

Credit Union Capital, Insolvency, and Mergers
Before and After Share Insurance

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Abstract

From their beginnings in 1908, U.S. credit unions have grown into a trillion-dollar industry with more than 100 million members. Despite many similarities, credit unions have always differed fundamentally from banks. One fundamental difference was that share accounts in credit unions, unlike bank deposits, were not debt. Thus, credit unions had options to delay and discount payments to account holders. Those options were one reason why, when thousands of banks failed, no credit unions failed during the Great Depression. Insolvency came to credit unions only after share accounts became federally insured in 1971.

Insurance and its associated regulations had larger effects on the structure of the credit union industry than it had on the banking industry. Insurance turned bank deposits from risky debt into riskless debt. Insurance largely turned credit union share accounts from risky equity into riskless debt. Thus, insurance introduced insolvency risk and insolvency to credit unions.

Before federal insurance, many credit unions voluntarily liquidated, and of those, only about one-fifth imposed losses on their members. After federal insurance took effect in 1971, voluntary liquidations of solvent credit unions became rare.

To reduce insolvency risk and losses to the share insurance fund, regulators enabled and encouraged mergers of both strong and weak credit unions. They also discouraged new credit unions. These regulatory responses moved the credit union industry from high entry and low merger rates to near-zero entry and high merger rates.

We further argue that the proximate causes of regulation differed between credit unions and banks. Major bank regulations almost always, and only, happened following banking crises. In contrast, major credit union regulations rarely followed crises, but rather usually followed prosperity in the credit union industry. Insurance is one of the examples we give.

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I. Introduction and Overview

For decades, credit unions have been an important component of consumer finance. Credit unions first appeared in the United States in 1908. They began by providing savings vehicles and consumer loans, typically to workers with modest incomes. The credit union industry grew moderately during its first two decades. Then came the Great Depression. While thousands of banks failed in the early 1930s, credit unions suffered less and none failed.

To boost confidence and reduce risks in banks, starting in 1934, accounts at banks—but not at credit unions—received federal insurance. Nevertheless, from the early 1930s through the early 1940s, the number of banks stagnated and the number of credit unions more than tripled. By the mid-1950s, there were more credit unions than banks. When federal insurance came at last to credit unions in 1971, credit unions numbered well over twenty thousand. Over the decades, credit unions garnered larger and larger, but still quite small, fractions of the markets for consumer savings and consumer loans. By 2000, for example, credit unions had seven percent as many assets as banks, but 18 percent as many consumer loans as banks. Nonetheless, having over 100 million members and over \$1 trillion of assets testifies that members value their credit unions (NCUA 2018a).

Credit unions have always differed fundamentally from banks. While the wide-ranging financial deregulations since the 1970s swept away many differences between credit unions and banks, there are still substantive differences in incentives, performance, and regulation.

Credit union regulations changed at different times and for different reasons than bank regulations. Since the early 1900s, regulation of credit unions and banks has evolved, sometimes gradually adapting to changes in the financial environment, and sometimes with Darwinian punctuations. Major changes in banking regulations tended to reflect recent major events, like crises. For example, the economic calamity and banking crises of the early 1930s led directly to federal insurance for deposits at banks and at thrift institutions, to the separation of commercial from investment banking, to the prohibition of interest-bearing checking accounts, and to other, seismic shifts.

In contrast, major changes in credit union regulations typically were not reactions to credit union problems. For example, it was not until 1971, decades after the banking crises of the early 1930s, that accounts at credit unions became federally insured. At that time, the credit

union industry was healthy and growing, and the U.S. economy had enjoyed years of steady prosperity.

Capital requirements provide another example of this pattern. Regulators made banks' capital requirements explicit and higher in the latter 1980s and early 1990s on the heels of banking crises. Explicit, higher requirements for credit union capital, however, did not follow crises but, rather, flowed from compromise legislation necessitated by a U.S. Supreme Court ruling about regulators' authority.

To help illuminate the rough, alpine road to current regulations, we recount some important features and repercussions of regulations (and laws) that governed credit unions' shares and reserves. We focus on the especially consequential effects of federal share insurance. Although federal insurance made credit unions more like banks in some respects, fundamental differences remain.

The introduction of share insurance brought a new risk to credit unions, a risk that banks had always faced: insolvency risk. Banks' deposits were always debt, or fixed liabilities. As a result, banks could, and sometimes did, become insolvent and fail. That was true both before and after insurance. In contrast, insurance turned credit union shares from largely equity-like into largely debt-like. Before insurance, sufficiently large losses in the value of their assets (e.g., loans) could mean that credit unions would not be able to pay their shares at par. However, since the value of the equity-like shares could fall along with the value of the credit unions' loans, members could suffer losses individually, but the credit unions themselves would not become insolvent or "fail." Members could vote to voluntarily liquidate an unsatisfactory credit union, but regulators did not require its liquidation.

After insurance, credit unions faced with losses in the value of their assets could no longer reduce the value of members' shares. Shares that were once largely equity-like became largely debt-like. Large losses in the value of credit union assets would no longer result in reductions in the value of members' shares, but would render the credit unions themselves insolvent. If regulators concluded that, in the foreseeable future, individual credit unions would bear sufficiently large losses that they could not repay their shares in full, then regulators would carry out "involuntary" liquidations (or mergers) of those credit unions. Thus, by protecting the value of credit union members' shares, insurance created a new risk for credit unions: insolvency, or failure, risk.

We argue that regulators responded with two main offsets to the risks that share insurance spawned. First, to reduce the *ex-ante* probabilities of insolvencies of credit unions, as well as the likely *ex-post* losses to the share insurance fund, regulators imposed higher standards for reserves and imposed numerous other rules and requirements. Second, regulators allowed, and even advocated, mergers as an exit route for both healthy and troubled credit unions. Urging merging resulted in a dearth of voluntary liquidations of credit unions, which had been common before share insurance. Having troubled credit unions merge into healthier ones reduced the numbers of *ex-post* failures and thus losses to the insurance fund. To facilitate more mergers, regulators liberalized their rules about credit union membership.

In the same vein, after insurance, regulations took into account that new and small credit unions were much more likely to become seriously troubled. The tilt of these regulations made it more difficult for these credit unions to continue, or even to get started. The combination of eased merger policies and the tilt of regulations led mergers to soar and the numbers of new credit unions to plummet. This deregulation and regulation intentionally stifled the beehive of entries and exits of credit unions before insurance. When coupled with the greater cost efficiencies of larger credit unions, they fueled the industry's consolidation into vastly fewer, but larger, credit unions.

II. Credit Unions Before Insurance

Patterned after similar institutions in Germany and Canada, the first U.S. credit union appeared in 1908 in New Hampshire. Credit unions began as lending clubs that accepted funds from members and made short-term loans to their members. Regulation soon followed innovation. New Hampshire and Massachusetts (1909), and New York, Wisconsin, and Texas (1913) were the first U.S. states to regulate credit unions. Early credit union laws provided a cooperative, or democratic, framework to promote saving by those with modest means and to provide them loans at low interest rates (Moody and Fite 1984). By 1920, ten states had laws specific to credit unions. By 1935, forty-one states did. Rather than recodify the wheel, the credit union laws of most states generally followed the template of New York's 1913 law and, later, a Uniform Credit Union Law (Bergengren 1935).

