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Federal Reinsurance for Terrorism Risk and Its Effects on the Budget

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Abstract

Lawmakers recently reauthorized the federal program that provides insurance against the risk of terrorism, extending it through December 31, 2027. Under that program, the government shares the risk of loss with commercial insurers, thereby supporting the wide availability of terrorism insurance and, in the event of a large attack, reducing demands for assistance and helping to stabilize the economy. The Congressional Budget Office estimates that under current law, the program yields net savings to the federal government, and hence to taxpayers, on an expected-value basis, primarily because federal outlays after a terrorist attack would be more than recovered through taxes on commercial policyholders (unless the attack was exceptionally, and improbably, large). However, the federal government bears the risk of catastrophic losses. The government could also incur net costs if an attack leads to policy changes such that the tax mechanism is not used as specified under current law.

Keywords: accrual accounting, federal budgeting, terrorism insurance

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Introduction

In December 2019, lawmakers reauthorized the federal program that provides insurance against the risk of terrorism, extending it through December 31, 2027 (Public Law 116-94, Further Consolidated Appropriations Act, 2020). Under that program, known by the acronym TRIA (for Terrorism Risk Insurance Act), private insurers bear much of the risk of losses from terrorist attacks through sizable deductibles and copayments. The government is responsible for covering the remainder of the losses; however, the law requires the government to recoup most of those outlays through post-event taxes, or assessments, on all commercial policyholders. The program as written effectively leaves taxpayers bearing only the catastrophic or “tail” risk—roughly, the risk of losses greater than those caused by the attacks of September 11, 2001.

In its March 2020 baseline (prepared before significant effects of the 2020 coronavirus pandemic became evident), the Congressional Budget Office estimated that the terrorism insurance program would increase federal outlays by \$7.1 billion over the 2020–2030 period while increasing net revenues by \$8.5 billion, thus reducing the deficit by \$1.4 billion.¹ Those estimates are expected values, or weighted averages reflecting the estimated probabilities of attacks of different sizes, including the probability that no significant attack occurs. The revenue estimate incorporates the reductions in income and payroll taxes that would be expected as a consequence of the post-event assessment.

CBO’s projection of net savings from the program over the 10-year period largely reflects provisions of the law that, in most cases, require that the tax assessment be set to recoup 140 percent of all or most federal outlays:

- For attacks resulting in losses less than a specified amount, known as the aggregate industry retention amount, all federal outlays are subject to recoupment.
- For larger attacks, federal outlays subject to recoupment are limited to the positive difference between the retention amount and insurers’ contributions from deductibles and copayments. The government is not required to recoup any outlays from attacks large enough to yield insurer deductibles and copayments that exceed the retention amount.

Also contributing to the projection of net savings are required deadlines for collecting revenues. For an attack that occurred before the end of 2022, all associated revenues would have to be collected by September 30, 2024, and for an attack that occurred before the end of 2023, some

¹CBO’s baseline contains estimates of spending, revenues, the deficit or surplus, and the public debt expected during a fiscal year. The baseline reflects the assumption that current laws will generally remain unchanged and serves as a benchmark for measuring the budgetary effects of future policy decisions on federal spending and revenues.

revenues would have to be collected by that date. For any other attacks that occurred before TRIA expired, all revenues would have to be collected by September 30, 2029.

Post-event assessments are also used in lieu of up-front premiums in some other federal and state insurance programs, but the mechanism has not yet been tested at the federal level. Policy changes to the recoupment mechanism after a major attack could significantly increase federal costs.

Estimates of TRIA's budgetary effects are uncertain, in part because of two factors that make analysis particularly challenging:

- The program's provisions result in a complex relationship between the insured losses from a terrorist attack and the associated federal costs, thus requiring CBO to consider the probability and cost implications of events of all possible sizes.
- Each insurer has its own deductible, which means the federal costs from an attack would depend not only on the total insured losses but also on the distribution of those losses among insurers.

To address the first of those factors, CBO estimated a probability distribution, using input from risk modelers and security experts on the average annual loss in covered lines of insurance, the probability of no loss in a given year, and the probability of a loss comparable to that resulting from the 9/11 attacks. To address the second factor, CBO based its estimates on results averaged from two different distributions—a distribution involving a small segment of the insurance industry, as might be affected by a relatively small attack, and a broader distribution that might better reflect the spread of losses from a larger attack.

CBO is issuing this paper as part of its commitment to transparency in its analytical methods.² The paper provides methodological details that were not published in CBO's cost estimates for the Terrorism Risk Insurance Program Reauthorization Act of 2019 (Congressional Budget Office 2019c, 2019d). It also discusses how estimates of the program's budgetary effects would differ if they were produced using accrual-based measures rather than cash-based measures.

