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TERRORISM RISK INSURANCE

Comparison of Selected Programs in the United States and Foreign Countries

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GAO Highlights

Highlights of GAO-16-316, a report to congressional committees

April 2016

TERRORISM RISK INSURANCE

Comparison of Selected Programs in the United States and Foreign Countries

Why GAO Did This Study

A number of countries have established national terrorism risk insurance programs to respond to market shortages for such insurance resulting from attacks either in their own or other countries. Many programs were created following the events of September 11, 2001, but some existed earlier. In 2002, the Terrorism Risk Insurance Act established a program to ensure the availability of terrorism risk insurance in the United States.

The Terrorism Risk Insurance Program Reauthorization Act of 2015 includes a provision for GAO to review how other countries have structured and funded their terrorism risk insurance programs. This report compares the structures of and the role of government in selected foreign terrorism insurance programs and examines the loss-sharing arrangements between the government and private sector. Of the 16 programs identified through a literature review, GAO selected 6 representing a range of structures to examine in-depth—programs in Australia, Austria, India, Spain, the United Kingdom, and the United States. For the six programs, GAO reviewed program financial statements, annual reports, and documentation from the Organisation for Economic Co-operation and Development and interviewed officials from terrorism insurance programs, agencies, reinsurance companies, and trade associations.

GAO makes no recommendations in this report. GAO provided a draft to Treasury and the five selected programs for their review and received technical comments, which were incorporated as appropriate.

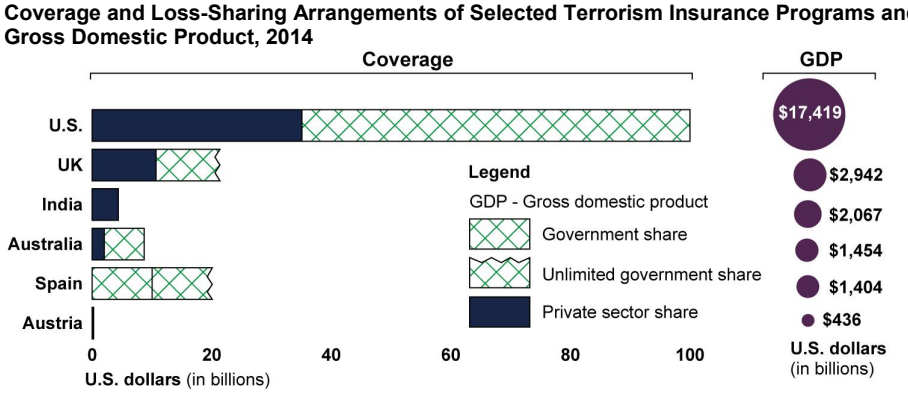
View GAO-16-316. For more information, contact Daniel Garcia-Diaz at (202) 512-8678 or GarciaDiazD@gao.gov.

What GAO Found

The structures of the 16 terrorism insurance programs GAO reviewed generally fell into three broad categories. Programs in the first category have a multilayered structure, with insurers, reinsurers (which offer insurance for insurers), and governments providing coverage. Several programs, including those in Australia and the United Kingdom (UK), use this approach. In the second category, which includes Spain and Israel, government entities provide all the coverage for terrorism risk, and insurers and reinsurers do not take on any risk. The third category includes programs, such as those in Austria and India, in which insurers and reinsurers are entirely responsible for providing coverage and the government has no financial role. In comparison, the U.S. program involves coverage from the government and insurers, but it differs from many programs as its program does not include the purchase of reinsurance.

Among the six programs GAO reviewed in-depth, the loss-sharing arrangements among program participants vary, but program reserves and the private sector likely would be able to cover losses from most conventional terrorist events before public funds are needed, according to program officials. However, in the event of a very large terrorist attack, governments that have a role would potentially be responsible for a substantial proportion of losses. As shown in the figure, programs in which the government provides a layer of financial support have greater total amounts of coverage compared to those with only private sector participation. Additionally, private sector coverage is larger under programs in countries with larger economies, as measured by gross domestic product. In the event of a large terrorist attack, insurers in the United States could pay more than the total coverage provided by the other five countries' national programs. Most of the selected programs collect premiums up front to cover losses and program costs; the United States, in contrast, collects reimbursement for actual losses and associated expenses after an event occurs.

Coverage and Loss-Sharing Arrangements of Selected Terrorism Insurance Programs and Gross Domestic Product, 2014



Source: GAO analysis of 15 U.S.C. § 6701 note, financial data from Organisation for Economic Co-Operation and Development, program documents, and interviews, and economic indicators from the World Bank. | GAO-16-316

Note: In the UK, the government share is an unlimited line of credit to the private program that is expected to be repaid. Spain's funds include program reserves for terrorism and other catastrophic events and an unlimited government backstop. The unlimited government shares are portrayed as matching the program funds, but the actual size could differ depending on the type and size of terrorist attack. Austria's program is entirely private.

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Abbreviations

ARPC	Australian Reinsurance Pool Corporation
Austrian Pool	Österreichischer Versicherungspool zur Deckung von Terrorrisiken
Consorcio	Consorcio De Compensación De Seguros
GDP	gross domestic product
IMTRIP	Indian Market Terrorism Risk Insurance Pool
NAIC	National Association of Insurance Commissioners
NBCR	nuclear, biological, chemical, or radiological
OECD	Organisation for Economic Co-operation and Development
OECD E- Platform	International E-Platform on Terrorism Risk Insurance
Pool Re	Pool Reinsurance Company Limited
Treasury	U.S. Department of the Treasury
TRIA	Terrorism Risk Insurance Act of 2002

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April 12, 2016

The Honorable Richard C. Shelby
Chairman
The Honorable Sherrod Brown
Ranking Member
Committee on Banking, Housing, and Urban Affairs
United States Senate

The Honorable Jeb Hensarling
Chairman
The Honorable Maxine Waters
Ranking Member
Committee on Financial Services
House of Representatives

A number of countries have established terrorism risk insurance programs to respond to the severe market shortage for such insurance following attacks in either their own or other countries. For example, after September 11, 2001, many insurers started excluding coverage for terrorism risk. Congress enacted the Terrorism Risk Insurance Act of 2002 (TRIA) to help ensure the continued availability and affordability of commercial property and casualty insurance for terrorism risk and to address concerns that the lack of terrorism risk insurance could have significant effects on the U.S. economy.[1] In a few countries with histories of political violence, programs covering terrorism risk were in existence

[1]Pub. L. No. 107-297, 116 Stat. 2322 (2002). TRIA was reauthorized in 2005, 2007, and again in 2015. See Terrorism Risk Insurance Extension Act of 2005, Pub. L. No. 109-144, 119 Stat. 2660 (2005); Terrorism Risk Insurance Program Reauthorization Act of 2007, Pub. L. No. 110-160, 121 Stat. 1839 (2007); and Terrorism Risk Insurance Program Reauthorization Act of 2015, Pub. L. No. 114-1,121 Stat. 3 (2015). In this report, we collectively refer to the original act and its reauthorizations as TRIA. Insurance lines of business generally can be divided into at least two parts: (1) property and casualty and (2) life and health. Property and casualty insurance is further divided into personal and commercial lines. For example, personal lines include automobile, homeowners, and renters insurance for individuals. The major commercial lines include multiple perils (including business interruption), fire, liability, and workers' compensation. TRIA solely applies to specified commercial property and casualty lines of insurance. Many of the foreign national terrorism insurance programs also cover business interruption, and some include life or personal coverage as well.

before the September 11, 2001, attacks. Many other countries established terrorism risk insurance programs following the events of September 11, 2001. In these countries, governments and national insurance associations recognized the significance of ensuring the availability of insurance for terrorism risk. As a result, they developed national terrorism risk insurance programs to continue economic activity after a potential terrorist attack and avoid insurance-market failure, which is when the insurance industry will not provide coverage for risks that are considered too expensive to insure or uninsurable.

In 2015, Congress reauthorized TRIA with the Terrorism Risk Insurance Program Reauthorization Act of 2015.[2] This act includes a provision for us to examine how terrorism risk insurance programs have been structured and funded. For terrorism risk insurance programs in the United States and selected foreign countries, this report (1) compares the organizational structures and the role of government and (2) examines the loss-sharing arrangement between the government and private sector and the methods by which the programs are funded.

To compare the structure and the role of government in terrorism risk insurance programs, we analyzed 16 national terrorism risk insurance programs, including the U.S. program, which we identified through a literature search and interviews.[3] Using these programs, we developed generalized descriptions of features that a national terrorism risk insurance program may have and categorized the programs based on these generalized descriptions. We compared the features of the U.S. program to these categories. We conducted a content analysis, reviewing reports and profiles of terrorism risk insurance programs from the Organisation for Economic Co-operation and Development (OECD), industry reports on terrorism risk insurance, and documents available on

[2]Pub. L. No. 114-1,121 Stat. 3 (2015).

[3]We reviewed 16 terrorism risk insurance programs in the following countries: Australia, Austria, Bahrain, Belgium, Denmark, France, Germany, India, Israel, Netherlands, Russia, South Africa, Spain, Switzerland, United Kingdom, and the United States.

national terrorism risk insurance program websites, such as annual reports, and program descriptions.[4]

To examine the loss-sharing arrangements, we further assessed features of and compared the national terrorism risk insurance programs in Australia, Austria, India, Spain, the United Kingdom, and the United States. We selected the 6 programs in these countries from among the 16 programs we reviewed to represent different types of programs, including (1) at least one program that did not include any government financial support as part of the insurance coverage, (2) at least one program in a country that was not a member of OECD, and (3) at least one program that was developed prior to 2001. In comparing the 5 foreign terrorism risk insurance programs with the U.S. program, we took into consideration the economic output of the different countries. In addition, we interviewed officials from Australia's Government Treasury and the Australian Reinsurance Pool Corporation (ARPC); Austria's Österreichischer Versicherungspool zur Deckung von Terrorrisiken; Spain's Consorcio De Compensación De Seguros (Consorcio); and, in the United Kingdom, HM Treasury, the Bank of England's Prudential Regulation Authority, and the Pool Reinsurance Company Limited (Pool Re). We obtained written responses from officials from the Indian Market Terrorism Risk Insurance Pool. Unless otherwise noted, we converted financial data into U.S. dollars for the year specified using purchasing power parity data and converted U.S. dollars into 2014 constant dollars using gross domestic product data when appropriate.[5] We did not conduct an independent legal analysis to verify the information provided about the laws, regulations, or policies of the foreign countries selected for this study. To analyze the administrative costs of the foreign terrorism risk insurance programs and how such costs were incorporated into program fees or premiums we reviewed the programs audited financial statements, where available. See appendix I for more information on our scope and

[4]The Organisation for Economic Co-operation and Development (OECD) comprises 34 member countries which span the globe, from North and South America to Europe and Asia-Pacific. The mission of the OECD is to promote policies that will improve the economic and social well-being of people around the world.

[5]The purchasing power parity is the rate at which the currency of one country would have to be converted into that of another country to buy the same amount of goods and services in each country. This analysis allows for a comparison across the programs, including the U.S. program, using the same rate.

methodology. Appendix II contains more information on the 16 programs covered in our study.

We conducted this performance audit from January 2015 to April 2016 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Background

Overview of National Terrorism Risk Insurance

The terrorist attacks of September 11, 2001, drastically changed the way the insurance industry viewed the risk of terrorism. Before September 11, 2001, insurers generally did not exclude or separately charge for coverage of terrorism risks for commercial property and casualty policies. After September 11, 2001, however, insurers and reinsurers started excluding the coverage because they determined that the risk of loss from a catastrophic terrorist event was unacceptably high.[6] Insurers charge policyholders premiums to cover the expected losses an insurer may pay on claims, as well as expenses for providing insurance, such as administrative costs, and for the cost of capital to cover unexpectedly high losses and otherwise support the solvency of the insurance company. Insurance companies need to be able to predict with some reliability the frequency and severity of insured losses to establish their exposure—that is, level of risk—and price their premiums accordingly. As we have reported previously, measuring and predicting losses associated with terrorism risks can be particularly challenging for reasons including lack of experience with similar attacks, difficulty in predicting terrorists' intentions,

[6]Reinsurance is insurance for insurers. Reinsurers reimburse insurers for the portion of claims paid that are the reinsurer's responsibility under the terms of the reinsurance agreement. The reinsurance business is global, and some of the largest reinsurers are based abroad. In the United States, the exclusion of terrorism risk does not include workers' compensation—states generally require that workers' compensation insurance cover terrorism and do not permit exclusions.

and the potentially catastrophic losses that could result.[7] Reinsurers follow an approach similar to that of insurers for pricing risk exposures and charging premiums based on that risk and, therefore, face similar challenges in pricing terrorism risks.

