

20 An Overview of the Alternative Risk Transfer Market

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20.1 WHAT IS ALTERNATIVE RISK TRANSFER?

The concept of alternative risk transfer (ART) defies a precise definition. One reason for this is that the range of risk products that can reasonably be defined as ART has expanded over time as product innovation continues. ART is not one product, but rather a way of doing business. It is generally accepted that there are two segments in the ART market—risk transfer through alternative carriers and risk transfer through alternative products (Swiss Re 2003). The market for alternative carriers (i.e., risk-bearers) consists of self-insurance, captives, risk retention groups, and pools. Alternative products include finite risk reinsurance, runoff solutions, committed capital, multiline, multiyear products, multitrigger programs, structured finance and new asset solutions, and capital market solutions for weather risk.

Despite the fact that ART is difficult to define, virtually all alternative risk transfer products have at least one of the following features:

- custom-tailored to the unique needs of the client;
- coverage provided on a multiyear basis;
- coverage applicable to multiple lines; or
- payoff can be triggered by multiple factors, rather than a single event.

Most alternative risk “solutions” require the skills of an interdisciplinary team of insurance and financial professionals. The more complex the solution, the broader the set of skills required. For example, structuring a transaction designed to transfer a unique catastrophe risk would require input not only from experienced insurance and reinsurance professionals, but also from catastrophe modelers, capital-market experts, and accountants, as well as tax and legal experts. On the other hand, formation of captives, a form of self-insurance, is easy even for relatively small businesses, and can be accomplished quickly with nominal expenses by soliciting the services of an experienced captive manager.

One characteristic of alternative risk solutions for larger-scale exposures is their reliance on nontraditional sources of capital. In other words, while traditional insurance contracts involve the transfer of risk from the policyholder to the insurer (or insurer to reinsurer), ART often seeks to lay off risk to the capital markets, rather than relying solely on the claims-paying capital of the insurer (known as policyholder surplus in the United States). The capacity of global capital markets to absorb risk dwarfs that of the world's insurers and reinsurers, a point that makes ART an attractive solution for large, unique problems.

Alternative risk financing and risk transfer is also proving attractive to the life insurance industry. The first U.S. insurance securitizations took place in 1988 and involved sales of rights to emerging profits from blocks of life insurance policies and annuities (Cowley and Cummins 2005). Life insurers, like property-casualty insurers, are increasingly looking to these opportunities as a way to raise additional capital and transfer risk. To date, most insurance-linked securities issues have been either catastrophe bonds or life bonds. Life bonds are typically based on the income flow of premiums from life and savings products and tend to provide capital to the life insurer (Swiss Re 2003). In this way, life bonds have more of a focus on financing than catastrophe bonds and are more akin to the securitization of income flows and asset-backed securities, such as mortgage-backed securities. Captives are also increasingly being used to fund life insurance exposures, such as employee benefit risks. In the United States, the Labor Department must approve any move to transfer employee benefit risks to a captive insurer.

The complexity of some categories of alternative risk solutions means that they are both time-consuming and expensive. These two issues have proven to be formidable obstacles to the growth in some segments of the ART market.

20.2 MARKET OVERVIEW

The beginnings of the alternative risk transfer market can be traced back to transactions that enabled businesses to insure their own risks. Traditionally, businesses have managed risk by transferring it to an insurance company through the purchase of an insurance policy or, alternatively, by retaining the risk and setting aside funds to meet expected losses through an arrangement known as “self-insurance.” Most businesses, in fact, use a combination of traditional and self-insurance. The distinguishing feature of many corporate risk management programs is the degree to which potential losses are retained. For instance, a company may opt for a modest retention (deductible) if it is particularly risk averse. If the business has sufficient capital, it may decide to establish a special self-insurance fund to cover a substantial first layer, or amount, of any loss, with insurance coverage to pay for losses in excess of that layer.

Over the years, a number of alternatives to traditional commercial insurance have sprung up to respond to fluctuations in the marketplace. These entities include *captives*—a special type of insurance company set up by a parent company, trade association, or group of companies to insure the risks of its owner or owners. The oldest captive insurance domicile is Bermuda (see later section on captives). Other options include *risk-retention groups* (RRGs)—in which entities in a common

industry join together to provide members with liability insurance coverage—and *risk-purchasing groups* (RPGs)—which were introduced in the 1980s. Like RRGs, risk-purchasing groups must be made up of persons or entities with like exposures and in a common business. However, whereas RRGs are essentially liability insurance companies owned by their members, purchasing groups buy liability coverage for their members from admitted insurers, surplus lines carriers, or RRGs.

During the 1980s, a combination of rising liability claims and falling premiums inevitably resulted in dwindling profits and ultimately losses for liability insurers. The situation reached a crisis level as the severe losses on liability insurance led to sharply increased prices and reduced availability of insurance in 1985 and 1986. Many U.S. businesses began to have difficulty in obtaining some types of commercial insurance coverage. It was at this time that new mechanisms for transferring risk developed, facilitated by passage of the federal Product Liability Risk Retention Act of 1981 (P.L. No.97-45 1981). The 1981 law, which provided for the formation of risk-retention groups and purchasing groups in the areas of products and completed operations liability, was expanded by 1986 amendments to include all areas of commercial liability, except workers' compensation. The final act was known as the Liability Risk Retention Act of 1986. To facilitate their operation, the Act exempts both risk-retention and risk-purchasing groups from many of the state laws that normally apply to insurance organizations (see later section on RRGs and RPGs). The hardening of the commercial property insurance market since the September 11 terrorist attack has led to a push by some groups, including schools and real estate firms, to expand the scope of the Risk Retention Act to commercial property, surety, and commercial automobile lines.

Following Hurricane Andrew in 1992 and the Northridge Earthquake in 1994, insurers increasingly looked to the capital markets to diversify their risks and expand capacity. Insurance-linked securities, such as catastrophe bonds, developed at this time. Another new ART approach was finite reinsurance, which can be traced back to Bermuda and the formation of Centre Re (later known as Centre Solutions) by Steven Gluckstern and the late Michael Palm in 1988. These developments were a reflection of the growing convergence between the insurance and financial markets. The late 1990s also saw the introduction of various multiline, multiyear integrated insurance products.

20.3 WHY ALTERNATIVE RISK TRANSFER DEVELOPED

Alternative risk transfer solutions help to expand the set of possible insurable risks. They can also pick up where traditional insurance and reinsurance leave off or provide coverage where no traditional coverage is available. By tapping the vast resources of the capital markets, many times greater than those of insurers, ART solutions can also greatly increase capacity.

ART not only provides solutions for unique problems, it can also improve the situation of the risk bearer. The fact that most insurance risks (natural catastrophes, for example) are uncorrelated with traditional types of investment risk (such as changes in interest rates or fluctuations in stock prices) produces a favorable diversification effect on investor portfolios.

The demand for alternative risk transfer products should theoretically be quite high. The frequency and severity of catastrophic events appears to be on the rise, both in the United States and elsewhere in the world. In terms of insured losses, seven of the ten most expensive catastrophes in U.S. history have occurred within the past four years (see Table 20.1). This phenomenon is not isolated to the United States. Table 20.2 shows a distinct rise in the severity of catastrophes worldwide post-2000 and during the 1990s as compared with the 1980s.

