Responding to the COVID-19 and pandemic protection gap in insurance

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The COVID-19 pandemic and the measures taken to limit the spread of the disease have significantly disrupted economic activity in countries around the world, resulting in significant business interruption losses. The vast majority of these losses are likely to be absorbed by policyholders as, unless governments (or courts) intervene, few companies have business interruption coverage that is likely to respond to these types of losses – exposing the existence of an important protection gap for some pandemic-related business interruption losses. This note provides an overview of how business interruption insurance against pandemic risk could be provided with support from governments, and some of the challenges and considerations necessary for establishing such a programme.
The closure of manufacturing plants, restaurants, retail establishments and other places of business to limit the spread of COVID-19 has resulted in significant business interruption losses. The vast majority of these losses are likely to be absorbed by the affected businesses as: (i) many businesses have not acquired coverage for business interruption losses; and (ii) unless governments (or courts) intervene, few of the companies that have acquired business interruption coverage have coverage that is likely to respond to these types of losses (see the OECD’s *Initial assessment of insurance coverage and gaps for tackling COVID-19 impacts* for a more detailed assessment of the insurance coverage available for COVID-19 related losses).

In response to the current crisis, policymakers in a number of jurisdictions are examining various ways to support commercial policyholders (particularly small and medium-sized enterprises (SMEs)) in the context of the uninsured business interruption losses that they are facing or are likely to face as a result of the current COVID-19 pandemic. Policymakers are also beginning to examine longer-term solutions to address the gap in financial protection for pandemic-related business interruption that has come to light as a result of the current crisis.

This note provides an overview of the initial responses to the likely business interruption protection gap for COVID-19 and a discussion of how business interruption insurance against pandemic risk could be provided with support from governments based on the experience of other catastrophe risk insurance programmes.

**COVID-19 business interruption protection gap**

Businesses across many sectors of the economy have faced a significant decline in revenue as a result of government directives to close their businesses in order to slow the spread of the virus among employees and customers. Most governments have implemented programmes to support businesses that have faced significant disruption as a result of COVID-19, focused on ensuring the availability of financing for businesses or income for their employees. Some commercial property insurance policies also include coverage for business interruption losses which provides policyholders with protection against some of the losses that they incur when their business is forced to close, subject to the terms and conditions of the individual policy.

Insurers and their associations around the world have indicated that most policyholders have not acquired insurance coverage that will respond to the business interruption losses that result from COVID-19 business closures. In most countries, business interruption coverage is provided as an optional coverage attached to commercial property insurance that is often (but not always) triggered only as a result of damage to physical property. In addition, in a few countries and policies (notably, in the United States), an exclusion was developed (more than 15 years ago) and has been applied with the aim of specifically excluding coverage for losses due to virus (or bacteria). Some explicit coverage for business interruption losses resulting from a pandemic has been made available as endorsements or specialty coverage although take-up of this explicit coverage has been limited (see Box 1).

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1 In some countries (e.g. Germany), business interruption coverage may not require physical damage although pandemic-related exclusions may apply.
Box 1. Insurance coverage developed for pandemic (and non-damage) business interruption

Some insurance products have been developed to offer explicit coverage for business interruption losses suffered as a result of an infectious disease outbreak, either as a specialty stand-alone policy or as an endorsement to a policyholder’s existing business interruption coverage. In 2018, for example, a specific coverage for financial losses due to outbreaks, epidemics or pandemics was made available (Marsh, 2020[1]) although there has reportedly been almost no take-up (Collins, 2020[2]).

The Insurance Services Office in the United States developed two optional endorsements for commercial property policies applicable to business interruption losses as a result of business closures related to COVID-19 in February 2020 although it is too early to determine whether insurers will seek to offer that coverage (Barlow, 2020[3]). There are also a few commercial insurance policies that specifically include pandemics as a covered peril in some markets (such as a property and liability policy tailored to dentist practices in Canada) (O’Hara, 2020[4]). In addition, some coverage has been developed for non-damage business interruption which is meant to respond to any interruption to business that does not involve physical damage to the insured premises or a building in proximity to the insured premises (which would include pandemics unless specifically excluded under the terms of the coverage). However, non-damage business interruption remains a specialty coverage with limited penetration.

