreted a rise in secondary market yields as a signal of increased risk, leading them to reduce their exposure. Supervisors could also use the increase in yields as a signal of potentially increased institutional risk and take prompt corrective actions (PCA) to address that possibility.

⁸ While the purpose of higher capital ratios is to diminish institutional risk, rigid capital ratios may not attain that goal. Consider a stock-owned institution that generates an ROA of 1 percent and whose management wishes to yield an ROE of 20 percent. Without capital requirements, the institution would operate with a 5 percent capital ratio (20 times as many assets as capital). Introduction of a 10 percent capital ratio may fail to reduce risk. To keep ROE from falling from 20 to 10, management could simultaneously raise capital (sell stock) and move into riskier lending (with an ROA of 2 percent). Stock buyers, in effect, provide funds that increase the amount of capital relative to assets, but that, in seeking to maintain ROE, arbitrage away the hoped-for risk reduction by increasing the riskiness of average assets.

3. Transparency and disclosure

Transparency and disclosure would be enhanced since subordinated debt holders would not purchase debt unless a clear picture of an institution's riskiness was forthcoming.

4. Increased size of the financial cushion provided to the deposit insurer

The financial cushion provided to the deposit insurer could be increased, since holders of subordinated debt would only be compensated after the deposit insurer was fully compensated, out of sales of existing assets. The smaller the share of insured funds out of assets, the smaller the risk to deposit insurers.

5. Reducing supervisory forbearance

Prompt corrective action (PCA) schedules empower, and eventually require, supervisors to place greater and greater restrictions on an institution's operations as its capital or net worth ratio falls below certain levels. These restrictions range from limits on particular activities to the removal of management, and eventually the closure of the institution. The purpose of PCA is to reduce or eliminate supervisory forbearance. PCA guidelines seek to prevent supervisors from delaying excessively in taking necessary actions against troubled institutions, thus avoiding larger losses.

The PCA system has yet to face its first full-blown banking crisis, but it seems likely that it will help to (1) reduce the number of institutions with negative net worth at the time of closure and (2) replace management teams associated with poor performance earlier. While these changes are beneficial, they do not remove all discretion from supervisors. Holders of subordinated debt could encourage supervisors to exercise their discretion earlier to prevent troubled institutions from accumulating larger losses, and further depleting the value of outstanding subordinated debt.

B. PROPOSALS FOR THE USE OF SUBORDINATED DEBT TOWARD NET WORTH REQUIREMENTS

We have discussed how permitting subordinated debt to be used to meet net worth requirements would enhance the ability of credit unions to respond to growth opportunities and to capital reductions caused, for example, by substantial increases in loan losses. When analyzing the effects of regulations, the legal setting of the different elements of regulations typically need not be considered. However, in the case of net worth requirements in particular, as we shall see, some aspects of net worth requirements are likely to be far easier and faster to improve than others.

For instance, federal statutes only set broad guidelines for bank capital requirements, leaving bank regulators to spell out and update most of the detail of regulation. In contrast, Congress included in CUMAA far more of the detail involved in credit union net worth requirements, leaving the credit union regulators far less leeway. Taking these political and legal differences into account, the next sections provide a menu of options through which subordinated debt could be used to meet net worth requirements.

1. Legislative change through Congress

Assuming that full-scale legislative change is feasible, we introduce two options on how to structure subordinated debt to meet net worth requirements. Section 2 presents similar options for regulatory change.

a. Subordinated debt as net worth on a one-to-one basis

Under one option, subordinated debt could be used to meet regulatory net worth requirements on a one-to-one basis. Under this option, each dollar of subordinated debt would count just as much as one dollar of accumulated retained earnings. The net worth requirement then would apply to the sum of retained earnings plus subordinated debt. Recall Credit Union A from Tables 4 and 5 in section II D. Accepting deposit and loan growth depressed A's net worth ratio from 6 percent to 5.45 percent. Under current net worth requirements, if members wanted to increase their deposits, the credit union would be forced to (1) lower interest rates, with the goal of (2) retaining undistributed

earnings, in effect (3) turning away some of the increase in deposits. Alternatively, Table 7 shows the effects of a subordinated debt issue of \$638,297.87 if subordinated debt can be used to meet net worth requirements. Note that the size of the subordinated debt issue is six percent of the final increase in assets.

Table 7
Credit Union A: legislative changes, one-to-one basis

| Assets | | Liabilities | |
|--------------|-----------------|-------------------------------|-----------------|
| (old) loans | 100 million | (old) deposits | 94 million |
| (new) loans | 10 million | (new) deposits | 10 million |
| (more) loans | 0.638 million | Total deposits | 104 million |
| Total loans | 110.638 million | Subordinated debt | 0.638 million |
| | | Retained earnings | 6 million |
| | | | |
| Total assets | 110.638 million | Total liabilities + Net worth | 110.638 million |

Net worth requirements ratio (current) = $6 / 110.638 = 5.42\%$
 Net worth requirement ratio (reformed) = $(6 + 0.638) / 110.638 = 6\%$

In this case, when subordinated debt and retained earnings can be used interchangeably to meet net worth requirements, the credit union can accept all the deposit and lending growth, while maintaining a six percent safety cushion for the deposit insurer. Ideally, if the lending is successful, higher earnings will eventually increase retained earnings and the net worth requirements can be met again without recourse to subordinated debt.