Origin of Federal Reinsurance for Terrorism Risk

The September 11, 2001, terrorist attacks resulted in nearly 3,000 deaths and roughly \$49 billion of insured losses (in 2020 dollars; Insurance Information Institute 2019). Property and casualty insurers initially bore the largest share of the insured losses from the 9/11 attacks, including damages to commercial buildings, motor vehicles, and business equipment and losses of personal

²For CBO's previous analyses of TRIA and issues surrounding its reauthorization, see Congressional Budget Office (2002, 2005, 2009, 2015) and Torregrosa, Beider, and Willie (2015).

income and business income. (Losses of personal income were addressed through workers' compensation insurance, which provides wage replacement and medical benefits to employees who are injured on the job, as well as death benefits to survivors of workers who die in work-related accidents. Those benefits are paid regardless of the cause of injury or death.) The insurers were ultimately reimbursed for the majority of the losses by global reinsurance companies—private firms that agree, in return for premiums, to limit insurance companies' losses by covering either a portion of claims above high thresholds or a share of the claims.

Before 9/11, insurers generally covered losses from terrorist attacks involving conventional weapons but did not evaluate or separately charge for that risk, implicitly treating it as if it were negligible.³ Afterward, reinsurers virtually stopped writing new contracts, shifting all the catastrophic risk back to primary insurers. In turn, primary insurers sharply reduced the availability of terrorism coverage for businesses and commercial properties. Temporary disruptions in insurance markets, including abrupt reductions in supply and changes in terms of coverage, are common after large and unexpected losses, such as those from natural disasters. Those effects typically diminish over time as insurers adjust their prices to account for changes to the perceived risks (Froot 2008). But in light of the unexpected and unprecedented losses from the 9/11 attacks, as well as heightened uncertainty about future losses, policymakers were concerned that the market for terrorism insurance would not recover sufficiently, with the result that commercial developers in high-risk areas would not be able to finance their projects, in turn causing reductions in new construction, job creation, and economic growth (Brown et al. 2004).

In response, lawmakers enacted TRIA in 2002 as a temporary measure to provide catastrophic federal reinsurance for terrorism risks. Because the market disruption was expected to be short-lived, TRIA was set to expire at the end of 2005, and federal reinsurance was offered without charge.⁴ Although no major terrorist attacks have occurred in the United States since 9/11, and thus the government has paid no claims, the threat of terrorist attacks persists, and lawmakers reauthorized TRIA in 2005, 2007, 2016 (after a short lapse), and 2019. The reauthorizations gradually shifted more risk to private insurers as their net worth increased, which increased their ability to bear losses, and as models for quantifying the risk of terrorism improved and became more widely used.

³By contrast, losses from attacks involving nuclear, biological, chemical, and radiological weapons were excluded from coverage under most lines of insurance other than workers' compensation; see Kunreuther, Pauly, and McMorro (2013) and Insurance Information Institute (2019).

⁴TRIA's backers originally reasoned that the process of formulating prices would slow the program's implementation and necessitate a new bureaucracy to administer the premiums, which could also eventually encumber efforts to terminate it (Congressional Budget Office 2007).

Beyond TRIA, the federal response to the 9/11 attacks has included significant spending, in various forms. The government initially provided assistance to compensate the families of the victims, to help airlines, and to aid New York City's economic and physical redevelopment; depending on which outlays are assumed to be in response to the attacks, total federal disaster assistance was between \$35 billion and \$46 billion (in 2019 dollars; Congressional Budget Office 2005, pp. 25–26). Lawmakers later provided additional funding for the September 11th Victim Compensation Fund (including \$2.8 billion in fiscal year 2011 and \$4.6 billion in 2015) to cover illnesses and deaths that first responders and others suffered years later because of toxic exposures. In 2019, CBO estimated that the permanent authorization of the September 11th Victim Compensation Fund Act would result in \$10.2 billion of additional spending between fiscal years 2019 and 2029 (Congressional Budget Office 2019a).

An Overview of the Federal Terrorism Risk Insurance Program

TRIA requires all property and casualty insurers to offer terrorism coverage to their commercial policyholders.⁵ (Property and casualty insurance covers businesses against losses from property damage, workers' compensation claims, business interruption, and most liability claims.) The federal government provides reinsurance to private insurers by agreeing to reimburse them for a portion of their terrorism-related losses of up to \$100 billion on commercial policies after an attack. Neither insurers nor the government would be liable for losses above that amount.