Responses to the COVID-19 business interruption protection gap

A number of insurance supervisors are assessing the potential for business interruption coverage to respond to losses incurred as a result of COVID-19 related business closures. In the US state of Washington, for example, the Office of the Insurance Commissioner undertook a review of policy wordings offered by 84 insurance companies and found that only two insurance companies offered coverage for a pandemic in their base policies while 15 others offered limited coverage through endorsements to other policies (Washington state Office of the Insurance Commissioner, 2020[5]). In France, the Autorité de contrôle prudentiel et de résolution (ACPR) requested information from approximately 20 insurers (accounting for a significant portion of business interruption coverage in the French market) and found that only 2.6% of these companies’ policyholders had explicit business interruption for a COVID-19-type event while a further 4.1% had coverage that could potentially respond (i.e. their policy wordings did not provide certainty on coverage) (ACPR, 2020[6]).

It appears that many policyholder claims for COVID-19-related business interruption losses are being rejected by insurance companies. For example, in the United Kingdom, a survey of hospitality-related businesses found that less than 1% of hospitality businesses, 3% of innkeepers and 4% of beer and pub businesses had received a positive response from their insurer regarding business interruption coverage for COVID-19 related closures (Gould, 2020[7]). Some insurance companies have responded by offering additional coverage or making voluntary payments to support businesses affected by disruptions as a result of COVID-19 (see Box 2).

2 The ACPR found that, in the case of the 93% of policyholders whose coverage would not respond to COVID-19-related business interruption losses, the vast majority had business interruption coverage that would only be triggered by physical damage to the insured’s property while only a few had policy wordings that excluded pandemic as a peril for the purposes of administrative business closures (ACPR, 2020[6]).
Box 2. Voluntary payments and coverage extensions for business interruption losses

In a few jurisdictions, insurance companies are offering additional coverage or making voluntary payments to support businesses affected by disruptions as a result of COVID-19. In Switzerland, a number of companies have agreed to voluntarily compensate their policyholders in the restaurant sector for some business interruption losses. In the German state of Bavaria, insurance companies have agreed to provide voluntary compensation for 10%-15% of the normal daily cost of business interruption to policyholders in the hospitality sector (Bayerisches Staatsministerium für Wirtschaft, 2020[8]). At least one German insurer will reportedly provide similar compensation to all of its German policyholders (Huebner, 2020[9]). In France, insurance companies announced that they will collectively contribute EUR 400 million to a solidarity fund for affected businesses (FFA, 2020[10]) and some insurers are reportedly providing small firms with ex-gratia payments (Huebner, 2020[9]). In South Africa, a number of non-life insurers have agreed (as part of a discussion with prudential and market conduct regulators) to provide interim payments to some or all policyholders with a potentially relevant coverage for infectious diseases while legal certainty is being sought on the applicability of coverage (FSCA, 2020[11]).

According to the Italian insurance association (Associazione Nazionale fra le Imprese Assicuratrici (ANIA)), insurance coverage for business interruption is not common on the Italian market, particularly among SMEs – and where acquired, it may only be triggered as a result of physical damage to the insured premises. As a result, Italian SMEs subjected to closure orders (e.g. retail shops, bars and restaurants and various types of service providers) were unlikely to receive any insurance payments for the losses incurred as a result of the closures. A group of insurance companies responded by designing a coverage extension to provide affected SMEs with a daily allowance valid for up to 15 days of ordered business closure.

In addition, insurance companies in many jurisdictions are providing various forms of support to policyholders, including businesses, such as premium grace periods and refunds and flexibility in terms of coverage interpretation (see the OECD report on Insurance Sector Responses to COVID-19 for an overview of these initiatives).

The absence of (or uncertainty regarding) coverage has led (and will continue to lead) to a large number of disputes between insurers and their policyholders which is likely to take months (if not years) to resolve. For example, in the United States, over 1 000 COVID-19-related insurance coverage lawsuits have reportedly been filed (as of August 2020) with early outcomes suggesting different judicial interpretations of key issues and limited potential for any consolidation of proceedings (Covington, 2020[12]).