In its current form, this proposal has some shortcomings. As the proposal stands, an institution could meet its six percent net worth requirement with one percent in retained earnings and five percent in subordinated debt, which would be far more generous than the treatment banks receive. To avoid such situations, one could simply adjust the policy to mimic bank capital requirements. Thus the maximum amount of subordinated debt that could be used to meet net worth requirements could be set at 50 percent of retained earnings. In effect, this would require credit unions to have at least four percent in retained earnings and at most two percent in subordinated debt.

b. Subordinated debt as net worth on less than a one-to-one basis

There are alternative means to limit the use of subordinated debt within the net worth mix. Another option would be to retain the interchangeability of subordinated debt with retained earnings, but at less than a one-to-one basis. Under this option, credit unions could still allow retained earnings to fall below six percent of total assets, but would have to make up for the retained earnings shortfall by amounts of subordinated debt that exceeded the shortfall. The advantages of this option are twofold. For the credit union, short-term growth would not be limited by its ability to retain earnings. For regulators, growing credit unions would have more than a six percent cushion against losses.

The interchangeability of subordinated debt and retained earnings could be set anywhere between zero and 100 percent. Zero percent represents the current status quo, where subordinated debt is not counted at all toward the shortfalls of net worth. One hundred percent would represent full interchangeability, where each dollar of net worth shortfall could be filled by a dollar of subordinated debt. Lower percentages would be more stringent, as they would require larger amounts of subordinated debt to be held to meet the six percent requirement. Higher percentages would be less stringent. Among the options available, setting the ratio at 50 percent has the appeal of simplicity. Table 8 shows Credit Union A with interchangeability set at 50 percent.

Table 8
Credit Union A: legislative change, less than a one-to-one basis

| Assets | | Liabilities | |
|--------------|-----------------|-------------------------------|-----------------|
| (old) loans | 100 million | (old) deposits | 94 million |
| (new) loans | 10 million | (new) deposits | 10 million |
| (more) loans | 1.363 million | Total deposits | 104 million |
| Total loans | 111.363 million | Subordinated debt | 1.363 million |
| | | Retained earnings | 6 million |
| Total assets | 110.638 million | Total liabilities + Net worth | 111.363 million |

$$\begin{aligned} \text{Net worth requirements ratio (current)} &= 6 / 111.363 = 5.39\% \\ \text{Net worth requirement ratio (reformed)} &= (6 + (0.50 * 1.363)) / 111.363 = 6\% \\ \text{Actual cushion} &= (6 + 1.363) / 111.363 = 6.61\% \end{aligned}$$

Thus, the standard six percent net worth requirement would still be binding, with credit unions permitted to use 100 percent of retained earnings and 50 percent of subordinated debt toward the target level. In this case, regulators receive a “two-fer.” They permit credit unions to count one dollar of subordinated debt as regulatory capital, but they receive two dollars worth of cushion, with one dollar in excess of the six percent requirement. A final name for this proposal has yet to be determined, but since higher numerals in Tier 1 and Tier 2 appear to imply decreasing quality as capital, the policy could be named Tier 1/2. This would refer to only 1/2 of the subordinated debt qualifying toward the net worth requirement and to the fact that the extra cushion above six percent could be argued to provide even more protection than six percent of Tier 1 capital.

2. Regulatory change through the NCUA

An alternative to full-scale legislative reform is to search for the parts of the regulatory landscape that can be altered by regulators without the need for legislative change. In particular, CUMAA grants the NCUA the power to set higher RBNWRs for complex credit unions. These institutions currently account for 13 percent of credit union assets, but are likely to continue to grow in importance.

a. Subordinated debt as net worth on a one-to-one basis

Current legislation requires credit unions to use only retained earnings to meet their net worth requirements. However, regulations give precedent and example of how this might be reformed. Whereas banks may count allowances for loan losses as regulatory capital, credit unions may not. However, as shown in Table 2, credit unions may use allowances for loan losses as contra assets to lower their RBNWR. The effect on required net worth is identical. Under either approach, higher allowances for loan losses equate to lower amounts of other forms of required regulatory capital. The rationale for including allowances for loan losses as capital or a contra asset is straightforward. Until they are exhausted, higher allowances for loan losses act as protection against failure for deposit or share insurance funds in the case of loan losses.

However, there are other activities that reduce capital risk that also do not receive equivalent treatment across banks and credit unions. As discussed before, subordinated debt may perform roles such as providing a shield for depositors and the deposit insurer that qualify it as near-capital. However, while banks may count subordinated debt as regulatory capital, credit unions may not. The treatment received by allowances for loan losses (as shown in Tables 2 and 3) shows how subordinated debt could be used if not as net worth, as a recommendable activity that counts as a contra asset reducing RBNWR.