Table 20.1. Top Ten Insured Property Losses in the United States (in billions of 2004 dollars)

Event (Year)	Insured Loss
Hurricane Jeanne (2004)	\$3.7
Hurricane Rita (2005)*	\$4.1
Hurricane Frances (2004)	\$4.6
Hurricane Hugo (1989)	\$6.4
Hurricane Ivan (2004)	\$7.1
Hurricane Charley (2004)	\$7.5
Northridge Earthquake (1994)	\$15.9
September 11 Terrorist Attack (2001)**	\$20.1
Hurricane Andrew (1992)	\$20.8
Hurricane Katrina (2004)*	\$35.0

Source: ISO/PCS; Insurance Information Institute.

* Estimate, stated in 2005 dollars, as of September 26, 2005.

** 9/11 loss figure is for property claims only.

Mega-catastrophes, such as Hurricane Andrew in 1992, the Northridge earthquake in 1994, and Hurricane Katrina in 2005, created severe financial strain as well as a number of insurer insolvencies. Alternative risk transfer solutions have played an important role since then by improving insurers' capacity to withstand catastrophic-risk losses, but not to the extent that most industry observers had anticipated. Hurricane Katrina, the Category 4 storm that struck the states of Louisiana, Mississippi, and Alabama in late August 2005, is now the most costly U.S. catastrophe ever and is expected to stimulate greater use of alternative risk transfer solutions.

Interest in alternative markets is in part a function of the cost of traditional insurance and reinsurance. Property-casualty insurance pricing is highly cyclical. Typically, several years of declining prices and relaxed underwriting is followed by a few years of rising rates and more restrictive underwriting. When prices are high and the traditional market hardens, alternative market products become relatively less expensive and therefore attractive to buyers as substitutes for traditional insurance products.

Table 20.2. Global Insured Catastrophe Losses 1970–2004 (in billions of 2004 dollars)

Year	Loss	Year	Loss
1970	\$4.83	1988	\$11.11
1971	\$2.09	1989	\$22.23
1972	\$4.49	1990	\$24.68
1973	\$4.82	1991	\$22.84
1974	\$7.74	1992	\$38.58
1975	\$4.07	1993	\$15.62
1976	\$4.93	1994	\$29.11
1977	\$4.69	1995	\$21.50
1978	\$4.68	1996	\$15.58
1979	\$9.29	1997	\$9.69
1980	\$6.32	1998	\$22.09
1981	\$2.81	1999	\$36.61
1982	\$7.48	2000	\$14.17
1983	\$8.49	2001	\$37.65
1984	\$5.22	2002	\$15.20
1985	\$9.66	2003	\$19.04
1986	\$4.99	2004	\$48.63
1987	\$14.18		

Source: Swiss Re.

It was projected that by the end of 2003, 50 percent of the U.S. commercial market would migrate to the global alternative risk transfer market, up from about 40 percent in 2000 and up from about 30 percent in 1996 (A.M. Best Company 2003a). Other sources indicate that alternative risk transfer accounts for a somewhat smaller share of the commercial marketplace. Some 40 percent of the respondents to a 2003 survey of corporate risk management said they placed business in captives or risk-retention groups (Risk and Insurance Management Society 2004). In certain industries, such as telecommunications and information services, the percentage was higher, with some 60 percent of respondents saying they used captives.

Rising rates and a shortage of sufficient capacity in some commercial insurance lines, a trend that began in 2000 and intensified following the September 11 terrorist attacks, incited businesses to consider a number of alternative risk transfer vehicles, including captives and risk-retention groups. By 2003 and 2004, however, the hard market had passed its peak and this easing of conditions appears to have reduced interest in alternative markets. In 2004, 83 percent of the commercial brokers responding to a trade press survey said that some of their clients had formed a captive, down from 93 percent the previous year (Friedman 2004).

The alternative market in the United States also has been affected by the Terrorism Risk Insurance Act (TRIA), enacted in November 2002 to provide a federal backstop for terrorism insurance. The U.S. Treasury department has taken the position that domestic captive and risk-retention groups chartered in the United States or its territories are to be considered “insurers” under the Act, which requires commercial insurers to offer terrorism insurance coverage. This means that all domestic RRGs and captives, except those writing medical malpractice and other lines excluded by the Act, are required to offer terrorism coverage to their insureds and are subject to the law’s 3 percent surcharge provision.³⁵³ Some observers believe TRIA will prompt companies without significant terrorism exposure to locate their captives offshore to avoid the surcharge, on the one hand, and spur captive formations on the part of companies seeking to take advantage of the federal backstop, on the other.

20.4 GLOBAL DEVELOPMENTS

The global market for alternative carriers, consisting of self-insurance, captives, risk-retention groups, and pools, accounted for about \$88 billion in premiums in 2001, with estimated growth rates of approximately 10 percent per year through 2005 (Swiss Re 2003) (see Table 20.3). Self-insurance (with \$44 billion in gross premiums written) accounted for the largest ART segment in 2001, followed by captives (\$38 billion), U.S. state pools (\$5 billion), and risk-retention groups (\$1 billion).

Table 20.3. Size of the Alternative Risk Transfer Market (Based on 2001 Direct Written Premiums)

Type	Size (in billions of dollars)	Market Share (%)
Traditional Carriers	\$370	80.9%
Self-insurance and Other Alternative Carriers (U.S.)	\$49	10.7%
Captives	\$38	8.3%

Source: Swiss Re.

It should be noted that self-insurance, state pools, and risk-retention groups are largely U.S. concepts, whereas captives are a global phenomenon that are

³⁵³ Under TRIA, if the federal government pays for insured losses during the course of a year, the Treasury Secretary is required to recoup the difference between total industry costs (individual insurers’ losses up to their deductibles, plus the industry’s 10 percent cost share above the deductibles) and \$15 billion for 2005. The recoupment is accomplished through a surcharge on all policyholders that cannot be more than 3 percent of the premium charged for a policy in a given year.

increasingly used by non-U.S. corporations.³⁵⁴ While more than 50 percent of the 4,000-plus captives worldwide are registered in Bermuda, the Cayman Islands, and onshore United States, other popular captive domiciles include Guernsey, Dublin, Luxembourg, and the Isle of Man, which tend to service the European markets. At the end of 2004, Guernsey, Dublin, Luxembourg, and the Isle of Man had an estimated 1,018 captives between them (“Spotlight” 2005).

Capital market solutions, such as catastrophe bonds, appear to be driven by the United States in terms of peril and location. While market participants continue to explore the possible securitization of additional perils and geographies, the dominant risks continue to be U.S. earthquakes and U.S. hurricanes, followed by Japanese earthquakes and European windstorms (Guy Carpenter 2005). However, some of the bonds cover multiple perils, which may contain a blend of U.S. and non-U.S. risks.

20.5 TYPES OF ALTERNATIVE RISK TRANSFER

20.5.1 Captives

A captive is an insurer or reinsurer owned by a corporation or an association of businesses for which the primary business is not insurance. The principal distinguishing feature of a captive is that the insured (generally the captive’s owner) exercises direct control over the insurer (captive). Under traditional arrangements, the insured (a policyholder of the company transferring risk) has no influence over the operation of the insurer. In this sense, captives may be viewed as a form of self-insurance.

Captives may be owned by one entity or several and they may insure the risks of organizations other than their major owners. Wholly owned captives are companies established by large corporations to finance or administer their risk financing needs. If such a captive insures only the risks of its parent or subsidiaries, it is called a “pure” captive.

Captives are the oldest form of an alternative risk transfer vehicle, dating back to the 1950s. In 2004, there were more than 4,000 captives spread across the globe, accounting for approximately 8.3 percent (\$38 billion) of the world’s commercial insurance market, based on 2001 direct premiums written. Large corporations account for 80 percent of the captive market.

