Note to users: This bibliography is provided for the benefit of insurance, risk management, financial, and actuarial researchers. The bibliography focuses primarily on references relating systemic risk to the insurance industry. Users are advised that there is a large literature focusing on systemic risk in banking and other financial industries. Only a few papers that focus exclusively on non-insurance industries are included here. Such papers that are included are those that are frequently cited in the insurance-related literature on systemic risk. The bibliography also focuses primarily on rigorous research papers, i.e., articles in the business or trade press are not included. There is also a literature on systemic weather risk and crop insurance that is not covered here. During the coming months, the bibliography will be updated to include abstracts and, where possible, links to websites where papers are available. Links cannot be provided to most published articles due to copyright restrictions. Comments and suggestions are welcome. Any comments should be sent via email to cummins@temple.edu.

Bibliography

http://www.columbia.edu/~at2761/Contagion.pdf
Abstract:
We provide a framework for studying the relationship between the financial network architecture and the likelihood of systemic failures due to contagion of counterparty risk. We show that financial contagion exhibits a form of phase transition as the extent of interbank interconnectivity increases: as long as the magnitude and the number of negative shocks affecting financial institutions are sufficiently small, a more equal distribution of interbank obligations enhances the stability of the system. However, beyond a certain point, such dense interconnections start to serve as a mechanism for the propagation of shocks and lead to a more fragile financial system.
Our results thus highlight the “robust-yet-fragile” nature of financial networks: the same features that make the system more resilient under certain conditions may function as significant sources of systemic risk and instability under another.


1 The Advanta Center gratefully acknowledges the financial support of the Society of Actuaries through the Center for Actuarial Excellence Research Grants program.
Summary:
This chapter contains sections titled:
- Existing Structure and Regulation of the U.S. Insurance Industry;
- The Dodd-Frank Wall Street Reform and Consumer Protection Act in Relation to Insurance Regulation;
- Evaluation of Stipulations about Insurance Regulation and Recommendations for Reform;
- Regulation of Insurance Companies' Systemic Risk;
- The Importance of Federal Regulation for Insurance Companies;
- Insurance Accounting;
- Summary;
- Appendix A: The Case of AIG;
- Appendix B: Systemic Risk Measurement: An Example;
- Notes;
- References.


Abstract:
We present a simple model of systemic risk and we show that each financial institution's contribution to systemic risk can be measured as its systemic expected shortfall (SES), i.e., its propensity to be undercapitalized when the system as a whole is undercapitalized. SES increases with the institution's leverage and with its expected loss in the tail of the system's loss distribution. Institutions internalize their externality if they are taxed" based on their SES. We demonstrate empirically the ability of SES to predict emerging risks during the financial crisis of 2007-2009, in particular, (i) the outcome of stress tests performed by regulators; (ii) the decline in equity valuations of large financial firms in the crisis; and, (iii) the widening of their credit default swap spreads.


Abstract:
The financial crisis of 2007-2009 has given way to the sovereign debt crisis of 2010-2012, yet many of the banking issues remain the same. We discuss a method to estimate the capital that a
financial firm would need to raise if we have another financial crisis. This measure of capital shortfall is based on publicly available information but is conceptually similar to the stress tests conducted by US and European regulators. We argue that this measure summarizes the major characteristics of systemic risk and provides a reliable interpretation of the past and current financial crisis.


Abstract:
We propose a measure for systemic risk: CoVaR, the value at risk (VaR) of the financial system conditional on institutions being under distress. We define an institution’s contribution to systemic risk as the difference between CoVaR conditional on the institution being under distress and the CoVaR in the median state of the institution. From our estimates of CoVaR for the universe of publicly traded financial institutions, we quantify the extent to which characteristics such as leverage, size, and maturity mismatch predict systemic risk contribution. We also provide out of sample forecasts of a countercyclical, forward looking measure of systemic risk and show that the 2006Q4 value of this measure would have predicted more than half of realized covariance during the financial crisis.

Abstract:
We represent the economy as a network of industries connected through customer and supplier trade flows. Using this network topology, we find that stronger product market connections lead to a greater incidence of cross-industry mergers. Second, mergers propagate in waves across the network through customer-supplier links. Merger activity transmits to close industries quickly and to distant industries with a delay. Finally, economy-wide merger waves are driven by merger activity in industries that are centrally located in the product market network. Overall, we show that the network of real economic transactions helps to explain the formation and propagation of merger waves.

Abstract:
In today’s financial system, complex financial institutions are connected through an opaque network of financial exposures. These connections contribute to financial deepening and greater savings allocation efficiency, but are also unstable channels of contagion. Basel III and Solvency II should improve the stability of these connections, but could have unintended consequences for cost of capital, funding patterns, interconnectedness, and risk migration.

Abstract:
Modern financial systems exhibit a high degree of interdependence. There are different possible sources of connections between financial institutions, stemming from both the asset and the liability side of their balance sheet. For instance, banks are directly connected through mutual exposures acquired on the interbank market. Likewise, holding similar portfolios or sharing the same mass of depositors creates indirect linkages between financial institutions. Broadly understood as a collection of nodes and links between nodes, networks can be a useful representation of financial systems. By providing means to model the specifics of economic interactions, network analysis can better explain certain economic phenomena. In this paper we argue that the use of network theories can enrich our understanding of financial systems. We review the recent developments in financial networks, highlighting the synergies created from applying network theory to answer financial questions. Further, we propose several directions of research. First, we consider the issue of systemic risk. In this context, two questions arise: how resilient financial networks are to contagion, and how financial institutions form connections when exposed to the risk of contagion. The second issue we consider is how network theory can be used to explain freezes in the interbank market of the type we have observed in August 2007 and subsequently. The third issue is how social networks can improve investment decisions and corporate governance. Recent empirical work has provided some interesting results in this regard. The fourth issue concerns the role of networks in distributing primary issues of securities as, for example, in initial public offerings, or seasoned debt and equity issues. Finally, we consider the role of networks as a form of mutual monitoring as in microfinance.

Abstract:
Financial contagion is modeled as an equilibrium phenomenon. Because liquidity preference shocks are imperfectly correlated across regions, banks hold interregional claims on other banks to provide insurance against liquidity preference shocks. When there is no aggregate uncertainty, the first-best allocation of risk sharing can be achieved. However, this arrangement is financially fragile. A small liquidity preference shock in one region can spread by contagion throughout the economy. The possibility of contagion depends strongly on the completeness of the structure of interregional claims. Complete claims structures are shown to be more robust than incomplete structures.


http://www.ambest.com/


Abstract:
This paper investigates the causes of the banking crisis and the resulting lessons that need to be learned for insurance regulation. The paper argues that the banking crisis was predominantly caused by weaknesses in the management and regulation of banks, weaknesses that lead to problems such as flawed compensation schemes, poor risk management communication and an over-reliance on mathematical risk models. On the basis of these findings, doubts are expressed about the direction of certain insurance regulatory reforms—such as the focus on capital requirements and quantitative risk assessment (the so-called “Pillar I” of most reforms). It is also recommended that a more balanced approach to insurance regulation should be implemented, which places much greater emphasis on enhancing risk management guidance and supervisory tools (Pillar II) and improving disclosure rules (Pillar III).


Abstract:
Substantial progress has been made in the Financial Services Action Plan (FSAP) since its adoption in 1999, in its efforts to fulfil its three strategic objectives: completing a single wholesale market by the progressive removal of outstanding barriers to an integrated financial services market; developing an open and secure market for retail financial services, removing regulatory and administrative barriers in order to help consumers; and ensuring the continued stability of European Union (EU) financial markets by installing state-of-the-art supervisory practices in order to contain systemic or institutional risk (e.g., capital adequacy, solvency margins for insurance) and take account of changing market realities (where institutions are organized on a pan-European, cross-sectoral basis).


Abstract:
The paper examines whether there is an economic justification for a macroprudential approach to insurance regulation based on the normative theory of regulation. First, the paper elaborates some basic foundations, such as the characterisation of a macroprudential approach to financial regulation as well as an explanation of the functions the insurance industry contributes to the financial system and the real economy. Then it addresses the research question by analysing whether the requirements are fulfilled for a normative theory-compliant macroprudential regulatory foundation. Contrary to the prevailing opinion, the paper finds that the insurance industry is of systemic relevance, at least in terms of the efficient functioning of the financial system as a whole and the potential costs in case of failure or malfunction. Furthermore, it identifies the fundamental ingredients needed for a theory-based justification of a macroprudential insurance regulation. The value of this paper is in clarifying terms and in systemizing the rationales for a macroprudential regulation with respect to the insurance industry.
Both are of importance for the classification of arguments in the current political discussion. The paper also provides the basic groundwork useful for further research on systemic risk and macroprudential regulation.


**Abstract:**
In this paper we assess the impact of the financial crisis on insurance markets and the role of the insurance industry in the crisis itself. We examine some previous “insurance crises” and consider the effect of the crisis on insurance risk—the liabilities arising from contracts that insurers underwrite. We then analyse the effects of the crisis on the performance of insurers in different markets and assess the extent of systemic risk in insurance. We conclude that, while systemic risk remains lower in insurance than in the banking sector, it is not negligible and has grown in recent years, partly as a consequence of insurers’ increasing links with banks and their recent focus on non-(traditional) insurance activities, including structured finance. We conclude by considering the structural changes in the insurance industry that are likely to result from the crisis, including possible effects on “bancassurance” activity, and offer some thoughts on changes in the regulation of insurance markets that might ensue.


[http://www.bis.org/publ/cpss00b.pdf?noframes=1](http://www.bis.org/publ/cpss00b.pdf?noframes=1)

**Introduction:**
Over the years, the terminology relating to payment systems has been steadily refined as payment and settlement infrastructures have evolved and our knowledge of the complexities of the payment process has increased. Developments in technology highlight the importance of consistent usage of new terms, which we need to use whether or not we are technical experts. For example, the concept of real-time processing is intrinsic to understanding the functioning of modern payment systems and figures in discussions among users and experts. As in most disciplines, payments terminology has also been enriched by a number of analytical studies, which have added new concepts and terms.

To this end, the Committee on Payment and Settlement Systems (CPSS) has decided to bring together in a single publication all the standard terms and their definitions that have been published in the reports of the CPSS, the European Monetary Institute (EMI) and the European Central Bank (ECB). The first glossary to be included in this collection is from the report Delivery versus payment in securities settlement systems published in 1992. The “Red Book” series first published in 1993 attempted to provide a standard set of definitions for commonly used payment system terms. Since then, more terms have continually been added with the publication of each new CPSS report. The EMI expanded the collection with the glossary of its “Blue Book”, Payment systems in the European Union, published in 1996. These efforts are being continued by the ECB in its successive reports on payment systems. With each additional report, the vocabulary of payment systems continues to grow.