Under TRIA, all types of losses from events certified as major terrorist attacks by the Secretary of the Treasury are covered unless such losses are excluded by the underlying property and casualty policies. Nuclear, biological, chemical, and radiological (NBCR) risks are typically excluded from property and casualty policies because they are difficult to estimate and could result in much larger losses than conventional risks (such as truck bombs). The important exception to that rule is workers' compensation policies: Almost all states require employers to purchase coverage for workers' compensation and require insurers to cover losses from all causes, including NBCR attacks. Many property and casualty policies also exclude cyber risks, such as those associated with deliberate interruptions of computer systems, payment systems, and power grids, because of the potential for large losses, the difficulties of estimating the risks and defining policy terms unambiguously, and uncertainty surrounding the certification of potential attacks (Evan 2016; Geneva Association 2018; Granato and Polacek 2019).⁶

TRIA lessens the risk of losses to insurers by shifting the responsibility for some insured losses to commercial property and casualty policyholders and, in some cases, to the federal

⁵For additional details, see Federal Insurance Office (2018), Government Accountability Office (2017), Kunreuther (2015), Marsh (2019), and Webel (2019).

⁶Some analysts have proposed a federal program to insure against cyberattacks that could be state-sponsored but are not classified as acts of war; such attacks are typically excluded from private coverage (Klein and Anderson 2019).

government. Insurers pay no premiums for TRIA coverage, but in the event of a terrorist attack, they would bear some losses through an initial deductible—currently defined as 20 percent of each insurer’s prior-year premiums for all lines of insurance covered by TRIA—and then a 20 percent copayment for losses above the deductible. The government would pay the remainder until losses met the \$100 billion cap, but it could recoup some or all of those outlays from commercial property and casualty policyholders through a tax on their premiums for TRIA-eligible lines of insurance. Insurers would be required to collect the assessments, and policyholders to pay them, whether or not they suffered losses. The Secretary of the Treasury could set different assessment rates for different locations (distinguishing urban areas from smaller commercial centers and rural areas) and for different lines of insurance.

Under current law, the private sector is responsible for all losses below the aggregate retention amount; using data from industry experts, CBO estimated that the retention amount for 2020 is \$44 billion.⁷ To the extent that losses below the retention amount were not covered by insurers’ deductibles and copayments, the government would impose the tax on policyholders, with the tax rate set to yield 140 percent of all federal outlays by September 30, 2029.⁸ For attacks causing losses greater than the retention amount, the government may be required to impose a tax to recoup 140 percent of some portion of its outlays, as illustrated below.

Two earlier laws have set federal precedents for post-event assessments:

- The Price-Anderson Nuclear Industries Indemnity Act of 1957, under which operators of nuclear reactors could face assessments to recoup some of the losses in the event of a nuclear accident; and
- The Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010, which allows the government to manage failing financial institutions and levy post-event assessments on banks to recover the associated budgetary costs.

⁷In 2020, the aggregate retention amount is the sum of the average of each insurer’s deductibles over the previous three years.

⁸CBO and the staff of the Joint Committee on Taxation project that payment of taxes for recoupment would reduce income in the private sector and, consequently, reduce income and payroll tax revenues (Congressional Budget Office 2009). When TRIA was reauthorized in 2015, the size of that projected reduction was about 25 percent, varying slightly from year to year; because tax rates have since dropped, the offset for 2020 is about 22 percent. Setting the tax to yield 140 percent of the outlays before accounting for an offset of 25 percent, for example, implies that net revenues would be 105 percent of outlays ($140 \times [1 - 0.25] = 105$). Thus, setting the tax to yield 140 percent of outlays counterbalances the offset and provides some additional compensation to the government for bearing risk.

No assessments have been collected under either of those laws. However, assessments on property and casualty insurers have been collected by many state guaranty funds, which cover some of the claims of insolvent insurers.

In December 2019, Congress approved H.R. 4634, the Terrorism Risk Insurance Program Reauthorization Act of 2019, which extends TRIA for seven years, through the end of 2027, without other substantial changes to its provisions.⁹ Increases over time in the dollar amount of insurers' deductibles and in the aggregate retention amount, driven by increases in insurance premiums, will gradually shift slightly more risk to insurers and policyholders.

The budgetary effects of TRIA's various risk-sharing provisions as they apply in 2020 are illustrated in Figure 1. The two panels of the figure show the allocations of losses under two of the many possible scenarios involving different groups of insurers and different proportional distributions of losses among those insurers. In general, scenarios like the one shown in Panel A, involving smaller groups of insurers, would be more likely to apply to smaller attacks. Conversely, larger attacks would probably involve larger groups of insurers, as illustrated by Panel B.

