

Onshore Special Purpose Reinsurance Vehicles: A Public Policy Evaluation

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This paper evaluates proposed regulatory and implied tax policies for onshore special purpose reinsurance vehicles. The Reinsurance Association of America (RAA) provided support for the research underlying this paper. However, the views expressed are solely those of the authors and do not necessarily represent the views of the RAA, any of its members or Georgia State University.

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Onshore Special Purpose Reinsurance Vehicles: A Public Policy Evaluation

Executive Summary

Introduction

The increased risk from natural disasters in the U.S. has prompted significant changes in primary insurance markets and changes in related markets for reinsurance and other forms of risk transfer and financing. Among the mechanisms that have been developed are Special Purpose Reinsurance Vehicles (SPRVs), which have been principally formed outside the U.S. (for tax and regulatory reasons) to facilitate the securitization of catastrophic insurance risk. However, some insurers complain that forming SPRVs offshore incurs extra costs and has other disadvantages. Model regulatory legislation has been proposed to the National Association of Insurance Commissioners (NAIC) that would facilitate the formation of SPRVs in the U.S. The interest in onshore SPRVs is primarily motivated by catastrophe risk, but their proponents also have suggested that they might be used to securitize other types of insurance risks.

The proposed SPRV model legislation raises several important regulatory, accounting and tax issues. These issues concern how regulatory and tax policies for onshore SPRVs should be structured to ultimately promote the interests of insurance consumers and the general public. This paper examines these issues from an economic and a public policy perspective and offers observations on how onshore SPRVs might be best utilized and regulated.

Alternative Risk Financing Mechanisms

Reinsurance

Historically, the principal method utilized by primary insurers to transfer risks they do not wish to retain has been reinsurance. Reinsurance is a bilateral insurance contract whereby a reinsurer agrees to indemnify a ceding insurer based upon the cedant's own loss experience. Many catastrophe reinsurance programs are written on an excess-of-loss basis whereby the primary insurer retains all losses up to an aggregate limit (across all policies subject to the treaty) and the reinsurance company agrees to pay part or all of the losses above the attachment point up to a pre-determined limit. Reinsurance contracts are individually tailored to the needs of the primary ceding company and are priced according to the expected losses to the reinsurer plus an expense and profit loading necessary to compensate the reinsurer for underwriting the risk.

Catastrophe Options and Catastrophe Bonds

To date, the most important alternative risk financing mechanisms (relative to reinsurance) have been call option spreads and catastrophe bonds. The Chicago Board of Trade's catastrophe call spreads are exchange-traded contracts that settle on established industry loss indices. For several reasons, the growth in the market for these options has slowed and the contracts are not being actively traded at this time.

Catastrophe bonds have been more successful, although their growth also has been slower than some would like. Capital raised by issuing the bonds is invested in safe securities (e.g., high-grade commercial paper or Treasury bonds) that, to date, have usually been held by an offshore single purpose reinsurer. If the catastrophic event defined in the contract underlying the bonds does not occur, the investors receive their principal plus interest. If the defined event occurs, the insurer can withdraw funds from the reinsurer to pay claims, and part or all of the interest and principal payments on the bonds are forgiven. The greater success of catastrophe bonds contributes to the interest in facilitating onshore SPRVs.

Catastrophe bonds that contain a trigger based upon the ceding insurer's own loss experience are known as *indemnity* bonds. *Loss-index* bonds have been issued which contain a trigger based upon industry-wide loss indices – similar to the indices that underlie the CBOT call spreads. *Parametric* catastrophe bonds have been issued which define the trigger based upon some parametric measure of the severity of the catastrophic event. Finally, the trigger on a catastrophe bond can be based upon either single or multiple criteria, i.e., single vs. dual trigger bonds. These triggers have different implications for the basis risk and moral hazard associated with a particular insurance securitization.

Catastrophe Options and Bonds Compared

Catastrophe options and catastrophe bonds offer different advantages. Catastrophe options are superior to catastrophe bonds in terms of transactions costs since the options are standardized, transparent instruments, which can be traded anonymously and inexpensively on an exchange. Catastrophe options also have the potential to generate a very liquid market due to their standardization and the anonymity of traders. Additionally, index-linked catastrophe options are superior to indemnity-based catastrophe bonds in terms of the exposure to moral hazard. The primary disadvantage of index-linked options over insurer-specific contracts is the potential for basis risk. By linking payoffs to the losses of a specific insurer, indemnity-based catastrophe bonds virtually eliminate basis risk. In contrast, catastrophe options and index-based bonds, which pay off on a loss index rather than the losses of a specific hedging insurer, are subject to an indeterminate amount of basis risk.

Insurance Risks and Financial Resources

Industry Capacity and Market Reactions to Catastrophes

From a public policy perspective, the need and the potential to enhance the capacity of the insurance industry to bear risk and increase the supply of insurance are important considerations motivating interest in model legislation on protected cells and onshore SPRVs. The recognition of high levels of catastrophe risk has raised questions about the capacity of insurance industry to absorb the losses resulting from a severe natural disaster. By a number of measures, the current capacity of the property-liability insurance and reinsurance industry to finance losses due to catastrophic events is at a historical high. However, two recent studies suggest that, although the industry is currently sufficiently capitalized to finance losses from very large events, doing so would

significantly increase the leverage of those insurers that would survive with potential negative effects on the supply of insurance. Furthermore, there is evidence that while capital is plentiful for many layers of potential loss, the amount of capital available for extremely high layers of coverages is, arguably, non-existent.

The recent response of the insurance and reinsurance industries to perceived increases in the demand for catastrophe risk transfer indicates that market forces work, given enough time to adjust. Yet, historical experience suggests that the flow of capital to replenish funds expended to cover catastrophe losses is somewhat balky and can lead to short-term dislocations in insurance and reinsurance markets.

Implications for the Onshore SPRV Proposal

Would adoption of the onshore SPRV proposal help to address capital market imperfections? The proposal is consistent with the desire to provide insurers broader access to capital to secure their obligations for low probability, high consequence events. However, the ability of onshore SPRV's to create additional capacity is less clear. The alleged potential cost advantage of onshore SPRVs cannot be assessed from the one onshore SPRV transaction conducted to date, although the tax exemption for SPRVs desired by their proponents could be a substantial inducement. The evidence on insurers' demand for high-layer catastrophe risk transfer is also mixed. Regulatory and rating agency pressures on insurers to increase their diversification of catastrophe risk could be a critical factor in influencing this demand.

Some predict that the adoption of onshore SPRV's also will accelerate the use of insurance-linked bonds to finance losses due to non-catastrophe perils and for losses at lower layers (i.e., layers where the probability of a triggering event is much higher than the one percent probabilities we have seen on most insurance-linked securities to date). However, the economic argument for securitizing non-cat perils is less compelling than it is for diversifying low probability, high consequence events. In addition, other concerns, such as the moral hazard tendencies of the ceding insurer, may become a more significant impediment to securitizing these risks. Thus, assuming policymakers establish even-handed regulatory and tax policies for all risk transfer mechanisms, the adoption of onshore SPRV's should not be viewed as the beginning of the demise of the more traditional form of risk transfer via reinsurance contracts.

Comparing Onshore Protected Cells and SPRVs

Protected Cells

The NAIC has adopted a Model Protected Cell Law that would allow domestic insurers to segregate certain assets and liabilities much like life insurers do with their separate accounts. The protected cell (PC) is the most like a trust or escrow arrangement held by the insurer. Essentially, the PC would sell catastrophe bonds with the characteristics described above and hold the assets necessary to back the insurance securitization. The PC structure is intended to insulate the assets backing an insurance securitization from expropriation by other parties for other purposes. The PC also is intended to allow an

insurer to be able to increase its reserves without paying taxes on them or on the transfer of risk to the PC.

Special Purpose Reinsurance Vehicles

However, some investors may harbor concerns that the PC structure might still be breached by creditors of the insurer which has led to the proposal for onshore SPRVs. The main difference between a PC and a SPRV is that the SPRV is a separate company that holds the assets pledged to support obligations to the ceding insurer if a triggering event occurs. The SPRV sells bonds to investors to fund the SPRV. The insurer pays the SPRV a reinsurance premium for a contract amount of coverage. The SPRV then sells bonds to investors and it then puts bond sales proceeds and reinsurance premiums in trust. This trust arrangement is intended to ensure that sufficient assets are available to cover losses if a triggering event occurs. Proponents of model legislation for onshore SPRVs also envision that this structure would have significant tax advantages. Their objective is to put onshore and offshore SPRVs on a more equal footing from a tax perspective.

Open Questions About PCs and SPRVs

Several questions remain with respect to how PCs and onshore SPRVs would be structured and function. One major question is whether a SPRV or a PC would be a single transaction entity or whether more than one transaction could be placed within a single entity or cell. A second question is whether SPRV contracts would be for one year or multiple years. A third issue concerns the ability of parties to a SPRV contract to commute their obligations, which becomes more pertinent as the loss development tail on covered claims increases.

Regulatory and Accounting Issues

Regulatory Principles and Issues

Insurance is regulated primarily to limit insurers' financial risk and prevent or correct market abuses. Most insurers might act responsibly without regulatory oversight, but regulation is needed to police those that would not and foster legitimate competition. Reinsurance is regulated primarily through regulators' authority over ceding insurers and their ability to claim accounting credit for reinsurance cessions. The ultimate goal is to secure the interests of policyholders and the public in a safe, fair and efficient insurance marketplace. Any proposed change to the regulatory system should be evaluated in terms of this goal.

Public policy towards onshore SPRVs must consider the inherent characteristics of this particular mechanism and its advantages and disadvantages relative to traditional reinsurance arrangements. Regulation should not unnecessarily impede SPRVs simply to insulate other forms of risk transfer from competition. By the same token, regulation should not grant special advantages to onshore SPRVs or their transactions that are not warranted by their particular structure and characteristics. In this context, three sets of regulatory issues arise with respect to proposed model legislation for onshore SPRVs: 1)

the regulatory requirements that would be imposed on SPRVs; 2) the rules that would govern ceding insurers' ability to claim accounting credit for cessions to SPRVs; and 3) regulatory oversight of insurers' management of financial risk.

Regulatory Requirements for Onshore SPRVs

The proposed model law sets forth a more limited regulatory structure for onshore SPRVs than that which is imposed on licensed U.S. reinsurers. The rationale for this more limited structure is presumably two-fold: 1) a SPRV is created for the limited purpose of securitizing a particular risk of one insurer; and 2) the SPRV establishes a "fully funded" trust that, at the inception of the securitization, holds sufficient assets to cover the maximum potential obligations of the SPRV.

The proposed model law contains many good provisions that would govern the formation and structure of onshore SPRVs, regulators' authority, the requirements for trust agreements and accounts, and the operations and transactions of SPRVs. Importantly, the proposed model law seeks to maximize ceding insurers' ability to withdraw funds from the trust account, without interference, to cover losses payable under an SPRV contract.

However, several concerns remain, which to some extent are inherent in any SPRV transaction, but which might be mitigated by strengthening the proposed model law and maintaining effective regulatory oversight. The primary concerns are: 1) the potential for inadequate risk transfer; 2) potential declines in the value of assets in SPRV trusts; 3) potential legal challenges to withdrawal of trust funds; and 4) the possible commutation of an SPRV's obligations to a ceding insurer while covered losses are still developing.

We identify several aspects of the proposed model law that regulators may wish to consider amending to strengthen their authority and oversight:

- ❑ The exemption of an SPRV from insurance laws and regulations not specifically listed in the SPRV law;
- ❑ Authorities of regulators in states outside of the SPRV's domicile, including the domiciliary of the ceding insurer and other states in which it has covered risks;
- ❑ The 30-day deemer period for SPRV applications;
- ❑ Rules governing "qualified U.S. financial institutions" for holding SPRV trust accounts;
- ❑ The effective definition of "full funding" of the trust account and the lack of any requirements for additional cash infusions if the value of the assets in the trust account significantly declines;
- ❑ The ability of the SPRV to enter into security transactions to manage credit or interest rate risk;
- ❑ Limits on the types of assets or investments that may be held in a SPRV trust account;
- ❑ Valuation of private securities in a SPRV trust account;
- ❑ The level of capitalization required for an SPRV (\$5,000);
- ❑ Oversight of a SPRV's payment of dividends to its investors;
- ❑ Financial reporting (or lack of it) to regulators other than in the domiciliary state of the SPRV; and

- Limits on a receiver's ability to void transactions between a ceding insurer and a SPRV under the receiver's jurisdiction.

Credit for Reinsurance for SPRV Transactions

The key regulatory issue appears to be the granting of accounting credit to ceding insurers for SPRV transactions. The inability of a ceding insurer to receive accounting credit for SPRV transactions would be a substantial disincentive. The proposed model law for onshore SPRVs states that ceding insurers should receive credit for reinsurance for transactions with SPRVs commensurate with Section 3 of the Credit for Reinsurance Model Law. One threshold question is why credit for reinsurance is addressed in the proposed SPRV model law and not in amendments to the Credit for Reinsurance Model Law and Credit for Reinsurance Model Regulation. While the credit for reinsurance model legislation addresses various types of authorized and unauthorized reinsurers and associated collateralized trust and surplus requirements, they do not specifically address SPRV transactions. Regulators must consider whether SPRV transactions can be "fit" into a reinsurance accounting model, or whether some other accounting framework is more appropriate.

Putting the framework question aside, granting accounting credit to ceding insurers for SPRV transactions should consider two criteria. The first criterion should be the transfer of risk through the transaction. The use of non-indemnity triggers for SPRV contracts creates basis risk for the ceding insurer and the potential problem that a contract will not adequately cover the losses of the ceding insurer. Regulators must assess the amount of this basis risk and whether it warrants any adjustment in a ceding insurer's accounting for an SPRV transaction. The second criterion should be the adequacy of the SPRV trust account to cover contractual obligations to the ceding insurer and the ceding insurer's uncontested ability to withdraw funds from the trust account to pay the losses covered under its contract. Careful regulatory review of SPRV transactions, trust agreements and accounts would help to ensure proper financial reporting and disclosure by ceding insurers. It also would encourage the prudent use of SPRVs and discourage their misuse for purposes other than the effective management of financial risk.

Regulation of Ceding Insurers

Additionally, the proposed rules for SPRVs must be evaluated in the context of an integrated, multi-faceted regulatory system. The role and potential use of SPRVs hinge not only on the regulations and accounting rules that will govern SPRVs, but also on the regulation of primary insurers. Specifically, primary insurers' incentives to utilize different risk transfer and financing mechanisms will be influenced by regulatory and rating agency requirements governing their management of financial risk. Regulation of primary insurers will be an important factor in determining whether onshore SPRVs serve to enhance the financial security of the industry.

Regulators should pay close attention to insurers' management of their financial risk, including catastrophes, and ensure that they use risk transfer mechanisms appropriately. Primary insurers that have not adequately diversified their catastrophe and other risks

should be encouraged to increase their use of appropriate reinsurance and securitization arrangements. Hence, the regulatory implementation of SPRV model legislation and other regulations is just as important as the language contained in statutes and regulations.

Tax Issues

The ultimate conclusion about any tax changes for SPRVs depends in many respects on how one weights the four properties of a good tax: efficiency, simplicity, equity and neutrality. One's perception of an industry "capacity gap" and its sources also influence the conclusion about tax policy. Exempting SPRVs from the double taxation of corporate income that plagues insurers, reinsurers and other firms could increase the efficiency of risk management, but other issues may outweigh the gain in efficiency. First, the tax law becomes more complex when it exempts certain kinds of business from corporate taxation but not others. The notion of equity would be altered for this one purpose of allowing favorable tax treatment of investors' interests in the SPRV. Second, the desired tax law changes for SPRVs introduce a horizontal inequity vis a vis U.S. reinsurers. Under the changes desired by SPRV proponents to make this vehicle most attractive, firms that are able to employ the SPRV model would obtain a competitive advantage that would be driven primarily by tax considerations and not the quality of the product or a comparative structural advantage. Finally, the implied changes are not neutral in the sense that they would affect firms' and consumers' choices.

Comprehensive tax reform that would apply to all forms of risk transfer would be preferable, recognizing that such reform could be more politically challenging. If comprehensive reform is politically unachievable, the public interest could still be served by preferential tax treatment for onshore SPRVs confined to high-layer catastrophe risks that are not currently being diversified by primary insurers. This would avoid market distortions and replacement of existing risk transfer arrangements induced by tax inequities, and promote the more compelling goal of increasing the catastrophe protection of primary insurers and their policyholders. Extending tax reform to high-layer catastrophe risk assumed by all risk transfer mechanisms, including conventional reinsurance, would be even better. Obviously, there are a number of tradeoffs to consider in evaluating the options that have or might be proposed to Congress, including a federal catastrophe reinsurance program, tax reform for catastrophe reserves, and targeted tax exemptions for SPRVs.

Conclusions

The concept of securitizing certain insurance risks is promising and the prudent use of SPRVs to facilitate insurance securitizations seems sensible. Laws and regulations developed to facilitate onshore SPRVs should be appropriately designed to ensure that this mechanism is not misused in ways that would undermine the safety of primary insurers and their policyholders. We favor even-handed but not preferential regulatory and tax treatment for onshore SPRVs. We identify a number of issues with respect to the provisions of the proposed model legislation that the NAIC needs to consider and possibly amend if this legislation moves forward. Further, laws and regulations

facilitating onshore SPRVs should be adopted only if U.S. insurance regulators would maintain effective supervision of both SPRVs and their ceding insurers.

It is uncertain how popular onshore SPRV transactions would become in an even-handed regulatory and tax environment, but this option could be made available to test its viability. We do not believe there is a compelling argument for preferential tax treatment of SPRV transactions for non-catastrophe risks and lower-layer catastrophe risks. Special tax provisions favoring high-layer catastrophe coverage (i.e., events with less than a one percent annual probability) might be justified if it would encourage additional risk diversification where it currently does not exist. Targeting tax reform towards high-layer catastrophe risk could further encourage the use of SPRVs. If SPRV legislation is adopted, the experience with onshore SPRVs should be closely monitored and policies and regulations refined over time to promote the public interest in safe and efficient risk transfer.

I. Introduction

A. The Interest in Insurance Securitization and Special Purpose Vehicles

The increased risk from natural disasters in the U.S. has prompted significant changes in primary insurance markets and changes in related markets for reinsurance and other forms of risk transfer and financing. One important development has been the emerging use of securitization as a means to access broader pools of capital to diversify insurance risk. While insurance securitization is still in its early stages, firms are experimenting with different types of contracts and mechanisms that will influence the future evolution of risk management.

One of the mechanisms that have been developed is the Special Purpose Reinsurance Vehicle (SPRV). SPRVs are companies specifically established to facilitate the securitization of insurance risk. With one exception, SPRVs have been formed outside the U.S. for certain tax and regulatory reasons. However, some insurers complain that forming SPRVs offshore incurs extra costs and has other disadvantages. Model regulatory legislation has been proposed to the National Association of Insurance Commissioners (NAIC) that would facilitate the formation of SPRVs in the U.S. Supporters of this legislation contend that promoting onshore SPRVs will increase the capacity of the insurance industry, expand the supply of insurance, and decrease the cost of risk transfer. The concern about catastrophe risk is a principal motivator behind proposed SPRV legislation, but it also is suggested that SPRVs could be used to securitize other types of insurance risks.