This combined glossary includes terms used in all the glossaries of the CPSS and EMI/ECB reports published to date. In some cases, identical terms have been used to explain concepts that
may have different implications depending on the context of their use. For example, “marking to market” is defined differently in a payment system context from the way it is understood in the context of a derivatives contract. In such cases, all the relevant definitions have been included. The source reference given in the last column of each entry indicates the reports where the term was defined, thus enabling the reader to refer back if necessary.


Abstract:
This study describes the AIG’s model of operations prior to the conglomerate failure up to the point when the liquidity crisis triggered the massive bailout by the U.S. government. It is a study designed to provide understanding of the key factors in the demise of AIG in relationship to systemic risks in insurance. The main contribution of this report is the delineation of the key internal factors from the external macro market and regulatory factors that contributed to the failure. We regard the latter as macro factors underpinning the foundation that propelled the activities of AIG Financial Products Unit (AIGFP). The study shows that if it were not for the "non-insurance" activities of the AIGFP under the AIG holding company, the averted collapse (with the bailout), in all likelihood, would have been avoided. The main key takeaways are: AIGFP was not an insurance company; AIGFP was not regulated by state-based insurance regulations; and AIGFP's credit default swaps were the key factor to the AIG collapse. As global regulators look into indicators for systemically important financial institutions (SIFIs), the following macro factors should be integrated into any newly created regulatory framework: 1) use credit ratings with care and avoid exploitation of high ratings; 2) be aware of banks' capital being replaced by new opaque financial products; 3) remove gaps in regulations and require transparency; 4) forbid companies to select their own regulatory bodies; 5) understand insurance vs. non-insurance or quasi-banking activities and products; and 6) create clarity to delineate between the banking and insurance models. In brief, the key lesson is that when non-insurance or quasi-banking operations enter the insurance arena, expert insurance supervision is needed to close gaps in regulation.


Abstract:
The recent financial crisis poses the challenge to understand how systemic risk arises endogenously and what architecture can make the financial system more resilient to global crises. This paper shows that a financial network can be most resilient for intermediate levels of risk diversification, and not when this is maximal, as generally thought so far. This finding holds in
the presence of the financial accelerator, i.e. when negative variations in the financial robustness of an agent tend to persist in time because they have adverse effects on the agent's subsequent performance through the reaction of the agent's counterparties.


Abstract:

We explore the dynamics of default cascades in a network of credit interlink-ages in which each agent is at the same time a borrower and a lender. When some counterparties of an agent default, the loss she experiences amounts to her total exposure to those counterparties. A possible conjecture in this context is that individual risk diversification across more numerous counterparties should make also systemic defaults less likely. We show that this view is not always true. In particular, the diversification of credit risk across many borrowers has ambiguous effects on systemic risk in the presence of mechanisms of loss amplifications such as in the presence of potential runs among the short-term lenders of the agents in the network.


Abstract:

Banks and insurance companies maintain structural differences, limiting the extent of convergence due to factors such as demographics, the structure of liabilities, the scale of operations, regulation and accounting practices and distribution channels. Demography directly affects the needs of consumers regarding the risks to be covered; the structure of liabilities is important due to the limited possibilities to hedge many of them; the securitization process has been less relevant for insurance companies than for other financial intermediaries; regulation is different and implemented by different authorities; accounting is usually carried out on a price basis in the banking sector and on a cost basis in the insurance sector; and distribution channels require different expertise. A simulation model highlights the role of some of these factors and the peculiarities of managing insurance companies.


Abstract:
The aim of this paper is to contribute to the debate on systemic risk by assessing the extent to which distress within the main different financial sectors, namely, the banking, insurance and other financial services industries contribute to systemic risk. To this end, we rely on the ΔCoVaR systemic risk measure introduced by Adrian and Brunnermeier (2011). In order to provide a formal ranking of the financial sectors with respect to their contribution to systemic risk, the original ΔCoV aR approach is extended here to include the Kolmogorov-Smirnov test developed by Abadie (2002), based on bootstrapping. Our empirical results reveal that in the Eurozone, for the period ranging from 2004 to 2012, the banking sector contributes relatively the most to systemic risk at times of distress affecting this sector. By contrast, the insurance industry is the most systemically risky financial sector in the United States for the same period. Moreover, the three financial sectors contribute significantly to systemic risk, both in the Eurozone and in the United States. Finally, the insurance industry appears to impact relatively less systemic risk than the other financial services industry in the Eurozone, while banks contribute the least to systemic risk in the United States.


Abstract:
The financial crisis and subsequent recession generated sizable operating losses for life insurance companies, yet the consequences were far less significant than for other financial intermediaries. The ability to quickly generate new capital through external issuance and dividend reductions let life insurers maintain healthy levels of equity capital. We use this experience to examine the causes and consequences of external capital issuance by U.S. life insurance companies. We show that, in general, new capital is issued both to support the growth of new business and to replace capital depleted by operating losses. This second channel is particularly important during macroeconomic recessions. Notably, we do not find any evidence that insurers had difficulty generating new capital, unlike other financial service providers that required large amounts of public support. For life insurers, what changed following the financial crisis was the demand to raise external capital, but the supply of external capital appears to have remained constant.


Abstract:
The current banking crisis has reminded us of how risks materializing in one part of the financial system can have a widespread impact, affecting other financial markets and institutions and the
broader economy. This paper, prepared on behalf of the Actuarial Profession, examines how such events have an impact on the entire financial system and explores whether such disturbances may arise within the insurance and pensions sectors as well as within banking. The paper seeks to provide an overview of a number of banking and other financial crises which have occurred in the past, illustrated by four case studies. It discusses what constitutes a systemic event and what distinguishes it from a large aggregate system wide shock. Finally, it discusses how policy-makers can respond to the risk of such systemic financial failures.


Abstract:
We propose several econometric measures of connectedness based on principal-components analysis and Granger-causality networks, and apply them to the monthly returns of hedge funds, banks, broker/dealers, and insurance companies. We find that all four sectors have become highly interrelated over the past decade, likely increasing the level of systemic risk in the finance and insurance industries through a complex and time-varying network of relationships. These measures can also identify and quantify financial crisis periods, and seem to contain predictive power in out-of-sample tests. Our results show an asymmetry in the degree of connectedness among the four sectors, with banks playing a much more important role in transmitting shocks than other financial institutions.

Abstract:
This article proposes a framework for measuring and managing systemic risk. Current solvency regulations have been criticized for their focus on individual firms rather than the system as a whole. We show how an insurance program can be designed to deal with systemic risk through a risk charge on participating institutions. The risk charge is based on the generalized co-conditional tail expectation, a conditional risk measure adapted from conditional value-at-risk. Current regulations have been criticized on the grounds that their capital requirements are procyclical. They require extra capital in periods of extreme stress thus exacerbating a crisis. We show how to construct a countercyclical risk charge and illustrate the approach using a numerical example.

Since the financial crisis of 2007–2009 there is an active debate by regulators and academic researchers on systemic risk, with the aim of preventing similar crises in the future or at least reducing their impact. A major determinant of systemic risk is the interconnectedness of the international financial market. We propose to analyze interdependencies in the financial market using copulas, in particular using flexible vine copulas, which overcome limitations of the popular elliptical and Archimedean copulas. To investigate contagion effects among financial institutions, we develop methods for stress testing by exploiting the underlying dependence structure. New approaches for Archimedean and, especially, for vine copulas are derived. In a case study of 38 major international institutions, 20 insurers and 18 banks, we then analyze interdependencies of CDS spreads and perform a systemic risk stress test. The specified dependence model and the results from the stress test provide new insights into the interconnectedness of banks and insurers. In particular, the failure of a bank seems to constitute a larger systemic risk than the failure of an insurer.

Abstract:  
This paper summarizes and explains the main events of the liquidity and credit crunch in 2007-08. Starting with the trends leading up to the crisis, I explain how these events unfolded and how four different amplification mechanisms magnified losses in the mortgage market into large dislocations and turmoil in financial markets.

http://rfs.oxfordjournals.org/content/22/6/2201.short  
Abstract:  
We provide a model that links an asset's market liquidity (i.e., the ease with which it is traded) and traders' funding liquidity (i.e., the ease with which they can obtain funding). Traders provide market liquidity, and their ability to do so depends on their availability of funding. Conversely, traders' funding, i.e., their capital and margin requirements, depends on the assets' market liquidity. We show that, under certain conditions, margins are destabilizing and market liquidity and funding liquidity are mutually reinforcing, leading to liquidity spirals. The model explains the empirically documented features that market liquidity (i) can suddenly dry up, (ii) has commonality across securities, (iii) is related to volatility, (iv) is subject to “flight to quality,” and (v) co-moves with the market. The model provides new testable predictions, including that speculators' capital is a driver of market liquidity and risk premiums.

Bühler, Wolfgang, and Marcel Prokopczuk, 2010, "Systemic Risk: Is the Banking Sector Special?" *Available at SSRN 1612683.*  
Abstract:
In this paper, we empirically investigate the degree of systemic risk in the U.S. banking sector versus other industry sectors. We characterize the systemic risk in each sector by the lower tail dependence of stock returns. Our study differs from extant literature in three respects. First, we compare the degree of systemic risk in the banking sector with other sectors in the economy. Second, we analyze how systemic risk depends on the state of the stock market and the economy. Third, we compare the systemic risk in the commercial and the investment banking sectors and also investigate the systemic risk during the recent financial crisis. Our study shows that the systemic risk in the banking sector is significantly larger than in all other sectors of the economy. In particular, it differs from the systemic risk in the insurance sector, the second most strongly regulated financial subsystem. Moreover, the degree of systemic risk for the banking sector is higher under adverse market conditions. Finally, we document a substantial increase of systemic risk during the financial crisis.

Abstract:
This paper analyzes the measure of systemic importance ΔCoVaR proposed by Adrian and Brunnermeier (2009, 2010) within the context of a similar class of risk measures used in the risk management literature. In addition, we develop a series of testing procedures, based on ΔCoVaR, to identify and rank the systemically important institutions. We stress the importance of statistical testing in interpreting the measure of systemic importance. An empirical application illustrates the testing procedures, using equity data for three European banks.

Abstract:
The CEA report, entitled "Insurance: a unique sector-Why insurers differ from banks", includes 12 recommendations of ways to strengthen regulatory and supervisory frameworks for insurers while still taking into account the strength of the insurance business model.

http://www.imf.org/external/pubs/cat/longres.cfm?sk=18654.0
Abstract:
This paper describes a corporate sector vulnerability indicator, the expected number of defaults (END), based on the joint occurrence of defaults among a number of firms and/or institutions. The END indicator is general enough to assess systemic risk in the corporate and financial sectors, as well as systemic sovereign risk; and is also forward looking as it is constructed using information implied by financial securities prices. Using equity prices and balance-sheet data, we calculate the END to assess systemic risk in the corporate sector in Korea, Malaysia, and Thailand. We also discuss how the END systemic risk indicator overcomes some of the shortcomings of other vulnerability indicators.