Membership and ownership

Since it passed the Federal Credit Union (FCU) Act in 1934, the U.S. Congress revised it occasionally, most recently in 2013. Before the FCU Act, only states chartered credit unions. The Act established a federal charter and defined a credit union as a “cooperative association organized ... for the purpose of promoting thrift among its members and creating a source of credit for provident or productive purposes” (U.S. Congress 2013).²

Members could start, or later join, a credit union by purchasing shares at par (e.g., for \$10) (Morman 1920; Ham and Robison 1923, 15; Neifeld 1931). Credit unions largely accepted funds from and could make loans to only their members. Each credit union’s charter delineated its field of membership (FOM). Members needed to be in their credit union’s FOM, which reflected a “common bond,” such as the employees of a company, the members of a church or other group, or the residents of a specific geographic area, such as a neighborhood. Early on, the vast majority of credit unions’ FOMs were associated with employers, members had fewer and longer job tenures, and multiple-job households were less prevalent. As a result, households were usually in one, if any, FOMs. That is not the case today. Since the early 1980s, the great liberalization of FOMs and the increase in the number of employers within each household’s lifetime greatly increased the number of FOMs per household.

Credit union shares bore some similarities and differences compared with those of other corporations, such as banks. In (commercial) banks, shareholders own the institutions and have votes in elections of directors equal to the number of shares of common stock that they owned. Unlike in banks, credit union members had one vote per member in elections for boards of directors, regardless of the number of shares owned. Unlike banks, credit unions are exempt from both federal and state income taxes. The competitive advantages that flowed from the tax exemptions likely play a key role in accounting for the growth of credit unions relative to banks over the decades, but they are not particularly germane here.³

² The FCU Act refers to United States Code (U.S.C.) Title 12, §1752. Sections 1752-1795. The analogous national charter for banks began in 1863.

³ Mutual savings banks and mutual savings and loans were somewhat similar to credit unions. Among their differences were that those mutuals generally granted members with higher deposit balances more votes in Board of Director elections and that they lost their income tax exemptions in the latter 1900s. The biggest distinction was that only credit unions had defined FOMs.

Shares at risk

Like bank shares and deposits, credit union shares provided funds for loans. However, credit union shares differed consequentially both from corporate (including bank) shares and from bank deposits. They also differed from any deposits that credit unions offered. Unlike corporate shares, credit union shares could normally be acquired or redeemed at the credit union at par (e.g., for \$10). Unlike bank deposits, credit union shares were not (defaultable) debt. In addition, shares had lower priority than credit union deposits if withdrawals became problematic.

A template for credit union bylaws specified that “the money on one or more shares may be withdrawn ... (by a) member” (Parker 1927).⁴ Being able to withdraw (or redeem) shares at par clearly distinguished them from shares of corporate stock. While corporations and owners of their shares may sell their shares, corporations are not obligated to buy back their shares, whether at a pre-set price or even at a “market” price.

In addition to shares, some credit unions also offered deposits, which were somewhat akin to “preferred shares.” (Deposits were less significant sources of funds to credit unions.) Deposits paid pre-set interest rates periodically, for example monthly or quarterly.⁵ They were normally redeemable upon demand at par. Like shares, however, credit union deposits had limited rights to withdrawals. The Parker template for credit union bylaws, for example, stipulated that deposit “withdrawals shall be honored in the order in which the notice therefor is filed (as the funds therefor become available).”⁶

The features of credit union deposits highlight some of the risks borne by shares. Rather than the pre-set rates promised on credit union deposits, dividends on shares tended to be paid annually and tended to vary, for example, with credit union earnings. In addition, deposits had higher priority than shares. If withdrawals were problematic, credit unions could not pay any share dividends or allow any share withdrawals until they first paid the pre-set interest promised on deposits and allowed deposit withdrawals—at par. Having uncertain dividends and lower priority, shares were riskier. Presumably reflecting the recognition of greater risk, dividends on

⁴ Credit Union Bylaws, Article IX: 7 (Parker 1927).

⁵ Credit Union Bylaws, Article X: 1.

⁶ Credit Union Bylaws, Article X: 4.

shares averaged slightly more than interest on credit union deposits (Clark 1944, 61; CUNA 1975).⁷

In normal circumstances, members could withdraw credit union shares on demand and at par. The same was true for bank deposits. Before insurance, however, both bank deposits and credit union shares were risky: Either might repay at less than par. The important difference was that bank deposits were debt and shares were not. The important consequence was that repaying at less than par would lead to the closure of banks, but could leave credit unions open.

A bank that could not redeem deposits on time and at par violated the terms of that debt. Regulators would deem that bank to be insolvent and close it. If regulators did not close defaulting banks promptly, redeeming at less than par would likely incite a bank run, which would quickly exhaust its cash and similarly force the bank to close its doors—and its operations.

In contrast, credit union laws made clear that redeeming shares at less than par violated nothing. Unlike bank deposits, credit union shares were designed to absorb losses without triggering default or closure. In that regard, credit union shares had some of the attributes of bank equity capital and of bank shares. State laws and credit unions' bylaws explicitly referred to credit union shares as capital. New York's Credit Union Law of 1913 noted "the capital of a credit union shall consist of the payments made by members on shares, and unpaid dividends credited thereon."⁸

To deal with abnormal circumstances, credit unions had two valuable redemption options that banks did not have: to delay and to discount. The Parker (1927) template for credit union bylaws allowed a credit union to restrict share withdrawals to the days in which members made interest and principal payments. Since loans made by early credit unions had very short maturities, interest and principal payments would quickly cover most withdrawal requests.⁹ The bylaws further ordained, "withdrawals shall be paid in the order of their filing and as funds

⁷ Credit union dividend rates averaged about five percent during the early 1930s (Froman 1935). Four percent was a common interest rate on credit union deposits at the time (Parker 1935, 66).

⁸ New York's Credit Union Law of 1913 §450. Throughout, we refer to the New York Credit Union Law of 1913, as amended in 1915, that was included in Ham and Robinson (1930).

⁹ A sample of 176 credit unions had loan originations of \$20.1 million during 1925 and had \$13.4 million of loans outstanding at the end of 1925, suggesting that the average loan maturity was less than one year (Parker 1927). Ham and Robinson's Credit Union Primer (1930, 24) recommended a maximum maturity for credit union loans of one year, while recognizing that some loans would likely be renewed at maturity.

therefor become available” (Parker 1927). In addition, they allowed a credit union’s board of directors to require at any time that a member give 30 days’ notice before a withdrawal. Crucially, if a credit union were in dire straits, due to large loan losses or any other problems, the bylaws permitted it to redeem shares at less than par.^{10, 11}

Further cementing shares’ at-risk status, New York required each credit union to put reserves in an account, referred to as the credit union’s “guaranty fund,” that was available to absorb losses and thereby reduce risks to the par value of its shares.¹² When faced with losses, credit unions could tap their guaranty funds to avoid impairments to shares (Parker 1927, 20). New York’s Credit Union Law of 1913 required that at least 25 percent of net earnings be contributed annually to the guaranty fund “for the protection of shareholders in the event of losses” (Bergengren 1935, 26).¹³ In accordance with the template of the Uniform Credit Union Law, most states generally required annual transfers of at least 20 percent of net earnings (Neifeld 1931; HLR 1931; Clark 1944, 51). Credit unions used the remainder of net earnings to pay year-end dividends, or as additions to their retained earnings beyond their guaranty funds.

