

Comparative Failure Experience In The U.S. And Canadian Life Insurance And Banking Industries From 1980 To 2010

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Foreword

The work of science is to substitute facts for appearances and demonstrations for impressions.—Ruskin

This statement has been the motto of the Society of Actuaries (SOA) for decades. Coming out of the credit crisis, numerous policy prescriptions have been suggested for regulating financial institutions. Debate over these proposals was one of the highlights of the 2012 elections. As a society, the United States is spending significant efforts in new regulatory structures and is debating some key macro issues such as:

1. Is a single regulator more effective than multiple regulators, such as state vs. federal or functional regulators?
2. Did the repeal of Glass-Steagall increase risks to the financial system?
3. What is the proper balance between external and self-regulation?
4. Will the Dodd-Frank reforms be effective?

In order to begin the process of answering these important public policy questions, the SOA undertook a research study on comparative failure rates of different types of financial institutions in the United States and Canada. The different financial institutions have different regulatory structures, different risk management structures, and a different history of financial stresses and failures.

What the research uncovered was somewhat disturbing. Very few regulators maintain a record of the number of failures of the institutions they regulate. Nor do they maintain a consistent definition of failure. For example, when is a takeover a failure? Was the JPMorgan takeover of Bear Stearns a failure, as it was enforced by a regulator? Was the Bank of America takeover of Merrill Lynch a failure? Incredibly, some of the largest financial institutions, investment banks, were regulated by a series of functional regulators with no one agency responsible for the solvency of these systemically important institutions. We can at least take some solace that Dodd-Frank did partially address this issue by assigning the responsibility of regulating “too big to fail” institutions, regardless of legal structure, to the Federal Reserve. However, this legislation does nothing to introduce solvency regulation of investment banks as a whole.

Absent good data, research is anecdotal at best and policy decisions are made based on appearances and impressions, not facts and demonstrations. As a result, attempts to solve the problems that led to the credit crisis may be ineffective or, worse, simply exacerbate the next crisis rather than solve the underlying regulatory flaws. While the paper makes an effort to try to make sense of the scant data that is available, ultimately the data inadequacy proved a major obstacle to a definitive research paper, and some of the paper’s conclusions may not be well supported in data or analysis.

The Project Oversight Group would encourage the regulatory bodies to devote the resources necessary to support the research needed to substitute demonstrations for impressions.

PROJECT OVERSIGHT GROUP

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Executive Summary

Much has been written about the underlying causes and effects of the most recent financial crisis. The effects of this crisis on financial institutions have certainly differed in the United States, compared with Canada. Thus, we seek to examine what factors account for these differences. We also examine how the recent events differ from previous financial crises and how their effects differ among the various types of financial institutions.

Overview

Over the last several decades, the economies of the world have become more closely linked. We are now in an era where money market funds in the United States include assets from many other countries, and “credit events” that occur in one part of the world are reflected in the U.S. investment markets within minutes. A default in a security in Europe can have an immediate impact on the retirement savings of millions of people, including many in the United States. Subprime mortgages that defaulted in the recent U.S. financial crisis rapidly affected entities throughout the developed world, as investors everywhere had exposure to that market through the practice of securitization. While closely linked, the various relationships aren’t always transparent.

Over the last 50+ years, there have been significant changes in the economic environment in the United States, in particular. The period from the early 1970s to the early 1980s was a period of rising interest rates and inflation. This is commonly thought to have been driven by economic pressures due to the Vietnam War effort and the OPEC “oil embargo” imposed in the early 1970s. But it was also a period of relatively few “failures” in financial institutions (in comparison with later years). In the period from the early 1980s to the early 1990s, we witnessed the failure of a large number of banks and savings and loan associations (S&Ls), which led to the establishment of entities such as the Resolution Trust Company and the closing of the Federal Savings and Loan Insurance Corporation (FSLIC). The data also show that Canada did not escape unscathed during this period, although the failure rates were less severe. Canada experienced economic downturns in the early 1980s and again in the early 1990s, which left their marks on financial markets and institutions.

After the end of the above crisis and through about 2005, the global economy was relatively stable (but only in comparison with the preceding and subsequent periods). There were, of course, significant adverse effects due to specific events and trends (i.e., the “dot-com” boom and bust of the late 1990s and the terrorist attacks of Sept. 11, 2001). Nevertheless, in the end, the impact of these events on financial institution solvency appeared more muted. The data show that the rates of failure during that period were nominal. Finally, there is the period from 2008 to 2010—the “Financial Crisis”—when failure rates spiked for the financial services

entities in the United States. Interestingly enough, the data show no parallel spike in failures in Canada during this period.

Our analysis focuses on failures of specific types of financial institutions, namely commercial banks and S&Ls in the United States and their Canadian counterparts, as well as credit unions and life/health insurance companies in both countries.¹ We were not able to include investment banks because of a lack of available data.

We define three types of failure events:

- 1. Class I Failure:** This term encompasses the actual failure of a financial institution covered by the study, which results in the closure and liquidation of the entity by the regulatory body or in a bankruptcy action. An example of this type of failure would be the filing for Chapter 11 of Lehman Brothers.
- 2. Class II Failure:** This term refers to a failure of a financial institution covered by the study in a manner that does not involve the actual closure and liquidation of the entity. Rather, it involves the forced merger or sale, with the assistance of the depositor or policyholder protection funds, of an entity with or to another. The seizure and subsequent sale of Washington Mutual Bank would be an example of a Class II failure.
- 3. Class III Failure:** This term refers to a government body taking affirmative action prior to an actual failure event to avoid the adverse results which would emerge should an actual failure occur. During the most recent financial crisis a number of entities had availability to capital through the Troubled Asset Relief Program, which was designed specifically to prevent bank failures.

In the end, we were able to obtain some information about Class II as well as Class I failures but were unable to obtain useful data with respect to Class III failures.

There were some other limitations on data availability, which affect the scope of our analysis. While data were available for commercial banks, S&Ls, and life and health insurance companies in the United States and for similar organizations² in Canada, the data were much more limited

¹ In this report, we generally use the term “insurance company” or “insurer” to refer to life/health insurance companies. The term is not meant to include property and casualty insurance companies.

² For the purposes of our study, we assumed that Canadian chartered banks are the same kind of institution as United States commercial banks and that Canadian trust companies and loan companies are the same kind of institutions as U.S. S&Ls. We did not attempt a detailed comparison of the essential features of these institutions in the two countries.

on failures of credit unions. As a result, our study includes only credit unions in the United States.

Our analysis is focused on the period from 1980 to 2010; however, some data deficiencies remain relating to U.S. failures in the early 1980s with respect to insurance company failure rates and to losses incurred by the deposit insurance funds and policyholder guaranty associations. Moreover, valid data with respect to losses actually incurred as a result of Class I and Class II failures were available for Canadian banks and trust and loan companies but not for Canadian life and health insurers nor for any institution type in the United States. Consequently, we do not analyze loss rates by class of failure.

From 1982 to 2010 there were 291 failures of insurance companies in the United States. The annual average was approximately 0.5 percent. The peak period of failures was over the period 1989 to 1994.

During the period from 1980 to 2010 there were 1,985 failures of S&Ls in the United States. The average annual rate of failure was approximately 2 percent over the period. There were two spikes in the failure rate experienced by S&Ls—the period from about 1987 to 1992 and the period right around 2010.

The annual failure rate for commercial banks in the United States for the period from 1980 to 2010 averaged about 0.5 percent, similar to that of insurance companies and about one-quarter the rate of S&Ls. Like S&Ls, commercial banks exhibited spikes from 1987 to 1992 and from 2008 to 2010.

The failure rates of the various institutions in Canada are very low. In fact, from 1997 through 2010 there were no failures of either trust companies or loan companies (which are comparable to U.S. S&Ls),³ chartered banks (which are comparable to U.S. commercial banks) or insurers covered by the study. Moreover, there are many years before 1997 where the failure rate for a specific institution type was also zero.

As with the U.S. S&Ls, the trust and loan company failure rates in Canada were significantly higher than the failure rates of both the life and health insurers and the commercial banks. Failure rates of commercial banks and insurers were not statistically different from one another over the period of observation. While the differences in failure rates of S&Ls in the United States and Canada were not statistically significant, the failure rates of commercial banks and

³ In this report, we generally speak of “trust and loan companies,” but, in Canada, they appear to be two distinct types of institutions: trust companies and loan companies. We did not attempt to investigate the differences between them. What mattered for our purposes is that the institutions were insured by the Canada Deposit Insurance Corporation and were not banks.

insurers in the United States were both higher than those in Canada and the differences were statistically significant.

Our report discusses some factors that may contribute to the failure experience of these institutions over the study period, including: key elements of the regulatory schemes for these institutions in the United States and Canada, and differences among these regulatory schemes; changes in regulation over time; differences in the industries' business models; macroeconomic factors, including rates of economic growth; and asset bubbles. However, it was outside the scope of this report to attribute causal factors to the experience, or to comment on the likely impact of recent regulatory changes on failure experience in the future. Such attribution of the primary causes of the experience is a potential area for additional research.

One regulatory factor did become clear and is worth noting. In both the United States and Canada, no truly effective solvency regulator has jurisdiction over investment banks. The impact of the failure of Lehman Brothers made clear the systemic importance of these institutions. The historic lack of effective regulatory oversight for investment banks increased overall risk in the financial system.

Some will maintain that the better experience among Canadian institutions is a mark of the superiority of Canada's regulatory system, with centralized oversight and deliberate encouragement of market concentration in the hands of fewer, larger, stronger institutions. And this may indeed be the case. But we would point out that the U.S. experience also includes the failure of larger institutions, so size in itself is no guarantee of immunity. Tax policies and other differences affecting the real estate market, which are important to all of these institutions, could be other factors.