Introduction:

With the 2012 ComFrame draft, the International Association of Insurance Supervisors (IAIS) on 1 July 2012 presented a comprehensive version of the envisaged framework for the supervision of internationally active insurance groups (IAIGs). In the subsequent discussion and consultation, it became apparent that, although the industry was supporting the overall objectives of this endeavour, concerns have been raised in particular with regard to Module 2 of the 2012 ComFrame draft, dealing mainly with enterprise risk management and the assessment of the groups’ financial condition.

The importance of these issues encouraged The Geneva Association to prepare a contribution to the ComFrame discussion by analyzing existing IAIG risk and capital management practices across the globe. Based on a questionnaire explicitly developed by a working group for this purpose, The Geneva Association conducted an empirical survey in this area with contributions from 19 insurance groups. The main purpose of the present report will be achieved if the survey findings assist the International Association of Insurance Supervisors (IAIS) to better understand current practices and gain a better appreciation of the variety of approaches and methods used, reflecting the different set-up of IAIGs and their aspiration to have appropriate risk and capital management tools in place.


Abstract:

Differing from conventional insurance firms whose underwriting business does not contribute to systemic risk, credit risk insurance companies providing credit protections for debt obligations are exposed to systemic risk. We show that credit risk insurers (CRIs) underperformed conventional insurance companies during the 2007–2009 financial crisis, and such underperformance is attributed to the greater systemic risk of CRIs. We also find that the credit spreads of insured bonds increase significantly after their insurers are downgraded or put in the negative watch list. We control for alternative factors affecting bond credit spreads and the result is robust.


Abstract:

Most traditional insurance companies have escaped the financial storms during 2007-2009 while companies engaging in financial risk taking were not this lucky. In this study, we examine the performance of financial risk insurers and analyze the contributing role of financial risk
insurers to systemic risk during the crisis. First, we find a subset of financial risk insurance companies, financial guaranty insurers, are badly affected by the financial crisis both in terms of their stock and operating performance. Second, in line with financial contagion, we find insurer performance is highly correlated with various measures of systemic risks. Finally, the deterioration of financial risk insurers’ performance has a negative externality on corporate bonds they insure. The yield spreads of bonds insured by financial guaranty insurers increase after the insurers experience rating downgrades, resulting in significant wealth loss for bondholders.

Abstract:
This paper uses high frequency market value data on credit default swap spreads and intra-day stock prices to measure systemic risk in the insurance sector. Using the systemic risk measure, we examine the inter-connectedness between banks and insurers with Granger causality tests. Based on linear and non-linear causality tests, we find evidence of significant bidirectional causality between insurers and banks. However, after correcting for conditional heteroskedasticity, the impact of banks on insurers is stronger and of longer duration than the impact of insurers on banks. Stress tests confirm that banks create significant systemic risk for insurers but not vice versa.


Abstract:
We model systemic risk by including a common factor exposure to market-wide shocks and an exposure to tail dependence effects arising from linkages among extreme stock returns. Specifically our model allows for the firm-specific impact of infrequent and extreme events. When a jump occurs, its impact is in the same direction for all firms (either positive or negative), but its size and volatility are firm-specific. Based on the model we compute three measures of systemic risk: DD, NoD and ESR. Empirical results using data on the four sectors of the U.S. financial industry from 1996 to 2011 suggest that simultaneous extreme negative movements across large financial institutions are stronger in bear markets than in bull markets. Disregarding
the impact of the tail dependence element implies a downward bias in the measurement of systemic risk especially during weak economic times. Two measures based on the Broker-Dealers sector (DD, NoD) and one measure (ESR) based on the Insurance sector lead the St. Louis Fed Financial Stress Index (STLFSI).


Abstract:
This paper presents a new method to validate risk models: the Risk Map. This method jointly accounts for the number and the magnitude of extreme losses and graphically summarizes all information about the performance of a risk model. It relies on the concept of a super exception, which is defined as a situation in which the loss exceeds both the standard Value-at-Risk (VaR) and a VaR defined at an extremely low probability. We then formally test whether the sequences of exceptions and super exceptions are rejected by standard model validation tests. We show that the Risk Map can be used to validate market, credit, operational, or systemic risk estimates (VaR, stressed VaR, expected shortfall, and CoVaR) or to assess the performance of the margin system of a clearing house.


Abstract:
This paper examines whether insurance companies pursuing sustainable goals are better able to manage economic risks during times of financial crisis. Using a unique set of survey results for 63 international insurance companies, we find that firms with high and low sustainability rankings exhibit little difference in value and performance measures. However, bond ratings suggest that greater sustainability measures lower default risk, and subsequent to the financial crises, many of the firms that no longer exist as independent, publicly traded firms originally had low sustainability scores. Taken as a whole, the results suggest that there are good reasons to incorporate detailed risk management plans as part of an insurance company’s sustainability effort, although these measures may not necessarily be a panacea in times of financial crisis.


Abstract:
One of the most significant economic developments of the past decade has been the convergence of the previously separate segments of the financial services industry – particularly the banking and insurance sectors. Convergence has been driven by increasing globalization of the financial services sector, the deregulation of financial markets, and advances in computer and modeling technologies. The shift in focus towards enterprise-wide corporate risk management solutions has created a growing demand for new risk management products. These developments provide opportunities for the traditional wholesalers of risk management products, particularly
investment banks and reinsurers. The paper discusses the core competencies of banks and reinsurers and the factors needed for success in the evolving market. The discussion considers the merits of unbundling the traditional insurance value chain to create more responsive organizations and de-emphasize residual risk bearing by (re)insurers. The paper focuses on opportunities in innovative wholesale risk management products, including products that modify classic (re)insurance product models but do not access broader capital markets and risk-linked securities that access capital markets directly.

Abstract:  
U.S. insurers are heavily dependent on global reinsurance markets to enable them to provide adequate primary market insurance coverage. This article reviews the response of the world's reinsurance industry to recent mega-catastrophes and provides recommendations for regulatory reforms that would improve the efficiency of reinsurance markets. The article also considers the supply of insurance and reinsurance for terrorism and makes recommendations for joint public–private responses to insuring terrorism losses. The analysis shows that reinsurance markets responded efficiently to recent catastrophe losses and that substantial amounts of new capital enter the reinsurance industry very quickly following major catastrophic events. Considerable progress has been made in improving risk and exposure management, capital allocation, and rate of return targeting. Insurance price regulation for catastrophe-prone lines of business is a major source of inefficiency in insurance and reinsurance markets. Deregulation of insurance prices would improve the efficiency of insurance markets, enabling markets to deal more effectively with mega-catastrophes. The current inadequacy of the private terrorism reinsurance market suggests that the federal government may need to remain involved in this market, at least for the next several years.

www.bermuda-insurance.org.

Abstract:  
This paper conducts an event study analysis of the market value impact of operational loss events on non-announcing firms in the U.S. banking and insurance industries. We seek evidence of negative or positive information spillovers, i.e., that operational risk events have negative effects on stock prices of non-announcing firms or lead to wealth transfers from announcing to non-announcing firms. Three main sectors of the financial services industry are analyzed – commercial banking, investment banking, and insurance – and both intra and inter-sector
analyses are conducted. The rationale for anticipating inter-sector spillover effects is the integration of the previously fragmented markets for financial services that has occurred over the past twenty-five years – banks have entered the insurance market and insurers offer wholesale and retail financial products in competition with banks. The results indicate that operational risk events cause strong negative intra and inter-sector spillover effects, i.e., the stock prices of non-announcing firms respond negatively to operational loss announcements. Regression analysis reveals that the negative effect is information-based rather than purely contagious.

Abstract:
One of the most significant economic developments of the past decade has been the convergence of the financial services industry, particularly the capital markets and (re)insurance sectors. Convergence has been driven by the increase in the frequency and severity of catastrophic risk, market inefficiencies created by (re)insurance underwriting cycles, advances in computing and communications technologies, the emergence of enterprise risk management, and other factors. These developments have led to the development of hybrid insurance/financial instruments that blend elements of financial contracts with traditional reinsurance as well as new financial instruments patterned on asset-backed securities, futures, and options that provide direct access to capital markets. This article provides a survey and overview of the hybrid and pure financial markets instruments and provides new information on the pricing and returns on contracts such as industry loss warranties and Cat bonds.


Abstract:
This chapter analyzes the characteristics of U.S. insurers for purposes of determining whether they are systemically risky. More specifically, primary indicators and contributing factors associated with systemic risk are assessed for the insurance sector. A distinction is made between the core activities of insurers (e.g., underwriting, reserving, claims settlement, etc.) and their non-core activities (such as providing financial guarantees). Statistical analysis of insurer characteristics and their relationship with a well-known systemic risk measure, SRISK, is
The core activities of property-casualty insurers are found not to be systemically risky. However, we find evidence that some core activities of life insurers, particularly separate accounts and group annuities, may be associated with systemic risk. The non-core activities of both types of insurers can contribute to systemic risk. The study also finds that insurers may be susceptible to intra-sector crises such as reinsurance crises arising from counterparty credit risk. New and proposed state and federal regulations are reviewed in light of the potential for systemic risk for this sector.

Abstract:  
This paper examines the potential for the U.S. insurance industry to cause systemic risk events that spill over to other segments of the economy. We examine primary indicators that determine whether institutions are systemically risky as well as contributing factors that exacerbate vulnerability to systemic events. Evaluation of systemic risk is based on a detailed financial analysis of the insurance industry, its role in the economy, and the interconnectedness of insurers. The primary conclusion is that the core activities of the U.S. insurers do not pose systemic risk. However, life insurers are vulnerable to intra-sector crises because of leverage and liquidity risk; and both life and property-casualty insurers are vulnerable to reinsurance crises arising from counterparty credit exposure. Non-core activities such as derivatives trading have the potential to cause systemic risk, and most global insurance organizations have exposure to derivatives markets. To reduce systemic risk from non-core activities, regulators need to develop better mechanisms for insurance group supervision.

Abstract:  
This paper develops a broad concept of systemic risk, the basic economic concept for the understanding of financial crises. It is claimed that any such concept must integrate systemic events in banking and financial markets as well as in the related payment and settlement systems. At the heart of systemic risk are contagion effects, various forms of external effects. The concept also includes simultaneous financial instabilities following aggregate shocks. The quantitative literature on systemic risk, which was evolving swiftly in the last couple of years, is surveyed in the light of this concept. Various rigorous models of bank and payment system contagion have now been developed, although a general theoretical paradigm is still missing. Direct econometric tests of bank contagion effects seem to be mainly limited to the United States. Empirical studies of systemic risk in foreign exchange and security settlement systems appear to be non-existent. Moreover, the literature surveyed reflects the general difficulty to develop empirical tests that can make a clear distinction between contagion in the proper sense and joint crises caused by common shocks, rational revisions of depositor or investor expectations when information is asymmetric (“information-based” contagion) and “pure” contagion as well as between “efficient” and “inefficient” systemic events.
Abstract:  
Before discussing the effects of the attacks of 11 September 2001, we should be aware that the effects on the insurance industry, as serious as they may be, are small compared with the enormous human tragedy and the direct and indirect economic losses suffered by the City of New York.  
When analyzing the effects of the terrible events of September 11, it is useful to make a distinction between direct and indirect effects.


