A MARKET UNDER(WRITING) THE WEATHER: A RECOMMENDATION TO INCREASE INSURER CAPACITY

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Property and homeowners' insurance are difficult and expensive to procure for residents of catastrophe-prone states like Florida, several Gulf Coast states, and California. In the last two decades, many insurers have left these markets because there is not enough profit to be made. As a result, remaining insurers charge very high premiums, and state governments must get involved to ease markets (at great expense to taxpayers). In addition, the insurance industry's capacity for loss is simply insufficient—if a large hurricane should hit Miami, for instance, insurers who provide coverage on buildings and homes in Miami will almost certainly become insolvent.

Two mechanisms exist to increase insurer capacity. First, reinsurance serves as insurance for insurance companies—an insurer who covers residential homes will buy insurance on its own policies. Reinsurance is insufficient, however, to supply the necessary capacity to cover low-probability, high-risk catastrophes (such as a Category 5 hurricane). The second mechanism is Alternative Risk Transfer, which increases capacity by securitizing risk. The main example in the Note is the catastrophe ("cat") bond. These bonds are constructed by insurers to increase capitalization. The insurer will put the premiums of certain policies in a Special Purpose Vehicle (SPV), an entity set up purely for the bond's purposes. Investors (hedge funds, pension funds, banks, etc.) will buy bonds, the capital from which goes in the SPV. The SPV then invests the capital in low-risk securities like treasury bonds and pays investors attractive returns. In return for these high returns, the cat bond contains a trigger which may result in investors losing some or all of their capital and interest. An example of a trigger is a Category 5 hurricane hitting Miami, or causing more than $15 billion in damages—should that happen, investors lose their capital and interest, which are used to pay losses on the insurer's policies. In order to further incentivize investment in cat bonds, this Note recommends treating investors' returns on these bonds as tax-exempt.

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> *The Note begins by providing a background of (1) the state of the catastrophe insurance industry and its inadequate capitalization, (2) insurer incentives, basic insurance principles, and tax treatment, (3) basic principles and tax treatment of the reinsurance industry, and (4) current proposals to increase capacity in the catastrophe insurance industry. The Note then analyzes (1) the capacity shortage problem, comparing the costs and benefits of reinsurance and alternative risk transfer, (2) the various federal policies purporting to address the increasing price of homeowner insurance premiums, and (3) several alternative risk transfer devices. The Note then discusses the advantages of the cat bond, such as the adaptability of bonds to numer-numerous circumstances. Furthermore, the Note discusses the ability of cat bonds to supplement traditional reinsurance methods of increasing capacity. Lastly, the Note analyzes the benefits of treating cat bonds as tax-free.*

I.   INTRODUCTION

August 24, 1992—Hurricane Andrew strikes Florida south of Miami. Winds exceeding one hundred forty miles per hour drive a fourteen-foot storm surge that kills forty-three people, demolishing 126,000 residences and leaving 180,000 people homeless.[1] At the time it was the worst natural disaster in U.S. history, costing the insurance industry approximately $16 billion.[2] August 29, 2005—Hurricane Katrina demolishes long swaths of the Gulf Coast and floods over eighty percent of New Orleans.[3] The storm kills over 1,000 people and forces 800,000 into shelters, causing insured losses exceeding $41 billion.[4]

After these two powerful hurricanes disrupted thousands of lives, further grief awaited many in dealing with their homeowner insurance providers. A Florida newspaper commentary piece remarked, "[i]t's gotten to the point where Florida homeowners fear a notice from their insurance carrier as much as a Category 5 hurricane itself. We can buy shutters or reinforce garage doors to protect our homes, but what will protect us from insurance companies jacking up prices beyond our

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1. Adrian Sainz, *Ten Years After Hurricane Andrew, Effects Are Still Felt*, SPARTANBURG (S.C.) HERALD-JOURNAL, Sept. 8, 2002, at A12.

2. *See* Act of Jun. 8, 1993, ch. 93-401, 1993 Fla. Laws 2881 (official finding by Florida Legislature that Hurricane Andrew caused more than $16 billion of insured loss).

3. *The First Year After Hurricane Katrina: What the Federal Government Did*, DEP'T OF HOMELAND SEC. (last updated Oct. 16, 2008), http://web.archive.org/web/20110728032556/http://www.dhs.gov/xfoia/archives/gc_1157649340100.shtm (archived material no longer available on http://www.dhs.gov) (last archived July 28, 2011).

4. *Id.*; RICHARD D. KNABB ET AL., NAT'L HURRICANE CTR., TROPICAL CYCLONE REPORT: HURRICANE KATRINA 12–13 (2005), *available at* http://www.nhc.noaa.gov/pdf/TCR-AL122005_Katrina.pdf (estimating the insured losses from Katrina around $41.1 billion and National Flood Insurance Program flooding loss from Katrina around $25.8 billion).

reach?"[5] Catastrophes have long-lasting effects on the cost of homeowner's insurance. Insurance premiums often skyrocket in catastrophe-stricken areas, and even areas unaffected by recent storms see increases in insurance premiums by double-digit factors.[6] Enormous premium increases are not even the worst-case scenario. Many insurers became insolvent after these storms—and many of those insurers who survived cut their losses and left the Florida or Gulf Coast homeowner insurance market altogether.[7] People unable to afford increasing premiums or whose carrier abandoned the market were left with residual state insurers offering little coverage at high prices.[8]

Behind these commonly known problems hides the secondary risk-transfer market composed of reinsurers, exotic "captive" insurers, and the "alternative risk transfer" market. This market exists to provide extra capacity to primary insurers.[9] Using various methods, these entities take on segments of a primary insurer's risks, allowing insurers to write more policies while stabilizing prices.[10] Following catastrophic years, however, this secondary risk market treats the primary insurers much the way the primary insurers treat homeowner insurance customers—prices increase dramatically and coverage decreases.[11] The swings in the secondary-risk-transfer market occur behind the scenes but substantially affect homeowner premiums.

Events like Hurricanes Andrew and Katrina shock the insurance industry at every level—policyholders, primary insurers, and secondary insurers—and often require the government to provide substantial assistance.[12] The federal government, however, lacks a coherent policy to deal with catastrophes of these magnitudes, often leaving the insurance market devastated following floods, hurricanes, and earthquakes.[13]

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5.   Daniel Vasquez, Commentary, *Will Lawmakers Finally Get Real on Insurance?: We Need Action, Not Just Promises, from Tallahassee*, SUN-SENTINEL (Fort Lauderdale) (Jan. 14, 2007), *available at* http://articles.sun-sentinel.com/2007-01-14/news/0701130357_1_premiums-state-farm-special.

6.   Joseph B. Treaster, *High Winds, Then Premiums*, N.Y. TIMES, Sept. 26, 2006, at C1, *available at* http://select.nytimes.com/gst/abstract.html?res=F40C11FA34550C758EDDA00894DE404482& (remarking that "from Texas to Maine . . . [there is] continuing fallout from Hurricane Katrina," resulting in insurance premiums "10 times" what they were the year before); *see also* Michael Quint, *A Year After Hurricane Andrew, Insurers Maneuver to Lower Risk*, N.Y. TIMES, Dec. 28, 1993, at A1, *available at* http://www.nytimes.com/1993/12/28/business/a-year-after-hurricane-andrew-insurers-man euver-to-lower-risk.html (noting changes in insurer behavior following Hurricane Andrew to minimize risks in catastrophe-prone areas including "shorelining," increasing deductibles to two percent of home values, and declining to renew policies).

7.   Paige St. John, *In Big Storm, Risk for Some Insurers*, SARASOTA HERALD-TRIBUNE, July 24, 2011, at A1.

8.   *See* U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-10-568R, NATURAL CATASTROPHE INSURANCE COVERAGE REMAINS A CHALLENGE FOR STATE PROGRAMS 1 (2010) [hereinafter GAO-10-568R].

9.   *See infra* note 156; Part II.D.

10.   *See infra* Parts II.C, II.D.4.

11.   *See infra* Part II.C.3.

12.   *See infra* Part IV.C.1.

13.   *See infra* Part IV.C.1

When catastrophes strike, insurance premiums increase because insurers must tap into their reserves, an insurer's measure of solvency. Higher policyholder premiums serve to rebuild reserves. Similarly, secondary market insurers (reinsurers) face low capital levels after paying on contracts with primary insurers. Finally, catastrophe victims exhibit the natural reaction of buying more insurance, so insurance demand rises dramatically.[14]

These factors combine for an ugly picture. After significant shocks, homeowner insurance demand is high but primary insurers cannot afford to take on risks. Normally these insurers would turn to reinsurers to create additional underwriting capacity, but secondary market capital has also been drained, leaving reinsurers unwilling to renew old policies, let alone satisfy new demand.[15] Thus, the costs are shifted to the consumer, and prices rise. At this point the pressure starts to ease: high reinsurance prices present profit opportunities and cause new reinsurers to enter the market with the intent to capitalize on high prices.[16] What follows is an eventual decline in reinsurance prices back to "normal" levels.[17] Both Hurricanes Andrew and Katrina demonstrate the problem, and no coherent policy is in place to avoid a repetition when the next catastrophe strikes.

New sources of capital are critical to easing the cycle. In the last decade, the capital markets have shown an appetite and ability to take on catastrophe risks. Catastrophe ("cat") bonds allow investors to purchase a security, the capital of which is forfeited should the bond be triggered as determined by the contract.[18] A hurricane cat bond, for example, might be triggered when a Category Five hurricane hits Miami and causes at least $15 billion in damage. Should that (probabilistically low-chance) event occur, the bond's capital is forfeited, and the bond's capital is used to pay insurance claims. Throughout the duration of the bond, however, the investors receive a handsome return that is not correlated with the capital markets.[19] Cat bonds show great promise to provide additional capacity to the secondary insurance market.[20]

This Note proposes a policy of tax-free treatment for investment income from cat bonds to remedy inadequate insurer catastrophe capacity. In support of this policy, this Note explores the current state of catastro-

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14. *See* M. Cohen et al., *Dynamic Decision Making When Risk Perception Depends on Past Experience*, *in* ADVANCES IN DECISION MAKING UNDER RISK AND UNCERTAINTY 19, 20 (Mohammed Abdellaoui & John D. Hey eds., 2008) (noting that the 1989 "earthquake occurrence increase[d] insurance demand: 11% of the non insured individuals subscribed an insurance contract").

15. *See infra* Part II.B.

16. Kurt Eichenwald, *Market Place: A Bright Outlook for Reinsurers*, N.Y. TIMES, Nov. 27, 1992, at D12, *available at* http://www.nytimes.com/1992/11/27/business/market-place-a-bright-outlook-for-reinsurers.html?src=pm.

17. *See infra* Part II.B.

18. *See infra* Part II.D.4.d.

19. *See infra* Part II.D.4.d.

20. *See infra* Part II.D.4.d.

phe insurance, reinsurance, and tax policy in these areas. This Note reviews federal proposals, traditional risk-management strategies, and alternative risk transfer vehicles that attempt to remedy capacity shortage. Finally, this Note demonstrates that securitization of risk represents a significant opportunity to inject new capital into the insurance market and proposes that the federal government should support investment in cat bonds through preferable tax treatment.

II. BACKGROUND

To understand how new policy may be implemented in the catastrophe insurance industry, it is necessary to have familiarity with the industry model, basic insurance principles, tax policy, and current proposals for change. Section A shows that catastrophe insurance must respond to increasingly frequent and costly catastrophes through an inadequately capitalized market. Section B examines basic primary insurance principles and tax treatment to provide a general framework that highlights insurer behavior incentives. Section C describes the mechanics and tax treatment of reinsurance. Section D focuses on current policy proposals purporting to bridge the capacity gap in the catastrophe insurance industry.

A.   The Current State of the Market: High Homeowner Insurance Premiums and Insufficient Capacity

Over the last few decades, the insurance industry has faced ferocious catastrophes[21] at a higher frequency than any time in its history.[22] Accordingly, homeowner insurance in catastrophe-prone states can be expensive and sometimes impossible to procure.[23] This Section describes why catastrophes are becoming more costly, both due to the naturally increasing intensity/frequency of hurricanes and through human population and property valuation trends in catastrophe-prone areas. Next, this Section examines the state of the industry, leading to the conclusion that the industry would be unable to bear the losses caused by a hundred-year event.[24]

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21. Throughout this Note, the word catastrophe is generally used to mean a low-probability, high-loss event. Hurricanes have received the greatest amount of data and analysis in the catastrophe insurance industry and academic literature and are therefore used as the main example. The discussion herein can similarly be applied to other catastrophic events such as earthquakes and mass flooding and possibly terrorism.

22. *See infra* Part II.A.1.a.iii.

23. *See infra* Part II.A.1.b.

24. "[A] 100-year storm drops rainfall totals that had a one percent probability of occurring at that location that year. Encountering a 100-year storm on one day does nothing to change the probability of receiving the same amount of precipitation the very next day." *100-Year Storms*, MINNESOTA CLIMATOLOGY WORKING GROUP (last updated June 20, 2012), http://climate.umn.edu/doc/misc/ 100year.htm (emphasis omitted). For example, during the typical thirty-year mortgage, there is a twenty-six percent chance of such a storm occurring. Heather Cooley, *Floods and Droughts*, *in* THE

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1. *Increasing Costs of Natural Disasters, Population Densities in Coastal Areas, and Property Values Result in High Homeowner Insurance Premiums*

This Subsection explores the state of the homeowner insurance market in catastrophe-prone areas. To begin, the increasing cost of natural disasters is explained in terms of increasing population (densities) and property values.[25] The current status of homeowner insurance markets in three states is then examined.

a.   The Overall Cost of Natural Disasters Is Increasing

Since 1949, the United States has suffered $150 billion[26] in damage from hurricanes.[27] Of that $150 billion in losses, the Southeast has incurred around $80 billion,[28] and the last decade's aggregate losses are greater than any such period in United States history.[29] Three factors explain the increasing costs of hurricanes, particularly in Florida and the Gulf Coast: large and growing populations, property value trends partially immune to catastrophe risk, and increasing frequency and intensity of storms.

i.   Increasing Coastal Populations Contribute to Catastrophe Costs by Concentrating Risk

The already large coastal populations in the United States continue to grow. Fifty-three percent of Americans live in the concentrated seventeen percent of the United States that constitutes coastal areas.[30] While population growth in coastal areas approximately tracks national population growth, coastal-area size remains static.[31] As a result, population density in coastal areas is increasing.[32] Coastal-area population density is approximately three times the density of noncoastal areas, at 300

WORLD'S WATER 2006–2007: THE BIENNIAL REPORT ON FRESHWATER RESOURCES 91, 105 (Peter H. Gleick ed., 2006). The 100-year storm is often a standard in the insurance industry such as eligibility for the National Flood Insurance Program. CHARLES J. KIBERT, SUSTAINABLE CONSTRUCTION: GREEN BUILDING DESIGN AND DELIVERY 139 (2d ed., 2008).

    25.   Put simply, the severity of natural catastrophes in recent decades "can largely be explained by an overall increase in population density, the appreciation of property values in industrialized countries, and an increase of insured property values in high-risk regions." Ulrich Hommel & Mischa Ritter, *New Approaches to Managing Catastrophic Insurance Risk*, *in* RISK MANAGEMENT: CHALLENGE AND OPPORTUNITY 341, 342 (Michael Frenkel et al. eds., 2d ed. 2005).

    26.   Expressed in 2006 dollars. Stanley A. Changnon, *Characteristics of Severe Atlantic Hurricanes in the United States: 1949–2006*, 48 NAT. HAZARDS 329 (2008).

    27.   *Id.*

    28.   *Id.* at 333.

    29.   *Id.* at 335.

    30.   KRISTEN M. CROSSETT ET AL., POPULATION TRENDS ALONG THE COASTAL UNITED STATES: 1980–2008, at 6 (2004), *available at* http://oceanservice.noaa.gov/programs/mb/supp_cstl_population.html.

    31.   *Id.*

    32.   *Id.* at 7.

persons per square mile (compared to 100 in noncoastal areas).[33] Florida, possibly the most frequent victim of major Atlantic storms, has seen massive population increases over the last half-century, from 2.8 million in 1950[34] to 13.0 million in 1990[35] and nearly 19 million in 2010.[36] As a result of this population density, Florida has felt six of the top ten costliest hurricanes in the twentieth century.[37]

Further, this population growth causes greater population densities and risk concentrations. Florida's coastal-area population density presents a substantial person-per-square-mile exposure. Coastal areas have seen a population density increase from 330 persons per square mile in 1980 to 630 persons per square mile in 2008.[38] Compared to the national average population density of 98 persons per square mile, Florida's coastal areas are approximately 6 times denser.[39] The Gulf of Mexico, while less densely populated than the Atlantic Florida coast,[40] is one of the fastest growing coastal regions.[41] The Gulf of Mexico area includes approximately 20 million inhabitants compared to the Florida Atlantic coast's 15 million.[42] Increased absolute population and population densities in these areas mean more people in the future will be affected by a similar storm today or in the past. The bottom line is that "urbanization and [an] increase of population also translates into increased concentration of exposure."[43]

ii.   Property Values in Coastal Areas Continue Rising

Catastrophe costs are also increasing due to valuation trends in catastrophe-prone areas.[44] An obvious explanation for the increasing trend of property values of coastal properties is the increased population growth just described, which results in increased demand for real estate, thereby driving up property values. The more interesting and complicated question, however, is why people continue to live in hazard-prone areas. Various studies indicate a range of results: proximity to flood areas

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33. *Id.*
34. HOWARD C. KUNREUTHER ET AL., AT WAR WITH THE WEATHER: MANAGING LARGE-SCALE RISKS IN A NEW ERA OF CATASTROPHES 9 (2009).
35. *Id.*
36. *Florida State & County QuickFacts*, U.S. CENSUS BUREAU, http://quickfacts.census.gov/qfd/states/12000.html (last visited Nov. 30, 2012).
37. KUNREUTHER ET AL., *supra* note 34, at 11.
38. CROSSETT ET AL., *supra* note 30, at 38.
39. *Id.* at 7, 38.
40. *Id.* at 16, 18 (comparing an overall density of 224 persons per square mile in the Southeast to 164 persons per square mile in the Gulf region).
41. *Id.* at 18; Locke Burt et al., *Florida Homeowners Insurance: How Big Is the Availability Problem and Is There a Fair Solution?*, 12 RISK MGMT. & INS. REV. 183, 188 (2009) (indicating that "population growth has decreased dramatically [in Florida]—down from 400,000 a year in 2004, 2005, and 2006 to an estimated 100,000 [in 2009 and 2010]")
42. CROSSETT ET AL., *supra* note 30, at 38, 41.
43. KUNREUTHER ET AL., *supra* note 34, at 8.
44. *Id.* at 8–11.

has been seen to be a negative, neutral, or positive factor in flood-prone property values.[45] Several factors influence property values in hazard-prone areas.

First, perceived personal risk may affect property values.[46] Perceived personal risk varies with the intensity and frequency of disasters, as evidenced by a study documenting the decreasing property values in North Carolina after successive hurricanes.[47] There, houses located in a floodplain were valued lower than similar houses not in a floodplain, but the pricing difference grew with each successive hurricane as individuals updated their perception of personal risk.[48]

Second, access to information regarding exposure to hazards affects property valuation.[49] For example, many people are unable to identify the location of their homes on risk maps, inhibiting accurate property valuation.[50] Studies indicate that, given adequate information regarding catastrophe risk, the rational economic impact of proximity to hazards takes effect, and property values decline.[51] When the risks of earthquake and volcano damage were posted in the Mammoth Lakes area of California, property values in the region declined at a significant rate.[52] Thus, properties in hazard-prone areas may be overpriced due to a lack of awareness of catastrophe risk.

Third, coastal areas offer environmental amenities that drive property values higher (people pay more for beach-access properties).[53] For example, an average home in the Outer Banks region of North Carolina with a one percent chance of annual flooding (so-called Special Flood Hazard Area exposure) is worth ten percent more than comparable homes not located in such an area.[54] Additionally, homes located in the V-Zone, designating one percent chance of annual flooding plus *additional* vulnerability to wave action, fetch twenty-seven percent more.[55] Special exposure to catastrophes thus appears to (perhaps counterintuitively) correlate with high property values.

Despite the difficulties in pinpointing the most important factors at play in coastal property valuation, the evidence is clear that the total val-

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45. Yang Zhang et al., *Hazard Proximity or Risk Perception? Evaluating Effects of Natural and Technological Hazards on Housing Values*, 42 ENV'T & BEHAV. 597, 599–600 (2010).

46. *Id.* at 600.