Some legislators, insurance regulators (particularly market conduct and consumer protection authorities) and insurance associations are taking steps to support a more efficient resolution of these disputes:

- In the United Kingdom, the Financial Conduct Authority (FCA) has taken the unprecedented step of seeking clarity from the courts on some specific areas of potential coverage disputes\(^3\) in order

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\(^3\) The FCA is seeking an urgent declaratory judgement from the courts on the applicability of non-damage business interruption coverage (including coverage for pandemics, denial of access and civil authority closures that do not require physical damage to be triggered) provided in a set of 17 commercial property policies to COVID-19-related losses. The test case will not address the uncertainty related to whether virus contamination could be considered physical damage, which is another significant area of potential disputes (FCA, 2020[75]), (Jones and Cohn, 2020[76]), (Le Marquer, 2020[77]).
to expedite a resolution and hopefully reduce the need for lengthy litigation between insurers and their policyholders (FCA, 2020[13]). A decision is expected in September. In August 2020, the FCA has set out expectations on how insurers should take into account government financial support to policyholders with valid business interruption claims (Anthony, Harunah and Somi, 2020[14]).

- In Switzerland, the Ombudsman of Private Insurance commissioned published a mandated third party legal opinion seeking clarity on the applicability of various pandemic exclusions that are applied as part of the general conditions of some Swiss property and business property insurance policies (Dörig and Bösch, 2020[15]).

- In South Africa, the Financial Sector Conduct Authority (FSCA) identified the types of business interruption policies that could potentially include coverage and the evidence required to demonstrate coverage which is meant to reduce variation in interpretation by insurance companies using similar wordings (FSCA, 2020[16]). Reportedly, the FSCA is also considering launching a test case in order to provide greater certainty on the applicability of coverage (Rumney, 2020[17]).

- In Ireland, the Central Bank of Ireland has established a COVID-19 and Business Interruption Insurance Supervisory Framework that outlines its expectations of insurers in terms of responding to business interruptions claims, including guidance on the interpretation of some issues, the allocation of litigation costs, particularly for cases deemed to be possible “test cases” and a requirement for insurers to extend the benefits of dispute resolutions to other relevant policyholders (Carrigy and Grogan, 2020[18]), (Moore, 2020[19]).

- In the United States, a legislative proposal has been introduced that would allow insurers to voluntarily make payments (reimbursed by government) for business interruption losses under policies that provide coverage for losses related to civil authority closures and apply a virus exclusion — as a means to address one specific area of potential coverage disputes (Office of Congressman Mike Thompson, 2020[20]).

- In Australia, the Insurance Council of Australia (non-life insurance industry association) has launched a test case in the state of New South Wales based on two small business claims made by policyholders with valid business interruption insurance policies (AFCA). The aim of the case is to provide an interpretation on the application of infectious disease exclusions to business interruption policies that could potentially be used by AFCA in resolving similar disputes (Ladbury, 2020[21]).

Legislators in some jurisdictions have raised concerns about the lack of coverage for COVID-19-related business interruption losses. For example, the Chair of the UK House of Commons Treasury Select Committee wrote to the Association of British Insurers requesting information on the approach that insurers will take to business interruption claims and the amount of losses that insurers expect to pay (Stride, 2020[22]). In France, a senator representing the district of Ille-et-Vilaine submitted a written question to the Minister of Economy and Finance on 9 April regarding the need to extend retroactive coverage for business interruption losses through the French natural catastrophe insurance programme (Robert, 2020[23]).