Over and above issues such as regulatory approaches, business models, insurability and surrender charges there are a number of other factors that have affected the failure rates over time. These could include:

- The differences in the economic environment
- In the United States, the repeal of the Glass-Steagall Act
- The level and complexity of the risk within the financial system.

The resources devoted to regulatory oversight seem trivial compared with what might happen if a significant regulatory failure were to occur and in light of the resources expended by financial institutions in analyzing and complying with the restrictions that are emerging. There appears to be a continuing battle between proponents of more effective regulation vs. less regulation.

Lastly it is important to keep in mind that our report provides “hard” information only about failure rates and, as we have observed throughout, the data has its limitations. To fully understand whether a Lehman Brothers event could happen in Canada, for example, would require a more intensive analysis of the differences in the regulatory and business framework between the two countries as well as operational differences of regulators that might exist—which was simply beyond the scope of our analysis.

As noted later in the report, all of the data utilized in this analysis was obtained from various websites of various regulators or obtained in interviews with personnel from those entities. We would like to thank all of the individuals who responded to our requests for information or clarification on information derived from their websites.

Chapter 1: Introduction

As a result of the recent financial crisis, much has been written about the underlying causes as well as its effects. Many underlying causal factors have been examined, including various “asset bubbles” that became apparent in retrospect. Some examples of these asset bubbles include the “dot-com” investment bubble and the real estate bubble. Regulatory failure has also been mentioned as another main contributor. Since life insurers and banking institutions in the United States and Canada serve similar financial roles but operate under very different business models and with significantly different regulatory regimes, we seek to identify differences in failure experience of these institutions.

Thus, the general purposes of our analysis and this report are as follows:

- Determine the “failure rates” over recent decades in Canada and the United States for the following types of financial institutions: commercial banks, savings and loan associations (S&Ls), credit unions, life and health insurance companies, and investment banks.
- While not attempting to relate specific causal factors to failures, attempt to determine what regulatory differences might lead to significantly different results between the various types of institutions, as well as between Canada and the United States.

The main part of this report contains detailed findings developed through our analyses. We first researched the available databases maintained by the regulatory authorities in the United States and Canada and contacted the regulatory bodies to discuss questions that needed clarification resulting from the review of these databases. As will be evident from the discussion that follows, it was not always possible to obtain the data that we desired. In some cases that was due to the fact that they were not maintained by any entities in a fashion that permitted them to be economically extracted. In other cases it was because the data were considered proprietary, such that the regulators weren’t willing to release the data to us.

Chapter 2: Background

Scope

Geographical Considerations

Our analysis focuses on the experiences of the United States and Canada. To have included Europe and other developed economies as well as emerging economies throughout the world would have entailed far greater complexity and required far greater resources. Moreover, the similarities and differences in the experiences of the United States and Canada are the main elements of interest to financial and actuarial practitioners in these two countries, who are our target audience.

Types of Institutions

Broadly, our intent was to compare failure experience for the insurance and banking industries. A decision was also made to limit the analysis to the following types of financial institutions: commercial banks, S&Ls, credit unions, investment banks⁴ and life/health insurance companies. Such institutions exist in both countries, although differences exist in nomenclature,⁵ corporate constitution and governing law and regulation that we did not investigate in detail. A conscious decision was made to not include property/casualty (P&C) companies in the analysis. That was due to the different nature of these companies and the fact that P&C company failures are likely to arise from causes that are different from those that affect the institutions that are the focus of the present study.

The organizations we include in the analysis tend to be organizations that receive deposits/premiums from consumers and/or institutions that are involved in similar activities (i.e., issuing mortgages, providing credit, guaranteeing principal, crediting interest, etc.). These types of institutions operate in very similar manners in Canada and the United States, although over the study period there have surely existed between the two countries greater or lesser differences in philosophy, flexibility and regulatory freedom.

Regulatory Framework

The political and financial structures in the United States and Canada are fairly similar, although differences do exist. In particular, there are a number of significant differences between Canada

⁴ We were forced to abandon the attempt to obtain failure rates for investment banks for reasons that are explained in the next chapter.

⁵ What are referred to as commercial banks in the United States are referred to as chartered banks in Canada and, throughout the study period, Canadian trust companies and loan companies most closely resemble S&L companies in the United States.

and the United States in the regulatory frameworks that pertain to these types of institutions. A fairly complete list of the most important regulatory institutions in the United States and Canada is included at the end of this report. These institutions will be referenced throughout this report by their commonly used, and recognized, labels. Most practitioners are familiar with the meaning of the SEC (Securities and Exchange Commission) and the FDIC (Federal Deposit Insurance Corporation), for example, while the Canadian counterpart to the FDIC is the CDIC.

Some of the more relevant considerations that emerge when studying the regulatory approaches in the United States and Canada are the level of regulation (state/provincial versus federal), and the number of regulators (single or multiple).

Federal vs. State/Provincial Regulation

The United States embraces a bifurcated regulatory scheme. There are both state and federal regulators overseeing these types of institutions with respect to behavior (such as consumer relations). Solvency regulation is also split in the United States, although in the United States there is very little regulation of insurance company operations on a federal level. The individual states are the primary regulators of insurance companies—with respect to both market operations and solvency. An insurance company failure is dealt with at the state level with respect to ensuring protection for policyholders. That is not to say that there is no federal regulation of insurance companies. Insurance companies are subject to securities law regulations and federal trade practices, but their financial status and solvency are overseen by state-level institutions.

Commercial banks, S&Ls and similar institutions in the United States are covered by a federal solvency regulator. The FDIC (as was the FSLIC for the S&Ls before its demise in the 1980s) is the primary solvency regulator for these institutions in the United States. While the FDIC has the authority to regulate the banks that it insures, it is not the primary regulator of all U.S. banks. There are three primary federal regulators. The Office of the Comptroller of the Currency (OCC) regulates the national banks which it charters. The Federal Reserve is the primary federal regulator of the state-chartered banks that choose to be members of the Federal Reserve System, and the FDIC is the primary regulator of state-chartered nonmember banks. Moreover, the Federal Reserve regulates all bank holding companies. It seems clear that the regulatory approach in the United States is much more complex than in Canada—which is discussed below.

This does not mean that these institutions escape all state regulation. Some institutions are state chartered and are partially regulated by the state. However, the primary solvency regulator is the federal regulator. As noted above, many of their activities are also overseen by the Federal Reserve, the SEC and other regulatory agencies.

The states' Division of Financial Institutions regulates state-chartered credit unions while federally chartered credit unions are regulated by the National Credit Union Administration (NCUA), an agency of the federal government. Credit unions are subject to much of the same consumer regulations as other financial institutions. In some cases, such as investments and mortgage lending, credit unions must adhere to stricter regulations.

In Canada, the primary solvency regulator for chartered banks, insurance companies, and trust and loan companies is a federal regulator, the Office of the Superintendent of Financial Institutions (OSFI).⁶ That is the most striking area of difference between the regulatory schemes in the United States and Canada and one that results in a description of the Canadian approach as one involving a single central regulator. It is clearly very different to have a single regulator overseeing nearly all of the banking and insurance company solvency issues than to have multiple federal regulators along with 50 states overseeing thousands of banks and insurance companies. In Canada it may simply be more feasible to do so because there are far fewer of these institutions.

Multiple Solvency Regulators vs. a Single Regulator

An argument can be made that there are potentially multiple solvency regulators overseeing institutions in the United States, which is due to overlapping operations and multiple regulatory entities. For example, with the liberalization of financial institution merger/acquisition rules, it is now possible that a holding company might own a commercial bank, an insurance company, as well as a brokerage/investment banking company. While this is also true in Canada, OSFI remains largely in control,⁷ whereas in the United States it would entail the involvement of the FDIC, as well as the Federal Reserve, the Office of the Comptroller of the Currency, state insurance regulators and the Securities Investor Protection Corporation (SIPC), which insures brokerage firm customer accounts. The various regulators have their own interests and responsibilities, which can result in conflict and/or inaction.

Multiple Regulators Overseeing a Part of an Entity's Operations

In the above-mentioned example, it is clear that different solvency regulators might be looking at different pieces of an entity's operations with primarily a solvency-oriented viewpoint. At the

⁶ One qualifier is called for: all provinces have authority over and regulate the solvency of credit unions and *caisses populaires* and provincially licensed insurers, and in some provinces these institutions are significant competitors in retail financial services. The remainder of this paper considers only the federal supervision system, but the inclusion of the provincial ones would not in any way affect the data presented or alter any conclusions.