One way national terrorism risk insurance programs address these challenges and encourage insurers to continue offering terrorism risk insurance is by sharing some of the risks through an insurance pool or reinsurance arrangements. An insurance pool is an organization of insurers or reinsurers through which members underwrite particular types of risk, such as terrorism risk, with premiums, losses, and expenses shared in an agreed manner. Pools also may purchase reinsurance to further offset their risk.[8] Reinsurers typically assume part of the risk and part of the premiums originally taken by the insurer or pool. In some programs, which are market-based, the insurance pool, rather than directly offering reinsurance to its members, allows members to jointly purchase reinsurance. This approach allows the members to collectively purchase reinsurance at more favorable terms than if the individual insurers were purchasing reinsurance directly from the reinsurer. Through insurance pools and reinsurance arrangements, the potential risks and costs of claims related to terrorism are spread across multiple participants.

Other ways these programs address the challenges of covering potential terrorism losses are through cost-sharing features and funding methods, some of which are generally used in the insurance industry, including the following:

- **Deductibles**. In general, a deductible is the amount of losses paid by the policyholder (whether the insured of a direct insurer, or an insurer that is covered under a policy of reinsurance) before the insurer or reinsurer begins to pay any of the remaining loss. It may be a specified dollar amount or a percentage of claim amounts.

[7]See, for example, GAO, *Terrorism Insurance: Measuring and Predicting Losses from Unconventional Weapons Is Difficult, but Some Industry Exposure Exists*, GAO-06-1081 (Washington, D.C.: Sept. 25, 2006).

[8]In the case of a reinsurance pool, the reinsurance for reinsurers is known as retrocession.

- **Coshares.** A coshare is a set percentage of loss that the policyholder must continue to cover even after the deductible has been met. In the case of national terrorism risk insurance programs, it may be the insurers participating in the programs that pay the deductibles and coshares before coverage from other participants, such as reinsurers or the government, is triggered.

- **Government backstop.** Many foreign governments offer financial support, sometimes referred to as a "government backstop," to their national terrorism risk insurance programs or individual insurers to cover a certain threshold of claims.

- **Combination funding.** Programs also may use a combination of funding methods. For example, programs may charge a premium to participating insurers in exchange for some of the risk for paying potential losses.

- **Pre-event funding.** Charging premiums for coverage is a form of pre-event funding because payment is received before an event occurs.

- **Post-event funding.** Another approach to financing insurance coverage is through post-event funding, which involves collecting reimbursement for actual losses and associated expenses after an event has occurred.

The events covered by terrorism risk insurance programs vary depending on perceived risks in different countries. Some countries that have experienced domestic turmoil have terrorism risk insurance programs that include coverage for public disorder and riots along with terrorism, whereas other programs cover only large-scale terrorist events. In addition, terrorism risk insurance programs differ on coverage for the types of weapons used in terrorist attacks. Because the losses from a terrorist attack using an unconventional weapon are particularly difficult to predict and price, some terrorism risk insurance programs only provide coverage for terrorist attacks using conventional weapons.[9] Unconventional weapons generally include nuclear, biological, chemical,

[9]See GAO, *Terrorism Insurance: Status of Coverage Availability for Attacks Involving Nuclear, Biological, Chemical or Radiological Weapons*, GAO-09-39 (Washington, D.C.: Dec. 12, 2008).

or radiological (NBCR) weapons, as well as cyberterrorism. Cyberterrorism is a growing area of concern in terms of terrorism risk insurance programs because our infrastructure, such as the control systems for public utilities, are increasingly interconnected, and a cyberterrorism event could cause minor to severe business disruption and physical damage to property.

Many countries do not have national terrorism risk insurance programs for various reasons. In 2005, OECD reviewed national terrorism risk insurance programs and reported several examples of countries that have not implemented such programs.[10] For example, OECD found that in Greek and Scandinavian markets, insurers had not excluded terrorism coverage, making government involvement to support terrorism risk insurance unnecessary. OECD also reported in 2005 that the insurance industries in Italy and Japan had proposed national terrorism risk insurance programs after 2001. However, according to the report, these proposals were not implemented due to lack of political will in Italy and only limited support from corporate customers as well as no strong public demand for terrorism risk insurance in Japan. In addition, in several countries where national terrorism risk insurance programs were developed and administered by the local insurance industry, such as Switzerland, governments did not want to interfere in local markets. In countries where no national terrorism risk insurance program exists, such as Canada and Mexico, individual organizations may still obtain coverage for terrorism risk from global insurers and reinsurers.

The U.S. Program

Congress enacted TRIA in 2002 in response to widespread uncertainty in the terrorism risk insurance market. TRIA requires that insurers make terrorism coverage available to commercial property and casualty insurance policyholders or those seeking to obtain such a policy. TRIA was enacted as a temporary program that would terminate at the end of 2005 to allow for a transitional period for the private markets to stabilize and build capacity to absorb any future losses related to terrorism. However, the program has been extended and modified three times. Through its most recent reauthorization in 2015, Congress extended the program to 2020.

[10]Organisation for Economic Co-Operation and Development (OECD), *Terrorism Risk Insurance in OECD Countries* (Paris: 2005).

TRIA is implemented by the U.S. Department of the Treasury (Treasury) as the Terrorism Risk Insurance Program. Under this program, losses are shared between the U.S. government and insurance companies, with Treasury reimbursing insurers for a share of losses associated with certain certified acts of foreign or domestic terrorism (see fig. 1).[11] The 2015 reauthorization of TRIA includes changes to the program that gradually shift a greater share of losses from the federal government to insurance companies; this share is to increase annually for 5 years. In order for government coverage to be available, aggregate industry insured losses from certified acts must exceed a certain amount, known as a "program trigger." For calendar year 2016, this amount was $120 million.[12] If insured losses for a certified act exceed the program trigger, an individual insurer that experiences losses in excess of a deductible (20 percent of its previous year's direct earned premiums in TRIA-eligible lines) may be eligible for reimbursement under the program.[13] After the insurer has satisfied its deductible, the federal government would reimburse the insurer for a certain percentage of its losses (84 percent for calendar year 2016) above the deductible, and the insurer would be responsible for the remaining portion (16 percent for calendar year 2016), with a gradual decrease in the federal government share until it reaches

[11]Under TRIA, an act of terrorism is, subject to exception, any act that is certified by the Secretary of the Treasury, in consultation with the Secretary of Homeland Security and the Attorney General of the United States, (i) to be an act of terrorism; (ii) to be a violent act or an act that is dangerous to (I) human life, (II) property, or (III) infrastructure; (iii) to have resulted in damage within the United States, or outside of the United States in the case of (I) certain air carriers or vessels, or (II) the premises of a U.S. mission; and (iv) to have been committed by an individual or individuals, as part of an effort to coerce the civilian population of the United States or to influence the policy or affect the conduct of the U.S. government by coercion. 15 U.S.C. § 6701 n. § 102(1).

[12]The 2015 reauthorization provided that the required amount of aggregate insured losses to trigger the program would increase in each year by $20 million, starting with $100 million in 2015 and ending with $200 million in 2020. *See* Pub. L. No. 114-1, § 103(3), 129 Stat. 3, 4 (codified at 15 U.S.C. § 6701 n. § 103(e)(1)(B)).

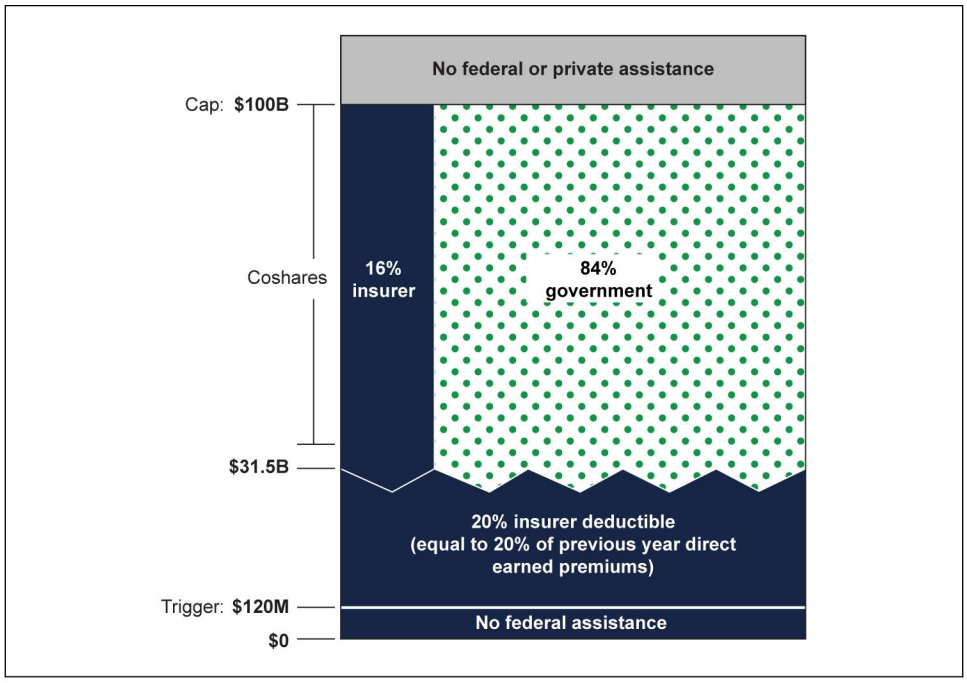
[13]TRIA-eligible lines are commercial lines of property and casualty insurance, including excess insurance, workers' compensation insurance, and directors and officers liability insurance, and are commercial lines only within the following lines of insurance (subject to certain exceptions), as defined by the National Association of Insurance Commissioners' Exhibit of Premiums and Losses: aircraft (all perils), allied lines, boiler and machinery, commercial multiperil (liability and nonliability), fire, inland marine, ocean marine, other liability, products liability, and workers' compensation. 31 C.F.R. § 50.5(u).

80 percent, in 2020.[14] Annual coverage for losses is limited, and aggregate industry insured losses in excess of $100 billion are not covered by private insurers or the federal government. The program also includes a provision for mandatory recoupment of the federal share of losses in some instances. Under this provision, when insurers' uncompensated insured losses are less than a certain amount (up to $31.5 billion for 2016), Treasury must impose policyholder premium surcharges on commercial property and casualty insurance policies until total industry payments reach 140 percent of any mandatory recoupment amount.[15] When the amount of federal assistance exceeds any mandatory recoupment amount, TRIA allows for discretionary recoupment. Specifically, Treasury may recoup additional amounts based on the ultimate cost to taxpayers after mandatory recoupment, the economic conditions in the marketplace, the affordability of commercial insurance for small and medium-sized businesses, and any other factors Treasury considered appropriate.

[14]The 2015 reauthorization of TRIA provided that the federal share of compensation under the program starts at 85 percent in 2015, as noted, and decreases by 1 percentage point each calendar year, beginning on January 1, 2016, until it reaches 80 percent. *See* Pub. L. No. 114-1, § 102, 129 Stat. 3, 4 (codified at 15 U.S.C. § 6701 n. § 103(e)(1)(A)).

[15]The federal government is to collect an amount equal to 140 percent of the mandatory recoupment amount. The mandatory recoupment amount is the difference between the insured marketplace aggregate retention amount and the aggregate amount of insurers' uncompensated insured losses. The 2015 reauthorization provided that the marketplace aggregate retention amount is to increase by $2 billion per year, starting in 2015, until it is equal to $37.5 billion, at which point it is to be determined based upon the annual average of the sum of insurer deductibles for the prior 3 years. *See* Pub. L. No. 114-1, § 104(1), 129 Stat. 3, 4 (codified at 15 U.S.C. § 6701 n. § 103(e)(6)-(7)).

Figure 1: Loss-Sharing under the Terrorism Risk Insurance Act, as of 2016



Source: Adapted from Congressional Budget Office. | GAO-16-316

Several Program Structures Involve Both Government and the Private Sector, Including the U.S. Program

The structures of the 16 terrorism risk insurance programs we reviewed involve governments and private insurers in providing terrorism risk coverage and program administration in different ways. Seven of the 16 programs we reviewed have a multilayered structure in which insurers and governments provide coverage for terrorism risk, and in some cases the government administers the programs. In 2 other programs, government entities provide all coverage of terrorism risk and administer the programs. For another 6 programs, the governments do not have a primary financial role. The U.S. program shares both similarities and differences with the 7 multilayered programs.