The number of captives in the top 10 captive domiciles increased from 3,992 in 2003 to 4,157 in 2004 (“Spotlight” 2005) (see Table 20.4). Bermuda, with 1,150 captives, tops the list, followed by the Cayman Islands and Vermont, with 694 and 524 captives, respectively. Guernsey, Luxembourg, and Barbados are also significant centers for captives. In May 2003, Anguilla, a British territory, introduced an insurance act that would establish the Caribbean island as a captive insurance domicile. In August 2004, Bahrain licensed its first captive insurer. A list of the five domiciles with the largest net increase in captives in 2004 is headed by the Cayman Islands (50 new captives), followed by South Carolina (47), the British Virgin Islands (43), Guernsey (25), and Hawaii (25) (“Spotlight” 2005).

³⁵⁴ In the United States a wide range of pools, funds, and plans insure a variety of risks from workers’ compensation, to windstorm, to high-risk auto.

Table 20.4. Top Ten Captive Domiciles: 2003 and 2004

Domicile	Number of Captives	
	2003	2004
Bermuda*	1,150	1,150
Caymans	644	694
Vermont	507	524
Guernsey	383	410
British Virgin Islands	307	350
Barbados	248	257
Luxembourg*	216	219
Dublin	205	214
Isle of Man	173	175
Turks and Caicos	159	164

Source: "Spotlight" 2005; Insurance Information Institute.

* "Spotlight" 2005 estimate.

U.S.-domiciled captives' net premiums written increased by 4.6 percent from 2002 to \$8.9 billion in 2003 (A.M. Best 2004). Medical malpractice was the top product line in 2003, followed by auto physical damage and private passenger auto liability. While declining prices for commercial insurance could trigger a loss in captives' market share, many captives are expected to retain the commitment of their parent organizations. U.S.-domiciled captives' net premiums written and admitted assets rose by 45 percent and 29 percent, respectively, in the five-year period from 1999 to 2003 (A.M. Best 2004).

Bermuda

Bermuda remains the leading global captive domicile with 1,150 captives. Still, the growth of captive formations in Bermuda has slowed in recent years. New insurance incorporations in Bermuda, most of them captives, dropped from 89 in 2003 to 77 in 2004, with the decline attributed to increasing competition from U.S. domiciles. It is not known how many captives were liquidated in 2004, but the total number of Bermuda captives is holding steady, between 1,100 and 1,200 ("Spotlight" 2005). Offshore captives covering U.S. risks are predominantly located in Bermuda, where they enjoy tax advantages and less onerous regulation.

Fred Reiss, who is credited with coining the term "captive," established a management company in Bermuda in 1962 called International Risk Management Ltd. (Higginbottom 2002). The captive insurance market on the island developed slowly at first, but then gained momentum. Until the 1980s, the Bermuda market was almost entirely focused on captives, and many new concepts were developed to expand their use.

Cayman Islands

The Cayman Islands is the second leading global captive domicile and continues to see substantial growth, with 694 active captives at year-end 2004, writing about \$6 billion in premiums and reporting assets of \$22 billion. This was a net increase of 7 percent in 2004, taking into account the closure of 26 captives during the year. Most of the new captives in 2004 were health care-related. Business is spread among a diverse group of companies, and types of coverage range from workers' compensation and product liability to life and annuity business. Segregated portfolio companies, known elsewhere as segregated cell captives (described below), are gaining popularity, accounting for 13 of the new licenses in 2004, bringing the island's total to 93 at year-end. Among the benefits of establishing a captive in the Cayman Islands are the highly developed captive support infrastructure and professional yet flexible regulation.

Vermont

Vermont, with 524 captives in 2004, is the leading U.S. domicile for captives, followed by Hawaii and South Carolina, with 147 and 114 captives, respectively (see Table 20.5). While the state licensed 43 captives in 2004, it also saw 26 captives dissolve, giving it a net gain of 17 captives. It is estimated that gross written premiums amounted to more than \$10 billion in 2004, up from \$9.4 billion in 2003. Vermont's success as a captive domicile has been attributed to its flexible regulatory approach as well as its well-established infrastructure of management firms, specialist accounting and legal advisors, and knowledgeable bankers to assist captive owners in setting up and operating a captive insurance company (Moriarty and Davis 2003). Vermont also has its own captive insurance trade association, the Vermont Captive Insurance Association.

Table 20.5. Top Ten Captive Domiciles in the United States: 2003 and 2004

Domicile	Number of Captives	
	2003	2004
Vermont	507	524
Hawaii	122	147
South Carolina	67	114
District of Columbia	20	40
Arizona	18	39
Nevada	19	38
New York	18	28
Georgia	16	14
Montana	9	10
Colorado	11	10

Source: "Spotlight" 2005; Insurance Information Institute.

Captives may be established to provide insurance to more than one entity. An association or group of companies may band together to form a captive to provide insurance coverage. Professionals—physicians, lawyers, accountants—have formed many captives over the years. Captives may, in turn, use a variety of reinsurance mechanisms to provide the coverage. In particular, many offshore captives use a “fronting” insurer to provide the basic insurance policy. Fronting typically means that underwriting, claims, and administrative functions are handled in the United States by an experienced commercial insurance company, since a captive generally will not want to get involved directly in running the insurance operation. Also, fronting allows a company to show it has an insurance policy with a U.S.-licensed insurance company, which may be required for legal and business reasons.

Although a record 462 new captive insurance companies were formed in 2002, there were also a record number of captive liquidations, causing the overall number of captives to remain relatively flat, with 4,526 active captives at year-end 2002 compared with 4,521 at the end of 2001 (A.M. Best 2003b). The large number of liquidations (311 in 2002, up from 202 in 2001) has been attributed to corporate collapses during the difficult economic period of the early 2000s, as well as events such as the Enron and Tyco debacles in which captives failed along with their parents. There were also consolidations within the captive industry itself (see Table 20.6). In addition, a number of medical malpractice captives have fallen victim to the escalating loss costs and claims severity plaguing the traditional medical malpractice market. Growth of the captive market has also been impeded by a shortage of traditional insurers willing to provide underwriting, claims administration, and other so-called fronting services to captives.

Table 20.6. New Captives vs. Liquidated Captives: 1993 to 2002

Year	Number of New Captive Formations	Number of Liquidated Captives
1993	238	150
1994	289	113
1995	243	103
1996	290	102
1997	294	135
1998	305	154
1999	250	156
2000	245	170
2001	316	202
2002	462	311

Source: A.M. Best Company 2003b.

Rent-a-Captives

The “rent-a-captive” concept was introduced in Bermuda 20 years ago and remains a popular alternative market mechanism. Rent-a-captives serve businesses that are

unable to capitalize a captive but are willing to assume a portion of their own risk and share in the underwriting profits and investment income. Generally sponsored by insurers or reinsurers, which essentially “rent out” their capital for a fee, the mechanism allows users to obtain some of the advantages of a captive without having the expense of setting up a single parent captive and meeting minimum capital and surplus requirements.