⁷ It should be noted that, even in Canada, investment banks have no solvency regulator, per se. As investment dealers, they would be subject to certain modest provincial capital requirements (unless exempt as being international in scope) and little else by way of financial supervision. However the largest investment banks are owned by the chartered banks and thus may fall under indirect OSFI supervision.

same time, there are multiple state and federal regulators that might be looking at other aspects of an entity's operations. Such regulators might include the U.S. Commodity Futures Trading Commission (CFTC), the Federal Reserve and the SEC. This type of overlap of regulatory agencies is much less likely to occur in Canada due to the presence of a strong comprehensive solvency regulator. In past years, U.S. institutions often had the ability to "select" their primary regulator. The passage of Dodd-Frank will likely impact this overlap, although the ultimate impact is unclear at this time.⁸

The Effect of Globalization of the Financial System

Over the last several decades, the economies of the world have become more closely linked. This has sometimes been referred to as "globalization of the economy." It is true that world economies have been linked to some extent since the advent of international trade. But in the most recent era, there arose a profusion of more immediate linkages where events in one area of the world can rapidly affect other economies throughout the world, due notably to the liberalization of trade barriers and of cross-border investment flows and to the advance of computer technology and telecommunications. We are now in an era where money market funds in the United States include assets from many other countries, and "credit events" that occur in one part of the world are reflected in the U.S. investment markets within minutes. A default in a security in Europe can have an immediate impact on the retirement savings of millions of people, including those in the United States. Subprime mortgages that defaulted in the recent crisis rapidly affected entities throughout the developed world, as investors everywhere had exposure to that market through the practice of securitization. Thus, we might describe the modern world of the last decade as becoming more and more linked—at least financially and economically. Events in one jurisdiction don't take months or years to affect those living in other jurisdictions far away—it happens nearly in real time. As a result, the failure of banks and investment banks can have a ripple effect on many different countries and populations. It is for that reason that pressure is building (as we go to press in early 2013) in (and on) Europe to find a solution to their financial crisis in order to avoid what might be described as another "Lehman Brothers meltdown," or something worse. Yet, it is important to

⁸ Two other points that deserve mention are: (1) The CDIC, Assuris and the CIPF (Canadian Investor Protection Fund) do not act as solvency regulators in Canada and so, for example, it is not their decision to take control of an institution or arrange for its liquidation—they merely help out once that decision has been made. (2) The fact that investment banks have no solvency regulator played a huge role in the most recent crisis. The fall of Lehman Brothers, a firm with no solvency regulator other than the bankruptcy court, is what triggered the near system-wide collapse. It is an enormous regulatory omission, not having a solvency regulation for a type of institution that poses such systemic risk.

note that these linkages are often opaque and poorly understood, which can amplify and hasten a meltdown.⁹

Historical Perspective

Over the last 50+ years there have been significant changes in the economic environment in the United States, in particular. After a relatively long and prosperous post-World War II era (from about 1947 to the mid-to-late 1960s) of stable prices, low interest rates and low market volatility, the United States experienced significant volatility (in interest rates, cost of living, commodity prices, financial markets, etc.). The period from the early 1970s to the early 1980s was a period of rising interest rates and inflation. This is commonly thought to have been driven by economic pressures due to the Vietnam War effort and the OPEC “oil embargo” imposed in the early 1970s. But it was also a period of relatively few “failures” in financial institutions (in comparison with later years).

In the period from the early 1980s to the early 1990s we witnessed the failure of a large number of banks and S&Ls, which led to the establishment of entities such as the Resolution Trust Company and the closing of the FSLIC. During the early part of this period, S&Ls were released from some historical constraints on activities, which led them to become more aggressive in their business practices. When interest rates escalated as a result of Federal Reserve efforts to stop the inflationary trend, those practices proved to be materially damaging. As a result, and as the data show, a spike in failures emerged over this period. The data also show that Canada did not escape unscathed during this period, although the failure rates were less severe. Canada experienced economic downturns in the early 1980s and again in the early 1990s, which left their marks on financial markets and institutions.

After the end of the above crisis and through about 2008, the economy was relatively stable (but only in comparison with the preceding and subsequent periods). There were, of course, significant adverse effects due to specific events and trends (i.e., the “dot-com” boom and bust of the late 1990s and the terrorist attacks of Sept. 11, 2001). Nevertheless, in retrospect, the financial effects of these crises appear relatively subdued. Monetary policies and tax policies mitigated the negative impact of such events. As a result, as the data show, the rates of failure during that period were nominal.

⁹ Given the increased complexity of the current financial products in the bond and real estate derivative markets, even seasoned financial investors have a hard time discerning all of the risks inherent in such investments. This has been illustrated in books including, but not limited to: Michael Lewis’ *The Big Short*, Andrew Ross Sorkin’s *Too Big to Fail* or Nicholas Dunbar’s *The Devil’s Derivatives*.

Finally, we have the period from about 2008 to 2010 —the “Financial Crisis”—when failure rates spiked for the financial services entities in the United States. As noted earlier, the data show no parallel spike in failures in Canada during that period.

Definitions of Failure

In our study, it was our intention to recognize the following three kinds of events.

- 1. *Class I Failure:*** This term is the clearest defined event and the one that has proven to be the easiest type of failure to document. It encompasses the actual failure of a financial institution covered by the study, which results in the closure and liquidation of the entity by the regulatory body (such as the FDIC, state insurance department, etc.). This is the event that most people equate to the true failure of any institution and one which most laymen would immediately recognize. An example of this type of failure would include the failure/liquidation of an entity such as the Chapter 11 bankruptcy filing of Lehman Brothers.
- 2. *Class II Failure:*** This term refers to a failure of a financial institution covered by the study in a manner that does not involve the actual closure and liquidation of the entity. Rather, it involves the forced merger or sale, with the assistance of the depositor or policyholder protection funds, of an entity with or to another. Such transactions occur when it is determined by the regulatory bodies to be the only means of preventing an actual (Class I) failure and liquidation. The failure itself, of course, may result in a loss to the depositor/policyholder protection fund, such as the FDIC. As we now know, there were several instances where the regulating entity assumed responsibility for certain liabilities and losses when these transactions occurred. In addition, during the S&L crisis of the 1980s, there were a number of instances in which potentially insolvent S&Ls were absorbed by stronger institutions.¹⁰
- 3. *Class III Intervention for Failure Prevention:*** This term refers to the institutions or the regulator(s) taking pre-emptive action prior to an actual failure event to avoid the adverse results which would emerge should an actual failure occur. During the most recent financial crisis, a number of entities (such as The Hartford, Goldman Sachs, etc.) applied to the regulators to be allowed to convert their status to that of a “Bank Holding Company.” After they were permitted to do so, these companies

¹⁰ In Canada, too, weaker institutions have been similarly combined with or acquired over the years by stronger institutions, often with the active encouragement of the regulator, but we have less confidence in connecting such patterns of behavior to a particular historical period.

then became eligible to apply for funds at the “Federal Reserve Window.” This provided them with substantial additional liquidity. There are no hard statistics to indicate whether this additional liquidity precluded failures, but we believe that there was some effect. There were also additional events that took place. Notably, the federal government bought an ownership stake, of sorts, in a number of institutions (such as Bank of America, Citigroup, etc.). These preferred stock purchases essentially provided the institutions with substantial additional liquidity—albeit at a high price. We would consider any such instance to be a potential “quasi failure.” But while our report comments on these types of “failure,” they are not included in any of the statistics regarding numbers of actual failures as the institutions are still operating—often with a significant ownership stake by the federal government—and we had no objective method to identify which firms would or would not have failed without bailout funds. In the end, while we were able to obtain some information about Class II as well as Class I failures, we were unable to obtain useful data with respect to Class III failures.

Chapter 3: Data

We were able to obtain data about the failures of banks, S&Ls (trusts and loans) and insurance companies from the FDIC and the National Organization of Life and Health Insurance Guaranty Associations (NOLHGA) in the United States and the CDIC, Assuris and the Canadian Life and Health Insurance Association in Canada. In the case of the FDIC and the CDIC, these included separate data for Class I and Class II failures.

While loss data were available from the CDIC, they were not available for U.S. institutions so we decided to omit the loss data from this report, i.e., the report provides data relating to incidence but not severity.

Furthermore in both countries, failure data with respect to investment banks was impossible to obtain and in Canada, failure data was unavailable for credit unions. The following discussion documents what was discovered and how it affects the ultimate analysis performed.

Investment Banks

While it was our intention to evaluate the failure rates for investment banks in comparison with those of other financial types, we never intended to consider entities such as brokerage firms. This distinction was due to the fact that investment banks typically hold customers’ money and often invest it, as well as executing trades on behalf of customers. In addition, investment banks raise large amounts of capital in the marketplace by issuing long-term debt or short-term

commercial paper or by creating securities packages that are sold to the public or large sophisticated investors. These expose many of their account holders to significant risks.

On the other hand, brokerage firms are normally just intermediaries in trades between their customers. As a result, brokerage firm failures are often minor events that simply result in the transfer of brokerage accounts from one firm to another. There are entities that provide security to account holders of brokerage firms and investment banks—the SIPC in the United States; the CIPF in Canada. However, in the case of brokerage firms, these entities often have no need to respond to a failure unless the brokerage firm was acting improperly with account holders' funds—such as by commingling the firms' funds and their account holders' funds, which is the issue that came about recently with the bankruptcy filing by MF Global.

However, as the data collection progressed, the effort became an adventure that began to take on some of the aspects of a quixotic quest. Our initial thought was that the SIPC would have data on failures of investment banks, such as Lehman Brothers. The SIPC demurred, however, and indicated that they didn't keep such data on failures. They suggested that a possible source would be the Financial Industry Regulatory Authority (FINRA), but the FINRA demurred as well. The staff indicated that the Federal Reserve was the keeper of such data. The Federal Reserve similarly demurred—claiming that there must be someone in the SEC who kept such information, since the Federal Reserve was only a partial regulator and certainly was not the solvency regulator.

At the end of the day it became apparent that there really may have been no truly effective solvency regulation for investment banks during the study period. With the passage of the Dodd-Frank Wall Street Reform and Consumer Protection Act, that may change. The only true solvency oversight for investment banks appears to be the bankruptcy court system. Recent events with respect to MF Global seem to confirm that. Even though many federal regulators oversaw parts of MF Global's business (including the Federal Reserve, the New York Federal Reserve Bank, the SEC, the CFTC and others), no one regulator was in a position to force them to do something different with their assets before they entered into bankruptcy. It appears that the most that any regulator could do was to put MF Global in a position of having to disclose more about their business activities than they might otherwise have done on their own. The same was true for AIG, as there was no one regulator for AIG financial products.

The end result, of course, was an inevitable “run on the bank,” a liquidity crisis, and then a bankruptcy filing when the company could no longer conduct business because its counterparties would no longer expose themselves to the inherent risks. That is very reminiscent of what happened with Lehman Brothers back in 2008.