The proposed SPRV model legislation raises several important regulatory, accounting and tax issues. These issues concern how regulatory and tax policies for onshore SPRV should be structured to ultimately promote the interests of insurance consumers and the general public. This paper examines these issues from an economic and a public policy perspective and offers observations on how onshore SPRVs might be best utilized and regulated.

B. Issues Associated with Onshore SPRVs

Public policy towards onshore SPRVs must consider the inherent characteristics of this particular mechanism and its advantages and disadvantages relative to traditional reinsurance arrangements. Regulation should not unnecessarily impede SPRVs simply to insulate other forms of risk transfer from competition. By the same token, regulation should not grant special advantages to onshore SPRVs or their transactions that are not warranted by their particular structure and characteristics. Unwarranted, preferential regulatory treatment could undermine the positive contribution that SPRVs could potentially make and erode the security provided by other forms of risk transfer. Preferably, different risk transfer and financing mechanisms should compete on their relative economic merits in an even-handed regulatory and tax environment.¹

¹ Neutrality in regulation and taxation are ideals. As we will explain, in the current environment, regulations and tax policies affect insurance, reinsurance and securitization choices in certain ways. The

Even-handed regulatory and tax policy should encourage the efficient deployment of capital through alternative risk transfer and financing mechanisms. Some risks may be diversified most efficiently by conventional reinsurance and various forms of securitization may be efficient for other types of risks. Also, different combinations of these mechanisms may be efficient in diversifying the risk associated with a given block of primary insurance contracts. In a competitive market subject to even-handed regulation and taxation, entities involved in risk transfer and financing will tend to gravitate towards providing those services where they add the most value and best serve the varying needs of primary insurers.

Even-handed regulation does not imply that regulators should assume that different risk transfer arrangements are identical from solvency and accounting perspectives. Even-handed regulation implies that regulatory requirements and accounting treatment will be tailored appropriately for each mechanism, consistent with a common set of goals and principles.

Insurance regulation accommodates different types of risk-bearing entities and arrangements with appropriate rules and corresponding requirements for financial disclosure. For example, licensed primary insurers in the U.S. may cede risk to both authorized and unauthorized reinsurers. Authorized reinsurers are required to meet more stringent criteria with respect to their regulation than unauthorized reinsurers. Correspondingly, unauthorized reinsurers are required to employ additional measures to secure their obligations to U.S. ceding insurers and to receive accounting treatment of their transactions equivalent to that of authorized insurers. In order for a ceding insurer to receive accounting credit for reinsurance recoverables from an unauthorized reinsurer, the unauthorized reinsurer must establish a U.S. trust to cover its obligations to the ceding insurer. If a trust is not established, the ceding insurer may not claim credit for reinsurance on its balance sheet.

Policymakers must balance the regulatory rules that would govern SPRVs with the financial disclosure that would be required of ceding insurers for SPRV contracts. A critical question at the heart of regulatory policy is whether onshore SPRVs warrant less regulation than U.S. reinsurers, but equivalent accounting treatment in terms of the granting of credit for reinsurance to ceding insurers. Equivalent accounting treatment has been proposed on the basis that SPRVs would be required to establish “fully-funded” trusts to support their maximum potential obligations to ceding insurers. Hence, the most relevant reference point for evaluating SPRV rules would appear to be the regulatory and accounting rules governing transactions with unauthorized reinsurers that are required to secure their obligations through U.S. trusts, recognizing that this comparison is not exact. The differences, as well as the similarities, between these two approaches must be considered in evaluating the proposed rules for SPRVs.

more realistic goal is to maintain an “even playing field” so that no particular mechanism receives preferential treatment (not afforded to other mechanisms) that unfairly distorts transactions in its favor.

Additionally, the proposed rules for SPRVs must be evaluated in the context of an integrated, multi-faceted regulatory system. The role and potential use of SPRVs hinge not only on the regulations and accounting rules that will govern SPRVs, but also on the regulation of primary insurers. Specifically, primary insurers' incentives to utilize different risk transfer and financing mechanisms will be influenced by regulatory and rating agency requirements governing their management of financial risk. Regulation of primary insurers will be an important factor in determining whether onshore SPRVs serve to enhance the financial security of the industry.

Sometimes favored or preferential regulatory treatment is justified by policymakers to "fix a market problem" that cannot be resolved by other means. If there is a "capacity gap" caused by a structural failure of existing risk transfer markets, one might argue that rectifying tax problems for catastrophe risk, even if limited to SPRVs, could benefit the public. This is a complicated issue and we discuss the available evidence and its implications.

C. Summary of Evaluation

The concept of securitizing certain insurance risks is promising and the prudent use of SPRVs to facilitate insurance securitizations seems sensible. Laws and regulations developed to facilitate onshore SPRVs should be appropriately designed to ensure that this mechanism is not misused in ways that would undermine the safety of primary insurers and their policyholders. We identify a number of issues with respect to the provisions of the proposed model legislation that the NAIC needs to consider and possibly amend if this legislation moves forward. Further, laws and regulations facilitating onshore SPRVs should be adopted only if U.S. insurance regulators would maintain effective supervision of both SPRVs and their ceding insurers. It is uncertain how popular onshore SPRV transactions would become in an even-handed regulatory and tax environment, but this option could be made available to test its viability. Targeting tax reform towards high-layer catastrophe risk could further encourage the use of SPRVs. If SPRV legislation is adopted, the experience with onshore SPRVs should be closely monitored and policies and regulations refined over time to promote the public interest in safe and efficient risk transfer.

At the same time, we do not believe that onshore SPRVs should receive broadly applicable favored or preferential regulatory and tax treatment that would be inconsistent with the regulatory and tax treatment of other forms of risk transfer, including conventional reinsurance transactions. We do not believe there is a compelling argument for preferential tax treatment of SPRV transactions for non-catastrophe risks and lower-layer catastrophe risks. Special tax provisions favoring high-layer catastrophe coverage (i.e., events with less than a one percent annual probability) might be justified if it would encourage additional risk diversification where it currently does not exist.

Note that even-handed and consistent regulatory policy does not mean that onshore SPRVs should be subject to the same regulatory requirements as U.S. licensed reinsurers. Rather, we are saying that the regulatory and tax treatment of onshore SPRVs should be

tailored to their particular characteristics in a manner that adheres to fundamental insurance regulatory principles and achieves fundamental regulatory objectives.

The key regulatory issue appears to be the granting of accounting credit to ceding insurers for SPRV transactions. Even-handed and prudent regulation implies that insurance regulators would carefully review SPRV contracts and trust accounts on a case-by-case basis and determine whether a ceding insurer's accounting recognition of risk cessions to and recoverables from a SPRV is appropriate.

Granting accounting credit to ceding insurers for SPRV transactions should consider two criteria. The first criterion should be the transfer of risk through the transaction. The use of non-indemnity triggers for SPRV contracts creates basis risk for the ceding insurer and the potential problem that a contract will not adequately cover the losses of the ceding insurer. Regulators must assess the amount of this basis risk and whether it warrants any adjustment in a ceding insurer's accounting for a SPRV transaction. The second criterion should be the adequacy of the SPRV trust account to cover contractual obligations to the ceding insurer and the ceding insurer's uncontested ability to withdraw funds from the trust account to pay the losses covered under its contract. Of course this issue also exists with conventional reinsurance contracts, so it is a matter of attaining a reasonable degree of confidence that funds due a ceding insurer can be recovered, rather than requiring absolute certainty.

Further, regulators should pay close attention to insurers' management of their financial risk, including catastrophes, and ensure that they use risk transfer mechanisms appropriately. Primary insurers that have not adequately diversified their catastrophe and other risks should be encouraged to increase their use of appropriate reinsurance and securitization arrangements. Hence, the regulatory implementation of SPRV model legislation and other regulations is just as important as the language contained in statutes and regulations.

The ultimate conclusion about tax changes desired by SPRV proponents depends in many respects on how one weights the four properties of a good tax: efficiency, simplicity, equity and neutrality. One's perception of an industry "capacity gap" and its sources also influence the conclusion about tax policy. Exempting SPRVs from the double taxation of corporate income that plagues insurers, reinsurers and other firms could increase the efficiency of risk management, but other issues may outweigh the gain in efficiency. First, the tax law becomes more complex when it exempts certain kinds of business from corporate taxation but not others. The notion of equity would be altered for this one purpose of allowing favorable tax treatment of investors' interests in the SPRV. Second, the implied tax law changes for SPRVs introduce a horizontal inequity vis a vis U.S. reinsurers. Under the implied changes, firms that would be able to employ the SPRV model would obtain a competitive advantage that would be driven primarily by tax considerations and not the quality of the product or a comparative structural advantage. Finally, the desired changes would not be neutral in the sense that they would affect firms' and consumers' choices.

Comprehensive tax reform that would apply to all forms of risk transfer would be preferable, recognizing that such reform could be more politically challenging. If comprehensive reform is politically unachievable, the public interest could still be served by preferential tax treatment for onshore SPRVs confined to high-layer catastrophe risks that are not currently being diversified by primary insurers. This would avoid market distortions and replacement of existing risk transfer arrangements induced by tax inequities, and promote the more compelling goal of increasing the catastrophe protection of primary insurers and their policyholders. Extending tax reform to high-layer catastrophe risk assumed by all risk transfer mechanisms, including conventional reinsurance, would be even better. Obviously, there are a number of tradeoffs to consider in evaluating the options that have or might be proposed to Congress, including a federal catastrophe reinsurance program, tax reform for catastrophe reserves, and targeted tax exemptions for SPRVs.

D. Organization of Paper

The next section of this paper briefly reviews the characteristics and use of alternative risk transfer and financing mechanisms, including conventional reinsurance and various forms of securitization. This is followed by a discussion of industry capacity and the potential effects of onshore SPRVs on the supply of insurance. Section IV describes and compares protected cells and SPRVs in greater detail. Section V examines the regulatory and accounting issues associated with the proposed SPRV model legislation. Section VI analyzes the tax issues involving risk transfer and financing through reinsurance, securitization and SPRVs. Section VII offers concluding observations.

II. Alternative Risk Financing Mechanisms

This section briefly reviews recent catastrophic loss experience and describes the various mechanisms available to diversify the insurance risk assumed by primary insurers to set the context for the evaluation of the SPRV proposal.

A. The Catastrophe Risk Problem

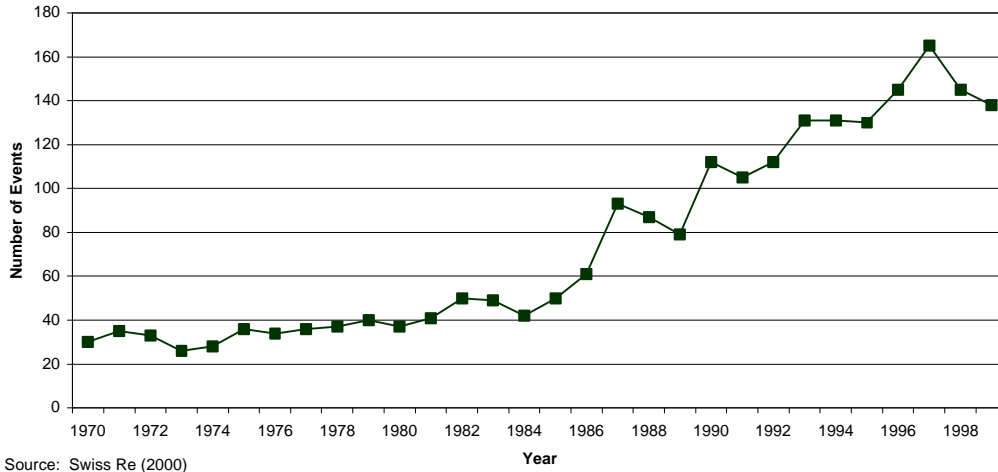
The magnitude of the worldwide catastrophic loss problem is documented in Figures II.1, II.2, and II.3. Figure II.1 shows that the number of catastrophes, defined as events causing at least \$33 million in insured losses, has increased dramatically in recent years.² The increase in catastrophic events is primarily attributable to the rapid growth in insured property values in catastrophe-prone areas on the East and West coasts of the U.S., especially in California and Florida.³ An increased frequency of tropical storms and hurricanes also has contributed to higher catastrophe losses. Figure II.2 shows that total insured catastrophic losses also have increased significantly. During the period 1970 through 1988, there were only three years in which total catastrophic losses equaled or exceeded \$5 billion. Beginning in 1989, however, insured catastrophic losses have equaled or exceeded \$5 billion in every year, reaching a peak of \$25 billion in 1992 when Hurricanes Andrew and Iniki occurred. The Northridge, California earthquake also caused a spike in catastrophe losses in 1994. A graph of the cumulative insured losses from the top 40 events since 1970, shown in Figure II.3, reveals that more than 80 percent of the total dollar value of catastrophe losses has occurred since 1988.

Furthermore, estimates of insured probable maximum losses (PML) from mega-catastrophes in the U.S., based on a 500-year return period, approach or exceed \$100 billion depending on the nature and location of the event (RMS/ISO, 1995). It is this threat that deserves particular attention from regulators, policymakers, the industry and the public.

²The data for Figures II.1, II.2, and II.3 are from Swiss Re (2000).

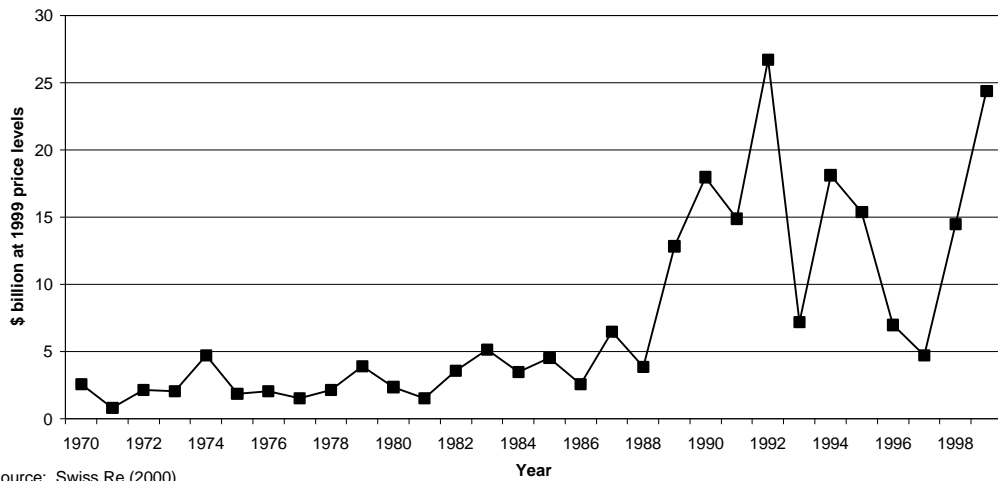
³ Swiss Re (2000) reports the total insured losses due to catastrophic events in the United States represents over 50 percent of the worldwide losses due to the 40 largest catastrophic events over the time period 1970-1999.

Figure II.1
Number of Worldwide Natural Catastrophes: 1970 - 1999



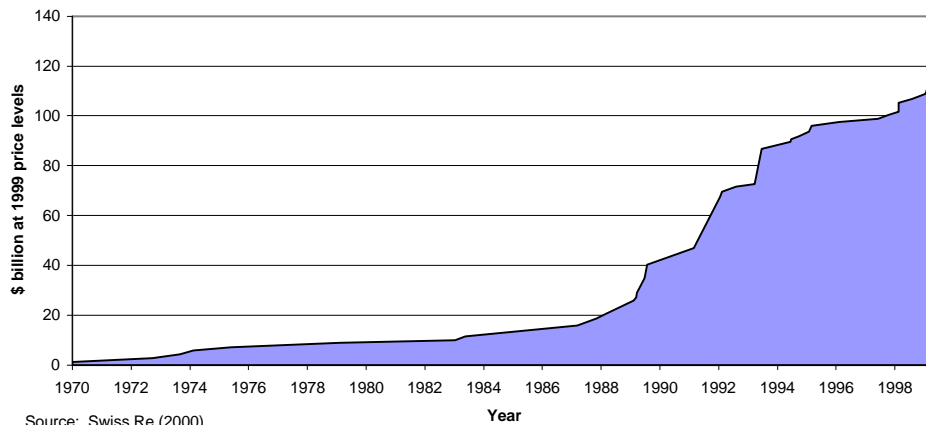
Source: Swiss Re (2000)

Figure II.2
Worldwide Insured Losses Due to Natural Catastrophes: 1970-1999



Source: Swiss Re (2000)

Figure II.3
Top 40 Insured Catastrophe Losses: Cumulative Losses 1970 - 1999



Source: Swiss Re (2000)

B. Catastrophe Reinsurance

Historically, the principal method utilized by primary insurers to transfer risks they do not wish to retain has been reinsurance. Reinsurance is a bilateral insurance contract whereby a reinsurer agrees to indemnify a ceding insurer based upon the cedant's own loss experience. Reinsurance contracts can be written on a quota-share basis where the insurer and the reinsurer agree to participate in a fixed proportion of the premiums written and losses incurred on each policy subject to the agreement.⁴ Alternatively, many catastrophe reinsurance programs are written on an excess-of-loss basis whereby the primary insurer retains all losses up to an aggregate limit (across all policies subject to the treaty) and the reinsurance company agrees to pay part or all of the losses above the attachment point up to a pre-determined limit. Both types of reinsurance contracts are individually tailored to the needs of the primary ceding company and are priced according to the expected losses to the reinsurer plus an expense and profit loading necessary to compensate the reinsurer for underwriting the risk. The amount of profit charged on each policy is a function of current market conditions as well as factors related to the characteristics of the policy. For example, reinsurers may price business more attractively when the cedant agrees to participate in a greater proportion of the losses, as the reinsurer may be less concerned with the moral hazard tendencies of the primary insurer. The nature of the relationship between the reinsurer and the cedant is also an important factor that may influence the price of the coverage offered.⁵

C. Catastrophe Securities

1. Catastrophe Options

The potential for significant losses due to catastrophic events, and the accompanying dislocations in both insurance and reinsurance markets following large events (discussed in Section III), have spawned interest in the development of alternative risk transfer products the industry can use to more efficiently manage its risk exposures. To date, the most important alternative risk financing mechanisms (relative to reinsurance) have been the Chicago Board of Trade's (CBOT) catastrophe call option spreads and catastrophe bonds. The CBOT's catastrophe call spreads are exchange-traded contracts that settle on loss indices compiled by Property Claims Services (PCS), an insurance industry statistical agent. There are nine indices – a national index, five regional indices, and three state indices (for California, Florida, and Texas). The indices are based on PCS estimates of industry-wide cumulative catastrophic property losses in the specified geographical areas during quarterly or annual exposure periods. The indices are defined as the total accumulated losses divided by \$100 million and are quoted in points and tenths of a

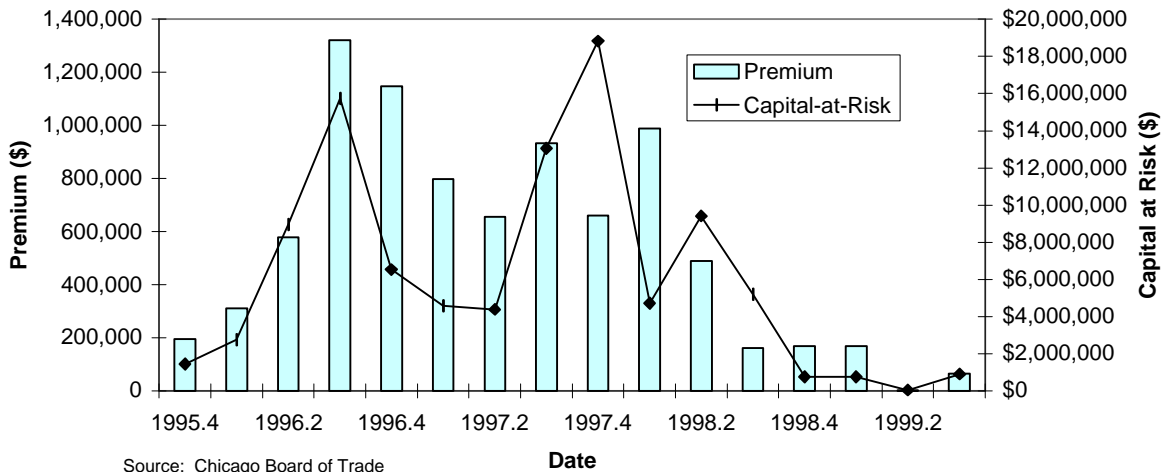
⁴ In the case of a surplus share treaty, the proportion of the premiums and losses shared by the reinsurer is based upon the limit of coverage on the underlying risk of each policy.