47. *Id.*

48. *Id.*

49. *Id.*

50. *Id.*

51. Christopher M. Lewis & Kevin C. Murdock, *Alternative Means of Redistributing Catastrophic Risk in National Risk-Management System*, *in* THE FINANCING OF CATASTROPHE RISK 51, 60 (Kenneth A. Froot ed., 1999).

52. *Id.*

53. Zhang et al., *supra* note 45, at 601.

54. Okmyung Bin et al., *Viewscapes and Flood Hazard: Coastal Housing Market Response to Amenities and Risk*, 84 LAND ECON. 434 (2008).

55. *Id.* at 434–35.

ue of insured coastal properties is increasing.[56] In 2007, Florida's coastal counties had insured properties totaling nearly $2.5 trillion.[57] The import of understanding the trends behind increasing property valuation in the face of (seemingly) increasing danger is simply that one cannot expect individuals to act rationally and leave disaster-prone areas.

iii. The Frequency of High-Loss Hurricanes Is Increasing

Since the middle of the twentieth century, hurricanes have been the most damaging type of catastrophe in the United States.[58] A study of all catastrophe losses[59] since 1949 indicates that there were seventy-nine hurricane losses.[60] The Southeast[61] suffered fifty of those losses.[62] The South[63] suffered thirty-five losses.[64] The periods from 1998–2004 and 1984–1990 have the highest incidences of hurricane losses.[65]

The number of hurricanes causing losses greater than $1 billion has increased significantly since 1990,[66] due to a combination of the factors outlined immediately above.[67] Studies indicate that the *frequency* of hurricanes in Florida is not increasing, but that the *intensity* of those storms is increasing.[68] The absolute frequency of hurricanes is beyond the scope of this Note; the important point is that the frequency of high-loss events is increasing.[69]

b. Homeowner Premiums in Hazard-Prone States Are the Highest in the Country and Continue to Rise

Florida, Louisiana, and Texas residents pay homeowner insurance premiums that are almost double the national average. This Subsection examines how each state's market has been affected by catastrophes.

i.   Florida

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56.   AIR WORLDWIDE CORP., THE COASTLINE AT RISK: 2008 UPDATE TO THE ESTIMATED INSURED VALUE OF U.S. COASTAL PROPERTIES 1 (2008), *available at* http://www.air-worldwide.com/_public/images/pdf/AIR2008_Coastline_at_Risk.pdf.

57.   *Id.* at 2.

58.   Changnon, *supra* note 26, at 329.

59.   Catastrophe losses are defined as any event causing more than one million dollars of damage. *Id.*

60.   *Id.*

61.   The Southeast includes Alabama, Florida, Georgia, South Carolina, North Carolina, and Virginia. *Id.* at 333.

62.   *Id.*

63.   The South includes Arkansas, Louisiana, Mississippi, Oklahoma, and Texas. *Id.*

64.   *Id.*

65.   *Id.* at 334–35.

66.   *Id.* at 335.

67.   *See supra* Part II.A.

68.   Jill C. Malmstadt et al., *Frequency and Intensity of Hurricanes Within Florida's Threat Zone,* *in* 2 HURRICANES AND CLIMATE CHANGE 191, 198 (James B. Elsner et al. eds, 2010).

69.   Changnon, *supra* note 26, at 336.

Homeowner premiums in Florida in 2010 amounted to $7.6 billion, ranking first nationally in that line.[70] Citizens Property Insurance Corporation ("Citizens"), the Florida Legislature-created nonprofit insurer of last resort,[71] collected $2 billion of those premiums.[72] Recently, Citizens' premiums have increased relative to the fair market value of the homes insured.[73] The reason for the increase is that homeowner policies call for coverage up to the rebuilding cost of a structure rather than the fair market value of the home.[74] Because "[r]ebuilding costs have almost nothing to do with market value," the discrepancy between the value of a home and the charged premium often leads to jarring results.[75] For example, a Florida home valued in the real estate market at $117,000 was required by Citizens to take on a policy valued at $237,000, increasing the annual premium from $900 to $1900.[76] Florida residents must thus bear the burden of increasing premiums and shrinking coverages, even from the state's insurer of last resort.

ii. Louisiana

Louisiana's total for homeowner multiple peril premiums charged in 2010 was $1.5 billion, ranking sixteenth nationally.[77] Average premiums in Louisiana, however, are third highest in the country.[78] Despite the high premiums, the last few years have seen a slowing down in rate hikes.[79] Increased competition by new insurers in the Louisiana market, funded by $29 million in tax incentives, has given homeowners' wallets a reprieve.[80]

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70. Nat'l Ass'n Ins. Comm'rs, *State Insurance Regulation in Florida: Key Facts and Market Trends*, NAIC.ORG (Sept. 20, 2011), http://www.naic.org/state_report_cards/report_card_fl.pdf.

71. *About Us*, CITIZENS PROP. INS. CORP. https://www.citizensfla.com/about/generalinfo.cfm (last visited Nov. 30, 2012); *see also* FLA. STAT. ANN. § 627.351(6) (West 2012).

72. JOHNSON LAMBERT & CO., CITIZENS PROPERTY INSURANCE CORPORATION FINANCIAL STATEMENTS: DECEMBER 31, 2010 AND 2009, at 7 (2011), *available at* https://www.citizensfla.com/shared/corpfinance/2010AuditedGAAPFS.pdf.

73. Charles Elmore, *Consumers Score Win vs. Citizens*, PALM BEACH POST, Jan. 21, 2012, at 1A.

74. *Id.*

75. *Id.* (quoting Lynne McChristian, Insurance Information Institute representative) (internal quotation marks omitted).

76. *Id.*

77. Nat'l Ass'n. Ins. Comm'rs, *State Insurance Regulation in Louisiana: Key Facts and Market Trends*, NAIC.ORG (SEPT. 1, 2011), http://www.naic.org/state_report_cards/report_card_la.pdf.

78. *Homeowners Rates Could Rise*, NEWS-STAR (Monroe, La.), Jan. 19, 2012, *available at* 2012 WLNR 1227673 (reporting the average 2009 homeowner premium in Louisiana to be $1430, behind Florida ($1460) and Texas ($1511)).

79. *Id.*

80. *Id.*

iii. Texas

Depending on the metric, Texans could be paying the highest rates for homeowner insurance.[81] The average annual cost for the most common policy was $1,511 in 2009.[82] The high premiums in Texas reflect the variety of risks to which homes are exposed[83] compared to the much lower $880 national average.[84] Central, Western, and Northern Texas homes are at risk for hailstorms and tornadoes ,while the coast is vulnerable to hurricanes.[85] Galveston Island, protected by a man-made barrier island, is particularly vulnerable to storm-surge flooding.[86] In 2007, Hurricane Ike caused the most damage of any natural disaster in Texas history,[87] and the 2011 Bastrop-area fires caused $250 million in damage.[88] Like Louisiana, rates top the national lists, but recent premium increases are smaller than elsewhere.[89] Finally, the pattern observed in other catastrophe-prone states applies in Texas: "Insurance companies all but stopped offering hurricane coverage for property on the Gulf Coast [following Katrina and Rita] . . . . [This] forced most property owners on the coast to turn to the state-run insurer of last resort, the Texas Windstorm Insurance Association . . . ."[90]

2. *The Insurance Industry Could Not Bear a Hundred-Year Loss*

Should a one-in-a-hundred-years catastrophe strike a highly urbanized area, many insurers would be put in a highly precarious position,[91] and the insurance market would suffer a partial collapse due to insufficient capital.[92] Hurricane Andrew in 1992 is just one example of the insurance market's inability to cope with catastrophes.[93] That storm caused about $30 billion in damage, a little more than half of which was in-

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81.   *See* Terrence Stutz, *Texas Homeowners Again Pay Nation's Highest Rates*, DALL. MORNING NEWS, Jan. 10, 2012, at A3, *available at* 2012 WL 608740.

82.   *Id.*

83.   *Homeowners Insurance in Texas Compared to Other States*, TEX. DEP'T OF INS. (last updated Sept. 24, 2012), http://www.tdi.texas.gov/home/hocompared.html.

84.   Stutz, *supra* note 81.

85.   *Homeowners Insurance in Texas Compared to Other States*, *supra* note 83.

86.   *See* Garrett Dolan & Davin J. Wallace, *Policy and Management Hazards Along the Upper Texas Coast*, 59 OCEAN & COASTAL MGMT. 77, 78 (2012) (noting that Galveston Island's vulnerability to flooding was caused by the government's development of a barrier island and then over-incentivizing settlement there without adequate safeguards for catastrophe management).

87.   *See* Stutz, *supra* note 81.

88.   *Id.*

89.   *Id.*

90.   Mary Williams Walsh, *Billions in Storm Damage Claims May Strain Texas Insurance Pool*, N.Y. TIMES, Sept. 16, 2008, at A20.

91.   *See, e.g.*, Hommel & Ritter, *supra* note 25, at 343.

92.   Martin Nell & Andreas Richter, *Catastrophic Events As Threats to Society: Private and Public Risk Management Strategies*, *in* RISK MANAGEMENT: CHALLENGE AND OPPORTUNITY 321, 323 (Michael Frenkel et al. eds., 2005). For an explanation of a 100-year loss, see *100-Year-Storms*, *supra* note 27.

93.   Nell & Richter, *supra* note 92, at 323.

sured.[94] As a result, parent companies of Florida homeowner insurers had to step in to float subsidiaries, many insurers tapped surpluses, and eleven insurers became insolvent.[95] The Florida legislature responded by creating two state-funded organizations to backstop the insurance market collapse.[96] The effect of catastrophes on the insurance market is profound, and history as well as current reports indicate many insurers are ill prepared.

A storm larger than Andrew or Katrina, such as a hundred-year storm, would severely cripple the insurance industry.[97] For example, reports filed with Florida insurance regulators indicate that Universal Property and Casualty, one of Florida's largest homeowner insurers, would fall $220 million short of being able to cover a hundred-year loss.[98] Eleven other insurers would likewise lack capacity to cover losses.[99] In other words, the current model of catastrophe insurance, in at least one state, simply could not survive a large catastrophe.

Complicating the simple homeowner-insurer picture are reinsurers. Many of the companies that provide extra coverage to insurers, known as reinsurers, would suffer the same consequences described above.[100] Reinsurers provide insurance to primary insurers, and capital in the reinsurance market is decidedly smaller than capital in the primary insurer market.[101] Significant losses, like major hurricanes, make reinsurers less willing to take on risks from primary insurers.[102] As a result, availability of insurance to homeowners decreases, and premiums rise.[103] The current system simply lacks sufficient capacity to withstand a large catastrophe.

B.   Basics of Underwriting and Insurer Survival

This Section examines the rate-setting process which consists of determining risk probabilities, navigating institutional insurer constraints, and pinpointing insured behavior incentives. Next, this Section discusses

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94. U.S. GEN. ACCOUNTING OFFICE, GAO-02-941, CATASTROPHE INSURANCE RISKS: THE ROLE OF RISK-LINKED SECURITIES AND FACTORS AFFECTING THEIR USE 11 (2002) [hereinafter GAO-02-941].

95. *Id.*

96. *Id.* at 38–40 (describing the creation of the Joint Underwriting Association and the Florida Hurricane Catastrophe Fund). Insurance companies are ineligible for bankruptcy, as they are specifically excluded under § 109 of the Bankruptcy Code. 11 U.S.C. § 109 (2006). For further information on insurer insolvency, see 44 C.J.S. *Insurance* § 249 (2012).

97. *See* Nell & Richter, *supra* note 95, at 324–25. Estimates of loss amounts from a hundred-year loss vary, but Risk Management Solutions, a major catastrophe-modeling firm, recently raised its estimate from $120 billion to $180 billion. John Hintze, *Cat Bonds Might Get Their Due*, ASSET SECURITIZATION REP., Jan. 2012, at 18.

98. St. John, *supra* note 7.

99. *Id.*

100. Hommel & Ritter, *supra* note 25, at 343.

101. *Id.* (comparing the $350 billion capital base of the insurance industry to the $42 billion capital base of the reinsurance industry).

102. *See id.*

103. *Id. See* discussion *infra* Part III.A.

low-probability, high-loss events, because they add complicated variables to the traditional model. Finally, this Section explores basic taxation of insurance companies to shed light on federal tax policy's effect on insurer behavior.

1.   The Law of Large Numbers

The law of large numbers puts into words the human intuition to trust larger sample sizes over smaller sample sizes.[104] In insurance, the law of large numbers applies because an insurer "can be more certain about the future experience of large groups in the aggregate than [the insurer] can be about the future experience of any particular individuals in that group."[105] For example, an insurer may be able to arrive at the probability that sixty-five-year-old males will suffer a heart attack. The insurer's ability to predict whether one particular sixty-five-year-old male will suffer a heart attack is limited, however. For the individual sixty-five-year-old male, the probability that he will suffer a heart attack is either 100% or 0%, a number that the insurer cannot access without expending prohibitive effort.[106] The more risks the insurer takes on, the more predictable overall loss determinations become.

For every type of risk, the insurer's ability to predict losses varies. As more and more information is collected by an insurer, its ability to arrive at trustworthy probabilities increases.[107] On the other hand, the less information the insurer has about a particular risk, the less trustworthy its predictions of loss are.[108] A logical corollary to the law of large numbers, then, is the idea that "the more uncertain the future exposure, the less willing insurance institutions are to assume the risk, and the higher the premium they will charge for it."[109]

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104.   Peter Sedlmeier & Gerd Gigerenzer, *Intuitions About Sample Size: The Empirical Law of Large Numbers*, 10 J. BEHAV. DECISION MAKING 33, 35 (1997). Jacob Bernoulli, one of the first mathematicians to write on the law of large numbers, stated in a letter that "'even the stupidest man knows by some instinct of nature *per se* and by no previous instruction' that the greater the number of confirming observations, the surer the conjecture." *Id.* at 33.

105.   TOM BAKER, INSURANCE LAW AND POLICY 3 (2008). A more mathematically accurate expression of the law of large numbers is "that the sample mean becomes arbitrarily close to the population mean as the sample size increases. Thus, the expected loss is highly predictable in a sufficiently large sample." J. David Cummins & Philippe Trainar, *Securitization, Insurance, and Reinsurance*, 76 J. RISK & INS. 463, 467 (2009).

106.   *See* BAKER, *supra* note 105, at 3–4.

107.   Where a population of risks varies (because different people are susceptible to risk at differing levels), the insurer cannot simply "calculate the premium rate on the basis of the average probability distribution in the population." Christian Gollier, *Some Aspects of the Economics of Catastrophe Risk Insurance*, *in* CATASTROPHIC RISKS & INS. 13, 20–21 (OECD 2005). If that were the case, a consumer facing low risk-probability would find the premium charged too high. *Id.* As a result, the insurer charges higher premiums. *Id.* This information asymmetry decreases as more information is gathered and ambiguity decreases. *Id.* at 20, 24.

108.   *Id.* at 23.

109.   BAKER, *supra* note 105, at 4.

2. Survivability and Premium-Setting

Generally speaking, an insurer will only issue a policy where two conditions are met: first, the probability of risk must be adequately quantifiable,[110] and second, premiums must be set so that the insurer receives a return for the assessed risk.[111] Even if both conditions are met, however, an insurer is unlikely to issue coverage unless the risk is profitable.[112] The ability to pay claims flows from funds consisting of insurance premiums, investment income, and any additional capital.[113]

From these basic premises, several constraints appear. First, the *survival* constraint requires a minimum probability that losses will not exceed premiums and capital income so that the corporation stays solvent.[114] Second, as a corporation with shareholders, the *stability* constraint requires a minimum probability that the ratio of gains to losses exceeds a certain point on a regular basis.[115] Finally, the *profit* constraint unsurprisingly holds that total income should exceed losses.[116] Any insurer will need to abide by these basic premises. Failing one of these requirements can sink a policy course for an insurer.

3. The Unique Case of a High-Loss, Low-Probability Event

As described above, an insurer will use the law of large numbers to predict loss probabilities[117] and then use the survival, stability, and profit constraints to establish policies and set premiums.[118] A simple illustration of an ordinary insurer's issuance of fire protection shows these principles in practice. For example, an insurer needs to determine premiums for homes valued at $100,000 that each have a 1/1000 chance of being completely destroyed in a fire.[119] If the risks are not correlated—that is, a fire in one covered home will not affect any other home—the insurer's expected annual loss per home is $100.[120] Applying the law of large num-

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110. KUNREUTHER ET AL., *supra* note 34, at 130.
111. *Id.*
112. *Id.*
113. Jonathan Spry, *Non-life Insurance Securitization: Market Overview, Background, and Evolution*, *in* THE HANDBOOK OF INSURANCE-LINKED SECURITIES 9, 11 (Pauline Barrieu & Luca Albertini eds., 2009).
114. James M. Stone, *A Theory of Capacity and the Insurance of Catastrophe Risks (Part I)*, 40 J. RISK & INS. 231, 232 (1973). The simplest example of a violation of the survival constraint is where an insurer insures a single risk—putting all its eggs in one basket. A total loss on the single risk will result in insolvency. *Id.* at 237.
115. *Id.* at 232. The stability constraint is violated where the probability of a total loss is decreased when insuring multiple risks but where the probability of a partial loss is likely. *Id.*
116. *Id.* The profitability requirement fails where numerous risks are insured but the probability of a loss nears certainty. *Id.*
117. *See supra* Part II.B.1.
118. *See supra* Part II.B.2.
119. Howard Kunreuther, *Has the Time Come for Comprehensive Natural Disaster Insurance?*, *in* ON RISK AND DISASTER: LESSONS FROM HURRICANE KATRINA 175, 180 (Ronald J. Daniels et al. eds., 2006).
120. *Id.* There is a 1/1000 chance for each home to cause a $100,000 loss. The average annual loss

bers, the more policies the insurer issues, the more predictable the insurer's loss becomes.[121]

Where insurers provide coverage against low-probability, high-loss events to many policyholders in the same area, however, the possibility arises that "they [could] suffer severe losses . . . due to high correlation between policies."[122] Thus, setting premiums in catastrophe zones requires complicating the above model. The insurer must attempt to estimate

> the likelihood of hurricanes of different intensities . . . then increase this figure to reflect the amount of perceived ambiguity in the probability and/or the uncertainty in the loss. [This is used] as a reference point and then [they] focus first on the impact of a major disaster on the probability of insolvency or some prespecified loss of surplus to determine an appropriate premium to charge. . . . Underwriters then consider the impact that marketing coverage at different feasible premium levels will have on the number of policies sold and the firm's expected profits.[123]

Though the exact mechanisms of the premium-setting process are beyond the scope of this Note, some explanation is necessary to show the difficulty in creating a successful insurance scheme that incorporates the ability to handle low-probability, high-loss events. As established above, the survival principle requires that the insurer not write policies where the probability of insurer insolvency is above a predetermined level, I.[124] Thus, if an insurer issues X number of policies that may produce a maximum loss of Y, the insurer must set premiums at level Z so that the probability of insolvency is no greater than I.[125] As explained above, however, the correlated-loss factor and the overall unpredictable nature of catastrophic events require the insurer to charge higher premiums, Z.[126] The resulting premiums at price Z may be too high when measured against both state regulations[127] and market demands.[128] The ultimate result may be that no policies are issued at all.[129]

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for each home can be determined by simply multiplying the probability of the loss by the loss amount. *Id.*

121. *Id.*

122. *Id.*; *see also* JAMES W. MACDONALD ET AL., RESIDENTIAL INSURANCE ON THE U.S. GULF COAST IN THE AFTERMATH OF HURRICANE KATRINA 7 (RAND 2010) (stating that "[i]nsuring low-probability, high-consequence events, such as major hurricanes or earthquakes, has always been difficult for the private sector").

123. Kunreuther, *supra* note 119, at 180–81.

124. Stone, *supra* note 114, at 232.

125. Kunreuther, *supra* note 119, at 181.

126. *Id.*

127. Generally speaking, an insurer's particular line of business in a state must cover losses in that line of business in that state. Christine L. Agnew, *Come Hell and High Water: Can the Tax Code Solve the Post-Katrina Insurance Crisis?*, 11 LEWIS & CLARK L. REV. 701, 713 (2007). Insurance regulation occurs predominantly at the state level. Early on, the Supreme Court held that "[i]ssuing a policy of insurance is not a transaction of commerce" and Congress could not reach insurance transactions. Paul v. Virginia, 75 U.S. (8 Wall.) 168, 183 (1869). That decision was overturned in *United States v. South-Eastern Underwriters Ass'n*, 322 U.S. 533, 549–53 (1944), but Congress responded quickly. The

Risk correlation muddles the otherwise simple process. Were a natural disaster to occur in a geographically concentrated area, an insurer covering many risks in the stricken area will be particularly hard hit. In other words, catastrophe risks may violate the law of large numbers, a fundamental rule of insurance.[130] For example, "State Farm and Allstate paid $3.6 billion and $2.3 billion in claims" after Hurricane Andrew.[131] "An insurer views a portfolio with . . . highly correlated (or interrelated) risks as undesirable."[132]

4. Moral Hazard and Adverse Selection

Moral hazard means that a policyholder is disincentivized from taking precautionary measures or incentivized to engage in risky behavior because he believes his insurance carrier will pick up the tab.[133] This drives up the cost of insurance and is difficult to price.[134] If a homeowner forgoes boarding up the windows before a storm, should he receive less from the insurer? Or should he have paid a higher premium? How much higher?