Since RBNWR regulations are set by the NCUA, the NCUA itself could update them to reflect the beneficial effects of increased outstanding issues of subordinated debt. Current regulations could be changed by including subordinated debt as a ninth portfolio in Tables 2 and 3 in the NCUA calculation of credit unions' RBNWRs. Subordinated debt could be given different weightings as a contra asset. A one-to-one weight would be similar to the treatment received by allowances for loan losses. In that case, an additional one percent of subordinated debt (relative to assets) would decrease the RBNWR by a full one percent. Larger outstanding issues of subordinated debt could be used until the higher RBNWR – which equaled 7.53 percent in the example from Table 3 – were reduced to the standard minimum of six percent. Table 9 includes a ninth portfolio and shows the effect of one percent of subordinated debt reducing the RBNWR for our credit union from 7.53 to 6.53.

Table 9
Reform of RBNWR on a one-to-one weighting

| Risk Portfolio Component (1) | Allocation of Risk Portfolios (as a % of total assets) (2) | Multiplying Factor (3) | % of assets (4) | RBNWR (5) |
|--|--|------------------------------|----------------------|----------------|
| 1. Long-term real estate loans | 0 to 25 over 25 | .06 .14 | 25 5 | 1.5 0.70 |
| 2. Outstanding member business loans | 0 to 12.25 over 12.25 | .06 .14 | 12.25 17.75 | 0.735 2.485 |
| 3. Investments | 0 to 1 year | .03 | 10 | 0.3 |
| | 1 to 3 years | .06 | 5 | 0.3 |
| | 3 to 10 years | .12 | 5 | 0.6 |
| | over 10 years | .20 | 5 | 1 |
| 4. Low risk assets | All | .00 | 7 | 0 |
| 5. Average-risk assets | All | .06 | 10 | 0.6 |
| 6. Loans sold with recourse | All | .06 | 0 | 0 |
| 7. Unused member business loan lines of credit | All | .06 | 6 | 0.36 |
| 8. Allowance for loan losses | Up to 1.5% of total loans (expressed as a % of assets) | -1.00 | 1.5% of 70% loans | -1.05 |
| 9. Subordinated debt | All | -1.00 | 1 | -1.00 |
| RBNWR based on a one-to-one weighting calculated adding across 9 components: | | | | 6.53 |

This proposal could be tempered in fashions similar to those discussed for a one-to-one legislative change. For instance, the maximum amount of subordinated debt that could count as a RBNWR contra asset could be capped at some fraction of net worth. Following the example of the banking industry, this could be set at 50 percent of retained earnings.

b. Subordinated debt as net worth on less than a one-to-one basis

Parallel to the case of legislative change above, subordinated debt could also be given less than a one-to-one weighting as a contra asset in the RBNWR calculation. If the weighting were set at 0.50, to reduce the RBNWR by any amount (i.e. 0.50 percent), outstanding issues of subordinated debt would have to be increased by twice that amount (i.e. a full one-percent). In this manner, credit unions that met net worth requirements by issuing subordinated debt would have to do so by providing twice the cushion to depositors and the deposit insurer. Table 10 shows how

issuing one-percent of subordinated debt would reduce the RBNWR from 7.53 to 7.03, instead of to 6.53.

Table 10
Reform of the RBNWR based on less than a one-to-one weighting

| Risk Portfolio Component (1) | Allocation of Risk Portfolios (as a % of total assets) (2) | Multiplying Factor (3) | % relative to assets (4) | RBNWR (5) |
|--|---|---------------------------------------|---|------------------------|
| 1. Long-term real estate loans | 0 to 25 over 25 | .06 .14 | 25 5 | 1.5 0.70 |
| 2. Outstanding member business loans | 0 to 12.25 over 12.25 | .06 .14 | 12.25 17.75 | 0.735 2.485 |
| 3. Investments | 0 to 1 year 1 to 3 years 3 to 10 years over 10 years | .03 .06 .12 .20 | 10 5 5 5 | 0.3 0.3 0.6 1 |
| 4. Low risk assets | All | .00 | 7 | 0 |
| 5. Average-risk assets | All | .06 | 10 | 0.6 |
| 6. Loans sold with recourse | All | .06 | 0 | 0 |
| 7. Unused member business loan lines of credit | All | .06 | 6 | 0.36 |
| 8. Allowance for loan losses | Up to 1.5% of total loans (expressed as a % of assets) | -1.00 | 1.5% of 70% loans | -1.05 |
| 9. Subordinated debt | All | -0.50 | 1 | -0.50 |
| RBNWR based on less than a one-to-one weighting calculated adding across 9 components: | | | | 7.03 |

C. SPECIAL PURPOSE VEHICLES (SPVS)

The following section presents the relationships between issue size, liquidity, and interest rates for bonds in the banking industry. These relationships suggest the need for credit unions to develop mechanisms such as SPVs to generate enough scale for credit union subordinated debt to be economically feasible. Section 2 discusses how pooling of individual homeowner and consumer debts has reduced their costs. Section 3 parallels section 2, providing an example of a simplified SPV in action. Section 4 discusses the use of over-collateralization as a risk reduction technique. Section 5 closes with an examination of the effects of subordinated debt defaults by credit unions participating in SPVs.