⁵ Traditionally, ceding insurers and primary insurers maintained long-term relationships that helped to spread reinsured losses over time, reduce objective risk to the reinsurer, and stabilize reinsurance prices. These long-term relationships appear to be diminishing which has implications for the supply and pricing of reinsurance.

point. For example, a 20/40 Eastern call spread would have a payoff if total industry losses from a catastrophic event in the Eastern region were greater than \$2 billion (20 points). Each tenth of a point is worth \$20 so the holder of a 20/40 call spread would receive 100 points times \$20 per tenth of a point, i.e. \$2,000 per contract, for an event which caused \$30 billion of industry wide insured losses in the Eastern region.

Figure II.4 shows the amount of premium and the amount of capital that has been put at risk using the CBOT's PCS call spread contracts. The figure shows that the total amount of premium collected on risk transfer using the option contracts rose substantially after they were introduced in the fourth quarter of 1995 to reach almost \$1.4 million during the third quarter of 1996. Total capital at risk that same quarter was over \$19 million. However, since 1998, the amount of risk transferred via call option securities has dropped substantially. The cumulative amount of risk premium that has been transacted since the CBOT PCS options were introduced until the third quarter of 1999 is \$8.6 million and the total capital at risk since inception has been \$98 million. Although innovative, trading of CBOT contracts dropped precipitously in 1999 and it is our understanding that no contracts have been traded in 2000. This raises questions about the interest in and long-term viability of this form of risk transfer.

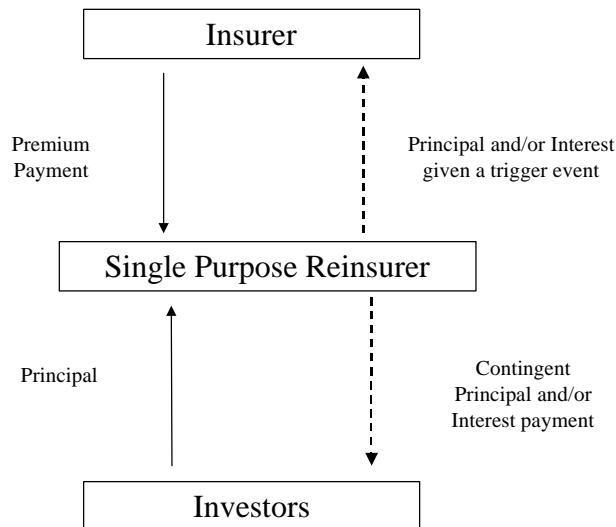
Figure II.4
**Amount of Risk Trasfered via CBOT Catastrophe Call Spread Contracts:
 Fourth Quarter 1995 - Third Quarter 1999**



2. Catastrophe Bonds

Catastrophe bonds have been more successful, although their growth in volume has been slower than some would like. The structure of a typical catastrophe bond is shown in Figure II.5. Capital raised by issuing the bonds is invested in safe securities (e.g., high-grade commercial paper or Treasury bonds) that, to date, have usually been held by an offshore single purpose reinsurer. The need to use a single purpose reinsurer has been driven by tax and regulatory considerations and this structure also insulates the investors from the credit risk of the issuing insurer. The catastrophe bond instrument defines the structure of the transaction – most importantly, the agreed-upon interest payments to investors and the contingencies that trigger partial or total forgiveness of the interest and/or principal of the bond. If the defined catastrophic event does not occur, the investors receive their principal plus interest, with the interest payment usually defined as LIBOR (a benchmark risk-free rate) plus a risk-premium ranging from 350 to 600 basis points for an event with a probability of triggering a principal loss of approximately 1 percent. If the defined event occurs, the insurer can withdraw funds from the reinsurer to pay claims, and part or all of the interest and principal payments on the bonds are forgiven.

Figure II.5 - Typical Structure of Catastrophe Bond with Special Purpose Reinsurer



A number of triggers have been developed to define the conditions under which the principal and interest repayments on a catastrophe bond will be forgiven. Catastrophe bonds that contain a trigger based upon the ceding insurer's own loss experience are known as *indemnity* bonds. To control moral hazard, these bonds usually contain a co-payment mechanism designed to give the ceding insurer incentives to continue to expend effort to reduce the impact of loss producing events.

Catastrophe bonds have also been issued where the trigger is not based on the insurer's own loss experience and instead are based upon some measure not directly in the control of the insurer but whose outcome is expected to be highly correlated with the insurer's anticipated loss experience. For example, *loss-index* bonds have been issued which contain a trigger based upon industry-wide loss indices – similar to the indices that underlie the CBOT call spreads. *Parametric* catastrophe bonds have been issued which define the trigger based upon some parametric measure of the severity of the catastrophic event. For example, several catastrophe bonds have been issued which transfer earthquake risk to capital markets investors that contain triggers based upon the severity of an earthquake in a specified geographical area as measured by the Richter Scale. Finally, the trigger on a catastrophe bond can be based upon either single or multiple criteria, i.e., single vs. dual trigger bonds. For example, one of the earliest catastrophe bonds issued contained a dual triggering mechanism based upon both a parametric and indemnity-based trigger. The bond was designed to transfer hurricane risk and the triggering event required that a hurricane of Saffir-Simpson magnitude 3, 4, or 5 cause the insurer to lose at least \$500 million in the Southeastern U.S.

Larger amounts of risk have been transferred via catastrophe bonds than have been transferred via the CBOT's call spreads. The total amount of capital put at risk through catastrophe bonds issued during the period 1997-1999 was \$2.6 billion and the total amount of risk premium paid has totaled approximately \$200 million.⁶

3. Catastrophe Options and Bonds Compared

Catastrophe options and catastrophe bonds can be compared and contrasted in terms of their transactions costs, liquidity, and exposure to moral hazard and basis risk. Catastrophe options are superior to catastrophe bonds in terms of transactions costs since the options are standardized, transparent instruments, which can be traded anonymously and inexpensively on an exchange. The bond issues are customized, complicated transactions and are therefore subject to substantially higher transactions costs for legal, investment, auditing, and tax advice. Although the costs of issuing catastrophe bonds are expected to decline as the bonds become more standardized and market participants acquire more experience with insurance-linked securities, it is likely that index-linked options will continue to have a transactions cost advantage over catastrophe bonds for the foreseeable future.

Another important difference between catastrophe options and bonds involves market liquidity. Catastrophe options have the potential to generate a very liquid market due to their standardization and the anonymity of traders. The catastrophe bonds issued to date, on the other hand, have low market liquidity because they are not standardized and not traded on an organized exchange and there is a limited investor base.

⁶ These statistics are based on unpublished data provided to the authors by Goldman Sachs & Co. The risk premium equals the spread above LIBOR that will be paid to the investor assuming a triggering event does not occur.

Index-linked catastrophe options also are superior to indemnity-based catastrophe bonds in terms of the exposure to moral hazard. The existence of the catastrophe bond may give an insurer the incentive to relax its underwriting and exposure management strategies, leading to an increase in exposure to loss in hazard prone areas. Catastrophe bonds also may give insurers the incentive to settle claims more liberally than might be appropriate and to over-report losses to increase the amounts withdrawn from the single-purpose reinsurer. Although loss co-payment provisions provide at least some control over the moral hazard, it is unlikely that co-payment can be completely effective in eliminating moral hazard concerns. Catastrophe options, on the other hand, are relatively free of moral hazard because they settle on industry-wide losses rather than the losses of a specific insurer.⁷

The primary disadvantage of index-linked options over insurer-specific contracts is the potential for basis risk. By linking payoffs to the losses of a specific insurer, indemnity-based catastrophe bonds virtually eliminate basis risk. However, catastrophe options and index-based bonds, which pay off on a loss index rather than the losses of a specific hedging insurer, are subject to an indeterminate amount of basis risk. A recent study by the American Academy of Actuaries (1999) reveals that the potential for basis risk is the most important reason for the lack of interest among insurers in the CBOT call spreads.⁸

⁷ Index-linked options are not totally free of moral hazard problems because large insurers may have the ability to manipulate the index by over-reporting losses to the statistical agent. However, because concentration in the relevant insurance markets is relatively low, over-reporting by a large insurer is significantly diluted at the index level, unlike over-reporting on an insurer-specific instrument.

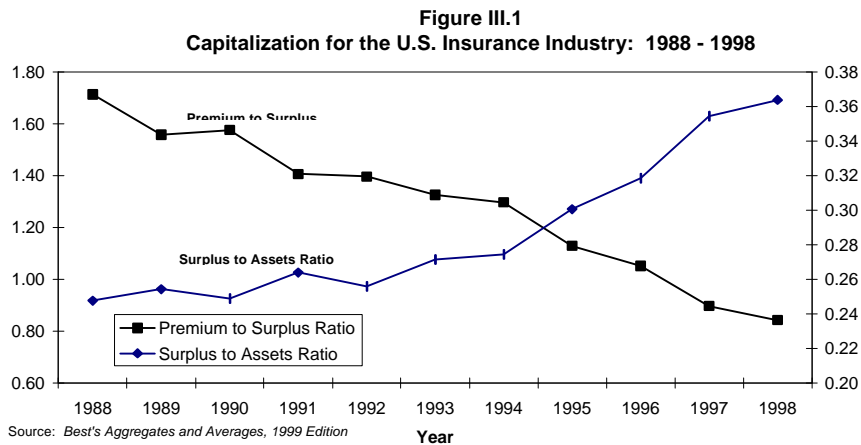
⁸ Cummins, Lalonde, and Phillips (2000) attempt to remedy this lack of information and conduct an extensive study of the hedge effectiveness of index-based securities on companies exposed to hurricanes in Florida.

III. Insurance Risks and Financial Resources

From a public policy perspective, the need and the potential to enhance the capacity of the insurance industry to bear risk and increase the supply of insurance are important considerations motivating interest in model legislation on protected cells and onshore SPRVs. If onshore SPRVs would substantially help to fill a significant gap in industry capacity, it may help to support an argument for granting favorable tax treatment for SPRVs. On the other hand, if there is not a significant capacity gap, or onshore SPRVs are unlikely to help close such a gap, there is no compelling public interest in granting them preferential tax treatment.⁹ In this section, we evaluate current industry capacity and the extent to which that capacity could be enhanced through the use of onshore SPRVs.

A. Increases in Industry Capital

The recognition of high levels of catastrophe risk has raised questions about the capacity of insurance industry to absorb the losses resulting from a severe natural disaster. Although proposed onshore SPRVs would not be confined to securitizing catastrophe risk, it is a principal motivator. By a number of measures, the current capacity of the property-liability insurance and reinsurance industry to finance losses due to catastrophic events is at a historical high. Figure III.1 shows that, in the domestic market, the capital-to-asset ratio for the insurance industry has steadily increased from 24.8 percent in 1988 to 36.4 percent by the end of 1998. Industry assets increased 94 percent over this time period, while the industry's capital increased from \$118 billion to \$337 billion or 185 percent (Best's Aggregates and Averages, 1999). The premium-to-surplus ratio also shows a significant increase in the ability of the industry to bear risk as it has dropped over this same time period from 1.72 in 1988 to 0.84 by the end of 1998.



⁹ This is not to argue that SPRVs should be prohibited or impeded if there is no capacity gap to fill. The issue is whether they should receive favored or preferential regulatory and tax treatment because of a strong need to increase the capacity of the insurance industry. Even if a capacity gap exists, the implications for regulatory policy and the implications for tax policy cut different ways, as reflected in our discussions in Sections V and VI.

The global reinsurance market has also substantially increased its capitalization. Cummins and Weiss (2000) report that equity capital in the global reinsurance industry increased from \$150 billion in 1993 to approximately \$200 billion in 1998, an increase of 33 percent. In addition, they report that the global reinsurance net premiums written to surplus ratio improved from 1.73 to 1.56 over this same time period.

Although, on the surface, the insurance and reinsurance industries appear well capitalized, the actual amount of money that would be available to fund losses from a particular event may differ significantly from the amount the industry may be liable to pay. The actual amount of insured loss that would be covered depends upon the distribution of losses among insurers affected by the event and, for large events, the extent to which some insurers become bankrupt and therefore are unable to pay their claims. Two recent studies have been conducted which examine the likely impact a large catastrophic event would have on the industry's continued ability to bear risk.

Cummins, Doherty, and Lo (1999) conduct an experiment designed to estimate the percentage of losses that would be paid by the industry for events of various sizes relative to the losses that would be paid if the entire capital of the industry were housed in one insurer. The results of their study, based upon data that ends in 1997, suggest the industry would pay approximately 98.6 percent of a \$20 billion U.S. event and 92.8 percent of a \$100 billion event.¹⁰ These are very high percentages considering the largest single loss event we have witnessed in the U.S. to date was Hurricane Andrew at approximately \$18 billion. A second study reached a similar conclusion, i.e., that many insurers would survive the event and pay their claims. However, in doing so, the financial shocks to the surviving insurers would severely impact their ability to continue selling insurance (ISO 1996a).¹¹ Thus, these studies suggest that although the industry is currently sufficiently capitalized to finance losses from very large events, doing so would significantly increase the leverage of those insurers who survive with potential negative effects on the supply of insurance.

B. Market Reactions to Large Loss Events

How does the insurance market react to large loss events? Does new capital flow into the industry such that insurers are able to decrease their leverage to safe levels and return to

¹⁰ Estimates of probable maximum losses (PMLs) to insurers from a mega-catastrophe range from \$50-\$115 billion, depending on the location and intensity of the event (RMS/ISO, 1995). The maximum probable loss (PML) estimate is based on a 500-year "return" period. In other words, the probability that a loss would occur in any given year that would exceed the PML is one in 500.

¹¹ The ISO study estimated the impact of severe catastrophes on the financial condition of 80 insurer groups that report detailed statistical data to ISO. Utilizing catastrophe models, ISO estimated that a mega-catastrophe causing \$50 billion or more in insured losses could result in 36 percent of insurers becoming insolvent and many more becoming financially impaired, depending on their location. The ISO analysis included estimates of the impact of insurers' reinsurance arrangements based on information available from Best's Reports. The companies in the ISO sample represented approximately 28 percent of total industry property insurance premiums.

business as usual? Unfortunately, there is ample evidence to suggest that significant capital market frictions exist that impede the flow of capital to the industry. In turn, these impediments significantly affect the price and availability of coverage following large loss events. For example, Guy Carpenter (1999) reports that the average rate-on-line for catastrophe reinsurance rose from an index value of 150 in 1992 to over 250 in 1993 following Hurricane Andrew, suggesting an increase in the average price-per-dollar of limit of 67 percent in just one year. Over that same time period, Froot and O'Connell (1999) report a 20 percent drop in the quantity of reinsurance written (see Figure 5.2 of their paper), suggesting reinsurers reduced the supply of reinsurance even though the price per dollar of coverage had risen substantially. These statistics are not surprising to experts who follow this industry as similar patterns in the price and availability of coverage have been documented on previous occasions (e.g., the liability crisis of the mid-80's).

Academics have suggested two possible reasons why the supply of insurance tends to decrease and prices tend to increase following large loss events. The first hypothesis is the so-called *capacity constraint hypothesis*. It suggests insurers and reinsurers will raise prices and decrease the quantity of insurance they provide after a large loss event to avoid having to raise additional capital from external sources since they face a short-run supply curve that is upward sloping. An alternative hypothesis suggests that price increases and quantity decreases following large events should not be surprising to the extent the event provides new information regarding the loss potential of the industry and therefore compels insurers to reprice their contracts for a given level of exposure. This is the *probability-updating hypothesis*.

Froot and O'Connell (1999) utilize a data set of individual brokered reinsurance contracts to jointly test both hypotheses. They demonstrate that following large events, the price of subsequent reinsurance increases for contracts covering not only the peril that produced the loss, but for all other perils as well. Froot and O'Connell argue that the probability-updating hypothesis cannot explain their results since it is unlikely that the occurrence of an earthquake in the western U.S. provides any new information regarding the loss potential due to wind exposure in the southeastern U.S. Thus, Froot and O'Connell conclude that significant impediments to the flow of new capital to this industry exist, which contribute to the price and availability problems we have witnessed in the past.

So, what can be concluded about the capacity of the industry to absorb catastrophe losses and the supply of financial capital to diversify catastrophe risk? On the one hand, the recent response of the insurance and reinsurance industries to perceived increases in the demand for catastrophe risk transfer suggests that market forces work given enough time to adjust. On the other hand, historical experience suggests that the flow of capital to replenish funds expended to cover catastrophe losses is somewhat balky and can lead to short-term dislocations in insurance and reinsurance markets. Thus, our primary conclusion is that even at today's historically high levels of capitalization, the industry does not have sufficient capital resources to withstand a severe catastrophe without having significant effects on the price and availability of insurance.

C. Implications for Facilitating Insurance Securitization

1. Securitization and Access to Capital

A wide body of academic research exists which supports the conclusion that capital markets imperfections exist that significantly impact the insurance and reinsurance industries. Thus, a reasonable question regarding the proposal to the NAIC should be “Would adoption of the proposal make it less likely the insurance marketplace will continue to suffer from the effects of these capital market imperfections?” The question really has two parts. First, does the proposal mitigate the costs of holding adequate capital levels to fund catastrophe risk? Otherwise, if holding the capital was not costly, then insurers could establish large enough capital reserves ex-ante to ensure they would never be forced to seek external financing and therefore avoid having to increase the price and reduce the quantity of insurance they sell following a large event. Second, would bringing securitization transactions on shore provide access to these instruments to a greater number of insurers and/or would it expand the capital markets investor base interested in and willing to bid on these securities?