“Fail safe” credit unions

The options to delay and to discount share withdrawals essentially removed liquidity risk and solvency risk from credit unions. Delays could stifle runs and discounts could match declines in assets, so that net worth was never negative.

How effective were delay and discounts? Reports during the Great Depression asserted that there had been no runs on credit unions (Moody and Fite 1984, 109). The Congressional report on the Federal Credit Union Act uncovered no involuntary liquidations of credit unions whatsoever during the halcyon years of 1929–1933 (U.S. Senate 1934, 2).¹⁴ The contrast with banks is stark: Runs on banks were numerous and ruinous. Many thousands, nearly 40 percent in all, of banks closed during 1929-1933 (Federal Reserve 1959). Belying crises among credit

¹⁰ §459.

¹¹ Another remedy for members was to transfer (i.e., sell) their shares to another member of the credit union, subject to the restrictions and approval of the board of directors, including paying a transfer fee to the credit union (Credit Union Bylaws, Article IX: 6).

¹² §457.

¹³ §457. Net earnings equaled interest and noninterest income minus noninterest expenses, interest paid on deposits, and losses on loans. Unlike today, then dividends paid were not subtracted in the calculation of net earnings.

¹⁴ Of course, voluntary liquidations of credit unions could impose losses on shares.

unions, as late as 1936, 94 percent of the credit unions that were in operation in 1929 were still operating (Moody and Fite 1984, 202).

A necessary condition for discounts' removing solvency risk was that credit unions had minimal amounts of liabilities (including debt). In their ordinary courses of business, credit unions incurred minor amounts of liabilities, such as accounts payable.¹⁵ Their small sizes and the potential ramifications for control and ownership if they could not make payments kept credit unions away from taking loans or issuing bonds and other debt.

The option to discount shares, coupled with the near absence of liabilities, reduced the risks of a credit union's insolvency, and thus of failure and of regulators closing institutions through "involuntary liquidations," to essentially zero. Losses might be large enough to wipe out reserves in guaranty funds and leave assets worth less than the par value of all shares. However, because they were allowed to redeem shares at less than par, credit unions were virtually precluded from insolvency.

Although uninsured credit unions could remain solvent, their losses hurt members. Lower, even negative, earnings could reduce or delay dividend payments. Large enough losses imposed delays and discounts on share withdrawals. The specter of low or no dividends might spur withdrawals (even at discounted values). Dismal prospects might lead members to vote to voluntarily liquidate their credit union and absorb losses if the liquidation of its assets did not generate enough cash to pay (the few liabilities and deposits and) shares at par.

Consider a credit union that funded \$100,000 of loans with \$90,000 from share accounts, \$5,000 from its guaranty fund (or reserves), and \$5,000 in accounts payable. Loan losses of \$10,000 would wipe out the guaranty fund, but leave \$85,000 of assets to support shares (or capital or net worth). For this credit union to become insolvent, loan losses would have to exceed the sum of (par) balances in share accounts plus the guaranty fund, i.e., on the \$100,000 of loans, losses would have to be of \$95,000. While possible, loan losses of that proportion are extremely unlikely. In practice, members would likely vote to voluntarily liquidate this credit union well before loan losses cut into asset values that severely, thereby avoiding an insolvency if it could not repay the \$5,000 of accounts payable.

¹⁵ At the end of 2017, for example, aggregate liabilities (other than shares and net worth) at federally-insured credit unions equaled four percent of their assets.

Credit unions then were analogous to equity mutual funds now: If they do not have liabilities, they cannot become insolvent, or “fail.” When they have no fixed liabilities, the net worth of such equity mutual funds cannot be negative, regardless of the net worth of the (limited liability) corporations whose shares they owned. The obvious contrast is banks, which were funded overwhelming with defaultable debt, mostly in the form of short-term deposits.

Despite large losses, members could continue operating a credit union if they judged that it still provided valuable services, or that the values of their shares might rebound. Thus, before insurance, regulators rarely pushed credit unions into involuntary liquidation. Indeed, it was not until 1946 that the FCU Act provided a procedure for involuntary liquidation of federal credit unions (CUNA 1981, vii).

III. Safer Shares Made Credit Unions Riskier

In this section, we trace out the introduction of federal insurance for (the par value) of shares in credit union accounts and some of the regulators’ ensuing reactions. In the next section, we show how the reactions led to significant restructuring of the credit union industry.

By protecting the par value of shares, insurance clearly made shares less risky. Insuring shares also stripped credit unions of their insurance against insolvency. Of course, deposits and other debts had always imparted insolvency risk to banks. With federal insurance having introduced insolvency risk to credit unions, regulators sought to rein it in. One way was supervision and regulation that was more rigorous. The second way to contain insolvency risk was to tighten capital requirements. From their earliest days, regulations required credit unions to set aside a fraction of their earnings as reserves. These regulations did not set minimum ratios of capital to assets that had to be achieved but, instead, stipulated flows into retained earnings. As an intermediate step to minimum capital ratios, revised regulations required credit unions to set aside reserves--unless they achieved a specified capital ratio. By the 2000s, capital regulations for credit unions had shifted completely from flow to stock requirements. Regulators required credit unions to achieve minimum ratios of their capital to assets.

To avoid distractions in our discussion of financial regulations and policies (including share insurance), we make several simplifying assumptions that seem to us to be reasonable approximations. We continue to assume that only shares and retained earnings appear on the right hand side of the balance sheets of credit unions. The intention, essence, and effect of the

insurance is to cover the overwhelming majority of shares. In practice, adjustments, exceptions, and provisions of share insurance have been quite complicated. After insurance, without importantly affecting our analysis, we assume that all shares are insured. We also assume that regulators close a credit union when its net worth falls below zero.

Introducing insurance

The numbers and assets of credit unions grew rapidly through the Great Depression and the post-WW II period. Their growth rates then throttled back significantly through the 1960s. With 10 times as many credit unions and with a larger market share in 1970 than in 1934, slower growth of this maturing industry was likely. By then, the industry contended that one impediment to its attracting more members and shares was that some consumers (correctly) perceived insured bank deposits to be safer than uninsured credit union shares (Moody and Fite 1984).

In 1970, the Credit Union Share Insurance Act (CUSIA) required the new, independent, federal regulator, the National Credit Union Administration (NCUA) to establish the National Credit Union Share Insurance Fund (NCUSIF) (English 1993, Crofton et al. 2010).¹⁶ The U.S. Senate report that accompanied CUSIA provided reasons to support the CUSIA bill (U.S. Senate 1970). Among them were that (1) losses to members were concentrated in the smallest credit unions, where share balances tended to be small, (2) federal insurance would attract funds for loans to underserved areas, and (3) surveys showed that five out of six members believed (*incorrectly*) that their shares were already federally insured.