In Several Programs, Structures Have Multiple Layers of Coverage from Insurers, Program Reserves, Reinsurers, and Governments

Of the 16 terrorism insurance programs we reviewed, 7 are structured with multiple layers of coverage and a government backstop: the programs in Australia, Belgium, Denmark, France, the Netherlands, Germany, and the United Kingdom.[16] With the exception of the program in the United Kingdom, which was established in 1993, these programs were established after the September 11, 2001, terrorist attacks to encourage private sector involvement in the market for terrorism risk insurance. They generally also provide coverage for catastrophic terrorist events such as, NBCR attacks (see app. II for more information). For example, the national terrorism risk insurance program in Denmark, which was introduced in 2010, focuses only on NBCR attacks in response to a market failure for reinsurance of NBCR risks in Denmark.[17]

Although certain program features may differ, the multilayered program structure in the countries in this category were composed of two to six layers of coverage provided by insurance companies, program reserves, reinsurers, and governments (fig. 2):

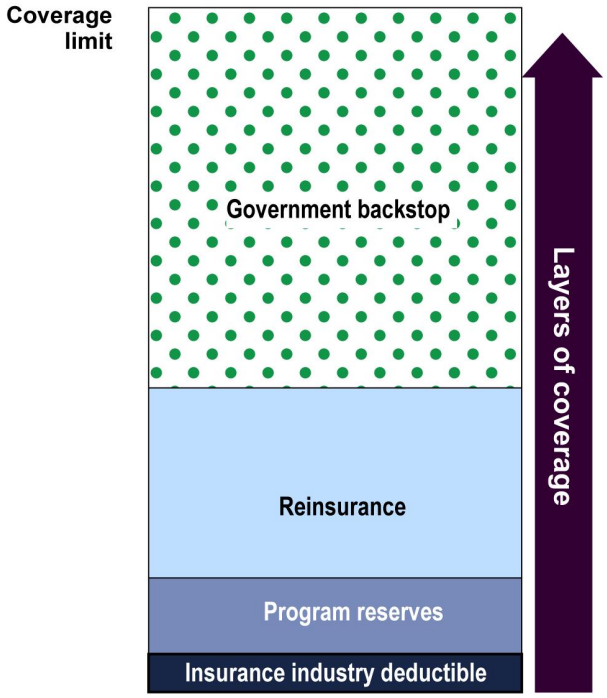
- **Insurance industry deductible.** Insurance companies cover the first layer of losses up to a specified amount.
- **Program reserves.** Programs collect premiums from insurers and may use some of the pooled funds, or reserves, to pay for a layer of losses.
- **Reinsurance.** Programs often use collected premiums to purchase reinsurance from the international market to cover another layer of losses.
- **Government backstop.** Governments are liable for a final layer of losses, possibly subject to a maximum coverage cap, if other participants have met their payment requirements and excess claims remain.

[16]Layering in insurance is a method of allocating amounts of risk among several participants.

[17]A government analysis found that while Danish insurers were offering this coverage, they did not have the capacity to cover an actual event, nor could they access adequate coverage on the international reinsurance market. Therefore, the Danish government saw the need to provide a government reinsurance program for NBCR risks. Michael Holm, "The Danish Terrorism Insurance Scheme," *Terrorism Insurance In 2010: Where Do We Stand?* Organisation for Economic Co-Operation and Development (2011).

Each participant generally (insurance industry, program reserves, private reinsurance, and the government) pays for a certain share of claims throughout the multilayered process. If claim amounts exceed a layer's designated payment limit, the next layer of participants becomes liable for excess costs. As we discuss in greater detail later in this report, multiple layers of coverage spreads risk among program participants.

Figure 2: General Structure of a Multilayered Terrorism Risk Insurance Program



Source: GAO analysis. | GAO-16-316

Under a multilayered structure, insurance companies are generally responsible for the first layer of insurance protection—the insurance industry deductible—and may be required to cover a certain amount of losses before other participants provide the additional layers of insurance protection. Depending on the program, the insurance industry deductible amounts may be calculated per individual insurer or as an industry aggregate amount. For example, individual insurance companies that participate in the Australian terrorism risk insurance program are required to pay deductibles ranging from $65,000 (A$100,000) to a maximum of $6.5 million (A$10 million). The individual insurance industry deductibles

are charged up to a maximum industry aggregate of $65.1 million (A$100 million) per event. In the United Kingdom's program, the industry-wide deductible limits are $141 million (£100 million) per event and $282 million (£200 million) for the annual aggregate.

The middle layers of coverage are typically composed of program reserves, private reinsurance, or a combination of the two. Generally, insurance companies that participate in these programs pay a premium to a pool, which may be used to purchase reinsurance. Programs may pay for losses above the industry deductible using some of these program reserves, private sector reinsurance, or both. For example, Australia's program has middle layers that include a combination of program reserves and private reinsurance.[18] The program reserves are used to pay a deductible before the private sector reinsurance, then reinsurance covers a layer of losses, and any remaining program reserves cover an additional layer of losses before the government backstop would be triggered. Similarly, the middle layers of the United Kingdom's program pay for losses using reserve funds and private reinsurance. All seven of the multilayered programs have purchased private reinsurance. In programs in Belgium, France, Germany, and the Netherlands, the middle layers primarily rely on privately purchased reinsurance. Reinsurance in these instances shifts risk from the program to the private reinsurance market. According to a few program officials and industry representatives, reinsurance also provides a layer of coverage before the government backstop through the layer of coverage it provides.

The final layer of coverage in the generalized multilayered structure is the government backstop, which serves as financial assistance when other layers have been exhausted. The amount of the government backstop for national terrorism risk insurance programs varies among these seven programs. For example, Denmark's government backstop is about $2 billion (15 billion Danish Krone), whereas the Netherlands' government backstop is about $61 million (€50 million). According to an OECD report, a maximum cap on government support for terrorism risk insurance programs limits the government's financial responsibility if a catastrophic terrorist event occurs.[19] However, the report indicated that it may also

[18]Organisation for Economic Co-Operation and Development, *Terrorism Risk Insurance in OECD Countries*.

[19]Organisation for Economic Co-Operation and Development, *Terrorism Risk Insurance in OECD Countries*.

leave policyholders with uncompensated losses in the case of a catastrophic terrorist event, and it could potentially lead to the government paying for coverage through other means, such as disaster assistance grants or loans. Of the seven multilayered programs we reviewed, only France has an unlimited backstop that is not repaid. Although the United Kingdom's program has an unlimited line of credit from the government, the program is required to pay back the government for any funds that it borrows through future premiums from participating insurers. In the event the government backstop is used in Australia and Denmark, the programs can recoup government losses after an event occurs by raising program premiums or levying taxes on policyholders, if needed.

Among programs with a multilayered structure, governments have varying levels of administrative involvement. For example, a government agency administers Denmark's program. In Australia, a government corporation administers the country's program and reports to a Minister, which is currently the Assistant Treasurer.[20] The program receives direction from the Minister for setting premiums and the Minister appoints board members. In contrast, private organizations administer the programs in Belgium, Germany, France, the Netherlands, and the United Kingdom. These organizations collect premiums from and provide coverage to member insurers with generally limited administrative involvement from their governments. However, in most of these countries, the government established legislation or coordinated with private industry to establish the program. For example, Belgium's program was established by law and is administered by a nonprofit association of insurance companies. The French program was started as a public-private partnership between the French insurance industry and the government. The program consists of two organizations: a private association of insurers that administers the pool and a government-owned insurance company that provides the unlimited government backstop.

[20]We refer to a government organization as part of the government which is assigned to administer government program(s) or services related to terrorism insurance. Government entities may receive government appropriations or be attached to a ministry or department within the government. While some government entities are run as a corporation and self-funded, they may also receive some direction from or have board members appointed by a government ministry or department. In Australia, the government corporation which administers the country's terrorism risk insurance program receives no appropriations and is self-funded through the premiums it receives.

In Some Programs, Only Government Entities Provide Coverage for Terrorism Risk

Two terrorism risk insurance programs we reviewed, those in Spain and Israel, are structured so that government entities provide all the coverage for terrorism risk and also provide program administration. In these cases, government entities, not private insurance companies, establish premiums, manage claims, and provide all of the coverage for terrorism risk. The programs in both countries were established prior to the September 11, 2001, terrorist attacks in response to civil strife or a history of political violence. While the multilayered programs previously discussed are typically structured to cover catastrophic losses, the programs in Spain and Israel are structured to cover events that could result in both larger and smaller amounts of losses, including NBCR events.

In Spain, the organization that administers the program is a government entity.[21] This organization collects funds from insurers that issue base policies for ordinary risks, maintains a reserve, and manages claims from policyholders. Insurers issue policies that include two kinds of coverage, ordinary risks and extraordinary risks, which includes terrorism and natural catastrophes. The insurer collects the premiums for both types of coverage and transfers the extraordinary risk premiums to the program on a monthly basis. Insurers manage premiums and claims related to ordinary risks. The program holds the extraordinary risk premiums in a reserve account from which it pays claims. The program maintains its own reserve funds and assets, which are held as dedicated funds to pay insurance claims and are independent from the Spanish government's public budget. Insurers do not pay a deductible in the event of a terrorist attack, but covered policyholders may have to pay a deductible. Reinsurers do not provide a layer of coverage in the program. The government provides the only layers of coverage for terrorism risk through the program reserve and an unlimited government backstop, if needed.[22]

In Israel, a government agency administers payment of claims for terrorist events. Israel established a compensation fund that is administered by a

[21]Specifically, the organization that administers the program is a public business institution which relies on the Ministry of Economy and Competitiveness.

[22]According to a program official, the government backstop has never been used since the program was created.

government agency, the Ministry of Finance, through the Israel Tax Authority. After a terrorist event, property owners file claims and government-provided appraisers assess the property damage to establish compensation amounts. The government is responsible for all of the financial risk of this program and provides unlimited financial assistance. Financial compensation for direct damages to commercial property is unlimited. Unlike other programs we reviewed, the program is funded through property and other taxes rather than premiums.

Insurers and Reinsurers Provide All the Coverage for Terrorism Risk in Some Programs

In some programs we reviewed the insurance industry provides all the coverage for terrorism risk, and the government provides no financial backstop to the program. In most of these programs, the government also has little administrative role. Programs in this category include those in Austria, Bahrain, India, Russia, South Africa, and Switzerland. Most of these programs were established following the September 11, 2001, terrorist attacks and cover property damage but exclude coverage of NBCR events. However, the programs in Bahrain and South Africa were established earlier and, like the programs in Spain and Israel, which were also established prior to September 11, 2001, they may include coverage of damage from events, such as war or riots.

Some of these programs have layers of coverage from insurers, program reserves, and reinsurance, while others are primarily reinsurance arrangements where program members collectively purchase private reinsurance for sharing losses from a terrorist attack. For example, in India insurers pay premiums to be members of the program and are responsible for a deductible amount to cover the first layer of losses. The program collects premiums, manages program reserves, and purchases reinsurance. Similarly, the program in South Africa also includes layers of coverage from insurers, program reserves, and reinsurance. In these programs the government provides no financial backstop, but government-owned organizations administer both programs, and in India the government approves the premium rates proposed by the program administrator. In other programs, such as those in Austria, Bahrain, Russia, and Switzerland, insurance companies have established reinsurance arrangements with each other to cover losses, and their governments have no financial or administrative roles. For example, the Austrian program is run by an insurance association. Member insurance companies maintain individual reserves to cover their program deductibles, and they collectively purchase reinsurance above the deductible amount. Similarly, the Russian program is run by an association of insurers and uses a reinsurance arrangement in which

member insurance companies each pay a share to purchase reinsurance coverage. The governments provide neither financial nor administrative support to these programs.

The U.S. Program Has Layers of Coverage from Insurers and the Government, but Its Structure Does Not Include Reserves and Reinsurance

Like many of the foreign programs we reviewed, the structure of the U.S. terrorism risk insurance program includes multiple layers of coverage, with insurers and the government providing layers of coverage. If a sufficiently costly attack were to occur, insurers would pay losses to policyholders, and a portion of the losses paid above the insurer's deductible would be reimbursable by the government. Similar to other programs, the final layer of the U.S. program is a government backstop, although as noted later, backstop payments are made in conjunction with the coshares of participating insurers. Like the programs in Australia, Belgium, Denmark, Germany, and the Netherlands, the U.S. program also has a cap on the government backstop. The program caps the combined liability for insurers and the government at $100 billion per year.

However, the structure of the U.S. program differs from those of other multilayered programs—for example, those in Australia and the United Kingdom—because it does not have middle layers of program reserves from which to pay claims or purchase reinsurance. Instead, the next layer of coverage after insurer deductibles in the U.S. program consists of coshared payments between the government and insurers. Although reinsurance is not a formal layer of coverage in the U.S. program, individual insurers may purchase reinsurance to help cover the cost of their deductibles or coshares. Another difference is that the U.S program does not collect up-front premiums from insurers. Instead, the government layer of coverage is funded through a recoupment process after an event occurs by levying surcharges on all commercially insured policyholders after a terrorist event. Unlike the programs in Australia, Denmark, and the United Kingdom, which have funding mechanisms both before and after an event has occurred, recoupment after an event occurs is the primary funding mechanism for the government layer in the U.S. program.

Under Most Arrangements Private Sector and Program Funds Would Cover Initial Losses, and Most Programs Fund Losses and Costs Up Front

For the six programs we reviewed in-depth, the private sector and program reserves would cover initial losses and governments are often responsible for a potentially large share of losses in more extreme events. In addition, most of these programs fund losses and costs up front, although the United States, in contrast, uses a post-event funding mechanism for the government layer. Table 1 shows the six programs and some of their attributes.