With regard to the first question, the academic literature in insurance and corporate finance suggests that a number of tax, regulatory, institutional, and agency problems exist which make holding additional capital to fund potential large catastrophe losses prohibitively expensive (Jaffee and Russell, 1997). One of the more compelling arguments suggests that the current Federal tax code does not permit insurers to deduct funds intended to bolster their reserves for events that have not occurred - even though large catastrophic events are unlikely to occur each year and the only way catastrophe risk can be diversified by an individual insurer is across time.¹² Thus, such funds can be accumulated only out of after-tax earnings. The use of loss carry-forwards and carry-back rules provided in the existing tax code could somewhat mitigate this tax penalty. However, they are not truly effective since insurers must, at a minimum, remain solvent over a long period of time in order to take advantage of these rules. Further, the rules only allow insurers to offset future and past tax payments for return periods much shorter than those associated with catastrophic events.

Managerial opportunism and other agency costs are also likely to be significant in the presence of large amounts of “underemployed” capital. This provides a second rationale for why building large catastrophe reserves on an insurer’s balance sheet may be suboptimal. For example, the work of Blanchard, Lopez-de-silanes, and Schleifer (1994) suggests that firms with large pools of unencumbered cash, and few internal investment opportunities, tend to become acquisition targets. To the extent the management of such a firm wants to avoid being taken over (for fear of losing their jobs and managerial reputations), the authors show the equilibrium response for the management is to waste the cash by investing in negative net present value projects to either become a less

¹² Insurers can and do transfer these risks to reinsurers via traditional reinsurance contracts. However, global reinsurers are unable to cross-sectionally diversify these risk as evidenced by the volatile loss ratios for catastrophe reinsurance across time and the underwriting cycles which exist in this market leading to the same capital market imperfections discussed earlier.

desirable target or in an overly optimistically attempt to grow the business. Jaffee and Russell (1997) also point out that large catastrophe reserves held in the form of additional surplus invite regulatory expropriation.

The insurance securitizations conducted to date have addressed many of the concerns that surround the buildup of capital within an insurer. They have been structured to minimize the tax burden of amassing a large pool of capital for losses that have a small probability of occurring in any given year. They have been structured such that the assets collateralizing the transaction are separate from the direct control of management thereby limiting the incentive managers have to waste the resources. In addition, the fully collateralized nature of the transactions provides both management and regulators with increased security that reinsured losses will be fully paid if the triggering event occurs. Thus, since the current proposal being considered by the NAIC largely mimics the transactions which have already taken place offshore, the answer to the first question must be “yes” - the proposal to the NAIC, in principle, is consistent with the desire to provide insurers broader access to capital to secure their obligations for low probability, high consequence events.

2. Would Onshore SPRVs Help?

The answer to the second question, regarding the ability of onshore SPRV's to create additional capacity, is less clear. Proponents of the proposal to the NAIC argue offshore transactions are costly to set up and administer and these costs effectively serve as a barrier for smaller and less sophisticated insurers to access capital in this manner. In addition, insurance securitization transactions are sufficiently new and therefore require significant involvement by senior management personnel. Hence, it is suggested that the ability to conduct meetings onshore and utilize appropriate facilities should make the transaction process more efficient and manageable.

These efficiency arguments are difficult to verify since conversations with officials familiar with the only onshore transaction, done through the INEX, suggest the direct transactions costs were much higher than if Kemper, the ceding insurer, had set up an offshore facility. Thus, any cost saving due to the establishment of the SPRV onshore were offset by higher fees associated with the legal, accounting, and securities underwriting services provided to ensure the first onshore transaction was successful. That being said, it is reasonable to assume that the costs associated with establishing onshore SPRV's and protected cells would be lower given the closer proximity and reduced travel and lodging costs associated with holding meetings that involve senior management.

Onshore SPRV's and protected cells may increase capacity to the insurance industry to the extent an onshore entity has an easier time obtaining a rating from one of the fixed income rating agencies and/or to the extent to which guidelines for potential investors prohibit purchasing securities from offshore entities. Again, officials associated with the Kemper transaction suggest the onshore status appealed to a number of investors but also indicate it was not the most compelling reason for their interest in the deal.

A question remains about the demand from primary insurers for high-layer risk transfer and onshore or offshore SPRV securitizations. The evidence bearing on this question is mixed. A recent Guy Carpenter (1999) report indicates that there are a number of primary insurers seeking high-layer reinsurance or securitization and that pressure from regulators and rating agencies is contributing to this demand. On other hand, insurers have commented that price competition and regulatory constraints in primary insurance markets limit insurers' ability and incentive to purchase high-layer risk coverage. We also note that some of the additional capacity added by Bermuda reinsurers has gone unused, even at bargain basement prices (Mullins, 1999). The reality may be that some primary insurers would buy protection at higher-layers if it could be purchased at a competitive price based on efficient risk transfer mechanisms. Other insurers might decline such protection unless regulators and rating agencies mandated it and/or it was heavily subsidized. Hence, while we believe it would serve the public interest for the insurance industry to substantially increase its diversification of high-layer catastrophe risk, it is uncertain whether facilitating access to prudently managed and regulated onshore SPRVs would produce this outcome.

3. Implications for Non-Catastrophe Risks

Some predict the adoption of onshore SPRV's also will accelerate the use of insurance-linked bonds to finance losses due to non-catastrophe perils and for losses at lower layers (i.e., layers where the probability of a triggering event is much higher than the one percent probabilities we have seen on most insurance-linked securities to date). However, the economic argument for securitizing non-cat perils is less compelling than it is for diversifying low probability, high consequence events. In addition, other concerns, such as the moral hazard tendencies of the ceding insurer, may become a more significant impediment to securitizing these risks. Thus, assuming policymakers establish a level playing field between all risk transfer mechanisms, the adoption of onshore SPRV's should not be viewed as the beginning of the demise of the more traditional form of risk transfer via reinsurance contracts.

The economic rationale for the development of this market over the last five years has largely been driven by the inability for insurers and reinsurers to effectively eliminate their risks via cross-sectional diversification and the fact that holding large pools of capital against severe but infrequent events is costly. However, "run-of-the-mill" insurance risks that can be easily diversified cross-sectionally do not require the establishment of a large pool of capital (equal to the maximum possible loss payment) to safely underwrite these risks. Thus, the full funding requirement included in the onshore SPRV proposed model act would force investors to set aside more capital than would otherwise be necessary to sufficiently collateralize the obligations of the insurer.

In addition, it is not clear that capital markets investors have any comparative advantage in managing these lower layer risks. The access to the capital markets is advantageous for large infrequent events since capital markets investors have deeper pools of capital and the risks they typically invest in are uncorrelated with the returns on the insurance-backed bonds. However, lower layer risks, for the most part, are independently distributed across a pool of reinsurance contracts and therefore reinsurers can just as easily diversify these

risks, by carefully underwriting and balancing their portfolios, as can an investment trust. Further, because the risks can be diversified by primary insurers and reinsurers, the need to have access to a large pool of equity capital to safely underwrite the risk is much lower.

Thus, the implied tax advantage of an SPRV would not be as significant for lower layer risks. Hence, the economic advantage capital markets investors have to finance catastrophe losses does not necessarily translate to a comparative advantage for other less severe insurance risks.

Finally, it is not clear a diffuse group of capital markets investors would have any comparative advantage in accurately evaluating and pricing complex insurance risks than would a traditional reinsurer. The recent literature on banking provides some support for this last point. For example, Diamond (1984) argues banks have a comparative advantage over individual investors in financing projects for which controlling the moral hazard tendencies of the borrower is a primary determinant in the success of the project. In this case, individual investors would rather delegate the bank to monitor the loan portfolio and then take equity positions in the bank as they are unable to replicate the economies of scale that are assumed to exist in the monitoring function performed by the bank. A similar argument could be made here regarding the monitoring function performed by reinsurers through their long-term relationships with primary ceding companies and through the pricing structures that have been developed to control these moral hazard tendencies (see also Allen and Gale, 1997).

IV. Comparing Onshore Protected Cells and SPRVs

Several proposals would facilitate securitizing catastrophe risk onshore. This section will provide a general description of the organizational and structural characteristics contemplated in these proposals. In our examination, we will present stylized versions of the various proposals since there are potentially competing versions of the proposals that may differ in some aspects.

A. The Protected Cell

The NAIC has adopted a Model Protected Cell Law that would allow domestic insurers to segregate certain assets and liabilities much like life insurers do with their separate accounts. On the surface, the protected cell (PC) appears to be a relatively unique form of organization. While it exists in the life insurance industry in the form of separate accounts, outside of the U.S. it appears that the use of protected cells is primarily limited to catastrophe insurance coverages or investment funds.¹³ However, the PC is most like a trust or escrow arrangement held by the insurer.

Conceptually, the PC is a subsidiary of the primary insurer. Further, for purposes of state law, the PC is classified as a reinsurer. Essentially, the PC sells debt securities to investors that will back only specified risks under certain contractually specified circumstances. The debt contract would list the types of risk covered and indicate when payments would be made. Generally, claims would be paid if a so-called “triggering event” occurs. This would be described specifically and, ideally, would leave little room for the insurer to expropriate the funds from the protected cell except for agreed upon events.

If a triggering event occurs, the PC would pay claims to the ceding insurer up to the amount of the account. Bondholders would lose all or a portion of their principal and interest payments. If the account were depleted (claims are greater than dollar value of assets), the insurer would still be required to pay claims in excess of the assets pledged in the separate account. However, debt investors in the separate account would not be exposed to further claim obligations from the primary insurer.

In the event that the claims paying ability of the primary insurer is impaired and it cannot pay the claims for contracts that are not covered by the PC’s agreement, the insurer would not be able to assess the proceeds of the separate account. In this case, it is off limits to the insurer unless a triggering event occurs.

¹³ Offshore protected cells can be found in the Island of Guernsey, which has 22 companies, which in turn, have 105 cells in property-casualty insurance and investment funds (Tynwald Court, 1998). Other offshore options are based in Bermuda, the Cayman Islands and Turks and Caicos. A.M. Best (2000) reports that the demand for these types of protected cell arrangements will increase as insurance prices increase. Further, commentators state that the predominant use of these vehicles is to deal with catastrophes (See for example, McQuiston, 1999).

Thus, the model PC legislation prohibits debt investors of a PC with no assets from obtaining assets of the insurer's general account and the general creditors of a bankrupt insurer are not able to attach assets of the PC. This is similar to the case where an insurer might engage in a reinsurance contract and then become financially troubled. The insurer's creditors have no claim against the reinsurer (absent a "triggering" event). Further, creditors of the reinsurance company cannot go after the assets of the ceding insurer.

The real benefit of a PC is that it allows an insurer to be able to increase its reserves without paying taxes on them or on the transfer of risk to the PC. Reinsurance payments made to PC for contingencies are tax deductible. Profits from the PC are minimized, as interest payments to bond owners are (or would be if Congress enacts legislation) deductible.

B. Special Purpose Reinsurance Vehicle

The NAIC is also considering a model law that would allow for the establishment of a special purpose reinsurance vehicle. A SPRV shares certain concepts with the PC. The main difference is that the SPRV is a separate company that holds the assets pledged to support obligations to the ceding insurer if a triggering event occurs.

An insurer sets up an SPRV (see Figure II.5), which is a separate company with no ownership ties to the original insurer. The SPRV sells bonds to investors to fund the SPRV. The insurer pays the SPRV a reinsurance premium for a contract amount of coverage. The SPRV then sells bonds to investors and it then puts bond sales proceeds and reinsurance premiums in trust. This trust relationship would be necessary to pass regulatory muster in the sense that the assets would be expected to be available in the case of a triggering event.

Proponents of model legislation for onshore SPRVs envision that this structure would have significant tax advantages. Their objective is to put onshore and offshore SPRVs on a more equal footing from a tax perspective. The reinsurance premium paid to the SPRV by the ceding insurer would be tax deductible to the insurer. The SPRV and its investors also would have tax-preferred benefits. First, the SPRV would essentially have profits equal to investment returns minus bond interest payments. This should result in a profit of zero. Thus, no corporate income taxes would be paid by the SPRV. As a result, the payment to the investor would be a return of principal rather than an equity dividend and would thus not be subject to the double taxation of corporate profits. The bond owner would pay tax on the investment income.

C. Questions Regarding Onshore Special Purpose Vehicles and Protected Cells

1. Single Event or Multiple Event Vehicles?

One major question that needs to be addressed is whether a SPRV or a PC would be a single transaction entity or whether more than one transaction could be placed within a

single entity or cell.¹⁴ From the proposed model legislation, it might be construed that both the PC and the SPRV would be single event vehicles. This means that they would only cover one event such as a hurricane striking Florida within a specified time period with total expected claims greater than a specified amount, e.g., \$20 billion. However, this need not be the case.

If multiple event vehicles are allowed, there is likely to some administrative cost savings, as insurers will not have to set up separate entities for each transaction. However, there are some other issues to address. To examine the effects of permitting multiple event vehicles, we make the following assumptions. First each transaction is governed by a separate reinsurance contract. Second, each contract specifies a triggering event specific to the risk securitized. Third, deposits equaling 100 percent of the securitized risk's maximum potential loss support each contract and are placed in a separate trust account for each contract.

If these assumptions are true, then the presence of multiple risks within one vehicle does not change the risk characteristics of the vehicle. Only those assets supporting the particular reinsurance agreement are subject to being used to pay the ceding insurer if the triggering event occurs. No claim above the contracted amount can be paid from the vehicle's capital. Thus, capital backing the other secured risks is safe.¹⁵

If assets are commingled, there appears to be risk pooling within the entity itself. However, this is not the case. Since each risk is backed by capital representing 100 percent of the maximum probable loss there are no gains related to risk reduction through pooling to the investors in the SPRV. It should be noted that risk pooling across the entire market occurs, but not within the SPRV.

If debt owners required separate entities to hold their assets, then it is likely that both the SPRV and the PC would be able to accomplish this goal. If the debt owners contributing the capital do not require separateness, then realistically it does not matter whether assets can be accounted for separately and assigned back to the debt owner as long as the SPRV

¹⁴ The May 2, 2000 Discussion Draft of the NAIC SPRV Model Act actually adds one more degree of freedom. In Section 1 it states that "This Act is adopted to provide for the creation of Special Purpose Reinsurance Vehicles ("SPRVs") to facilitate the securitization exclusively of *one or more* insurer's risk as a means of accessing alternative sources of capital and achieving the benefits of securitization." (Emphasis added). This suggests that more than one insurer might desire to employ a particular SPRV to securitize a risk. It appears from Section 6 of the Discussion Draft that the joint use of a SPRV would be for a single securitization (rather than for multiple securitization.). Thus two ceding companies are willing to securitize a common risk. The benefits of doing this are similar to those accruing to a single firm placing multiple risks with a SPRV. The potential costs of doing so are also present. Please see the next footnote.

¹⁵ It is possible that a court or a receiver could try to rewrite the reinsurance contract with the SPRV to extract a larger amount of coverage after a large catastrophe that bankrupted the ceding insurer. The Mission Insurance insolvency resolution is illustrative of the lengths to which a receiver will attempt to obtain additional funds from the reinsurers. Just the threat of this type of litigation and its expense may be enough for investors to demand a separate special purpose vehicle for each securitization.

is fully funded to 100 percent of the maximum potential loss under the reinsurance agreement with the ceding insurer.

2. Time Period of Contracts

A similar question arises for single or multiple year contracts. It is not clear whether the proposed model act or any proposed legislation contemplates a SPRV or PC that would be restricted to one-year contracts. A number of offshore SPRVs have been created that cover multiple years. For example, a transaction by Concentric Limited covered Japanese earthquake risk for a five-year period, as did a transaction by Namazu Re. Further, Tokio Fire and Marine used Parametric Re, a Cayman Island SPRV, to securitize a 10-year earthquake risk. The question here is not whether multi-year contracts should be allowed, but whether the market will demand them. Not all risk securitization contracts will be suitable for multi-year deals, but there may be some like earthquake contracts that are particularly suited for multi-year contracts.

3. Commutation

Traditional reinsurance contracts often provide for the possibility that the contract might be cancelled prior to the agreed upon term. This may be due to changes in the financial strength of the reinsurer or that the reinsurer may believe that its risk exposure has changed substantially. Ideally, one party can compensate the other to commute the contract and transfer the risk. However, the longer the contracted risk takes to resolve or the greater the so-called “tail risk”, the greater the need for commutation.

In SPRV transactions, the risks relating to commutation are quite different. First, the investors in the SPRV take the risk that the underlying distributions of risk might change for the worse over time (e.g. hurricane forecasters predict a higher than average risk of hurricanes). Thus, a way to mitigate this risk is to sell the bond in a secondary market.

Second, the risk to the ceding insurer is also different. If the assets are invested so that the SPRV or cell is fully funded, then there is no risk of an event that would require commutation. In contrast, if the asset value falls below the fully funded level, the ceding insurer might like to commute the contract. However, the terms of the SPRV trust or enabling documents would determine its ability to do so. If no commutation is possible, then regulators may require the ceding insurer to post additional reserves to make up for the decline in the value of the SPRV’s assets. Thus, the ceding insurer may reduce its ability to manage risks in the event of a reduction in the SPRV’s asset values (if the SPRV agreement does not provide for low transactions cost commutation) and it may face additional regulatory risk in terms of having to place additional reserves to back a reinsurance agreement with an SPRV that has suffered a decline in the value of its assets.

D. Comparison With Securitizing Other Types of Contracts

Insurance securitization has been likened to the securitization of other contracts such as home mortgages or credit card debt. For example, it might be possible to package and securitize blocks of insurance contracts (auto, home, life, etc.), just as home mortgages have been securitized. Such securitization of blocks of insurance contracts could provide

access to capital markets and also could be structured to allow investors to choose among different risk components, just as the various tranches of collateralized mortgage obligations allow.

However, there would be a fundamental difference between a block of securitized mortgages and a block of securitized insurance contracts. In the case of the former, the investor faces and can choose among two basic types of risk and their components: 1) default risk; and 2) prepayment risk. Regardless, all of the risk is assumed by the investor; as debtors, mortgagees have no risk.¹⁶

Asset-backed securitizations essentially factor reasonably predictable future cash flows under loans to bond investors for a discounted price, and give the bond investor whole or partial security from the risk of debtor default in the form of pledged assets. The issue is not whether debtors retain risk; it is whether the issuing bank (which is in the analogous position to the insurer in an insurance securitization and is the intended beneficiary of the securitization) retains risk. Asset-backed securitizations are structured so that the issuing bank's exposure with respect to default risk and prepayment risk are essentially eliminated.

The situation would be different with a block of insurance contracts. Parties on both sides of the contract face risk and their risks are intertwined. The insured faces a potential default risk while the investor faces underwriting and interest rate risk with the potential of losing all or a portion of their expected return and/or investment. The less stringent the regulatory and collateral requirements imposed on SPRVs, the higher the default risk to insureds.