Introducing insolvency risk

Insurance introduced insolvency and closure risks to credit unions. Federal share insurance eliminated the options to delay and to discount that assured solvency before insurance. A condition for members' shares to be insured was that credit unions redeem both insured and uninsured shares on time, and at par. Withdrawals could no longer be delayed. Shares could no longer absorb losses. Delays or discounts led rapidly to closure by regulators. Without the option to discount shares, loan losses then fell entirely on credit unions' retained earnings. If losses were larger than its retained earnings, a credit union was insolvent and then closed. The

¹⁶ Public Law 91-468.

insurance fund, the NCUSIF, redeemed shares at par and bore any shortfall of asset value below the par value of shares.

Figure 1 shows the buffer available to absorb losses at credit unions annually for 1910-2017. The solid blue and the red dotted lines show aggregate credit union capital and retained earnings, as percents of total assets. Credit unions issued no common stock and had minimal liabilities before insurance began in 1971. Then, their capital, which equaled shares plus retained earnings, equaled credit union assets. Having no common stock or liabilities meant that all of that capital was available to absorb losses without triggering default or closure before 1971. By protecting shares from losses, however, insurance reduced the volume of loss-absorbing shares from all to virtually none. From then on, only retained earnings stood between credit unions and insolvency, as shown by the solid line from 1971 onward. The dotted line shows that retained earnings were always less than seven percent of assets until the 1920s. They then hovered in the 5-8 percent range for decades, through the early 1990s. With the greater emphasis on capital by both credit union and bank regulators, retained earnings have been substantially higher since then, in the 9-12 percent range since 1995.

Regulating insolvency risk

Shifting the risks of losses at credit unions from shares to the share insurance fund shifted regulators' attention. Regulators sought to avoid and minimize failures of credit unions and losses to their insurance fund, and to protect their reputations. Regulations did not change as deftly as risks.

Regulators required credit unions to have reserves to buffer losses from the beginning. New York's 1913 credit union law required credit unions to add a fixed percent of their net earnings to their guaranty funds each year. Later, the Parker template for credit unions called for 20 percent of net earnings to flow into credit unions' guaranty funds.¹⁷ The solid line in Figure 2 shows credit unions' actual retained earnings (as a percent of total assets). The dotted line shows

¹⁷ Over time, credit unions' terminology has evolved. Today's "net worth" (or "retained earnings") were earlier subdivided into "guaranty funds" and "undivided profits" and later into "regular reserves" and "other reserves." Earlier credit unions did not differentiate between guaranty funds (to protect credit unions against unforeseen loan losses) vs. allowances for loan losses (to protect credit unions against foreseeable loan losses). Later, credit unions set up separate "allowances for loan losses."

the analogous buffer at commercial banks, equity capital (which included stock issued as well as any retained earnings) annually for 1911-2017.

As the decades passed, regulations changed to adjust required flows in light of the stock of accumulated reserves. Starting in 1949, for example, federal regulators required no transfers into reserves if regular reserves exceeded 10 percent of shares.¹⁸ Despite that and other adjustments through the years that generally permitted fewer reserves, retained earnings (as a percent of assets) rose from 5.26 percent in 1952 to 7.85 percent in 1969.

These requirements were much more binding on some credit unions than on others. In general, they especially constrained larger and faster-growing credit unions. To accommodate the more successful credit unions, the U.S. Congress (U.S. Senate 1970, 5) then lowered credit unions' required transfers into regular reserves again (Black and Dugger 1981). Later, the Depository Institutions Act of 1977 again lowered required transfers into regular reserves.¹⁹

From the 1980s onward, regulators shifted their focus more and more toward the amounts of banks' and credit unions' capital buffers and away from gross flows into those reserves. The U.S. Congress and bank regulators spelled out capital per assets requirements for banks during the 1980s and early 1990s. Over the same years, regulators required credit unions to increase their capital per assets as much as banks. Rather than through changes in law or regulation, credit union regulators relied then on less-quantified, supervisory pressures.

In 1998, the U.S. Congress enacted the Credit Union Membership Access Act (CUMAA). CUMAA completed the shift of reserve requirements from flows to stocks.²⁰ Credit unions that were "well capitalized" were subject to lighter regulation. Being "well capitalized" generally required that the ratio of a credit union's net worth (largely retained earnings) to assets was at least seven percent. Credit unions with net worth ratios less than six percent were categorized as "adequately capitalized," which prohibited them from acquiring more assets.²¹

¹⁸ Public Law 81-376.

¹⁹ Public Law 95-22.

²⁰ Several studies analyzed regulations and rationales for how much and what kind of credit union capital was, or should be, required or allowed by regulations. See, for example, Crofton et al. (2012), Wilcox 2002, 2003, and 2011, NASCUS 2005, CUNA 2010, NCUA 2010).

²¹ Before CUMAA, credit unions could stop making transfers into their regular reserves if their accumulated reserves were at least six percent of risk assets. For a typical credit union, that corresponded to about four percent of total assets. Credit unions had not been required to achieve the six percent target. They just had to keep transferring five percent of gross income annually into their reserves if they were below the target.

Regulatory responses to banking crises and to credit union quiescence

The environments that preceded many of the major regulatory actions for credit unions differed strikingly and intriguingly from those for banks. Major banking legislation very often followed economic and especially banking problems. Pairs of banking policies and problems include: The Banking Acts during the U.S. Civil War, the Federal Reserve Act following the Panic of 1907, the Banking Act of 1933 (including the Glass-Steagall provisions) and the Banking Act of 1935 Act during the Great Depression, the string of laws and regulations that loosened and then tightened public policies from the late 1970s through the early 1990s due to high inflation and interest rates and banking and thrift crises and, most recently, the Dodd-Frank Act on the heels of the global financial crisis that started in 2007.

In contrast, it is harder to tie major changes in laws and regulations about credit unions to economy-wide problems. Its relatively small size meant that the credit union industry was unlikely to be either the cause or solution to economy-wide problems. Major changes more often followed quiescence than crisis in the credit union industry. While banking's "reactionary" regulation responded to, rather than prevented, problems in the industry, problems less often preceded policies in the credit union industry.

Establishing the federal charter for credit unions in 1934 was a crisis response—but it was a response primarily to the crises in the banking industry during 1929-1933. Despite its appearance, the new federal charter was not really a major reform, in that it differed little from most state charters. Nor did other provisions of the enabling law substantially change regulation of (pre-existing) state-chartered credit unions.

The transformative Credit Union Share Insurance Act (CUSIA) of 1970 followed no major upheavals in the economy or in credit unions. Unlike the Banking Act of 1933's creating the FDIC in response to the banking crises of the early 1930s, in 1971 the NCUSIF arose during quiescent conditions in the healthy and growing credit union industry. Throughout the 1960s, the rates of (1) liquidations with losses per FCUs, (2) shares in FCUs liquidating with losses per all shares in FCUs, and (3) losses on shares in FCUs liquidating with losses per all shares in FCUs, all declined markedly (BFCU 1960-1969a, NCUA 1970). Credit unions were also healthy when CUMAA was enacted in 1998. Retained earnings per assets had been rising for several years and

losses imposed on the share insurance fund were low and declining (NCUA 2018a; Wilcox 2005).²² Nonetheless, at that time, CUMAA imposed new and much higher capital requirements.