Panel A depicts losses that are spread rather unevenly among a group of insurers with collective deductibles of \$11 billion (one-fourth of the estimated \$44 billion retention for all insurers). Specifically, given the distribution of the losses among the insurers, only attacks that caused losses of \$30 billion or more would result in all insurers reaching their deductibles.¹⁰ A dashed line in each panel illustrates the allocation of initial costs from a hypothetical attack causing \$49 billion in insured losses (making it roughly as costly as the 9/11 attacks). In the event of such an attack, \$18.6 billion of the insured losses would be covered by insurers' deductibles and copayments; of the \$30.4 billion covered by federal outlays, the Treasury would be required to recoup \$25.4 billion. Recoupment of the remaining \$5 billion would be at the discretion of the

⁹See Congressional Budget Office (2019c, 2019d) for cost estimates.

¹⁰Another way to explain that scenario is to say that 11:30 is the lowest ratio of an insurer's share of losses to its market share among the set of affected insurers (which determines its share of the collective \$11 billion deductible). For example, one insurer might have 1.5 percent of the group's total market share but only 0.55 percent of the losses. That insurer's deductible would be \$165 million (1.5 percent of \$11 billion) and would be met on a collective loss of \$30 billion or more (because 0.55 percent of \$30 billion is \$165 million). For simplicity, the scenario also reflects the assumption that the group of affected insurers comprises a large number of small firms, implying a smooth trajectory of insurers' contributions as the amount of insured losses increases from zero to \$30 billion and more insurers switch from paying deductibles to 20 percent copayments. Assuming a rougher trajectory would not significantly affect CBO's analysis.

Secretary of the Treasury, but it seems unlikely that the Secretary would use that authority in the aftermath of a large attack.¹¹

By contrast, Panel B in Figure 1 depicts a scenario in which losses are spread out among insurers with total deductibles of \$33 billion and are distributed somewhat more proportionately than in Panel A, so that the \$33 billion in deductibles would be reached if total insured losses were \$50 billion or more.¹² Under that scenario, for an attack that caused \$49 billion in insured losses, insurers' deductibles and copayments would cover \$36.2 billion and federal outlays would cover \$12.8 billion. The Treasury would be required to recoup about \$7.8 billion but not the remaining \$5 billion.

CBO's Baseline Projections of TRIA's Federal Costs

CBO's baseline projections are estimates of spending, revenues, the deficit, and the public debt expected during a fiscal year; they are made under the assumption that current laws will generally remain unchanged and used as benchmarks for measuring the effects of proposed legislation. The March 2020 baseline, prepared before significant effects of the 2020 coronavirus pandemic became evident, incorporates the effects of TRIA's reauthorization as well as the program's effects for most of calendar year 2020. CBO projected that over the fiscal year 2020–2030 period, TRIA would increase federal spending by \$7.1 billion and boost net revenues by \$8.5 billion, resulting in an overall deficit reduction of \$1.4 billion (see Table 1). Although CBO estimated that the program would result in net savings on an expected-value basis, in the unlikely event of attacks bigger than those of September 11, 2001, the program could result in significant net federal costs.

CBO's projections of TRIA's costs are cash measures, which means they incorporate the effects of payments as they are made and receipts as they are collected. They do not include the effects of future payments and receipts, and they do not reflect the cost of market risk—financial risk that arises from shifts in macroeconomic conditions (such as productivity and employment) and expectations about future macroeconomic conditions, and thus cannot be eliminated by diversifying a portfolio. In a 2018 study, CBO concluded that accrual measures, which accelerate the recognition of long-term costs and offsetting income, might provide more comprehensive

¹¹The \$18.6 billion paid by insurers comprises their collective deductibles of \$11 billion (which are all met because the total insured loss exceeds \$30 billion) and copayments of \$7.6 billion (the 20 percent copayment rate times the \$38 billion of losses above the deductibles).

¹²Another way to explain that scenario is to say that 33:50 is the lowest ratio of an affected insurer's share of losses to its market share. For example, an insurer might have 1.5 percent of the group's market share, corresponding to an individual deductible of \$495 million, but 0.99 percent of the losses. That insurer would meet its deductible on a collective loss of \$50 billion.

information about the costs of the terrorism insurance program (Congressional Budget Office 2018c).

The total savings from TRIA projected in CBO’s March 2020 baseline would be smaller if measured on an accrual basis, for two reasons. First, the savings in future years would be less highly valued, reflecting the time value of money (the fact that a dollar today is worth more than a dollar later). Second, the amount of savings would be reduced by \$730 million in additional spending to settle claims after fiscal year 2030, in CBO’s estimation. (Claims can take several years to settle after damages are incurred.)

Methodology

Estimating TRIA’s budgetary effects is challenging, both because the risk of attacks of different sizes is uncertain and because the program involves several “trigger” threshold values, which trigger a change in the relationship between losses and federal costs once they are crossed. Those values include the individual deductibles for each insurance company, which equal 20 percent of their prior-year premiums for covered property and casualty lines of insurance; the aggregate retention amount for the industry as a whole, which CBO estimated at \$44 billion for 2020; and the \$100 billion liability cap. Such threshold values, which are also known as “one-sided bets” because they affect budgetary costs on only one side of the threshold, result in a complex relationship between the insured losses from a terrorist attack and the resulting budgetary effects.