The proposed insurance liability securitizations have different risk characteristics than asset securitizations. Bond investors put funds at risk to unpredictable future insured loss events, and receive a premium for that risk, with a return of principal and (if no event) payment of interest wholly or partially secured by a trust fund consisting of bond proceeds and reinsurance premiums (in the case of an SPRV) or just bond proceeds (in the case of a protected cell).

Further, the higher the losses suffered by insureds, the greater the chance that the SPRV may default on its obligations.¹⁷ In addition, bondholders are faced with a significantly greater array of risks than they are with asset-backed transactions, including tax treatment (in the absence of federal tax law changes), unpredictable cash flows and regulatory and

¹⁶ It is true that there are some transactions costs for mortgagees to refinance their home when interest rates drop, but the risk involved would seem to be minimal. A drop of even 1-2 percentage points can make it optimal for a homeowner to refinance and prompt mortgagees with flexible rate contracts to move to fixed rate contracts.

¹⁷ This risk arises from two sources. One is that if the value of the assets of a SPRV trust account declines after its establishment, there is a chance that they will not be sufficient to cover the SPRV's obligation. Second, if an SPRV contract is triggered and the ceding insurer claims high losses and seeks to withdraw funds from the trust account, there is a chance that investors may legally challenge the withdrawals.

other risks. This is not to argue that securitization of insurance contracts would necessarily be a bad idea, but it does mean that there are default risk issues for insured and different risks for investors that have to be considered. Some of these same kinds of issues arise, for example, when life insurers seek to transfer blocks of contracts through assumption reinsurance transactions.

V. Regulatory and Accounting Issues

A. General Insurance Regulatory Principles

1. Objectives of Insurance Solvency Regulation

Insurance regulation, in principle, should be targeted towards correcting market failures that would otherwise cause insurers to incur an excessive risk of insolvency and/or engage in market abuses. The public interest argument for the regulation of insurer solvency derives from inefficiencies created by costly information and principal-agent problems (Munch and Smallwood, 1981).¹⁸ Owners of insurance companies have diminished incentives to maintain a high level of safety to the extent that their personal assets are not at risk for unfunded obligations to policyholders that would arise from insolvency. It is costly for consumers to properly assess an insurer's financial strength in relation to its prices and quality of service. Insurers also can increase their risk after policyholders have purchased a policy and paid premiums. Thus, in the absence of regulation, imperfect consumer information and agency problems would result in an excessive number of insolvencies. Solvency regulation is intended to limit insurers' insolvency risk in accordance with society's preference for safety.¹⁹

Insurance solvency regulation requires balancing the benefits of increasing the security of risk transfer with the associated effects on the supply and cost of insurance. More stringent solvency requirements will tend to diminish insurers' financial risk but will also decrease the supply of insurance and increase its cost. Less stringent solvency requirements will tend to increase the supply and lower the cost of insurance, but they also can diminish the security of risk transfer and increase insolvency costs. Neither the elimination of insolvency risk nor the absence of any solvency requirements is in the best interest of consumers and the public. Consumers, presumably, are willing to accept some solvency restrictions on insurers' risk to protect their interest in insurers' ability to meet their obligations.

Regulators protect policyholders' interests by requiring insurers to meet certain financial standards and to act prudently in managing their affairs. To accomplish this task, insurance regulators are given authority over insurers' ability to incorporate and/or conduct business in the various states. State statutes set forth the requirements for incorporation and licensing to sell insurance. These statutes require insurers to meet

¹⁸ Costly information refers to the fact that it is costly for consumers to acquire information about the financial condition of an insurer and the relative value of its products in relation to their prices. Principal-agent problems refer to the difficulty that an insured (the principal) faces in monitoring and controlling the activities and financial risk of an insurer (the agent), once the insured has signed a contract with the insurer and paid premiums for coverage of future claims and benefit obligations.

¹⁹ In this context, the phrase "limit insurers' insolvency risk" refers to the default risk faced by insureds and other creditors if an insurer or an entity that acts like an insurer fails to meet its obligations. Experience and research suggests that most insurers maintain lower levels of financial risk than that compelled by regulators. However, in the absence of regulation and sometimes despite regulation, some insurers may attempt to "gamble" with policyholders' funds by assuming excessive financial risk or intentionally defrauding consumers by expropriating funds for purposes other than securing their financial obligations.

certain minimum capital and surplus standards and financial reporting requirements and authorize regulators to examine insurers and take other actions to protect policyholders' interests. Solvency regulation polices a number of aspects of insurers' operations, including: 1) capitalization; 2) pricing and products; 3) investments; 4) reinsurance and securitization; 5) reserves; 6) asset-liability matching; 7) transactions with affiliates; 8) management; and 9) financial disclosure and reporting.

The regulatory approach to reinsurance transactions is based on a certain underlying logic. Oversight is primarily exercised through direct regulation of primary insurers, but this has secondary effects on reinsurers. Insurance contracts are written on the "paper" of primary insurers, and primary insurers' legal obligations are not altered by the failure of their reinsurers to meet their obligations. At the same time, under our system of limited liability and guaranty funds, other parties bear the burden if a primary insurer becomes insolvent because of the failure of its reinsurance arrangements. Since regulators are charged with controlling the moral hazard associated with this situation, they must consider the risk transfer and credit quality of a primary insurer's reinsurance contracts in regulating the solvency of the primary insurer. This gives primary insurers an incentive to contract with high-quality reinsurers who are subject to adequate regulation by their domiciliary jurisdiction and/or collateral requirements. It also favors the use of indemnity-based and other risk transfer arrangements that minimize basis risk and assures the ceding insurer that its losses will be covered.

As noted in Section I, regulation encompasses more than just determining whether a ceding insurer may claim credit for reinsurance on its balance sheet. Ultimately, regulators must assess an insurer's management of its financial risk and this includes evaluating its transfer of risk through reinsurance and other means. Specifically, regulators should prevent an insurer from becoming too highly leveraged in terms of the relationship between its actual or potential liabilities and the surplus available to absorb unexpected increases in these liabilities. Hence, a regulator may require an insurer to increase its use of reinsurance and/or securitization to maintain its net exposures and leverage within reasonable parameters. Related issues arise in terms of the reinsurance and securitization arrangements that regulators would find suitable. This aspect of regulation took on an added dimension in the early 1990s when regulators and rating agencies began querying primary insurers on their catastrophe exposures and risk diversification.²⁰

²⁰ The NAIC initially considered the idea of requiring insurers to file a special exhibit that would indicate its catastrophe exposures or probable maximum losses (PMLs), gross and net of reinsurance. This proved to be complicated and the NAIC moved back to inserting an interrogatory question in the financial statement concerning a insurer's management of its catastrophe risk. Rating agency requirements have evolved in this area. A.M. Best has recently moved to requesting insurers to file a report on their catastrophe exposures, which Best processes through a standardized model to estimate an insurer's PMLs. It is our understanding that Best expects insurers to protect themselves against 100-year events for hurricanes and 250-year events for earthquakes as a condition for a good financial rating.

2. Financial Reporting and Transparency

Financial disclosure and reporting are an important aspect of insurance regulation. Since the inception of insurance regulation in the U.S. in the early 1800s, insurers have been required to file financial statements. The purpose of this reporting is to provide regulators and the public with an accurate picture of an insurer's financial condition and its ability to meet its obligations. Regulators use insurers' reports to monitor their financial condition and take appropriate corrective or disciplinary actions if necessary. Other parties also use these reports in dealing with insurers. Rating agencies play an important role in providing assessments of insurers' "claims paying ability" that are utilized by consumers, intermediaries and other entities. Rating agencies rely heavily on the regulatory financial statements of insurers, as well as other supplemental financial reports and management interviews. Regulatory monitoring and market monitoring combine to inform and enhance the security of insurance transactions.

The accounting rules governing a ceding insurer's ability to claim credit for reinsurance cessions are key to understanding how reinsurance transactions are influenced by regulation. These rules also are pertinent to the accounting treatment proposed for onshore SPRV contracts. In the late 1980s, the NAIC and the states strengthened the laws and regulations governing credit for reinsurance. The pertinent models are the Credit for Reinsurance Model Law (CRML) and the Credit for Reinsurance Model Regulation (CRMR).

It is instructive to quote the Purpose section (Section 1) of the CRML to better understand the regulatory philosophy that underlies the regulation of the credit for reinsurance.

The purpose of this Act is to protect the interest of insureds, claimants, ceding insurers, assuming insurers and the public generally. The legislature hereby declares its intent is to ensure adequate regulation of insurers and reinsurers and adequate protection for those to whom they owe obligations. In furtherance of that state interest, the legislature hereby provides a mandate that upon the insolvency of a non-U.S. insurer or reinsurer that provides security to fund its U.S. obligations in accordance with this Act, the assets representing the security shall be maintained in the United States and claims shall be filed with and valued by the state insurance commissioner with regulatory oversight, and the assets shall be distributed, in accordance with the insurance laws of the state in which the trust is domiciled that are applicable to the liquidation of domestic U.S. insurance companies. The legislature declares that the matters contained in this Act are fundamental to the business of insurance in accordance with 15 U.S.C. §§ 1011-1012.

In order for the ceding insurer to receive credit for reinsurance, the reinsurer must be authorized or post security to cover its obligations. To be authorized, a reinsurer must be licensed in at least one state and meet capital and surplus requirements imposed on other licensed insurers. Additionally, the reinsurer must comply with the full set of regulatory requirements imposed on licensed insurers, with the exception of rate and form filings. The credit that a ceding insurer receives is also reduced for uncollectible and overdue reinsurance payments.

The NAIC model act and regulation effectively establish five categories of assuming insurers in determining a ceding insurer's ability to claim credit for reinsurance. The requirements for the domicile, regulation and collateralization of an assuming insurer's obligations vary across these categories. Collateralization requirements compensate for an assuming insurer's failure to meet domicile and regulation criteria. Credit for reinsurance cessions is allowed for a domestic ceding insurer in a state for the following categories of assuming insurers:

- A. The assuming insurer is licensed to transact insurance or reinsurance in the state.
- B. The assuming insurer is authorized in the state.
- C. The assuming insurer is domiciled in a state that employs standards regarding credit for reinsurance substantially similar to those applicable in this state.
- D. The assuming insurer maintains a trust fund in a qualified U.S. financial institution for the payment of valid claims of its U.S. ceding insurers, their assigns and successors in interest or provides other acceptable security.
- E. The assuming insurer does not meet any of the above requirements. In this instance, credit for reinsurance is allowed only for the insurance of risks located in jurisdictions where the reinsurance is required by applicable law or regulation of that jurisdiction.

The model act and regulation impose a number of additional requirements for allowing credit for reinsurance that are discussed below in relation to the proposed rules for onshore SPRVs. It should be noted that provisions for non-admitted or non-recoverable reinsurance only affect the ceding insurer's balance sheet as a charge to statutory surplus. Regulations allow ceding insurers to reflect all reinsurance cessions in other financial amounts, such as net premiums, losses and loss adjustment expenses, and income.

This is illustrated in the example shown in Box V.1 below. The example compares the ceding insurer's accounting for a collateralized reinsurance transaction and a non-collateralized transaction. We assume that regulators allow accounting credit for reinsurance for the collateralized transaction (akin to the treatment of "authorized" reinsurance transactions) and do not allow credit for reinsurance for the non-collateralized transaction (akin to the treatment of "unauthorized" reinsurance). In this example, we also assume that the reinsurer provides a limit of \$100 million for a premium of \$25 million. Direct losses of \$150 million and ceded recoveries of \$75 million are recognized as of December 31, 2000.

Box V.1
Collateralized Versus Non-Collateralized Reinsurance Transactions

Collateralized Transaction	Non-Collateralized Transaction
1. Premiums Written Ceded 25 Cash 25 To record premium cession at 1/1/00	Premiums Written Ceded 25 Cash 25
2. Premiums Earned (UPR Chg.) 25 Unearned Premium Reserve 25 To amortize to premium exp. at 12/31/00	Premiums Earned 25 Unearned Premium Reserve 25
3. Losses Incurred 150 Outstanding Loss Reserves 150 To recognize direct losses	Losses Incurred 150 Outstanding Loss Reserves 150
4. Outstanding Loss Reserves 75 Losses Incurred 75 To cede losses to reinsurer.	Outstanding Loss Reserves 75 Losses Incurred 75
	If collateral is not provided: Unassigned Funds (Surplus) 75 Provision for Reinsurance 75 This entry decreases the balance sheet account surplus and negates the balance sheet benefit from the reinsurance. The earnings benefit in the income statement, however, is not affected.

Consequently, reinsurance cessions can affect a ceding insurer's balance sheet, income statement, underwriting and expense exhibits, and loss reserve exhibits, among other schedules. However, the regulations governing the credit for reinsurance only affect surplus. Thus, a ceding insurer can use unauthorized reinsurance transactions to improve the appearance of its financial performance, even if the disallowance of credit for reinsurance does not allow it to improve the appearance of its balance sheet.

Various reported amounts reflect adjustments for reinsurance, including:

- Assets;
- Liabilities;
- Surplus;
- Net premiums (written and earned);
- Net losses (paid and incurred);
- Net expenses; and
- Net income.

In turn, various measures of an insurer's financial condition are affected by reinsurance cessions. These measures include:

- ❑ Leverage;
- ❑ Liquidity;
- ❑ Compliance with capital requirements (fixed and risk-based);
- ❑ Probable maximum losses (PMLs);
- ❑ Premium growth;
- ❑ Loss ratios;
- ❑ Loss development;
- ❑ Expense ratios; and
- ❑ Profitability.

Charges to surplus for unauthorized or non-recoverable reinsurance cessions affect two of these measures but not others. Specifically, only premium to surplus (i.e., leverage) and risk based capital measures would be adversely affected by such charges to surplus.

Obviously, the ability to claim credit for reinsurance cessions portrays the ceding insurer as financially stronger and with lower financial risk than if it was not allowed to claim credit for reinsurance. Regulators must ensure that a ceding insurer's credit for reinsurance is justified and that it accurately reports its financial condition. Otherwise, regulators may fail to take appropriate corrective action when necessary and the public may be misled about the ceding insurer's ability to meet its obligations.

At the same time, a ceding insurer can still retain favorable reporting for financial items not affected by reductions in their credit for reinsurance. This raises concerns that the failure to transfer risk caused by problems with an SPRV contract or other contracts would not be reflected in important insurer performance measures. While this issue would not be confined to SPRVs, it could become more significant if there was widespread use of SPRVs that failed to meet reasonable risk transfer and credit for reinsurance standards. If a ceding insurer misused a flawed SPRV arrangement, its reported financial performance and net catastrophe risk exposure could appear more favorable than the reality.

B. Regulatory Principles for SPRVs

The structure of and the accounting rules and regulatory requirements applied to alternative risk financing/transfer mechanisms should promote incentives for safe and prudent transactions, provide adequate disclosure and limit financial risk within reasonable regulatory parameters. Alternative mechanisms, including SPRVs, should not be granted special accounting and regulatory treatment that is not justified on the basis of inherent structural differences that obviate or reduce the need for certain regulatory requirements applied to traditional insurance and reinsurance arrangements. To the extent that alternative and traditional mechanisms serve similar objectives in enabling risk transfer at a primary level, the regulations affecting the security of this risk transfer should provide consistent protections to policyholders, claimants and the public, regardless of how this risk is ultimately financed and diversified.

Sometimes preferential regulatory treatment is justified by policymakers to “fix a market problem” that cannot be resolved by other means.²¹ Proponents of model legislation for onshore SPRVs contend that it will expand industry capacity for catastrophe risk and lower the cost of risk transfer for catastrophe and non-catastrophe risks. If there is a “capacity gap” caused by a structural failure of existing risk transfer markets, some might argue that encouraging the formation of SPRVs through preferential regulatory treatment could benefit the public.

As we discussed in Section III, the evidence on the “capacity gap” is mixed. Most insurers probably do not have reinsurance or securitization arrangements that would protect them from catastrophic events that would exceed the conventional 100-year PMLs for hurricanes and 250-year PMLs for earthquakes. Some insurers may not even meet these targets. If the industry is insufficiently protected against high-layer catastrophe risk, regulators must weigh the costs and benefits of preferential regulatory treatment for high-layer securitization. If onshore SPRVs substantially reduce the cost and increase the purchase of reliable risk transfer at this level, regulators could view this as a plus and in the public interest. However, while this might justify special tax treatment, it does not necessarily justify substantial regulatory concessions. If regulatory exemptions were granted that would permit inadequate or unreliable securitizations, it is not clear that the public interest would be enhanced. Further, the misuse of less adequate SPRV contracts to replace more adequate reinsurance and securitization arrangements at lower layers of catastrophe risk would undermine the public interest.

C. Evaluating Proposed Laws and Regulations for Onshore SPRVs

This subsection discusses the proposed laws and regulations that would govern onshore SPRVs. This discussion is based on the discussion draft NAIC Special Purpose Reinsurance Vehicle Model Act (January 27, 2000 version) and related materials.²² The proposed regulatory structure for onshore SPRVs has important implications for their reliability in supporting the contractual obligations of primary insurers that transfer risk to them. Also, understanding the structure and proposed regulation of onshore SPRVs is pertinent to evaluating what is contemplated for ceding insurers’ ability to claim accounting credit for risk ceded to onshore SPRVs. This latter topic is discussed in detail in Subsection D.

Rather than reviewing all aspects of the proposed model act for SPRVs, we focus on provisions that are especially critical and that also raise questions or issues that need to be considered by regulators. In so focusing our discussion, it should not be interpreted as an

²¹ An example of such a policy may be the Risk Retention Act, enacted by Congress to address perceived problems in the supply of liability insurance in the mid-1980s. Debate continues on whether this legislation was necessary and promotes the public interest.

²² The proposed model act has undergone a number of revisions. The “official” draft submitted to the NAIC for its consideration is dated October 1999. Subsequent drafts have been circulated among interested parties for discussion purposes but have not been submitted formally to the NAIC (as of the date of this paper). The differences among the various drafts are not significant in terms of the issues discussed in this paper, with the exception of allowing an SPRV to reinsure more than one ceding insurer.

overall negative assessment of the proposed model act in that we do not give equal emphasis to provisions that we think are strengths.

1. Purpose, Formation and Regulatory Authority

As with any proposed model act, it is helpful to begin with its basic purpose to evaluate its provisions. Section 1 (Purpose) of the proposed model act states:

This Act is adopted to provide for the creation of Special Purpose Reinsurance Vehicles ("SPRVs") to facilitate the securitization exclusively of a single insurer's risk as a means of accessing alternative sources of capital and achieving the benefits of securitization. Investors in fully funded insurance securitization transactions provide funds that are available to the SPRV to initially secure the maximum possible exposure under a contract with a ceding insurer to release all or a portion of such funds to the ceding insurer to pay obligations upon the occurrence of a triggering event. The creation of SPRVs is intended to achieve greater efficiencies in conducting insurance securitizations.

The notion of the limited purpose of a SPRV to support a particular securitization transaction is essential to the regulatory framework embodied in the model act. The regulatory requirements for a limited purpose entity would be expected to differ in some aspects from the regulatory requirements for licensed reinsurers that engage in a broader range of activities and different types of transactions.