Just as striking are the regulatory dogs that did not bark. When high interest rates and unemployment produced a wave of credit union failures during the 1980s, major regulatory responses were not directed at the clearly-troubled credit union industry. Similarly, when the U.S. Congress started calling for banking regulators to impose new, higher requirements for bank capital in the latter 1980s, it could have used the same rationale to apply them to credit unions, but it did not. Part of the explanation for that omission likely can be found in credit unions' having weathered the late 1980s and early 1990s far better than banks and thrifts did.²³

IV. Entry, Exit, and Mergers After Insurance

Before insurance, credit unions were typically small, volunteer-driven, and somewhat informal. Large numbers of new credit unions formed and large numbers voluntarily liquidated, usually without losses imposed on members.

Insurance changed the relation of credit unions to their regulator. Regulators still preferred that the industry expand and prosper. But, now, regulators also sought to minimize failures and losses to the insurance fund, and thus to their reputations.

In this section, we delve into the incentives that insurance brought to federal regulators of credit unions, their responses, and to thoroughgoing effects on the structure of the credit union industry. After insurance, the risks and rewards, not to credit union members, but to regulators, help explain the dramatic declines in entries and voluntary exits of credit unions. Similarly, regulators' risks and rewards help explain the unprecedented surge of credit union mergers after 1971.

Data difficulties

This section begins by presenting our newly-constructed data for credit unions for the era before federal insurance. One consequence of share insurance and regulations was that different

²² Public Law 105-219.

²³ Credit unions' annual provisions for loan losses (and net loan charge offs) per assets were far lower than banks' during 1980-1991 (0.34 percent vs. 0.66 percent) and reached far lower peaks (0.48 percent vs. 1.25 percent) (NCUA 2018a; FDIC 2018a).

data were collected and different data were relevant. We show the most comparable, available measures in Table 1, but recognize difficulties in comparing their magnitudes.

For instance, liquidations with losses are not directly comparable to failures. One reason is that, before insurance, members could and often did continue to operate credit unions that could not redeem shares on time and at par. After insurance, however, regulators were expected to close insolvent credit unions and could close those expected to become insolvent. In addition, regulators averted closures of some troubled, even insolvent, credit unions by coaxing them to merge with stronger ones. Only 0.07 percent of federally-chartered credit unions merged annually before insurance; after insurance, the merger rate soared to 2.48 percent (NCUA 1970-2018).

Entries and exits

Table 1 shows credit union entries, exits, and losses before (1934-1970) and after (1971-2017) share accounts were covered by federal insurance.²⁴ Entries are newly-formed credit unions. Exits included voluntary or involuntary liquidations, and mergers. It shows both losses on members' account balances and losses borne by the share insurance fund, NCUSIF. The two middle columns pair the names for the most-comparable, available measures before and after insurance.²⁵

Entries

Before share insurance, the credit unions entered and exited the industry frequently: More than 20,000 federally-chartered credit unions were formed and nearly 6,000 liquidated.²⁶ The second row in Table 1 shows that, before insurance, the number of new credit unions formed each year averaged over eight percent of the existing credit unions. The same row shows that the

²⁴ We eschewed difference-in-difference calculations with data for credit unions and banks because the industries had dramatic differences before and after 1971 in regulation, as well as in insurance.

²⁵ Data for individual credit unions were only available for years since 1979, long after insurance began. For years before 1979, aggregate data for credit unions were available from regulators' annual reports for a small number of variables for federally-chartered credit unions and for far fewer variables for state-chartered credit unions.

²⁶ For the years before share insurance, we concentrated on federal credit unions (FCUs), because annual data on the formation and the liquidation of state-chartered credit unions were less consistently available. The unweighted average annual rate of new FCU formations was 41.1 percent during 1934-1970. That rate was misleading. During the infancy of the FCU charter, the number of FCUs was, of course, trivially low, which made for extraordinary percentage growth rates. There were 78 FCUs in 1934 and 906 in 1935, implying an entry rate of over 1,000 percent. Therefore, we show an annual rate that was weighted by the numbers of FCUs in operation each year.

rate was decimated after insurance, at only 0.83 percent, and lower yet, at 0.06 percent, since 2000.

Insurance changed regulatory policy from encouraging to discouraging new credit unions. Before share insurance, credit union regulators had goals of boosting the numbers of credit unions and of members and boosting the volume of industry assets. It is tempting to consider them industry boosters. As one of the more explicit incentives for newly-formed credit unions, for example, regulatory personnel could be rewarded for the number of credit unions that they helped form.

Figure 3 shows the large, sudden and continuing decline of new entries to the credit union industry after 1970. Smaller and younger credit unions have long liquidated more often (Croteau 1952; BFCU 1937-1969a). In recognition of those dangers, after insurance, regulators began to demand that FCU charter applicants have more credentials and present more-professional applications. The more rigorous chartering process effectively stopped formation of new, less-formal, volunteer-driven credit unions. The annual numbers of new credit unions formed fell sharply, from about 1,000 during the 1960s (a 4.64 percent annual rate), to about 500 (2.28 percent) during the 1970s, and then to about 100 (0.45 percent) during the 1980s. Not shown in Figure 3 is the continuing decline in annual formations after 1990, to about 10 (0.09 percent) during the 1990s, seven (0.07 percent) during the 2000s, and three (0.04 percent) during 2010-2017 (Dopico 2014 and NCUA 2018a).

In contrast to credit unions, formation of new banks continued apace. After about 160 banks started up annually during the 1960s, about 180 started up annually during the 1970s and 1980s. Unlike sharply lower entry rates for credit unions, commercial banks' entry rates did not collapse until the global financial crisis. Banks' entry rates averaged 1.97 percent in the 1980s, 1.28 percent in the 1990s, and 1.62 percent in the 2000s. Banks' entry rates then sank after the 2000s. In 2010-2017, the rate averaged 0.04 percent. This contrast suggests that the dramatic decline in new credit unions more likely stemmed from regulatory shifts than from overall economic and financial conditions.

Many of the important changes after 1971 in economic and financial conditions, in technology, in demographics, and in some regulations would have had broadly similar effects on banks as they had on credit unions. Nonetheless, as Figure 4 shows, the rise and fall of credit unions was not mirrored in the path of banks. The number of credit unions climbed steadily

while they were uninsured, and then declined steadily, starting suspiciously soon after shares became insured. In contrast, the number of banks held quite steady, between 14,000 and 15,000, for more than three decades before and more than one decade after 1971. Nor does Figure 4 shows any upsurge or downturn in the number of banks in operation for any year near 1971. Starting in the 1980s, the numbers of each sank, as geographic restrictions on banks and FOM restrictions on credit unions eased, thereby permitting more of them to merge (Dopico 2000).

Exits

While discouraging new credit unions from entering, since the early 1980s regulators have pushed for new credit union members and for industry growth by expanding permissible fields of membership (FOM). Broader FOMs increase the pool of those eligible to be members and simultaneously provide greater geographic and borrower diversification. As the number of new credit unions dwindled and regulators and conditions pushed smaller credit unions into mergers (Dopico and Wilcox 2009), the rate of voluntary liquidations also plummeted.

The third row in Table 1 shows that, before insurance, it was quite common for credit unions to disband without imposing losses on shares: Each year on average, nearly two percent did. Of the nearly 6,000 liquidations, only about 1,000 of them imposed any losses on members' share accounts. Liquidations without losses typically took place due to shrinking memberships or an inability to retain paid or volunteer officials. However, far from imposing losses on members, those liquidations actually paid liquidating dividends that averaged eight percent of shares (Croteau 1952, 200; BFCU 1934-1969a, NCUA 1970).