Given that complexity, CBO’s analyses of the TRIA program must take into account the likelihood and cost implications of the full range of potential insured losses. Because the limited number of successful attacks in the United States does not provide an adequate basis for estimating the probabilities of future losses of different sizes, CBO turns to risk modelers and security experts for their perspectives on those probabilities. Using their input, CBO made the following choices when creating the models used to construct its March 2020 baseline: The expected loss in covered lines of insurance in 2019 was approximately \$2 billion, the annual chance that there will be no terrorist attack with damages meeting TRIA’s \$200 million threshold is about 60 percent, and the annual chance of an event with losses at least as large as those from the 9/11 attacks is 1 in 750.¹³ On the basis of those choices, CBO calibrated a log-normal probability distribution; the log-normal form was chosen because it allows for distributions with the key characteristic that small losses are much more likely than large losses.

¹³Experts with whom CBO consulted include Charlene Chia and Amanda Powell of AIR Worldwide Corporation, Will Skinner of Aon, Mahmoud Khater of Core Logic, and Derek Blum and Shruti Deshmukh of RMS. Because of a computational error, the annual probability of losses as large as those from 9/11 used in generating the baseline was 35 percent smaller than intended. (That error had only a modest effect on the resulting estimates of outlays, revenues, and deficits over the 2020–2030 budget window.)

Additional modeling choices were required by the individual deductibles for each company (representing separate one-sided bets on each one's losses), which make the budgetary effects dependent not only on the total amount of insured losses but also on the distribution of those losses among the insurers. CBO created two distribution scenarios and averaged the results: a narrow distribution, encompassing a set of insurers whose collective deductibles are 0.5 percent of the total for all insurers, and a broader distribution, encompassing a set of insurers with collective deductibles equal to 30 percent of the industry total.¹⁴ In both cases, CBO modeled the distribution of losses among the affected insurers in proportion to their market shares.¹⁵

Effect on Spending

In its March 2020 baseline, CBO projected \$7.8 billion in direct spending for TRIA, including \$7.1 billion over the 2020–2030 budget window, on an expected-value basis—that is, taking into account the estimated probabilities of losses of all sizes (as well as the various provisions that affect the federal share of the cost for a given size and distribution of insured losses). That projection reflected views of some commercial catastrophe modelers that expected losses from terrorist attacks have fallen since the program's previous reauthorization.¹⁶ CBO estimated that expected losses from attacks covered under TRIA, most of which would be covered by insurers' deductibles and copayments, would be about \$2.1 billion in 2020 and would rise each year with projected growth in the economy.¹⁷

Effect on Revenues

CBO's projection of \$8.5 billion in net revenues from TRIA over the 2020–2030 budget window reflected both the provisions of the law—specifically, the requirement for a tax to yield 140 percent of certain outlays by September 30, 2029—and the effect of reduced revenues from policyholders' income and payroll taxes. Over that period, in CBO's March 2020 baseline, policyholders pay \$11.1 billion in assessments, which lowers income in the private sector and, in turn, reduces revenues from income and payroll taxes by \$2.6 billion. In some cases, the revenues would have to be collected earlier—for example, assessments associated with an attack before the end of 2022 are to be collected by September 30, 2024. (CBO expects that the Secretary of the Treasury would not seek to recover financial assistance that exceeded the

¹⁴Those percentages correspond to the 30th-largest market share among insurers and the combined market share of the top 30 insurers, respectively.

¹⁵With losses distributed proportionately, all affected insurers have the same threshold loss at which they meet their deductibles (for 2020, the figures in the two scenarios are \$0.2 billion and \$13.8 billion), and no federal outlays occur for losses below that threshold.

¹⁶After consulting with commercial modelers, CBO estimated that expected losses from terrorist attacks in 2015 would be about \$2.5 billion (in 2020 dollars); see Torregrosa, Beider, and Willie (2015).

¹⁷That estimate takes into account the percentage of commercial properties with terrorism insurance. If all firms purchased coverage for conventional attacks, expected losses would be about \$500 million higher.

retention amount and would not collect interest on outstanding amounts.) Taking both factors into account, net revenues would slightly exceed outlays if insured losses were less than, or not too much greater than, the aggregate retention amount.¹⁸ Because attacks causing losses much greater than the retention amount are thought to be far less likely than smaller attacks, the overall expected effect on the budget is a reduction in the deficit.