Section 3J of the proposed model act further defines a SPRV to be a corporation domiciled in and organized under the laws of the authorizing state, which has received a "limited certificate of authority" from the state insurance commissioner under the act exclusively for the limited purpose, with a single ceding insurer, of entering into and effectuating SPRV insurance securitizations, SPRV contracts, and other related transactions specifically permitted by the act.

Sections 2 and 4 establish the scope of authority of the domiciliary commissioner. Regulators' scope of authority would be more limited for SPRVs than it is for licensed reinsurers. Section 2 (Exemption for Insurance Laws within Limitations) is intended to specifically list the sections of the state's insurance code that apply to the commissioner's general powers with respect to a SPRV. The January 2000 draft suggests that these sections should include the power to investigate insurance law violations, subpoena and examine documents and witnesses, conduct hearings, institute other legal action to enforce laws or orders, issue cease and desist orders, impose fines, handle documents and records, suspend or revoke licenses or certificates of authority, and impose fees and other charges for enforcement of the act. Section 2 then exempts the SPRV from any other provisions of the state's insurance code, except as provided in the act. This places the onus on the enacting state to list all applicable powers of the commissioner and increases the burden of proof on the commissioner to show that a given regulatory action is authorized under the act. Regulators need to consider whether this approach is superior to the alternative approach of specifically listing the provisions of the insurance code from which a SPRV would be exempt.

Section 4 (Limited Certificate of Authority) requires a SPRV to file an application for a limited certificate of authority with the domiciliary commissioner and indicates what must be contained within the application. The application is deemed approved within 30 days of its filing unless the commissioner approves or disapproves the application. This deemer provision would seem to substantially limit the timeframe provided to regulators to properly review SPRV applications and prevent flawed entities from being formed. Also, the commissioner must approve any material change to the SPRV's plan of operation subject to a 15-day deemer provision. Presumably, such timeframes are intended to expedite SPRV contracts and are rationalized by the limited purpose of a SPRV. However, these timeframes also could prove to be problematic for regulators that received a large number of applications or who had limited resources to review them.

The domicile of a ceding insurer could be different than the domicile of the SPRV. This raises regulatory coordination issues, although there could be advantages to having certain states specialize in the regulation of SPRVs if they performed these responsibilities effectively. The states should have a mutual interest in not having a particular state become a haven for SPRVs because of a lax regulatory framework. However if this problem did occur, non-domiciliary states would have to exercise their authority over ceding insurers to protect policyholders' interests.

2. Rules Governing SPRV Structure and Management

Sections 5 and 6 outline the limited purpose of a SPRV and its approved transactions and operations. The basic structure, characteristics and activities of SPRVs were reviewed in the previous section and we will not repeat them here. We do focus on certain regulatory requirements for SPRVs that are particularly relevant to the public policy issues raised in this paper.

Several questions arise in reviewing these provisions of the proposed model act, although it may not be appropriate to specifically address all of these questions in the model act. One area of questions concerns the "qualified U.S. financial institutions" that would be eligible to serve as fiduciaries of SPRV trusts. How would qualified U.S. financial institutions be determined? Would this be done by the NAIC's Securities Valuation Office as provided in the model credit for reinsurance law? Also, although the proposed model law prohibits this institution from being affiliated with the ceding insurer or SPRV, is there still a potential for the financial institution to be used in a way that would compromise the interests of the ceding insurer's policyholders? Could requiring owners/investors in SPRVs to not have an ownership interest in the "qualified financial institution" prevent conflicts of interest or other relationships in/with the financial institution used as a trustee?

3. Provisions Governing SPRV Trusts and Trust Agreements

Requirements for the Trust Agreement and Trustee

The rules governing the management of a SPRV's trust are critical to judging the security of SPRV contract obligations and the regulation of ceding insurers. They can be

compared with requirements for collateralized trusts in the model act and regulation for credit for reinsurance. Section 6E of the proposed model act provides that the agreement governing the SPRV trust must create a SPRV trust account into which all pledged assets must be deposited and held until distributed in accordance with the SPRV trust agreement (the "SPRV trust account"). All assets must be held by the SPRV trustee at the trustee's office in the U.S.

Importantly, Section 6F provides that the SPRV trust agreement must be clean and unconditional, in that it must stipulate that the ceding insurer shall have the right to withdraw assets from the SPRV trust account at any time, without notice to the SPRV, subject only to written notice to the SPRV trustee from the ceding insurer. Further, it states that the SPRV trust agreement must indicate that it is not subject to any conditions or qualifications outside of the agreement. The SPRV trust agreement must be established for the sole use and benefit of the ceding insurer.

Section 6H requires the trust agreement and the trustee to, upon written demand of the ceding insurer, immediately take any and all steps necessary to transfer absolutely and unequivocally all right, title and interest in the assets held in the SPRV trust account to the ceding insurer and deliver physical custody of such assets to such ceding insurer. It also allows no substitutions or withdrawals of assets from the SPRV trust account, except on written instructions from the ceding insurer.

Rights of the Ceding Insurer to Withdraw Funds

Section 6M provides additional requirements for the trust agreement and trust account that pertain to the rights of the ceding insurer to withdraw funds from the trust account for specified purposes. These purposes include reimbursing the ceding insurer for the SPRV's share of any losses and loss expenses paid by the ceding insurer but not recovered from the SPRV or for unearned premiums due to the ceding insurer. If the SPRV trust account is terminated, assets backing unliquidated and undischarged obligations to the ceding insurer must be deposited in trust in any qualified U.S. financial institution. Listed "obligations" include:

- ❑ Losses and loss expenses paid by the ceding insurer, but not recovered from the SPRV;
- ❑ Reserves for losses reported and outstanding;
- ❑ Reserves for losses incurred but not reported;
- ❑ Reserves for loss expenses;
- ❑ Reserves for unearned premiums; and
- ❑ The aggregate limit remaining under the SPRV contract if the period of coverage or the agreed upon period of loss development has yet to expire.

The last item is particularly important given that the ceding insurer's ultimate losses could increase over time from a specified event. The ceding insurer incurs significant tail risk with a SPRV contract that would not exist with non-finite reinsurance contracts. SPRVs are intended to be short-term vehicles that would be dissolved after the contract period with a mandatory commutation of risk back to the original cedant. This is necessary to terminate the potential liability that investors would otherwise face. This

aspect of SPRV contracts is fundamentally different from how non-finite conventional reinsurance transactions are structured. In the conventional reinsurance case, the reinsurer would continue to be liable for further loss development (i.e., the “tail”) and the cedant would continue to be reimbursed as necessary. Even the tail on property claims can exceed one year. This return of the tail to the ceding insurer would be even more significant with long-tail liability risks.

Assets in the Trust Account

A key element of the SPRV concept and proposed model legislation is the use of a “fully funded” trust to cover the maximum obligations of the SPRV to the ceding insurer. “Fully funded” means that the fair value of assets held by the SPRV on the date that the insurance securitization is effected, equals or exceeds the aggregate limit which the SPRV could be obligated to pay.

Hence, provisions governing the assets that may be held in a SPRV trust and their valuation are very important. If such assets were subject to significant credit or interest rate risk that could result in a significant decline in their value, the security of the SPRV contract would be undermined. Section 6N stipulates that the assets deposited in the SPRV trust account shall be valued according to their current fair value and shall consist of only permitted investments. Section 17 refers to investment limitations in an “attachment” that has not been distributed to our knowledge. It is our understanding that the drafters of the proposed model act intend to draft limitations based on the model act and regulation for credit for reinsurance. This is a critical issue that needs to be carefully considered and resolved in finalizing the proposed model act for SPRVs.

The proposed model act also does not contain rules on how the fair value of assets would be determined. For example, who would determine fair value in the absence of market value information? Would this be done by the NAIC’s Securities Valuation Office (SVO)?

Sections 6 and 17 of the proposed model act recognize that a SPRV may enter into swap agreements or other transactions that have the objective of leveling timing differences in funding up front or ongoing transaction expenses or managing credit or interest rate risk of the investments in its trust. We believe that the ability to engage in such hedging transactions is a good thing in that it could help to secure the value of the assets in the trust. At the same time, they also raise associated regulatory, monitoring and management issues.

There is no provision in the proposed model act that requires the investors in a SPRV trust to contribute additional funds into the trust if its value falls below a certain level. This contrasts with what would be required of licensed reinsurers or reinsurers with collateralized trusts. While cash infusions into a SPRV trust to compensate for short-term declines in asset values would not necessarily be efficient, some provision to cover significant and long-term declines might be desirable. How, this could be accomplished given the structure of a SPRV and its relationship with bond investors is unclear, however.

According to Section 6P, the investors in the SPRV shall agree and be contractually obligated that any obligation to repay principal and or interest on the debt securities issued by the SPRV shall be forgiven upon the occurrence of a triggering event, to the extent that the assets of the SPRV held in trust for the benefit of the ceding insurer are remitted to the ceding insurer in fulfillment of the obligations of the SPRV under the SPRV contract.

4. Capitalization

SPRVs would be required to be only minimally capitalized. The minimum capital requirement in the proposed model act is \$5,000. Presumably, the argument for such a low capital requirement is that a SPRV's trust account is intended to be "fully funded" in covering the SPRV's maximum obligation to the ceding insurer. In reinsurance arrangements where there is not a fully funded trust, the capital of the reinsurer helps to cover unexpected increases in the reinsurer's obligations to ceding insurers. Capital is not needed to cover this kind of contingency for SPRVs, but conventional reinsurers also use capital to cover unexpected declines in asset values. SPRVs do face this risk, but their minimum capital requirement would be insufficient to absorb asset value declines.

5. Dividends

The regulation of the payment of dividends to owners is an important aspect of the regulation of licensed insurers and reinsurers and also is relevant to SPRVs. Unfortunately, it does not appear that regulators would have the same authority to regulate the payment of dividends for SPRVs in the proposed model act. According to Section 10, the SPRV may not declare or pay dividends in any form to its owner unless such dividends do not decrease the retained and minimum initial capital of the SPRV below \$5,000 and after giving effect to such dividends the assets of the SPRV shall be sufficient to meet its obligations. All such dividends shall be declared by the board of directors of the SPRV only after the receipt of opinion of counsel that such dividends will not violate the provisions of the act or jeopardize the fulfillment of the obligations of the SPRV or the SPRV trustee pursuant to the SPRV insurance securitization, the SPRV contract or any related transaction.

While this section provides some assurance that owners of a SPRV will not deplete its assets, it would have the effect of further increasing the investment risk of the SPRV trust and any associated moral hazard. In other words, if the value of the assets in the trust increases, the owners may extract the increase in value. However, they are not required to return or infuse funds if the value of the trust assets falls below the obligation of the SPRV. This section further states that the provisions of the domiciliary state's holding company act pertaining to dividends does not apply to SPRV dividends.

6. Financial Reporting and Regulatory Monitoring

Financial reporting is integral to the regulatory monitoring function. The proposed model act (Section 11) provides for limited financial reporting by the SPRV that would be less extensive than the financial reporting required of authorized and unauthorized reinsurers.

While the limited purpose and regulation of SPRVs may justify different or less extensive reporting requirements for SPRVs, there is still the question of whether the proposed reporting requirements for SPRVs are adequate for regulators to perform their responsibilities.

Section 11 provides that the records of the SPRV shall be maintained in the domiciliary state and shall be available for examination by the department. The commissioner shall have the right to examine the records of a SPRV at any time. No later than five months after the fiscal year end of the SPRV, the SPRV must file with the commissioner an audit by a certified public accounting firm of the financial statements of the SPRV and the SPRV trust account.

Further, the SPRV is required to file with its domiciliary commissioner a statement of operations, to include a statement of income, a balance sheet and a detailed listing of invested assets, including identification of assets held in the SPRV trust to secure the SPRV's obligations under the SPRV contract for the preceding calendar year. The statements are to be on a statutory accounting basis utilizing forms and providing information required by the commissioner. There is no requirement for a report to be filed with other states or the NAIC to facilitate review by other states in which the ceding insurer is domiciled or does business.

The SPRV also is required to keep its books and records in such manner that its financial condition, affairs and operations can be ascertained and so that its financial statements filed with the commissioner can be readily verified and its compliance with the provisions of the act determined.

7. Dissolution

Section 14 provides that a SPRV may be dissolved at any time by a vote of its board of directors, and after such action has been approved by the commissioner. Voluntary dissolutions would not be allowed until and unless all of the obligations of the SPRV pursuant to insurance securitization transactions have been fully and finally satisfied.

8. Regulatory Action and Insolvency Proceedings

State laws and regulations generally grant broad authority to regulators to seize an insurer or force other corrective actions if regulators believe and can show that the insurer is in hazardous financial condition. While such regulatory actions are subject to legal challenges and regulators may bear some burden of proof, experience suggests that regulators have been given fairly broad discretion in this area.

According to Section 15 of the proposed model act, the domiciliary state's conservation, rehabilitation and liquidation statute would apply to a SPRV, except as otherwise provided in the SPRV model act. The SPRV act would allow the commissioner to petition the court to rehabilitate or liquidate a SPRV in instances where:

1. There has been embezzlement, wrongful sequestration, dissipation, or diversion of the assets of the SPRV; or

2. The SPRV is insolvent and the holders of a majority in outstanding principal amount of each class of SPRV securities request or consent to rehabilitation or liquidation under the act.

However, Section 15 prevents the receiver from interfering with certain SPRV transactions. Specifically, a receiver of a ceding insurer may not void a transfer by a ceding insurer to a SPRV of money or other property made pursuant to a SPRV contract. Further, a receiver of a SPRV may not void a transfer by the SPRV of money or other property made to a ceding insurer pursuant to a SPRV contract or made to or for the benefit of any holder of a SPRV security on account of such SPRV security. This provision conflicts with the powers normally given to receivers and could compromise a receiver's ability to manage an insurer insolvency. It could enable a ceding insurer facing receivership to extract and disburse funds from a trust account in a manner inconsistent with the objectives of and the interests protected by the receivership.

Also, the proposed model act insulates the assets of the SPRV from being consolidated with the assets of the ceding insurer in any delinquency proceeding against the ceding insurer. It states that, with the exception of the fulfillment of the obligations under a SPRV contract, the assets of a domestic or foreign SPRV shall not be consolidated with or included in the estate of a ceding insurer in any delinquency proceeding against the ceding insurer for any purpose, including, without limitation, distribution to creditors of the ceding insurer.

Subsection 15G prohibits ancillary proceeding in the enacting state against a SPRV domiciled in another state. This raises the question of how this provision would affect the ability of non-domiciliary states to encourage the domiciliary state to take appropriate regulatory actions (compared with the leverage of non-domiciliary states with respect to authorized reinsurers).

D. Accounting Issues for Ceding Insurers: Credit for Reinsurance

1. Basic Issues

The accounting treatment or credit for reinsurance afforded to ceding insurers for SPRV contracts is one of if not the most important issue for regulatory consideration. While a ceding insurer could still benefit from a SPRV securitization without receiving credit for reinsurance (or something equivalent) on its financial statement, not receiving credit would be a substantial disincentive. After a catastrophic event that would trigger a SPRV contract, the ceding insurer would wish to report its losses net of payments expected from the SPRV trust. Indeed, not being allowed credit for these payments could make the ceding insurer appear to be technically insolvent. This would misrepresent the ceding insurer's financial condition if it were reasonably assured that it would receive the payments due it under the SPRV contract.

The question then becomes whether the contract, trust agreement and trust account provides sufficient assurances so that regulators are confident that the ceding insurer will

receive the funds it wishes to claim credit for. If the trust account contains sufficient funds to pay the SPRVs obligations, the triggering of the contract is clear, and there are no legal challenges to withdrawing the necessary funds from the trust account, then some form of accounting credit for these anticipated funds would seem to be appropriate.

The proponents of the proposed model act are seeking accounting treatment for SPRV contracts that would be essentially equivalent to the accounting treatment for cessions under conventional reinsurance contracts. Section 18 of the proposed model act provides that the ceding insurer should receive credit for reinsurance from an onshore SPRV commensurate with Section 3 of the Credit for Reinsurance Model Law.²³ Section 18 provides:

The SPRV, the special purpose vehicle reinsurance contract including any requirements for security and SPRV assets included in this Act are hereby made subject to, and deemed to meet the requirements of Section 3 of the NAIC Credit for Reinsurance Model Law to the extent that they meet the requirements set forth in this act. The provisions of Section 1 of the NAIC Credit for Reinsurance Model Law are hereby made applicable to the SPRV provided that the provisions of Section 16 herein shall modify and amend Section 1 as it may be applied in a liquidation of the SPRV. A SPRV contract meeting the requirements under this act shall be granted credit for reinsurance treatment under the NAIC Credit for Reinsurance Model Law for the benefit of the ceding insurer, provided and only to the extent that (i) the fair value of the assets held in the SPRV trust for the benefit of the ceding insurer equal or exceed the obligations of the SPRV under such contract, (ii) the assets are held in a SPRV trust that meets the requirements set forth in this act, (iii) the assets are administered in the manner and pursuant to arrangements as set forth in this act and (iv) the assets are invested in the forms allowed in Section 17, herein.

This approach motivates a comparison of the reinsurance transactions currently addressed by the credit for reinsurance model act and regulation and SPRV contracts. Obviously there are differences between these two types of transactions, but what do their respective characteristics imply with respect to the accounting issues? Presumably, regulators should be concerned about the “adequacy” of the risk transfer provided in a particular contract and its “reliability” in terms of securing the obligations to the ceding insurer. Adequacy refers to the amount of risk transferred and is diminished by basis risk and other contingencies that would decrease the proportion of the ceding insurer’s losses that would be covered by a contract. Reliability refers to the degree of assurance that payments due to a ceding insurer will in fact be paid. Are the adequacy and reliability of cessions and recoverables from SPRV contracts equivalent to or greater than that of

²³ It is interesting that this section appears in the proposed model act for onshore SPRVs rather than as amendments to the model law and regulation for credit for reinsurance. The latter approach would seem to establish a more consistent framework for regulating the credit for reinsurance allowed for different forms of risk transfer that function like reinsurance. Another approach would be to develop one or more model laws and regulations that address “accounting credit” for reinsurance and securitization risk transfers.

recoverables from reinsurance contracts that currently qualify for credit for reinsurance? What factors need to be considered in assessing the adequacy and reliability of different risk transfer arrangements? If some form of accounting credit for SPRV contracts is appropriate, should they be combined with conventional reinsurance transactions on ceding insurers' financial statements, or should they be distinguished in some way? These issues lead to more technical and legal questions associated with conventional reinsurance and SPRV contracts discussed below.

2. Credit for Reinsurance: SPRVs versus Conventional Reinsurance

Full Funding and Collateralization

SPRVs, as described and regulated by the proposed model act, would not appear to meet the requirements of an "authorized reinsurer" as provided in Section 2 of the credit for reinsurance model act. Since the SPRV is subject to limited regulation (albeit onshore), the closest analogy in the credit for reinsurance model act and regulation would appear to be collateralized obligations of unauthorized reinsurers. However, it should be noted that the CRML and CRMR state requirements for a multiple beneficiary trust fund reinsurer, whereas a SPRV trust would be established for only one ceding insurer.