Summary:  
The September 2008 crisis for American International Group (AIG) did not come from its state-regulated insurance companies. The primary source of the problem was AIG Financial Products, which wrote credit default swaps (CDSs), derivatives, and futures with a notional amount of about $2.7 trillion, about $440 billion of which were credit default swaps. What happened at AIG arguably demonstrates the strength and effectiveness of state insurance regulation, not the opposite. State regulation requires that insurance companies maintain healthy reserves backed by investments that cannot be used for any other purpose. There are activities that the states need to improve, such as licensing and bringing new products to market. But where they are strong has been in maintaining solvency. Clearly a lesson from this crisis is that all financial institutions should be required to hold sufficient capital and reserves to meet their promises and liquidity needs.

Abstract:  
The financial meltdown that began in 2007 revealed problems with the financial guarantee insurers and regulation of these insurers. Financial guarantee insurers, with business models dependent on AAA-credit ratings, were exposed to risks that threatened those ratings. These insurers had four primary sources of risk: the proportion of structured finance in the insurance portfolio, the proportion of structured finance in their investment portfolio, selling credit default swaps, and providing guaranteed investment contracts. These exposures provided a toxic mix
once the structured finance market faltered and credit ratings fell. We examine these risk exposures and the failings of the regulatory framework of these insurers.


http://www.ivw.unisg.ch/~/media/Internet/Content/Dateien/InstituteUndCenters/IVW/WPs/WP53.ashx

Abstract
In this paper, we first discuss the characteristics and major benefits of the Swiss risk-based capital standards for insurance companies (Swiss Solvency Test), introduced in 2006. As the insurance industry is one of the largest institutional investors in Switzerland, changes to its asset and liability management as a result of the new regulatory framework could have striking economic effects. Thus, we further examine significant market implications for the Swiss economy due to possible changes in the asset and liability management of Swiss insurance companies. We investigate resulting effects on the Swiss capital market, focusing on bond, real estate, stock, foreign exchange markets, and the situation in case of a capital market crisis. Furthermore, we analyze potential consequences to corporate financing and product design. Most of the considered consequences result from the transition of past (in principle not risk-based) supervision to risk-based supervision and can thus be generalized to other supervision systems, in particular Solvency II.


http://www.ivw.unisg.ch/~/media/Internet/Content/Dateien/InstituteUndCenters/IVW/WPs/WP124.ashx

Abstract:
This paper reviews the extant research on systemic risk in the insurance sector and outlines potential new areas of research in this field. We summarize 43 theoretical and empirical research papers from both academia and practitioner organizations and provide a classification of existing research. Our results show, in general, that traditional insurance activity in the life, non-life, and reinsurance sectors neither contribute to systemic risk, nor increase insurers' vulnerability to impairments of the financial system. However, nontraditional activities (e.g., CDS writing) might increase vulnerability and life insurers might be more vulnerable than non-life insurers due to higher leverage. Furthermore, it is especially CDS and financial guarantees in the underwriting process as well as securitization of business, including guarantees and short-term funding, in the funding and investing process that are likely to contribute to systemic risk. This paper is of interest not only to academics, but is also highly relevant for the industry, regulators, and policymakers.


Abstract:
Although the insurance industry is less affected than the banking industry, the credit crisis has revealed room for improvement in its risk management and supervision. Based on this observation, we formulate ten consequences for risk management and insurance regulation. Many of these reflect current discussions in academia and practice, but we also add a number of new ideas that have not yet been the focus of discussion. Among these are specific aspects of agency and portfolio theory, a concept for a controlled run-off for insolvent insurers, new principles in stress testing, improved communication aspects, market discipline, and accountability. Another contribution of this paper is to embed the current practitioners’ discussion in the recent academic literature, for example, with regard to the regulation of financial conglomerates.


Abstract:
As early as the 1970s, European Union (EU) member countries implemented rules to coordinate insurance markets and regulation. However, with the more recent movement toward a general single EU market, financial services regulation has taken on new meaning and priority. Solvency I regulations went into effect for member nations by January 2004. The creation of risk-based capital standards, the main focus of Solvency II, now appears likely sometime after 2007. The purpose of the discussion presented here is to outline the specifics of Solvency II as they currently stand and provide input to evaluation process that, ultimately, will determine the exact form of capital regulation. Our analysis leads us to conclude that caution is warranted.


Abstract:
One of the most contentious issues raised during the recent crisis has been the potentially exacerbating role played by mark-to-market accounting. Many have proposed the use of historical cost accounting, promoting its ability to avoid the amplification of systemic risk. We caution against focusing on the accounting rule in isolation, and instead emphasize the interaction between accounting and the regulatory framework. First, historical cost accounting, through incentives that arise via interactions with complex capital adequacy regulation, does generate market distortions of its own. Second, while mark-to-market accounting may indeed generate fire sales during a crisis, forward-looking institutions that rationally internalize the probability of fire sales are incentivized to adopt a more prudent investment strategy during normal times which leads to a safer portfolio entering the crisis. Using detailed, position- and transaction-level data from the U.S. insurance industry, we show that (a) market prices do serve as ‘early warning signals’, (b) insurers that employed historical cost accounting engaged in greater degrees of regulatory arbitrage before the crisis and limited loss recognition during the crisis, and (c) insurers facing mark-to-market accounting tend to be more prudent in their portfolio allocations. Our identification relies on the sharp difference in statutory accounting
rules between life and P&C companies as well as the heterogeneity in implementation of these rules within each insurance type across U.S. states. Rather than promoting a shift away from market-based information, our results indicate that regulatory simplicity may be preferred to the complexity of risk-weighted capital ratios that gives rise, through interactions with accounting rules, to distorted risk-taking incentives and potential build-up of systemic risk.


Abstract:
We evaluate the impact of commonly used indicators of bank distress on broad (i.e. sector and country) risks. This issue deserves special attention in the banking industry where there is a strong degree of interconnectedness among institutions and the default of a single bank may cause a cascading failure, which could potentially bankrupt the entire system. Using several measures of individual bank risk our results show that these measures have a direct impact on European banking (i.e. systemic) stock market risk. We also provide strong evidence suggesting that, for listed banks, default risk tends to be systematic (i.e. non-diversifiable).


Introduction:
Since the early 1970s, life, annuity, and health insurance consumers have received protection against the financial risk of the insolvency of their insurer from guaranty associations (GAs) in their states of residence. Participants in the 2009 ABA/TIPS program have a particular interest in the “next level” of receiverships and the use of run-off techniques in today’s very challenging economic environment. Among other things, this paper addresses the extensive use of run-off concepts in prior multi-state life insurer insolvency cases and the potential use of GA-supported runoffs, should the current economic crisis cause the insolvency of one or more nationally significant insurers. Conventional run-off techniques have long been a basic option in the guaranty system’s “playbook.”

Fifty-two guaranty associations (for the 50 states, Puerto Rico, and the District of Columbia) coordinate consumer protection in major insolvencies (those involving multiple states) through their membership in the National Organization of Life and Health Insurance Guaranty Associations (NOLHGA), a not-for-profit corporation organized in 1983. NOLHGA’s members have protected consumers in many life and health company failures, including roughly 75 multi-state insolvency cases.

The purpose of this paper is to discuss briefly the mission of the life guaranty system (Part I); the development of the guaranty system in the context of U.S. insurer insolvency resolutions (Part II); the operations of the guaranty system when insurers fail (Part III); and the financial capacity of the guaranty system (Part IV).


Abstract:
As the financial crisis postmortems continue, and as implementation of U.S. financial market regulatory reforms under the Dodd-Frank Act slowly proceeds, a recurring question arises: How confident should purchasers and beneficiaries of insurance products be that the essential promises of their contracts will be fulfilled? This chapter proposes the following answer to that question: Consumers should be confident that insurers' commitments to them will be honored. The focus of the chapter is on how the life and health insurance guaranty system, working in conjunction with insurance regulators and receivers, operates to protect consumers who own policies and contracts with troubled life and health insurers. The chapter explains how the core insurance business model operates, how insurers are regulated for solvency, how insurance company resolution processes operate in the relatively rare cases when insurers fail, and how the insurance guaranty system works in tandem with the insurance regulatory and receivership processes.
Abstract:
The financial crisis has engendered widespread calls to further regulate the financial sector. Among the many proposals under consideration or implementation is the idea of applying more stringent supervision and, perhaps, more onerous regulations to “systemically relevant institutions”. This proposal is usually conceived as applying to banks. However, some institutions and governments have recently suggested that a similar approach could be taken to insurers.


https://www.genevaassociation.org/media/99405/ga2012-insurance_regulation-reflections_for_a_post-crisis_world.pdf

https://www.genevaassociation.org/media/99452/ga2012-surrenders_in_the_life_insurance_industry.pdf


Georgosouli, Andromachi and Miriam Goldby, 2015, Systemic Risk and the Future of
Introduction:
This book will discuss and analyse policy developments that have been occurring in the field of financial regulation and the implications for the insurance industry and markets.

The reform of insurance regulation has been a controversial subject for some time. A key driver of the reform has been the need to maintain financial stability by taking better control of systemic risk. Although there is a general consensus in favour of measures that aim to ensure a stable financial system, there is considerable debate as to whether insurance business is actually systemic. This book analyses systemic risk and the nature of insurance business, offering a critical assessment of what this interaction tells us about the rationale and merits of the current reform that is shaping the future of insurance regulation.

With contributors from a variety of fields including academia, legal practice, the insurance industry and financial regulation in the UK and the US this book will be essential reading for policy-makers, insurance regulators, insurance and legal professionals as well as students and academics researching and studying insurance law.

Abstract:
We modify Adrian and Brunnermeier's (2011) CoVaR, the Value-at-Risk (VaR) of the financial system conditional on an institution being in financial distress. We change the definition of financial distress from an institution being exactly at its VaR to being at most at its VaR. This change allows us to consider more severe distress events that are farther in the tail, to backtest CoVaR, and to improve its consistency (monotonicity) with respect to the dependence parameter. In addition, unlike in Adrian and Brunnermeier, the CoVaR of an institution here has a time-varying exposure to its VaR due to the time-varying correlation. We define the systemic risk contribution of an institution as the change from its CoVaR in its benchmark state, which we take as a one-standard deviation event, to its CoVaR under financial distress. We estimate the systemic risk contributions of four financial industry groups consisting of a large number of institutions for the sample period June 2000 to February 2008. We also investigate the link between institutions' contributions to systemic risk and their characteristics such as size, leverage, and equity beta. Finally, using 12 months of data prior to the beginning of June 2007, we compute industry groups' pre-crisis systemic risk contributions.