1. SPVs as means to overcome illiquid debt markets

Subordinated debt has become a commonplace capital tool in the banking industry. Among the largest 50 bank holding companies (BHCs), virtually all issue it, and for 37 of them their outstanding issues exceed one percent of their assets (Board 2000: 23). However, the market for subordinated debt is very liquid only among the top 15-30 among those large BHCs. As the size and liquidity of subordinated debt issues fall, smaller institutions face higher interest and overhead costs. High enough total costs can eventually make subordinated debt impractical. If subordinated debt becomes expensive beyond the largest BHCs, this does not bode well for the ability of credit unions – particularly small ones – to be able to issue subordinated debt independently.

However, the credit union industry has developed means to overcome the problems of small size before. Theoretically, there are many ways through which credit unions could successfully issue subordinated debt, either separately or acting in concert. Institutional investors already hold most of the subordinated debt issued by banks. If credit unions begin issuing similar instruments, long-term investors such as insurance companies, pension funds, and some mutual funds might buy private placements of subordinated debt issued by credit unions.

We also propose the development of legally separate SPVs. These entities would purchase issues of subordinated debt, typically through private placements, from separate credit unions and would sell bonds that pay interest and principal based on the aggregate interest and principal payments they receive. We develop the mechanics involved in the operation of an SPV in the following sections.

2. The analogy between Fannie Mae and Freddie Mac, and SPVs

Government sponsored enterprises such as Fannie Mae and Freddie Mac are examples of entities that are very similar to SPVs. These entities purchase large amounts of home mortgages from many depository institutions and issue bonds to the wider public. The interest payments made by homeowners are passed on to bond holders. This practice, known as securitization, turns otherwise illiquid assets (mortgages) into liquid securities (bonds).

Before the development of these entities, home mortgage loans were among the most illiquid assets of depository institutions. If forced to sell mortgage loans, institutions had to sell them at steep discounts and effectively pay very high interest payments to mortgage buyers. Home mortgage loans were very illiquid for at least two reasons. First, there was a strong suspicion that only bad loans would be sold. Second, sales of one or two loans (or many, if from the same geographical area) would impose large risks on loan purchasers who had not originated the loan to the homebuyer.

The development of large diversified pools of mortgages and the requirement of minimum standards for inclusion greatly reduced both problems. Minimum quality standards can be used to exclude the home mortgages that are predicted to be most problematic. Beyond those, events such as local recessions may periodically lead to small surges in home mortgage defaults capable of bankrupting local depository institutions. However, diversified pools dissipate those losses across millions of bondholders who still receive interest payments from the overwhelming majority of homeowners. This reduction in risk has made investing in mortgage-backed bonds more attractive for bondholders, and has helped to channel large amounts of funds into safer mortgage lending.

Increased interest in a safer asset class means that securitizers can raise more funds at lower costs. Before securitization becomes commonplace, the spread between the interest rate required by bondholders and the interest rate home mortgage sellers pay can be sizable. This spread implies that securitizers can generate significant amounts of funds. Securitizers, once they have covered their costs, can use those funds to purchase more and more mortgage loans. Eventually, this provides greater liquidity to the mortgage market, brings up the price at which mortgages may be sold, and reduces the interest rate that mortgage sellers pay. Thus, the reductions in risk perceived by bondholders may be passed on to depositories and homeowners.

3. An example of a SPV

One or several SPVs could replicate the home mortgage loan experience in the market for credit union subordinated debt. If credit unions issued subordinated debt equivalent to just

0.2 percent of their assets, currently over \$500 billion, total subordinated debt issues would be over \$1 billion. Consider a SPV purchasing \$100 million of credit union subordinated debt that initially paid nine percent interest. For simplicity, let us assume that the debt matures in one year and that one percent will default (\$1 million will not make interest payments or repay the principal). For greater accuracy, one could also introduce administrative costs in a similar manner.

Time 0: Flows from the SPV to CUs
\$100 million

Time 1: Flows from CUs to the SPV
 $99 + 99 * 0.09 = 99 + 8.91 = \107.91 million

If the SPV requires minimum quality requirements before it purchases subordinated debt (capital ratios, payment to income ratios, etc.) and if the subordinated debt issuers are geographically diverse, then bondholders may require interest rates reflecting those lower risk levels of, for instance, six percent. For simplicity, let us assume that the SPV finances its initial purchases of subordinated debt completely through bond issues.

Time 0: Flows from bondholders to SPV
\$100 million

Time 1: Flows from SPV to bondholders
 $100 + 100 * 0.06 = 100 + 6 = \106 million

The difference between the flows from credit unions to the SPV and the flows from the SPV to bondholders (i.e. $107.91 - 106 = \$1.91$ million) does not need to be distributed to bondholders. The administrators of the SPV could have a formal or informal policy to pay bondholders the most that the SPV can, but no more than the rate required by investors for this type of instruments at that point in time (for simplicity in our example, six percent). The undistributed funds could be used to purchase more subordinated debt, eventually bringing up subordinated debt prices and reducing the interest spreads paid by credit unions.

SPVs are very flexible and can be set up in many different ways. The bonds issued by SPVs could be structured in many ways. An SPV could issue a single class of bonds or a variety of them. A standard way to securitize assets is for the SPV to issue a variety of classes of bonds ranging from most senior to most junior for the purpose of interest and principal payments. Upon receipt of

interest and principal payments from credit unions, the SPV would first pay coupons on its most senior debt. Once those payments are completed, payments would be made on debt issues of lower and lower seniority. As seniority falls for various SPV bonds, the risk of non-payment and the stated coupon interest rate increases.