After the referral from the Federal Reserve to the SEC, the following information was obtained:

- 1) The SEC actually does know who the brokerage firms are and which ones are considered to be investment banks. Capital requirements have also been established. There are about 5,000 brokerage firms, of which about 300 are classified as investment banks by the SEC. Brokerage firms fail all the time. Investors typically lose nothing because their customers can just move to other brokerage firms. It is for this reason that customers of MF Global were so shocked when that firm collapsed and their individual accounts were frozen as a result. Unbeknownst to MF Global clients, the commodities broker had essentially been converted into an investment bank by management.
- 2) While the SEC knows who the entities are, they consider the information proprietary and are unwilling to simply release it. They also know which ones have failed. Clearly, large public failures such as Lehman Brothers and MF Global quickly become public information as they go through the bankruptcy court system.
- 3) Other failures may occur and essentially be almost invisible to the public as mergers of convenience occur. As a result of all of this lack of transparency, there is no way, within the cost constraints of this project, to construct convincing data regarding the failure rates of investment banks. Thus, we have limited the scope of our comments in that area.

Data about the failures of investment banks in Canada proved no easier to obtain.

Credit Unions

While data were available for commercial banks and S&Ls in the United States and their Canadian counterparts, as well as life/health insurance companies in both countries, the data were much more limited on failures of credit unions. In the United States this was due to the fact the NCUA, which oversees credit unions in the United States, does not keep good failure data on credit unions with respect to numbers, losses and other information desired for our analysis. Rather, we obtained data on credit union failures from the board of governors of the Federal Reserve, but the available data were incomplete. Moreover, credit unions are provincially regulated in Canada and data could not be obtained due to the lack of resources in the provincial deposit insurance corporations necessary to provide us with the information needed to include their experience in this study. As a result, our study is restricted to credit unions in the United States.

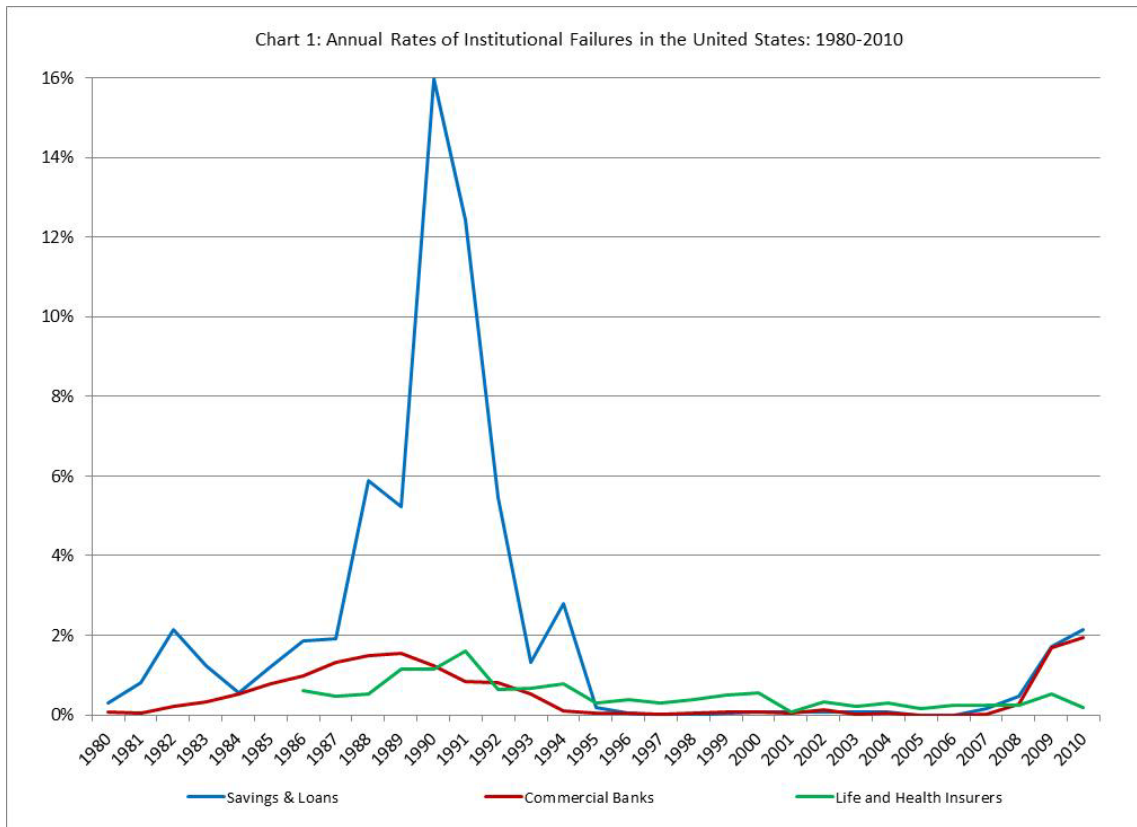
Other Data Deficiencies

Even within these limitations, it became clear as our work progressed that some data could not be captured, especially in the United States, as they were either not collected or maintained by

any credible regulatory entity. For example, we used the National Association of Insurance Commissioners (NAIC), which has no regulatory authority, as our source for U.S. insurance company failure experience, because data were not economically readily available from some individual state regulators; some data on actual failures were not captured by the NAIC during certain periods. Data prior to the 1980s were not maintained or monitored well. Even data maintained by the FDIC with respect to actual losses incurred by the FDIC were not kept prior to about 1986. There are only sketchy data available for S&L failures and losses prior to 1986 as the FSLIC, the prior regulator of S&Ls in the United States, went out of business in the 1980s and maintains no current website or database. Their historical data were not incorporated into the FDIC database. In addition, all failure data reported to the NAIC is submitted voluntarily by state insurance regulators. Thus, some failures may never be reported and thus will not be in the NAIC information. As noted elsewhere, the NCUA, FINRA, SIPC and others do not maintain a database on failures and losses. While the FDIC maintains comprehensive and accurate data, information on losses is not as well maintained. By this we mean that losses borne by the FDIC are well documented, but uninsured losses, losses borne by uninsured creditors, employees or stockholders, or other entities, are not maintained by the FDIC.

Chapter 4: Results and Analysis

United States



The basic raw data and analyses are set forth in the tables and appendices in this report.

From 1982 to 2010 there were 291 failures (due to lack of data, they could not be differentiated between Class I and Class II) of life and health insurance companies in the United States. The annual average was approximately 0.5 percent, while the number of insurance companies fell from nearly 3,000 in the mid-1980s to just over 1,000 by 2010. The peak period of failures was over the period 1989 to 1994. However, there was also a small jump in 2009.

During the period from 1980 to 2010 there were 1,985 failures (Class I and II) of S&Ls in the United States. The exposure declined during that period from about 3,600 S&Ls to about 1,100. The average annual rate of failure was approximately 2 percent over the period from 1980 to 2010. There were two spikes in the failure rate experienced by S&Ls—the period from about 1987 to 1992 and the period right around 2010.

The annual failure rate for commercial banks in the United States for the period from 1980 to 2010 averaged about 0.5 percent. Interestingly, the number of commercial bank failures during the period from 1970 to 2010 was 1,877 (also Class I and II)—very close to the number of S&L

failures. Yet, the exposure was much larger for the commercial banks, compared with S&Ls, but dropping over the period nonetheless. The number of commercial banks declined from about 13,500 in the 1970s to about 6,500 by 2010. The failure rate for S&Ls was about four times that of commercial banks.

The S&L failure rate in the United States was significantly higher than the failure rates of both the insurers and the commercial banks until 1994. Since then they have been indistinguishable from commercial banks. The failure rates of commercial banks and life insurers were not statistically different over the period of observation, although the pattern over time varies significantly. For the volatile period 1986 to 1992, these institutions experienced very similar rates of failure; for the relatively stable period 1995 to 2008, insurance companies experienced consistently higher failure rates; and for the financial crisis period starting in 2009, commercial bank failure rates have spiked significantly while insurance company failure rates have been little changed.

Please see Appendix 1 for results from paired t tests. All of the paired t-test results were constructed to test a hypothesis that the failure rates being compared were equal for the two populations. A high, or low, t-test result (e.g., outside of two standard deviations) indicates that the failure rates are different on a statistically significant basis.

From the mid-1970s until about 2010, the number of credit unions in the United States declined gradually, from about 20,000 to about 12,000. During the period from 1980 to 2010 there were 252 failures of credit unions tracked by the Federal Reserve. This translates into a failure rate of a magnitude of about 0.05 percent annually during that period. That is significantly below the average failure rates of other types of institutions (i.e., commercial banks, S&Ls, etc.).¹¹ There are no comparable data available for Canadian institutions because of our inability to obtain data from provincial authorities.