Abstract:
By failing to properly transfer ownership of loans and mortgages, recording fraudulent documents, and performing unlawful foreclosures, financial institutions and law firms have
generated property titles that range from defective to toxic. Those actions evince a systemic failure to comply with longstanding principles of real property law and regulations governing financial transactions. Title companies participated in title services and issued title insurance policies throughout the housing boom and although they did not directly cause toxic titles, many title insurers have ultimately assumed the risk for the bad practices that became the industry norms in the last decade. In this article, I will discuss how title insurers have exposed themselves to liability for toxic titles.


Abstract:
How did problems with subprime mortgages result in a systemic crisis, a panic? The ongoing Panic of 2007 is due to a loss of information about the location and size of risks of loss due to default on a number of interlinked securities, special purpose vehicles, and derivatives, all related to subprime mortgages. Subprime mortgages are a financial innovation designed to provide home ownership opportunities to riskier borrowers. Addressing their risk required a particular design feature, linked to house price appreciation. Subprime mortgages were then financed via securitization, which in turn has a unique design reflecting the subprime mortgage design. Subprime securitization tranches were often sold to CDOs, which were, in turn, often purchased by market value off-balance sheet vehicles. Additional subprime risk was created (though not on net) with derivatives. When the housing price bubble burst, this chain of securities, derivatives, and off-balance sheet vehicles could not be penetrated by most investors to determine the location and size of the risks. The introduction of the ABX indices, synthetics related to portfolios of subprime bonds, in 2006 created common knowledge about the effects of these risks by providing centralized prices and a mechanism for shorting. I describe the relevant securities, derivatives, and vehicles and provide some very simple, stylized, examples to show: (1) how asymmetric information between the sell-side and the buy-side was created via complexity; (2) how the chain of interlinked securities was sensitive to house prices; (3) how the risk was spread in an opaque way; and (4) how the ABX indices allowed information to be aggregated and revealed. I argue that these details are at the heart of the answer to the question of the origin of the Panic of 2007.


Abstract:
The “shadow” banking system played a major role in the financial crisis, but was not a central focus of the recent Dodd-Frank Law and thus remains largely unregulated. This paper proposes principles for the regulation of shadow banking and describes a specific proposal to implement those principles. We first document the rise of shadow banking over the last three decades, helped by regulatory and legal changes that gave advantages to three main institutions of shadow banking: money-market mutual funds (MMMFs) to capture retail deposits from traditional banks, securitization to move assets of traditional banks off their balance sheets, and repurchase
agreements ("repo") that facilitated the use of securitized bonds in financial transactions as a form of money. A central idea of this paper is that the evolution of a bankruptcy "safe harbor" for repo has been a crucial feature in the growth and efficiency of shadow banking, and so regulators can use access to this safe harbor as the lever to enforce new rules. As for the rules themselves, history has demonstrated two successful methods for the regulation of privately created money: strict guidelines on collateral (used to stabilize national bank notes in the 19th century), and government-guaranteed insurance (used to stabilize demand deposits in the 20th century). We propose the use of insurance for MMMFs combined with strict guidelines on collateral for both securitization and repo as the best approach for shadow banking, with regulatory control established by chartering new forms of narrow banks for MMMFs and securitization and using the bankruptcy safe harbor to incent compliance on repo.

Abstract:  
All economists should be conversant with "what happened?" during the financial crisis of 2007-09. We select and summarize sixteen documents, including academic papers and reports from regulatory and international agencies. This reading list covers the key facts and mechanisms in the build-up of risk, the panics in short-term-debt markets, the policy reactions, and the real effects of the financial crisis.

Abstract:  
The panic of 2007-2008 was a run on the sale and repurchase market (the repo market), which is a very large, short-term market that provides financing for a wide range of securitization activities and financial institutions. Repo transactions are collateralized, frequently with securitized bonds. We refer to the combination of securitization plus repo finance as "securitized banking" and argue that these activities were at the nexus of the crisis. We use a novel data set that includes credit spreads for hundreds of securitized bonds to trace the path of the crisis from subprime-housing related assets into markets that had no connection to housing. We find that changes in the LIB-OIS spread, a proxy for counterparty risk, were strongly correlated with changes in credit spreads and repo rates for securitized bonds. These changes implied higher uncertainty about bank solvency and lower values for repo collateral. Concerns about the liquidity of markets for the bonds used as collateral led to increases in repo haircuts, that is the amount of collateral required for any given transaction. With declining asset values and increasing haircuts, the US banking system was effectively insolvent for the first time since the Great Depression.

Grace, Martin F., 2010, “The Insurance Industry and Systemic Risk: Evidence and Discussion,” working paper, Georgia State University, Atlanta, GA.  
Abstract:
The financial market events in September 2008 seem unprecedented in modern times. While other systemically important events happened in the last thirty years affecting U.S. markets, the one month turmoil and government response is without equal. As a result, insurance industry economists have been dusting off dictionaries and looking up what systemic risk really means. Further, there are other policy analysts who are linking the insurance industry to systemic risk with a potential goal of changing the governmental level at which the entire industry is regulated. Systemic risk and the role insurers play in the market is of concern to both state regulators and Congress. This paper presents evidence regarding systemic effect of insurers and will discuss this in light of the rationale for federal regulation of the insurance industry.

http://www.bis.org/publ/gten05.pdf


http://www.bis.org/review/r120905a.pdf?ql=1


Abstract:
This article considers the role of American International Group (AIG) and the insurance sector in the 2007-2009 financial crisis and the implications for insurance regulation. Following an overview of the causes of the crisis, I explore the events and policies that contributed to federal government intervention to prevent bankruptcy of AIG and the scope of federal assistance to AIG. I discuss the extent to which insurance in general poses systemic risk and whether a systemic risk regulator is desirable for insurers or other nonbank financial institutions. The last two sections of the article address the financial crisis's implications for proposed optional and/or mandatory federal chartering and regulation of insurers and for insurance regulation in general.


Abstract:
This paper discusses a number of key issues regarding implementation by the Financial Stability Oversight Council (FSOC) and the Federal Insurance Office (FIO) of the Dodd-Frank Act's provisions affecting insurance. The paper emphasizes the fundamental differences between insurance and banking, including much lower potential for systemic risk and substantial market discipline in insurance, and how those differences favor solvency regulation and guaranty systems that reflect the distinctive features of each sector. The FSOC and FIO should carefully consider those differences in their analyses of possibly systemically important insurance companies and in the FIO's study and report to Congress on insurance regulation.


Summary
This chapter considers the broader issues of whether insurance entities pose systemic risk and the challenges and potential adverse consequences of designating additional insurance entities for enhanced supervision by the Federal Reserve. It begins with an overview of research and analyses of whether insurance activities and entities pose systemic risk. The chapter then summarizes the FSOC process for designating nonbank systemically important financial institutions (SIFIs) and the Financial Stability Oversight Council's (FSOC) stated rationale for designating American International Group (AIG) as systemically important. Three issues are then briefly considered: (i) regulatory and compliance costs and potential undesirable market disruptions from designation of insurance entities as SIFIs subject to enhanced supervision; (ii) the design of enhanced capital requirements for insurer SIFIs; and (iii) the risk that designation of insurer SIFIs would ultimately reduce market discipline by expanding “too big to fail” policy. The concluding section reiterates the chapter's main arguments.


Abstract:
The insurance industry has become more important for systemic financial stability. As a result, the supervision and disclosure of financial risks of insurance companies need to be strengthened. The insurance industry's increasing systemic importance also suggests that there is a need to search for some middle ground in the discussion of fair value accounting to mitigate potentially destabilizing financial volatility.


Abstract:
Systemic risk is the risk that the financial system will fail to function properly because of widespread distress. Failure of the system implies that capital will not be properly allocated and good projects will not be undertaken. Such pervasive financial fragility may occur because one
firm's failure causes a cascade of failures throughout the system. Or systemic risk may wreak havoc when a number of financial firms fail simultaneously, as in the Great Depression when more than 9,000 banks failed. If regulators elect not to bail out a failed financial institution, the alternative is to let it go bankrupt. Financial firm failures grab headlines and often generate a sensation of panic and crisis, leading regulators such as the Fed and Treasury to conclude that they must intervene. Regulators' desire to maintain stable, liquid, and orderly markets is best satisfied by letting financial firms file for bankruptcy protection.

Abstract:  
Financial firm distress often leads to regulatory intervention, such as "too big to fail" (TBTF) policies. Two oft-cited channels to justify TBTF are domino effects (counterparty risk) and the effects of fire sales. We analyze the policy responses for avoiding systemic risk while considering the role of these two factors. Prior bankruptcies suggest that cascades caused by counterparty risk do not occur, as firms diversify their exposures. Instead, crises tend to be symptomatic of common factors in financial firms' portfolios, which lead to widespread instances of declining asset values and which are often misinterpreted as resulting from fire sales.

Abstract:  
The policy of too big to fail arose in part from pressures created by the lack of satisfactory bankruptcy arrangements for banks. It prevented market forces from closing banks and protected all uninsured depositors of large banks from loss in the event of failure. The consequent risk-taking behavior of banks produced the systemic instability in banking that the policy was designed to prevent. It is debatable how the Deposit Insurance Reform Act of 1991 will affect the timing of bank closures, the risk-taking behavior of banks, and the contraction of the banking industry.

Abstract:  
This paper considers credit default swaps (CDSs) used for the transfer of credit risk within the banking sector. The banks' motive to conclude these CDS contracts is to improve the diversification of their credit risk. It is shown that these CDSs reduce the stability of the banking
sector in a recession. However, during a boom or in periods of moderate economic up- or downturn, they may reduce this stability. The main reasons behind these negative impacts are firstly, that banks are induced to increase their investment in an illiquid, risky credit portfolio, and secondly, that these CDSs may create a possible channel of contagion.

Abstract: 
The European insurance industry is among the largest institutional investors in Europe. Therefore, major reallocations in their investment portfolios due to the new risk-based economic capital requirements introduced by Solvency II would cause significant disruptions in European capital markets and corporate financing. This paper studies whether the new regulatory capital requirements for market risk are a binding constraint for European insurers by comparing the required market risk capital of the Solvency II standard model with the Standard & Poor's rating model for a fictitious, but representative, European-based life insurer. The results show that for a comparable level of confidence, the rating model requires 68 per cent more capital than the standard model for the same market risks. Hence, Solvency II seems not to be a binding capital constraint for market risk and thus would not significantly influence the insurance companies' investment strategies.