4. Safety options for SPVs: over-collateralization

Different SPVs could also use different practices to add safety to their operations and to the coupon payments of their bondholders. An example is the practice known as over-collateralization. This involves an SPV choosing to hold larger amounts of subordinated debt (SPV assets) than the amount of bonds it issues (SPV liabilities). The SPV thereby develops a larger gap between its assets and its liabilities (SPV net worth). The SPV net worth protects coupon and principal payments to bondholders from surges in subordinated debt defaults. An SPV may attain this goal by restricting its bond issues to their original level, simply rolling them over as they mature, while using the profits it generates to purchase larger and larger amounts of subordinated debt. Over time, growth in the asset size unmatched by growth in the liability side leads to increased net worth at the SPV level and increased safety for the bondholders.

However, one needs to be clear about the goals and consequences of over-collateralization. This practice is not necessary for SPV safety. Depository institutions are concerned about their failure, which can happen because they issue fixed value liabilities (primarily deposits) and hold assets (primarily loans) that may plummet in value. In contrast, SPVs could be set up in a fashion similar to mutual funds, which are rarely faced with problems of institutional failure. If an SPV only promised coupon and principal payments according to a seniority schedule based on the availability of funds, falls in the value of assets would, in effect, be met with falls in the value of liabilities, and would not lead to SPV default. Thus over-collateralization would not seek to protect the SPV, which would be very safe, but to reduce the variability of interest and principal payments to SPV bondholders.

Regarding the consequences of over-collateralization, some SPVs may choose to slow down their growth, but this does not necessarily mean that the demand for subordinated debt needs to suffer. If credit unions were having problems placing

subordinated debt (if they were paying large interest rates), new SPVs could be set up. Also, over time, a range of SPVs could develop, catering to and matching different classes of credit unions (newer, expanding, established, or traditional) and bondholders (more or less risk averse).

5. The effects of subordinated debt (SD) defaults

In the following three sub-sections, we discuss effects of defaults by credit unions on subordinated debt held by an SPV: (a) the effect on the SPV, (b) the effect on other credit unions selling subordinated debt to the same SPV, and (c) the effects on the defaulting credit union itself. First, however, we examine whether issuing subordinated debt increases the chance of default or failure by a credit union. Interest payments on subordinated debt are higher than those typically paid to credit union members. For this reason, subordinated debt should not be used as a simple substitute for deposits as a source of financing. Since it is a more expensive source of funding, subordinated debt will, in the short term, tend to depress credit union ROA. (See appendix 2 for detailed examples).

We need to remember why and how subordinated debt should be used. For instance, it could be used to meet net worth requirements without needing to reduce dividend payments during growth opportunities or negative shocks. Used prudently, subordinated debt issues allow credit unions to respond to growth opportunities and to avoid shrinking during downturns. However, like any tool, subordinated debt may be used imprudently. For instance, subordinated debt could be used to finance risky lending expansion that may lead to massive defaults, or to postpone necessary dividend reductions if the funds from the inflow are channeled into dividends instead of lending. However, these problems do not seem to be caused by the use of subordinated debt, but rather by imprudence that would regardless lead to institutional failure.

a. The effects of a subordinated debt default on the purchasing SPV

SPVs can choose many approaches to structure their bond issues. SPV bonds may be structured as mentioned in section 3, promising only the distribution of up to a maximum coupon and principal payment based on a schedule of seniority among bond issues. An

SPV following this approach greatly if not completely eliminates or shifts its own default risk to bondholders. A default by one percent of subordinated debt issues diminishes the aggregate amount of interest and principal received by bondholders by roughly one percent, but does not place the SPV itself in default. Further, this aggregate reduction in interest and principal receipts can be rearranged based on the seniority of the bonds that each bondholder chooses to buy. Risk-averse bondholders will buy senior bonds, and would rarely if ever receive less than the stated coupons. Risk-tolerant bondholders will buy more junior bonds that they hope will yield higher average returns, but that bear more risk. As section 4 elaborates, over-collateralized SPVs can further reduce risk even for the most junior bonds.

The way in which an SPV can retain default risk within itself leading to SPV closure is if all its bonds promised payment of specific coupons with identical seniority, not in a pass-through system. In this approach, defaults on subordinated debt could place a SPV in situations where it is unable to meet its interest and principal payments. In effect, if this SPV promised anything but the lowest interest rates, it would be acting in a very risky manner. In practice, since SPVs can virtually eliminate default risk combining debts (bondholders) of different seniorities, it is likely that the safer SPV structures will prevail.