Table 1: Attributes of Terrorism Risk Insurance Programs for Selected Countries, 2015

	Multilayer structure with government backstop		Government provides all coverage	Insurers and reinsurers provide all coverage		
Country	**Australia**	**United Kingdom**	**Spain**	**India**	**Austria**	**United States**
Program name	Australian Reinsurance Pool Corporation (ARPC)	Pool Reinsurance Limited Company (Pool Re)	Consorcio de Compensación de Seguros (Consorcio)	Indian Market Terrorism Risk Insurance Pool (IMTRIP)	Österreichischer Versicherungspool zur Deckung von Terrorrisiken (Austrian Pool)	Terrorism Risk Insurance Program
Voluntary or mandatory program	Mandatory terrorism coverage for policyholders, but insurer participation in the pool is voluntary	Voluntary terrorism coverage for policyholders and insurer participation in the pool is voluntary	Mandatory coverage for policyholders of base policies that includes terrorism and natural catastrophes	Voluntary terrorism coverage for policyholders and insurer participation in the pool is voluntary	Voluntary terrorism coverage for policyholders and insurer participation in the pool is voluntary	Voluntary terrorism coverage for policyholders, but insurers required to offer it
Program participants	Primary insurers, government pool, reinsurers, government backstop	Primary insurers, private pool, reinsurers, government backstop	Government program, government backstop	Primary insurers, private pool, reinsurers	Primary insurers, reinsurers	Primary insurers, government backstop

	Multilayer structure with government backstop		Government provides all coverage	Insurers and reinsurers provide all coverage		
Funding mechanism	Up-front premiums collected as a percentage of primary insurers' premiums differing by location. Limited government backstop	Up-front premiums collected as a percentage of coverage differing by location. A percentage of pool premiums collected for the unlimited government line of credit	Up-front premiums collected as a compulsory surcharge on base policies differing by line of coverage. Unlimited government backstop	Up-front premiums collected as a percentage of coverage differing by type of purchaser (industrial, nonindustrial, residential)	Participants individually reserve for their portion of losses and collectively purchase reinsurance	A portion of federal share of losses is recouped post event via a surcharge payable by all property and casualty policyholders
Amount of reinsurance in 2014 in U.S. dollars (foreign currency)	$2.0 billion (A$3.0 billion)[a]	$2.5 billion (£1.8 billion)[b]	$0	$1.6 billion (INR 27,000 million)	$150 million (€125 million)	$0
GDP (dollars in billions)	$1,454	$2,942	$1,404	$2,067	$436	$17,419

Source: GAO analysis of 15 U.S.C. § 6701 note, GAO-14-445, Organisation for Economic Co-operation and Development country profiles, Pool Reinsurance Company Limited Annual Report 2014, ARPC 2013-2014 Annual Report, Australian Treasury's Terrorism Insurance Act Review 2015, Consorcio de Compensación de Seguros 2014 Informe Annual, and World Bank 2014 economic indicators. |GAO-16-316

Note: Numbers are in constant 2014 U.S. dollars. A$-Australian Dollars, £-British Pounds, INR-Indian Rupee, €-Euro.

[a]Australia's reinsurance includes a program coshare of about $196 million (A$301 million).

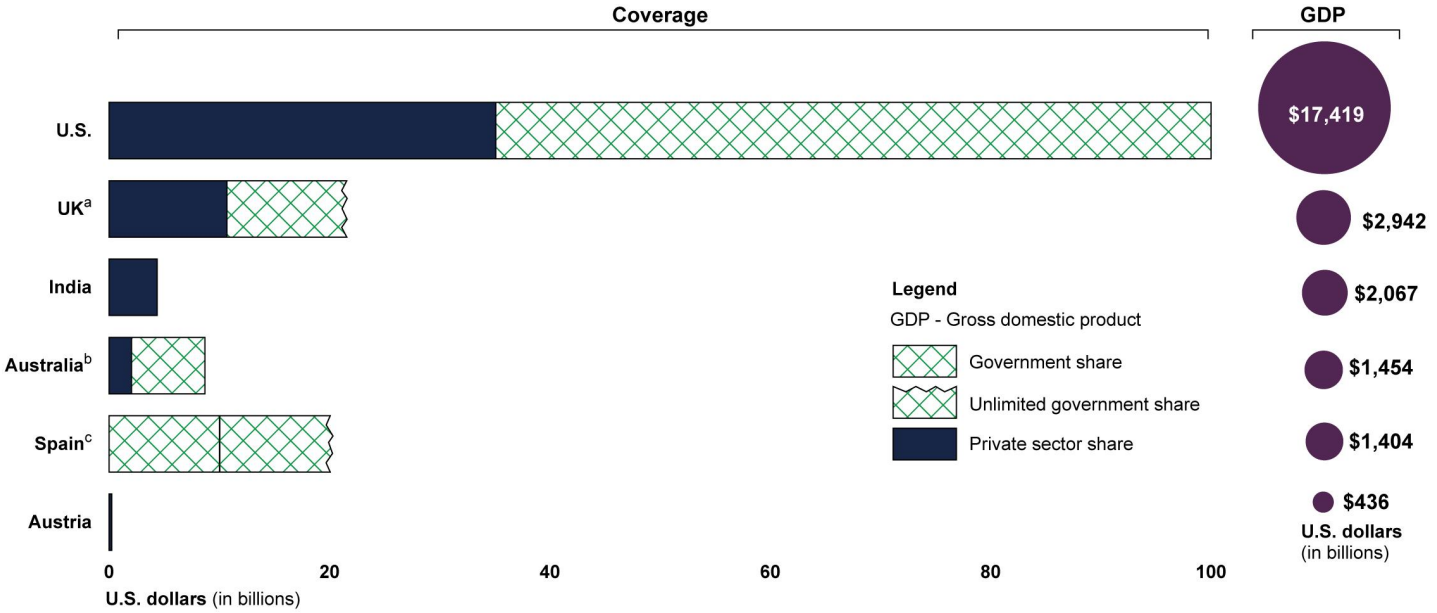
[b]The United Kingdom's program reinsurance was purchased for the first time in 2015. The reinsurance includes a coshare of about $101.7 million (£72 million).

Government Participation, Economy Size, and Other Factors Are Related to the Amount and Range of Program Coverage Provided

Terrorism risk insurance programs with government participation and in countries with larger economies generally provided more coverage for losses. Specifically, among the programs we selected, those with a government backstop (the programs in Australia, the United Kingdom, the United States, and Spain) provided more coverage for losses than programs without government backstops, as shown in figure 3.[23] For example, the Indian government does not financially back its terrorism risk insurance program, and the coverage provided for losses is small compared to programs with government backstops. Additionally, private sector coverage is generally larger for those programs in countries with larger economies, as measured by GDP. For example, the GDP in the United States is the largest compared to that of the other five countries we reviewed, and the coverage provided by the private sector in the United States is also larger. In the event of a terrorist attack, insurers in the United States could pay more than the total coverage provided by the other five countries' national programs. Programs in India and Austria that have no government backstop provide less coverage for losses than the other four programs. For example, India's program limits the maximum claim payout per location to $584,000 (INR 10,000 million), and Austria limits the total annual payout to $240 million (€200 million). A program representative from Austria told us that market demand also affected the program's coverage amount and that although more reinsurance may be available to increase the coverage, the current program size meets the demand in the market.

[23]In comparing the coverage provided by the five terrorism risk insurance programs (Austria, Australia, India, Spain, and the United Kingdom) with the coverage provided by the U.S. program, we used the purchasing power parity rate of each country to convert its currency to the U.S. dollar equivalent. As mentioned previously, the purchasing power parity is the rate at which the currency of one country would have to be converted into that of another country to buy the same amount of goods and services in each country. This analysis allows for a comparison across the programs, including the U.S. program, using the same rate.

Figure 3: Coverage and Loss-Sharing Arrangements of Selected Terrorism Risk Insurance Programs Compared with the Countries' Gross Domestic Product, 2014



Source: GAO analysis of 15 U.S.C. § 6701 note; financial data from GIC Re's Annual Report 2014-2015, Pool Reinsurance Company Limited Annual Report 2014, ARPC 2013-2014 Annual Report, Australian Treasury's Terrorism Insurance Act Review 2015, Consorcio de Compensación de Seguros 2014 Informe Annual, written responses from Indian program officials, and Organisation for Economic Co-Operation and Development profiles on Austria, UK, and Spain; and economic indicators from the World Bank. | GAO-16-316

Notes: In comparing the coverage provided by the five terrorism risk insurance programs (Austria, Australia, India, Spain, and the United Kingdom) with the coverage provided by the U.S. program, we used the purchasing power parity rate of each country to convert its currency to the U.S. dollar equivalent. The purchasing power parity is the rate at which the currency of one country would have to be converted into that of another country to buy the same amount of goods and services in each country. This analysis allows for a comparison across the programs, including the U.S. program, using the same rate. The size of the unlimited government shares are portrayed as matching the coverage provided by the private sector, but the actual size could be larger or smaller than what is shown graphically depending on the type and size of terrorist attack.

[a]The government of the United Kingdom offers an unlimited line of credit to the private program if losses were to exceed program funds.

[b]Spain's program covers all catastrophic risk, including terrorism, earthquakes, and other political and natural risks, and the reserves may be used to pay losses due to any of these causes, as well as losses from the program's automobile liability and environmental pollution liability insurance lines. Additionally, the government provides an unlimited backstop if losses were to exceed program funds.

[c]Austria's program is entirely private.

Other secondary factors could be related to the amount of program coverage but to a lesser extent than government participation and economy size. Some of these factors include the range of losses covered

and whether the program includes mandatory or voluntary participation.[24] For example, the program in Spain covers all catastrophic events, including flooding and earthquakes, and as a result the amount of coverage provided under Spain's program is relatively large for its GDP.[25] In contrast, all the other selected programs cover only terrorism risk. In addition, insurers participating in programs where coverage is mandatory have a wider base of policyholders from which to collect premiums compared to programs where some policyholders may not purchase the insurance, which can affect the amount of program coverage. For example, in Australia, terrorism risk coverage is mandatory, and premiums are collected from all policyholders. Terrorism coverage is voluntary for policyholders in the United Kingdom, so premiums collected from member insurers by the program originate from a smaller, less diversified group of policyholders.[26] However, we found that government participation and economy size may have a greater relationship to the amount of program coverage than these secondary factors because at least one voluntary program had larger coverage than a mandatory program. For example, the United Kingdom's program is voluntary, and its program coverage is much larger than that of Australia's mandatory program. The United Kingdom's GDP is about twice that of Australia, and the United Kingdom's program before its government-backed line of credit takes effect provides more coverage than Australia's entire terrorism risk insurance program, including its government backstop.

[24]Additional factors affecting the amount of program coverage could be whether the program covers NBCR attacks or makes payments to the government for the government backstop.

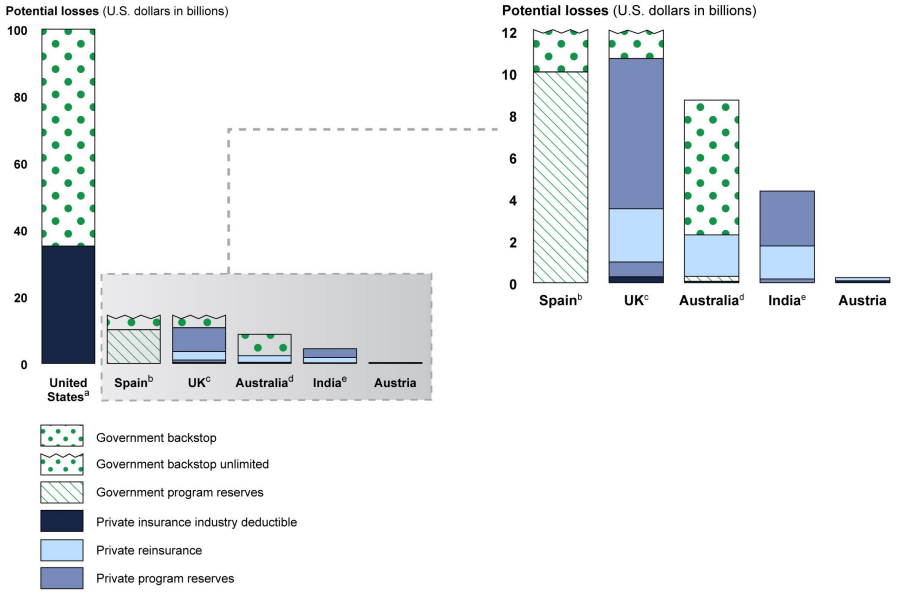
[25]According to a program official, the program in Spain also covers multiple lines of insurance, including property (residential and commercial), business interruption, and personal losses.

[26]Although coverage is voluntary in the United Kingdom, policyholders are not permitted to select which properties to insure against terrorism risk. Their choice is to select to have terrorism coverage either for all of their properties or none of them. In addition, the insurance companies in the United Kingdom that are members of the program are required to provide terrorism coverage to those policyholders that request it and to reinsure all contracts with terrorism risk with the program.