Section 2D of the CRML specifies when credit for reinsurance may be given for cessions to an insurer that does meet the standards for an "authorized reinsurer" and its obligations are secured through a trust fund and trustee surplus of \$20,000,000. The trustee surplus is intended to provide additional security that the reinsurer will be able to meet its U.S. obligations and performs a function similar to the surplus held by authorized reinsurers. By contrast, the proposed model act for SPRVs requires a SPRV to hold only \$5,000 in surplus, which would not provide an effective cushion for contingencies that would affect the adequacy of its trust account.

Section 2D of the CRML authorizes the commissioner to allow credit for reinsurance ceded by a domestic insurer to an assuming insurer which maintains a trust fund in a prescribed amount in a qualified U. S. financial institution for the payment of the valid claims of its U.S. domiciled ceding insurers, their assigns and successors in interest. The assuming insurer is required to report annually to the commissioner substantially the same information as that required of licensed insurers (in their annual statements) to enable the commissioner to determine the sufficiency of the trust fund. The trust fund for a single assuming insurer shall consist of funds in trust in an amount not less than the assuming insurer's liabilities attributable to reinsurance ceded by U.S. domiciled insurers, and in addition, the assuming insurer shall maintain a trustee surplus of not less than \$20,000,000.²⁴

Credit for reinsurance shall not be granted unless the form of the trust and any amendments to the trust have been approved by either the commissioner of the state where the trust is domiciled or the commissioner of another state who, pursuant to the

²⁴ The model regulation contains a number of special provisions for Lloyds of London that are not summarized here.

terms of the trust instrument, has accepted responsibility for regulatory oversight of the trust.²⁵ The form of the trust and any trust amendments also shall be filed with the commissioner of every state in which the ceding insurer beneficiaries of the trust are domiciled.

The Credit for Reinsurance Model Regulation (CRMR) specifies additional provisions that must be in the trust instrument, including:

- a. Contested claims shall be valid and enforceable out of funds in trust to the extent remaining unsatisfied 30 days after entry of the final order of any court of competent jurisdiction in the United States.
- b. Legal title to the assets of the trust shall be vested in the trustee for the benefit of the grantor's U. S. ceding insurers, their assigns and successors in interest.
- c. The trust shall be subject to examination as determined by the commissioner.
- d. The trust shall remain in effect for as long as the assuming insurer, or any member or former member of a group of insurers, shall have outstanding obligations under reinsurance agreements subject to the trust.
- e. No later than February 28 of each year the trustee of the trust shall report to the commissioner in writing setting forth the balance in the trust and listing the trust's investments at the preceding year-end, and shall certify the date of termination of the trust, if so planned, or certify that the trust shall not expire prior to the following December 31.

The regulation requires several additional protections for ceding insurers and their policyholders should the trust fund be inadequate or the grantor of the trust insolvent. If the trust fund is inadequate because it contains an amount less than the amount required by the regulation or if the grantor of the trust has been declared insolvent or placed into receivership, the trustee is required to transfer the assets of the trust to the overseeing commissioner.

The model regulation defines "liabilities" as the assuming insurer's gross liabilities attributable to reinsurance ceded by U. S. domiciled insurers that are not otherwise secured by acceptable means. For property-casualty insurers, liabilities include:

- ❑ Losses and allocated loss expenses paid by the ceding insurer, recoverable from the assuming insurer;
- ❑ Reserves for losses reported and outstanding;
- ❑ Reserves for losses incurred but not reported;
- ❑ Reserves for allocated loss expenses; and
- ❑ Unearned premiums.

²⁵ New York has assumed this responsibility for many of the trusts. Hence, its Regulation 114, which governs reinsurance trusts, is particularly relevant.

One major difference between the trusts contemplated in the SPRV model act and the trusts under the CRML is that the former must be fully funded up to the maximum potential obligation of the SPRV. Under the CRML, the trust need only be funded to the level of liabilities of the assuming insurer to U.S. ceding insurers. At first glance, the SPRV requirements might seem more stringent, and SPRV contracts more “reliable”, than conventional reinsurance contracts. However, we must consider the timing and the circumstances under which SPRV trusts and collateralized reinsurance trusts would be established and credit for reinsurance taken.

Consider the case of a catastrophe. The CRML would require an unauthorized reinsurer to establish or increase its U.S. trust to cover its estimated liabilities stemming from the catastrophe to U.S. ceding insurers. For SPRVs, the trust account would already exist. Since the SPRV trust is required to be fully funded at its inception, it is possible but not assured that the market value of the assets in the SPRV trust would be sufficient to cover its estimated obligations to its ceding insurer.

Of course, the issue of collateralization is subordinate to the issue of risk transfer. If risk transfer does not occur or is diminished by basis risk, tail risk, short-settlement periods, or management ineptitude, then credit for “ceded risk” is not appropriate or must be adjusted to distinguish covered losses from losses that would not be covered.

For long-tail, non-catastrophic risks, the situation is even more complex. Estimates of the obligations of conventional reinsurers and SPRVs to ceding insurers are subject to considerable change over time. While conventional reinsurers might be required to make periodic adjustments of their trust accounts as losses develop, it does not appear that SPRVs would be subject to such requirements.

Long-tail liability risks raise other questions for SPRVs, such as how “full funding” would be determined and the time period of contracts or contractual obligations. Long-tail liability risks would not seem to be amenable to securitization through the full funding of potential obligations that would need to remain in place for a long period of time.²⁶

A specific security provided to a ceding insurer by an assuming insurer pursuant to Section 9 of the CRMR shall be applied, until exhausted, to the payment of liabilities of the assuming insurer to the ceding insurer holding the specific security prior to, and as a condition precedent for, presentation of a claim by the ceding insurer for payment by a trustee of a trust established by the assuming insurer pursuant to this section.

²⁶ Of course, if different rules are contemplated for funding the trust accounts for non-catastrophe and/or liability risks, i.e., full funding of the potential obligations of the SPRVs would not be required, the entire regulatory approach to SPRVs has to be reconsidered.

Rules Governing Assets in Trust Accounts

Given the time that may elapse between when trust accounts are established and when they make payments to ceding insurers, rules governing the assets that may be held in such accounts are important. The greater the risk that the value of these assets may decline, the greater the risk that the trust accounts will not contain sufficient funds to pay their obligations when due. Section 3 of the CRML specifies the form of the security for reinsurance obligations, which include:

- Cash;
- Securities listed by the SVO;
- Letters of credit; and
- Any other form of security acceptable to the commissioner.

The CRMR is much more specific in terms of the types of investments or assets that may be held in a collateralized trust. The model regulation contains several important provisions governing the types and valuation of assets held in a reinsurance trust. Assets deposited in the trust shall be valued according to their fair market value and shall consist only of cash in U. S. dollars, certificates of deposit issued by a U.S. financial institution, and other investments specified in the regulation. Investments in or issued by an entity controlling, controlled by or under common control with either the grantor or beneficiary of the trust shall not exceed five percent of total investments. No more than 20 percent of the total of the investments in the trust may be foreign investments authorized under the regulation. No more than 10 percent of the total of the investments in the trust may be securities denominated in foreign currencies.

Allowable trust investments debt obligations are as follows:

1. Government obligations that are not in default as to principal or interest, that are valid and legally authorized and that are issued, assumed or guaranteed by U.S. governmental units or governmental units of OECD member countries.
2. Investment-grade obligations that are issued in the United States, or that are dollar denominated and issued in a non-U.S. market, by a solvent U. S. institution (other than an insurance company) or that are assumed or guaranteed by a solvent U. S. institution (other than an insurance company) and that are not in default as to principal or interest.
3. Obligations issued, assumed or guaranteed by a solvent non-U. S. institution chartered in a country that is a member of the Organization for Economic Cooperation and Development or obligations of U.S. corporations issued in a non-U.S. currency, provided that in either case the obligations are rated A or higher, or the equivalent, by a rating agency recognized by the Securities Valuation Office of the NAIC.

The model regulation places further limitations on the percentages of different types of debt obligations to diversify and reduce risk. The limitations include the following:

- a. An investment in or loan upon the obligations of an institution other than an institution that issues mortgage-related securities shall not exceed five percent of the assets of the trust.
- b. An investment in any one mortgage-related security shall not exceed five percent of the assets of the trust.
- c. The aggregate total investment in mortgage-related securities shall not exceed 25 percent of the assets of the trust.
- d. Preferred or guaranteed shares issued or guaranteed by a solvent U.S. institution shall not exceed two percent of the assets of the trust.

Investments also may take the form of equity interests falling into one of the following categories.

- a. Investments in common shares or partnership interests of a solvent U. S. institution are permissible if: 1) Its obligations and preferred shares, if any, are eligible as investments under this subsection; and 2) The equity interests of the institution (except an insurance company) are registered on a national securities exchange as provided in the Securities Exchange Act of 1934, 15 U.S.C. §§ 78a to 78kk or otherwise registered pursuant to that Act, and if otherwise registered, price quotations for them are furnished through a nationwide automated quotations system approved by the National Association of Securities Dealers, Inc. A trust shall not invest in equity interests under this paragraph an amount exceeding one percent (1 percent) of the assets of the trust even though the equity interests are not so registered and are not issued by an insurance company.
- b. Investments in common shares of a solvent institution organized under the laws of a country that is a member of the Organization for Economic Cooperation and Development, if: 1) All its obligations are rated A or higher, or the equivalent, by a rating agency recognized by the Securities Valuation Office of the NAIC; and 2) The equity interests of the institution are registered on a securities exchange regulated by the government of a country that is a member of the Organization for Economic Cooperation and Development;
- c. An investment in or loan upon any one institution's outstanding equity interests shall not exceed one percent (1 percent) of the assets of the trust. The cost of an investment in equity interests made pursuant to this paragraph, when added to the aggregate cost of other investments in equity interests then held pursuant to this paragraph, shall not exceed ten percent (10 percent) of the assets in the trust;

Investments in obligations issued, assumed or guaranteed by a multinational development bank are permitted, provided the obligations are rated A or higher, or the equivalent, by a rating agency recognized by the SVO.

Securities of an investment company registered pursuant to the Investment Company Act of 1940, 15 U.S.C. § 802, are permissible investments if the investment company: 1) Invests at least ninety percent (90 percent) of its assets in the types of securities that qualify as an investment under Paragraph (1), (2) or (3) of the relevant subsection or invests in securities that are determined by the commissioner to be substantively similar to the types of securities set forth in Paragraph (1), (2) or (3) of the relevant subsection; or 2) Invests at least ninety percent (90 percent) of its assets in the types of equity interests that qualify as an investment under Paragraph (6)(a) of this subsection.

Investments made by a trust in investment companies shall not exceed the following limitations:

- a. An investment in an investment company qualifying under Subparagraph (a)(i) of this paragraph shall not exceed ten percent (10 percent) of the assets in the trust and the aggregate amount of investment in qualifying investment companies shall not exceed twenty-five percent (25 percent) of the assets in the trust.
- b. Investments in an investment company qualifying under Subparagraph (a)(ii) of this paragraph shall not exceed five percent (5 percent) of the assets in the trust and the aggregate amount of investment in qualifying investment companies shall be included when calculating the permissible aggregate value of equity interests pursuant to Paragraph (6)(a) of this subsection.

Section 17 of the SPRV model act refers to investment limitations that are not specified. It is possible that the act's drafters may insert limitations similar to those in the CRML and CRMR. This may or may not be appropriate. If interest rate risk is a greater issue for SPRV trusts because of when they are established, more conservative investment limits that control this risk may be appropriate. It also should be noted that the trustees surplus requirement of \$20 million for unauthorized reinsurers provides a cushion for investment risks that would not be required for SPRVs.

3. Other Issues Associated with Onshore SPRVs

Triggers and Basis Risk

The basis risk associated with non-indemnity triggers for SPRV contracts would seem to be pertinent to the issues associated with allowing insurers to report exposures and losses, net of projected recoveries from these contracts. The ability to adjust the reporting of exposures (prior to losses) would seem to be the most difficult, as the triggering event has not even occurred. When an event occurs that does trigger a SPRV contract, the question becomes how much of an insurer's associated losses will be offset by the payments it will receive from the contract. What are the implications of SPRV contracts that embody both indemnity and non-indemnity triggers? How would accounting proposals for SPRV contracts affect underwriting and loss exhibits?

Commutation

What is the significance of the commutation of SPRV obligations to the ceding insurer? Commutation raises problems for both property and liability risks, with the most severe problems arising for long-tail liability risks. Presumably, property claims are settled more quickly than liability claims, although experience suggests that the reporting and resolution of property claims can extend beyond a year. For example, estimates of the losses stemming from Hurricane Andrew and the Northridge Earthquake continued to escalate substantially more than a year after the occurrence of these two events (Institute for Business and Home Safety, 1999).²⁷ Clearly with long-tail liability claims, many years could pass before losses from a given block of policies would be known or paid.

Legal Challenges to Withdrawal of Trust Funds

Another set of issues arises with respect to legal challenges to the withdrawal of funds from trust accounts by ceding insurers. These issues presumably arise with both conventional reinsurance contracts and SPRV contracts. However, in the case of legal challenges involving a conventional reinsurer, there is an ongoing entity to deal with in resolving these issues and accessing funds. In the case of legal challenges to a SPRV contract or withdrawals, an entity may no longer exist to resolve or back the obligations in question. Hence, it would seem prudent for regulators to appropriately reassess the granting of accounting credit to a ceding insurer for a SPRV contract in view of realized or potential legal challenges.

E. Concluding Observations

This section raises a number of issues and questions that regulators need to need think about in considering proposed model legislation for SPRVs. It is possible that changes in the proposed model act could address some of these issues and questions in a way that would enhance the security of SPRVs and discourage their misuse. Even with such changes, the ultimate role and impact of SPRVs will depend greatly on regulatory implementation and enforcement of the laws and regulations in place. Effective regulatory oversight of SPRV transactions should meet two essential standards or goals. First, regulators should ensure that SPRV transactions do not compromise the interests of the ceding insurers' policyholders. This requires that all relevant laws and regulations provide regulators with the necessary authority and discretion to achieve this goal. It also requires regulators to actively use their authority to ensure prudent SPRV transactions. Second, regulators should pay close attention to primary insurers' management of their financial exposures and encourage insurers to use appropriately structured risk transfer arrangements to limit their financial risk within acceptable regulatory parameters. Regulatory oversight could be aided by multi-state institutional structures specifically established to review, monitor and coordinate state actions with respect to SPRVs.²⁸

²⁷ This is reflected by the amended loss reports provided by the Property Claims Service (PCS) for four years following a catastrophe. The adjustment of catastrophe claims can encounter special problems not encountered with non-catastrophe events that lengthen the claim adjustment period.

²⁸ The NAIC's SVO, International Insurers Department and Financial Analysis Working Group are examples of institutions established to assist state insurance regulatory oversight.

With effective regulatory oversight, the facilitation and prudent use of onshore SPRVs should not harm insurance policyholders and the public, and could have the desired effect of increasing the industry's capacity and security. On the other hand, if regulatory oversight is inadequate, there is the potential for some insurers to misuse SPRVs in ways that would undermine the public interest. While most insurers may have incentives to avoid inadequate or unreliable securitization arrangements, experience suggests that some insurers may abuse the SPRV mechanism if regulators allow them to do so. Essentially, insurers with little to lose and much to gain from high-risk financial strategies could attempt to use flawed (and presumably "cheap") SPRV contracts to create the illusion that they have adequately secured their obligations when they have not done so. If regulators fail to prevent such behavior, it could result in a "race to the bottom" by some insurers that would impose harmful pressures on primary insurance markets.

VI. Tax Issues

At this time, Congress is not considering a proposed change to the Internal Revenue Code (IRC) to deal with protected cells or onshore SPRVs. Still, it is important to understand the effects of the general changes to the IRC desired by onshore SPRV proponents to make protected cells or onshore SPRVs attractive as domestic vehicles for tax reduction.

Ironically, the demand for the new organizational forms is driven by the current IRC. As insurers' and reinsurers' corporate income is taxed (as is that of other corporations), the ability to reserve for a future catastrophe is reduced. Investment income from the reserves cannot be reinvested to increase the reserve without a corporate income tax assessment. This increases the time needed for reserving for a catastrophe or similarly it reduces the amount available at any given time to pay catastrophe losses. Thus, the creation of the Bermuda and other offshore reinsurance markets is partially induced by the U.S. taxation of corporate profits. The innovation in securitizing catastrophe risk exerts pressure to undo the taxation of corporate profits, even if on a piecemeal basis for particular types of entities rather than on a comprehensive basis for all risk-bearing entities. In other words, the current tax policy towards catastrophe reserves motivates proposals for broadly applied tax exemptions for SPRVs that would be less efficient and less equitable than tax reform that would apply to all forms of risk transfer.

Comprehensive tax reform for property-casualty insurance would be the most preferable. Second best would be tax reform limited to the transfer of high-layer catastrophe risks for all forms of risk transfer. Tax reform further limited to high-layer catastrophe risk securitized through SPRVs could still serve the public interest, albeit to a lesser degree than more comprehensive reform.

A. Traditional Tax Law Approach to Corporate Taxation

Traditionally, at the federal level, taxes are imposed on a corporation's profit. Conceptually, profit is defined as revenues minus costs. This notion works very well when there is a close temporal tie between when revenues are earned and when costs are incurred. However, in the case of insurance, one of the major problems is that it is quite possible that revenues are earned many years before costs are incurred.

Insurers know this and reserve for losses. Reserves are invested and earn a yearly return. This changes the notion of profit described above because the insurer has taxable profit equal to revenues from insurance operations plus revenues from investment income on reserves minus loss costs. For the purposes of determining taxable income, loss costs are defined as losses paid during the year plus contributions to reserves discounted based upon when the future liability is likely to be paid. Thus, the current tax code effectively requires insurers to "pre-pay" taxes as loss reserves must be discounted and this discount increases the insurer's taxable income (this is eventually recovered when losses are paid). In addition, the current tax code imposes even greater costs on insurer's subject to catastrophe risk as insurers are prohibited from deducting the present value of contributions to reserves for events have not yet occurred. Thus, any capital earmarked to pay for losses due to catastrophes will not qualify as a tax deductible expense even

though the likelihood of the event occurring sometime in the future is highly likely (only the timing of the event is unknown).

The federal tax law does have loss carry-forward and carry-back provisions, but they may not be sufficient to rectify this timing problem. These provisions allow insurers to deduct losses from the two previous years against a current year's tax liability if the firm has made a profit in the current year. Further, these losses can be carried over for up to twenty years under 26 U.S.C. § 172. For an insurer with catastrophic exposures, the problem is that catastrophe losses come irregularly and the insurer cannot deduct losses in years that it has no taxable income. Additionally, the losses from a catastrophe can be greater than the present value of the sum of the next twenty years of profit. Thus, loss carry-forward provisions do not completely eliminate the problem for insurers. Essentially, it is impossible to smooth the realization of a catastrophe PML that has a likelihood of happening once in twenty-years or less frequently with a loss carryover provision (See Jaffe and Russell, 1997; and Harrington, 2000).