CBO based its revenue projections on current law as written, consistent with the agency's general practice of expecting that those charged with implementing laws will attempt to adhere to specified schedules and deadlines. However, the recoupment mechanism has yet to be tested, and after a very large attack, lawmakers might be hesitant to collect the required amount of taxes from commercial policyholders, including those without terrorism insurance, by the specified deadlines—especially if the economy is weak.¹⁹ If lawmakers decided to delay, reduce, or eliminate those taxes rather than risk further burdening insurers and their policyholders after a major attack, then the program could have net budgetary costs, at least over the 10-year period. The program could also have net budgetary costs over the 10-year period if the taxes recouped a smaller percentage of outlays or were collected more slowly.

Accrual Estimates of TRIA's Costs

Some federal insurance programs, including deposit, pension, and terrorism insurance, have effects on the budget that extend years or decades beyond the standard 10-year budget window, and policymakers need complete and accurate measures of those effects to make informed decisions about such programs (Congressional Budget Office 2018c, pp. 37–39). However, the cash-based measures used for most programs in the federal budget process generally focus only on a 10-year period.

Accrual-based measures can provide more complete information about federal insurance programs in such cases. An accrual estimate summarizes in a single number, called the present value, the net budgetary impact that is anticipated at a particular time from a commitment that will affect federal cash flows many years into the future. The present value of those future cash flows is obtained by discounting them to reflect the time value of money. Accrual estimates prepared following the approach specified in the Federal Credit Reform Act (FCRA) use interest rates on Treasury securities as the discount rates. Alternative accrual estimates known as fair-value estimates, discussed below, typically use higher discount rates to reflect the compensation

¹⁸For losses that exceeded the retention amount, the share of federal payments subject to recoupment would depend on the size of the loss and the combined market share of the insurers incurring losses. The larger that share, the greater the total deductibles insurers would pay before any federal outlays occurred.

¹⁹Alternatively, the budgetary costs of outlays from a terrorist attack could be spread more broadly through some combination of increases in general taxes and reductions in government spending. In that case, the program would have a budgetary cost.

required by market participants for investments that pose undiversifiable risk (that is, risk that applies to the entire economy).

Advantages and Disadvantages of Accrual Estimates

Accrual measures offer several advantages over cash measures for estimating the budgetary effects of federal insurance programs:

- They avoid mixing the costs of new and existing insurance commitments, as cash measures do. By highlighting the net long-term costs of new commitments when those costs are most controllable, accrual estimates could call policymakers' attention to risk when setting premiums and reserve requirements for programs that insure against unlikely but potentially large losses, and could help identify whether a program's costs are rising or falling over time.
- They can more readily incorporate market risk (described below).
- They make it harder for policymakers to affect estimates of the budget deficit by shifting the timing of payments or receipts without actually changing the inflation-adjusted value of those cash flows.

Accrual measures also have several disadvantages, however:

- They are less transparent and verifiable than cash measures because they are more methodologically complex.
- They require judgments about appropriate methodology that could spark disagreements among analysts and policymakers, such as what time horizon to cover and whether a federal commitment of future resources is firm enough to record those cash flows before they occur.
- They have a wider range of uncertainty and are more subject to change than cash-based estimates.
- Moving from cash to accrual measures in the budget would widen the difference that generally exists between the reported budget deficit and the actual change in outstanding federal debt in a given year. Such a move would also complicate budget reporting.

FCRA Approach

Using the accrual measures prescribed under FCRA, CBO estimates that the savings attributable to one full year's worth of reinsurance commitments would average \$70 million. That amount reflects the difference between the present value of the federal payments for losses incurred in a given year and the present value of the net revenues from the taxes imposed by the government to recoup its costs for those losses. Over the 2020–2030 budget window, the program would produce total savings of about \$800 million on an accrual basis, CBO estimates, compared with \$1.5 billion of savings projected on a cash basis (see Table 2). That difference between the cash

and accrual measures of net savings is mostly attributable to the estimated outlays of \$730 million to settle claims after 2030.

Fair-Value Approach

Because large terrorist attacks could disrupt the economy and lower the value of assets, including stocks, TRIA exposes the government—and, by extension, taxpayers—to market risk (Congressional Budget Office 2018c). Estimates that reflect the market value of governmental obligations, including the effects of market risk on that value, are known as fair-value estimates.²⁰ Such estimates reflect the fact that private investors require additional compensation, called the risk premium, for taking on market risk. In practice, the adjustment for market risk is made by using a discount rate greater than the interest rate on Treasury securities.²¹ Determining the discount rate that private investors would use introduces an element of judgment not required in the FCRA approach.

Compared with estimates made on a FCRA basis, fair-value estimates of both TRIA's outlays and revenues would be higher. CBO has not developed such estimates to determine the net effect.