After 1971, the comparable rate, for voluntary liquidations, was nowhere near as large: Only 0.37 percent annually (see also Figure 5). With regulators' making mergers feasible and members' benefiting from larger economies of scale, and often as well from becoming part of financially stronger credit unions, mergers became common.

While the comparisons are imperfect, the numbers of credit unions liquidating with losses to members before insurance and of failures (with losses to the insurer) since insurance have been remarkably similar. Table 1 shows both averaged 0.49 percent during, respectively, 1934-1970 and 1971-2017. Weighting liquidations and failures by the amounts of shares affected better reflects their import to members and/or taxpayers at, respectively, a measly 0.03 percent before insurance and 0.10 percent after insurance.

Comparing (1) losses to members before insurance with (2) the sum of losses to the share insurer plus losses to uninsured shares (hereinafter: total losses) requires care. Before insurance, the total dollar amount of losses to members in FCUs was very small. Because nearly all of the credit unions that liquidated with losses to members had small amounts of shares, aggregate losses were also very small, averaging only 0.003 percent of aggregate FCU shares before share insurance (BFCU 1937-1969a, NCUA 1970). At the same time, the percentage losses at the relatively few FCUs that imposed losses on their members were often large. As Table 1 shows, before insurance, losses per shares in FCUs that liquidated with losses averaged 17.4 percent.

Loss rates were not much different after insurance. Total losses per shares in credit unions that failed declined somewhat to 15.6 percent during 1985-2017.²⁷ At the same time, however, the percent of shares in credit unions that failed during 1971-2017 was 0.10 percent. That was higher than the 0.03 percent of shares that were in credit unions that liquidated with losses before insurance. And, as the bottom row of Table 1 shows, annual total losses averaged 0.021 percent of shares in all credit unions after insurance, up from 0.003 percent before insurance, an increase of a mere two basis points.

While banks imposed similarly low losses on the FDIC before credit union share insurance, they imposed noticeably higher losses on the FDIC after share insurance. Annual FDIC insurance losses per insured deposits averaged 0.003 percent during 1934-1970, but rose to 0.069 percent during 1971-2017 (FDIC 2018b). The increase of seven basis points in the rate of losses imposed by banks was considerably larger than the credit union increase of two basis points. The relatively modest increase in their loss rate hints that credit unions may not have taken much more risk after insurance than they had before insurance.

More mergers

Share insurance and its regulatory responses transformed the structure of the credit union industry. Perhaps the most significant response was in the easing of FOM and merger restrictions.

²⁷ Data about insurance losses and assets at individual credit unions before 1985 are either unavailable or unreliable. Since the insurer and uninsured shares shared losses pro rata, the loss rates were the same for (1) insurer losses per insured shares, as for (2) losses to uninsured shares per uninsured shares, and as for (3) the sum of insurer losses and losses to uninsured shares per total shares.

Mergers were rare before insurance; they became numerous afterwards. The sixth row in Table 1 shows that there were almost no credit union mergers before insurance: Less than one-tenth of one percent of credit unions merged annually. The sixth row also shows the explosion of mergers after insurance: Well over two percent of credit unions merged each year. What had been an annual flow of, at most, about two dozen mergers became a tidal wave of hundreds of mergers.

Figure 5 shows liquidation (without losses and voluntary) and merger rates before and after share insurance was introduced. After being rather steady during the 1960s, starting about the middle of the 1970s and lasting for about a decade, the voluntary liquidation rate trended sharply down and the merger rate trended sharply up. Then, for about three decades from the middle of the 1980s onward, both plateaued: The liquidation rate fell to nearly zero and stayed there; The merger rate soared to around three percent. Below we make the case that this strong negative correlation was causation—from more mergers to fewer liquidations. More of a stretch, perhaps, would be the argument that the negative correlation between the merger rate and rate of forming new credit unions was also causation.

The merger rate was rapid because regulators were able and members were willing to merge credit unions. Although both regulators and members may have preferred mergers to liquidations long before insurance, only after insurance did regulators enable and encourage mergers. Both regulators and members saw plenty of advantages in mergers. Some advantages were particularly strong for weaker credit unions; some advantages would accrue to almost any credit union.

Mergers provided more economies of scale to the members of both the target and the surviving credit unions. The benefits of the large economies of scale in credit unions led regulators and members to support mergers (Dopico and Wilcox 2009). Mergers also allowed members of credit unions that might otherwise have voluntarily liquidated to remain members. Mergers also let weaker and even nearly-failed credit unions to become part of larger, stronger credit unions. This latter group of mergers reduced the actual and expected costs to the share insurance fund.

A merger typically required enlarging a credit union's field of membership (FOM). Regulators were quite willing to liberalize fields as much as the law permitted, and beyond. From the early 1980s, the NCUA had judged that FOMs were too restrictive and, likely,

prevented sufficient diversification of credit risks. That was one reason that the NCUA gave for permitting FOM expansions. One example of liberalizing membership fields was the NCUA's permitting a credit union to include the employees of several small companies, instead of requiring a tiny, separate credit union for each small company (NCUA 1982-1984). Of course, the better diversification via liberalized FOMs could have been argued for nearly all credit unions, however strong or large.

Without judging the economic merits of NCUA's actions, the U.S. Supreme Court ruled that FOM expansions exceeded the authority delegated to the NCUA by the U.S. Congress (NCUA 1999; CUNA 1999; Wilcox 2011). Faced with the possibility of evicting vast numbers of members from their credit unions and being pressed by banks, the U.S. Congress passed CUMAA as a compromise. While CUMAA grandfathered previous FOM expansions, it also acceded to long-running requests by banks to restrict credit unions. Specifically, CUMAA (1) capped most credit unions' business lending at 12.25 percent of assets, (2) eased the conversions of (tax-exempt) credit unions into (income-taxable) mutual thrifts, and (3) set in statute a far-stricter set of capital requirements.

Neither the U.S. Supreme Court nor CUMAA stripped the NCUA completely of its FOM authority. The NCUA continued, albeit less boldly, to favor FOM expansions and mergers. Its continuing authority still allowed NCUA to preside over a vigorous outflow of credit unions, but not members, via mergers.

V. Summary and Implications

Before federal insurance, credit union members' shares served effectively as loss-absorbing capital. Funded almost entirely by uninsured shares, whose payments could be delayed and discounted, credit unions could avoid the ruinous runs and absorb the losses that caused bank failures. As a result, even during the Great Depression and until shares were insured in 1971, credit unions did not become insolvent.

We uncovered very different patterns regulatory changes for credit unions than for banks. Major bank regulations almost always, and only, happened following banking crises. Major credit union regulations, on the other hand, rarely followed crises. Indeed, they usually followed periods of prosperity for the credit union industry. In contrast to deposit insurance's springing

from the banking crises of the early 1930s, share insurance came to a healthy industry and prosperous economy. Starting in the 1980s, capital regulations followed the same pattern.

By requiring that shares be redeemable on time and at par, insurance introduced insolvency risk to credit unions. Regulators responded with more regulation of credit unions' activities and capital. They also responded by enabling and encouraging mergers, and simultaneously discouraging new credit unions from forming. They encouraged mergers both of weak and of strong credit unions. Having restrained entries by new credit unions and having stimulated exits via mergers, regulators spurred consolidation of the credit union industry into many fewer, much larger credit unions. In future work, we plan to explore how much (or little) and why this restructuring changed risk taking in the credit union industry.