Abstract: 
This article discusses the origins and evolution of "systemic risk" as an idea, from the 1933 Banking Act, to the Depository Institutions Act of 1982, to the 1991 Federal Deposit Insurance Corporation Improvement Act, and culminating with Dodd-Frank and Title II Liquidation, which empowers the Treasury to appoint the Federal Deposit Insurance Corp (FDIC) as receiver for a non-bank financial company (NBFC) in cases where allowing "its resolution under otherwise applicable Federal or State law would have serious adverse effects on financial stability in the US." It explains that while federal regulators were "cognizant that they needed to be more specific," subsequent attempts via implementing regulations to clarify "systemic risk" fell short. Next, this article explains that NBFCs will seek certainty as to the definition of "systemic risk" to avoid being plucked from Chapter 11 and placed in Title II Liquidation. While Chapter 11 allows for due process for both the NBFC and its creditors and counterparties, Title II Liquidation grants to the FDIC nearly dictatorial powers.

http://www.bis.org/publ/work281.htm
Abstract: 
In this paper we propose a framework for measuring and stress testing the systemic risk of a group of major financial institutions. The systemic risk is measured by the price of insurance against financial distress, which is based on ex ante measures of default probabilities of
individual banks and forecasted asset return correlations. Importantly, using realized correlations estimated from high-frequency equity return data can significantly improve the accuracy of forecasted correlations. Our stress testing methodology, using an integrated micro-macro model, takes into account dynamic linkages between the health of major U.S. banks and macrofinancial conditions. Our results suggest that the theoretical insurance premium that would be charged to protect against losses that equal or exceed 15 percent of total liabilities of 12 major U.S. financial firms stood at $110 billion in March 2008 and had a projected upper bound of $250 billion in July 2008.


http://www.bis.org/repofficepubl/arpresearch201012.1.htm

Abstract:
We adopt a systemic risk indicator measured by the price of insurance against systemic financial distress and assess individual banks’ marginal contributions to the systemic risk. The methodology is applied using publicly available data to the 19 bank holding companies covered by the U.S. Supervisory Capital Assessment Program (SCAP), with the systemic risk indicator peaking around $1.1 trillion in March 2009. Our systemic risk contribution measure shows interesting similarity to and divergence from the SCAP loss estimates under stress test scenarios. In general, we find that a bank’s contribution to the systemic risk is roughly linear in its default probability but highly nonlinear with respect to institution size and asset correlation.


Abstract:
Two fast procedures for valuing tranches of collateralized debt obligations and n-th to default swaps are developed here. The procedures are based on a factor copula model of times to default and are alter- natives to using fast Fourier transforms. One involves calculating the probability distribution of the number of defaults by a certain time using a recurrence relationship; the other involves using a "probability bucketing" numerical procedure to build up the loss distribution. Many different copula models can be generated by using different distributional assumptions in the factor model. The impact on valuations of default probabilities, default correlations, and a correlation of recovery rates with default probabilities is shown. An examination of the market pricing of index tranches indicates that a double t-distribution copula fits the prices reasonably well.


Abstract:
This paper discusses the key sources of vulnerabilities for pension plans and insurance companies in light of the global financial crisis of 2008. It also discusses how these institutional investors transit shocks to the rest of the financial sector and economy. The crisis has re-ignited
the policy debate on key issues such as: 1) the need for countercyclical funding and solvency rules; 2) the tradeoffs implied in marked based valuation rules; 3) the need to protect contributors towards retirement from excessive market volatility; 4) the need to strengthen group supervision for large complex financial institutions including insurance and pensions; and 5) the need to revisit the resolution and crisis management framework for insurance and pensions.


Abstract:
This article shows that any coherent risk measure is given by a convex combination of expected shortfalls, and an expected shortfall (ES) is optimal in the sense that it gives the minimum value among the class of plausible coherent risk measures. Hence, it is of great practical interest to estimate the ES with given confidence level from the market data in a stable fashion. In this article, we propose an extrapolation method to estimate the ES of interest. Some numerical results are given to show the efficiency of our method.

International Association of Insurance Supervisors (IAIS), 2009, Systemic Risk and the Insurance Sector (Basel, Switzerland).

International Association of Insurance Supervisors (IAIS), 2010, Position Statement on Key Financial Stability Issues (Basel, Switzerland).
http://www.iaisweb.org/

International Association of Insurance Supervisors (IAIS), 2011, Insurance and Financial Stability (Basel, Switzerland).
Abstract:
This paper presents a supervisory perspective on the (re)insurance sector and on financial stability issues. It analyses the sector’s role in the financial markets, including its interaction with other financial institutions, and its impact on the real economy. In addition, the International Association of Insurance Supervisors (IAIS) endeavours to clarify the rationale of its proposed methodology to identify any institutions “whose disorderly failure, because of their size, complexity and systemic interconnectedness, would cause significant disruptions to the wider financial system and economic activity.”

International Association of Insurance Supervisors (IAIS), 2012a, Global Systemically Important Insurers: Proposed Assessment Methodology (Basel, Switzerland).
http://www.iaisweb.org/

International Association of Insurance Supervisors (IAIS), 2012b, Reinsurance and Financial Stability (Basel, Switzerland).
http://www.iaisweb.org/
Executive Summary:
The global financial system remains under severe stress as the crisis broadens to include households, corporations, and the banking sectors in both advanced and emerging market countries. Shrinking economic activity has put further pressure on banks’ balance sheets as asset values continue to degrade, threatening their capital adequacy and further discouraging fresh lending. Thus, credit growth is slowing, and even turning negative, adding even more downward pressure on economic activity. Substantial private sector adjustment and public support packages are already being implemented and are contributing to some early signs of stabilization. Even so, further decisive and effective policy actions and international coordination are needed to sustain this improvement, to restore public confidence in financial institutions, and to normalize conditions in markets. The key challenge is to break the downward spiral between the financial system and the global economy. Promising efforts are already under way for the redesign of the global financial system that should provide a more stable and resilient platform for sustained economic growth.

Abstract
Using daily data on margins and variation margins for all clearing members of the Chicago Mercantile Exchange, we analyze the clearing house exposure to the risk of default by clearing members. We find that the major source of default risk for a clearing member is proprietary trading rather than trading by customers. Additionally, we show that extreme losses suffered by important clearing firms tend to cluster, which raises systemic risk concerns. Finally, we discuss how private insurance could be used to cover the loss from defaults by clearing members.

Abstract:
Traditionally, individual states have shared responsibility for regulating the US insurance industry. The Dodd-Frank Act changes this by tasking the Federal Reserve with regulating the systemic risks that particularly large insurance organizations might pose and assigning the regulation of swap-based substitutes for insurance and reinsurance products to the SEC and CFTC. This paper argues that prudential regulation of large insurance firms and weaknesses in federal swaps regulation could reduce the effectiveness of state-based systems for protecting policyholders and taxpayers from nonperformance in the insurance industry. Swap-based substitutes for traditional insurance and reinsurance contracts offer protection sellers a way to transfer responsibility for guarding against nonperformance into potentially less-effective hands. The CFTC and SEC lack the focus, expertise, experience, and resources to manage adequately the ways that swaps transactions can affect US taxpayers’ equity position in global safety nets, while regulators at the Fed refuse to recognize that conscientiously monitoring accounting capital at financial holding companies will not adequately protect taxpayers and policyholders until and unless it is accompanied by severe penalties for managers that willfully hide their firm's exposure to destructive tail risks.

http://www.independent.org/publications/tir/
Abstract:
Clusterings of bank failures occur frequently, but do they reflect systemic risk? Without a theoretically coherent and empirically grounded conception of systemic risk, bank regulators run the risk of exacerbating it, as the banking history of the past century has demonstrated.

Abstract:
The traditional model of (re)insurance lacks the elements that make a financial institution systemically important: risks are effectively pulverized; liabilities tend to be prefunded, which eliminates most of the leverage in the traditional sense; and active asset-liability management reduces most of the liquidity mismatch that traditionally propagates systemic risk. (Re)insurers that have stuck to this traditional business model have successfully weathered the crisis, even playing a stabilizing role. Unfortunately, this is not sufficiently recognized in the current IAIS/FSB1 debate on assessing systemic risk in the (re)insurance sector.

http://www.palgrave-journals.com/gpp/journal/v37/n1/abs/gpp20119a.html
Abstract:
The recent financial crisis and its cascading effects on the global economy have drawn increased attention to the regulation of financial institutions including insurance companies. While many
observers would argue that insurance companies were not significant contributors to the crisis, the role of insurance companies in the financial economy and their potential vulnerability to systemic risk have become matters of considerable interest to policy-makers and regulators. In this context, this paper examines the basic economic principles that should govern the regulation of insurance and employs these principles in assessing current regulatory practices and potential reforms. Specifically, it articulates the basic rationale for insurance regulation, which is the remediation of market failures where regulation can enhance social welfare. In insurance, the principal market failures that warrant regulatory intervention are severe asymmetric information problems and principal-agent conflicts that could lead some insurance companies to incur excessive financial risk and/or engage in abusive market practices that harm consumers. This provides an economic basis for the regulation of insurers’ financial condition and market conduct. At the same time, the regulatory measures that are employed to correct market failures should be efficient and effective. Judged against these principles, the systems for solvency and market conduct regulation in the United States warrant significant improvement. There appears to be little or no justification for regulating insurance rates in competitive markets and the states should move forward with full deregulation of insurance prices. The EU appears to be much farther ahead in terms of implementing best practices in the regulation of insurers’ financial condition under its Solvency II initiative. It is also much closer to the desirable goal of full price deregulation than the United States.

Abstract:
During the financial crisis, life insurers sold long-term policies at deep discounts relative to actuarial value. The average markup was as low as −19 percent for annuities and −57 percent for life insurance. This extraordinary pricing behavior was due to financial and product market frictions, interacting with statutory reserve regulation that allowed life insurers to record far less than a dollar of reserve per dollar of future insurance liability. We identify the shadow cost of capital through exogenous variation in required reserves across different types of policies. The shadow cost was $0.96 per dollar of statutory capital for the average company in November 2008.

Abstract:
The article analyses implications for risk management in insurance arising from the current financial crisis. After a brief comparison of the insurance to the banking world, we discuss the root causes of the current financial crisis with a particular focus on risk management and incentives. Against the backdrop of this discussion, lessons are derived from an insurance risk management point of view. In particular, the article pleads for a pronounced external and forward-looking approach to supplement the traditional methodology, which tends to be more inward-looking and ultimately backward-oriented.

Abstract:
This article investigates the role of reinsurance networks in an insurer's reinsurance purchase decision. Drawing on network theory, we develop a framework that delineates how the pattern of linkages among reinsurers determines three reinsurance costs (loadings, contagion costs, and search and monitoring costs) and characterizes an insurer's optimal network structure. Consistent with empirical evidence based on longitudinal data from the U.S. property and casualty insurance industry, our model predicts an inverted U-shaped relationship between the insurer's optimal percentage of reinsurance ceded and the number of its reinsurers. Moreover, we find that a linked network may be optimal ex ante even though linkages among reinsurers may spread financial contagion, supporting the model's prediction regarding social capital benefits associated with network cohesion. Our theoretical model and empirical results have implications for other networks such as loan sale market networks and over-the-counter dealer networks.

http://link.springer.com/chapter/10.1007/978-94-010-0642-2_16

Abstract:
Although insurance contracts are regularly purchased by corporations and play an important role in the management of corporate risk, only recently has this role received much attention in the finance literature. This paper provides a formal analytic survey of recent theoretical developments in the corporate demand for insurance. Insurance contracts are characterized as simply another type of financial contract in the nexus of contracts that comprise the corporation. The model developed here focuses specifically on the efficiency gains that can be derived from using corporate insurance contracts to reduce bankruptcy costs, agency costs, and tax costs.