Conclusions

Lawmakers designed the federal terrorism insurance program so that it would not have an expected budgetary cost. They accomplished that goal by setting the post-event assessments on all commercial property and casualty policyholders high enough that the net revenues collected would exceed federal outlays for claims for most events. Only if another attack exceeded the insured losses of the 9/11 attacks, which CBO judges to be highly unlikely, would the government see higher deficits over the 10-year projection period.

Relying on post-event assessments is one strategy for dealing with highly uncertain estimates of average insured losses and high variability (year to year or even decade to decade) around the average. Under the alternative strategy of relying on up-front reinsurance premiums, the government would have little assurance that the amounts collected would be adequate to cover actual losses.

²⁰The fair value of an asset is the price that would be paid for that asset in an orderly transaction (one that occurs under competitive market conditions between willing participants and does not involve forced liquidation or a distressed sale). For an analysis of market risk and how it can be incorporated into cost estimates and baseline budget projections, see Congressional Budget Office (2018b) and Elmendorf (2014).

²¹For a technical discussion of discounting for federal loan guarantees, which are similar in some respects to federal insurance, see Congressional Budget Office (2004, pp. 23–24).

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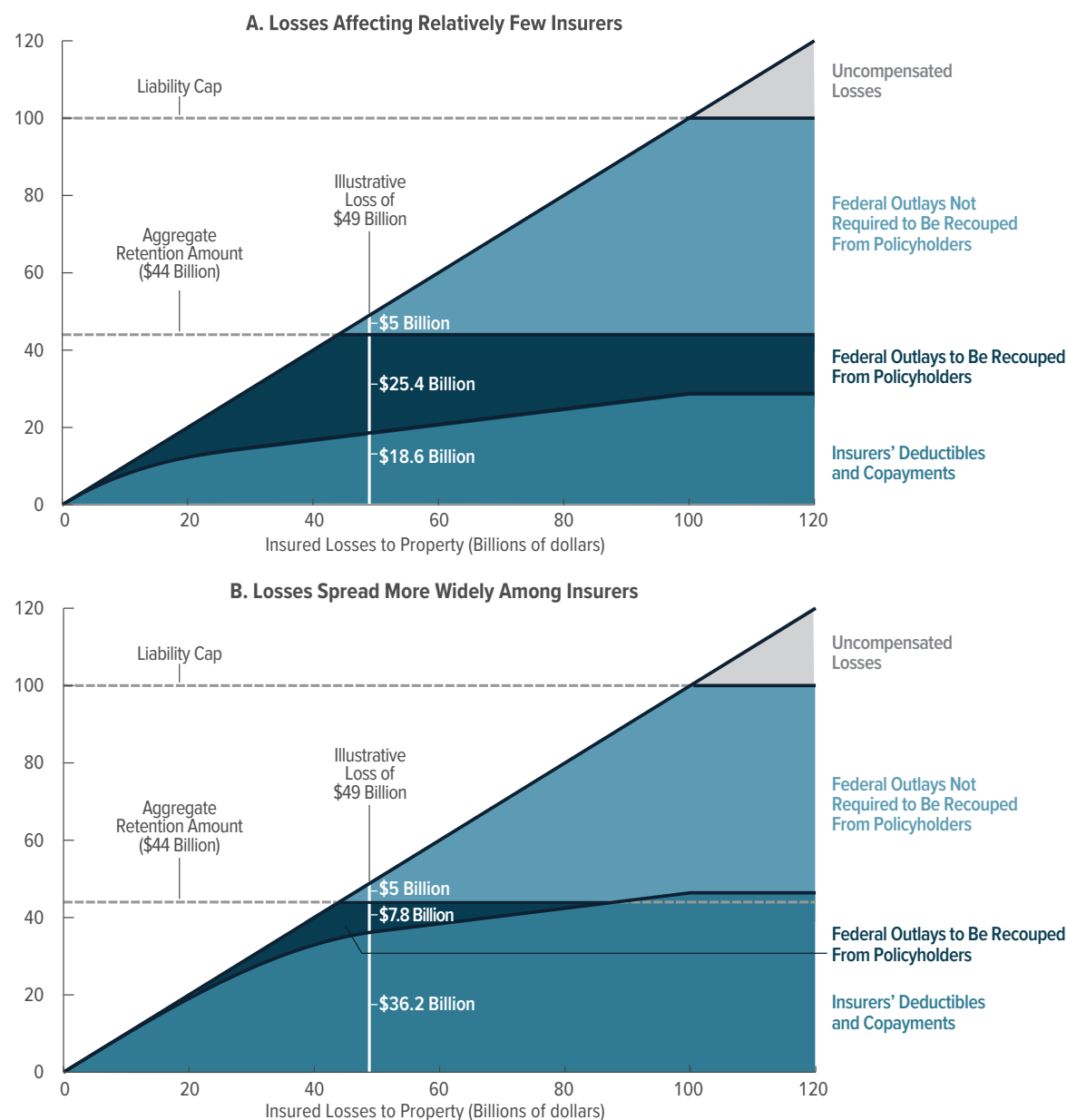
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Figure 1.