Subordinated debt defaults may affect SPVs beyond whether they cause them to default or not. This may come to mimic the relationship between individual home mortgages and agency (Fannie Mae) bonds. Credit union subordinated debt issues, like individual home mortgages, may not trade actively. However, SPV bonds, with a potential market of over \$1 billion, may become more active. In that case, SPV bond prices would reflect the condition of the underlying subordinated debt and their issuing credit unions. At the most basic level, if subordinated debt defaults force SPVs to cut back their interest and principal distributions, SPV bonds would see reductions in their prices. Beyond that, bondholders might also use their information about the health of the credit unions even if the SPV manages to not cut interest and principal payments – for instance, if their over-collateralization permits them to.

b. The effects of a SD default on other credit unions in an SPV

We have considered how bondholders absorb the financial effects of defaults, whether directly or indirectly. The absorption is direct if SPVs cut their interest payments in reaction to defaults. The absorption is indirect if SPVs attempt to absorb the losses by reducing their over-collateralization, but SPV bond prices fall to reflect their weaker condition. We understand that credit unions in an SPV would not be legally responsible for any of the losses resulting from the defaults by other credit unions. Defaults by one credit union would not change the interest payments owed by other credit unions on their outstanding subordinated debt. This is significant, since the outstanding credit union subordinated debt is likely to mimic bank subordinated debt, which typically has initial maturities of over 10 years.

The main effects of any defaults by other credit unions are likely to be indirect. If upon the default, bondholders do not differentiate across different SPVs and credit unions, raising new funds could become more difficult. This would mean that forthcoming but not outstanding subordinated debt issues would have to pay higher interest rates. However, if bondholders differentiate across different classes of SPVs, only some types of credit unions would suffer difficulties in raising new funds. This could be especially difficult for credit unions that only made subordinated debt placements with one class of SPVs. The obvious alternative may be for credit unions to develop relationships with different SPVs.

c. The effects of a subordinated debt default on the defaulting credit union

The typical credit union does not lightly choose to default on any of its liabilities. We may consider either of two possible cases. First, an otherwise technically solvent credit union – one where assets are larger than liabilities – could fail to make payments due to cash constraints. Second, the management of a credit union that is in or approaching insolvency could choose to default on a particular liability as a means to favor some liability holders over others before regulators take control of the institution or close it.

The first case is the clearest example of troubled mismanagement. All firms must keep cash reserves that are sufficient to meet their predictable scheduled interest payments. If cash reserves and

foreseeable cash receipts fall below foreseeable needs, the credit union management must retain new deposits as cash, not lend them. This case is not the most relevant since prudent management would avoid it. Also, in the rare case where sudden cash withdrawals or unpredictable cash payments produce liquidity problems, it is more than likely that an otherwise well managed credit union could draw on lines of credit. If all of these conditions are met and a solvent credit union actually defaulted, the SPV could take the credit union to court to obtain its payments plus compensation. Regardless, the court is unlikely to dissolve the credit union or to transfer its control to third parties once the interest payments and compensation are produced, whether out of new deposits or through asset sales.

The second case is far more interesting, but again unlikely to be particularly affected by the presence of subordinated debt. A credit union in or approaching insolvency would become subject to prompt corrective actions and, in the extreme, closure by regulators. Assuming that regulators believe the credit union can be salvaged, the holders of subordinated debt would not gain control of the credit union. They would get, along with all the other parties affected by the default, a schedule for long-term repayment that would not increase interest payments beyond the coupons and principal already agreed upon. For a credit union deemed capable of recovery, creditors would not get control, but rather assurances that management will improve.

If regulators deem the credit union not salvageable, it is closed. In that case, subordinated debt holders do not get control of the management of any resulting ongoing concern. Credit union assets would be sold and the proceeds would be used to compensate depositors. The deposit insurer, subject to maximum insured levels per account, would make up any shortfall between the proceeds of those sales and what was owed to depositors. Holders of subordinated debt would only receive compensation if the proceeds from asset sales exceeded what was owed to shareholders and any costs incurred by the deposit insurer. Members of a credit union faced with the unenviable prospect of default or insolvency would not be affected negatively by the presence of debt that is, as its name states, subordinated to their claims.

V. Conclusion

As net worth ratios move closer to their required minimums, credit unions will find themselves limited in their ability to respond both to potential growth opportunities and to periods of economic distress. Under current public policies, faced with opportunities for growth, net worth requirements effectively force some credit unions to turn away deposits by depressing the interest rates that may be paid. Allowing credit unions to use subordinated debt to meet their net worth requirements along the lines currently allowed for banks would grant them much needed flexibility. Having the option to use subordinated debt to meet net worth requirements would also provide an avenue for more rapidly re-capitalizing troubled credit unions than is now the case.

The specific proposals introduced here provide a basis for reform either through legislative or regulatory change. Once either proposal is approved, separate smaller issues of subordinated debt are likely to be plagued with liquidity problems, and hence with steep interest rates. To overcome this, pooling of smaller issues of subordinated debt offers the potential for economically feasible issues.

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Appendix 1: Subordinated Debt as a Means to Reduce Interest Rate Risk

Interest rate risk arises when a depository institution has assets and liabilities whose maturities are not adequately matched. For instance, a depository institution with assets with very long average maturities (10 years or more) and liabilities with very short average maturities (0-3 months) would be adversely exposed to increases in economy-wide interest rates. Consider the simple case of similar increases in long-term and short-term interest rates for depositors and borrowers. Large increases in interest rates mean the majority of an institution's fixed-rate assets continue to yield the same earlier, lower interest rates. Only a small minority of assets would mature within the year. If the average maturity of assets is 10 years, about one-tenth of total loans would mature within the year. Thus, only that fraction of total loans can be reissued at prevailing higher interest rates. Attempts to sell off underperforming assets in a higher interest rate environment would require steep discounts and heavy losses.