Segregated/Protected Cell Captives

A variation on rent-a-captives, the segregated or protected cell captive (PCC), was introduced in Guernsey in 1997. A PCC offers participants many of the benefits of a group captive but with lower startup costs. A PCC offers more security to policyholders by isolating each participant’s assets and liabilities as if they were a separate company, called a cell, doing business with the core company. The mechanism has helped fuel the growth of the captive market. Actual numbers of segregated cells may be underreported because some captive domiciles don’t report the number of cells within them. Such mechanisms accounted for some 10 percent of new captive formations in 2002 (A.M. Best 2003b). Overall, the number of segregated cell companies increased 20 percent in 2002, with Guernsey and the Cayman Islands recording a combined growth of 45.8 percent.

Tax Status and Captives

Since 2001 a number of regulatory rulings have favored captives. In June 2001, the Internal Revenue Service (IRS) ruled that it would allow premiums paid for captive insurance to be tax deductible, signaling it would no longer invoke its long-held “economic family” theory. This theory was first espoused by the IRS in 1977 in Revenue Ruling 77, which held that a policyholder, its noninsurance subsidiaries, and its captive form one “economic family,” and that the premiums paid within the family are not deductible because the risk was not shifted from the policyholder.

In 1981, the IRS had used the economic family theory to deny the deductibility of insurance premiums paid by Carnation Company. The U.S. Tax Court upheld the IRS ruling that premiums paid to Carnation’s Bermuda captive for underwriting Carnation’s risk did not constitute insurance and therefore that Carnation could not claim a tax deduction.

However, the economic family line of reasoning was later rejected by courts. In 1992, in *Sears, Roebuck and Company v. Commissioner*, the tax court ruled that risk shifting existed because the insurance subsidiary of Sears wrote virtually all unrelated risks so premiums were therefore deductible.

In September 2001, captive owners won another victory when a federal appeals court overturned a controversial 1999 U.S. Tax Court decision that had labeled Overseas Partners Ltd., a Bermuda-based United Parcel Service of America Inc. captive reinsurance program, a fraud and a tax dodge. The ruling held that the program served a legitimate business purpose.

20.5.2 Self-insurance

Estimates of the self-insurance market vary widely, possibly as a result of definitional differences and an absence of uniform reporting requirements. The

segment is estimated to be around \$44 billion in gross premiums (Swiss Re 2003). The amount of self-insurance in force also fluctuates with the insurance cycle and in response to the operating environment for specific coverages—for example, directors and officers coverage. With the improvement in the workers' compensation environment in the mid-1990s, some of the many businesses that had been self-insuring their workers' compensation programs returned to the traditional marketplace.

Pricing and availability problems, fueled by the September 11 terrorist attacks, are once again making self-insurance groups (SIGs) an attractive option. Workers' compensation SIGs generally consist of firms in similar industries that pool resources to insure each other's exposure. As such, SIGs are functionally similar to mutual insurance companies. While SIGs are separate, legal, risk-bearing entities, they are formed by a trade association, common industry, or other related group for the purpose of self-insuring the risks of its members. SIGs provide the benefits of self-insurance to small to medium sized businesses that would not be able to self-insure individually. Members of the SIGs are joint and severally liable, that is, they are liable for the losses of other group members. SIGs can only operate in a single state, and 37 states have enacted legislation authorizing SIGs, sometimes referred to as trusts. There were 178 government pools and 240 self-insurance funds in 2002, up slightly from 177 government pools and 237 self-insurance funds in 2001 (A.M. Best 2003b). A government pool is a pooling arrangement formed by one or more governmental agencies and/or subdivisions for the purpose of self-insuring its risks.

The use of higher retentions/deductibles is increasing in most lines of insurance, especially for commercial casualty and liability coverages (see Table 20.7). In workers' compensation, many companies are opting to retain a larger portion of their exposure through policies with large deductible amounts of \$100,000 or higher (see Table 20.8). Large deductible programs, which were first introduced in 1989, now account for a sizable portion of the market. In workers' compensation, large deductible programs accounted for 43 percent of the total workers' compensation market in 2003 and 33 percent in 2000, up from less than 1 percent in 1990 (National Council on Compensation Insurance 2005).

Table 20.7. Average Underlying Limits
(in millions of dollars), 2000 to 2004

Year	Attachment Point
2000	\$1.8
2001	\$1.9
2002	\$1.9
2003	\$2.0
2004	\$2.2

Source: Marsh 2004.

Self-insurance pools and trusts have financial results that compare favorably to captives and traditional commercial insurers. Overall, the five-year average

combined ratio after policyholder dividends was 95 for the self-insurance pools in the study, compared with 116.9 for captives and 109 for a representative group of commercial insurers (A.M. Best 2004). The pools' success is attributed to their strict admission requirements and emphasis on loss control and antifraud activities. All the firms in the study met A.M. Best's rating requirements.

Table 20.8. How the Risk Dollar Is Spent (2004) (Firms with Revenues >\$1 billion)

Budget Item	Percentage
Liability Premiums	27%
Property Premiums	22%
Workers' Compensation Premiums	16%
Administrative Costs	9%
Total Management Liability	8%
Retained Workers' Compensation	6%
Retained Property	4%
Total Professional Liability	4%
Retained Liability	3%
Other	1%

Source: Risk and Insurance Management Society 2004; Insurance Information Institute.

20.5.3 Risk-Retention Groups and Risk-Purchasing Groups

Risk-retention groups are a U.S. phenomenon, established in 1981 when Congress passed the Product Risk Retention Liability Act, now known as the Liability Risk Retention Act. A risk-retention group (RRG) is a corporation owned and operated by its members. It must be chartered and licensed as a liability insurance company under the laws of at least one state. The group can then write insurance in all other states. It need not obtain a license in a state other than its chartering states. In 2005, there were calls for state regulators to enact uniform regulatory standards for RRGs and for Congress to consider enacting corporate governance standards (Government Accountability Office 2005).

As of July 2005, there were 197 RRGs in the United States, up from 186 at year-end 2004. As of April 2005, Vermont and South Carolina were the most favored domiciles for RRGs, with 167 and 40 groups, respectively. The District of Columbia, which added six new groups during the six-month period from November 2004 to April 2005, moved into third place with 21 RRGs, overtaking Hawaii (18 RRGs).

Premiums written by risk-retention groups increased to \$2.2 billion in 2004, up 26 percent from \$1.7 billion in 2003 (Risk Retention Reporter 2004) (see Table 20.9). There were 54 new RRGs formed in 2004. The majority of the new groups were in five domiciles: South Carolina (14), Vermont (11), the District of Columbia (9), Arizona (8), and Nevada (7). The risk-retention group premium marketplace is

dominated by three business segments: health care, professional services, and government and institutions (see Table 20.10). Thirty-six of the new groups were in the health care industry, a sector that includes doctors, nursing homes, and hospitals.

Table 20.9. Risk Retention Group Premiums, 1988 to 2004 (in millions of dollars)

Year	Premiums
1988	\$250.2
1989	\$358.4
1990	\$419.3
1991	\$493.6
1992	\$493.7
1993	\$527.2
1994	\$585.8
1995	\$575.5
1996	\$707.6
1997	\$751.9
1998	\$790.5
1999	\$875.3
2000	\$775.5
2001	\$944.0
2002	\$1,265.1
2003	\$1,737.7
2004	\$2,156.5

Source: Risk Retention Reporter.

Table 20.10. Risk Retention Group Premium by Business Area

Business Area	Percentage
Health Care	49%
Professional Services	25%
Government and Institutions	10%
Property Development	7%
Manufacturing and Commerce	4%
Transportation	3%
Environmental	2%

Source: Risk Retention Reporter 2004.