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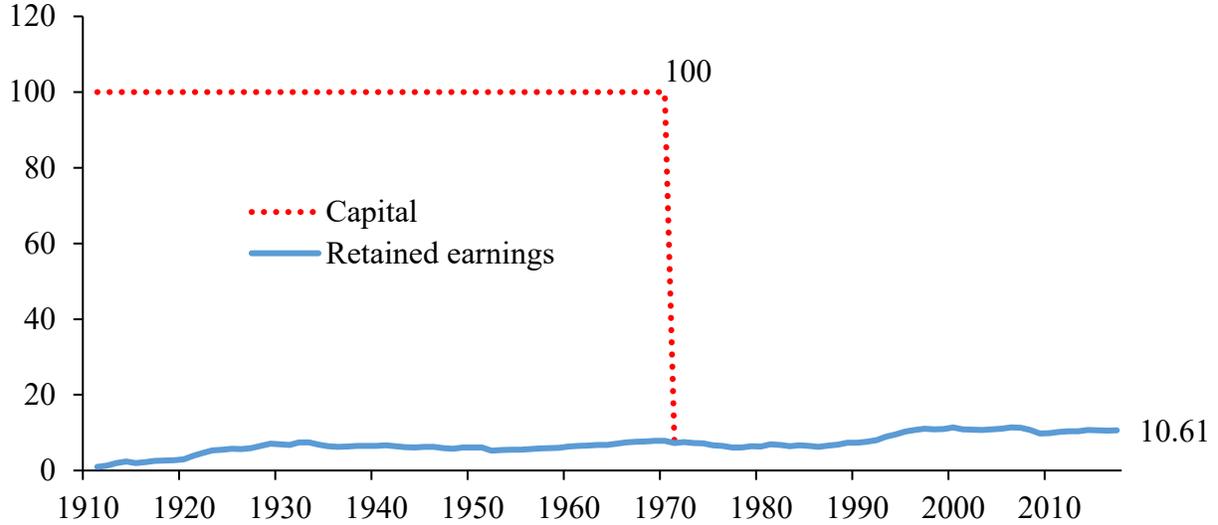
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Figure 1

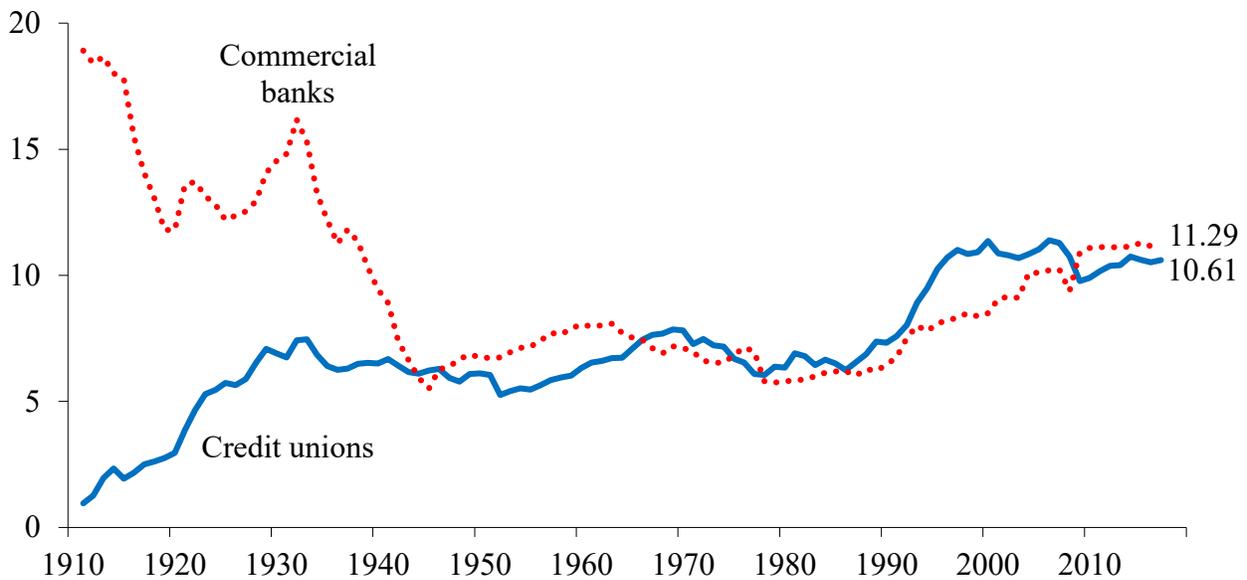
**Credit union retained earnings and capital
(percent of assets, 1910-2017)**



Sources: BLS (1930-1953), BFCU (1937-1969a and b), SSA (1954-1964), NCUA (1970-1979e), NCUA (2018a), CUNA (2018).

Figure 2

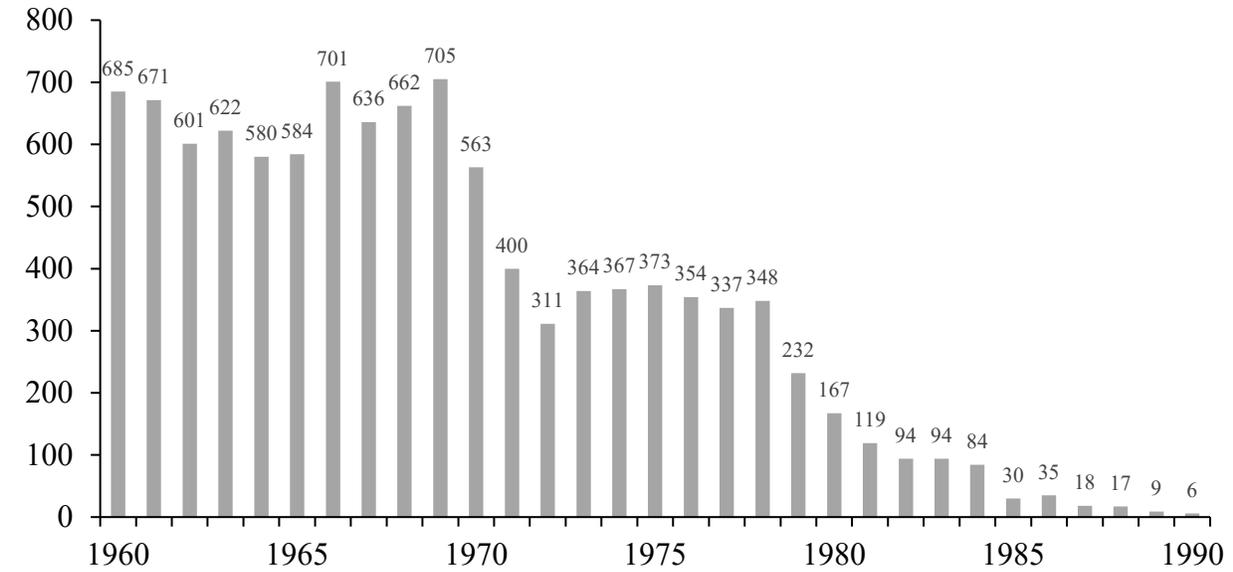
**Credit union retained earnings and commercial bank equity capital
(percent of assets, 1910-2017)**



Sources: BLS (1930-1953), BFCU (1937-1969a and b), SSA (1954-1964), Federal Reserve (1959), FDIC (2018a), NCUA (1970-1979e), NCUA (2018a), CUNA (2018).