At the same time, holders of liabilities could demand and obtain higher interest rates across short periods of time (immediately for demand deposits, and within three months as liability instruments as the longer maturities come due). Liability holders could obtain the higher interest rates in a round-about process, as depositors flee to institutions offering higher interest rates, and as deposits are switched back and forth across the same class of competing depository institutions. Or, liability holders could obtain higher interest rates in a more direct fashion, without needing to switch depository institutions, as institutions realize that otherwise they would lose depositors. Thus institutions might increase interest rates themselves to retain current customers and to attract others. An institution with longer average maturities on its asset side than on its liability side would find that increases in market-wide interest rates lead to smaller increases in the rates than it can charge and large increases in the rates that it must pay. Thus increases in interest rates are associated with falling profitability.

Following the same logic, depository institutions with longer average maturities on the asset side than on the liability side would benefit from falling interest rates. Also, depository institutions with shorter average maturities on the asset side than on the liability side would be faced with the opposite problem. Falling (increasing) interest rates would lead to falling (increasing)

profitability. This case is far less relevant, since depository institutions consistently perform the function of maturity intermediation for their customers and members, accepting fairly liquid short-term deposits and bearing risks financing longer-term projects.

The smaller the gap between average maturities on the asset and liability sides, the smaller interest risk becomes. An institution with perfectly matched assets and liabilities is able to increase or decrease simultaneously the rates paid and charged on deposits and loans as they mature, without affecting the margin between the two interest rates. For instance, before an increase in interest rates, an institution might be paying three percent on 1-year certificates of deposit (CDs) and charging seven percent on one year loans, thus operating with a margin on funds of four percent. If market-wide interest rates increased by one percent, the institution might have to pay interest rates of four percent on one-year CDs as they mature and are renewed, but would be able to charge eight percent on equivalent amounts of one-year loans. Thus the four percent margin on funds would be maintained.

Since typical financial institutions do in fact have longer average maturities on their assets than on their liabilities, interest rate risk is a real concern. Interest rate risk may vary across different types of depositories. Savings and loans, with around two thirds of assets in real estate long-term loans, have particularly severe interest rate risk exposures. Banks, with lower real estate exposures and potentially more adept use of derivatives, have smaller exposures to interest rate risk. Traditional credit unions, with loan portfolios dominated by short-term consumer loans, may have rather low exposures to interest rate risk. However, as credit unions become more diversified and enter new areas such as real estate and business lending, the movement toward longer average asset maturities makes interest rate risk a growing concern for credit unions.

Increased use of subordinated debt would not only add flexibility to the capital mix available, but also diminish interest risk for credit unions. Subordinated debt has a capital-like nature not only due to its being subordinated to more senior creditors, but also because it has long maturities that align the interests of its holders with those of the long-term interests of owners. Typical issues of subordinated debt have initial maturities of more than 10 years

and hence increase the average maturity of the liability side. Thus, an institution interested in moving two percent of its assets into long-term business lending, but concerned about the effects that this might have on interest risk, might consider issuing subordinated debt of equivalent maturity in an amount equivalent to two percent of assets.

Appendix 2: The Use of Subordinated Debt Reduces Credit Union ROA

Because subordinated debt would very likely raise a credit union's average cost of funds, a credit union that issued subordinated debt to fund growth while meeting net worth requirements (one that could at most raise 94 units of deposits for every 6 units of subordinated debt) would increase its net income by a lower proportion than the associated increase in assets. A simple example follows:

Simplistic credit union (CU) before growth and subordinated debt (SD):
Assets = 100 earning 6%
Deposits = 94 paying 1%
ROA = $[(100 \times 0.06) - (94 \times 0.01)] / 100 =$
 $= (6 - 0.94) / 100 =$
 $= 5.06 / 100 =$
 $= 5.06\%$ (the example below yields more realistic ROAs)

CU after growth and SD
(In order to accept 10-worth of deposits, 0.638-worth of SD is issued.
Note that 0.638 is 6% of 10.638)
Assets = $100 + 10 + 0.638 = 110.638$
Deposits = $94 + 10 = 104$
Subordinated debt = 0.368 paying 8%
ROA = $[(110.638 \times 0.06) - (104 \times 0.01) - (0.638 \times 0.08)] / 110.638 =$
 $= (6.638 - 1.04 - 0.051) / 110.638 =$
 $= 5.547 / 110.638 =$
 $= 5.01\%$
Note: ROA would have fallen even if SD paid 0% interest

In the example above, adding subordinated debt does increase ROE, if one does not count subordinated debt as equity (net income increased while equity did not). If subordinated debt is included as equity, ROE falls as well.

The same result is also obtained if more realistic figures are used. In the following example, subordinated debt is added to a notional credit union that uses the values for interest and noninterest income, expense, and provisions for loan losses (PLL) of the average credit union in the first half of 2001 (www.cuna.org).