RRGs are helping to fill gaps in the medical malpractice marketplace. Fourteen of the 36 health care RRGs provide liability for doctors. Premiums for RRGs in nursing homes are projected to increase 400 percent from \$10.1 million in 2003 gross written premiums to \$40.9 million in 2004.

Like risk-retention groups, risk-purchasing groups (RPGs) must be made up of persons or entities with like exposures and in a common business. However, as discussed previously, RRGs are liability insurance companies owned by their members, whereas risk-purchasing groups buy liability coverage for their members from admitted insurers, surplus lines carriers, or RRGs. Risk-purchasing groups are regulated by each state in which they operate. The insurance that these groups purchase on behalf of their members must meet the laws and regulations of the state designated as the domicile of that group. However, like RRGs, RPGs are exempted from certain elements of state law (Webel 2003). For example, laws in some states prohibit insurers from giving groups formed to purchase insurance advantages over individuals. Many states have laws known as “fictitious group laws” that specifically prohibit or limit groups from purchasing insurance for the members of the group, particularly if the group exists solely for the purchase of insurance. Purchasing groups are not subject to these fictitious group laws, however. RPGs are also exempted from countersignature laws, which are laws requiring a local broker’s or agent’s signature on an insurance contract. The Risk Retention Act of 1986 specifically provided for purchasing groups to be created to purchase liability insurance for members of the sponsoring groups.

The number of new risk-purchasing groups being formed in the United States has begun to rise, as commercial insurance coverage became more available and affordable following the hard market of the early 2000s. Eleven purchasing group formations and 14 retirements were recorded in the first quarter of 2005, compared with seven formations and 25 retirements during the same period in 2004 (Risk Retention Reporter 2005). There had been a dramatic drop in the number of formations after 2000, accompanied by a corresponding rise in retirements.

Four states with hospitable regulatory climates accounted for the majority of the risk-purchasing groups formed during the 18-year period from 1987 to September 2004: Texas (289), California (227), Illinois (183), and Delaware (102). When retirements are taken into account, the five states with the greatest number of operational purchasing groups, as of September 2004, were Illinois (110), Texas (80), Delaware (75), California (57), and New York (55). Purchasing groups are now domiciled in 44 states.

20.5.4 Catastrophe Bonds

Historically the capacity to finance catastrophic risk was limited by the claims-paying ability of insurers and reinsurers or by the insured’s ability to retain (or pool) that risk. Today, the ability to securitize catastrophe risk unlocks the vast potential of the global capital markets (Lane 2002).

Investors in catastrophe bonds benefit not only from the relatively high yields offered on these securities, but also from the additional diversification that results from the fact that catastrophic risk is essentially uncorrelated with financial risk (e.g., fluctuations in interest rates or the stock market). Investors must balance the

advantages of high yield and greater diversification with the risk assumed (Litzenberger, Beaglehole, and Reynolds 1996).

Insurers, reinsurers, and corporations interested in securitizing catastrophic risk usually enlist the aid of one or more intermediaries, including investment bankers, reinsurers, and brokers. The typical structure of a catastrophe-bond offering is displayed in Figure 20.1.

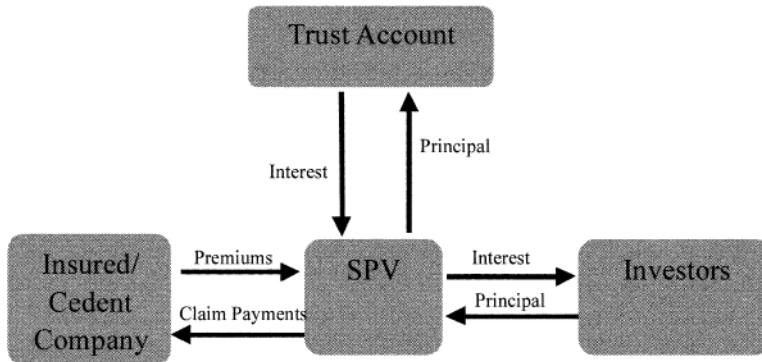


Figure 20.1. Structure of Typical Catastrophe Bond Issue

Funds raised from investors are used to establish a “special purpose vehicle” (SPV), which is similar to a captive. The SPV then issues a reinsurance policy to the insurer or corporation transferring (ceding) the risk, which pays a premium to the SPV. This formal reinsurance structure is necessary so that the transaction is formally recognized for tax and regulatory purposes.

Investors receive notes (bonds) from the SPV with an agreed-on coupon (interest payment) (Froot 1999). In 2004 to 2005, the fixed coupon rates paid to investors in catastrophe (cat) bond transactions ranged from a low of 1.9 percent to a high of 13.5 percent (Lane Financial 2005[AuQ5]). For example, the Hartford Financial Services Group’s first cat bond issue, Foundation Re Ltd. (described in more detail later) is a two-tranche issue. The Class A tranche was issued with a spread of 4.10 percent over the London Inter-Bank Offer Rate (LIBOR), while under the Class B tranche, the investor is paid 1.95 percent over LIBOR regardless of whether there has been a triggering event. Depending on how the deal is structured, investors face the prospect of losing some or all of the investment income produced by the bond—and even some of the principal—in the event of a catastrophic loss. During the policy period, the capital raised from investors is held in trust in a conservative, highly liquid portfolio.

Tapping into the capital markets allowed insurers to diversify their risk and expand the amount of insurance available in catastrophe-prone areas. Catastrophe bonds developed in the wake of Hurricanes Andrew and Iniki in 1992 and the Northridge earthquake in 1994—mega-catastrophes that resulted in a global shortage of reinsurance (insurance for insurers) for such disasters (Swiss Re 2003).

Catastrophe bonds have been used to cover a wide variety of exposures. Earthquakes (both in the United States and Japan) and East Coast windstorms have accounted for the majority of bond issues to date. Bonds with European windstorm

exposure also have been established. The issuance of bonds is becoming an increasingly popular option for transferring noncatastrophe risks as well. Examples include risks arising from the issuance of life insurance policies, acquisition costs, auto residual (i.e., post-lease) value, and mortgage loans. Power failures and sport events are among the risks covered by catastrophe bonds. The world football (soccer) federation, Fédération Internationale de Football Association (FIFA), worked with Credit Suisse First Boston and other banks to develop and issue \$260 million in cancellation bonds in August 2003 covering the 2006 World Cup in Germany. The arrangement covers FIFA's losses in the event the World Cup competition cannot be completed (or rescheduled) due to a variety of events, including terrorism. Some bonds include a blend of uncorrelated risks, such as U.S. and European windstorm risk.

The market for natural catastrophe bonds continued its steady growth in 2004, with total announced outstanding risk capital reaching \$4.04 billion at year-end 2004, representing a 17 percent increase over the year-end 2003 total of \$3.45 billion and a 41 percent increase over the \$2.86 billion outstanding at year-end 2002 (Guy Carpenter 2005).³⁵⁵ These figures do not include other insurance securitization transactions such as weather derivatives and instruments that secure life mortality risks. For example, in April 2005 Swiss Re sponsored its second insurance-linked security related to life insurance to transfer mortality risk coverage to the capital markets.

A distinct class of investors who manage funds dedicated to investing capital in risk-linked securities, including cat bonds, has clearly emerged (Guy Carpenter 2005). In recent transactions, reinsurers account for a smaller share of the investor base, while dedicated cat bond investors, including hedge funds and large institutional investors, play an increasing role in pricing and structure. Investor demand for catastrophe bonds now outstrips the supply of bonds brought to market on an annual basis. Dedicated cat bond funds are estimated to now have capital under management exceeding \$3 billion.