Most Programs Spread Losses across Participants, but Governments Are Responsible for a Potentially Large Proportion of Losses

In the six programs we selected for in-depth review, the risk of losses is spread across different types of participants (see fig. 4). The participants involved and their share of losses vary across programs, but according to program officials, private sector participants and program reserves likely would cover commercial and property losses from most conventional terrorist events. As we discuss later, four foreign terrorism risk programs were able to cover the losses resulting from recent terrorist attacks without using government funds.

Figure 4: Government and Private Sector Financial Loss-Sharing within Selected Terrorism Risk Insurance Programs, 2014



Source: GAO analysis of 15 U.S.C. § 6701 note; financial data from GIC Re's Annual Report 2014-2015, Pool Reinsurance Company Limited Annual Report 2014, ARPC 2013-2014 Annual Report, Australian Treasury's Terrorism Insurance Act Review 2015, Consorcio de Compensación de Seguros 2014 Informe Annual, written responses from Indian program officials, and Organisation for Economic Co-Operation and Development profiles on Austria, UK, and Spain; and economic indicators from the World Bank. | GAO-16-316

Note: In comparing the coverage provided by the five foreign terrorism risk insurance programs (Austria, Australia, India, Spain, and the United Kingdom) with the coverage provided by the U.S. program, we used the purchasing power parity rate of each country to convert its currency to the U.S. dollar equivalent. The purchasing power parity is the rate at which the currency of one country would have to be converted into that of another country to buy the same amount of goods and services in each country. This analysis allows for a comparison across the programs, including the U.S. program, using the same rate. The size of the unlimited government backstops are graphically portrayed as the difference between $12 billion and the limited portion of the programs. However, the actual size of the unlimited government backstops could be larger or smaller than what is shown depending on the type and size of terrorist attack.

[a]U.S. government and private insurer shares are estimated.

[b]Spain's program covers all catastrophic risk, including terrorism, earthquakes and other political and natural risks and the program reserves may be used to pay losses due to any of these causes, as well as losses from the program's, automobile liability, and environmental pollution liability insurance lines. The Spanish government backstop is unlimited.

[c]The data on the United Kingdom's program are from 2014 except for the amount of reinsurance, which the program purchased for the first time in 2015. The reinsurance includes a coshare of about $101.7 million (£72 million). The United Kingdom line of credit is unlimited.

[d]Australia's reinsurance includes a program coshare of about $196 million (A$301 million).

[e]The deductible for India's terrorism insurance program is 0.5 percent of the total sum insured by the insurer.

We found that depending on the type of terrorism risk, insurance program losses were shared with different numbers and types of participants.

- **Multilayer programs with government role.** The programs with multiple layers and government backstops, such as those in the United Kingdom and Australia, spread the risk of losses among the most participants. In these programs, primary insurers, private reinsurers, program reserves, and government funding could be used to pay for losses. Under the U.S. program, the government, insurers, and policyholders share in the risk of losses.

- **Programs with no financial government role.** Although the governments would not share the losses under the programs in Austria and India, these programs spread losses among different private sector participants, with both primary insurers that are members of the programs and private reinsurers sharing in the losses.

- **Program in which government retains all risk.** Spain's program does not spread the risk among private sector and government participants, but the risk is diversified among policyholders. The risk is diversified in that it covers individual and business policyholders against both natural catastrophe and terrorism risks. The catastrophe coverage protects the same property or persons to the same level as risks covered in the underlying base policy. The program does not purchase private reinsurance, although it has the authority to do so, and all losses would be paid from the program's reserves or the government backstop, if needed.

Program reserves and reinsurance play an important role in loss-sharing in most of the programs we reviewed. Of the six programs, we reviewed four—Australia, India, Spain, and the United Kingdom—that have reserves. The program reserves in India and the United Kingdom (which have private program reserves) are larger and thus have a more significant role in loss-sharing than the reserves of the Australian program (which has a government program reserve). In addition, four programs (Australia, Austria, India, and the United Kingdom) purchase private reinsurance. Reinsurance also is a significant part of some of the

programs, as shown previously in table 1. For example, the reinsurance in India's program represents 36 percent of its total coverage. According to program officials and insurance industry stakeholders, reinsurance increases program capacity, spreads risk among other participants, and helps protect the government from losses. For example, officials of the United Kingdom's program said they purchased reinsurance to privatize some of their insurance risk. Insurance brokers said that programs purchase reinsurance to increase the total pool capacity. Program officials also said that purchasing reinsurance can protect the governments involved by adding another layer of coverage before the government backstop. For example, Australian program officials said purchasing reinsurance expanded the capacity of the program and provided the government additional protection from exposure to terrorism risk. An Australian Treasury report also noted that purchasing reinsurance through the pool was a cost-effective way to access international reinsurance markets for terrorism risk.[27] In contrast, as previously mentioned, reinsurance is not part of the structure of the U.S. program, but insurers may individually purchase reinsurance to help cover their deductibles and coshares.

When the government has a financial role, it is generally responsible for a potentially large proportion of losses and would be involved only in the event of a catastrophic terrorist attack. In the event of a large terrorist attack that exhausted coverage from the other participants, the governments of Australia, Spain, the United Kingdom, and the United States would be responsible for a potentially significant proportion of losses. For example, an NBCR terrorist attack could result in losses that exhausted program resources. Programs that explicitly cover NBCR terrorist attacks—which include to different extents the programs in the United Kingdom, Spain, and Australia—could have a greater chance of losses reaching the level where the government backstop begins paying losses than programs that do not explicitly cover this risk.[28] Although both

[27]Australian Government, The Treasury, *Terrorism Insurance Act: Review 2015.*

[28]The coverage of the four programs differs relating to NBCR coverage. Since 2003, all terrorism risk policies in the United Kingdom cover NBCR attacks, while Australia's program covers losses resulting from chemical and biological terrorist attacks. Similar to the United Kingdom, Spain's program provides coverage for NBCR losses. The U.S. program is silent about losses resulting from NBCR attacks and insurance companies generally have attempted to limit their exposure to NBCR risks by excluding nearly all NBCR events from property and casualty coverage.

Spain and the United Kingdom have unlimited government backstops, in Spain the government would be responsible for the potentially greater proportion of losses because the government retains all the financial risk for terrorism. The financial losses would be paid from the government program reserves, which are independent from the public budget, and an unlimited government backstop if the program were ever to exhaust its reserves. In the United Kingdom, although the government backstop is also unlimited, the program has private reserves and has a line of credit that is expected to be repaid. In Australia and the United States, the government also is responsible for a potentially large share of losses, but the government's exposure is capped under these programs. Although the U.S. government's exposure is large, it is not unlimited as in the programs in Spain and the United Kingdom. The U.S. government's potential share of property and casualty losses from a catastrophic terrorist attack is nearly 10 times that of the Australian government's exposure, including both the government program reserve and the government backstop. The government's exposure in the Australian program is smaller than in the other programs because the government backstop is limited.

Programs Have Increased the Private Sector's Share of Losses but Have Not Expanded Coverage to Include Cyberterrorism

Generally, changes to the U.S. program and three other selected programs over time have decreased governments' potential share of losses and increased the private sector's potential share. For example, the programs in Australia and the United Kingdom did not purchase reinsurance when they were first established in 2003 and 1993, respectively. Both programs have since increased capacity by purchasing private reinsurance, which increases the event size at which a government backstop—or in the case of the United Kingdom program, a line of credit—and a portion of reserves (private or government) would be necessary. Since 2009, the Australian program has purchased private reinsurance through an international insurance broker with the annual premium income it receives from its members. Around 60 reinsurers participate in providing the reinsurance layer of coverage for the program. The Australian program officials said that purchasing reinsurance not only provides further protection to the government, it helps bring reinsurers back into the market as many stopped offering coverage for terrorism risk following September 11, 2001. In 2015, the United Kingdom's program purchased reinsurance for the first time to increase the capacity of its pool and entered into an agreement with various reinsurers for $2.5 billion (£1.8 billion) in additional reinsurance capacity. Representatives of global reinsurers told us that they preferred providing reinsurance to national programs rather than covering terrorism risk in individual insurers'

portfolios or reinsuring individual properties. They said that providing reinsurance to national programs helps reinsurers better diversify their risk geographically and limits their potential losses. In addition, one reinsurer said that program officials often have expertise in terrorism risk insurance and high-quality data on the program's exposure.

Changes to the Austrian and U.S. programs also have involved shifting more of the risk of losses to primary insurers by increasing parameters such as deductibles or coshare amounts. For example, according to the Austrian representative, the Austrian program increased its insurers' deductible from $60 million to $90 million (€50 million to €75 million) in January 2013, according to an insurance company representative of the program. The representative told us this action decreased the amount of reinsurance the pool needed to purchase, which decreased the cost to the pool members but required the insurers to hold larger reserve accounts at their institutions. The members have until 2018 to increase their reserve accounts.[29] In the United States, the 2015 reauthorization of the program included changes to several provisions—including increasing insurers' coshare amount, the trigger for government involvement, and the mandatory recoupment amount—all of which decrease the government's share of losses and increase the private sector's share.

While four of the six programs we reviewed have made changes to increase the private sector's share of losses, none of the six have made changes to expand their coverage to include cyberterrorism. Cyberterrorism is an increasing concern for businesses and governments, according to recent United Kingdom and U.S. government reports. For example, according to a United Kingdom government report, physical damage due to cyberattacks is a growing concern, both in terms of severity and frequency, due to the increasing interconnectedness between cyberspace and the physical world.[30] In addition, we have previously found that pervasive and sustained cyberattacks against the United States could have potentially devastating impacts.[31] Although

[29]The individual insurers contribute to the overall cost of the reinsurance and maintain a reserve account on their balance sheets to pay for claims. All members pay a share of the reinsurance premium based on their market share.

[30]HM Government and Marsh. *UK Cyber Security: The Role of Insurance Managing and Mitigating the Risk* (2015).

[31]GAO, *Key Issues: Cybersecurity*, accessed on February 3, 2016, http://www.gao.gov/key_issues/cybersecurity/issue_summary#t=0.

insurance coverage for cyber risk is an emerging market, our review did not identify any terrorism risk insurance programs that explicitly covered cyberattacks. However, officials we spoke with from programs in Australia, the United Kingdom, and Spain suggested that covering losses from cyberattacks should be studied. In the United States, TRIA does not specifically address losses from cyberterrorism attacks. In a May 2014 report on terrorism risk insurance, we recommended that Treasury gather information from the insurance industry related to how cyberterrorism is defined and used in policies and clarify whether losses that may result from cyberterrorism are covered under TRIA.[32] In its comments on that report Treasury stated that TRIA does not preclude federal payments for a cyberterrorism event. Treasury also stated that while the agency planned to continue to monitor this issue as it develops and collects applicable market data as necessary, an advance determination of when a cyber event is an act of terrorism was not needed. In 2015, Treasury officials told us that they would, as appropriate, consider addressing certain issues related to cyberterrorism risk under the terrorism risk insurance program in the context of other studies and rules required in the 2015 reauthorization of the program.

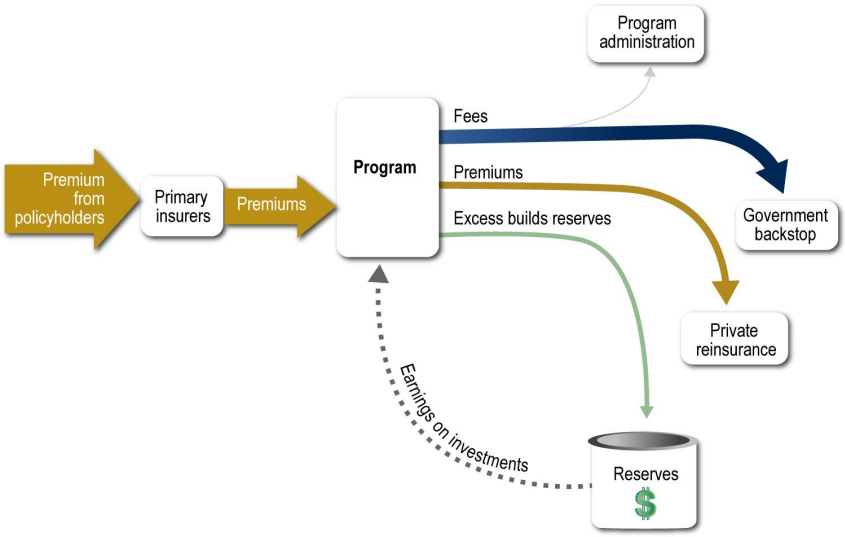
All Five Foreign Programs Collect Funds Up Front to Cover Losses, in Contrast to the U.S. Program, Which Uses Post-Event Funding

All five of the foreign programs we reviewed in-depth—those in Australia, Austria, the United Kingdom, India, and Spain—collect funds up front from insurers or policyholders to cover their share of losses. Primary insurers pay a portion of premiums collected from policyholders to the national programs. These up-front funds may be used to pay for reinsurance, build reserves, or pay government backstop fees, depending on the program. The flow of collected funds for the programs in Australia and the United Kingdom is illustrated in figure 5. As discussed in the next section, the premium income also covers administration costs of the programs. Officials from Australia and the United Kingdom stated that they use modeling of event sizes and scenarios to understand the respective program's potential losses and to help determine the appropriate level of premiums and reserves. In determining premium amounts, they also consider whether enough funds are collected to cover costs and pay government fees. In addition, both programs receive

[32]GAO, *Terrorism Insurance: Treasury Needs to Collect and Analyze Data to Better Understand Fiscal Exposure and Clarify Guidance,* GAO-14-445 (Washington, D.C.: May 22, 2014). As of March 2016, this recommendation was still open, and GAO maintains that it should be addressed.

income from investments of reserve funds, which can be used to pay for administrative costs. In Austria, the program does not collect premiums from insurers, but insurers collectively purchase reinsurance using premiums collected from policyholders, which is considered up-front funding.