Typical CU (i.e. based on 2001 averages) before growth and SD
Note: we kept the returns and costs on assets, etc., but changed the proportions in the liability side (the average CU had 11 percent net worth) to the case of a net worth constrained CU interested in growing (i.e. 94% deposits, 6% net worth).
Assets = 100 earning 7.19% in interest and 1.04% in noninterest income (fees, etc.) and costing 0.30% in PLL and 3.37% on noninterest expenses
Deposits = 94 paying 4.03% (the interest paid for the average credit union was 3.59% on Liabilities worth 89% of assets. We obtain the 4.03% recalculating $3.59 \times 100 / 89$)
ROA = $[(100 \times 0.0719) + (100 \times 0.0104) - (100 \times 0.0030) - (100 \times 0.0337) - (94 \times 0.0403)] / 100 =$
 $= (7.19 + 1.04 - 0.30 - 3.37 - 3.79) / 100 =$
 $= 0.77 / 100 =$
 $= 0.77\%$

CU after 10% growth and SD

Assets = 100 + 10 + 0.638 = 110.638

Deposits = 94 + 10 = 104

Subordinated debt = 0.368 paying 7% (198 basis points above the 10-year Treasury yield, Wall Street Journal: January 23th, 2002).

Colors below denote changes (red for SD, blue for other changes):

$$\begin{aligned} \text{ROA} &= [(110.368*0.0719)+(110.638*0.0104)-(110.638*0.0030)- \\ & (110.638*0.0337) - (104*0.0403) - (0.638*0.07)]/110.638 = \\ & = (7.9355 + 1.1478 - 0.3319 - 3.7285 - 4.1912 - 0.0446)/110.638 = \\ & = 0.78 / 110.638 = \\ & 0.71\% \end{aligned}$$

Note: ROA would have fallen even if SD paid 0% interest

The same calculations are repeated, using an interest rate paid on SD of 9% (i.e. 398 basis points above 10-year Treasury yield)

$$\begin{aligned} \text{ROA} &= [(110.368*0.0719)+(110.638*0.0104)-(110.638*0.0030)- \\ & (110.638*0.0337) - (104*0.0403) - (0.638*0.09)]/110.638 = \\ & = (7.9355 + 1.1478 - 0.3319 - 3.7285 - 4.1912 - 0.0574)/110.638 = \\ & = 0.77 / 110.638 = \\ & = 0.70\% \end{aligned}$$

This example assumes that subordinated debt issues and deposit growth would be used to finance proportionate growth in the asset side, hence not affecting the different rates of return earned and/or costs. An alternative assumption might use the extra funds to finance particular activities (e.g., those yielding higher loan rates, as opposed to securities, etc.). This does not seem likely. If one uses subordinated debt to back increased long term or riskier lending, one needs to realize that we issued only 0.638 worth of extra subordinated debt. Very little subordinated debt is needed to back increases in deposit acceptance (0.638 in subordinated debt for 10 in deposits), and deposits cost far less than subordinated debt. Another assumption one makes is that the new funds do not have noninterest costs that are as high, but this also does not seem plausible.

Appendix 3: Differences in ROA and ROE Across Stock and Mutual Institutions

Use of the ROA and ROE ratios in the credit union industry needs to recognize the very different meaning that these ratios have for banks and credit unions. These ratios are based on the concepts of net income, assets, and equity (net worth), which have very different meanings in the two industries. For a bank, equity (the owners' stake) is the difference between assets (largely loans) and liabilities (largely deposits). A bank's net income is largely the difference between interest received on loans and interest paid to depositors. This reflects the viewpoint of the bank's owners, for whom interest payments received by depositors are given to external third parties, and not a part of earnings. The bank owners' earnings may be distributed as cash in the form of cash dividends paid to the holders of shares of stock, or they may be retained to build bank capital, either to finance future growth or to meet capital regulatory requirements.

In stark contrast, the equivalent of a bank's loan recipients and depositors are not external third parties to the owners of a credit union. Owners, depositors, and loan recipients are one and the same. This complicates the interpretation of standard accounting statements. Credit unions do not typically issue tradable shares of stock and are owned by their depositors. Thus, the deposits and liabilities of the banking industry are known as shares and capital in the credit union industry. Further, interest paid on deposits (shares) is not external to the owners of the credit union, but is payment on their investment. However, a credit union's net income is, like a bank's, calculated roughly as the difference between interest received on loans and interest paid on deposits.

Thus, ROA does not measure profitability for the credit unions' owners, but the share of revenues not distributed to owners and retained to build credit union net worth. In short, one may view credit union payments to depositors (owners) made prior to declaring net income (credit unions dividends) as most closely equivalent to a bank's profit distributions after declaring net income (dividends). Credit union net income is not equivalent to bank net income, but to a bank's addition to retained earnings. A credit union's net worth is most closely equivalent to a bank's retained earnings.

Thus, the comparability of bank ROA and ROE to credit union ROA and ROE are very limited. Whereas the interpretation of bank ROA as profitability is standard, credit union ROA

measures the amount of capital (net worth) that managers put aside. Also, while credit unions may find it important to monitor ROE, it cannot be compared directly to or interpreted as bank ROE. Credit unions may monitor it, since ROEs that are smaller than the percent growth in assets imply declines in the net worth ratio. However, whereas bank ROE measures return on one's invested funds, credit union ROE measures (what for a bank would be) the ratio of additions to retained earnings relative to retained earnings.

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