Allocation of Potential Insured Losses From Terrorism in 2020 Under Two Exposure Scenarios

Billions of Dollars



Source: Congressional Budget Office.

After a terrorist attack, the amount paid by insurers in deductibles and copayments would depend on the total insured losses, the total deductibles of the affected insurers, and how the losses were distributed among those insurers. Panel A shows allocations of losses for an illustrative set of insurers that have collective deductibles of \$11 billion and would all meet their deductibles if the total insured losses were \$30 billion or more. Panel B shows allocations of losses for a larger set of insurers that have collective deductibles of \$33 billion and would all meet their deductibles if insured losses were \$50 billion or more. Both panels reflect the 20 percent copayment rate and the \$44 billion aggregate retention amount (which helps determine the amount of federal outlays that must be recouped from policyholders) in effect in 2020. (They also reflect an assumption that each individual insurer is small and thus that the curves representing total insurers' deductibles and copayments are smooth. Because of that smoothness, the curves in the two panels appear to become linear, at slopes of 20 percent, for losses of less than \$30 billion and \$50 billion, respectively; however, they remain very slightly curved below those thresholds.)

Table 1.

CBO's March 2020 Baseline Budget Projections for the Federal Terrorism Risk Insurance Program, 2020 to 2030

Millions of Dollars

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Total	
												2020– 2025	2020– 2030
Outlays ^a	70	290	500	650	770	850	910	960	930	680	440	3,130	7,050
Revenues													
Tax assessments	0	230	650	1,300	2,100	390	750	1,250	2,030	2,430	0	4,670	11,140
Offset ^b	0	-50	-140	-280	-460	-90	-180	-310	-500	-600	0	-1,030	-2,610
Net revenues	0	180	500	1,010	1,640	300	570	950	1,540	1,830	0	3,630	8,520
Net Change in Deficit	70	110	0	-360	-870	550	340	10	-610	-1,150	440	-500	-1,470

Source: Congressional Budget Office.

Years in this table are federal fiscal years, which run from October 1 to September 30 and are designated by the calendar year in which they end.

Values may not add up to totals because of rounding.

a. Estimates exclude \$2 million annually for administrative expenses. Projected outlays between 2031 and 2037 (not shown in the table) total \$730 million.

b. CBO and the staff of the Joint Committee on Taxation project that payment of taxes for recoupment would lower income in the private sector and, in turn, reduce income and payroll tax revenues. When the Terrorism Risk Insurance Act was reauthorized in 2015, the size of that reduction was about 25 percent, varying slightly from year to year; because tax rates have since dropped, the offset for 2020 is about 22 percent. It is projected to rise to nearly 25 percent by 2026.

Table 2.

Cash and Accrual Estimates of the Budgetary Effects of the Federal Terrorism Risk Insurance Program, 2020 to 2030

Millions of Dollars

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Total	
												2020– 2025	2020– 2030
Cash Estimates													
Outlays ^a	70	290	500	650	770	850	910	960	930	680	440	3,130	7,050
Net revenues	0	180	500	1,010	1,640	300	570	950	1,540	1,830	0	3,630	8,520
Net Change in Deficit	70	110	0	-360	-870	550	340	10	-610	-1,150	440	-500	-1,470
Accrual Estimates ^b													
Outlays	570	780	810	840	870	900	930	970	240	n.a.	n.a.	4,770	6,910
Net revenues	640	890	930	930	940	970	1,020	1,080	280	n.a.	n.a.	5,300	7,680
Net Change in Deficit	-70	-110	-120	-90	-70	-70	-90	-110	-40	n.a.	n.a.	-530	-770

Source: Congressional Budget Office.

Years in this table are federal fiscal years, which run from October 1 to September 30 and are designated by the calendar year in which they end.

Under current law, the program will end on December 31, 2027, which means it will operate through the first quarter of fiscal year 2028.

n.a. = not applicable.

a. Estimates exclude \$2 million annually for administrative expenses. Projected outlays between 2031 and 2037 (not shown in the table) total \$730 million.

b. The accrual estimates are present values of newly incurred costs, discounted using interest rates on Treasury securities, without adjustments for market risk. (A present value expresses a flow of current and future income or payments in terms of an equivalent lump sum received or paid today; the value depends on the rate of interest, known as the discount rate, that is used to translate future cash flows into current dollars.)