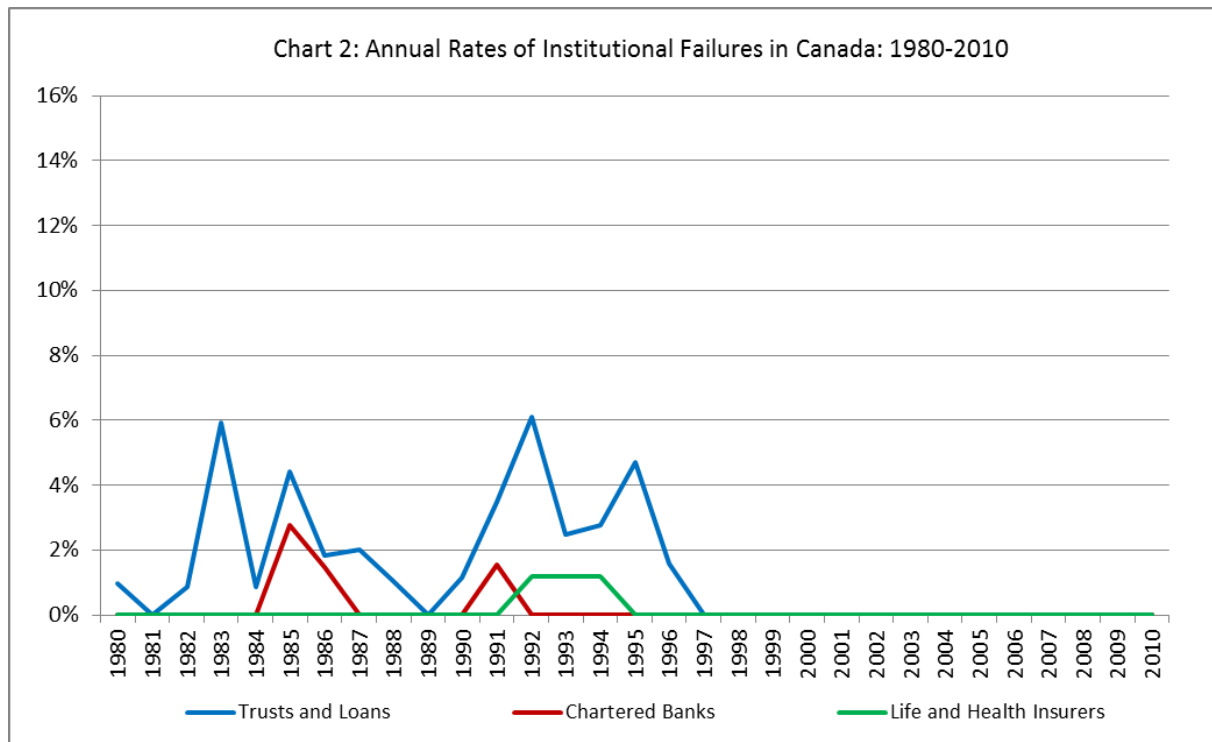
There are several important differences between credit unions and the other deposit-taking institutions covered by our study that might explain the huge disparity in failure rates. These include:

- 1) The business model of the typical credit union differs substantially from other financial institutions. There is typically some type of geographic or employer connection between the account holders of a credit union, which is not typically the case for a commercial bank or S&L.
- 2) Credit unions are not involved in the riskier aspects of investing the way banks and S&Ls are, leveraging off deposits to maximize their return on equity (ROE). They are in the business of offering a service to their target group.

¹¹ Although it is important to keep in mind that some data might be missing.

- 3) Loan structures are also different. Loans may be much smaller, and they are often collateralized by real estate, cars, boats, savings accounts, etc.
- 4) Loans may often be paid back by salary deduction, rather than by regularly scheduled payments by the borrower.
- 5) A closure of a credit union may be more often associated with an event such as a plant shutdown, rather than by some outside event or poor business decision on the part of the management team of the credit union.

Canada



As is shown in Chart 2, the failure rates of the various institutions in Canada are very low. In fact, from 1997 through 2010 there were no failures of either trust or loan companies, chartered banks, or insurers covered by the study. Moreover, there are many years before 1997 where the failure rate for a specific institution type was also zero. During the period 1980 to 2010, there were 31 (Class I and II) failures of trust and loan companies in Canada.¹² There were

¹² To be clear, while S&L is a single type of institution, trust companies and loan companies in Canada are two different types. So when we talk about 31 failures, we mean failures of either a trust company or a loan company, or even a mortgage company.

four (Class I and II) failures of chartered banks in Canada during the study period.¹³ The highest failure rate in any one year was just under 6 percent. During the same period, there were three insurance company failures (all Class I), all concentrated in the early 1990s.

While it is tempting to think that the failure of financial institutions will be highly correlated with periods of economic weakness—which seems to be the case in the United States—for Canada, the data do not entirely bear this out. Canada experienced an economic recession at the beginning of the 1980s and at the beginning of the 1990s, and indeed the life insurance company failures and the one bank failure that occurred in the 1990s did take place in the aftermath of the 1990s recession. But trust and loan company failures occurred throughout the period 1980 to 1997, with spikes occurring in 1983, 1985, 1992 and 1995, so the connection is less apparent.

As with the case in the United States, the S&L (that is, trust and loan) failure rate in Canada was significantly higher than the failure rates of both the life insurers and the commercial (that is, chartered) banks, with abrupt improvement occurring in the mid-1990s. The failure rates of commercial banks and life insurers were not statistically different over the period of observation. Please see Appendix 1 for results from paired t tests. Appendix 2 gives the detailed counts of institutions and failures for Canada, while Appendix 3 gives detailed counts of institutions and failures for the United States.

Differences between Canada and the United States

While the differences in failure rates of U.S. S&Ls and Canadian trust and loan companies were not statistically significant, the failure rates of commercial banks and life insurers in the United States were both higher than those in Canada and the differences were statistically significant. Please see Appendix 1 for results from the paired t tests.

Discussion of Class I and Class II Failures

First of all, it might be noted that Class I failures appear to be more frequently the rule in the United States and Canada in the case of entities such as credit unions and insurance companies. While in the United States the state insurance regulators have broad powers to orchestrate “arranged marriages” and sell off pieces of an entity in rehabilitation, or liquidation, their powers are often exercised under court supervision. Thus, their powers seem less “well settled” than the somewhat broader authority in the FDIC’s toolbox. The NAIC staff indicated that state regulators would like more flexibility than they currently believe they have. The situation is also not as clear in Canada, where the solvency regulator, OSFI, is not the same as the depositor protection fund, CDIC, or the policyholder protection fund, Assuris. Nevertheless, we were able

¹³ This includes Bank of Credit and Commerce Canada, the Canadian subsidiary of the Bank of Credit and Commerce, which failed in 1991 and was the only chartered bank failure in Canada after 1986.

to identify several Class II failures among the Canadian institutions. Most of these were trust and loan companies, but one chartered bank was also a Class II failure.

However, Class II failures appear to be more common in the United States in the commercial bank and S&L arena. That is principally due to the fact that the FDIC (and the FSLIC previously), has the power to terminate deposit insurance coverage when circumstances warrant. A termination of deposit insurance coverage may trigger corrective action on the part of the institution (frequently a merger) or seizure by the chartering authority. Due to this authority, the FDIC effectively has the power to construct “forced marriages” between institutions, i.e., Class II failures. We have assumed that any failure of an FDIC or FSLIC insured entity resulting in the sale of the entity or its assets and liabilities to a third party is a Class II failure. The data shown in Table 3 indicate that there has been a continuing pattern of essentially forced mergers in lieu of simply closing down an institution. Because of this, the forced merger approach seems to be the favored approach of the FDIC and FSLIC over the past 30 years. To illustrate, of the 1,985 failures of S&Ls in the United States during the study period, the predominant approach taken was the forced merger/consolidation, which was the chosen path for 1,798 failures. Thus, about 90 percent of the failures were Class II type. Similarly, in the commercial banking results, about 93 percent of the total banking failures were Class II type (1,745 out of the total 1,877 failures). As a result, the rates of Class II failures are very high. Note, in particular, that the rates of total failures and Class II failures for both commercial banks and S&Ls have shown two peaks. One is in the period encompassing 1982 to 1992, and the more recent one began in 2008 and may not yet be over. This fact will be commented on further in the conclusions set forth below.

Also, note that the failure rates for credit unions and insurance companies do not exhibit these same peaks—or at least the magnitude is much smaller.

Discussion of Class III Interventions for Failure Prevention

Class III interventions are an entirely different type of action. As defined earlier, this is essentially an intervention that occurs when the regulators, or related government institutions, take affirmative action to avert what would otherwise be a true failure of a financial institution. Because of this, there is no “failure rate” per se. Rather, there is some ability to quantify the number of institutions that were involved in such events so as to better understand the mechanics of what is actually going on in the financial world. This particular type of failure emerged at the height of the financial crisis that developed in late 2008. Similar actions took place in the entire world, most notably in Europe where governments in many countries (United Kingdom, Switzerland, the Netherlands, etc.) injected substantial amounts into various organizations in their financial industry to ensure liquidity and avoid failure. As a result, in many

European countries the national government is a substantial owner in many financial institutions.¹⁴

In the United States, the legislation that supported this action was the Troubled Asset Relief Program (TARP). This legislation, originally envisioned as a means to purchase assets on the books of financial institutions to improve their balance sheets, was converted into an approach to inject capital directly into the organizations through the purchase of preferred stock—essentially making the federal government a part owner. In the months after enactment, the U.S. government spent hundreds of billions of dollars to purchase an interest in various financial institutions, thereby helping to ensure liquidity, stabilize balance sheets and avert outright failures. The vast majority of the institutions receiving such injections were in the banking arena. But similar purchases were made in other entities, such as:

- AIG, a financial conglomerate involved in insurance, aircraft leasing and other activities, which is now a publicly held company with a significant ownership stake held by the U.S. Treasury
- General Motors and Chrysler, which were shepherded through bankruptcy and in which the U.S. Treasury still holds a significant ownership stake
- GMAC, which was essentially a captive financing agency of General Motors and which is now privately held with about a 70 percent plus ownership stake held by the U.S. Treasury.

It is impossible to determine which, if any, of the various banks, insurance companies and other financial institutions might have failed absent these capital infusions (even with them, of course, General Motors and Chrysler had to go through bankruptcy and emerged with the aid of the capital and the government ownership). Anecdotal information does, however, suggest the following:

- Some entities, such as AIG, were likely to have failed without these capital infusions. That is due to the perceived liquidity crisis that some of the entities were experiencing. The recognition that the U.S. Treasury gave these entities credibility in the marketplace and their customers and counterparties were persuaded to continue to do business with them.
- Entities such as Goldman Sachs, GMAC and others who became bank holding companies in addition to getting the capital infusion increased their liquidity availability, thus gaining increased flexibility.