Abstract:
Two new indices for financial diversity are proposed. The first is aggregative and evaluates distance from a single factor driving returns. The second evaluates how fast correlation with a stock rises as the stock falls. Both measures are here risk neutral. The CRI is also compared with coVaR. These measures are negatively related and so focus attention on different aspects of systemic risk. Unlike the coVaR focused on expected losses the CRI measures the risks of increased correlation and lack of diversity in activities. The CRI also declined consistently for AIG and LEH prior to their bankruptcies indicating that the market was active in decorrelating itself from these firms.

Abstract:
The issuance of structured finance securities boomed during the run-up to the Financial Crisis. Existing explanations for this growth emphasize supply-side factors. Demand, however, was also encouraged by efforts to avoid regulatory capital requirements. We show that life insurance companies exposed to unrealized losses from low interest rates in the early 2000s increased their holdings of highly rated securitized assets, assets which offered the highest yield per unit of required capital. The results are only evident in accounts subject to capital requirements and at firms with low levels of ex ante capital, consistent with regulatory distortions fueling the demand for securitized assets.

http://www.naic.org/capital_markets_archive.htm


A main cause of the crisis of 2007–2009 is the various ways through which banks have transferred credit risk in the financial system. We study the systematic risk of banks before the crisis, using two samples of banks respectively trading Credit Default Swaps (CDS) and issuing Collateralized Loan Obligations (CLOs). After their first usage of either risk transfer method, the share price beta of these banks increases significantly. This suggests the market anticipated the risks arising from these methods, long before the crisis. We additionally separate this beta effect into a volatility and a market correlation component. Quite strikingly, this decomposition shows that the increase in the beta is solely due to an increase in banks’ correlations. Thus, while banks may have shed their individual credit risk, they actually posed greater systemic risk. This creates a challenge for financial regulation, which has typically focused on individual institutions.
http://www.palgrave-journals.com/gpp/journal/v35/n1/abs/gpp200936a.html  
Abstract:  
We consider probabilistic approaches and stress tests as methods for regulators to set the minimum solvency margin for insurers. Each method has advantages and disadvantages. We assess the implications of the global financial crisis for each method, concentrating on life insurers. We have concerns that the probabilities used in probabilistic approaches are not robust. Regulators may find it beneficial to focus on the use of stress tests, although there are lessons to learn from the global financial crisis about the design and use of such tests.


Abstract:  
This comprehensive study responds to the growing concerns of economic, financial, political and social actors regarding the ever increasing exposure to new expanding risks. These risks are particularly related to natural disaster/environment pollution, technology, health and terrorism. For insurers the difficulty is encountered in adequately appraising and covering the potential liability stemming from these risks. It also sketches out some policy recommendations for decision makers in governments and in the business community on how to limit, prevent and manage such risks. In this perspective it will constitute a unique reference work for the attention of both OECD countries and emerging economies.

http://www.oecd.org/daf/ca/corporategovernanceprinciples/theimpactofthefinancialcrisisontheinsurancesectorandpolicyresponses.htm  
Abstract:  
This special report assesses the impact of the crisis on the insurance sector and reviews policy responses within OECD countries. It is based to a large extent on a quantitative and qualitative questionnaire that was circulated to OECD countries in 2009. The report shows that generally the insurance sector demonstrated resilience to the crisis, though with some variation across the OECD, and concludes with a number of policy conclusions.


Abstract:
American International Group, Inc. (AIG), a large insurance company, received a massive bailout during the financial crisis in response to difficulties centered on the company’s multifaceted exposure to residential mortgage-backed securities. The company is back on its feet, albeit in more streamlined form and with a new overseer — the Federal Reserve. This paper focuses on a piece of the AIG story that is rarely told — the role of the company’s securities-lending program in imperiling the company and some of its insurance subsidiaries. The paper argues that regulatory responses to AIG have been inapt. AIG did not need another regulator, but better risk management. The markets would have conveyed that message clearly had regulators not intervened to ensure AIG’s survival. This paper adds the missing piece to the AIG story in an effort to challenge the notion that more regulatory oversight for companies like AIG will prevent future crises.

Abstract:
Bond insurance was a small but sophisticated sector of the broader insurance industry. Conceived and created in the 1970s, bond insurance penetrated more than half of the entire US municipal bond market in the 1990s. This article explains bond insurance, its rise to prominence, and its sudden and shocking collapse. A diversifying foray of the bond insurers into structured finance risk in the years prior to 2007 is a dominant cause of these firms’ failures. Yet the larger
story is the manner in which business imperatives, rating agencies, and regulators enabled and encouraged all bond insurers to pursue the same catastrophic strategy. The uniformity of strategy and capital and risk assessment created the "systemic risk" of high correlation among bond insurers.

http://www.newyorkfed.org/research/staff_reports/sr458.html

Abstract:  
The rapid growth of the market-based financial system since the mid-1980s changed the nature of financial intermediation. Within the market-based financial system, “shadow banks” have served a critical role. Shadow banks are financial intermediaries that conduct maturity, credit, and liquidity transformation without explicit access to central bank liquidity or public sector credit guarantees. Examples of shadow banks include finance companies, asset-backed commercial paper (ABCP) conduits, structured investment vehicles (SIVs), credit hedge funds, money market mutual funds, securities lenders, limited-purpose finance companies (LPFCs), and the government-sponsored enterprises (GSEs). Our paper documents the institutional features of shadow banks, discusses their economic roles, and analyzes their relation to the traditional banking system. Our description and taxonomy of shadow bank entities and shadow bank activities are accompanied by “shadow banking maps” that schematically represent the funding flows of the shadow banking system.


Abstract:  
The financial crisis has led to controversial discussions about the capital base of the European insurance industry. Dividend cuts have been suggested to preserve capital. However, some observers seem to fear that investors could interpret a reduction of dividends as a sign of future problems. The empirical evidence reported here does not indicate that dividend smoothing or dividend signaling are relevant economic phenomena examining the dividend policy of the European insurance industry. Therefore, insurance companies should not be too concerned about the negative consequences of dividend cuts.


Abstract:  
Systemic risk refers to the propagation of a bank's economic distress to other economic agents linked to that bank through financial transactions. Banking authorities often prevent systemic risk through an implicit insurance of interbank claims, or by reducing interbank transactions and centralizing banks' liquidity management. This paper investigates whether the flexibility afforded by decentralized bank interactions can be preserved while protecting the central banks from the necessity of conducting undesired rescue operations. It develops a model in which
decentralized interbank leading is motivated by peer monitoring. In this context, the paper derives the optimal prudential rules, and, in particular, looks at the impact of interbank monitoring on the solvency and liquidity ratios of borrowing and lending banks. Last, it provides conditions which a Too Big To Fail policy is or is not justified and studies the possibility of propagation of a bank's liquidity shock throughout the financial system.

Abstract:
We examine the effects of the American International Group, Inc.’s (AIG's) loss announcements and the Federal Reserve's subsequent innovation in the financial sector. Analysis of seemingly unrelated regression on the returns of four financial industries – banking, insurance, brokerage firms and savings and loan institutions (S&Ls) for the period 5 September 2007 to 31 December 2008 reveals that, the Federal Reserve's announcements on 16 September 2008 and on 8 October 2008 to pledge $85 billion and $37.8 billion, respectively, to save the AIG, have the most impact on the financial industries. All four industries are sensitive towards shocks in short- and long-run interest rate returns and market returns. We find evidence of significant contagion effect between insurance and banking industries and incremental systemic risk in all financial industries after the bailout by the Federal Reserve. We do not find any significant evidence supporting the Federal Reserve's perception of AIG to be too-big-to-fail.

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Description:
Financial crises are nothing new. What is unique and sobering is the far greater speed with which the current situation has evolved from a weakening of the U.S. housing market into a full-blown, global economic meltdown. Also new this time is how quickly the fallout spread beyond the financial sector into all areas of the economy. Advanced communications and information technologies are creating an era of greater risk with more serious and far-reaching consequences when compared with even the recent past.

Abstract:
More than half of the municipal bonds issued between 1995 and 2009 were sold with bond insurance. During the credit crisis the perceived credit quality of the financial guarantors fell, and yields on insured bonds exceeded yields on equivalent uninsured issues. It does not appear that either property and casualty insurers or open-end municipal mutual funds were dumping insured bonds; analysis of holdings data indicates that their propensity to sell bonds was unusually low for the issues insured by troubled insurers. At least on a bond-by-bond basis, the yield inversion phenomenon is also not explained by the rapid liquidation of Tender Option Bond (TOB) programs, which disproportionately held insured issues. Finally, during the recent crisis the insured bonds have become significantly less liquid than uninsured municipal debt.

Slijkerman, Jan Frederik, 2006, “Insurance Sector Risk,” working paper, Tinbergen Institute, Erasmus University, Rotterdam, the Netherlands.
http://papers.tinbergen.nl/06062.pdf
Abstract:
We model and measure simultaneous large losses of the market value of insurers to understand the impact of shocks on the insurance sector. The downside risk of insurers is explicitly modeled by common and idiosyncratic risk factors. Since reinsurance is important for the capacity of insurers, we measure risk dependence among European insurers and reinsurers. The results point to a relatively low insurance sector wide risk. Dependence among insurers is higher than among reinsurers.

Abstract:
The mutual and cross company exposures to fat-tail distributed risks determine the potential impact of a financial crisis on banks and insurers. We examine the systemic interdependencies within and across the European banking and insurance sectors during times of stress by means of extreme value analysis. While insurers exhibit a slightly higher interdependency in comparison with banks, the interdependency across the two sectors turns out to be considerably lower. This suggests that downside risk can be lowered through financial conglomeration.

**Standard & Poor’s, 2012, Industry Surveys: Banking (New York, NY).**

**Standard & Poor’s, 2012, Industry Surveys: Insurance – Life & Health (New York, NY).**

**Swiss Re, 2001, Reinsurance – A Systemic Risk? Sigma No. 5/2003 (Zurich, Switzerland).**


http://www.newyorkfed.org/research/staff_reports/sr580.pdf

**Abstract:**

We provide an overview of the rapidly evolving literature on shadow credit intermediation. The shadow banking system consists of a web of specialized financial institutions that conduct credit, maturity, and liquidity transformation without direct, explicit access to public backstops. The lack of such access to sources of government liquidity and credit backstops makes shadow banks inherently fragile. Much of shadow banking activities is intertwined with the operations of core regulated institutions such as bank holding companies and insurance companies, thus creating a source of systemic risk for the financial system at large. We review fundamental reasons for the existence of shadow banking, explain the functioning of shadow banking institutions and activities, discuss why shadow banks need to be regulated, and review the impact of recent reform efforts on shadow banking credit intermediation.