Figure 5: The Flow of Collected Funds within the Australia and United Kingdom Programs



Source: GAO analysis of program data from Pool Reinsurance Company Limited Annual Report 2014 and ARPC 2013-2014 Annual Report, and Organisation for Economic Co-Operation and Development profile on UK. | GAO-16-316

The programs in the United Kingdom and Australia charge insurance companies premiums that are based on perceived risk for terrorism in different locations. In both programs, insurers pay higher premiums to the programs for reinsurance coverage on properties in higher-risk locations, such as central business districts in large cities where a single event could produce very large losses. In the United Kingdom, the program determines premiums as a percentage of coverage and by geographic location. Specifically, an insurer pays a higher premium to the pool for reinsuring a property located in the central business district of London compared to a property located in the central business districts in other United Kingdom cities or in rural areas. The premium charged by the Australian program to member insurers is determined by the Australian Treasury and is set by geographical location based on population density. The Australian program bases member insurer premiums on a percentage of the collected premiums from policyholders. As a result,

Australian program officials stated that their annual premium stream fluctuates with terrorism insurance rates, which complicates program management.

In contrast to Australia and the United Kingdom, the up-front funding used in the programs in Spain, India, and Austria is not based on perceived risk for terrorism in different locations. In these programs, the up-front funds are collected using flat rates based on coverage amount or market share, which do not vary by location.

- Spain's program charges policyholders a surcharge, which is based on the coverage amount in the base insurance policy. The surcharge—which varies for residential, commercial, and personal lines—covers all extraordinary risks, including terrorism and natural catastrophes. Insurers in Spain pay the program the surcharge that they collect from policyholders.

- In India, the premium is based on the coverage amount. According to program officials, the underwriting committee of the program proposes premiums and reviews them every 3 or 4 years, and the government regulator approves them.

- Up-front funds related to Austria's program are based on market share. Participating insurers are responsible for a proportionate share of the reinsurance premium based on each company's share of the terrorism risk insurance market.

In Australia and the United Kingdom, both programs pay a fee to their respective treasuries for the promise of payment or a line of credit if the pools' funds are depleted. From its inception to 2013, Australia's program did not make any payments to the government so that its pool could build its reserves. In 2012, the Australian Treasury recommended that the pool pay a dividend to the government over a 4-year period because the reserves had grown to an adequate level, according to an Australian Treasury official.[33] In 2014, the pool paid the Australian Treasury $97.7 million (A$150 million) for the government backstop and expects to make

[33]Australia's Terrorism Insurance Act 2003 requires the Australian Treasury to review ARPC every 3 years. *Terrorism Insurance Act 2003* (Cth) s 41 (Austl.). The Australian Treasury recommended in 2015 that the premiums charged by the program be increased for all geographical regions.

annual payments to the Treasury until 2017-2018. Program officials said the fee amount was determined through an actuarial process. The United Kingdom's program was established in 1993, it was expected that the program would be required to pay a percentage of its premiums to the United Kingdom's Treasury once the program had built its reserves to a certain amount. In 2015, this percentage was increased to 50 percent of annual gross premiums plus 25 percent of any annual surplus, according to the agreement between the program and the Treasury.[34] A United Kingdom official said the fee is for the guaranteed loan agreement. According to a United Kingdom Treasury official, the increase was intended to reflect the potential cost of capital to the government for backing this liability, and the current reserves were at a sufficient level to cover losses. The revenue that the programs in the United Kingdom and Australia provide to their respective national treasuries is placed in general revenue accounts.[35] The other four programs (Austria, India, Spain, and the United States) do not pay fees to their treasuries for their coverage.

In contrast, the U.S. program generally uses a post-event funding mechanism. In the United States, primary insurers collect up-front premiums from policyholders, but the policies explicitly state that these premiums do not cover the government's share of the losses. The government would collect premiums from primary insurers through surcharges paid by policyholders after an event occurs to cover its share of losses, subject to the recoupment provisions discussed earlier.

[34]In addition, under the amended Retrocession Agreement, the United Kingdom's program is to pay an annual distribution to pool members in the event it has earned a profit in the preceding year; such distribution is to be made in conjunction with the payment to the United Kingdom's Treasury and is to equal 25 percent of profit after tax for the preceding year.

[35]According to an official from the United Kingdom's Treasury, the fee paid by the program is considered general revenue and is expended as such, but the Treasury maintains a record of the funds. If the program requires a line of credit, the Treasury is to provide the necessary funds based on this record. Payments of premiums made by the program to the United Kingdom's Treasury are credited to the program if it there is a draw-down on the line of credit and the amount will not be required to be repaid. Similarly, an Australian Treasury official told us that program funds are transferred into a general account. The funds are recorded as a liability because, according to an Australian Treasury official, the insurers receive assurance that claims are to be paid from these funds if the government backstop is needed, even though the funds are part of a consolidated revenue fund.

Academic literature we reviewed and program and industry representatives we interviewed indicated a variety of views on the benefits and challenges of pre-event funding for catastrophic events. One of the benefits cited for collecting funds before an event occurs is that it helps limit taxpayer exposure as the funds accumulate over time because accumulating funds from the private sector keeps insurers involved in sharing some of the risk and provides a level of certainty about their ability to cover potential losses. One program representative also noted that pre-event funding facilitates a program's ability to purchase private reinsurance. One study also noted that pre-event funding helps keep premiums affordable.[36] For example, an independent or government organization administering the program has lower capital costs compared to private reinsurers, which would typically incorporate these costs into their premiums. Further, programs can use pre-event funding mechanisms to offer premium discounts, which also can help keep premiums affordable. For example, under the United Kingdom's program, businesses can receive a 2.5 percent premium discount for instituting risk mitigation procedures, such as adding concrete barriers around buildings.

However, an academic study, an insurance industry representative, and our previous reports on terrorism insurance acknowledged some challenges associated with pre-event funding for terrorism risk.[37] For example, because of the difficulty in estimating the frequency and severity of terrorist events, the appropriate amount to collect before an event occurs and the appropriate amount to keep in reserve can be challenging to determine. It could take many years to accumulate sufficient funds to cover potential losses, and once funds are built up, there may be pressure to use them for other purposes. For example, as previously discussed, the governments in Australia and the United Kingdom recently determined that the programs in their countries had built up sufficient levels of reserves and increased the fee that the respective programs pay to their national treasuries for the coverage of a government backstop. Another challenge cited by an insurance industry representative, in an academic study, and in our 2014 report is developing adequate controls

[36]Youbaraj Paudel, W.J. Wouter Botzen, and Jeroen C.J.H. Aerts, "A Comparative Study of Public-Private Catastrophe Insurance Systems: Lessons from Current Practices," *The Geneva Papers,* vol. 37, no. 603 (2012).

[37]GAO-14-445.

and monitoring over the management of the funds.[38] For example, as discussed in more detail later, an administrative structure is needed to manage investments and accounting. Finally, our 2008 report on terrorism insurance and an industry association representative noted that pre-event funding could divert financial resources away from other purposes, such as insurers purchasing reinsurance.[39]

Administrative Costs Are Generally a Small Percentage of the Programs' Income and Are Covered by Premiums

The programs in Australia, Spain, India, and the United Kingdom have staff who carry out their responsibilities, such as collecting the premiums and fees, purchasing private reinsurance, and paying claims to either pool members or policyholders. The costs for carrying out these responsibilities are generally a small percentage of the programs' overall income but are higher than those of the U.S. program. The Indian and Austrian programs have minimal administrative costs. For example, the Austrian program does not incur any administrative costs because it employs no staff for administration. The program obtains reinsurance through a major reinsurance broker, and primary insurers pay their portion of the reinsurance premium directly to the broker. The U.S. program also has minimal administrative costs. The program is administered by the Secretary of the Treasury, with the assistance of the Federal Insurance Office. With the exception of the programs in Austria and the United States, the administrative expenses of the other programs are generally paid with the premium income they collect. Table 2 provides an overview of administrative expenses and activities for the six selected terrorism risk insurance programs.

[38]Paudel, Botzen, and Aerts, "Private Catastrophe Insurance Systems," 282.

[39]GAO, *Terrorism Insurance: Status of Efforts by Policyholders to Obtain Coverage,* GAO-08-1057 (Washington, D.C.: Sept. 15. 2008).

Table 2: Administrative Expenses and Activities for Selected Terrorism Risk Insurance Programs, 2014

	Expenses as a percentage of premiums	Number of staff	Type of activities
Australia	6%	20	Underwriting; handling insurance audit and claims; and overseeing operations and investments.
Austria	0	0	Not applicable because it has no staff.
India	1%	5	Routine expenses of management, including staff salaries and obtaining reinsurance.
Spain	5%[a]	320	Handling policyholder claims; overseeing investments; and operating a call center for extraordinary risks as well as other insurance services under the program.
United Kingdom	4%	15	Collecting premiums; overseeing compliance with the program's rules; overseeing investments; handling member claims; and maintaining contact with industry associations.
United States	Not applicable[b]	6	Managing contractors who process the claims in the event of an attack; making any necessary changes to program regulations; and analyzing data relating to the terrorism insurance coverage provided under the program.

Source: GAO analysis of GAO-14-445; ARPC 2013-2014 Annual Report; Consorcio De Compensación De Seguros Summary of Activity 2014; Pool Reinsurance Company Limited Annual Report 2014; The Department of the U.S. Treasury 2016 fiscal budget; Annual Report on the Insurance Industry 2015 U.S. Department of the Treasury; The Actuary India (April 2014); and officials from The Austrian Terrorism Risk Insurance Pool, Consorcio De Compensación De Seguros and Indian Market Terrorism Risk Insurance Pool. | GAO-16-316

[a]The total administrative expenses for Spain's program include services for extraordinary risks and auto liability insurance, agricultural insurance, and others. The program pays 5 percent of the total surcharge collected from policyholders to the insurance companies that sell the policies.

[b]In Treasury's fiscal year 2014 budget, spending for the program was reported at $2.0 million. The United States program does not collect premiums from insurance companies.

According to Australian and United Kingdom Treasury officials, their respective treasuries incurred minor costs for administering the government backstops. Australian Treasury officials told us that the Treasury manages payroll, information technology, and property maintenance, the total costs of which are equal to a part-time staff member's working hours, but that the program pays a fee for its services. A Treasury official from the United Kingdom told us that one staff person may spend only part of their time on tasks related to the program and estimated the costs to be about $9,900 (£7,000).

In Four Selected Countries Where Terrorist Events Have Occurred, Losses to the Programs Have Not Reached Catastrophic Levels

Among the countries we selected for review, Spain, the United Kingdom, India, and Australia have experienced terrorist attacks with property and casualty financial losses within the scope of their respective terrorism risk programs since September 11, 2001. According to program officials, the programs in Spain, the United Kingdom, and India paid all the losses incurred without government financial assistance, and the losses from the January 2014 attack in Sydney, Australia, did not exceed the program's deductibles for the primary insurers. In the United States, no act has been certified as an "act of terrorism" under TRIA.[40]

Spain. Spain experienced two terrorist attacks in the 2000s: a bombing on a Madrid commuter train in March 2004 (resulting in personal damages), and a bombing at an airport on December 2006 (resulting in material damages). According to Consorcio documentation, the program paid a total of about $152 million (€98 million) to cover the claims from both attacks.[41] The program's reserves were sufficient to cover all of the losses. According to Consorcio officials, the program did not request additional funds from the Spanish government to pay the claims. Officials of Spain's program told us that no substantive changes were made to the program as a result of the two terrorist bombings.