¹⁴ Liquidity support was also provided to Canadian banks, but we are assured by the banking industry that there was never any danger of any of them becoming insolvent.

- There were clearly some financial services companies and commercial banks that did not need the capital infusion and didn't want it. They responded favorably to the entreaty from the government that accepting these funds would ensure more stability in the economic system. That is because there were real concerns that companies taking these funds might be perceived as being weaker than other entities (which some were). That might create a "run on the bank" which would lead to actual failures that might otherwise not have occurred.

So, what can we determine from the actual facts and circumstances that are now known? In the recent report from Christy Romero, acting inspector general of the Office of the Special Inspector General for TARP, the following facts and circumstances are noted, as of Dec. 31, 2011:

- There are 458 institutions that had capital infusions from the TARP program.
- There are 371 banks that still owe money that they have received from TARP.
- Companies still owe a total of over \$130 billion to the U.S. Treasury for money that they have received from TARP.

It is clear that not all of the money invested through TARP will be recovered. The United States has already written off billions of realized losses and expects others. The volatile marketplace has slowed the efforts to sell off interests in some companies, such as General Motors, and will likely reduce the amounts received in any event. But we are now faced with nearly 400 banks that have not yet paid back the capital infusions under TARP. Were even 50 percent of these to fail in the near future, that would represent about 10 percent of all of the commercial bank failures that have been experienced over the preceding 30 years. Moreover, that would be on a population base that is on the order of about 60 percent of the average number of commercial banks that have been in existence over that period. One immediate conclusion is that, had TARP not been in place and these capital infusions made, it is likely that the commercial bank failure rates would have been significantly higher than what actually occurred over the 2008 to 2010 period.

Other Observations about Failure Rates

Within the United States, the failure rates exhibited by S&Ls were significantly higher than those exhibited by commercial banks and insurers. As shown in Appendix 1, the differences in experience were both large and statistically significant. It would be difficult to argue that these differences were attributable solely to differences in the general regulatory approach, since the regulatory approach for both commercial banks and S&Ls was essentially the same within the United States over the study period, the primary regulator being a strong national regulator. At

the same time, one may easily argue that the effectiveness of the specific regulator is an important causative factor, because S&L and commercial bank failure rates have been very similar since 1994, after the FDIC took over S&L regulation. In the case of insurers, the regulatory approach is a diverse group of state regulatory bodies. Yet, statistically, the experience being demonstrated for insurers and commercial banks was not significantly different.

Consideration of the rates at various times during the period in question shows that S&L failure rates peaked in the 1980s to 1990s. Commercial banks and insurers had similar, but more nominal, peaks in the same era. But insurers maintained a slightly elevated level of failure rates during the 1990s while commercial banks and S&Ls declined to almost zero during that period. Thus, one might conclude that the different business models had some effect on the overall experience.

S&Ls in the 1980s and 1990s had slightly more flexible rules regarding interest rates that they could charge (and provide). They also had somewhat more restrictive business practices and a different regulator (FSLIC) from that of the commercial banks. Their higher failure rates have sometimes been attributed to “borrowing short and lending long” in order to fill their role as a primary mortgage lender. The high interest rate environment of the early 1980s had a substantially adverse effect on this business model.

Commercial banks, on the other hand, always were more broadly invested in their business model during that period (commercial loans, construction loans, retail loans, etc.). Thus, they were not as inclined to be following the “borrow short—lend long” approach. Consequently, it is reasonable to infer that they were also affected by the economic environment of the 1980s to 1990s, but to a somewhat lesser degree.

After the S&L crisis of the 1980s, rules for both entities were brought more in line with each other and both wound up having the same regulator—the FDIC. After that point they exhibited similar failure experience from the mid-1990s until the most recent financial crisis. Even into the 2008 to 2010 period, both of these entities saw a similar spike in the failure rates exhibited.

Insurers, on the other hand, did not exhibit the very pronounced spike of the 1980s to 1990s that developed for commercial banks and S&Ls. Yet their failure rate never declined to the very low level of commercial banks and S&Ls, either. Again, we believe it is likely that the business model affected these results. Insurers have a typically more stable premium income stream than do commercial banks and S&Ls. Surrender charges, insurability issues and similar factors result in a more stable pattern of cash flows. People are less inclined to surrender policies if surrender charges and insurability are a problem. There is much less “hot money” moving around from company to company.

Experience in Canada among the various types of institutions is similar to that in the United States. The trust and loan company failure rates are higher than those of chartered banks and insurers, and the same peak in the early 1980s to the 1990s may be observed. Here again, it is unlikely that regulatory differences had any significant effect on the rates as the regulatory body in Canada for all is essentially the same, although that was not necessarily true for trust and loan companies prior to the financial re-regulation in the early 1990s. Once again, it seems that the business model and the focus on a segment of the market (in the case of trust and loan companies vs. chartered banks) are elements having an impact on the failure rates.

The differences in the failure rates between S&Ls in the United States and trust and loan companies in Canada were not statistically significant. These institutions in both countries exhibit much higher failure rates than other institutions prior to the mid-1990s (and similar experience to commercial or chartered banks thereafter), with Canadian failure rates being just a bit lower overall and not showing as severe a spike in the early 1990s. On the other hand, both U.S. commercial banks and insurers demonstrate statistically significantly higher failure rates than similar institutions in Canada. The higher failure rates for U.S. institutions as compared with their Canadian counterparts may be affected by the following differences between the two countries:

- 1) Different tax laws and approaches to mortgage lending are present in the two countries. These differences include issues such as no-recourse loans, the deductibility of mortgage interest, shorter mortgage terms in Canada that are then renewable at current rates, and different loan standards that may be imposed. There has been less of a pattern of loan securitization in Canada and, one might argue, little use of subprime mortgages.
- 2) The existence of a single regulator in Canada may also have some effect on insurers' experience vs. that developed in the United States where there are significantly more regulatory bodies (the various states) which, in some cases, may be lacking in resources (and likely differ in expertise). Clearly the number of institutions supervised also has some bearing on the effectiveness of the various state regulators.

Over and above issues such as regulatory approaches, business models, insurability, surrender charges, etc., there are a number of other factors that may have had some effect on the failure rates exhibited. These include:

- a. The differences in the economic environment. The 1980s were characterized by a spike in interest rates to combat inflation. This clearly had an adverse effect on many organizations that were not nimble enough to respond quickly. The period after the early 1990s on a worldwide basis was characterized by an economic upturn. This had a positive effect on all institutions as there was ample

investment income being generated, the business environment was good, trade was increasing worldwide, trade barriers were being reduced, and equity and real estate prices were rising. It was generally an extremely favorable business climate. Failures decreased for banks and S&Ls. They reduced slightly for insurers. Regulatory restrictions were reduced. The equity markets were favorable. New products were being created (e.g., mortgage securitizations, all sorts of derivatives).

b. The repeal of the Glass-Steagall Act occurred. Many suggest that the repeal of Glass-Steagall was a significant contributing factor in the financial crisis. Others suggest that financial institutions had, for the most part, already found ways to circumvent the restrictions through offshore vehicles.

c. We believe that substantial additional risks had begun to creep into the financial system around the year 2000. But an argument can be made that the additional risk was caused by two other factors—the increase in financial mathematical analysis leading to creative product design and the geometric increase in computer power that was occurring. Regardless of whether or not Glass-Steagall was repealed, the ability to apply complex financial analysis to develop new products such as collateral debt obligations, mortgage-backed securities, credit default swaps, interest rate swaps, etc. injected more risk into the financial system. Even if someone had been bright enough before then to create such products, there would have been no way to conceptualize, create and implement such complex instruments with the computer power that many had available in the 1970s and 1980s. Even the creation of a simple product like a U.S.-style universal life insurance policy would have been difficult to accomplish with the computer power available in the 1970s. The basic problem with the creation of these types of instruments is that, in many cases, even their creators did not have a complete understanding of the inherent risks; and their models were informed by parameters that, in some cases, were based on wholly inadequate historical experience. Based upon various lawsuits that have been filed, adjudicated or settled, it is also clear that many purchasers of these instruments also had little understanding of the risks. It would not be unfair to conclude that regulators also had less than a clear understanding of the risks.

d. The underlying counterparty risk inherent within the financial system is another element that possibly exacerbated the financial crisis and the failure rates exhibited in the most recent financial crisis. This was less of a problem in the early part of the study period (1980s to 1990s) because risks were likely

better understood and many financial institutions involved in transactions were smaller, more focused and transparent. As accounting rules evolved, the use of off balance sheet transactions, special investment vehicles and other complex financial activities reduced transparency and also increased risk. The fact that some products that were created, such as credit default swaps, were essentially unregulated led to entities being exposed to counterparty risk that they neither understood nor were able to quantify with any degree of reliability. This reduced basic trust in the overall financial system. Thus, when the financial crisis emerged, such simple instruments as commercial paper and money-market funds also became suspect and the problems were compounded. It actually took government guarantees of such things as bank debt and money-market funds to avoid a total freeze within the financial system.

Chapter 5: Final Thoughts and Areas for Additional Study

The results of our study provide some reason for optimism. But the unanswered questions, particularly with respect to investment banks, indicate there are remaining areas that should be analyzed. Clearly, financial institutions in Canada are doing something right. In the United States (and probably both countries), credit unions appear to be weathering the crisis well and maintaining low failure rates. Likewise, the response by S&Ls to the crisis in the 1980s is an unquestionable success in terms of later S&L failure rates. Yet there is still cause for concern. The recent failure of MF Global provides troubling evidence that our financial system is still in a perilous position.