Though these variables are infinite, some mechanisms mitigate the effects of moral hazard. An insurance investigator may examine the loss to determine whether the insured was negligent in his behavior in light of the loss-causing event.[135] Additionally, most policies require an insured to pay a deductible so the insured shares in the pain of the loss.[136] Finally, premiums may be based in part on whether the insured has collected on past policies.[137] Despite the inherent existence of moral hazard in almost any insurance scenario, in the catastrophe context specifically, a

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McCarran-Ferguson Act, introduced just a year after the *South-Eastern Underwriters* decision, states: "Congress hereby declares that the continued regulation and taxation by the several States of the business of insurance is in the public interest, and that silence on the part of the Congress shall not be construed to impose any barrier to the regulation or taxation of such business by the several States." 15 U.S.C. § 1011 (2006).

128. Kunreuther, *supra* note 119, at 181.

129. *Id.*

130. Michael J. Trebilcock & Ronald J. Daniels, *Rationales and Instruments for Government Intervention in Natural Disasters*, *in* ON RISK AND DISASTER: LESSONS FROM HURRICANE KATRINA, *supra* note 119, at 89, 92–93; Michael Faure & Véronique Bruggeman, *Catastrophic Risk and First-Party Insurance*, 15 CONN. INS. L.J. 1, 28 (2008).

131. KUNREUTHER ET AL., *supra* note 34, at 136.

132. Patricia Grossi & Howard Kunreuther, *Introduction: Needs, Stakeholders, and Government Initiatives*, *in* CATASTROPHE MODELING: A NEW APPROACH TO MANAGING RISK 3, 9 (Patricia Grossi & Howard Kunreuther eds., 2005). Some of this risk, however, can be passed on through traditional reinsurance.

133. Scott E. Harrington, *Rethinking Disaster Policy After Hurricane Katrina*, *in* ON RISK AND DISASTER: LESSONS FROM HURRICANE KATRINA, *supra* note 119, at 203, 205.

134. Neil A. Doherty & Andreas Richter, *Moral Hazard, Basis Risk, and Gap Insurance*, 69 J. RISK & INS. 9, 10 (2002).

135. *See generally* KUNREUTHER ET AL., *supra* note 34.

136. *Id.*

137. TENA B. CREWS, FUNDAMENTALS OF INSURANCE 162 (2d ed. 2010).

policyholder's powerlessness facing a hurricane or similarly damaging catastrophe decreases moral hazard.[138]

Adverse selection embodies the idea that insurance attracts risk-takers.[139] Adverse selection, like moral hazard, plays a small role where the risks insured against are entirely out of the insured's control.[140] Moral hazard and adverse selection between the primary insurer and homeowner regarding catastrophe coverage are, therefore, of less concern than in other insurance relationships.

5. *Taxation of Primary Insurers*

Taxation affects business behavior, and insurance companies are no exception. The Internal Revenue Code (the "Code") contains a separate chapter for insurance companies.[141] Calculating taxable income for insurance companies requires determining gross income and subtracting deductions.[142] Gross income includes investment and underwriting income (premiums collected from insureds), gain from the sale of assets, and select other items depending on the nature of insurance policies provided.[143] Importantly, the definition of "underwriting income" in § 832(b)(3) nets out (sets off) premiums collected and "losses incurred and expenses incurred."[144] "Losses incurred" is then defined as losses paid minus reinsurance collected plus discounted unpaid losses outstanding at the end of the taxable year.[145] For purposes of this Note, the key takeaway from these sections is that only the reserve of *unpaid* losses receives any significance for tax purposes. Importantly, long-term reserves (those for *unforeseen* losses like future catastrophe losses) receive no favorable tax treatment.[146]

Section 832 gives a primary insurer a deduction for premiums ceded to a reinsurer.[147] A general thread of tax policy is to tax income to the person who earns it;[148] therefore, a primary insurer can deduct premiums ceded to a reinsurer because the primary insurer never truly "earns" or controls the funds, nor has the ability to make economic use of the funds

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138. Harrington, *supra* note 133, at 205.
139. CHRISTOPHER L. CULP, THE ART OF RISK MANAGEMENT 321 (2002) ("In the insurance context, adverse selection occurs when the insurer cannot differentiate between good and bad insurance risks and thus inadvertently attracts more of the latter than the former.").
140. Faure & Bruggeman, *supra* note 130, at 27.
141. *See* I.R.C. Subchapter L (2006).
142. *Id.* § 832(a).
143. *Id.* § 832(b)(1).
144. *Id.* § 832(b)(3).
145. *Id.* § 832(b)(5); *see also id.* § 846 (defining discounted unpaid losses and providing for the calculation of discounted unpaid losses); *Field Directive on Examination of IRC § 847*, IRS.GOV (Jan. 13, 2006), http://www.irs.gov/Businesses/Field-Directive-on-Examination-of-IRC-§-847 (explaining the § 847 deduction for the *discount* disallowed under § 846).
146. *See* I.R.C. § 832(b)(5).
147. *Id.* § 832(b)(4)(A).
148. *See generally* Lucas v. Earl, 281 U.S. 111 (1930) (holding that individual earnings are to be taxed to that individual).

ceded.[149] In other words, a primary insurer does not enjoy the benefit of premiums ceded to a reinsurer—that opportunity is lost by the primary insurer and gained by the reinsurer.[150] For any entity *purchasing* insurance, the availability of a § 162 business expense deduction is a tax benefit.[151] The regulations to § 162 specifically name "insurance premiums against fire, storm, theft, accident, or other similar losses" as a deductible business expense.[152] This is important because premiums are paid using cheaper pretax dollars. When the insurer receives those funds, it must include the funds in income.[153] Certain organization structures discussed later may result in no taxation on premiums at any level.[154]

C. *Reinsurance*

Reinsurance serves as a tool to spread risk beyond primary insurance companies.[155] This Section explains the features used in these contracts to pass risk from insurer to reinsurer, including a combination of features that divide risk into "layered" segments or group policies, or single out large, unique risks, and determine the division of loss between the two parties. This Section next explores the reinsurance market cycle, a main culprit in high premiums following catastrophes. Finally, this Section describes reinsurance tax treatment.

1. *Reinsurance Basics*

"[R]einsurance is insurance for insurance companies."[156] It serves as a major risk-management tool for primary insurers.[157] In a simple reinsurance scenario, a primary insurer collects premiums from its customers and, should that primary insurer feel too exposed—if its portfolio carries

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149. I.R.C. § 832(b)(4)(A) instructs the insurer to "deduct . . . premiums paid for reinsurance."
150. *See, e.g.*, United States v. Consumer Life Ins. Co., 430 U.S. 725, 737 (1977) (noting that in valid reinsurance agreements "ceding companies [could] invest the [ceded premium] dollars, and under the [reinsurance] treaties they kept all resulting investment income").
151. *See* I.R.C. § 162.
152. Treas. Reg. § 1.162-1(a) (1960).
153. *See* I.R.C. § 832.
154. *See infra* Part II.C.4.
155. *See Catastrophe Bonds: Spreading Risk—Hearing Before the Subcomm. on Oversight and Investigations of the H. Comm. on Fin. Servs.*, 107th Cong. 4 (2002) [hereinafter *Hearing on Catastrophe Bonds*] (statement of Davi D'Agostino, Director, Financial Markets and Community Investment, General Accounting Office) ("For example, if property casualty insurers have written too many policies concentrated in California or Florida, they need ways to diversify and transfer that risk. One way is through reinsurance, where for all or part of the premiums collected, the reinsurer agrees to compensate all or part of an insurer's claims as they are incurred.").
156. Deirdre G. Johnson, *Unlocking the Mysteries of Reinsurance*, *in* INSURANCE LAW 2007: UNDERSTANDING THE ABCs 243, 249 (John C. Yang ed., Practising L. Inst. 2007); *see also* BLACK'S LAW DICTIONARY 1399 (9th ed. 2009) (defining reinsurance as "[i]nsurance of all or part of one insurer's risk by a second insurer, who accepts the risk in exchange for a percentage of the original premium").
157. Deirdre G. Johnson & Stacy A. Puente, *The Essence of Reinsurance*, *in* INSURANCE COVERAGE 2009: CLAIM TRENDS AND LITIGATION 759, 763–64 (Laura A. Foggan & Lorelie S. Masters eds., Practising L. Inst. 2009).

too many risks in a certain area or of a certain type, for example—the primary insurer itself can buy insurance on those risks.[158] The primary insurer pays a reinsurer a determined amount and, depending on the structure of the agreement, the reinsurer will indemnify the primary insurer for claims that arise under the primary insurer's policy.[159] The reinsurer pays the primary insurer a commission intended to cover the costs of gathering policyholders and other overhead costs.[160] The relationship between insurer and reinsurer is one of "utmost good faith."[161] A reinsurer does not have a legal relationship with the specific customer, but instead relies on the primary insurer "to decrease monitoring costs and *ex ante* contracting costs."[162] This allows the reinsurance premiums to be lower than the original insurance premiums.[163] Reinsurance relationships are traditionally characterized by trust and information sharing.[164]

The important difference between insurance and reinsurance is that insurance prices are heavily regulated[165] and reinsurance prices are not regulated at all.[166] Reinsurers can be located in the United States or in foreign jurisdictions, and they can be affiliated or nonaffiliated.[167] A nonaffiliated reinsurer is simply a third party whom a primary insurer engages for reinsurance.   An affiliated reinsurer, or captive insurance/reinsurance company, is an entity that is either controlled by or related to the primary insurer with whom it contracts.[168]

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158.   Johnson, *supra* note 156, at 249; Johnson & Puente, *supra* note 157, at 764; *see also Hearing on Catastrophe Bonds*, *supra* note 155.

159.   Johnson, *supra* note 156, at 250 (noting that there is generally no direct contractual relationship between the reinsurer and the original insured).

160.   Ursina B. Meier & J. Francois Outreville, *Business Cycles in Insurance and Reinsurance: The Case of France, Germany and Switzerland*, *in* EXISTENCE AND CAUSES OF INSURANCE CYCLES IN DIFFERENT COUNTRIES 95, 102 (Ursina B. Meier ed., 2006) (defining a reinsurance commission as "compensation for the administrative expenses incurred by the primary insurer in generating the business and settling any loss claims. . . . normally expressed as a percentage of the original gross premium").

161.   Unigard Sec. Ins. Co. v. North River Ins. Co., 4 F.3d 1049, 1054, 1066 (2d Cir. 1993); *see also* Certain Underwriters at Lloyd's London v. Home Ins. Co., 783 A.2d 238 (N.H. 2001); Mich. Nat'l Bank-Oakland v. Am. Centennial Ins. Co. (*In re* Union Indemnity Ins. Co. of New York), 674 N.E.2d 313, 319 (N.Y. 1996).

162.   *Unigard Sec. Ins. Co*., 4 F.3d at 1054.

163.   *Id.*

164.   *Id.*

165.   BAKER, *supra* note 105, at 637–721.

166.   KUNREUTHER ET AL., *supra* note 34, at 152.

167.   *See* JOINT COMM. ON TAXATION, JCX-85-07, PRESENT LAW AND ANALYSIS RELATING TO SELECTED INTERNATIONAL TAX ISSUES 7 (2007) [hereinafter JOINT COMM. ON TAXATION (JCX-85-07)].

168.   "'Captive insurance company' has been broadly applied to any insurance company with owners who are generally the same as, or related to, the parties whose risks comprise a substantial portion of those insured by the company." Bobbe Hirsh & Alan S. Lederman, *The Service Clarifies the Facts and Circumstances Approach to Captive Insurance Companies*, J. TAX'N, Mar. 2004, at 168, 168.

2. *Features of Reinsurance*

Reinsurance itself is an incredibly complex area, and the details of reinsurance are beyond the scope of this Note. An explanation of the basic forms of reinsurance, however, helps illustrate the need for alternative risk transfer devices. The next three Subsections explore three basic aspects of reinsurance: what kind of risks are reinsured, how much is reinsured, and how reinsurance affects homeowner premiums.

a. Layering Divides Risks into Segments

Crucial to the concept of reinsurance is the idea of layering. The literature on reinsurance and complex risk transfer takes for granted that its readers know the basic function of reinsurance and how it works. Without a sufficient understanding of layering, however, little else about reinsurance makes sense. Layering divides the total loss into separate categories which can then be taken on by third parties.[169] The concept of layering should be familiar for anyone with auto insurance. The first amount of loss (or layer) may come out of the insured's pocket as a deductible. A certain amount of the loss above the deductible up to the policy limit is the layer that is paid by the insurer.

The concept is much the same in reinsurance. For example, where an event causes $10 million in loss, several parties are likely to share the cost of the loss. The first layer, common to nearly any insurance contract, is the deductible.[170] The second layer may belong to the primary insurer who has not obtained reinsurance for that layer of losses.[171] Third may be a reinsurer who has taken on a layer of risk from the insurer.[172] A fourth layer may belong to the capital markets who retain risk through alternative risk transfer devices.[173] Finally, beyond a certain point, no insurance is available.

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169. *Glossary of Reinsurance Terms*, CAPTIVE.COM, http://www.captive.com/service/signetstar/ GlosRein.html (last visited Nov. 30, 2012) (defining layer as "[a] horizontal segment of the liability insured"); KUNREUTHER ET AL., *supra* note 34, at 366 (defining layer as "a prespecified range of potential claims (e.g., $200–$500 million) to be covered by an insurer or reinsurer if the insured loss exceeds the lower limit (I.E. $200 million)"); *see also* ERIK BANKS, CATASTROPHIC RISK: ANALYSIS AND MANAGEMENT 99, 95–97 (2005); Eduardo Canabarro et al., *Analyzing Insurance-Linked Securities*, FIXED INCOME RESEARCH: QUANTITATIVE RESEARCH (Goldman Sachs), Oct. 1990, at 1, 2; KUNREUTHER ET AL., *supra* note 34, at 152.

170. *See* KUNREUTHER ET AL., *supra* note 34, at 152.

171. BANKS, *supra* note 169, at 95.

172. KUNREUTHER ET AL., *supra* note 34, at 152.

173. *Id.*

b. Facultative and Treaty Reinsurance Determine the Type of
    Policies to Be Transferred

The nature of insurance contracts is as varied as the nature of life it-
self—one can buy insurance on nearly anything. Because of that diversi-
ty, reinsurance contracts must be flexible. Two main categories of rein-
surance address diversity of insurance contracts based on the complexity
of the risks involved.[174]

Treaty reinsurance transfers risks from a primary insurer to a rein-
surer according to "a contract where risks are automatically ceded and
accepted."[175] Treaty reinsurance is useful because it allows the transfer of
risk without high negotiation costs.[176] Second, facultative reinsurance is
"highly customizable" and "often used when risks are very large and
unique."[177] A separate negotiation is required for each facultative poli-
cy.[178] The process of acquiring facultative reinsurance includes providing
detailed information about the risk followed by a price quote by the rein-
surer which, if accepted, constitutes the basis of a contract.[179] Treaty re-
insurance allows many similar risks to pass automatically from primary
insurer to reinsurer, whereas facultative reinsurance handles unique
risks, requiring specific determinations.

c. Excess of Loss and Proportional Coverage Determine the
    Allocation of Loss Between Primary Insurers and Reinsurers

For both facultative and treaty insurance the parameters for the
amount of risk transference need to be established. There are two gen-
eral types of loss divisions—excess of loss and proportional loss cover-
age.[180] In excess of loss coverage, the reinsurer agrees to protect the pri-
mary insurer for a certain layer of loss.[181] Proportional coverage, on the
other hand, applies without layering—an insurer is reimbursed "for a
fixed percentage of its losses in return for ceding a fixed percentage of

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174. BANKS, *supra* note 169, at 92–93.

175. *Id.* at 93; *see also* Greg Niehaus & Steven V. Mann, *The Trading of Underwriting Risk: An Analysis of Insurance Futures Contracts and Reinsurance*, 59 J. RISK & INS. 601, 609 (1992).

176. Niehaus & Mann, *supra* note 175, at 609.

177. BANKS, *supra* note 169, at 92. For a thorough examination of facultative reinsurance, see William Hoffman, *Facultative Reinsurance Contract Formation, Documentation, and Integration*, 38 TORT TRIAL & INS. PRAC. L.J. 763 (2003).

178. Niehaus & Mann, *supra* note 175, at 609; *see also* BANKS, *supra* note 169, at 92.

179. BANKS, *supra* note 169, at 92–93.

180. *Id.* at 93.

181. Canabarro et al., *supra* note 169, at 2. Thresholds of loss determine the payout:

   For example, let us assume the reinsurer provides "$50 million of protection in excess of $100 mil-
   lion, with 10% coparticipation." This means that the reinsurer makes payments to the insurer if
   its losses are above the attachment point of $100 million. If the losses are between $100 million
   and the exhaustion point of $150 million, the reinsurer pays 90% of the amount exceeding $100
   million. If the loss is larger than exhaustion, the insurer receives the maximum amount of 90% x
   $50 million = $45 million."

Id. (emphasis omitted).

premiums."[182] Reinsurance is flexible in how it divides who takes on risk, which types of risks they take on, and how much of the risk they take on.

3.   Reinsurance Market Cycles Are Partly Responsible for Premium Fluctuations

Unsurprisingly, when reinsurance is called upon to cover losses suffered by policyholders, the price of reinsurance rises.[183] The question of whether to provide coverage, and at what price, requires assessment of many factors including the probability of paying claims for a certain layer, the expected loss and distribution of a layer, the premium to be charged, and the concerns of returning on capital for investors.[184] Reinsurance premiums tend to be driven by supply-side economics.[185] Where capital is eroded due to large losses, reinsurers are less willing to write coverage.[186]

The 2005 hurricane season cost the insurance industry approximately $40 billion, half of which is attributable to Hurricane Katrina.[187] As a result, reinsurance premiums rose seventy-six percent between July 1, 2005 and June 30, 2006.[188] The sharp increase in reinsurance premiums then attracted new market participants looking to capitalize on high prices.[189] The shortened supply and higher premiums create "potential future profit opportunities . . . and draw in new sources of capital."[190] These new sources of capital amounted to approximately $26 billion in the immediate ten months following Hurricane Katrina.[191] With the entry of these new reinsurers, the reinsurance supply increases, and premium costs eventually decline. In the meantime, however, individuals face steep premium increases.

When reinsurance prices rise, costs are passed on to the individual policyholders and insurance becomes difficult or impossible to obtain. Alabama Insurance Commissioner Walter Bell, as president of the National Association of Insurance Commissioners, stated the following:

> [A] major factor in affordability of insurance is the rising cost
> of reinsurance. Reinsurance is a largely unregulated market where

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182.   *Id.*
183.   KUNREUTHER ET AL., *supra* note 34, at 166. Because the reinsurance industry "is less regulated than traditional insurance, . . . reinsurers have an easier time raising prices on traditional insurers. . . . [T]he price of reinsurance doubled after the major hurricanes of 2004 and 2005. It went up another 90 percent to 95 percent in Chile after the earthquake [in 2010]." Tim Devaney, *Investors Find Nature Safer Than Economy—Bonds Against Earthquakes, Hurricanes and Such Grow in Popularity As a Safe Haven from Market*, WASH. TIMES, Oct. 11, 2011, at A9.
184.   KUNREUTHER ET AL., *supra* note 34, at 166.
185.   *See, e.g.*, BANKS, *supra* note 169, at 99 n.11.
186.   *Id.* at 99.
187.   KUNREUTHER ET AL., *supra* note 34, at 161.
188.   *Id.*
189.   *Id.*
190.   BANKS, *supra* note 169, at 99.
191.   KUNREUTHER ET AL., *supra* note 34, at 161.

insurance companies purchase insurance to better spread the risk
they've assumed. Affordable reinsurance options allow private in-
surers to limit their own exposure by diversifying risk, which in
turn, allows private insurers to write more business at a more inex-
pensive rate.[192]

The connection between reinsurance and premium levels receives little
attention. Simply put, reinsurance plays a large guiding role in an insur-
er's ability to take on risk. When reinsurance is cheap and plentiful, the
insurers can take on more risk at lower premiums because they can share
that risk with the reinsurance market at an inexpensive price.[193] When
the reinsurers increase prices following catastrophes, then, the effect is
first felt by the primary insurers.[194] When risks cannot be cheaply shared
with reinsurers, primary insurers then charge higher premiums.[195] "As
[reinsurance] rates go up exponentially, direct insurers have no choice
but to raise rates and pass those costs on directly to policyholders."[196]

4.   Taxation of Reinsurers

This Note's resolution proposes a change to federal income tax law
to solve insurance and reinsurance capacity problems. Because tradi-
tional reinsurance is the main tool used to transfer and spread risk, an
understanding of reinsurance tax treatment is fundamental to making
sense of the resolution.