The catastrophe bond market saw total issuance of \$1.14 billion in 2004, a decline from the record issuance of \$1.73 billion in 2003 and a slight drop from issuance of \$1.22 billion in 2002 (see Table 20.11). During 2004, a total of six transactions were completed by five separate sponsors, a slight decline from the seven issues in each of the three previous years. However, an increase in the number and volume of transactions issued on a private nondisclosed basis may be skewing the 2004 results downward. Since 1997, the first year that multiple transactions occurred, 59 cat bonds have been issued with total risk limits of \$8.66 billion.

In terms of perils and geographies securitized, the catastrophe bond market held steady in 2004. While potential sponsors and other market participants continue to explore the possible securitization of additional perils and geographies, the dominant risks continued to be U.S. earthquakes, U.S. hurricanes, Japanese earthquakes, and European windstorms (see Tables 20.12 and 20.13). Notably in 2004, the Hartford Financial Services Group participated in the market for the first time (Guy Carpenter 2005). Its first cat bond issue, Foundation Re Ltd., is a two-tranche issue providing

³⁵⁵ Total risk capital outstanding measures the total bond principal currently at risk in the market as of the relevant year-end, regardless of issuance year, and is distinct from total risk capital issued (which measures the incremental risk capital issued in a given year).

coverage for qualifying first-event Atlantic and Gulf Coast U.S. hurricanes as well as subsequent year coverage for qualifying U.S. hurricane or earthquake events.

Table 20.11. Catastrophe Bonds, Issuance (in millions of dollars) and Number of Deals, 1997 to 2004

Year	Issuance	Number of Deals
1997	\$633.0	5
1998	\$846.4	8
1999	\$985.0	10
2000	\$1,139.4	9
2001	\$966.7	7
2002	\$1,219.4	7
2003	\$1,729.7	7
2004	\$1,143.0	6

Source: Guy Carpenter 2005.

Table 20.12. Catastrophe Bond Market by Peril, 1997 to 2004

Peril	Percentage
U.S. Earthquake	31.1%
U.S. Hurricane	31.6%
European Windstorm	15.7%
Japanese Earthquake	15.4%
Japanese Typhoon	2.9%
Other	3.3%

Source: Guy Carpenter 2005.

Meanwhile, the occurrence of four consecutive hurricanes in Florida in 2004 forced insurers and reinsurers to refocus on event-specific catastrophe protection. Hurricanes Charley, Frances, Ivan, and Jeanne between them caused estimated insured losses of \$22.8 billion. It is reported that potential cat bond sponsors have shown increased interest in structures that would provide coverage for cumulative event losses over a specified period (Guy Carpenter 2005). However, it remains to be seen whether this will lead to any significant structural innovations in 2005 and beyond. There were no reports of outstanding cat bonds being triggered by any of the Florida or Japanese windstorms that occurred in 2004.

Despite gains, the dollar value and number of catastrophe securitization transactions is still very modest, accounting for a small percentage of global reinsurance capacity. Between 1997 and 2004, 59 catastrophe bonds were issued

with total issuance value of \$13.4 billion, relative to \$300 billion in reinsurance capacity (see Table 20.14).

Table 20.13. Securitization by Peril, 2000 and 2004

Peril	Risk Capital (in millions of dollars)	
	2000	2004
U.S. Earthquake	\$486.5	\$803.3
U.S. Hurricane	\$506.5	\$660.8
European Windstorm	\$482.5	\$220.3
Japanese Earthquake	\$217.0	\$310.8
Japanese Typhoon	\$17.0	\$0.0
Other	\$129.0	\$0.0

Source: Guy Carpenter 2005.

Table 20.14. Total Catastrophe Bonds Issued Worldwide, 1997 to 2004

Peril	Risk Capital (in billions of dollars) 1997 to 2004
	U.S. Earthquake
U.S. Hurricane	\$4.24
European Windstorm	\$2.11
Japanese Earthquake	\$2.06
Japanese Typhoon	\$0.39
Other	\$0.44
Total	\$13.41

Source: Guy Carpenter 2005.

Although transactions securitizing catastrophe risk involve risk transfer, they do not qualify for accounting treatment similar to that for traditional reinsurance transactions. This difference in accounting treatment is cited as one reason for the measured growth in the securitization of catastrophe risks to date. As noted previously, insurers and investment bankers have established special purpose vehicles offshore that then issue a reinsurance policy. This structure allows insurers to take advantage of the accounting treatment for reinsurance transactions. The principal value of reinsurance to a ceding company (the purchaser of reinsurance) for regulatory purposes is the recognition on the ceding company's financial statement of a reduction in its liabilities in terms of two accounts: its unearned premium reserve and its loss reserve. The unearned premium reserve is the amount of

premiums equal to the unexpired portion of insurance policies. The loss reserve is made up of funds set aside to pay future claims. The transfer of part of the insurance company's business to the reinsurer reduces its liability for future claims and for return of the unexpired portion of the policy. However, this process adds cost and complexity to the catastrophe bond process. The location of these structures and captive insurers in offshore jurisdictions also allows them to take advantage of a less onerous regulatory environment and more favorable tax treatment. Debate continues over how regulation, accounting practices, and tax laws might be changed to make the securitization of risk easier and less costly.

20.5.5 Finite Risk

Finite-risk solutions represent a type of ART where individual risks are spread over time (Cummins 2005, Swiss Re 1999). This is distinct from traditional insurance or reinsurance where the transfer of risk takes place through pooling with a large number of similar risks.

Finite-risk solutions have the following characteristics:

- The transfer of risk from the policyholder to the insurer is limited (finite). In other words, finite-risk solutions contain a significant element of risk-sharing between the client and the insurer.
- Because finite-risk solutions rely on the smoothing and diversification that occurs with time, policies are usually written on a multiyear basis.
- Costs to the policyholder are primarily a function of individual experience. Much of the premiums not used to fund claims are repaid to the policyholder at the end of the policy period. In this sense, finite-risk solutions are similar to retrospectively rated policies.
- Investment income earned during the policy period is factored directly into the premium calculation. Because of the multiyear nature of finite-risk policies, the time value of money can have a considerable influence on premium.

The global market size for finite (re)insurance is estimated to be around \$27 billion for both corporate and insurance clients (Swiss Re 2003). A small number of deals are executed each year, and the market size fluctuates annually.

Finite-risk solutions also can be blended with traditional forms of risk transfer. Such blended solutions are gaining in popularity with clients. The blending of finite and traditional approaches permits coverage that smoothes out annual fluctuations in claims costs, while also eliminating the financial risk associated with catastrophic perils.

Finite risk or nontraditional insurance products have come under increasing regulatory scrutiny since late 2004. Critics of these products have expressed concerns that they are actually financial transactions more akin to loans rather than true risk transfer products. Widening investigations into various finite reinsurance transactions have prompted calls for new regulations and accounting standards and disclosure requirements at both the state and federal level.

Finite-risk contracts must meet requirements as to the amount of risk transfer to qualify as reinsurance for accounting purposes. To be considered reinsurance for accounting purposes, a reinsurance contract must involve some transfer of risk to the reinsurer. If there is insufficient risk transfer, the transaction is considered a financing mechanism and is booked as a loan or liability instead of an asset. A well-established rule of thumb for assessing whether true risk transfer has occurred is the so-called 10–10 rule: there is a 10 percent probability of a 10 percent loss of premium. For a long time this rule has been considered sufficient, although in some instances it has been argued that the standard is 15/15 (Fitch Ratings 2004).