Figure 3

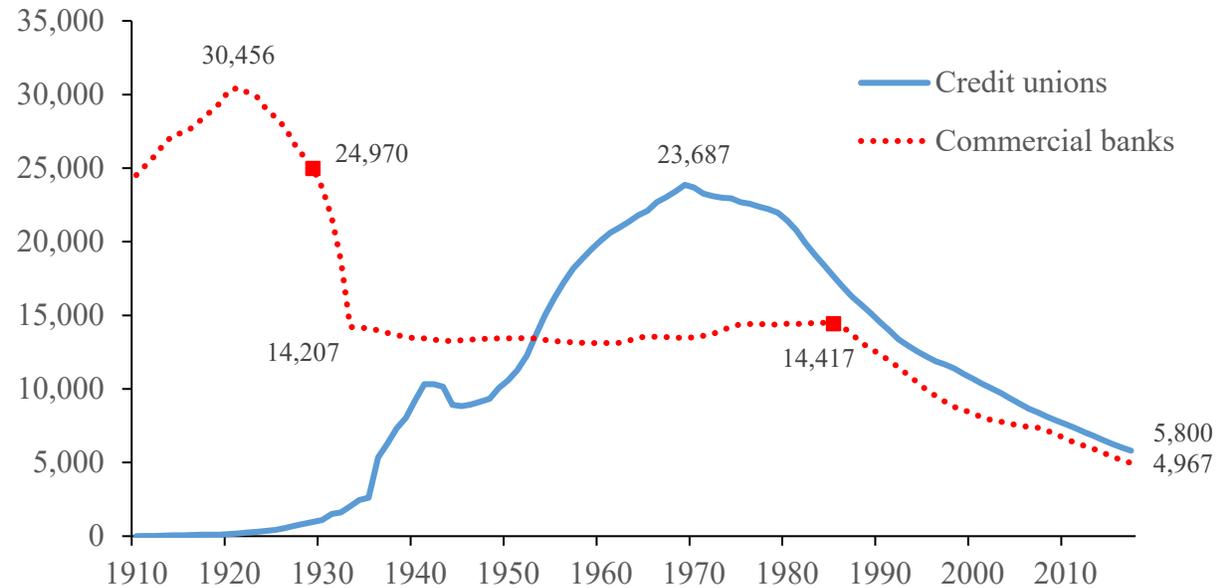
**Numbers of new credit unions formed
(1960-1990)**



Sources: BFCU (1961-1969a and b), NCUA (2018b).

Figure 4

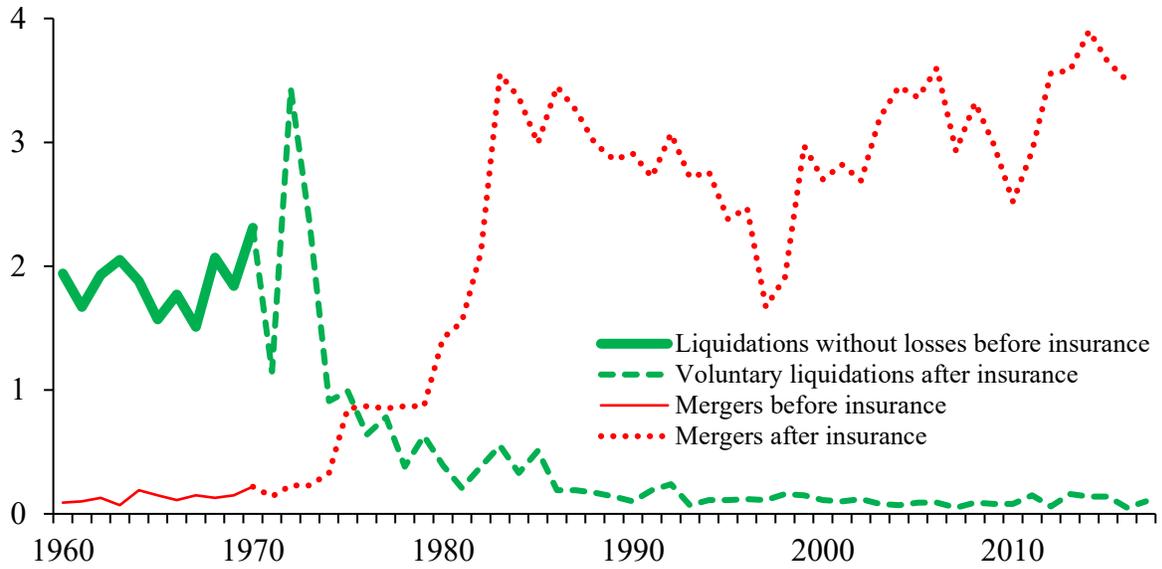
**Numbers of credit unions and of commercial banks
(1910-2017)**



Sources: BLS (1930 and 1940), Federal Reserve (1959), FDIC (2018a), CUNA (2018).

Figure 5

**Credit union liquidations without losses and mergers
(percent, 1960-2017)**



Sources: BFCU (1961-1969a and b), NCUA (2018b), CUNA (2018).

Table 1**Credit union entries, exits, and losses before and after federal share insurance**

Before Share Insurance (1934-1970)		After Share Insurance (1971-2017)	
2,450 → 23,687	Number of CUs		23,267 → 5,800
Entries			
8.17	New FCUs (% of FCUs)	New CUs (% of CUs)	0.83 (2000-2017: 0.06)
Exits			
1.98	Liquidations without losses (% of FCUs)	Voluntary liquidations (% of CUs)	0.37 (2010-2017: 0.10)
0.49	Liquidations with losses (% of FCUs)	Failures (% of FICUs)	0.49
0.03	Liquidations with losses (% of FCUs, weighted by shares)	Failures (% of FICUs, weighted by shares)	0.10*
0.07	Mergers (% of FCUs)	Mergers (% of CUs)	2.48
Losses on Shares and to the NCUSIF			
17.4	Losses on FCU shares (% of shares in FCUs with losses)	Losses on uninsured shares and imposed on NCUSIF (% of shares in failed FICUs)	15.6*
0.003	Losses on FCU shares (% of shares in all FCUs)	Losses on uninsured shares and imposed on NCUSIF (% of shares in all FICUs)	0.021

Sources: CUNA (2018), BFCU (1937-1969a and b), NCUA (1970-2018; 2018b), and authors' calculations.

Notes: Except for the number of credit unions in the first row, all values in this table are averages of annual percents. CU stands for all credit unions, FCU for federally-chartered credit unions, and FICU for federally-insured credit unions. In the years after 1971, nearly all credit unions became insured (FICUs). By the middle of the 1980s, about 90 percent were insured; by the early 1990s, about 98 percent were insured.

*Data availability restricted the calculation period to 1985-2017 for failures as a percent of FICUs (weighted by shares) and for losses imposed on uninsured shares and the NCUSIF as a percent of shares in failed FICUs.