The Code contains several provisions relating to reinsurance.[197] As
stated above, § 832 gives a primary insurer a deduction for premiums
ceded to a reinsurer.[198] A primary insurer does not enjoy the benefit of
the premiums it cedes to the reinsurer—that opportunity is lost by the
primary insurer and gained by the reinsurer.[199] A general thread of tax
policy is to tax income to the person who earns it;[200] therefore, a primary
insurer can deduct premiums ceded to a reinsurer because the primary
insurer never controls nor has the ability to make economic use of the

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192.   *The Availability of Property and Casualty Insurance in Coastal Areas: Testimony Before the S. Comm. on Banking, Housing, and Urban Affairs*, 110th Cong. 3 (2007) (statement of Walter Bell, President, National Association of Insurance Commissioners).

193.   *Id.*

194.   *Id.* ("Following the catastrophic 2004 and 2005 hurricane seasons, reinsurers began to scale back the coverage they are willing to offer in coastal areas and what coverage they are willing to pro-vide is coming at significantly higher rates. . . . [I]n 2006 reinsurance rates across the United States rose 76 percent on average, and this while insurers and reinsurers scaled back coverage and exposure.").

195.   *Id.* ("However, as is the case with direct insurance, the numbers are much more dramatic in coastal regions where insurers cite reinsurance rates doubling, tripling and, in at least one case, going up ten fold. The state of Florida estimates that the cost of reinsurance accounts for nearly 45% of the consumer's premium in that state. Affordable reinsurance is a crucial risk transfer tool that insurers use to spread risk, particularly in catastrophe prone areas.").

196.   *Id.*

197.   *See* I.R.C. § 832 (2006).

198.   *Id.* § 832(b)(4)(A).

199.   JOINT COMM. ON TAXATION (JCX-85-07), *supra* note 167, at 7.

200.   *See* Lucas v. Earl, 281 U.S. 111 (1930).

funds ceded.[201] If the reinsurer is an entity in the United States, the reinsurer will have to pay tax on the premiums it received from the primary insurer.[202] With the reinsurer's duty to pay the tax liability on the ceded premiums, however, comes the benefit of new investment capital.[203] Figure 1 shows a general reinsurance transaction and where tax liabilities are incurred.

FIGURE 1: TAX LIABILITY FOR U.S.-BASED INSURER AND REINSURER
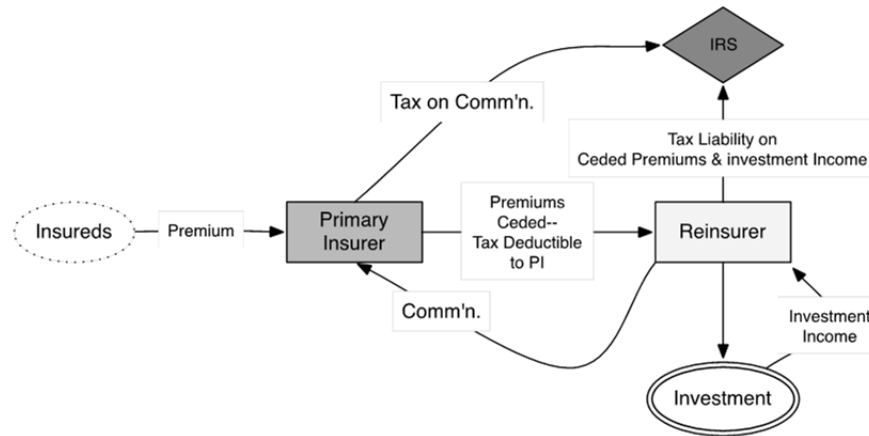
When both the primary insurer and the reinsurer are located in the United States, then, the only change for tax purposes is *who* writes the check. The primary insurer *deducts* from its income the amount of premiums ceded to the reinsurer,[204] and the reinsurer *includes* in its income the amounts of premiums received (while gaining the economic opportunity to invest the assumed premiums).[205] The only tax effect is *who* pays the tax—the amount of tax will stay the same.[206] The scenario

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201. I.R.C. § 832(b)(4)(A) instructs the insurer to "deduct . . . premiums paid for reinsurance." Moreover, "if the transaction effects a transfer of reserves and reserve assets to the reinsurer, the tax liability for earnings on those assets generally is shifted to the reinsurer as well. If earnings on these assets are shifted to a reinsurer in a no- or low-tax foreign jurisdiction, generally these earnings are not subject to income taxation." JOINT COMM. ON TAXATION (JCX-85-07), *supra* note 167, at 6.

202. I.R.C. § 11. *But see id.* § 845 (granting the Secretary of the Treasury power to reallocate, recharacterize, or otherwise adjust reinsurance agreements so they do not evade taxes). The § 845 power lacks bite, however, as it was applied in only one case and there the IRS was held to have improperly reallocated the deductions. *See* Trans City Life Ins. Co. v. Comm'r, 106 T.C. 274 (1996); Michael F. Kelleher & Edward R. Horkan, Trans City Life *Spells Relief for 'Tax Avoidance' Attacks on Reinsurance*, 85 J. TAX'N 154 (1996).

203. JOINT COMM. ON TAXATION (JCX-85-07), *supra* note 167, at 5.

204. I.R.C. § 832.

205. *Id.* §§ 11, 845.

206. Of course, the two parties will most likely be in different tax circumstances. Depending on the corporations' earnings and profits and other tax activities the corporations engage in, tax liability will change. The general proposition, however, is that both corporations will be subject to United States tax levels which are thirty-five percent at the corporate level. *See* I.R.C. § 11.

changes drastically, however, when foreign captive insurers are introduced.[207] In that instance, the reinsurer receiving premiums may be located in a no-tax jurisdiction such as Bermuda, and no tax will be paid on premiums ceded by primary insurers.[208]

D. Catastrophe Management Policies

Proposals to solve the capacity shortage are varied. In addition to traditional reinsurance, there are many other ways of distributing and spreading catastrophe risk. These include federal proposals such as the Combined Federal Flood and Wind Insurance Program and tax-deferred catastrophe reserves, and financial market solutions called "alternative risk transfer" devices. This Section explains each policy.

1. Combined Federal Flood and Wind Insurance Program

Since Hurricane Katrina, combined flood and wind insurance programs have been proposed and discussed at the federal level.[209] Much strife has come from the typical flood exclusions in homeowner policies requiring a homeowner to show that winds caused the damage to a home, rather than water surge or floods.[210] To remedy that difficulty, H.R. 3121's "multiperil coverage" covers a home's "damage resulting from windstorms and floods."[211] H.R. 3121 proposes to expand the National Flood Insurance Program (NFIP) to cover homes for both flood and wind damage without the requirement that a finding of specific cause be made.[212] The NFIP would therefore offer more complete coverage than private insurers currently do.

2. Catastrophe Reserves

Existing law taxes reserves unless the reserves are allocated to occurrences in the current year.[213] Reserves maintained to pay out on claims anticipated to occur in the current year are deducted from gross income.[214] Reserves maintained to pay future claims, however, are not

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207. *See* discussion *infra* Part III.A.3.

208. *See* discussion *infra* Part III.A.3.

209. U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-08-504, NATURAL CATASTROPHE INSURANCE: ANALYSIS OF A PROPOSED COMBINED FEDERAL FLOOD AND WIND INSURANCE PROGRAM 6 (2008) [hereinafter GAO-08-504].

210. *See id.* at 1 ("Private property-casualty insurance policies may cover wind damage but exclude flood damage, and in some cases, the presence of flood damage in addition to wind damage may raise questions about the extent to which wind damage is covered. Adjusters face . . . challenges in their efforts to determine the cause of damages after multiperil events.").

211. Flood Insurance Reform and Modernization Act of 2007, H.R. 3121, 110th Cong. § 7(a) (2007).

212. GAO-08-504, *supra* note 209, at 7.

213. I.R.C. § 832(b)(5) (2006).

214. *Id.*

deducted.[215] Accordingly, current tax law discourages the maintenance of long-term reserves.[216] Long-term reserves are one instrument insurers use to prepare for catastrophes, but current law discourages the maintenance of large long-term reserves.

3. Tax-Free Bonds Created Post-Catastrophe

Tax exemption for municipal and state bonds is one of the primary ways in which the federal government subsidizes the building of infrastructure.[217] The federal government currently forgoes approximately $26 billion in annual revenues due to tax-exempt bonds.[218] The logic of providing tax-exempt status to these bonds is simple. When bond interest is taxed, the holder is left with less after-tax income.[219] Therefore, should holders of state and local bonds be required to pay tax on bond proceeds, the rates would have to be higher than they currently are.[220] Because the proceeds are tax-exempt, however, state and local governments are able to finance infrastructure projects at lower interest rates.[221] In the area of catastrophe recovery, tax-exempt bonds play a small role.[222] Following the September 11, 2001 attacks and the 2005 hurricane season, Congress enacted legislation providing tax-free treatment for bonds financing reconstruction of these catastrophe-stricken areas.[223]

4. Alternative Risk Transfer

Alternative risk transfer represents the convergence of the insurance and capital markets. These traditionally separate markets are working together to develop products that allow risk spreading and transfer over the immense capacity of the financial markets. Private market solutions tying together securitization and weather are not new. Insurance-linked securities are becoming commonplace and are more mainstream than the "alternative risk transfer" label gives them credit for.[224] When reinsurance prices rise to prohibitive levels, or if primary insurers look to diversify their types of risk transfer mechanisms, alterna-

215. S.E.C. v. Stanard, No. 06 Civ. 7736, 2009 WL 196023, at *3 (S.D.N.Y Jan. 27, 2009).
216. *See, e.g.*, Kay A. Cleary & Judy Pool Boutchee, *Reserving for Catastrophes*, 2002 CAS. ACTUARIAL SOC'Y F. 25, http://www.casact.org/pubs/forum/02fforum/02ff025.pdf.
217. CONG. BUDGET OFFICE & JOINT COMM. ON TAXATION, PUB. NO. 4005, SUBSIDIZING INFRASTRUCTURE INVESTMENT WITH TAX-PREFERRED BONDS 31 (2009).
218. *Id.*
219. *Id.*
220. *Id.*
221. *Id.*
222. Federal aid was $114 billion, and bonds amounted to less than $10 billion. *See infra* note 478; Jordan Eizenga, *Re-Evaluating GO Zone Bonds*, CTR. AM. PROGRESS (Oct. 19, 2010), http://www.americanprogress.org/issues/economy/news/2010/10/19/8560/re-evaluating-go-zonebonds/.
223. *See* I.R.C. §§ 1400L, 1400 (2006).
224. Vladimir Njegomir & Rado Maksimović, *Risk Transfer Solutions for the Insurance Industry*, 54 ECON. ANNALS, Mar. 2009, at 57, 59.

tive risk transfer devices and specifically risk-linked securities become increasingly important.[225]

a. Basis and Credit Risk

Reinsurance is indemnity based, meaning that reinsurers provide for the primary insurer's losses up to the limit of the contract.[226] Securitization of risk varies fundamentally in this respect—the funds provided to a primary insurer from risk-linked securities will not trace the primary insurer's losses exactly.[227] As with most financial contracts, credit risk and basis risk are fundamental concerns.[228] Credit risk is the risk that the counterparty to the transaction will default on the obligation.[229] Creating a standardized exchange for these types of contracts may reduce the concern that the counterparty could default, but it increases basis risk.[230] Basis risk, then, measures the difference between the risk a firm wants covered versus the actual contractual terms—in an exchange where the variables in a contract are more rigid and transparent, a firm may not be receiving the tailored contract it may be able to procure outside of the exchange.[231] Thus, basis risk is the term used to measure the difference between the primary's loss and the external fund amount, and credit risk is the term used to measure the likelihood that a counterparty will hold up its end of the bargain.

b. Market Development

The Chicago Board of Trade, following Hurricane Andrew in 1992, first introduced insurance futures and options based on weather.[232] Though such contracts "could significantly reduce the volatility of insurer profits," typical risks of an emerging market, such as basis risk, lack of expertise, and regulatory uncertainty led to their withdrawal in 2000.[233]

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225. *See Hearing on Catastrophe Bonds*, *supra* note 155, at 4 (statement of Davi D'Agostino) ("When reinsurance prices or availability became problematic in the 1990s, insurers turned to risk-linked securities as an alternative means to spread catastrophe risk.").

226. Njegomir & Maksimović, *supra* note 224, at 67.

227. *Id.*

228. Linda L. Golden et al., *Handling Weather Related Risks Through the Financial Markets: Considerations of Credit Risk, Basis Risk, and Hedging*, 74 J. RISK & INS. 319, 321–22 (2007).

229. *Id.* at 321.

230. *Id.* at 322.

231. *Id.* Put simply, basis risk is "the risk associated with imperfect hedging of the underlying losses." Alberto Monti, *Climate Change and Weather-Related Disasters: What Role for Insurance, Reinsurance and Financial Sectors?*, 15 HASTINGS W.-NW. J. ENVTL. L. & POL'Y 151, 169 (2009). Standard & Poor defines basis risk as, "the risk that the quantum, timing or currency of the receipts from a particular mitigation strategy fail to at least cover the indemnified losses of the sponsor, for the protected perils and territories." Cameron Heath, *Rating Methodology*, *in* THE HANDBOOK OF INSURANCE-LINKED SECURITIES, *supra* note 113, at 65, 76.

232. J. David Cummins & Mary A. Weiss, *Convergence of Insurance and Financial Markets: Hybrid and Securitized Risk-Transfer Solutions*, 76 J. RISK & INS. 493, 495 (2009); Niehaus & Mann, *supra* note 175, at 601.

233. Cummins & Weiss, *supra* note 232, at 496; *see also* DAVID L. BRUMBAUGH & RAWLE O.

Early analysis, however, indicated promising benefits to hedging catastrophe risk using securities.[234]

First, hurricane (and other certain catastrophe) risk tends to be highly correlated.[235] In an independent-risks line of business, increasing the number of risks taken on alleviates pressure on the insurer.[236] In catastrophe-prone insurance markets, however, increasing the number of risks insured (homes, for example) only serves to increase the insurer's exposure.[237] The ability to shift risk to a securities market therefore "represents a departure from the bilateral trade of underwriting risks."[238] Second, early development of the weather securities market recognized other benefits. For example, transaction costs were lower than in traditional reinsurance markets (where information is extremely valuable and closely guarded) and noninsurers could provide capital to insurance markets.[239] Nevertheless, the market did not evolve until the mid 1990s.[240]

The next period of market development saw (more unsuccessful) futures contracts, options contracts, and contingent notes.[241] The contingent "Act of God" bonds were the predecessor of the cat bond.[242] The main difference between these early "Act of God" bonds and current cat bonds lies in a repayment requirement in the former and a forfeiture of capital condition in the latter.[243] 1994 saw the first cat bond, the current securitization device of choice.[244] Several other types of insurance-linked securities exist that have seen success, however, including industry loss warranties and sidecars.

c.   Industry Loss Warranties and Sidecars

Industry Loss Warranties developed in the capital markets as a response to the rising cost of reinsurance.[245] An Industry Loss Warranty (ILW) is a contract keyed to the loss of the insurance industry as a

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KING, CONG. RES. SERV., RL33060, TAX DEDUCTIONS FOR CATASTROPHIC RISK INSURANCE RESERVES: EXPLANATION AND ECONOMIC ANALYSIS 2 (2005) [hereinafter TAX DEDUCTIONS FOR CATASTROPHIC RESERVES], *available at* http://www.fas.org/sgp/crs/misc/RL33060.pdf.

234. Cummins & Weiss, *supra* note 232, at 495.

235. KUNREUTHER ET AL., *supra* note 34, at 136; *see also* Mario Jametti & Thomas von Ungern-Sternberg, *Hurricane Insurance in Florida* 4 (CESifo, Working Paper No. 2768, 2009) ("Risk pooling does not work well in the case of hurricanes because the risks in any given geographic area are not independently distributed (i.e. they are highly correlated)." (emphasis omitted)). *See* discussion *supra* Part II.B.3.

236. *See* Stone, *supra* note 114, at 233; *see also* discussion *supra* Part II.B.1.

237. Niehaus & Mann, *supra* note 175, at 602.

238. *Id.*

239. Cummins & Weiss, *supra* note 232, at 495.

240. *Id.* at 496.

241. *Id.*

242. *Id.*

243. *Id.*

244. *See id.*

245. *See, e.g.*, KUNREUTHER ET AL., *supra* note 34, at 175.

whole.[246] The buyer (an insurer or reinsurer) will pay the seller (a hedge fund) a premium, in return for which the buyer may receive funds from the seller should the ILW be triggered.[247] For example, a reinsurer pays a premium to a hedge fund for a $200 million ILW that will be triggered should the New York insurance industry as a whole suffer $20 billion in damage in 2009 due to a single hurricane.[248] The trigger for the contract is generally loss to the insurance industry as a whole or in a particular segment of the industry.[249] ILWs generally receive "insurance" treatment for tax purposes, meaning that they are considered to "reflect the transfer of insurance risk and a pooling of that risk."[250]

A second insurance-linked security developed in the 1990s is the sidecar. Sidecars securitize a share of the insurer's entire book of business rather than an excess layer (not unlike proportional reinsurance coverage).[251] In exchange for a share of the primary insurer's premiums, the wholly owned sidecar shares in all the primary's risks, and investors buy into the sidecar.[252] Sidecars are relatively simple compared to other alternative risk transfer products and have relatively lower transaction costs.[253] From an investor point of view, they allow participation in risk-linked securities on a short-term basis.[254] When reinsurance prices are high,[255] insurers can turn to sidecars for additional risk sharing while during soft market periods the insurer can turn to traditional reinsurance.[256] Finally, like other alternative risk devices, sidecars have little to no correlation with the capital markets.[257]

d. Catastrophe Bonds

This Subsection describes the general structure of a cat bond. Because this Note's Resolution proposes to eliminate taxation on investment income from cat bonds, the basics of cat bond taxation are examined. Part III of this Note delves into the details of cat bond tax treatment.

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246. *Id.*

247. *Id.*

248. *Id.*

249. TOWERS PERRIN, HURRICANE KATRINA: ANALYSIS OF THE IMPACT ON THE INSURANCE INDUSTRY 19 (2005), *available at* http://www.towersperrin.com/tp/getwebcachedoc?webc=TILL/USA/2005/200510/katrina.pdf.

250. David S. Miller, *Distinguishing Risk: The Disparate Tax Treatment of Insurance and Financial Contracts in a Converging Marketplace*, 55 TAX L. 481, 560 (2002).

251. KUNREUTHER ET AL., *supra* note 34, at 181. In other words, sidecars help distribute the entire book of risks to a certain extent, whereas the other mentioned alternative risk transfer devices only transfer risk above a certain threshold. *Id. See* discussion *supra* Part II.C.2.a, c.

252. KUNREUTHER ET AL., *supra* note 34, 181.

253. Njegomir & Maksimović, *supra* note 224, at 77–79.

254. *Id.* at 79.

255. *See* discussion *supra* Part II.C.3.

256. Njegomir & Maksimović, *supra* note 224, at 77–78.

257. *See id.* at 78.

    i.   Catastrophe Bonds Generally

A cat bond is one of the more popular alternative risk transfer vehicles.[258] The issuing of a cat bond starts with the creation of a unique type of reinsurer called a special purpose vehicle (SPV).[259] The SPV's sole purpose is to handle the cat bond.[260] The primary reinsurer's contract is backed up by the SPV through the issuance of the cat bond.[261] The SPV holds the funds in trust and puts the funds in low-risk investments.[262] Cat bonds are issued under SEC Rule 144a[263] and are therefore generally only available to qualified institutional investors rather than retail investors.[264] Generally, cat bonds offer a return of London Interbank Offered Rate (LIBOR) plus a contracted spread.[265] Finally, most cat bonds are nonindemnity based.[266]

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258.   Hommel & Ritter, *supra* note 25, at 353; Spry, *supra* note 113, at 9.