One would like to believe that financial regulators have learned some lessons from the recent experience, but only time will tell. Much like legislators and IRS tax auditors, financial regulators are more often “resource bound” than the entities they are overseeing. Many regulators, such as FINRA, obtain their operating funds from the entities that they regulate and they don’t have total control of their budgets. Other regulators, such as the SEC, have budgets that are controlled by legislative action. However, financial institutions will often spend significant time, effort and money attempting to mitigate the effects on their activities, revenues and risk taking caused by restrictions imposed on them.

The amount of resources devoted to regulatory oversight seems insignificant in comparison to what might happen if a significant failure occurs. Yet there are those who still believe little or no regulatory oversight should be imposed. Thus, there is a continual and ongoing battle between proponents of more regulation vs. less regulation. This battle often holds up any progress when congressional action would be required. Not only that, but it is also apparent

that there is often a seeming lack of data to assist in analyzing what may have gone wrong or what might go wrong. The two entities with the most credible and comprehensive data are the FDIC and the Federal Reserve. Other entities, such as the NAIC, SEC, SIPC or FINRA, have much less extensive data. Part of this problem, of course, is associated with the funding source for some of these entities, many of which are self-regulating bodies overseeing a part of the financial landscape.

The lack of solvency regulation on investment banks in the United States was clearly a severe regulatory failure. Yet there is still a very real question as to whether or not the passage of Dodd-Frank will actually result in any improvement in the regulatory scheme. To date, it seems that most of the effect is to confuse regulated entities and put them in a position of being unable to determine what they may, or may not, actually do. In addition, many entities who had no idea they might become regulated in some way (e.g., entities hedging commodity risks) appear to be getting swept up into the mix. All of this is possibly going to be resolved by having some of these activities shifting to other geographic areas where regulatory initiatives are less well codified. We believe there needs to be better regulation on the solvency of investment banks and other organizations that are financially critical. The potential power in the United States under Dodd-Frank, which may not go into effect for months, to wind up systemically important financial entities is untested.

Interestingly, while Glass-Steagall created the Federal Deposit Insurance Corporation, the deposit insurance was left in place when Glass-Steagall was repealed. This appears problematic. If banks want to act like hedge funds and make high-risk bets, should they be allowed to use cheap cash from the Fed's discount window or with money from the federally insured bank accounts in these efforts?

Are the same risks present among Canadian banks, even if the experience so far has been very positive? Perhaps, but a full answer to that question would require an intensive investigation that we did not have the time to carry out. An in-depth analysis of possible cultural or business model differences between the U.S. and Canadian banks and investment banking entities appears to be an area that should be examined further.

Acronyms, Sources and References

All of the data contained herein was developed through contacts with personnel at the entities set forth below, along with the associated websites. The listings include the acronym, such as SEC, along with the name of the organization and the associated website (if applicable). In addition to utilizing various websites, individuals were interviewed to obtain information. Some information was provided orally, while other information was provided by email. The website title generally denotes which organizations are government agencies, regulators, etc. (e.g., treasury.gov indicates the Treasury is a government agency). Other labels, such as SIPC.org, indicate that the organization is not a part of the U.S. federal government but may be an independent regulator or an organization such as the NAIC, which is an association of state insurance commissioners. The label such as "abc.ca" indicates a Canadian website, which may be either a federal Crown corporation (such as the CDIC) or a not-for-profit organization such as Assuris, the insurer of Canadian life Insurers.

Acronym	Name of Organization or Government Agency	Web Site
Assuris	Assuris (life company policyholder protection)	assuris.ca
CDIC	Canada Deposit Insurance Corporation	cdic.ca
CFTC	U.S. Commodity Futures Trading Commission	cftc.gov
CIPF	Canadian Investor Protection Fund	cipf.ca
FDIC	U.S. Federal Deposit Insurance Corporation	fdic.gov
FR	U.S. Federal Reserve (includes board of governors)	federalreserve.gov
FINRA	Financial Industry Regulatory Authority	finra.org
GRID	Global Receivership Information Database (NAIC)	naic.org/grid/
NAIC	National Association of Insurance Commissioners	naic.org
NCUA	National Credit Union Administration	ncua.gov
NIC	National Information Center (Federal Reserve)	ffiec.gov/nicpubweb/
NOLHGA	National Organization of Life & Health IGA	nolhga.com
OSFI	Office of the Superintendent of Financial Institutions	osfi-bsif.gc.ca
SEC	U.S. Securities and Exchange Commission	sec.gov

SIPC

Securities Investor Protection Corporation

sipc.org

Treasury

U.S. Department of the Treasury

treasury.gov

Year	United States			Canada		
	Savings & Loans	Commercial Banks	Life and Health Insurers	Trusts and Loans	Chartered Banks	Life and Health Insurers
1980	0.31%	0.07%		0.97%	0.00%	0.00%
1981	0.81%	0.05%		0.00%	0.00%	0.00%
1982	2.14%	0.23%		0.87%	0.00%	0.00%
1983	1.25%	0.32%		5.93%	0.00%	0.00%
1984	0.56%	0.54%		0.87%	0.00%	0.00%
1985	1.21%	0.79%		4.42%	2.78%	0.00%
1986	1.87%	0.98%	0.61%	1.85%	1.47%	0.00%
1987	1.93%	1.31%	0.46%	2.02%	0.00%	0.00%
1988	5.89%	1.50%	0.52%	1.06%	0.00%	0.00%
1989	5.24%	1.56%	1.16%	0.00%	0.00%	0.00%
1990	15.96%	1.25%	1.15%	1.14%	0.00%	0.00%
1991	12.44%	0.85%	1.60%	3.49%	1.56%	0.00%
1992	5.44%	0.82%	0.64%	6.10%	0.00%	1.19%
1993	1.33%	0.53%	0.66%	2.47%	0.00%	1.18%
1994	2.79%	0.11%	0.78%	2.78%	0.00%	1.18%
1995	0.19%	0.06%	0.31%	4.69%	0.00%	0.00%
1996	0.05%	0.05%	0.39%	1.59%	0.00%	0.00%
1997	0.00%	0.01%	0.30%	0.00%	0.00%	0.00%
1998	0.00%	0.03%	0.39%	0.00%	0.00%	0.00%
1999	0.06%	0.08%	0.49%	0.00%	0.00%	0.00%
2000	0.06%	0.07%	0.56%	0.00%	0.00%	0.00%
2001	0.06%	0.04%	0.06%	0.00%	0.00%	0.00%
2002	0.07%	0.12%	0.33%	0.00%	0.00%	0.00%
2003	0.07%	0.03%	0.21%	0.00%	0.00%	0.00%
2004	0.07%	0.04%	0.29%	0.00%	0.00%	0.00%
2005	0.00%	0.00%	0.15%	0.00%	0.00%	0.00%
2006	0.00%	0.00%	0.23%	0.00%	0.00%	0.00%
2007	0.16%	0.01%	0.24%	0.00%	0.00%	0.00%
2008	0.48%	0.26%	0.25%	0.00%	0.00%	0.00%
2009	1.72%	1.69%	0.53%	0.00%	0.00%	0.00%
2010	2.13%	1.94%	0.18%	0.00%	0.00%	0.00%
Average (1980-2010)						
	2.07%	0.49%	0.40% ²	1.30%	0.19%	0.11%

Table 2: Average Institutional Failure Rates						
	United States			Canada		
Period	Savings & Loans	Commercial Banks	Life and Health Insurers	Trusts and Loans	Chartered Banks	Life and Health Insurers
1980-1989	2.12%	0.74%	0.28%	1.80%	0.43%	0.00%
1990-1999	3.83%	0.38%	0.67%	2.23%	0.16%	0.36%
2000-2009	0.27%	0.23%	0.29%	0.00%	0.00%	0.00%
1980-1984	1.01%	0.24%	0.00%	1.73%	0.00%	0.00%
1985-1989	3.23%	1.23%	0.55%	1.87%	0.85%	0.00%
1990-1994	7.59%	0.71%	0.96%	3.20%	0.31%	0.71%
1995-1999	0.06%	0.05%	0.38%	1.26%	0.00%	0.00%
2000-2004	0.07%	0.06%	0.29%	0.00%	0.00%	0.00%
2005-2009	0.47%	0.39%	0.28%	0.00%	0.00%	0.00%
1981-1985	1.19%	0.39%	0.00%	2.42%	0.56%	0.00%
1986-1990	6.18%	1.32%	0.78%	1.21%	0.29%	0.00%
1991-1995	4.44%	0.47%	0.80%	3.91%	0.31%	0.71%
1996-2000	0.03%	0.05%	0.43%	0.32%	0.00%	0.00%
2001-2005	0.05%	0.04%	0.21%	0.00%	0.00%	0.00%
2006-2010	0.90%	0.78%	0.29%	0.00%	0.00%	0.00%