20.5.6 Multiline/Multiyear Products

The concept of blending experience across multiple lines over a period of time is intuitively appealing (Cummins 2005). In the same way that diversification benefits stock market investors by reducing volatility, a portfolio consisting of several distinct categories of risk (e.g., liability, commercial auto, property, and workers' compensation) would generally also be less volatile. The multiyear nature of the policies also produces an additional smoothing effect (over time). The volatility of results over a period of several years will generally be less than over shorter intervals.

Policyholders benefit from multiline/multiyear products because loss costs will generally be more stable over a period of several years (Harrington, Niehaus, and Risko 2002; Swiss Re 1999). Bad years will likely be balanced out by good ones. Premium stability is another advantage.

Integrated multiyear/multiline products (MMPs) provide several key advantages for clients (Swiss Re 2003). First, they allow clients to take advantage of the risk consolidation within their own portfolio of risks. They also combine uncorrelated risks into an insured portfolio, allowing for efficient risk transfer and avoiding over-insurance. Finally, MMPs provide an alternative to traditional insurance during a hard market, although the availability of multiyear products is limited during hard markets.

20.5.7 Multitrigger Products

Coverage under a traditional insurance policy is “triggered” when the policyholder suffers a loss as the result of an event caused by an insured peril. As the name suggests, multitrigger coverages require more than one triggering event. The first event is insurance-related (e.g., an earthquake or fire), while the second is often a noninsurance event (e.g., a specified increase in interest rates or decline in the stock market index). Payments for losses from the insurance risk are only paid if the second event or risk is triggered.

Multiple-trigger products (MTPs) are attractive to corporations whose earning power is heavily affected by fluctuations in commodity prices, exchange rates, or interest rates (Swiss Re 2003). Large, well-capitalized corporations with a relatively high risk appetite are especially well suited. Insurance risks, which usually would be retained by the company, could become a severe financial problem if coupled with

another adverse economic event. A hedge for the combined risk can be provided by defining a trigger that is highly correlated with the company's profits.

The remote likelihood of the simultaneous occurrence of two uncorrelated events means that coverage can be provided relatively cheaply. Examples of dual trigger policies include the following (Swiss Re 2003):

- Electric utility company: A dual-trigger policy pays for the actual losses caused by the following two events occurring simultaneously: (1) a power outage resulting from equipment failure or storm-related damage and (2) the spot market price for power exceeding a preset threshold during the storm or equipment-related failure.
- Hospital: A dual-trigger policy pays (1) actual medical malpractice claims above a specified level only if (2) the value of the hospital's equity portfolio falls below a specified level during the same period.
- Iron ore mining company: A dual-trigger policy pays (1) a specified level of workers' compensation claims (not to exceed actual claims) if the claims exceed a specified level at the same time (2) iron ore prices decrease below a specified level.

20.5.8 Contingent Capital

Risk is generally transferred or financed before the occurrence of a loss event. Contingent capital represents one way of financing a loss after the event has occurred. Contingent capital may be particularly useful in financing low-frequency/high-severity exposures.

Contingent capital is similar to a line of credit except that access to the capital is conditional (contingent) upon the occurrence of (i) an insured event and (ii) an impact of a predetermined size on some measure of company financial performance (such as certain financial statement items) (Culp 2005). If both (i) and (ii) occur, then the company is assured of a cash infusion in the form of a loan at its time of greatest need. Put options (which give the owner the right to sell at a predetermined price) on a company's own stock also can be used in the case where item (ii), the financial trigger, is the company's stock price.

While contingent capital solutions can provide liquidity to a company when it needs it the most—possibly even sparing it from insolvency—the financial impact can still be severe. Risk is not actually transferred but is instead merely spread over time, nor is risk diversified across other lines or pooled with other policyholders.

The market for contingent capital is still small, but shows great potential. It is estimated that in 2000 there were several committed capital deals, totaling nearly \$1.5 billion (Swiss Re 2003). The number of deals subsequently declined in 2001, but then increased in 2002 due to the hardening insurance market.

20.5.9 Governmental Participation in ART

A variety of mechanisms are in place around the world that take a public/private risk-sharing approach to natural and manmade disasters. These mechanisms, in

which the government typically acts as a backstop for private industry, are an essential part of the global risk transfer market.

One of the key advantages of such mechanisms is that they cap the potentially unlimited economic consequences private insurers may face from extreme events, such as hurricanes, earthquakes, and terrorist attacks. Insurers' pool of capital is limited and supports not only potential losses arising from future mega-catastrophes, but also dozens of other lines of insurance written across hundreds of millions of commercial and personal lines policies. Government participation in these mega-risks ensures that insurance remains affordable and available for the vast majority of insurable exposures.

Such mechanisms therefore provide an important additional source of capital and capacity to finance catastrophic risk. Although it is debatable whether government assumption of risk can be described in its pure form as alternative risk transfer, there can be no argument that it is increasingly becoming an alternative to traditional forms of risk transfer.

In the United States, the Terrorism Risk Insurance Act is one such example. Enacted in November 2002—14 months after the September 11 terrorist attacks—TRIA is a public/private risk-sharing partnership between the federal government and the insurance industry that provides a backstop (effectively reinsurance) for incurred losses resulting from certain acts of foreign terrorism. The program, which caps the federal government's liability at \$100 billion, is designed to ensure that adequate resources are available for businesses to recover and rebuild if they become the victims of a terrorist attack. Government involvement is triggered only after losses from a certified event exceed the commercial insurance industry's aggregate retention (approximately \$30 billion in 2005). By sharing potential losses from terrorist attacks between private insurers and the government, TRIA was responsible for bringing significant additional capacity and stability to the terrorism insurance market and established a cost-efficient way to manage terrorism risk.

Terrorism risk presents particular challenges for private insurers because the frequency of attacks is unknown and the potential severity of attacks is virtually unbounded, making it very difficult for insurers to appropriately price the risk. Initially established as a three-year program, TRIA was scheduled to expire at the end of 2005; a possible renewal has been the subject of intense debate in Congress and the business community. A public/private risk-sharing approach to terrorism risk is expected to survive in some form in the United States for at least the next several years. In fact, this is the preferred approach to terrorism risk adopted by many countries around the globe, including the United Kingdom, Spain, Austria, France, and Germany.

For example, in Great Britain, a mutual reinsurance pool named Pool Re was set up in 1993 to provide terrorism coverage following acts of terrorism by the Irish Republican Army. The U.K. Treasury is the reinsurer of last resort for Pool Re, protecting it in the event that it exhausts its financial resources following claims payments. Until 2002, Pool Re covered only commercial property damage and business interruption costs arising from acts of terrorism resulting in fire or explosion. However, after the September 11, 2001, terrorist attacks, Pool Re's coverage was expanded to cover all risks, including nuclear and biological contamination, aircraft impact, and flooding if caused by terrorist attacks.

20.6 THE BERMUDA INSURANCE MARKET

Bermuda holds a key position in the global insurance and reinsurance industry. At the end of 2003, the island was home to 1,247 insurers with total assets of \$235.9 billion and capital and surplus of \$87 billion.

Up until the 1980s, the Bermuda market was almost entirely focused on captives, and many new mechanisms were developed to expand their use (Fox 2004, Higginbottom 2002). Group captives were created to enable smaller companies, and those with similar interests, to benefit from greater control over their insurance programs by pooling their risks. The rent-a-captive concept was created in the 1970s to enable smaller firms to benefit from managing their own risks.