259.   Nell & Richter, *supra* note 92, at 336.
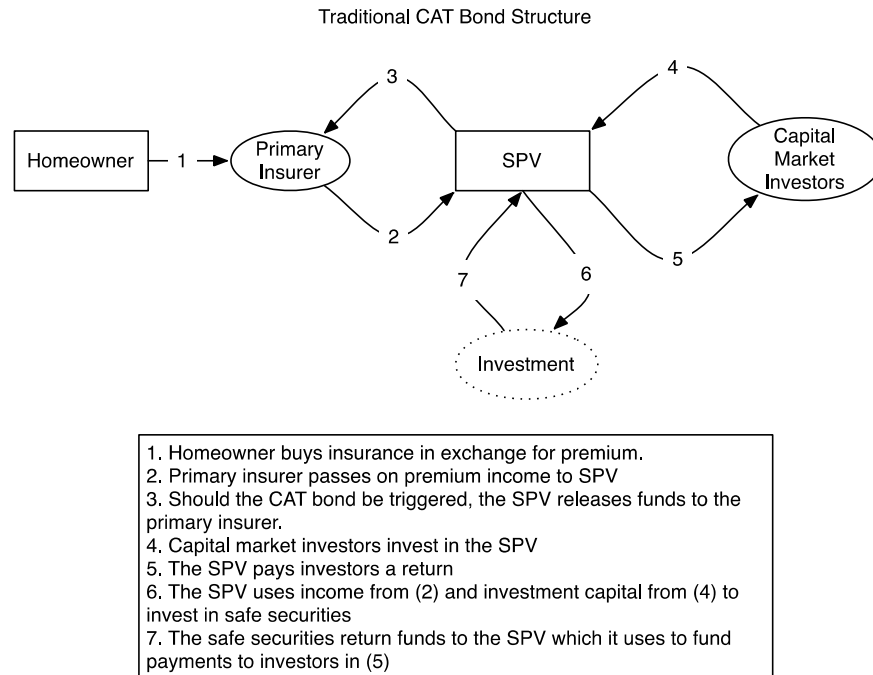
260.   *Id.*

261.   *Id.*

262.   *Id.*

263.   *See* Hommel & Ritter, *supra* note 25, at 354; *Catastrophe Bonds and Other Event-Linked Securities*, FINRA.ORG (last updated Apr. 24, 2008), http://www.finra.org/Investors/ProtectYourself/InvestorAlerts/Bonds/P038367 ("Most cat bonds are issued in what are called Rule 144A offerings, which are available only to large institutional investors and are not subject to the SEC's registration and disclosure requirements."); *see also* 17 C.F.R. § 230.144 (2009).

264.   U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-03-1033, CATASTROPHE INSURANCE RISKS: STATUS OF EFFORTS TO SECURITIZE NATURAL CATASTROPHE AND TERRORISM RISK 12 (2003); *see also* Insa Adena et al., *Insurance-Linked Securities As Part of Advanced Risk Intermediation*, *in* THE HANDBOOK OF INSURANCE-LINKED SECURITIES, *supra* note 113, at 21, 27 (displaying investor breakdown of Allianz Re's Blue Fin cat bonds as being held thirty-four percent by hedge funds, twenty-two percent by fund managers, nineteen percent by reinsurers, fourteen percent by private banks, eight percent by pension funds, and three percent by insurers).

265.   Adena et al., *supra* note 264, at 27. The California Earthquake Authority (CEA), the largest earthquake insurer in the United States, now carries ten percent of its risk through cat bonds. The CEA hopes to eventually carry thirty percent of its risks through cat bonds. CEA's February 2012 cat bond issue featured return rates 7.25% over one-year U.S. Treasury returns. Meg Green, *CEA Taps Capital Markets for Second Time in Six Months*, BESTWIRE, Feb. 10, 2012, http://insurancenews net.com/article.aspx?id=329550&type=propertycasualty; Emmanuel Durousseau, *Case Study: A Cat Bond Transaction by SCOR (Atlas)*, *in* THE HANDBOOK OF INSURANCE-LINKED SECURITIES , *supra* note 113, at 153, 160.

266.   U.S. GEN. ACCOUNTING OFFICE, GAO-03-1033, CATASTROPHE INSURANCE RISKS: STATUS OF EFFORTS TO SECURITIZE NATURAL CATASTROPHE AND TERRORISM RISK 13 (2003); *id*. at 13 n.24 ("Indemnity coverage specifies a simple relationship that is based on the insurer's actual incurred claims . . . [while] nonindemnity coverage is not related to actual or incurred claims.") While the nonindemnity character of cat bonds may present some basis risk, "investors do not have to completely understand an individual company's underwriting practices" in order to confidently invest. *Id.* at 13.

FIGURE 2: BASIC CATASTROPHE BOND TRANSACTION

Traditional CAT Bond Structure

1. Homeowner buys insurance in exchange for premium.
2. Primary insurer passes on premium income to SPV
3. Should the CAT bond be triggered, the SPV releases funds to the primary insurer.
4. Capital market investors invest in the SPV
5. The SPV pays investors a return
6. The SPV uses income from (2) and investment capital from (4) to invest in safe securities
7. The safe securities return funds to the SPV which it uses to fund payments to investors in (5)

ii.   Tax Treatment of Cat Bonds

The taxation of cat bonds can be complex. This Subsection high-lights just a few of the key provisions relevant to cat bond tax treat-ment.[267] First, there may be two or more relevant jurisdictions that im-pose taxes. Many (if not all) of the SPVs used in cat bonds are located in a low-tax or no-tax jurisdiction.[268] Many reinsurers, on the other hand, are located in the United States.[269] Second, there are generally two par-ties to a cat bond transaction whose tax liability must be examined: the SPV and the noteholders. The SPV, controlled by the reinsurer, will have premium and investment income.[270] The noteholders will generally be institutional investors deemed to have ordinary or capital-gain-character income depending on whether the investment is viewed as debt or equity for tax purposes.[271]

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267.   See *infra* Part III for a more complete analysis of tax treatment for cat bonds.
268.   *See* Nell & Richter, *supra* note 92, at 326; JOINT COMM. ON TAXATION (JCX-85-07), *supra* note 167, at 6; *see also Alien Reinsurers Big in the U.S.*, POST ONLINE (London), Sept. 19, 2002, *availa-ble at* http://www.postonline.co.uk/post/news/1253617/alien-reinsurers-us (subscription required).
269.   *See* JOINT COMM. ON TAXATION (JCX-85-07), *supra* note 167, at 7.
270.   *See generally* KUNREUTHER ET AL., *supra* note 34, at 177.
271.   *Catastrophe Bonds and Other Event-Linked Securities*, *supra* note 263.

III. ANALYSIS

This Part examines the nature of the reinsurance cycle problem and the merits of proposed solutions. Section A analyzes the nature of the capacity shortage problem and conducts a head-to-head comparison of theoretical costs and benefits of traditional reinsurance and alternative risk transfer, including current tax treatments. Section B examines the merits of various federal policies. Section C looks at alternative risk transfer devices and concludes that cat bonds may present the best option.

A. Theoretical Framework

Before examining proposals and solutions to insurance industry and homeowner woes, a closer look at the nature of the problem is warranted. As described in Part II, homeowner premiums in catastrophe-prone areas are generally high and appear to rise and fall in a cyclical pattern. An explanation for that pattern appears below.

1. How Does the Cyclical Nature of the Insurance Market Work and How Does It Affect Premiums?

One of the most popular explanations for the fluctuating prices in the underwriting cycle is the Capacity Constraint Theory.[272] The theory holds that large shocks to net worth cause decreased industry capacity.[273] The high costs of obtaining additional external capital (because reserves are depleted) prevent prices from leveling out quickly.[274] As a result, the supply of insurance decreases, causing prices to rise.[275] When new capital and profits are retained, supply increases, causing premiums to decrease to stable (and more affordable) levels.[276] In effect, the difficulty in obtaining new capital after a catastrophe occurs prevents prices from remaining at normal levels.[277] Put another way, should "financial capital rapidly adjust[], then [the industry] would never actually observe a ca-

272. Shaun S. Wang et al., *U.S. Property-Casualty: Underwriting Cycle Modeling and Risk Benchmarks*, 5 VARIANCE 91, 92–93 (2011); Anne Gron, *Capacity Constraints and Cycles in Property-Casualty Insurance Markets*, 25 RAND J. ECON. 110, 111 (1994) (describing "capacity-constraint theory" as viewing "insurance markets as characterized by real frictions and imperfections that cause underwriting cycles by temporarily reducing the industry's capacity to insure risks") [hereinafter Gron, *Capacity Constraints and Cycles*]; *see also* Neil A. Doherty & James R. Garven, *Insurance Cycles: Interest Rates and the Capacity Constraint Model*, 68 J. BUS. 383 (1995); Anne Gron, *Evidence of Capacity Constraints in Insurance Markets*, 37 J.L. & ECON. 349 (1994) [hereinafter Gron, *Evidence of Capacity Constraints*].
273. Gron, *Capacity Constraints and Cycles*, *supra* note 272, at 112.
274. *Id.*
275. *Id.*
276. *Id.*
277. *See* Gron, *Evidence of Capacity Constraints*, *supra* note 272, at 357.

pacity shortage."[278] The cost of obtaining capital, however, drives prices upward.[279]

There are other theories that attempt to explain the changes in insurance and reinsurance prices. The Risky Debt Hypothesis assumes that "buyers are concerned with financial quality (i.e., financial strength) such that 'safer' insurers command high prices . . . [and] that each insurer has its own optimal capital structure."[280] Prices following shocks are difficult to predict under this model.[281] Regardless of which model best explains the insurance and reinsurance industry pricing cycles, the volatility of homeowner premiums remains undisputed. A key component of both theories is the access to capital when catastrophes occur.

2. *Which Is Better on a Theoretical Level: Traditional Reinsurance or Alternative Risk Transfer?*

A fundamental question to resolve in remedying the capacity shortage is whether reinsurance is not simply the best mechanism to spread primary insurer risk.[282] As described above, both the "Capacity Constraint" and "Risky Debt" theories demonstrate that eventually reinsurance prices recover.[283] Should that be the ultimate resolution after a catastrophe occurs, or is there room for alternative risk transfer products to fill up capacity shortages?[284] The argument against nontraditional hedging can be seen in the entry of many new reinsurers in the reinsurance market following Hurricane Andrew in 1990.[285] The argument holds that "the attractiveness of insurance risk securitization cannot be convincingly explained via capacity shortages in the reinsurance industry."[286] While reinsurance remains the dominant method of hedging risk, alternative risk transfer (ART) is playing an increasing role. Generally, ART is seen as a supplement to traditional reinsurance. This Subsection highlights the advantages of ART over reinsurance.

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278. *Id.*

279. Mary A. Weiss & Joon-Hai Chung, *U.S. Reinsurance Prices, Financial Quality, and Global Capacity*, 71 J. RISK & INS. 437, 442 (2004).

280. *Id.* at 442–43.

281. *Id.* at 443 ("Prices may decrease due to the increased insolvency risk associated with a lower capital level [or] prices may decrease (and capital costs increase) after a loss shock relating to reserving errors in particular because such errors introduce more uncertainty about the adequacy of the insurer's reserves.").

282. *See* Nell & Richter, *supra* note 92.

283. *See* discussion *supra* Part III.A.1.

284. *See* Nell & Richter, *supra* note 92, at 328.

285. *See id.*

286. *See id. But see* Hommel & Ritter, *supra* note 25, at 343–44 ("[T]he insurance industry's key challenge since the early 1990s had been the search for alternative means of reinsuring cat risks. The world's equity and fixed income markets . . . provide the capability and aspiration to absorb some of these exposures.").

a. Moral Hazard and Basis Risk Tradeoff

Moral hazard between a policyholder and a primary insurer is defined as encouraging risky behavior because the insurance company will pick up the tab.[287] Between the primary insurer and the reinsurer, a similar concern arises. Perhaps the primary insurer "create[s] greater risks than it otherwise would, now that the insurer knows it is protected against large losses."[288] *Ex ante* the primary insurer could increase the number of policies written in a particular hazard-prone area because it can collect premiums without the responsibility of paying out on the loss.[289] *Ex post* the primary insurer could be more forgiving toward its insureds because it is only partially responsible for paying out on the loss.[290]

Moral hazard of this variety is practically nonexistent in securitized alternative risk transfer devices.[291] Many securitization transactions are triggered on a variable that is only *correlated* with losses and does not actually trace the actual losses experienced by the individual primary insurer.[292] For example, a market loss index trigger limits a primary insurer's ability to engage in moral hazard only to the extent that the primary insurer participates in the market.[293] Where the trigger is parametric (i.e., a Category 5 hurricane triggers the contract), moral hazard is eliminated in its entirety.[294] In other words, primary insurers' behavior cannot "trigger" risk-linked securities because these are generally tied to variables outside of the primary insurer's control.

Where compensation for shifted losses occurs, however, and the recovery amount is *not* keyed to the primary insurer's specific losses, basis risk creeps up.[295] Nevertheless, basis risk can cut both ways. For example, an event may cause losses while being of insufficient strength to activate a parametric trigger. On the other hand, an event may be of sufficient strength to activate a trigger, but it may not have caused large

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287. *See* discussion *supra* Part II.B.4.

288. David C. Croson & Howard C. Kunreuther, *Customizing Reinsurance and Cat Bonds for Natural Hazard Risks* 6 (Wharton Fin. Insts. Ctr., Working Paper No. 99-34, 1999), *available at* http:// fic.wharton.upenn.edu/fic/papers/99/9934.pdf.

289. *Id.* at 7.

290. *Id.*

291. *See* Nell & Richter, *supra* note 92, at 329.

292. *See id.* (noting that market loss index and parametric triggers do not incur the moral hazard concern). *But see* KUNREUTHER ET AL., *supra* note 34, at 177 (defining an exception, the indemnity based trigger, as being "based on the actual losses of the sponsor").

293. *See* Nell & Richter, *supra* note 92, at 329 (explaining that an individual insurer can activate an industry-based trigger only insofar as they have market share).

294. *See id.*; *see also* ERIK BANKS, ALTERNATIVE RISK TRANSFER 119 (2004) (noting that "since the marketplace is highly bespoke, the insurer can design its preferred note structure: assuming greater basis risk but eliminating moral hazard").

295. *See* discussion *supra* Part II.D.4.a. The variable determining if the primary insurer is owed on a contract is not the primary's own losses, but rather some other defined event or measure. Therefore, the primary insurer's hedging is less perfect because it may receive more or less compensation than it actually needs.

losses to the primary insurer that would require risk-transferred compensation.[296]

b. Lower Transaction Costs

Transaction costs in the insurance industry are generally much higher than those in the financial markets.[297] Many alternative risk transfer products have low transaction costs.[298] Where alternative risk transfer is used in a "one-off" manner, however, transaction costs could be prohibitive.[299] Transaction costs will decrease as the process of securitization becomes smoother due to internalized expertise and standardization of procedure.[300] Specifically, index-linked catastrophe bonds have low transaction costs because they are "standardized, transparent instruments, which can be traded anonymously and inexpensively on an exchange."[301]

c. Diminished Default Risk

Default (or "credit" risk) is the chance that the counterparty to the transaction defaults.[302] The risk of default is high for a primary insurer in catastrophe scenarios compared to other lines of insurance because of "the potential of a regional accumulation of losses" and the highly correlated nature of catastrophe losses.[303] A similar default risk appears at the reinsurance level. Where a reinsurer covers several primary insurers that are affected by correlated catastrophe losses, that reinsurer's default risk increases.[304] Funds for cat bonds and other insurance-linked securities, on the other hand, are collected at the outset of the contract, which means that the funds already exist to distribute should the security be triggered.[305] Alternative risk transfer devices avoid many of traditional reinsurance's costs while creating some unique benefits. Of course, al-

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296. *See* Nell & Richter, *supra* note 92, at 329.

297. Gollier, *supra* note 107, at 17 (noting that transaction costs for many insurance lines amount to up to thirty percent of the premium while in financial markets transaction costs rarely exceed two or three percent).

298. KUNREUTHER ET AL., *supra* note 34, at 176 (noting that ILWs "have relatively low transaction costs for both buyers (insurers or reinsurers) and sellers (e.g., hedge funds)").

299. JENS VERNER ANDERSEN, ORG. FOR ECON. CO-OPERATION & DEV., RISK TRANSFER MECHANISMS: CONVERGING INSURANCE, CREDIT AND CAPITAL MARKETS 17 (2002), *available at* http://www.oecd.org/finance/financialmarkets/1939376.pdf (noting that "market analysts estimate the one-off costs of a catastrophe bond securitisation to be around USD 2 million").

300. REINSURANCE: PRINCIPLES AND STATE OF THE ART 107 (Andreas Schwepcke ed., 2d ed. 2004).

301. MARTIN F. GRACE ET AL., GA. STATE UNIV. CTR. FOR RISK MGMT. & INS. RESEARCH, REGULATING ONSHORE SPECIAL PURPOSE REINSURANCE VEHICLES 7 (2001), *available at* http://rmictr.gsu.edu/Papers/Regulating_SPRVs_5-01.pdf.

302. *See supra* Part II.D.4.a.

303. Nell & Richter, *supra* note 92, at 330; *see also supra* Part II.B.3.

304. Nell & Richter, *supra* note 92, at 330.

305. *Id.*

ternative risk transfer is not a perfect solution, but it appears to be a ca-
pable and encouraging supplement to traditional reinsurance.

3. Current Reinsurer Tax Policy Is Inefficient

Traditional reinsurance remains the dominant method of dealing
with catastrophe risks at the secondary insurer level.[306] The current mod-
el of catastrophe insurance[307] and the reinsurance market cycle,[308] howev-
er, harbor an inability to fund losses from catastrophe risks.[309] While tax-
payers often foot the bill for federal aid to catastrophe-stricken areas,
taxpayers also fund reinsurers taking advantage of offshore "captive" in-
surers.[310] Substantial tax revenue is lost in the current model.

a. Reinsurers Currently Enjoy a Substantial Federal Subsidy Through Preferential Treatment of Off-Shore Captives

Current law allows for tax avoidance and revenue loss where for-
eign parent companies and foreign captive reinsurers are introduced to
the traditional model.[311] The first, and lesser, problem arises when a
United States primary insurer contracts with an unaffiliated foreign rein-
surer. The primary insurer still takes the § 832 deduction for the amount
of premiums it cedes to the reinsurer.[312] The foreign reinsurer, however,
is only nominally taxed on the premiums it receives from the primary in-
surer—the Code imposes a one percent excise tax on premiums ceded to
foreign reinsurers compared to the thirty-five percent tax rate that would
be imposed on premiums ceded to a domestic reinsurer.[313] Because the
foreign reinsurer is a third party, the primary insurer ceding premiums
still loses the economic opportunity of the funds ceded.[314]

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306. *See* Adena et al., *supra* note 264, at 23.
307. *See* discussion *supra* Part II.A.1–2.
308. *See* discussion *supra* Part II.C.3.
309. *See* discussion *supra* Part II.A.3.
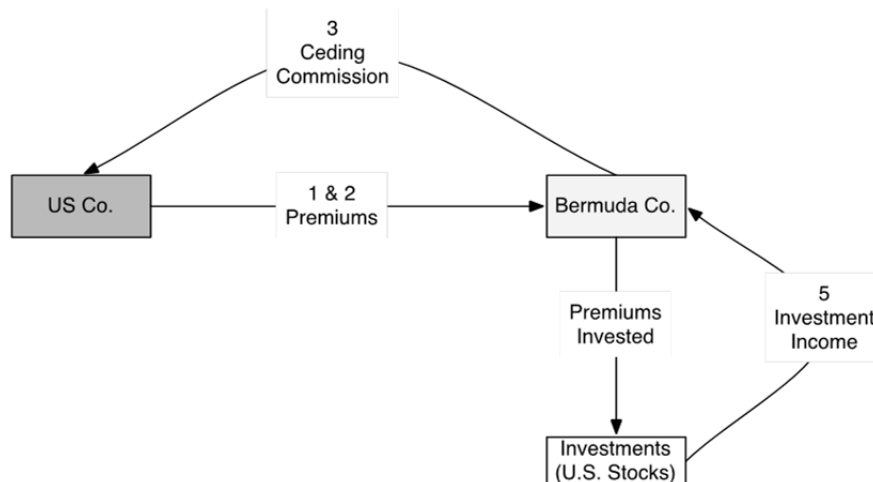310. *See* discussion *supra* Part II.C.4.
311. JOINT COMM. ON TAXATION, JCX-35-10, PRESENT LAW AND ANALYSIS RELATING TO THE
TAX TREATMENT OF REINSURANCE TRANSACTIONS BETWEEN AFFILIATED ENTITIES 6 (2010) [here-
inafter JOINT COMM. ON TAXATION (JCX-35-10)], *available at* http://www.jct.gov/publications.html?
func=startdown&id=3690.
312. I.R.C. § 832 (2006); *see* discussion *supra* Part II.C.4.
313. I.R.C. §§ 11, 4371(3).
314. *See* JOINT COMM. ON TAXATION (JCX-35-10), *supra* note 311.