Year	United States				Canada			
	S&Ls		Commercial Banks		Trust and Loans		Chartered Banks	
	Class I	Class II	Class I	Class II	Class I	Class II	Class I	Class II
	Failures	Failures	Failures	Failures	Failures	Failures	Failures	Failures
1980	0.0%	0.31%	0.00%	0.07%	0.0%	0.0%	0.0%	0.0%
1981	0.0%	0.81%	0.00%	0.05%	0.0%	0.0%	0.0%	0.0%
1982	0.0%	2.14%	0.00%	0.23%	0.0%	0.0%	0.0%	0.0%
1983	0.0%	1.25%	0.00%	0.32%	0.0%	0.0%	0.0%	0.0%
1984	0.1%	0.45%	0.03%	0.51%	0.0%	0.0%	0.0%	0.0%
1985	0.3%	0.95%	0.15%	0.64%	0.0%	0.0%	0.0%	0.0%
1986	0.3%	1.54%	0.15%	0.83%	0.93%	0.93%	0.0%	1.47%
1987	0.4%	1.50%	0.08%	1.24%	1.01%	1.01%	0.0%	0.0%
1988	0.7%	5.23%	0.04%	1.46%	0.0%	1.1%	0.0%	0.0%
1989	0.3%	4.93%	0.07%	1.49%	0.0%	0.0%	0.0%	0.0%
1990	1.5%	14.51%	0.06%	1.19%	0.0%	0.0%	0.0%	0.0%
1991	1.5%	10.94%	0.03%	0.82%	0.0%	0.0%	0.0%	0.0%
1992	0.2%	5.22%	0.09%	0.73%	1.22%	4.88%	0.0%	0.0%
1993	0.0%	1.29%	0.04%	0.49%	0.0%	0.0%	0.0%	0.0%
1994	0.2%	2.62%	0.00%	0.11%	0.0%	0.0%	0.0%	0.0%
1995	0.0%	0.14%	0.00%	0.06%	1.56%	3.13%	0.0%	0.0%
1996	0.0%	0.05%	0.00%	0.05%	0.0%	0.0%	0.0%	0.0%
1997	0.0%	0.00%	0.00%	0.01%	0.0%	0.0%	0.0%	0.0%
1998	0.0%	0.00%	0.00%	0.03%	0.0%	0.0%	0.0%	0.0%
1999	0.0%	0.06%	0.00%	0.08%	0.0%	0.0%	0.0%	0.0%
2000	0.0%	0.06%	0.00%	0.07%	0.0%	0.0%	0.0%	0.0%
2001	0.0%	0.06%	0.00%	0.04%	0.0%	0.0%	0.0%	0.0%
2002	0.0%	0.07%	0.05%	0.07%	0.0%	0.0%	0.0%	0.0%
2003	0.0%	0.07%	0.00%	0.03%	0.0%	0.0%	0.0%	0.0%
2004	0.1%	0.00%	0.00%	0.04%	0.0%	0.0%	0.0%	0.0%
2005	0.0%	0.00%	0.00%	0.00%	0.0%	0.0%	0.0%	0.0%
2006	0.0%	0.00%	0.00%	0.00%	0.0%	0.0%	0.0%	0.0%
2007	0.0%	0.16%	0.00%	0.01%	0.0%	0.0%	0.0%	0.0%
2008	0.0%	0.48%	0.00%	0.26%	0.0%	0.0%	0.0%	0.0%
2009	0.1%	1.64%	0.08%	1.61%	0.0%	0.0%	0.0%	0.0%
2010	0.3%	1.88%	0.04%	1.90%	0.0%	0.0%	0.0%	0.0%
Average (1980-2010)								
	0.19%	1.88%	0.03%	0.47%	0.15%	0.36%	0.00%	0.05%

Year	Credit Unions
1980	0.10%
1981	0.13%
1982	0.02%
1983	0.02%
1984	0.04%
1985	0.01%
1986	0.07%
1987	0.05%
1988	0.02%
1989	0.09%
1990	0.14%
1991	0.20%
1992	0.19%
1993	0.16%
1994	0.05%
1995	0.01%
1996	0.02%
1997	0.01%
1998	0.01%
1999	0.04%
2000	0.04%
2001	0.03%
2002	0.02%
2003	0.01%
2004	0.01%
2005	0.00%
2006	0.02%
2007	0.00%
2008	0.04%
2009	0.02%
2010	0.03%
Average (1980-2010)	0.051%

Appendix 2: Institutional Data from Canada

(Note: There were no failures in years not listed)

Banks

Year	Banks at prior Dec 31	Failure Rate ¹⁵
1985	72	2.78%
1986	68	1.47%
1991	64	1.56%

Trust and Loan Companies

Year	T&L's at prior Dec or Mar 31 ¹⁶	Number of Failures	Failure Rate
1980	103	1	0.97%
1982	115	1	0.87%
1983	118	7	5.93%
1984	115	1	0.87%
1985	113	5	4.42%
1986	108	2	1.85%
1987	99	2	2.02%
1988	94	1	1.06%
1990	88	1	1.14%
1991	86	3	3.49%
1992	82	5	6.10%
1993	81	2	2.47%
1994	72 ¹⁷	2	2.78%

¹⁵ The failure rates for all institutional types for both Canada and the United States are measured as the number of institutional failures in the calendar year divided by the number of institutions at the previous Dec. 31 unless otherwise specified.

¹⁶ The number of institutions is shown at prior March 31 for failures in 1995 and later years.

¹⁷ Counts for 1994, 1995 and 1996 failures are interpolated estimates because after Dec. 31, 1992, only March 31 counts are available.

1995	64	3	4.69%
1996	63	1	1.59%

Life Insurers

Year	Life Insurers prior Dec 31	Failure Rate
1992	84	1.19%
1993	85	1.18%
1994	85	1.18%

Appendix 3: Institutional Data from the United States

U.S. Bank Failures (1970-2010)			
Year	Number of Institutions	Number of Failures	Failure Rate
2010	6,544	133	1.94%
2009	6,841	120	1.69%
2008	7,098	19	0.26%
2007	7,293	1	0.01%
2006	7,407	0	0.00%
2005	7,527	0	0.00%
2004	7,637	3	0.04%
2003	7,778	2	0.03%
2002	7,890	10	0.12%
2001	8,098	3	0.04%
2000	8,317	6	0.07%
1999	8,586	7	0.08%
1998	8,803	3	0.03%
1997	9,155	1	0.01%
1996	9,539	5	0.05%
1995	9,946	6	0.06%
1994	10,475	12	0.11%
1993	10,970	61	0.53%
1992	11,484	98	0.82%
1991	11,965	105	0.85%
1990	12,351	159	1.25%
1989	12,721	205	1.56%
1988	13,142	207	1.50%
1987	13,763	187	1.31%
1986	14,229	141	0.98%
1985	14,427	115	0.79%
1984	14,507	78	0.54%
1983	14,469	4	0.32%
1982	14,451	8	0.23%
1981	14,414	3	0.05%
1980	14,434	1	0.07%
1979	14,364	10	0.07%
1978	14,391	7	0.05%
1977	14,411	5	0.03%
1976	14,410	17	0.12%
1975	14,384	13	0.09%
1974	14,230	4	0.03%
1973	13,976	6	0.04%
1972	13,733	2	0.01%
1971	13,612	7	0.04%
1970	13,511	7	0.05%

U.S. Savings and Loan Failures: 1980-2010			
Year	Number of Institutions	Number of Failures	Failure Rate
2010	1,128	25	2.13%
2009	1,172	21	1.72%
2008	1,221	6	0.48%
2007	1,251	2	0.16%
2006	1,280	0	0.00%
2005	1,307	0	0.00%
2004	1,348	1	0.07%
2003	1,412	1	0.07%
2002	1,472	1	0.07%
2001	1,535	1	0.06%
2000	1,592	1	0.06%
1999	1,642	1	0.06%
1998	1,694	0	0.00%
1997	1,783	0	0.00%
1996	1,933	1	0.05%
1995	2,034	4	0.19%
1994	2,157	65	2.79%
1993	2,332	33	1.33%
1992	2,483	145	5.44%
1991	2,663	373	12.44%
1990	2,998	538	15.96%
1989	3,371	184	5.24%
1988	3,511	216	5.89%
1987	3,669	72	1.93%
1986	3,740	69	1.87%
1985	3,693	43	1.21%
1984	3,566	20	0.56%
1983	3,566	45	1.25%
1982	3,600	77	2.14%
1981	3,600	29	0.81%
1980	3,600	11	0.31%

U.S. Insurance Company Failures			
1985-2010			
Year	Number of Institutions	Number of Failures	Failure Rate
2010	1,061	2	0.18%
2009	1,106	6	0.53%
2008	1,128	3	0.25%
2007	1,190	3	0.24%
2006	1,257	3	0.23%
2005	1,299	2	0.15%
2004	1,309	4	0.29%
2003	1,367	3	0.21%
2002	1,462	5	0.33%
2001	1,521	1	0.06%
2000	1,549	9	0.56%
1999	1,615	9	0.49%
1998	1,826	7	0.39%
1997	1,796	6	0.30%
1996	1,969	7	0.34%
1995	2,069	7	0.31%
1994	2,229	18	0.78%
1993	2,321	14	0.61%
1992	2,278	16	0.64%
1991	2,493	30	1.60%
1990	1,878	23	1.15%
1989	2,001	51	1.91%
1988	2,667	13	0.52%
1987	2,477	13	0.46%
1986	2,844	17	0.61%
1985(Est)	2,800		

U.S. Credit Union Failures: 1980-2010			
Year	Number of Insitutions	Number of Failures	Failure Rate
2010	12,948	4	0.03%
2009	12,969	2	0.02%
2008	12,781	5	0.04%
2007	12,843	0	0.00%
2006	12,914	2	0.02%
2005	12,991	0	0.00%
2004	13,088	1	0.01%
2003	13,173	1	0.01%
2002	13,252	2	0.02%
2001	13,337	4	0.03%
2000	13,493	5	0.04%
1999	13,623	5	0.04%
1998	13,738	2	0.01%
1997	13,825	1	0.01%
1996	13,981	3	0.02%
1995	14,138	2	0.01%
1994	14,356	7	0.05%
1993	14,571	24	0.16%
1992	14,896	28	0.19%
1991	15,144	30	0.20%
1990	15,449	22	0.14%
1989	15,842	14	0.09%
1988	16,256	4	0.02%
1987	16,695	9	0.05%
1986	17,213	12	0.07%
1985	17,754	1	0.01%
1984	18,347	8	0.04%
1983	19,138	3	0.02%
1982	20,023	5	0.02%
1981	20,718	26	0.13%
1980	21,027	20	0.10%