In a few jurisdictions, governments are also considering ways to ensure that insurance coverage responds to the business interruption losses that have been (and are being incurred) by businesses. In the United States, for example, legislation has been proposed in a number of jurisdictions (including District of Columbia, Louisiana, Massachusetts, New Jersey, New York, Pennsylvania, Ohio, Rhode Island and South Carolina (Turner, 2020[24])) that, if adopted, might require insurers to pay certain business interruption claims submitted by businesses that had business interruption insurance at the time COVID-19 measures were implemented — even where insurance policies have exclusions or other policy terms and conditions that ordinarily would preclude coverage for such losses. In the US state of California, a recent legislative proposal reportedly includes a rebuttable presumption that would, for the purposes of claims interpretation, require an assumption that during the state of emergency, COVID-19 was present, caused physical damage and was the direct cause of business interruption to businesses in the state (Insurance Journal, 2020[25]). At the time of writing, many of the state legislative proposals were at an early
stage of development and some of the early proposals (including legislative proposals in the District of Columbia and Louisiana) have reportedly been abandoned (Foggan, Sabino and Sutta, 2020[26]).

Insurance regulators and supervisors (along with insurance companies) have raised concerns over the implications of retroactively expanding coverage obligations. The International Association of Insurance Supervisors issued a statement in May that cautioned against “initiatives seeking to require insurers to retroactively cover Covid-19 related losses, such as business interruption, that are specifically excluded in existing insurance contracts”. The IAIS also noted that these “initiatives could ultimately threaten policyholder protection and financial stability, further aggravating the financial and economic impacts of Covid-19” (IAIS, 2020[27]). In the United States, the NAIC issued a statement raising concerns with proposals to require retroactive coverage of business interruption claims and highlighted the significant solvency risks to the sector as well as the macroprudential risks associated with such proposals (NAIC, 2020[28]). The US Department of the Treasury has also noted concerns about potential interference with the contractual arrangements made between insurers and their policyholders and the possibility that such proposals could introduce stability risks (Vaughan, 2020[29]). In France, the ACPR has reminded insurers that they should not make payments for losses that are not included within the scope of coverage that they provided (ACPR, 2020[30]). Proposals which may require insurers to pay claims for losses that they did not intend to cover and for which they have not collected premiums or set aside provisions/reserves could have serious implications. The scale of losses that policyholders are incurring as a result of business disruption are multiples of the amount that insurers will normally payout for business interruption claims and may far exceed the amount of surplus capital (see below). If surplus capital were exhausted as a result of mandated payouts for COVID-19 business interruption, the ability of insurers to respond to losses from future events would be uncertain. The certainty of contractually-agreed insurance coverage would also likely come into question if legislators could intervene to alter outcomes – and there could be cross-border implications if some of the losses covered retroactively in one jurisdiction are reinsured in another.

**Longer-term policy responses to the pandemic business interruption protection gap**

Policymakers and other stakeholders are beginning to examine longer-term solutions to the business interruption protection gap as many private insurance market participants have expressed concerns about offering comprehensive coverage without some form of loss-sharing programme. A number of insurance and risk management associations have publicly indicated their support for developing a programme to cover pandemic-related business interruption losses, including risk management, broker and insurance associations from across Europe and the United States (Ladbury, 2020[31]), (Collins and Norris, 2020[32]), (Ladbury, 2020[33]). In the United States, a legislative proposal to establish a federal pandemic risk reinsurance programme (“Pandemic Risk Insurance Act of 2020” has been introduced to Congress. Working groups, in some cases involving both the public and private sectors, have been established in France, Germany, Switzerland, the United Kingdom (amongst other jurisdictions), as well as by the European Insurance and Occupational Pensions Authority (EIOPA) to examine possible solutions for providing insurance for future pandemics (Direction générale du Trésor, 2020[34]), (Insurance Journal, 2020[35]), (EIOPA, 2020[36]).

There is significant international experience in establishing catastrophe risk insurance programmes and good practices for supporting broad coverage, lowering the aggregate cost of coverage, minimising public financial exposure and encouraging risk reduction through programme design.
Characteristics of pandemic risk

A pandemic presents different risks and challenges from many of the other types of perils that have been targeted by catastrophe risk insurance programmes.

Key uninsured (or underinsured) exposure is business interruption

Catastrophe risk insurance programmes are often targeted at property damage, whether to residential or commercial buildings. In mature insurance markets, coverage for property damage is acquired by almost all commercial entities. As a result, coverage for property damage of the peril targeted by the catastrophe risk insurance programme can be attached to the coverage that already exists in the market and achieve broad penetration (although some programmes have established their own coverage terms and conditions).