FIGURE 3. LOW/NO TAX JURISDICTION PARENT OWNS SUBSIDIARY PRIMARY INSURER AND REINSURER

3
Ceding Commission

US Co. — 1 & 2 Premiums → Bermuda Co.

Premiums Invested

5 Investment Income

Investments (U.S. Stocks)

The larger problem arises where the reinsurer is not only a foreign reinsurer but also an affiliated reinsurer. These entities are commonly called "captive" insurance companies.[315] The foreign reinsurer still pays the one percent excise tax rather the thirty-five percent rate imposed on U.S. corporations.[316] The true problem arises with the *affiliated* nature of the reinsurer, however. Because the entities are related, the economic opportunity associated with the premiums ceded *is not lost*.[317] In other words, by paying a one percent excise tax, the related corporations avoid paying a thirty-five percent corporate income tax on premiums ceded, *and* retain the ability to invest those funds.[318] Undoubtedly these captive reinsurers take advantage of the securities trading safe harbor to eliminate paying tax on investment income,[319] and otherwise may invest in tax-free investments like municipal and state bonds.[320] The related entities (controlled by a foreign parent corporation) retain the premium-ceding deduction benefit (deducting billions in premiums from taxable income)

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315. *See* Hirsh & Lederman, *supra* note 168, at 168. Offshore captives benefit greatly from tax treaties. For example, Canada recently concluded a tax treaty with Bermuda, resulting in an increase in Canadian captives established in Bermuda. Meg Green, *Following Tax Pact, Bermuda Wooing Canadian Captives*, BESTWIRE (Dec. 9, 2011), http://eurfpn.advisen.com/articles/article162827021-836819401.html.

316. I.R.C. §§ 11, 4371(3).

317. JOINT COMM. ON TAXATION (JCX-35-10), *supra* note 311, at 5–6, 21–23.

318. *Id.*

319. The securities trading safe harbor incentivizes foreign investment in the United States. Even if funds are managed by individuals working in the United States, the safe harbor allows income from these sources to be treated as though not earned from United States sources, exempting them from taxation. JOINT COMM. ON TAXATION (JCX-85-07), *supra* note 167, at 13; *see also* JOINT COMMITTEE ON TAXATION (JCX-35-10), *supra* note 311, at 11.

320. *See* I.R.C. § 103.

and the business opportunity associated with the premiums ceded (investment opportunity and income) for the price of a one percent excise tax.[321] From a revenue-collecting standpoint, the § 832 deduction functions as a tax avoidance channel. From a tax policy perspective, the deduction subsidizes the reinsurance industry.

b. The Current Federal Subsidy of Reinsurance Results in Substantial Revenue Loss

The § 832 deduction causes substantial annual revenue loss. The only tax collected by the United States in this transaction is the one percent excise tax levied on foreign reinsurance contracts[322] and a regular tax on the commission received by the primary insurer.[323] Revenue collected under the excise tax amounted to $424, $443, and $463 million in 2008, 2009, and 2010, respectively.[324] The excise tax represents one percent of foreign reinsurance policies issued, so simple multiplication by one hundred determines the value of the reinsurance contracts leaving the U.S. tax jurisdiction. AM Best reports that 2008 saw "net cessions of reinsurance offshore by U.S. companies [in the amount] of $48.8 billion."[325] Although corporations undoubtedly have effective tax rates lower than the marginal rate, the result of $48.8 billion of taxable corporate income leaving a tax jurisdiction where the marginal tax rate is 35% results in a revenue loss of $17 billion.

c. Insurance Companies May Be Using Off-Shore Captives to Engage in Earnings Stripping

The § 832 deduction can also be used as an "earnings stripping" mechanism.[326] Earnings stripping occurs when a U.S. subsidiary of a low-tax jurisdiction parent corporation is capitalized with debt.[327] Earnings by the U.S. subsidiary are then funneled to the foreign parent corpora-

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321. *See* JOINT COMM. ON TAXATION (JCX-35-10), *supra* note 311.
322. I.R.C. § 4371(3).
323. *See* JOINT COMM. ON TAXATION (JCX-35-10), *supra* note 311, at 6.
324. *SOI Tax Stats—Excise Tax Statistics*, IRS.GOV, http://www.irs.gov/pub/irs-soi/histab20.xls (last update July 14, 2011) (data from "Table 20. Federal Excise Taxes Reported to or Collected by the Internal Revenue Service, Alcohol and Tobacco Tax and Trade Bureau, and Customs Service, by Type of Excise Tax, Fiscal Years 1999-2010").
325. JOINT COMM. ON TAXATION (JCX-35-10), *supra* note 311, at 7. "[United States insurers] recorded $492.9 billion in directly written premiums in 2008. . . . Such insurers ceded reinsurance of $346.5 billion to affiliates, and $67.0 billion to non-affiliates, while assuming $320.3 billion of reinsurance from affiliates and $44.4 billion from non-affiliates. Thus, net premiums written totaled $444.1 billion." *Id.* This demonstrates the dominance of affiliated reinsurers in the current system. It is difficult to pinpoint whether the motivations behind these affiliated transactions are due to information asymmetries (making an affiliated reinsurer the best option regardless of other benefits), or whether these occur predominantly to take advantage of tax-free capital shifting.
326. *Id.* at 21, 23–25; *see also* I.R.C. § 163(j) (defining the mechanical earnings stripping rules).
327. JOINT COMM. ON TAXATION (JCX-35-10), *supra* note 311, at 20–21.

tion as "interest" payments.[328] The U.S. subsidiary takes advantage of interest deductions[329] while the foreign parent corporation receives United States-based earnings in its favorable tax jurisdiction.[330] Before the enactment of the mechanical limitations on earnings stripping in § 163(j), courts employed a traditional debt versus equity analysis.[331] More recently, however, a set of mechanical rules have been implemented to combat earnings stripping.[332]

The Obama Administration and others argue that a U.S. corporation insuring itself with a captive insurer located in a low-tax jurisdiction can look suspiciously similar to traditional earnings stripping.[333] Instead of funneling "interest" payments to a lender under § 162, a United States-based insurer cedes premiums to a reinsurer under § 832.[334] The earnings stripping process and the affiliated § 832 transaction look nearly identical—the reinsurance expense deduction merely replaces the interest expense deduction.[335] The § 832 deduction therefore serves as a subsidy to the reinsurance industry *and* funnels profits to low- or no-tax jurisdiction affiliated entities.[336]

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328. *Id.*
329. *See* I.R.C. § 162 (detailing the "ordinary and necessary [business] expense" deduction).
330. JOINT COMM. ON TAXATION (JCX-35-10), *supra* note 311, at 21 (explaining that "foreign-owned domestic corporations may seek to use certain [tax] treaties to facilitate earnings stripping transactions without having their deductions offset by U.S. withholding taxes").
331. For example, in *Nestle Holdings, Inc. v. Commissioner*, the Tax Court found the intention to create debt, the reasonable expectation of repayment, and the economic reality of the transaction to require their holding that the "related-party loans . . . were, in substance, debt and not capital contributions." Nestle Holdings, Inc. v. Comm'r, 70 T.C.M. (CCH) 682, 705 (1995), *aff'd on other grounds*, 152 F.3d 83 (2d Cir. 1998). In *Laidlaw Transportation, Inc. v. Commissioner*, the Tax Court held that, among other factors, the lack of enforcement of maturity dates, the lack of cash flow with which to pay obligations under the agreement, the lack of a definite obligation to repay, and the overall thin capitalization of the recipient of funds required a holding that "the advances . . . are equity and not debt . . . [t]hus [the recipient] may not deduct the interest at issue." Laidlaw Transp. Inc. v. Comm'r, 75 T.C.M. (CCH) 2598, 2633 (1998). *See* discussion *infra* Part III.C.3.c.
332. I.R.C. § 163(j).
333. *Cf.* JOINT COMM. ON TAXATION (JCX-35-10), *supra* note 311, at 4 & n.5 (describing the use of captive insurance to avoid taxation).
334. *Id.* at 21 ("The earnings stripping rules generally apply to interest, but do not apply to other deductible payments such as insurance or reinsurance premiums.").
335. *See id.*
336. There is some ability to prevent gross abuses of these provisions. Section 845 allows the Secretary of the Treasury to disallow or re-characterize a deduction should the "reinsurance contract [have] a significant tax avoidance effect." I.R.C. § 845(b). Nevertheless, case law on this issue indicates that even on a case-by-case basis, where only the most egregious violators are pursued, courts are loath to find a tax avoidance purpose. *See* Trans City Life Ins. Co. v. Comm'r, 106 T.C. 274 (1996); Kelleher & Horkan, *supra* note 202, at 162.

d. Current Reinsurer Tax Policy Encourages Violation of Risk-
Shifting and Risk Distribution Principles

The § 832 deduction, when used with affiliated entities, violates the
touchstones of risk-shifting and risk-distribution.[337] Perhaps these trans-
actions are *not* insurance at all[338]—as the same group of commonly con-
trolled entities suffers the loss and pay out on those losses.[339] The Inter-
nal Revenue Service, until 2001, disallowed a § 162 "Ordinary and
Necessary" business expense for such transactions under the economic
family theory, concluding that these transactions fail to shift risks or bur-
dens and therefore cannot not constitute insurance under the Regula-
tions.[340] The economic family theory held that "the insuring parent cor-
poration and . . . the wholly owned 'insurance' subsidiary, though
separate corporate entities, represent one economic family with the re-
sult that those who bear the ultimate economic burden of loss are the
same persons who suffer the loss."[341] In 2001, the IRS decided that, be-
cause "[n]o court, in addressing a captive insurance transaction, has fully
accepted the economic family theory set forth in Rev. Rul. 77-316," fu-
ture transactions would be addressed on a case-by-case basis.[342] Current-
ly, then, earnings-stripping using §§ 832 and 162 happens with little chal-
lenge from the government. Reinsurance tax policy therefore fails to
remedy catastrophe capacity shortages while simultaneously encouraging
tax avoidance.

B. Alternative Federal Proposals

Various proposals purport to remedy the homeowner insurance
premium crisis, suggesting changes in the type of coverage and the tax
treatment of primary insurers. While these proposals may result in bene-
fits to homeowners, they fail to target the underlying issue: insurer capac-
ity. This Section focuses on the merits and detractors of proposals at the
federal level.

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337. Helvering v. Le Gierse, 312 U.S. 531, 539 (1941) (holding that the "elements of risk-shifting
and risk-distributing are essential" to insurance); Rev. Rul. 2001-31, 2001-1 C.B. 1348 (transitioning
the IRS method of challenging captives from the "economic family theory" to a "facts and circum-
stances" approach).
338. Hirsh & Lederman, *supra* note 168, at 169–70.
339. *Id.*
340. *See* Rev. Rul. 2001-31, 2001-1 C.B. 1348; *see also* Treas. Reg. § 1.162-1(a).
341. Rev. Rul. 77-316, 1977-2 C.B. 53, 54.
342. Rev. Rul. 2001-31, 2001-1 C.B. 1348.

1. *Combined Federal Flood and Wind Insurance Programs Are Not Feasible*

Federal combined flood and wind insurance programs present an attractive policy solution to the insurance scarcity problem in Florida and the Gulf Coast. One natural concern on any sort of federal program is an opportunism or abuse problem. Private insurers serve as gatekeepers of risk by deciding whether risks are insurable.[343] Where the private market withdraws because the risks are uninsurable, this may be a sign that the government should not assume those risks either. H.R. 3121, a bill to "restore the financial solvency of the national flood insurance program and to . . . make available multiperil coverage," provides for some limits to ensure the government does not blindly take on massive risks.[344] For example, to be eligible for the combined program, communities must adopt "mitigation measures."[345] City councils may be required to issue and monitor compliance with wind mitigation codes.[346] Combining coverage solves one of the thornier problems in catastrophe insurance but puts the government in an unenviable position.

The withdrawal of private insurers from Florida and the Gulf Coast is mainly a function of the inability to sustain a profitable business in these high-risk areas.[347] The federal government faces the same challenges. H.R. 3121 expands the National Flood Insurance Program's coverage to include multiperil coverage—it would cover damage caused by a hurricane without determining the essential or predominant cause.[348] But even without taking on substantial additional risk by issuing combined coverage, the NFIP's finances are already in poor health.[349] The Federal Emergency Management Association (FEMA) is authorized to borrow

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343.   *See* BAKER, *supra* note 105, at 10.

344.   *See* H.R. 3121, 110th Cong. § 7(a)(2)(c)(2) (2007) ("Multiperil coverage pursuant to this subsection may not be provided in any area . . . unless an appropriate public body shall have adopted adequate mitigation measures . . . which the Director finds are consistent with the criteria for construction described in the International Code Council building codes relating to wind mitigation.").

345.   *See generally id.*

346.   GAO-08-504, *supra* note 209, at 14.

347.   *See* discussion *supra* Part II.A.

348.   GAO-08-504, *supra* note 209, at 6–7. A flood of litigation following the unprecedented storm surge of Katrina turned on the issue of whether damage was caused by flooding (usually not covered) or windstorm (generally covered), or both concurrently (coverage depends on the policy). *See generally* Joseph Lavitt, *The Doctrine of Efficient Proximate Cause, The Katrina Disaster, Prosser's Folly, and the Third Restatement of Torts: Cracking the Conundrum*, 54 LOY. L. REV. 1, 1 (2008) ("Courts across the country have been unable to agree whether an insurer of real property is liable for loss caused by a combination of covered and excluded risks. In some jurisdictions, courts have found the loss covered, borrowing from analytical models of concurrent causation used to assign legal responsibility for tortious conduct. In other jurisdictions, courts have found the loss excluded, owing to disagreement over resorting to tort models of causation to inform contract construction. Unable to agree upon a well-suited paradigm to assess the responsibility of insurers in instances of concurrent causation, courts nationwide have applied indistinguishable contractual provisions inconsistently and unpredictably, repetitively reaching contradictory results on practically identical facts.").

349.   *See* Dominic Spinelli, Note, *Reform of the National Flood Insurance Program: Congress Must Act Before the Next Natural Disaster*, 39 REAL EST. L.J. 430, 441–43 (2011).

funds from the Treasury to keep NFIP solvent, and such outstanding debt was $17.3 billion in 2007.[350] The Government Accountability Office (GAO) notes that "it is unlikely that FEMA can repay a debt of this size and pay future claims in a program that generates premium income of about $2 billion per year."[351] Profitability is not the goal of federal insurance programs, but the private market's inability to profit in these areas is mirrored in the massive debt federal programs take on to pay claims. The NFIP therefore appears a poor candidate to take on additional risk.

Finally, where the federal government spends billions of dollars directly to rebuild catastrophe-stricken areas, taxpayers heavily subsidize the risky decision of millions to live in these areas. Some would argue that the government and taxpayers should leave these victims of catastrophe to their own devices—if you choose to live in a risky area, be ready to bear the consequences.[352] Governmental regulation, such as zoning laws and other restrictions, would be equally improper under this view.[353] Such a policy shift is unlikely, however. For the foreseeable future, where taxpayers in nonrisky areas subsidize the catastrophe costs of taxpayers living in risky areas, interregional equity is a concern.[354]

2. *Tax-Deferred Catastrophe Reserves*

As described above, only unpaid loss reserves may be deducted from insurer income.[355] Tax law and accounting principles generally only allow deductions for losses that have already happened.[356] Catastrophes strain insurer reserves as it is, and current policy chips away at any long-term reserves by annually taxing them. To remedy the frictional costs of maintaining large catastrophe reserves, elimination of the tax on long-term reserves has been proposed.[357] The idea is simply to stop taxing long-term catastrophe reserves. This allows insurers to build up long-term reserves and should increase solvency in the event of a catastrophe.

Despite the current unfavorable treatment of long-term reserves, in 2007 the New York Insurance Department proposed a regulation *requiring* insurers to maintain catastrophe reserves.[358] Because insurance is regulated on the state level, but insurers are subject to taxation on the federal level, "PIANY has supported taxation changes on the federal

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350. GAO-08-504, *supra* note 209, at 8.
351. *Id.*
352. Trebilcock & Daniels, *supra* note 130, at 90.
353. *Id.* See *id.* at 90–91, for a libertarian framework on disaster management. Local governments could offer different packages of limited assistance, such as public investments in damage-mitigating technologies. Assuming perfect information, citizens could flock to the locale offering their desired level of autonomy. *Id.* at 90–91.
354. *Id.* at 93.
355. *See supra* Part II.D.2; *see also* I.R.C. § 832(b)(5) (2006).
356. *See* I.R.C. § 832; TAX DEDUCTIONS FOR CATASTROPHIC RESERVES, *supra* note 242, at 3.
357. *See* TAX DEDUCTIONS FOR CATASTROPHIC RESERVES, *supra* note 242, at 9–10.
358. Janet Sanders & Betty Flood Morrow, *Dinallo Proposes Disaster Reserve Catastrophe Fund*, INS. ADVOC., Oct. 22, 2007, at 4, 6.

level to provide carriers with a financial cushion for catastrophic events."[359] The reaction at the federal level has been sluggish, but there have been a few proposals.[360]

These proposals may be a step in the right direction, yet they fall short of fixing the *capacity* problem that the industry currently faces. Creating an incentive to maintain a long-term fund in case of multibillion dollar catastrophes serves only as an internal mechanism to stretch current capacity. No "new" money enters the picture—tax deferral merely changes the labels on the pots of money. Rather than calling a certain dollar amount "profit" and distributing it to shareholders, an insurer now calls it a "catastrophe reserve" and keeps the money.[361] The obvious disadvantage of this approach is that it eliminates a current source of "profits," which in turn negatively affects the bottom line.

Finally, encouraging larger reserves implicates the legal issue of whether an insurer can be liable to its policyholders (in the case of a mutual insurer) or shareholders (in the case of a stock insurer) under a violation of a fiduciary duty or other law.[362] In *Hill v. State Farm Mutual Automobile Insurance Co.*, the plaintiff-policyholders' State Farm policies stated that, at the board of directors' discretion, part of an insured's premium could be refunded should "claim costs [be] less than anticipated."[363] The board of directors occasionally (but not annually) issued dividends in various amounts throughout the disputed period.[364] In suing the board of directors, "Plaintiffs alleged that State Farm breached its duty [to policyholders] by amassing surpluses far in excess of what State Farm reasonably needed to meet its present and future insurance obligations, thereby reducing dividends."[365]

No matter how large the surplus, any dividends due policyholders are determined by the insurance contract because that is the only embodiment of policyholder rights.[366] Thus, courts focus on the relation of the policyholder to the fund, as opposed to the size of the fund.[367] Where the relationship indicates discretion on the part of the insurer, the policyholder cannot compel dividend distribution.[368] Depending on the lan-

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359. *Id.* at 6. PIANY is the New York branch of the Professional Insurance Agents association.
360. *See, e.g.*, S. 926, 110th Cong. (2007); H.R. 2668, 109th Cong. (2005).
361. Agnew, *supra* note 127, at 741.
362. Hill v. State Farm Mut. Auto. Ins. Co., 83 Cal. Rptr. 3d 651, 663 (Cal. Ct. App. 2008) (distinguishing mutual insurers from stock insurers).
363. *Id.* at 658 (internal quotation marks omitted).
364. *Id.* at 665.
365. *Id.* at 658 (alleging breach of contract, breach of the covenant of good faith and fair dealing, fraud, negligent misrepresentation, and violation of California's Consumers Legal Remedies Act and Unfair Competition Law) (internal quotation marks omitted).
366. Kimberly-Clark Corp. v. Factory Mut. Ins. Co., 566 F.3d 541, 548 (5th Cir. 2009); Churella v. Pioneer State Mut. Ins. Co., 671 N.W.2d 125, 129 (Mich. Ct. App. 2003); Boynton v. State Farm Mut. Auto. Ins. Co., 429 S.E.2d 304, 307 (Ga. Ct. App. 1993). The contract is the only embodiment of policyholder rights. *See generally Hill*, 83 Cal. Rptr. 3d at 681–82.
367. *Hill*, 83 Cal. Rptr. 3d at 665.
368. *Id.*

guage in the contract, then, policyholders may or may not have success in bringing a suit against the insurer.[369] Any proposals incentivizing or requiring catastrophe reserves should therefore include provisions that guide courts as to how to adjudicate policyholder claims for dividends against those reserves.