United Kingdom. On July 7, 2005, the city center of London experienced a series of bombings on its transport network.[42] After the 2005 London bombings, according to program officials, the program received notice of claims of $25.2 million (£13.66 million) from the two member insurers. They added that the two insurers paid $9.1 million (£4.9 million) to policyholders, which was considered the deductible amount the two insurers were required to pay as program members. After the insurers' losses exceeded the deductible, the two insurers requested financial assistance from the program for the remaining $16.2 million (£8.76 million), which the program paid with funds from its reserves, according to

[40]The Boston Marathon bombing on April 15, 2013, was not certified as an act of terrorism under TRIA. An event cannot be certified if it does not cause property and casualty insurance losses exceeding in the aggregate the $5 million certification threshold under TRIA.

[41]All loss and payment values are displayed in constant 2014 U.S. dollars. The foreign currency values are in the year the loss occurred. The actual dates of the claims are unknown.

[42]Between 1993 and 2012, the United Kingdom program has paid $882.6 million (£625 million) in claims resulting from acts of terrorism.

a program official. According to program officials, program reserves were sufficient to cover the rest of the members' losses, and the program did not need government funds to pay the claims.

India. The Indian program and the private reinsurers covered all losses from November 26, 2008, attacks in Mumbai, India. According to an official from India's program, the total amount of financial losses from the 2008 Mumbai attacks was $321 million (INR 3,769 million), and the program was responsible for paying $128 million (INR 1,500 million). According to an official, the Indian pool and the commercial reinsurers were able to pay the claims without requesting additional funds from the government of India. In addition, the official told us that since the 2008 attacks, the coverage provided to insured participants increased over time because of the high demand for insurance.

Australia. On January 15, 2015, the Australian Treasurer declared that the attack on the Lindt Café, Martin Place, Sydney, was a terrorist attack for the purpose of paying claims. According to the Australian program's 2015 financial statement, the value of the claims submitted did not exceed the individual deductibles of program members. Moreover, claims were not expected to reach beyond the deductible; therefore, the program incurred no claims expenses. The Australian Treasury's 2015 Triennial Review of the program was completed after the Lindt Café attack, but the Treasury did not recommend any structural changes to the program as a result of the attack. Among its recommendations, the Australian Treasury suggested that the current administrative structure of the pool be retained, that the program should continue to have the discretion to purchase reinsurance, and that a fee should be paid to the Treasury for the backstop.

Agency Comments

We provided a draft of this report for review and comment to the Treasury, including the Federal Insurance Office and National Association of Insurance Commissioners (NAIC). In addition, we provided relevant sections to the terrorism risk insurance programs of Australia, Austria, India, Spain, and the United Kingdom for their technical review. Treasury and the terrorism risk insurance programs of Australia, Spain, and the United Kingdom provided technical comments that we incorporated, as appropriate.

We will send copies to Treasury, NAIC, and other interested parties. In addition, the report will be available at no charge on the GAO website at http://www.gao.gov.

If you or your staff have any questions about this report, please contact me at (202) 512-8678 or garciadiazd@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. Key contributors to this report are listed in appendix IV.

Daniel Garcia-Diaz
Director, Financial Markets and Community Investment

Appendix I: Objectives, Scope, and Methodology

For terrorism risk insurance programs in the United States and selected foreign countries, the objectives of our report were to (1) compare the organizational structures and the role of government and (2) examine the loss-sharing arrangement between the government and private sector and the methods by which the programs are funded.

To address these objectives, we reviewed the Terrorism Risk Insurance Act of 2002 (TRIA), as amended, and the Terrorism Risk Insurance Program Reauthorization Act of 2015, as well as prior GAO reports on this topic.[1] We also reviewed relevant documents from the Organisation for Economic Co-operation and Development (OECD) and its International E-Platform on Terrorism Risk Insurance (OECD E-Platform); relevant industry reports; and documents available on national terrorism risk insurance program websites, such as annual reports and program descriptions.[2] To identify documents and reports, we relied in part on Internet and electronic database searches on national terrorism risk insurance programs. Further, we reviewed cited sources in the documents we reviewed to identify additional documents for review. We also relied on recommendations from officials and representatives we interviewed on national terrorism risk insurance programs. To identify documents and reports on the comparison of pre-event and post-event funded program financing, we relied on Internet and electronic database searches on this topic.

In addition, we conducted a number of interviews. To collect information on TRIA, we interviewed officials from the Department of the Treasury (Treasury), the National Association of Insurance Commissioners, the Congressional Budget Office, and the Congressional Research Service. To collect information on the terrorism risk insurance market in countries

[1]GAO, *Catastrophe Risk: U.S. and European Approaches to Insure Natural Catastrophe and Terrorism Risks*, GAO-05-199 (Washington, D.C.: Feb. 28, 2005); *Terrorism Insurance: Measuring and Predicting Losses from Unconventional Weapons Is Difficult, but Some Industry Exposure Exists*, GAO-06-1081 (Washington, D.C.: Sept. 25, 2006); and GAO, *Terrorism Insurance: Treasury Needs to Collect and Analyze Data to Better Understand Fiscal Exposure and Clarify Guidance*, GAO-14-445 (Washington, D.C.: May 22, 2014).

[2]The OECD International E-Platform on Terrorism Risk Insurance was launched in 2014 and is the product of joint work between national terrorism insurance programs, the OECD, and the World Forum of Catastrophe Programmes. The E-Platform is an online resource for information on the financial management of terrorism risk. For more information, see http://www.oecd.org/finance/insurance/terrorism-risk-insurance.htm.

with national terrorism risk insurance programs and those without, we interviewed representatives from the OECD, several global reinsurance and insurance firms, and industry participants, such as representatives from insurance trade associations, a rating agency, and insurance brokers. We selected among the largest reinsurance firms that have experience with private reinsurance agreements involving foreign terrorism risk insurance programs. We made the selection based on documentation from Treasury's Federal Insurance Office and a large international broker that has participated in reinsurance agreements between private reinsurers and foreign terrorism risk insurance programs. To collect information on individual programs, we interviewed government and national terrorism risk insurance program officials from Australia, Austria, Spain, and the United Kingdom. More specifically, we interviewed officials from Australia's Government Treasury and the Australian Reinsurance Pool Corporation (ARPC); Austria's Österreichischer Versicherungspool zur Deckung von Terrorrisiken; Spain's Consorcio De Compensacion De Seguros (Consorcio); and, the United Kingdom, HM Treasury, the Bank of England's Prudential Regulation Authority, and the Pool Reinsurance Company Limited (Pool Re). In addition, we corresponded with officials from the Indian Market Terrorism Risk Insurance Pool to collect information on that program, and we corresponded with representatives of other national terrorism risk insurance programs to clarify program information collected from their websites or other sources. We did not conduct an independent legal analysis to verify the information provided about the laws, regulations, or policies of the foreign countries selected for this study.

To address objective one, using information we collected from OECD and program documents and interviews, we identified countries with national terrorism risk insurance programs and reviewed available information on those programs. The U.S. terrorism risk insurance program is limited to commercial property and casualty insurance, and therefore we limited our review to programs that provide similar coverage. In addition to the U.S. program, we identified 15 national terrorism risk insurance programs with sufficient information available to be included in our review. We excluded from our review programs that did not provide commercial property and

casualty insurance coverage, those with limited or no available information, or were undergoing restructuring.[3]

To develop generalized descriptions of the features of terrorism risk insurance programs, we analyzed documents on the 16 national terrorism risk insurance programs, including the U.S. program. Specifically, one GAO analyst independently reviewed the documents and categorized certain features of each country's terrorism risk insurance program, including the extent of government involvement; program funding; and coverage options, such as nuclear, biological, radiological, or chemical weapons coverage. These categorizations were verified by a second analyst, and any discrepancies were resolved by both analysts or a moderator. The analysts used a coding structure to track their findings. Using this information, we developed three categories of national terrorism risk insurance program: multilayered structures with government backstop, structures in which government provides all terrorism risk coverage, and structures in which insurers and reinsurers provide all terrorism risk coverage. Then we grouped the national programs into one of the three categories and compared these categories to the program in the United States. To assess the data reliability of the OECD's E-Platform, specifically the country profiles on the site, we followed up with OECD officials through e-mail correspondence on the timeliness of the profiles. OECD officials advised us of any updates since E-Platform was launched in 2014 and said that the information in the country profiles was provided by the national terrorism risk insurance programs. As available, we corroborated the information in the E-Platform's country profiles with national terrorism risk insurance program documentation. We determined the data were sufficiently reliable for the purpose of categorizing and identifying the specific features of the programs.

To address our second objective, we selected six programs for further review. We used information collected through the content analysis—including program documentation and interviews with government and program officials—and developed criteria to help ensure that we selected

[3]Our research indicated that there were also terrorism risk insurance programs in Finland, Hong Kong, Indonesia, Northern Ireland, Sri Lanka, and Taiwan, but these programs did not provide coverage for commercial property and casualty insurance, or there was insufficient information available to meet our needs. In addition, there is a terrorism risk insurance program in Namibia, which was undergoing restructuring at the time of our review.

programs representing diverse characteristics. For example, our criteria included selecting countries representing different types of programs, such as at least one country with a national terrorism risk insurance program that did not include any government financial support as part of the insurance coverage, at least one country with a national terrorism risk insurance program that was not a member of OECD, and at least one country with a national terrorism risk insurance program that was developed prior to 2001. Using these characteristics, among others, we judgmentally selected the programs in Australia, Austria, India, Spain, and the United Kingdom. We also included the program in the United States in the review for this objective.

We further assessed and compared the national terrorism risk insurance programs in Australia, Austria, India, Spain, the United Kingdom, and the United States. We reviewed the six programs in order to identify and assess the layers of insurance coverage and which participants (policyholders, insurers, reinsurers, and government) are responsible for each layer, how the programs are structured, how the financing of the programs was established, how the programs have been affected by actual claims and administrative activities and costs. In determining the insurance coverage and loss-sharing arrangements of the programs, we reviewed documentation from OECD and the individual programs. In addition, we analyzed the 2014 annual reports of ARPC, Consorcio, and Pool Re. The reports included a description of the programs, specifically the programs' activities, and an audited financial statement of the programs, which provided information on programs' revenue and costs. A financial statement on the Austrian terrorism risk insurance program was not available, so we relied on other documents describing the program and an interview with a program representative for this information. For India's terrorism risk insurance program, we relied on an annual report of the organization that administers the program and written responses from a program representative. We shared relevant sections of the draft report with program officials in the five countries to confirm the accuracy of the information.

In comparing the coverage of the six selected terrorism risk insurance programs, we considered the economic output of the different countries. In identifying the gross domestic product (GDP) for the six countries, we used GDP data from the World Bank. For all foreign currency amounts we present in the report, we converted them into 2014 U.S. dollars by applying an economic variable known as the purchasing power parity rate that we obtained from the World Bank. The purchasing power parity rate is the rate at which the currency of one country would have to be

converted into that of another country to buy the same amount of goods and services in each country. For values that were from a year other than 2014, we converted the value into U.S. dollars using the purchasing power parity rate for that year, and then used U.S. GDP data to convert the value into constant 2014 U.S. dollars. To estimate coverage in the United States, we simulated costs to the government and private insurers for a $100 billion loss in 2016 with the top 20 insurers experiencing losses.

To analyze the administrative costs of the five selected foreign terrorism risk insurance programs and how such costs were incorporated into program fees or premiums, we reviewed the programs' audited financial statements, where available. Only the terrorism risk insurance programs of Australia and the United Kingdom had financial statements from 2010 to 2014 that we could review. In addition, we reviewed the Spanish program's financial statement for 2014 for its administrative costs in 2013 and 2014. According to an official representing the Austrian program, the program does not have any administrative costs. India's program does not maintain a financial statement on its terrorism risk insurance program with specific administrative expenses, so these data were not available to us. To assess the reliability of the available data on administrative costs, we reviewed the documentation on the data and assessed them for consistency and whether the financial statements were audited. The financial statements of the Australian and Spanish programs were reviewed and signed by their respective Supreme Audit Organizations. The financial statements for the United Kingdom's program were signed by a public accounting firm. We determined the data were sufficiently reliable for the purpose of reporting on these programs' administrative costs.

Further, we reviewed annual reports and other program documentation and interviewed officials from the terrorism risk insurance programs of Australia, India, Spain, and the United Kingdom to identify terrorist attacks in their countries since 2001. Using interviews and correspondence with program officials, we identified the amounts paid on claims resulting from the terrorist attacks and the financial effect on the programs from the claim payments and unanticipated outcomes or program changes since 2001, if any, related to the claim payments. We also interviewed a representative of the Austrian terrorism risk insurance program to confirm whether the program had paid out any claims since its creation. We focused on claims and changes since 2001 because the attacks of September 11, 2001, led a number of countries to develop new terrorism risk insurance programs.

We conducted this performance audit from January 2015 to April 2016, in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Appendix II: Terrorism Risk Insurance Program Features

The tables in this appendix list the terrorism insurance program features that we identified across 16 reviewed programs. The tables illustrate the variation in program features across the programs we reviewed. For some programs, including those in Bahrain, India, and Switzerland, we did not find information in our review to describe all program features.