**Tobias, Adrian, Adam B. Ashcraft, and Nicola Cetorelli, 2013, “Shadow Bank Monitoring,”**

FRB of New York Staff Report No. 638.  
http://www.newyorkfed.org/research/staff_reports/sr638.pdf

**Abstract:**

We provide a framework for monitoring the shadow banking system. The shadow banking system consists of a web of specialized financial institutions that conduct credit, maturity, and liquidity transformation without direct, explicit access to public backstops. The lack of such access to sources of government liquidity and credit backstops makes shadow banks inherently fragile. Shadow banking activities are often intertwined with core regulated institutions such as bank holding companies, security brokers and dealers, and insurance companies. These interconnections of shadow banks with other financial institutions create sources of systemic risk for the broader financial system. We describe elements of monitoring risks in the shadow banking system, including recent efforts by the Financial Stability Board.
http://www.aef.asso.fr/allparution.jsp?prm=9

Abstract:
The collapse of the US monoliners and the rescue of AIG by the US government may have given the impression that we would have finally had the proof of the systemic nature of insurance. This conclusion relies on a twin misleading argumentation: should insurance be a victim of a systemic crisis does not allow us to conclude that it is systemic; if an insurer is at the epicentre of a systemic shock, because of its banking or quasi-banking activities, does not allow us to conclude that insurance operations are systemic. As demonstrated in this article, insurance operations are not, by nature, systemic. That does not mean that the failure of a big insurer would not constitute a big economic shock, as would the default of a automaker or of whatever big company. This observation has important consequences for the design of an optimal insurance supervision and of its articulation with banking supervision. Of course, a significant financial shock does not constitute, per se, a systemic risk and one should not substitute one for the other, especially with regard to prudential supervision.


http://bea.gov/national/nipaweb/Index.asp.


http://ideas.repec.org/p/dnb/dnbwpp/201.html
Abstract:
We analyze the effect of failing reinsurance cover on the stability of Dutch insurers. As insurers often reinsure themselves with other (re)insurers, a firm's loss could spread contagiously through the sector. Using a unique and confidential data set on reinsurance exposures, we gain insight into the reinsurance market structure and perform a scenario analysis to measure contagion risks. Considering entities on a standalone basis, we find no evidence of systemic risk in the Netherlands, even if multiple reinsurance companies fail simultaneously. At group level our analysis points to the contagion risk of in-house reinsurance structures, given that such in-house reinsurance parties are generally not higher capitalized than other group members.

Abstract:
Policymakers and scholars are asking what role regulation played in creating the recent financial turmoil, and how the structure of financial services regulation should change to prevent similar financial crises in the future. Policymakers argue the U.S. needs an increased focus on systemic risk and a resolution authority for systemically risky institutions. While the final outcome is still uncertain, it is clear that the structure of U.S. financial services regulation will change. Much of that change will address issues broader than or outside the scope of insurance regulation, but some of it will inevitably interact with insurance regulation. This article summarizes theories that are often used to explain regulatory failure and examines the unique structure of U.S. insurance regulation within the context of those theories.

Abstract:
The OECD has just released an in-depth analysis on the assessment, management and compensation of the so-called expanded systemic risks to which enterprises and insurers are exposed. This comprehensive study responds to the growing concerns of economic, financial, political and social actors regarding the ever increasing exposure to emerging risks. These risks are in particular related to natural disaster/environmental pollution, technology, health and terrorism. Appraising adequately and covering the potential liability stemming from these risks is a challenging task for insurers. The report sketches out some policy recommendations for decision makers in governments and in the business community on how to prevent, limit and manage such risks. This article presents the authors' introduction to the report, which describes the background of the study as well as the main issues it addresses.

Abstract:
It is widely believed that diversification at financial institutions benefits the stability of the financial system. This paper shows that it also entails a cost: even though diversification reduces each institution's individual probability of failure, it makes systemic crises more likely. When systemic crises induce additional costs (over and above individual failures), full diversification is no longer desirable as a result and the optimal degree of diversification may be arbitrarily low. We show that the analysis can be extended beyond diversification, such as to interbank insurance and financial integration.

Abstract:
The government takeover of Fannie Mae and Freddie Mac was necessary because of their massive losses on more than $1.6 trillion of subprime and Alt-A investments, almost all of which were added to their single-family book of business between 2005 and 2007. The most plausible explanation for the sudden adoption of this disastrous course-disastrous for them and for the U.S. financial markets—is their desire to retain the support of Congress after their accounting scandals in 2003 and 2004 and the challenges to their business model that ensued. Although the strategy worked—Congress did not adopt strong government-sponsored enterprise (GSE) reform legislation until the Republicans demanded it as the price for Senate passage of a housing bill in July 2008—it led inevitably to the government takeover and the enormous junk loan losses still to come. Now that the federal government has been required to take effective control of Fannie and Freddie and to decide their fate, it is important to understand the reasons for their financial collapse—what went wrong and why. That is the purpose of this article.

Abstract:
The risk benchmarks and underwriting cycle models presented here can be used by insurers in their enterprise risk management models. We analyze the historical underwriting cycle and develop a regime-switching model for simulating future cycles, and show its superiority to an autoregressive approach. We compute benchmarks for pricing and reserving risks by line of business and by industry segments (large national, super regional, and small regional). We also compute the historical correlation of the loss ratio, as well as the correlation of changes in the reserve estimate between lines of business.

Abstract:
In the era of globalization, financial sectors are not left behind: Cross-border and cross-sector financial institutions can increasingly be found in the banking, insurance and security
trading landscape. The impact of such large and complex groups on the financial system, particularly in terms of systemic risks, raises several regulatory concerns. This article focuses on the particular case of financial conglomerates and attempts to assess the recent international and European legal framework addressing their supervision. The authors critically examine the set of regulatory responses dealing directly or indirectly with systemic risks and suggest ancillary issues that need to be further tackled in the financial conglomerates supervision discussions.

Abstract:  
This paper is the first to examine the effects of consolidation in the international insurance industry on the acquirers' contribution to systemic risk. We analyze a sample of 409 international domestic and cross-border mergers which took place between 1984 and 2010 and find mixed empirical evidence in support of a destabilizing effect of consolidation in the insurance industry. While our results indicate a strong positive relation between consolidation in the insurance industry and moderate systemic risk in the insurance and banking sector, this effect does not carry over to extreme systemic risk. Furthermore, we find strong empirical evidence in support of hypotheses that firm size, leverage and diversification across insurance lines all add to the destabilizing effect of insurance consolidation. At the same time, cross-border mergers are revealed to have a limiting influence on the merger-related changes in moderate systemic risk.

Abstract:  
Do catastrophe bonds increase or decrease the exposure and contribution to systemic risk of the issuing insurance companies? And if such issues influence systemic stability, what design features of the bond and characteristics of the issuing insurer cause catastrophe bond issues to destabilize the financial sector? Contrary to current conjectures of insurance regulators, we find that the contribution of ceding insurers to systemic risk actually decreases significantly after the issue of a catastrophe bond. We empirically confirm that a higher pre-issue leverage, a higher firm valuation and previous cat bond issues all exert a decreasing effect on the issuer's systemic risk contribution.

Abstract:  
Are some insurers relevant for the stability of the financial system? And if yes, what firm fundamentals and aspects of insurers' business models cause them to destabilize an entire financial sector? We find that several insurers did indeed contribute significantly to the
instability of the U.S. financial sector during the recent financial crisis. We empirically confirm that insurers that were most exposed to systemic risk were larger, relied more heavily on non-policyholder liabilities and had higher ratios of investment income to net revenues on average. Contrary to current conjectures of insurance regulators, we find that the contribution of insurers to systemic risk is only driven by insurer size.

**World Economic Forum, 2008, Global Risks 2008 (Geneva, Switzerland).**

Abstract:
This report examines global risks for 2008 from a range of perspectives. It focuses on four emerging issues that shape the global risk landscape, namely systemic financial risk, food security, supply chains and the role of energy. The paper then presents a collective assessment of global risks in 2008, looks at the methodological hurdles around the representation of interconnectedness and demonstrates how risk "squeezing" and homogenization of risk have changed the way risk is perceived globally. It also examines the role of financial markets as tools of risk transfer and risk mitigation. Finally, it analyzes the construction of risk mitigation coalitions and country risk management.


Abstract:
Switzerland has a systemically important financial sector. This paper analyzes the financial soundness and risk dynamics of Swiss banks and insurance companies for the past five years. The cross-country comparisons show that despite the recovery in profitability and capital for banks and insurance companies, challenges and risks remain. In particular, big banks should continue to deleverage, enhance capital quality, and build stronger liquidity buffers. Adopting the “Too Big To Fail” legislation is crucial to reduce the systemic risk. Preemptive measures are needed to address weaknesses in mortgage lending standards and associated risk management practices. The full implementation of the Swiss Solvency Test is an important step forward to enhance the insurance sector’s resilience while a sustained low interest rate has negatively affected the sector. Risks associated with insurance companies’ exposure to the real estate market warrant continued close monitoring and effective management.


Abstract:
A large-value (or wholesale) payment system is a contractual and operational arrangement that banks and other financial institutions use to transfer large-value, time-critical funds to each other. The key issues in large-value payment systems and the optimal payment system design that addresses these issues are examined. The remedy for liquidity shortage in a real-time gross settlement system, the provision of intraday liquidity by the central bank and the policies designed to reduce the central bank's resulting exposure to credit risk are discussed.
Three intraday-credit policies commonly used by central banks are described: 1. a cap on an institution's net debit position during the day, 2. an interest charge on the usage on intraday credit, and 3. a collateral requirement to back the extension of intraday credit. The experience of Fedwire after the introduction of the first two policies is discussed.


Abstract:
Purpose - The purpose of this paper is to analyze a recent proposal by the State of New York that would subject a large portion of the credit default swap (CDS) market to state-based insurance regulatory oversight. Design/methodology/approach - Using the collapse of AIG as an example of the systemic risk inherent in unregulated CDS transacting, the Coase Theorem is then applied to determine the optimal level of CDS regulatory oversight. Findings - Although CDSs resemble insurance contracts in many respects, they are also uniquely complex financial instruments that are continually changing and thus not well suited for the antiquated state-based model of insurance regulation. Furthermore, the external forces that influence state-based regulatory decision-making are likely to produce inefficient regulation. Practical implications - The Coase Theorem states that the optimal level of regulatory oversight is the one that causes market participants to internalize the risk inherent in transacting and does so at the lowest cost. Because of the complexity of CDS contracts and the unique forces that guide state-based regulatory decision-making, the State of New York's proposal is ill advised. Originality/value - By utilizing a law and economics perspective, it becomes clear that although a state-based model of regulatory oversight may force market participants to internalize systemic risk, it is nevertheless suboptimal because it does not do so at the lowest cost.