3. Ex Post *Tax-Free Bonds*

Although this Note focuses on *ex ante* protection against catastrophe losses, the Federal Government provides substantial financial support to catastrophe-stricken areas in the form of tax-free bonds *after* catastrophes occur.[370] Because the resolution of this Note adopts a tax-free bond approach to *ex ante* catastrophe protection, an examination of the government's *ex post* strategies is worthwhile.

Tax-exempt bonds usually subsidize infrastructure projects by state and local governments.[371] Tax-exempt bond financing occurs *ex ante*.[372] Generally speaking, financial losses from disasters are not as predictable beforehand as infrastructure building. The resolution urges that the federal government should take the opportunity to incentivize collateralization of catastrophe losses *ex ante.*

Following catastrophes in recent years, Congress has reacted in part by authorizing tax-exempt bonds. For example, after the attacks of September 11, 2001, Congress created so-called "New York Liberty" bonds.[373] These bonds financed "qualified project costs," defined as "the cost of acquisition, construction, reconstruction, and renovation of (i) nonresidential real property and residential rental property . . . located in the New York Liberty Zone, and (ii) public utility property . . . located in the New York Liberty Zone."[374] These bonds were thus available for any private persons to rebuild nonresidential property and residential rental property. In the aggregate, up to $8 billion in reconstruction was authorized.[375]

After the 2005 hurricane season, Congress enacted a similar provision for bonds financing reconstruction in Alabama, Louisiana, and Mississippi.[376] Conditions on these so-called "GO Zone" bonds were different from the Liberty Zone bonds in that they could apply to "owner-

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369. *Compare* Ohio State Life Ins. Co. v. Clark, 274 F.2d 771, 778 (6th Cir. 1960) (construing contract language as giving the policyholders a "proprietary right" in the surplus), *with Hill*, 83 Cal. Rptr. 3d at 675 (declining to construe contract language as giving policyholders "a right . . . to any amount of dividends at any particular time").

370. *See* discussion *supra* Part II.D.2.

371. *See, e.g.*, Cong. Budget Office & Joint Comm. on Taxation, Pub. No. 4005, Subsidizing Infrastructure Investment with Tax-Preferred Bonds 9 (2009).

372. *Id.* at 17.

373. I.R.C. § 1400L(d) (2006).

374. *Id.* § 1400L(d)(4).

375. *Id.* § 1400L(d)(3)(A).

376. *Id.* § 1400(N)(a)(2)(B).

occupied residences."[377] These bonds could finance up to $4.5 billion in Louisiana, $2.25 billion in Mississippi, and $1.125 billion in Alabama.[378]

Congress clearly deems tax-exempt bonds appropriate to build infrastructure and to aid in the reconstruction and recovery of catastrophe-stricken areas. Tax-exempt status for post-catastrophe bond issuances demonstrates Congress's willingness to use tax-exempt bonds to aid in the recovery of catastrophe-stricken areas. Congress should use this tool in the *ex ante* way typical tax-exempt bonds are issued, by treating revenues from cat bonds as tax exempt.

C. Alternative Risk Transfer Solutions: Industry Loss Warranties, Sidecars, and Cat Bonds

In the early 2000s, after the capital market for insurance-linked securities had shown some promise,[379] discussions at the federal level focused on the ability of capital markets to absorb risk.[380] This Section presents the costs and benefits of these alternative devices, focusing in particular on cat bonds and their tax treatment.

1. Industry Loss Warranties

Industry Loss Warranties[381] present unique benefits over traditional reinsurance. First, ILWs have low transaction costs.[382] The contract is keyed to an entire industry's loss, meaning that the only relevant metric is the "exceedance probability curve of the entire industry."[383] The particular details of the specific portfolio of risks of one company and the probability of triggering the contract do not play into the contract.[384] Second, ILWs are particularly useful for providers who limit their underwriting to a particular state.[385] Where the trigger is the losses suffered by the industry in a specific state, the risk of an insurer or reinsurer operating in that state will be narrowly tailored to the industry in that state.[386] ILWs do present some basis risk in the sense that the underwritten risks and the ILW contract do not match up perfectly.[387] ILWs also present a

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377. *Id.* § 1400(N)(a)(5)(B)(i).

378. *Id.* § 1400(N)(b)(4).

379. *See* discussion *supra* Part II.D.4

380. *See Hearing on Catastrophe Bonds*, *supra* note 155 (statement of Rep. Sue Kelly, Chairwoman, Subcomm. on Oversight & Investigations) (remarking that "'the development [of this risk-linked securities market] would revolutionize catastrophe insurance funding and greatly expand the capacity of the US insurance market'" and stating that the committee was "looking to facilitate capacity creation in the insurance marketplace").

381. *See* discussion *supra* Part II.D.4.c.

382. KUNREUTHER ET AL., *supra* note 34, at 176.

383. *Id.* (explaining that only the probability that the entire industry incurs a set amount of loss matters).

384. *Id.*

385. *Id.* at 175.

386. *Id.*

387. *Id.*

risk where an insurer or reinsurer's loss is larger compared to the industry's loss.[388] Additionally, this basis risk "is higher for companies whose exposure concentrations are farther away from the industry averages."[389] ILWs are easy to set up and may be particularly useful for single-state insurers.

2.   Cat Bonds Are the Best Alternative Risk Transfer Mechanism

Cat bonds offer substantial additional capacity—enough to warrant serious consideration of incentivizing these securities. Because this Note's resolution focuses on altering the tax treatment of cat bonds to spur industry capacity, the current tax treatment of cat bonds needs to be examined in detail. The following Subsection uses an example of one of the first successful cat bonds to illustrate the application of the various tax doctrines and provisions relevant to cat bond taxation.

a.   The Basics

Neither the SPVs nor the noteholders will be taxed in an off-shore jurisdiction if that jurisdiction is a no-tax jurisdiction.[390] Many SPVs are located in Bermuda or the Cayman Islands.[391] Reinsurers choose to install their SPVs in these locations "to take advantage of lower minimum required levels of capital, favorable tax treatment, and a generally reduced level of regulatory scrutiny."[392] In particular, SPVs located in Bermuda benefit from the lack of "any income, corporate, profits, capital gain or withholding tax."[393] The note holders, often located in the United States, also enjoy these benefits because none of the money earned through the cat bond will be taxable in these jurisdictions.[394]

The SPV will not be taxed in the United States, but noteholders will have tax liability to the extent they have income from their notes. Since the SPVs are located in no-tax jurisdictions, they will not be engaged in a U.S. trade or business, thus relieving the SPV from paying tax to the U.S. government.[395] Should the SPV earn "fixed or determinable annual or periodical gains, profits, and income" from U.S. sources, however, the SPV may be required to pay a thirty percent tax on that specific in-

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388.   Ali Ishaq, *Reinsuring for Catastrophes Through Industry Loss Warranties—A Practical Approach*, CAS. ACTUARIAL SOC'Y F., Spring 2005, at 75, 76.
389.   *Id.*
390.   GAO-02-941, *supra* note 94, at 26.
391.   *Id.* at 20.
392.   *Id.* at 18.
393.   Viva Hammer & Ann Singer, *Insurance Derivatives: A Tax Angle*, *in* 897 THE CORPORATE TAX PRACTICE SERIES 1157, 1174 (Practising Law Inst. 2009).
394.   *Id.* at 1175.
395.   I.R.C. §§ 11(d), 882 (2006). However, §§ 4731 and 4732 impose a one percent excise tax on reinsurance premiums if the risks being reinsured are located in the United States. *Id.* §§ 4731, 4732.

come.[396] On the other hand, the holders of the notes will be subject to corporate and other forms of income tax.

b. An Example

The following example is based on one of the "first truly successful catastrophe bond issues."[397] In 1997, the Residential Re transaction set up a cat bond in which the United Services Automotive Association (USAA) ceded $400 million to the SPV, which would be triggered by the occurrence of a "single Gulf or East Coast hurricane of Saffir Simpson Category 3 or greater that resulted in losses to USAA in excess of $1 billion."[398]

The SPV funds consist of premiums ceded by USAA and the $400 million in investor capital.[399] The easiest tax liability to address is the SPV's liability—if the SPV earned § 881 FDAP gain, it will pay thirty percent tax on those gains,[400] and the SPV will be subject to the one percent excise tax imposed by §§ 4371 and 4372.[401]

Determining the note holders' liability is more complex. As Figure 1 demonstrates, the SPV will issue a bond to its investors. The amount of the bond depends on the negotiations between the parties. In this instance, the bond value is $400 million.[402] Investors then receive payments from the SPV at a specified return rate—assume ten percent. In our example, then, the bondholder receives $40 million. The next Subsection explains the question of whether gain from cat bonds to individual bondholders qualifies as income from debt or equity.

c. Debt or Equity?

The key question for tax purposes is whether cat bond income is from debt or equity. The reason is that debt and equity are treated very differently for tax purposes. Should the bondholder be considered as receiving interest payments because the bond is considered a debt, the entire amount of interest will be taxed at the ordinary income level, up to thirty-five percent for corporations.[403] On the other hand, should the bondholder be considered as holding an equity position, it would be taxed fifteen percent on a distribution from the SPV.[404] Additionally, should income from the bonds be considered equity, it is important to

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396.	*Id.* § 881(a)(1).
397.	David Lalonde, *Risk Financing*, *in* CATASTROPHE MODELING: A NEW APPROACH TO MANAGING RISK, *supra* note 132, at 135, 147.
398.	*Id.* at 147–48. This is an example of a combined parametric and indemnity trigger.
399.	*Id.* at 147.
400.	I.R.C. § 881(a). FDAP gains are "fixed or determinable annual or periodical" gains. *Id.*
401.	*Id.* §§ 4371, 4372.
402.	Lalonde, *supra* note 397, at 147.
403.	*See* I.R.C. § 11(b)(1)(D).
404.	*Id.* § 1(h)(1)(C).

note that the § 243 dividends-received deduction does not apply, because that section applies only to dividends received from domestic corporations.[405] Because the SPV is a Bermuda entity, the dividends-received deduction does not entitle the corporate bondholder to any special treatment of that income. Nevertheless, a bondholder would prefer an equity characterization over a debt characterization because the special treatment of dividends at fifteen percent results in lower tax liability than ordinary income treatment at thirty-five percent. In the resolution of this Note, the revenue cost of tax-free cat bonds depends on whether the proceeds are debt or equity.

Now that the debt and equity distinction's function and import is a little clearer, it is time to jump into murkier waters to determine which treatment cat bonds proceeds receive. Because cat bonds are relatively new, there is little authority directly on point.[406] Even worse, the Code and regulations never properly tackled the debt versus equity issue.[407] The Code does provide a nonexhaustive list of the considerations in § 385(b).[408] While the § 385(b) factors are important, the list is nonexhaustive, and case law on the question is prolific.

Because the Code and its accompanying regulations are relatively quiet on the topic, there has been a tremendous amount of litigation and legal comment on what constitutes debt and what constitutes equity. In particular, there has been a long struggle with "'hybrid securities'—instruments which [have] some of the characteristics of a conventional debt issue and some of the characteristics of a conventional equity issue."[409] The Supreme Court has held that no one factor is dispositive.[410] The next two Subsections analyze the case for each type of treatment.

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405. *Id.* § 243(a). The Dividends-Received Deduction allows corporations to deduct dividends received from other corporations to prevent triple (or more) levels of taxation. *See* John M. Pearce, Comment, *The Intercorporate Dividends-Received Deduction: An Area of Increasing Complexity*, 68 OR. L. REV. 161 (1989).
406. Hammer & Singer, *supra* note 393, at 1176.
407. *See generally* Nathan R. Christensen, Comment, *The Case for Reviewing Debt/Equity Determinations for Abuse of Discretion*, 74 U. CHI. L. REV. 1309 (2007) (discussing the need for resolution on debt versus equity determinations).
408. The exact language of § 385(b) is as follows:
   (1) whether there is a written unconditional promise to pay on demand or on a specified date a sum certain in money in return for an adequate consideration in money or money's worth, and to pay a fixed rate of interest,
   (2) whether there is subordination to or preference over any indebtedness of the corporation,
   (3) the ratio of debt to equity of the corporation,
   (4) whether there is convertibility into the stock of the corporation, and
   (5) the relationship between holdings of stock in the corporation and holdings of the interest in question.
I.R.C. § 385(b).
409. Kraft Foods Co. v. Comm'r, 232 F.2d 118, 123 (2d Cir. 1956). "[N]either any single criterion nor any series of criteria can provide a conclusive answer in the kaleidoscopic circumstances which individual cases present. The various factors . . . are only aids in answering the ultimate question whether the investment, analyzed in terms of its economic reality, constitutes risk capital entirely subject to the fortunes of the corporate venture or represents a strict debtor-creditor relationship. Since there is often an element of risk in a loan, just as there is an element of risk in an equity interest, the

i.   If Equity

In the case of cat bonds, a good place to start is the actual agreement between the parties. The Residential Re prospectus indicated that the bondholders should treat their income as equity for tax purposes.[411] Should the payments be considered equity, as the prospectus states, one would need to look to certain corporate income tax provisions to determine the precise treatment.

To the extent that the SPV has earnings and profits (E&P),[412] any distribution to the bondholder will be considered a dividend.[413] Should the SPV run out of E&P or have no E&P, the bondholder's basis in the SPV will be reduced by the amount of the distribution that exceeds E&P.[414] This basis reduction is considered to be a return of capital and is therefore not taxed.[415] Finally, should a distribution exceed even the basis of the bondholder's note, then any distribution in excess of basis (and E&P) will be treated as gain from the sale of a capital asset.[416] Note, however, that some noteholders deemed to receive payments on equity will still pay tax at ordinary income levels due to complicated "controlled foreign corporation" rules.[417]

ii.   If Debt

Although most cat bond proceeds will be treated as equity,[418] complex cat bond structures consisting of both equity and debt elements may be treated partially as debt for tax purposes.[419] For example, the George Town cat bond prospectus split its securities into two categories: Rights and Notes.[420] The Rights allowed redemption of stock and were therefore easily classified as equity.[421] The proper treatment for the Notes was

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conflicting elements do not end at a clear line in all cases." Fin Hay Realty Co. v. United States, 398 F.2d 694, 697 (3d Cir. 1968) (citations omitted).

410.   John Kelley Co. v. Comm'r, 326 U.S. 521, 530 (1946).

411.   Hammer & Singer, *supra* note 393, at 1181–82.

412.   The details of E&P are beyond the scope of this Note. Suffice it to say that E&P is a more accurate version of the corporation's income than typical tax income. A simple formula would take the corporation's tax income, subtract the amount of taxes paid, and add tax-exempt interest and other types of income that are not included in tax income. *See generally* William D. Andrews, *"Out of Its Earnings and Profits": Some Reflections on the Taxation of Dividends*, 69 HARV. L. REV. 1403 (1956).

413.   I.R.C. § 316. Note also that these distributions are made more complex by the application of the nimble dividend rules. DOUGLAS A. KAHN ET AL., PRINCIPLES OF CORPORATE TAXATION 22 (2010).

414.   *See* I.R.C. §§ 301(b), 301(c)(2).

415.   KAHN ET AL., *supra* note 413, at 32.

416.   I.R.C. § 301(c)(3).

417.   *See id.* § 951. For an explanation of these rules as they pertain to cat bond income, see David S. Miller & Shlomo Boehm, *The US Federal Income Taxation Treatment of Insurance-Linked Securities*, *in* THE HANDBOOK OF INSURANCE-LINKED SECURITIES, *supra* note 113, at 323, 336–37.

418.   Miller & Boehm, *supra* note 417, at 335–36.

419.   Hammer & Singer, *supra* note 393, at 1185–86.

420.   *Id.* at 1183.

421.   *Id.* at 1186.

more complex. The prospectus intended that these receive contingent debt instrument treatment,[422] the specifics of which are beyond the scope of this Note. Suffice it to say they are included in ordinary income (and receive ordinary income tax treatment, usually thirty-five percent for institutional investors).[423] Despite the prospectus' statement on the appropriate treatment, several aspects of the Notes implicate equity rather than debt characteristics. The Notes did not have a guaranteed annual payment and could be subordinated.[424] The IRS would examine the specific terms of these agreements and make a determination.

The full treatment of cat bond proceeds involves complex tax regimes. As a new security, proper tax treatment will become apparent over time. Both the complexity and lack of certainty, however, pose barriers to increasing investor appetite for these securities.

IV. RESOLUTION

This resolution proposes to eliminate taxation of cat bond proceeds.[425] Tax-free treatment of cat bonds would cause increased private market investment in cat bonds, injecting new capital where it is desperately needed. The essence of the secondary risk market problem is that the total capacity of reserves of reinsurers and insurers as of 1999 was $300 billion, while the value of insured properties runs into the trillions.[426] This proposal encourages *new* sources of capital to enter the insurance market, increasing reserves. The influx of capital would relieve pressure on reinsurance markets, making reinsurance generally more affordable. This, in turn, leads to better underwriting and lower prices.

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422. *Id.* at 1184.
423. *Id.*; *id.* at 1187; *supra* note 413 and accompanying text.
424. Hammer & Singer, *supra* note 393, at 1186.
425. *See generally* U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-08-7, NATURAL DISASTERS: PUBLIC POLICY OPTIONS FOR CHANGING THE FEDERAL ROLE IN NATURAL CATASTROPHE INSURANCE 34–35 (2007) [hereinafter GAO-08-07]. This GAO report appears to be one of the only publications suggesting tax-free treatment of cat bond revenues. A representative of the NAIC commented on tax-free treatment of cat bonds: "We also explored some of the tax issues raised by industry representatives. These representatives are considering a legislative proposal that would encourage domestic issuance of catastrophe bonds by eliminating U.S. taxation of the SPRV. If special tax treatment were legislated, expanded use of catastrophe bonds might occur. On the other hand, under certain conditions, the federal government could experience tax revenue losses and other industry sectors might pressure the government for similar tax treatment. Also, some elements of the insurance industry believe such legislation would create an uneven playing field for domestic reinsurance companies." *Hearing on Catastrophe Bonds*, *supra* note 155, at 5–6 (statement of Davi D'Agostino).
426. *See* Greg Niehaus, *The Allocation of Catastrophe Risk*, 26 J. BANKING & FIN. 585 (2002); *supra* Part II.A.2.

A.   Cat Bonds Can Be Tailored for Low-Frequency, High-Loss Events

A cat bond is a mechanism of transferring risk away from traditional insurance and reinsurance markets to capital markets.[427] When a large disaster or a string of disasters forces reinsurers to pay out on their contracts with primary insurers, the market for reinsurance hardens.[428] After a catastrophe, primary insurers will face higher reinsurance prices compared to precatastrophe reinsurance prices.[429] While reinsurance of low-frequency, high-loss events is extremely difficult,[430] cat bonds are uniquely suited to handle these types of risk using carefully defined triggers and tranches.

To create a cat bond, the primary insurer will create an SPV.[431] The SPV issues bonds to investors, using reinsurance premiums and investment income to pay a return on the bonds commensurate with the tranche the investor bought.[432] Should the specific conditions of the cat bond be triggered, the interest on the bond, the principal, or both will be forgiven by the investors.[433] The SPV then releases the funds to the primary insurer, which uses the money to pay out claims on the triggering catastrophe.[434]

1.   Triggers Allow Customized Bonds to Fill Specific Insurer Needs

A significant advantage of cat bonds is that a multitude of triggers makes them highly customizable. Creating detailed and precise triggers is of utmost importance, as it defines the moment when an investor may lose some or all of its interest or capital.[435] There are four types of triggers. An indemnity trigger uses an insurer's specific losses as the key figure.[436] These are triggered when the specific insurer experiences a set amount of losses—therefore the insurer will receive an influx of capital precisely as it negotiated in the bond.[437] An industry index of losses trigger looks to the aggregate losses of a particular industry to determine whether forfeiture should occur.[438] This is useful where an insurer has exposure that closely correlates to the market as a whole. A parametric index trigger causes forfeiture when a catastrophe reaches a predeter-

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427.   *See* discussion *supra* Parts II.D.4.d, III.C.2.
428.   *See* discussion *supra* Part II.C.3.
429.   *See* discussion *supra* Part II.C.3.
430.   *See* discussion *supra* Part II.B.3.
431.   KUNREUTHER ET AL., *supra* note 34, at 177; Lalonde, *supra* note 397, at 145; Cummins & Trainar, *supra* note 105, at 476.
432.   Cummins & Trainar, *supra* note 105, at 465, 476; Spry, *supra* note 113, at 11.
433.   KUNREUTHER ET AL., *supra* note 34, at 177; Lalonde, *supra* note 397, at 146.
434.   KUNREUTHER ET AL., *supra* note 34, at 177; Cummins & Trainar, *supra* note 105, at 476.
435.   Dominik Hagedorn et al., *Choice of Triggers*, *in* THE HANDBOOK OF INSURANCE-LINKED SECURITIES, *supra* note 113, at 37, 37–38.
436.   *Id.* at 38.
437.   *Id.* at 39.
438.   KUNREUTHER ET AL., *supra* note 34, at 177; Doherty & Richter, *supra* note 134, at 13.

mined objective metric.[439] For example, a bond is triggered when a hurricane reaches a certain wind speed or an earthquake reaches a magnitude exceeding a prespecified reading on the Richter scale. Finally, multiple event triggers require "two or more major disasters within a short time period to trigger principal forfeiture."[440] The variety of triggers allow insurers and reinsurers to customize bonds to their needs, particularly regarding low-probability, high-loss events.