Multilayered terrorism risk insurance programs with government backstops have some similarities in structure, but features among programs may differ. Generally, these programs have layers of insurance coverage that include an insurance industry deductible, program reserves, reinsurance, and a government backstop. Table 3 illustrates some differences and similarities among eight multilayered programs with government backstops that we reviewed.

Table 3: Selected Foreign Multilayered Programs with Government Backstop and the U.S. Program, as of 2015

Country	Australia	Belgium	Denmark	France	Germany	Netherlands	United Kingdom	United States
Program name	Australian Reinsurance Pool Corporation	Terrorism Reinsurance and Insurance Pool	Terrorism Insurance Pool for Non-Life Insurance	Gestion de L'Assurance et de la Reassurance de Risques Attentats et Actes de Terrorisme	Extremus Versicherung -AG	Nederlandse Herverzekeringsmaatschappij voor Terrorismeschaden N.V.	Pool Reinsurance Company Ltd.	Terrorism Risk Insurance Program
Year established	2003	2008	2010	2002	2002	2003	1993	2002
Claims experience	Yes	No	No	No	No	No	Yes	No
Funding mechanisms	Premiums, fees recoupment, and claims reduction	Premiums and fees	Premiums, fees, and taxes	Premiums and fees	Premiums and fees	Premiums	Premiums and loans	Coshare recoupment
Government backstop	Limited	Limited	Limited	Unlimited	Limited	Limited	Line of credit	Limited

Country	Australia	Belgium	Denmark	France	Germany	Netherlands	United Kingdom	United States
Insurer participation in program	Voluntary	Voluntary	Mandatory for insurers that provide coverage for use of nuclear, biological, chemical and radiological voluntary for those that do not	Voluntary	Voluntary	Voluntary	Voluntary	Mandatory
Program administration	Government	Private	Government	Private	Private	Private	Private	Government
Private reinsurance	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Program coverage (U.S. dollars)	$8.9 billion (A$13.6 billion dollars)	$1.2 billion (1.0 billion euros)	$2.0 billion (15.0 billion Danish Krone)	(Unlimited in excess of $2.8 billion (2.4 billion euros))	$12.7 billion (10.0 billion euros)	$1.2 billion (1.0 billion euros)	(Unlimited loans in excess of $7.8 billion (5.5 billion pounds))	$100.0 billion
Temporary or permanent government financial involvement	Temporary	Permanent	Temporary	Temporary	Temporary	Temporary	Permanent	Temporary
Type of coverage	Includes commercial risks, industrial risks, construction, and business interruption to farming	Property coverage for all Belgian risk	Covers only nuclear, biological, chemical, and radiological terrorism for property, buildings and contents, business interruption, cars, trains and ships	All property lines of coverage and business interruption	Material damage and business interruption for commercial and industrial property	Property, life, health care, and funeral insurance	Commercial property and business interruption	Commercial property, casualty, worker's compensa-tion among other lines
Nuclear, biological, chemical, and radiological coverage	Biological and chemical	Bacteriological chemical, and radiological	Nuclear, biological, chemical, and radiological	Nuclear, biological, chemical, and radiological	None	Nuclear, biological, chemical, and radiological	Nuclear, biological, chemical, and radiological	Nuclear, biological, chemical, and radiological if underlying policy includes this coverage

Source: GAO analysis of Organisation for Economic Co-operation and Development and country program documentation. | GAO-16-316.

Specific source information is as follows:

Australia: OECD, OECD Australia Terrorism Insurance Profile; Australian Treasury, Declaration of a Terrorist Incident: Government Acts to Ensure Payment of Insurance Claims for Lindt Café Incident; Australian Treasury, Terrorism Insurance Act Review: 2012; Australian Reinsurance Pool Corporation, ARPC Annual Report 2013-2014; Australian Department of Finance, Public Governance, Performance and Accountability Act 2013 (PGPA Act) Commonwealth Entities and Companies (189) 01 February 2015.

Belgium: Terrorism Reinsurance and Insurance Pool, Non-Profit Association Pursuant to the Royal Decree of January 14, 2009, Annual Report 2013; TRIP (Terrorism Reinsurance and Insurance Pool), Coordinated Statutes as of 29 September 2008; O ECD, OECD Belgium Terrorism Insurance Profile.

Denmark: Danish Financial Supervisory Authority FSA, About Us Webpage; Danish Financial Supervisory Authority FSA, Rikke Katrine Jensen, Special Adviser, Division of General Insurance and Reinsurance, Correspondence, December 9, 2015, and January 5, 2016; Denmark: OECD,OECD Denmark Terrorism Insurance Profile; OECD, Terrorism Insurance in 2010: Where Do We Stand? "High-Level Advisory Board on the Financial Management of Catastrophes," 2011.

France: OECD 3rd International Meeting on Terrorism Risk Insurance, "GAREAT the French Terrorism Reinsurance Scheme Changes in Program Trigger and Deductible," (Washington, D.C.: 2014), OECD, OECD France Terrorism Insurance Profile; Erwann, Michel-Kerjan, "Terrorism Risk Coverage in the Post-9/11 Era: A Comparison of New Public-Private Partnerships in France, Germany and the U.S." Center for Risk Management, The Wharton School, University of Pennsylvania, 2005.

Germany: OECD, OECD Germany Terrorism Insurance Profile; OECD Terrorism Insurance in 2010 Where Do We Stand, "Terrorism Insurance programs: Overview, Recent Evolutions, Challenges Ahead" (Paris, France: Extremus June 2010); Erwann, Michel-Kerjan, "Terrorism Risk Coverage in the Post-9/11 Era: A Comparison of New Public-Private Partnerships in France, Germany and the U.S." Center for Risk Management, The Wharton School, University of Pennsylvania, 2005.

Netherlands: OECD, OECD Netherlands Terrorism Risk Insurance Profile; NHT, Website Homepage; NHT, Niek Bos, Manager, Correspondence, December 7, 2015.

United Kingdom: Pool Re, About Pool Re Homepage, April 20, 2015; Pool Re, Pool Re Purchases £1.8 Billion in Reinsurance; OECD, OECD United Kingdom Terrorism Insurance Profile.

United States: OECD, OECD International Platform on Terrorism Risk Insurance; U.S. Department of the Treasury Website, Terrorism Risk Insurance Program; Congressional Research Service, Terrorism Risk Insurance, Issue Analysis and Overview of Current Program, (Washington, D.C.: 2014); U.S. Department of the Treasury, The Process for Certifying an "Act of Terrorism" under the Terrorism Risk Insurance Act of 2002.

Notes: The program capacity category is in 2014 constant U.S. dollars, country program currency is in parentheses. All OECD profiles can be found at the OECD website, http://www.oecd.org.

In the national terrorism risk insurance programs in Spain and Israel, government entities provide all the terrorism risk coverage. Even though the programs are similar in this regard, other program features differ, as shown in table 4.

Table 4: Selected Foreign Programs Where Governments Provide All Terrorism Risk Coverage, as of 2015

Country	Israel	Spain
Program name	Property Tax and Compensation Fund Law	Consorcio de Compensación de Seguros
Year established	1941	1954
Claims experience	Yes	Yes
Funding mechanisms	Taxes	Premiums
Government backstop	Unlimited	Unlimited
Insurer participation in program	Mandatory government compensation	Mandatory coverage of extraordinary risk
Program administration	Government	Government
Private reinsurance	No	No
Program coverage	Unlimited	Unlimited
Temporary or permanent government financial involvement	Permanent	Permanent

Type of coverage	Property coverage for war and terrorism	Property including motor car vehicles, railway vehicles, business interruption and life coverage for catastrophic events including terrorism and natural disasters
Nuclear, biological, chemical, and radiological coverage	Nuclear, biological, chemical, and radiological	Nuclear, biological, chemical, and radiological

Source: GAO analysis of OECD and program documentation. | GAO-16-316.

Specific source information is as follows:

Israel: OECD, OECD Israel Terrorism Risk Insurance Profile; OECD Policy Issues in Insurance, "Terrorism Risk Insurance in OECD Countries" 2005.

Spain: OECD, OECD Spain Terrorism Risk Insurance Profile; Consorcio de Compensación de Seguros, Interview, July 29, 2015.

Notes: All OECD profiles can be found at the OECD website, http://www.oecd.org.

In these programs, the government provides no financial backstop to the terrorism risk insurance program and in most cases—with the exception of India and South Africa—has no administrative role, as shown in table 5.

Table 5: Selected Foreign Programs Where Insurers and Reinsurers Provide All Terrorism Risk Coverage, as of 2015

Country	Austria	Bahrain	India	Russia	Switzerland	South Africa
Program Name	Österreichischer Versicherungspool zur Deckung von Terrorrisiken	Arab War Risks Insurance Syndicate	Indian Market Terrorism Risk Insurance Pool	Russian Anti-Terrorism Insurance Pool	Swiss Insurance Association	South African Special Risk Insurance Association
Year established	2002	1980	2002	2001	2003	1979
Claims experience	No	No information available	Yes	Yes	No	Yes
Funding mechanisms	Premiums	Premiums	Premiums	Premiums	Premiums	Premiums and fees
Government backstop	None	None	None	None	None	None
Insurer participation in program	Voluntary	Voluntary	Mandatory	Voluntary	Voluntary	Voluntary
Program administration	Private	Private	Government	Private	Private	Government
Private reinsurance	Yes	Yes	Yes	No	Yes	Yes

Country	Austria	Bahrain	India	Russia	Switzerland	South Africa
Program coverage (U.S. dollars)	$240 million (U.S. dollars) (200 million euros)	No information available	No Information available	$89 million (U.S. dollars) (1.7 billion rubles)	$73 million (U.S. dollars) (100 million Swiss francs) capacity provided by program with options to purchase more after this amount	$278 million (U.S. dollars) (1.5 billion rand)
Temporary or permanent government financial involvement	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Permanent
Type of coverage	Property	Property sabotage & terrorism, marine hull and cargo, aviation hull, shipbuilders and ship repairers, land transited cargo and political risks	Property and industrial coverage for terrorism	Property coverage for terrorism, sabotage, and other lines	Commercial and business interruption coverage for terrorism	Property coverage arising from terrorism, riots, and war
Nuclear, biological, chemical, and radiological coverage	No	No information available	No	No	No information available	No

Source: GAO analysis of Organisation for Economic Co-operation and Development and country program documentation. | GAO-16-316.

Specific source information is as follows:

Austria: OECD, OECD Austria Terrorism Insurance Profile; OECD Terrorism Insurance in 2010: Where Do We Stand? “High-Level Advisory Board on the Financial Management of Catastrophes” 2011.

Bahrain: AWRIS About Us Webpage; AWRIS Syndicate Agreement of The Arab War Risks Syndicate.

India: OECD, OECD India Terrorism Insurance Profile; Indian Market Terrorism Risk Insurance Pool – A Successful Decade of Service.

Russia: Russian Anti-Terrorism Insurance Pool. “History and Prospects for Development”; OECD Terrorism Insurance in 2010: Where Do We Stand? “High-Level Advisory Board on the Financial Management of Catastrophes” 2011; OECD, OECD Terrorism Insurance Profile The Russian Anti-Terrorist Insurance Pool.

Switzerland: Swiss Insurance Association (SIA) Articles of Association, June 2010; OECD Terrorism Insurance in 2010: Where Do We Stand? “High-Level Advisory Board on the Financial Management of Catastrophes” 2011; Swiss Insurance Association Webpage; Australian Treasury, Terrorism Insurance Act Review 2015.

South Africa: SASRIA, Webpage, About Us Company Profile; SASRIA, Cedric Masondo, Managing Director via Email, September 25, 2015; OECD Policy Issues in Insurance, “Terrorism Risk Insurance in OECD Countries” 2005; SASRIA, Integrated Report 2014; SASRIA, “Policy for Excess of Loss Cover”.

Notes: All OECD profiles can be found at the OECD website, http://www.oecd.org.

Appendix III: GAO Contact and Staff Acknowledgments

GAO Contact

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Staff Acknowledgments

In addition to the contact named above, Jill Naamane (Assistant Director); Nancy Eibeck (Analyst-in-Charge); Pamela Davidson; Raheem Hanifa; Mark Ireland; Karen Jarzynka-Hernandez; DuEwa Kamara; John Karikari; Colleen Moffatt Kimer; Patricia Moye; Jennifer Schwartz; Jena Sinkfield; and Frank Todisco made key contributions to this report.

Appendix IV: Accessible Data

Data Tables

Data Table for Highlights Figure and Figure 3: Coverage and Loss-Sharing Arrangements of Selected Terrorism Risk Insurance Programs Compared with the Countries' Gross Domestic Product, 2014

	Private sector share	Government share	GDP
U.S.	35.1	64.9	17419
UK	10.6899	No data	2941.89
India	4.372	No data	2066.9
Australia	2.04	6.66514	1453.77
Spain	No data	10.047	1404.31
Austria	0.239594	No data	436.344

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