In the mid-1980s, large U.S. corporations were finding it difficult to buy excess liability insurance. In response to the market crisis, Bermuda-based ACE Ltd. was formed in 1985, led by Marsh & McLennan with the backing of over \$200 million in initial capital from 34 U.S. companies. In 1986, Marsh again led investors to form XL Capital Ltd (formerly EXEL Ltd). Both companies initially only offered excess liability coverage but later expanded to become large multiline global players.

In 1988, Centre Re (later Centre Solutions) was formed with \$250 million of capital provided by the Zurich Insurance Group and a number of other investors. Centre Re's success made Bermuda the focus for much of the finite reinsurance and finite insurance business that later developed. A number of companies on the island now offer these structured risk solutions.

Bermuda continued its role, reacting quickly to market needs. Mid Ocean Reinsurance Ltd. was formed in 1992 in response to the severe lack of capacity in the property catastrophe reinsurance market. In the same year Hurricane Andrew hit the insurance industry with a \$15.5 billion loss. Later, Bermuda received an influx of over \$4 billion in capital to form an additional seven property catastrophe reinsurers.

Bermuda continued to foster innovation and to expand the number of products and solutions being offered. The period from 1996 to 2001 was one of expansion and diversification, with ACE and XL both making significant acquisitions. During the same period, Bermuda saw the development of some new products with the formation of several life reinsurers and financial guaranty companies.

The year 2001 was another turning point for the Bermuda insurance market, with over 108 new companies formed, both captives and commercial insurance companies. In the wake of the terrorist attack of September 11, 2001, the year saw the raising of significant new capital to replace the billions that left the market. Bermuda was the location for more than half of the new capital that flowed into the reinsurance market.

Bermuda's insurance regulation is designed to facilitate the creation of companies and insurance products while ensuring the companies operate responsibly within specific margins of solvency. The Insurance Act 1978 requires registration of all insurers, reinsurers, insurance managers, brokers, agents, and sales people doing business in Bermuda. The Act also provided for the establishment of the Insurance Advisory Committee, which provides a formal way for the government to obtain advice from the industry on all insurance matters.

In 1995, the Act was amended in response to the changing marketplace, and new regulations were implemented. The Act created four classes, ranging from single

parent captives (Class 1) to highly capitalized, publicly traded companies (Class 4). The Supervisor of Insurance, a nonpolitical appointee under the independent Bermuda Monetary Authority, incorporates insurance and reinsurance companies under a tiered system of regulation.

20.7 CONCLUSION

An ever-changing risk landscape has led to the need to develop a range of alternative methods of risk transfer that can provide coverage where no traditional insurance and reinsurance coverage is available and greatly increase capacity. Alternative risk transfer is a concept that defies exact definition but covers a multitude of carriers and products, from self-insurance, to captives, to risk-retention groups, to finite risk reinsurance, catastrophe bonds, and even government participation in the global risk transfer market (see Table 20.15).

The development of the ART market is both an opportunity for and a challenge to insurers. We have shown how pricing and availability problems can make ART an attractive solution, especially for unique and large risks, but also how the very complexity of some ART solutions can be a barrier to their development. In a world of increasing technological advancement, a time-consuming and expensive option is unlikely to meet with approval. In addition, the impact of increasing regulatory scrutiny and compliance standards may cause greater hesitance among risk bearers to pursue certain categories of ART in the future.

Nevertheless, the growing numbers of captives and increasing levels of self-insurance among corporations around the globe, especially in the United States, indeed, are an indication of the critical need met by alternative methods of risk transfer. Catastrophe securitizations also continue their steady growth, reflecting investors' increasing appetite for risk. Another alternative to traditional insurance and reinsurance markets in the shape of government participation in risk is an unfolding area, particularly in response to risks such as terrorism, that are widely accepted to be uninsurable beyond certain limits and that so far have attracted little support from the global capital markets.

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20.9 LEXICON

- Alternative Markets**—Mechanisms used to fund self-insurance. This includes captives, which are insurers owned by one or more non-insurers to provide owners with coverage. Risk-retention groups, formed by members of similar professions or businesses to obtain liability insurance, are also a form of self-insurance.
- Captives**—Insurers that are created and wholly owned by one or more non-insurers to provide owners with coverage. A form of self-insurance.
- Catastrophe Bonds**—Risk-based securities that pay high interest rates and provide insurance companies with a form of reinsurance to pay losses from a catastrophe such as those caused by a major hurricane. They allow insurance risk to be sold to institutional investors in the form of bonds, thus spreading the risk.
- Commercial Lines**—Products designed for and bought by businesses. Major coverages include business interruption, commercial auto, comprehensive general liability, directors and officers liability, product liability, professional liability, and workers’ compensation.
- Contingent Capital**—A way of financing a loss after an event. An agreement, entered into before any losses occur, that enables an organization to raise cash by selling stock or issuing debt at prearranged terms following a loss that exceeds a certain threshold.
- Federal Liability Risk Retention Act**—The 1986 law that expanded the Federal Product Liability Risk Retention Act of 1981, to allow for the formation of risk-retention groups and risk-purchasing groups in all areas of commercial liability, except workers’ compensation.
- Federal Product Liability Risk Retention Act**—The 1981 law that provided for the formation of risk-retention groups and risk-purchasing groups in the areas of products and completed operations liability.
- Finite Risk Reinsurance**—Contract under which the ultimate liability of the reinsurer is capped and on which anticipated investment income is expressly acknowledged as an underwriting component. Also known as financial reinsurance because this type of coverage is often bought to improve the balance sheet effects of statutory accounting principles.
- Fronting**—A procedure in which a primary insurer acts as the insurer of record by issuing a policy, but then passes the entire risk to a reinsurer in exchange for a commission. Often, the fronting insurer is licensed to do business in a state or country where the risk is located,

but the reinsurer is not. The reinsurer in this scenario is often a captive or an independent insurance company that cannot sell insurance directly in a particular country.

Insurance Pool—A group of insurance companies that pools assets, enabling them to provide an amount of insurance substantially more than can be provided by individual companies to ensure large risks such as nuclear power stations.

Protected Cell Captive (PCC)—A form of captive that is a variation on rent-a-captives. The PCC isolates each participant's assets and liabilities as if they were a separate company, called a cell, doing business with the core company. Also known as segregated cell captive.

Personal Lines—Property-casualty insurance products that are designed for and bought by individuals, including homeowners and automobile policies.

Rent-a-Captives—A form of captive serving businesses that are unable to capitalize a captive but are willing to assume a portion of their own risk and share in the underwriting profits and investment income. Generally sponsored by insurers or reinsurers, which essentially “rent out” their capital for a fee.

Risk-Retention Groups—Insurance companies that band together as self-insurers and form an organization that is chartered and licensed as an insurer in at least one state to handle liability insurance.

Securitization of Insurance Risk—Use of the capital markets to expand and diversify the assumption of insurance risk. The issuance of bonds or notes to third-party investors directly or indirectly by an insurance or reinsurance company or a pooling entity as a means of raising money to cover risks.

Self-insurance—The concept of assuming a financial risk oneself, instead of paying an insurer to take it on. Every policyholder is a self-insurer in terms of paying a deductible and co-payments. Large firms often self-insure frequent, small losses such as damage to their fleet of vehicles.

Special Purpose Vehicle—A one-off reinsurance company whose sole purpose is to transform a traditional reinsurance transaction into an insurance-linked securitization.