2. Tranches Satisfy Varying Investor Appetites

Tranches closely resemble "layering" parlance in reinsurance.[441] An investor may be interested only in a certain risk exposure at a certain return, just as a reinsurer may only be interested in reinsuring a certain layer.[442] To meet this need, cat bonds are divided into tranches of risk with an appropriately corresponded return rate.[443] For example, "hedge funds may purchase low-rated/high-risk tranches, while investment funds and bank/insurance company investment accounts prefer higher rated pieces."[444] Cat bond securities can range from "modest" to "extreme" risk.[445] Some cat bonds have principal protection,[446] so should the bond be triggered, a protected tranche simply stops receiving interest and, instead, the SPV pays the principal back several years later.[447] Any unprotected tranche is at risk of forfeiting both principal and interest.[448] The varying risk/return combinations possible with cat bonds allow a large range of investors to participate. Reinsurance contracts offer no similar flexibility.[449]

B. Cat Bonds Are Suited to Supplement Traditional Reinsurance Markets by Adding Substantial Capacity

As established in Part III, reinsurance receives substantial federal assistance in the form of favorable tax treatment.[450] The government cannot tax the net $48.8 billion in reinsurance premiums that move to

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439. Doherty & Richter, *supra* note 134, at 13. For a detailed examination of a parametric trigger, see Wolfgang Karl Härdle & Brenda López Cabrera, *Calibrating CAT Bonds for Mexican Earthquakes*, 77 J. RISK & INS. 625 (2010).
440. Darius Lakdawalla & George Zanjani, *Catastrophe Bonds, Reinsurance, and the Optimal Collateralization of Risk-Transfer* 3 (Nat'l. Bureau of Econ. Research, Working Paper 12742, 2006), *available at* http://www.nber.org/papers/w12742.
441. *See* discussion *supra* Part II.C.2.a.
442. *See* discussion *supra* Part II.C.2.a.
443. BANKS, *supra* note 394, at 123–24; KUNREUTHER ET AL., *supra* note 34, at 187–88.
444. BANKS, *supra* note 394, at 123.
445. *Id.*
446. Canabarro et al., *supra* note 169, at 3–4.
447. KUNREUTHER ET AL., *supra* note 34, at 177.
448. *Id.*
449. *See* discussion *supra* Part III.A.2.
450. *See* discussion *supra* part III.A.3.

offshore entities, whether captive or not.[451] This Resolution proposes a shift toward private capital markets and away from traditional reinsurance for hedging catastrophe risk. This Subsection highlights the advantages of cat bonds vis-à-vis traditional reinsurance. It is because of these unique advantages that this Note recommends creating tax assistance for investment in cat bonds.

1.   Cat Bonds Are Fully Collateralized and Present Low Credit Risk

Cat bonds are fully collateralized.[452] The result of full collateralization is a drastic reduction of default risk.[453] Traditional reinsurance, on the other hand, relies on diversification to reduce default risk.[454] A unique complication arising from low-frequency, high-cost catastrophe events is the correlated nature of loss.[455] Therefore, reinsurance diversification reduces default risk only if losses do not render diversification pointless.[456] For example, should a hurricane cause significant damage across Florida and the Gulf Coast, a reinsurer's diversification in the form of holding risks across the Gulf Coast would prove inefficient.[457] Should such a scenario occur, "the reinsurance company in question is normally in default."[458] If a firm diversifies risk through cat bonds, however, it is assured the full amount of the cat bond to satisfy losses.

A corollary to the fully collateralized nature of cat bonds is low credit risk.[459] Reinsurance, on the other hand, poses inherent credit risks. Though a primary insurer will know to some extent the financial status and exposure levels of the reinsurer it contracts with, reporting may not provide a clear picture.[460] If a reinsurer has an excessively risky or under-capitalized portfolio, any primary insurer contracting with that reinsurer is subject to the reinsurer's credit risk.[461] Should a major catastrophe occur, a reinsurer may face several insurers looking for payment on con-

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451.   *See* discussion *supra* Part III.A.3.b.

452.   Lakdawalla & Zanjani, *supra* note 440, at 1; *see also Hearing on Catastrophe Bonds*, *supra* note 155, at 7 (statement of Michael Moriarty) ("Credit and collateral risk are clearly reduced by the use of securitization since they are required under the model laws to be fully funded.").

453.   J. David Cummins, *CAT Bonds and Other Risk-Linked Securities: State of the Market and Recent Developments*, 11 RISK MGMT. & INS. REV. 23, 25 (2008); Cummins & Trainar, *supra* note 105, at 480. *But see* GAO-10-568R, *supra* note 8, at 47 ("[T]he bankruptcy of Lehman Brothers exposed problems in how collateral is managed."); Cummins & Weiss, *supra* note 232, at 524 (noting Lehman Brothers' 2008 insolvency indicates the limits of cat bond structure because the bond swap counterparty went bankrupt).

454.   Cummins & Trainar, *supra* note 105, at 480.

455.   See discussion *supra* Part II.B.3.

456.   Cummins & Trainar, *supra* note 105, at 480.

457.   *See id.*

458.   *Id.*

459.   *Id. But see id.* at 485–86 (noting that the Lehman Brothers bankruptcy raised credit risk as a potential problem).

460.   Canabarro et al., *supra* note 169, at 17.

461.   Cummins & Trainar, *supra* note 105, at 484.

tracts, in which case a reinsurer may become insolvent.[462] Cat bonds, on the other hand, hold capital in an SPV that distributes funds solely to its counterparty.[463] As a result, an insurer need not worry about the financial health of its backup plan.

2. Cat Bonds Are Liquid Whereas Traditional Reinsurance Is Not

Traditional reinsurance contracts cannot be traded on a secondary market due to their illiquid nature.[464] A catastrophe reinsurance contract "is information intensive and [has] unique features" that make them difficult to hedge in financial markets.[465] Securitization of risk, however, "creat[es] new tradable financial instruments that access broader pools of capital."[466] Because the cat bond market is maturing, the transfer of these securities is becoming easier.[467] Moreover, the cat bond market is expected to keep growing, which should increase liquidity.[468] Liquidity in the capital markets makes it "one of the most efficient mechanisms for financing risks that has ever existed in the history of the world."[469] Cat bonds thrive in the capital markets whereas reinsurance has little hope to benefit from capital markets.

3. Cat Bonds Are Pure Risk Transfer—Reinsurance Is Risk Financing

Finally, traditional reinsurance can be characterized as risk-financing rather than risk-transferring because risk is transferred for a price.[470] Should a reinsurance contract be renewed after payments are made to the primary insurer (because reinsurance relationships tend to endure), the next reinsurance contract will charge a higher premium to make up for loss incurred on the first contract.[471] Cat bonds, on the other hand, are closer to pure risk transfer.[472] Should a cat bond be triggered, the next cat bond will not be more expensive due to the substantially

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462. Canabarro et al., *supra* note 169, at 17.

463. *See supra* Part II.D.4.d.i.

464. Cummins & Trainar, *supra* note 105, at 466.

465. *Id.* at 471.

466. Cummins & Weiss, *supra* note 232, at 515.

467. *Id.* at 526, 530.

468. *Id.* at 527. 2007 remains the record year for cat bond issuances. 2010 and 2011 saw cat bond issuances totaling $4.8 and $4.3 billion respectively. Restoration of global economic stability diminished cat bond investments somewhat, but 2012 could see cat bonds break the $5 billion mark due to expanded market innovation, coverage of new perils, and different transaction structures. *Another Active Quarter for Insurance-Linked Securities*, PROPERTYCASUALTY360.COM (Feb. 10, 2012, 2:57 PM), http://www.propertycasualty360.com/2012/02/10/another-active-quarter-for-insurance-linked-securi.

469. Kent Smetters & David Torregrosa, *Financing Losses from Catastrophic Risks* 20 (Hamilton Project Discussion Paper 2008-03, 2008).

470. Véronique Bruggeman, *Capital Market Instruments for Natural Catastrophe and Terrorism Risks: A Bright Future?*, 40 ENVTL. L. REP. NEWS & ANALYSIS 10136, 10149 (2010).

471. *Id.*

472. *Id.*

larger capacity of the capital markets.[473] Cat bonds avoid the frictional cost of risk financing and are a more efficient vehicle of risk transfer.

C.   Tax-Free Treatment of Cat Bonds Would Inject Badly Needed Capacity Into a Flagging Catastrophe Insurance Market

Catastrophe bonds possess characteristics that make them the best-qualified measure to solve capacity constraints in the insurance market. Uncertain tax treatment, however, presents a barrier to cat bond success. Changing the tax regime for these securities would increase investor appetite and would eventually lead to lower homeowner insurance premiums, especially in the Gulf Coast states and Florida.

1.   The Case for Tax-Free Treatment of Cat Bonds

The Federal Government spends substantial funds on housing in the wake of catastrophes.[474] Naturally, some types of risks, like damage to infrastructure, may be outside the typical private insurer's book of business.[475] Still, private insurers play a large role in providing catastrophe victims with funds to rebuild their homes. Even though an entire industry serves that purpose, the federal government still plays a massive role in providing assistance where private insurers *could be* providing it. Following Hurricanes Katrina, Rita, and Wilma,

> $15.3 billion [was] paid out under the [NFIP]; $10.4 billion in [Small Business Administration] disaster loans; $6 billion from [FEMA] in the Individuals and Households Assistance Program; $4.8 billion in reimbursements to Alabama, Louisiana, and Mississippi for activities such as debris removal; and nearly $975 million approved in Community Disaster Loans. FEMA also approved housing and rental assistance including travel trailers, mobile homes, and personal housing repairs for 1.6 million households.[476]

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473. *Id.*

474. *The First Year After Hurricane Katrina: What the Federal Government Did*, *supra* note 3 (detailing $16.7 billion of spending by the Department of Housing and Urban Development, $16.1 billion in spending by the National Flood Insurance Program, and millions more in mortgage and foreclosure relief and permanent displaced housing funding); *see also* Pam Fessler, *Much Long-Term Katrina Recovery Aid Unspent*, NPR.ORG (Aug. 29, 2007), http://www.npr.org/templates/story/story.php?storyId=14009346 (putting the total federal aid in the wake of Hurricane Katrina at $114 billion).

475. *See The First Year After Hurricane Katrina: What the Federal Government Did*, *supra* note 3 (breaking down government spending on Katrina). Cat bonds, however, prove useful in securitizing very specific types of large risks. For example, a cat bond securitized the risk that the final match of the 2006 FIFA World Cup in Germany would be cancelled. The Golden Goal cat bond consisted of $260 million, to be triggered when (a) FIFA is forced to cancel the match, (b) FIFA would be unable to reschedule the match within twelve months, and (c) a second catastrophe occurs. FIFA's ability to cancel the match (the first trigger) was precisely defined and could *not* include a world war between two permanent members of the UN Security Council, a boycott composed of at least four teams, non-terrorist radioactive contamination in Germany, and FIFA insolvency. Should any of these occur, the investors would not lose their principal. David Trott & Grant Jenkins, *How Fifa Sold Terrorist Risk to the Capital Markets*, 22 INT'L FIN. L. REV., Dec. 2003, at 49, 49–50.

476. LIBBY PERL ET AL., CONG. RESEARCH SERV., RL 33879, HOUSING ISSUES IN THE 110TH

A substantial amount of these costs could have been covered by private insurers.[477] Taxpayers instead footed the bill for potentially billions of dollars that private insurers could have carried.[478]

The federal money spent post-catastrophe would be better invested to give cat bonds tax-free treatment. This would increase demand for cat bonds and increase insurer capacity.[479] This, in turn, allows insurers to lower premiums.[480] A hypothetical illustrates the point. If several insurers had cat bonds with a seven percent investor return triggering $1 billion of funds, the annual tax revenue lost would be between $10.5 to $24.5 million.[481] The math is simple: during the taxable year, the investors would realize income of $70 million (seven percent of their investment). Currently, those investors would pay taxes of fifteen percent or thirty-five percent on their $70 million, resulting in tax liability of $10.5 million or $24.5 million, respectively.[482]

The proposal would waive that tax liability, encouraging other investors to purchase cat bonds. The point of the policy is this: instead of spending a full $1 billion of taxpayer money in disaster aid, capital markets absorb the $1 billion loss for which taxpayers forgo $10.5 to $24.5 million in tax revenue. In essence, taxpayers "purchase" catastrophe insurance by subsidizing the tax-free return on cat bonds. Note that the taxpayer benefit is between approximately forty and ninety times the initial investment. This structure clearly affords taxpayers a cost savings compared to current catastrophe policy. It should be noted that tax-free cat bonds function the same way as regular insurance does—even if no loss occurs during the policy period, the premium has been paid and cannot be recovered. Therefore, the revenue impact of the proposal is the

CONGRESS 30 (2008).

477. "Homeowners and renters can borrow up to $40,000 for repairing household and personal effects and up to $200,000 to repair or replace a primary residence." KUNREUTHER ET AL., *supra* note 34, at 19.

478. *Hearing on Catastrophe Bonds*, *supra* note 155, at 15 (statement of Christopher M. McGhee) ("We hope that such an increase in [insurance-linked security based insurance] coverage would substantially reduce the burden on the federal government to provide emergency disaster relief to uninsured homeowners following a natural catastrophe.").

479. GAO-08-7, *supra* note 425, at 34, 43–44 (2007); *Hearing on Catastrophe Bonds*, *supra* note 155, at 15 (statement of Christopher M. McGhee) ("[The Bond Market Association] believe[s] there are certain actions which could be taken which would facilitate the development of [the insurance-linked securities] marketplace. These include, first, permitting reinsurance special purpose entities to be treated as flow-through vehicles from a tax perspective."). McGhee described there the idea of not taxing the SPV on its investment income so that SPVs may be located onshore. This in turn increases potential yields of cat bonds and thereby serves a similar function to treating the returns on cat bonds as tax free, as this Note's resolution argues. Mr. McGee notes that the mortgage-backed securities market includes special vehicles treated as pass-through entities for tax purposes. *Id.*

480. *See Hearing on Catastrophe Bonds*, *supra* note 155, at 16 (statement of Christopher M. McGhee) ("[R]isk-linked securities are beneficial to policyholders as they can help expand the availability of competitively priced catastrophe insurance.").

481. The tax liability discrepancy results from the debt versus equity issue. *See* discussion *supra* Part III.C.2.c.

482. *See* discussion *supra* Part III.C.2.c.

aggregate of qualifying cat bonds regardless of whether any bond was actually triggered.

2. *Proposal Limits and Consequences*

The federal policy should contain several limits to prevent abuse. First, only cat bonds containing certain triggers could qualify for tax-free treatment. This serves two purposes: it ensures that cat bonds will actually be triggered[483] (i.e., narrowly defined triggers should not receive favorable treatment); and it ensures that only catastrophes of certain magnitude receive beneficial treatment (i.e., no tax-preferred treatment for cat bonds triggered by relatively small events). This incentivizes investing only in cat bonds that take on risks where the federal government would ordinarily be the insurer of last resort. As an example, only cat bonds containing a $5 billion industry-wide trigger or a parametric trigger of a Category 5 hurricane may receive favorable treatment. This prevents abusive contracts written to take advantage of the tax-free nature of the investment. Second, only cat bonds covering United States risks should receive tax-free treatment. Incentivizing cat bonds on foreign property would be a misallocation of taxpayer money.

Another consequence of tax-free treatment of cat bonds is that SPVs would be established in the United States.[484] Favorable offshore tax-treatment is a significant motivator in locating SPVs offshore.[485] From a regulatory point of view, having SPVs located onshore increases transparency and may increase consumer interest.[486]

Proposing federal solutions to the catastrophe insurance crisis is controversial—there are many proposals with little consensus. Other proposals may achieve similar results, but currently the tax code provides significant incentives for offshore reinsurance which inadequately deals with catastrophe risks.[487] Revising those provisions and instead giving favorable treatment to insurance-linked securities like cat bonds, ILWs, and sidecars would move federal policy in the right direction. There appears to be a consensus that cat bonds and other forms of securitization should be used as a supplement to traditional reinsurance.[488] This resolu-

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483.   There is some evidence that cat bond triggers have been written narrowly and will not disburse capital to insurers unless the storm is a "hole-in-one." Bryan Keogh et al., *The Trouble with Catastrophe Bonds*, BUSINESS WEEK, Apr. 21, 2011, at 55, *available at* http://www.businessweek. com/magazine/content/11_18/b4226055260651.htm (noting that the 2011 Japanese earthquake, tsunami, and nuclear reactor crisis insurers will benefit only $300 million in cat bonds out of a potential $1.7 billion because triggers were written on a Tokyo-based earthquake and were therefore not triggered).

484.   *Hearing on Catastrophe Bonds*, *supra* note 155, at 7 (statement of Michael Moriarty).

485.   *See id.*

486.   *Id.*

487.   *See* discussion *supra* Parts II.A.2, III.A.3.

488.   *See, e.g.*, Adena et al., *supra* note 264, at 23; *Stabilizing Insurance Markets for Coastal Consumers: Hearing Before the Subcomm. on Capital Mkts., Ins., and Gov't Sponsored Enters. of the H. Comm. on Fin. Servs.*, 109th Cong. 87 (2006) (statement of Gregory W. Heidrich, Senior Vice President, Property Casualty Insurers Association of America) ("While [PCI] certainly [does not] see the

tion smoothens the connection between the insurance and capital markets. The need for a solution is dire, and tapping the capital markets represents the best option. Congress should adopt a solution *before* the next catastrophe—not after.

3. Cat Bonds Are Attractive from an Investor Point of View

Investors are attracted to cat bonds for two simple reasons. First, cat bonds outperform regular bonds and display less volatility than stocks or bonds.[489] For example, "the catastrophe bond index returned 10.5 percent from 2007 through 2010, compared with an 11 percent fall in the S.&P."[490] Cat bond and other insurance-linked securities return more than other financial products.[491] Second, catastrophe bonds provide a Wall-Street-proof, transparent investment.[492] Simply put, financial recessions or depressions that otherwise hurts investor portfolios have zero effect on the weather, which means they have no effect on cat bond returns.

V. CONCLUSION

This Note examines the current state of the catastrophe insurance market. Homeowner premiums in catastrophe-prone areas reflect the capacity shortage at both the primary insurer and reinsurance levels. The cyclical nature of the reinsurance market causes primary insurers to raise premiums or withdraw altogether from underwriting risks in catastrophe-prone areas. The capital markets represent a potential solution to this capacity shortage, and the maturity of the cat bond market indicates they may be the best solution. To pave the way from the insurance to the capital markets, tax-free treatment of cat bonds represents a cost-saving to taxpayers and supports a superior risk-transference vehicle.

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cat bond market displacing traditional reinsurance, market participants tell us that bringing more of these deals 'onshore' in the U.S. and reducing a variety of regulatory barriers would permit the market to grow.").

489.   Vivek J. Bantwal & Howard C. Kunreuther, *A Cat Bond Premium Puzzle?* 4 (Wharton Fin. Insts. Ctr. Working Paper No. 99-26, 1999).

490.   Azam Ahmed, *Looking to Diversify, Investors Bet on Catastrophe Bonds*, N.Y. TIMES, Jan. 7, 2011, at B4, *available at* http://dealbook.nytimes.com/2011/01/06/looking-to-diversify-investors-bet-on-catastrophe-bonds/.

491.   Gregory L. Stephenson et al., *2001: A Risk Odyssey*, 2 J. TAX'N FIN. PRODS. 16, 17 (2001).

492.   Ahmed, *supra* note 490; *see also* Cummins & Trainar, *supra* note 105, at 484–85. Following a recent catastrophe bond issue an industry insider said the following: "The response from investors was positive despite a challenging market environment, with high spreads in other asset classes with comparable ratings. This shows that investors appreciate the diversifying effect from cat bonds that are virtually uncorrelated with trends on the capital markets as such." *Munich Re Sets Up $75M Cat Bond for Wind Risks*, PROPERTYCASUALTY360.COM, (Feb. 28, 2012, 1:15 PM), http://www.propertycasualty 360.com/2012/02/28/munich-re-sets-up-75m-cat-bond-for-wind-risks.