Consequently, there is a proposal to allow the accumulation of catastrophe reserves tax-free or to structure the total insurance transaction in a manner that will reduce the tax burden on firms that insure catastrophic risks (Davidson, 1998). Before examining the tax changes contemplated for SPRVs, it is helpful to outline the objective standards by which to critically examine implied tax law changes.

B. General Principles of Taxation

There are four principles of good taxation (Musgrave and Musgrave, 1984):

- Efficiency
- Simplicity
- Equity
- Neutrality

A tax system is *efficient* if it is able to raise money without reducing consumption and imposing deadweight losses. When the government taxes, it takes revenues from firms or consumers. This induces firms to produce and consumers to purchase a lesser amount of a good or service than would be optimal in the absence of taxation. The deadweight loss is the lost value to producers and consumers. In the insurance case, we can think of a deadweight loss as the loss to society from consumers and firms not purchasing insurance (or reinsurance) because the after-tax price is higher than the no-tax price.

Simplicity implies that the tax regime is simple to follow, that it is easy to comply with the law, and that the tax law is easy to administer. *Equity* requires that similarly situated entities be treated in the same manner. In the setting of business taxation, the meaning of the equity principal is generally horizontal equity. This implies that firms in the same industry be treated in a reasonably similar fashion. A good example of the equity principle is that savings banks and commercial banks should be taxed in a similar manner. Finally, a tax system that elicits the same proportion of goods and services consumed with and without a tax system is said to be *neutral*. This means that the presence or absence of the tax does not change consumers' or firms' choices.

C. Law Changes for Domestic Protected Cells and SPRVs

1. Philosophy of the Desired Changes

For onshore-protected cells and SPRVs to gain the tax advantages of offshore entities, a major conceptual issue must be addressed. The philosophical notion of what ownership equity truly is must be modified. In actuality, the protected cell and the SPRV structures allow additional liquidity to the insurer. This additional cash looks like ownership equity to the entity that can be called upon in case of a catastrophe or some other property-casualty loss. However, this ownership equity investment does not generate tax benefits. In fact, any dividends paid to the owner of the equity contract would be taxed through the insurer's corporate income tax and by the owner's personal (or perhaps corporate) tax.²⁹ It is only when this ownership equity is called "debt" that tax advantages arise. When this investment is called "debt", then the SPRV or PC can deduct interest payments to the debt owners. Then, the owner of the "debt" is not double taxed, as it would be if the investment were classified as ownership equity.

Traditionally, the IRS has ruled that, in highly leveraged firms (especially those approaching bankruptcy), the debt owners are essentially equity owners and that interest payments to this group are not tax deductible. The SPRV looks very much like a highly leveraged firm. Thus, interest payments would be considered dividends and, under the rules the IRS has implemented, they are not tax deductible. Thus, the equity and debt are "consolidated" and treated as all equity. The SEC requires a minimum 3 percent equity investment under FASB Bulletin EITF 90-15 to keep the debt and equity unconsolidated.³⁰ Thus, while the tendency is to treat these arrangements as entirely equity, rules are evolving that would allow special treatment of arrangements that meet minimum transparency and accounting standards.

2. The Desired Changes

The desired changes to the IRC must specifically define these instruments as debt rather than equity. The consideration that might make this complicated is that Congress is not likely to want to give this type of tax shelter to any corporation wishing to obtain tax protected reserves to self insure against future liabilities. Arguably, the law must be written to include only licensed insurers and to limit the types of policies that can be

²⁹ If the investor in the cell or the SPRV is a corporation, the Internal Revenue Code (26 U.S.C. § 243) allows for a corporate dividend deduction. Consider the example in which corporation (A) invests in another corporation (B). Now suppose B Corporation earns a profit and pays corporate income taxes and then pays a dividend to A. If A were to include this dividend as investment income, then it would be taxed again. If A then turned around and issued a dividend to its stockholders, the dividend again would be taxed. To reduce the potential for triple (or more) taxation, the IRC allows a corporation to deduct corporate dividends from other corporations, under certain circumstances, from its income tax liability. It should be noted that this does not avoid double taxation — it just reduces the opportunity for more than double taxation.

³⁰ It is our understanding that the one onshore securitization transaction that has taken place, i.e., the Kemper transaction, did meet the 3 percent equity requirement and, hence, qualified for a tax deduction.

backed by protected cells or SPRVs. Otherwise, insurers may be able to employ these methods to avoid the reinsurance market solely based on tax considerations. This might exacerbate the economic distortions described more fully below.

D. Application of Principles to the Desired Corporate Income Tax Changes

1. Efficiency

Tax efficiency is increased as deadweight losses are reduced. If tax policy favors additional risk transfer through SPRVs, this will increase the amount of risk transfer. This means that the cost of risk transfer to the ceding insurer falls and it can purchase more coverage. Further, if we look to the eventual beneficiaries of the tax law changes, we see that consumer and investors are likely to benefit in the increased ability of the primary or ceding insurer to purchase “reinsurance like” coverage through the use of a protected cell or SPRV. Consumers are likely to see price reductions in their primary coverage and investors of the ceding insurer may obtain higher returns because the insurer can sell more insurance if it can lower its price.

However, this result requires conventional reinsurance to be more costly than necessary because of market imperfections. If this is not true, then a change in the tax law that would encourage ceding insurers to switch to protected cells or SPRVs at the expense of traditional reinsurance, without any limitations on the types of risks that qualify for favored tax treatment, would be inefficient. This is because the tax law change would lower costs of only one industry segment and cause ceding insurers to switch to tax-favored risk transfer mechanisms. This would reduce market efficiency because reinsurers’ competitive position would be diminished due to the special tax treatment for protected cells and SPRVs.

2. Simplicity

It is not clear that the desired changes in the IRC would simplify the administration and enforcement of the law very much. At this stage, it is not certain what rules the IRS would need to promulgate. However, they will be at least as difficult as other IRS rules to administer, to understand, and to comply with.

3. Horizontal Equity Issues: Security v. Reinsurance Contract

Normally the principle of horizontal equity attempts to place similarly situated entities on a similar tax footing. This may not occur in the case of competing insurance securitized products and traditional reinsurance contracts.

A bond or other type of debt security is a set of promises between the firm and the debt holder to repay a debt. A reinsurance agreement is a set of promises between a firm and a reinsurer to exchange a current premium for a contingent payment in case of an event. In the first case of a debt instrument, the promise to pay can be abrogated in the event of a triggering event like a catastrophe. In the case of a reinsurance contract, the reinsurer pays in the event of a catastrophe. We can think of the reinsurer and the debt holder as standing in equivalent positions to the firm. Both receive net positive payments when

there is no catastrophe loss and both experience a net outflow when a catastrophe loss occurs. Thus, to allow favorable tax treatment for one set of contracts but not for the other set of contracts is inequitable.

Further, since corporations are not the ultimate bearers of the burdens of the tax system, individual investors will be treated differently based on the types of investments they undertake. Providing favorable tax treatment to SPRVs would favor SPRV investors over other investors. Thus, investors in similar standing would be taxed differently.³¹ Further, to the extent that consumers could benefit from lower rates, consumers of companies using SPRVs will have lower prices than consumers of firms using traditional reinsurance, all other things held constant.

4. Tax Neutrality Issues

In the absence of taxes, an insurer may choose the debt option over the reinsurance option based on the inherent relative efficiencies of the two options. In the case where taxes exist, other considerations influence the option selected. A tax law is neutral when firms will not substitute between two options due to the law. Ideally, firms should not choose between two options merely because one has a tax preference. In that case, the tax law is creating a preference where none would exist without the tax. The tax legislation desired for onshore SPRVs would provide their users with an incentive to use SPRVs based primarily on tax law.

There is nothing inherently wrong about a firm using the law to its advantage to reduce its tax liability. However, when some firms can employ a method to shelter income and others cannot, this distorts incentives. This is especially true when the equity owners of the SPRV are non-profit corporations (with a small investment of about \$5,000) without a prospect of material economic gain from the investment. Thus, using SPRVs would be driven primarily by tax and perhaps regulatory factors, rather than the equity owner's opportunity to make a profit based on its economic merits.

E. Conclusion with Respect to Implied Tax Law Changes

The ultimate conclusion about any tax changes depends in many respects on how one weights the four properties of a good tax: efficiency, simplicity, equity and neutrality. One's perception of the industry's capacity gap and its sources also influence the conclusion about tax policy. Exempting SPRVs from the double taxation of corporate income that plagues insurers, reinsurers and other firms could increase the efficiency of risk management, but other issues may outweigh the gain in efficiency. First, the tax law becomes more complex when it exempts certain kinds of business from corporate taxation. The notion of equity would be altered for this one purpose of allowing favorable

³¹ It should be pointed out that all fixed income securities, such as bonds, are treated similarly for tax purposes. The idea that catastrophe bonds should be treated differently needs to be put in perspective. Catastrophe bonds are treated like all other debt instruments. However, debt capital is given different tax treatment than other types of capital. This violates horizontal equity, as capital is a fungible good. The tax preference for debt then causes firms to seek financing mechanisms that lower taxes. Thus, we see firms choosing a funding mechanism for tax reasons only, which violates the neutrality argument.

tax treatment of investors' interests in the SPRV. Second, the implied tax law changes introduce a horizontal inequity vis a vis U.S. reinsurers. Firms who would be able to employ the SPRV model would obtain a competitive advantage that would be driven primarily by tax considerations and not the quality of the product or a comparative structural advantage. Finally, the implied changes are not neutral in the sense that they would affect firms' and consumers' choices.

A preferential tax exemption is not necessarily bad if some harm is being remedied. Congress has granted tax exemptions to oil and gas exploration, research and development, for example, to increase these activities beyond what the industry would support in the absence of the exemption. Supporters of such an exemption would argue that it yields public benefits greater than its costs. The same might be said for the insurance industry. If the current level of diversification of high-layer catastrophe risk is inadequate because of market imperfections, then tax changes that would encourage this kind of risk transfer may be desirable.

Similarly, it might be a good idea if the goal is to increase insurance penetration (by affecting prices on the margin) so that more people are insured against catastrophes. This is a greater concern with respect to the risk of earthquakes than hurricanes. Encouraging the purchase of private insurance could reduce the costs that uninsured persons externalize to the public. However, providing a tax advantage to some in the industry and not others violates the notion of horizontal equity and distorts market choices. It would be preferable to reform tax policy for all forms of risk transfer and financing so that they compete on a level playing field and at a lower cost that promotes better risk management.

This also may be preferable to having the federal government establish a catastrophe reinsurer of last resort as proposed in HR 21. Ideally, Congress will need to assess the public benefits and costs of several proposals, including comprehensive and targeted catastrophe insurance tax reform, as well as federal catastrophe insurance and reinsurance programs. Realistically, political considerations also will influence Congressional deliberations on different options.

Another concern is related to a tax problem that is arising vis a vis the ownership of a U.S. domiciled primary insurer by an alien reinsurer. An alien reinsurer that does not do business in the U.S. but owns a U.S. domestic company can allow the domestic company to deduct reinsurance premiums paid to the related company. This transaction reduces taxable income to the U.S. company and since the foreign insurer does not pay corporate income tax, it can essentially set up a tax-free reserve. This structure for alien reinsurers with a U.S. company may be cheaper "on the margin" than setting up a SPRV or protected cell. Congress appears to be examining this issue and one suggestion is to consolidate the income statements of the alien reinsurer and the U.S. domestic insurer for U.S. corporate income taxation. Essentially this would force the alien insurer that is not doing business in the U.S. to pay U.S. income tax on profits. There are a number of potential problems with this particular response.

The major problem here is that if Congress did allow SPRVs and protected cells to have special tax treatment, then it would violate the principle of horizontal equity to tax alien and domestic related companies on a consolidated basis. Alternatively, if Congress decides not to require consolidation for income tax purposes and it prohibits special treatment for SPRVs or protected cells, then new distorted incentives to minimize the Federal tax liability are created. Congressional inaction to provide special treatment for these vehicles may, in turn, provide incentives for mergers with alien reinsurers to take advantage of raising tax-free reserves offshore.

Finally, there is an issue of the cost to the U.S. Treasury of allowing tax exemptions for these types of transactions.³² Because there have been so few and there is not an indication of demand available to assess the ultimate amount of risk to be securitized, it is difficult to determine the amount at risk to the Treasury. It appears that if the law were changed to allow favorable treatment of these methods of raising capital, then there is likely going to be tremendous consideration of using these vehicles for financing various risks. This will put significant pressure on the property-casualty industry to reduce their tax liability.

The Treasury and Congress may accommodate the industry on this particular issue, but there may be a tax cost elsewhere. For example, the Treasury may desire that the total amount of money generated by the industry remain the same, thus other lines of business may be taxed more to make up for the shortfall due to PCs and/or SPRVs. This would be likely be the worst of all worlds as other distortions and inequities will likely creep into the tax system.

More comprehensive tax reform that would apply to all forms of risk transfer would be better, recognizing that such reform could be more politically challenging. Second best would be tax reform limited to the transfer of high-layer catastrophe risks for all forms of risk transfer. If neither of these changes is achievable, we believe that proposals for preferential tax treatment for onshore SPRVs should be confined to high-layer catastrophe risks that are not currently being diversified by primary insurers. This would avoid market distortions and replacement of existing risk transfer arrangements induced by tax inequities, and promote the more compelling goal of increasing the catastrophe protection of primary insurers and their policyholders.

³² From discussions with those involved in an onshore securitization through the INEX, it appears that the Federal and state tax cost is less than .2 percent of premiums each year. While small in percentage terms, that could add up substantially in lost tax dollars if there is a large demand for these products. Recall that this is a domestic securitization, with a 20 percent equity tranche, which is much higher than those considered by the FASB, SEC, or the proposed Model SPRV bill. Thus, the amount of taxed paid under a different scheme will likely be less. The average ratio of state and federal taxes incurred to premiums was approximately 5.6 percent in 1998. Further, to the extent reinsurance purchased from alien insurers drops in terms of quantity demanded, there is a loss of the 1 percent premium excise tax on alien reinsurance.

VII. Conclusions

The concept of securitizing certain insurance risks is promising and the prudent use of SPRVs to facilitate insurance securitizations seems sensible. Laws and regulations developed to facilitate onshore SPRVs should be appropriately designed to ensure that this mechanism is not misused in ways that would undermine the safety of primary insurers and their policyholders. We identify a number of issues with respect to the provisions of the proposed model legislation that the NAIC needs to consider and possibly amend if this legislation moves forward. Further, laws and regulations facilitating onshore SPRVs should be adopted only if U.S. insurance regulators would maintain effective supervision of both SPRVs and their ceding insurers. It is uncertain how popular onshore SPRV transactions would become in an even-handed regulatory and tax environment, but this option could be made available to test its viability. If SPRV legislation is adopted, the experience with onshore SPRVs should be closely monitored and policies and regulations refined over time to promote the public interest in safe and efficient risk transfer.

At the same time, we do not believe that onshore SPRVs should receive broadly targeted favored or preferential regulatory and tax treatment that would be inconsistent with the regulatory and tax treatment of other forms of risk transfer, including conventional reinsurance transactions. We do not believe there is a compelling argument for preferential regulatory or tax treatment of SPRV transactions for non-catastrophe risks and lower-layer catastrophe risks. Special tax provisions favoring high-layer catastrophe coverage (i.e., events with less than a one percent annual probability) might be justified if it would encourage additional risk diversification where it currently does not exist.

Note that even-handed and consistent regulatory policy does not mean that onshore SPRVs should be subject to the same regulatory requirements as U.S. licensed reinsurers. Rather, we are saying that the regulatory and tax treatment of onshore SPRVs should be tailored to their particular characteristics in a manner that adheres to fundamental insurance regulatory principles and achieves fundamental regulatory objectives.

The key regulatory issue appears to be the granting of accounting credit to ceding insurers for SPRV transactions. Even-handed and prudent regulation implies that insurance regulators would carefully review SPRV contracts and trust accounts on a case-by-case basis and determine whether a ceding insurer's accounting recognition of recoverables from a SPRV is appropriate.

Granting reinsurance credit for SPRV transactions should require meeting two criteria. The first criterion should be the transfer of risk through the transaction. The use of non-indemnity triggers for SPRV contracts creates basis risk for the ceding insurer and the potential problem that a contract will not adequately cover the losses of the ceding insurer. Regulators must assess the amount of this basis risk and whether it warrants any adjustment in a ceding insurer's accounting for a SPRV transaction. The second criterion should be the adequacy of the SPRV trust account to cover contractual obligations to the ceding insurer and the ceding insurer's uncontested ability to withdraw funds from the

trust account to pay the losses covered under the contract. Of course this issue exists conventional reinsurance contracts, so it is a matter of attaining a reasonable degree of confidence that funds due a ceding insurer can be recovered, rather than requiring absolute certainty.

Further, regulators should pay close attention to insurers' management of their financial risk, including catastrophes, and ensure that they use risk transfer mechanisms appropriately. Primary insurers that have not adequately diversified their catastrophe and other risks should be encouraged to increase their use of appropriate reinsurance and securitization arrangements.³³ Hence, the regulatory implementation of SPRV model legislation and other regulations is just as important as the language contained in statutes and regulations.

The ultimate conclusion about any tax changes for SPRVs depends in many respects on how one weights the four properties of a good tax: efficiency, simplicity, equity and neutrality. One's perception of the industry's capacity gap and its sources also influence the conclusion about tax policy. Exempting SPRVs from the double taxation of corporate income that plagues insurers, reinsurers and other firms could increase the efficiency of risk management, but other issues may outweigh the gain in efficiency. First, the tax law becomes more complex when it exempts certain kinds of business from corporate taxation. The notion of equity would be altered for this one purpose of allowing favorable tax treatment of investors' interests in the SPRV. Second, the implied tax law changes introduce a horizontal inequity vis a vis U.S. reinsurers. Firms who would be able to employ the SPRV model would obtain a competitive advantage that would be driven primarily by tax considerations and not the quality of the product or a comparative structural advantage. Finally, the implied changes are not neutral in the sense that they would affect firms' and consumers' choices.

More comprehensive tax reform that would apply to all forms of risk transfer would be better, recognizing that such reform could be more politically challenging. Second best would be tax reform limited to the transfer of high-layer catastrophe risks for all forms of risk transfer. If neither of these changes is achievable, we believe that proposals for preferential tax treatment for onshore SPRVs should be confined to high-layer catastrophe risks that are not currently being diversified by primary insurers. This would avoid market distortions and replacement of existing risk transfer arrangements induced by tax inequities, and promote the more compelling goal of increasing the catastrophe protection of primary insurers and their policyholders.

In sum, the public policy decision about onshore SPRVs involves the same basic question that is associated with other alternative risk transfer mechanisms that have certain economic merits. If properly regulated and appropriately used, onshore SPRVs could enhance the security of insurance consumers and the general public. On the other hand, if

³³ There would be a cost associated with such a regulatory policy that would have to be passed to consumers. However, it would be preferable to reflect this cost prospectively in the prices for primary insurance contracts than retrospectively in guaranty association assessments that would be effectively externalized to the public.

regulators allow SPRVs to be misused for purposes other than effective risk management, there could be negative consequences for the industry, consumers and the general public.

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