However, the share of businesses that have acquired business interruption coverage is much lower. In the United States, for example, approximately 30% of businesses have acquired coverage for business interruption. In France, the Fédération française de l’assurance estimates that approximately 50% of SMEs have business interruption coverage (relative to 100% that have coverage for property damage) (FFA, 2020[37]). As a result, it would likely be more difficult to achieve broad penetration by attaching pandemic coverage to business interruption policies.

In addition, one of the main (disputed) limitations to coverage of business interruption losses resulting from COVID-19 (or other infectious diseases) in many jurisdictions is that coverage may only be triggered as a result of physical damage and contamination may not be considered property damage. The challenge will be to add coverage through a pandemic risk insurance programme without altering existing commercial practices related to the coverage of non-damage business interruption.

The cost of coverage may be substantial

While it is difficult to assess the frequency of pandemics, the potential severity of losses is immense. The magnitude of business interruption losses that are likely to be incurred as a result of COVID-19 (whether by policyholders or their insurers) is much higher than the losses incurred as a result of any recent single catastrophe event. For example, in the United States, one estimate suggests that small businesses (businesses with fewer than 100 employees) alone face monthly costs of USD 255 billion - USD 431 billion as a result of business closures, including incidental expenses, payroll obligations and lost profits (APCIA, 2020[38]). By comparison, the Great East Japan Earthquake in 2011 (the largest economic loss from a single event since at least 1970) resulted in USD 234 billion in losses (in 2018 USD).

Potential losses of this magnitude would far exceed the amount of premiums collected for business interruption coverage. For example, the approximately 20 French insurers surveyed by ACPR reportedly collected a total of EUR 354 million in premiums for business interruption coverage in 2019 (ACPR, 2020[6]).

Figure 1 provides broad estimates of the potential magnitude of pandemic-related business interruption losses (as a multiple of past catastrophe losses from a single event) and the potential premium requirements (as a share of gross direct property insurance premium) – based on an assumed return period of 1-in-100 years (which may underestimate the actual frequency of pandemics). As an example, for the United Kingdom, estimated pandemic-related business interruption losses of USD 85-147 billion for a two-month period of confinement are estimated to be 18 to 32 times larger than the estimated economic losses

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4 Gaps in coverage may exist (or may emerge as a result of COVID-19) across other lines of business (e.g. event cancellation, health or various liability coverages) which may also need to be addressed through some form of catastrophe risk insurance programme.
losses from the Yorkshire floods in 2007 (USD 4.5 billion) and, based on a 100-year return period, would require (at a minimum – and without considering capital requirements) annual premiums of USD 848 million to USD 1 474 million, equivalent to approximately 2.9%-5.0% of all gross direct premiums written for property damage and business interruption (residential and commercial) in 2018 by British insurers.

Figure 1. Pandemic-related business interruption: potential loss magnitude and annual premium requirement

Note: Pandemic-related business interruption losses were estimated based on estimates developed: (i) in the United States by the American Property Casualty Insurance Association of monthly business interruption losses; and (ii) in France by Observatoire français des conjonctures économiques of total revenue losses to the economy (of which the corporate sector is estimated to account for 65%). These estimates were applied to other countries based on relative economic size. The loss estimate for each country was compared to the largest economic loss from a natural catastrophe since 2000 (as reported by Swiss Re) and is reported as a multiple of that loss. The premium requirement estimate was calculated as the 2-month business interruption loss estimate divided by 100 (assuming a 100-year return period) and is presented as a share of gross direct fire and property damage premium written in each country (for 2018 as reported to the OECD). It should be noted that the premium estimate includes both commercial and residential property coverage.

Source: OECD calculations based on (OECD, 2020[39]), (Swiss Re, 2018[40]), (OECD, 2020[41]), (OFCE, 2020[42]), (Hartwig and Gordon, 2020[43]).

The cost of capital requirements – which are usually higher for low frequency events, would not benefit from any significant deductions as a result of diversification\(^5\) and would need to account for the high-level

\(^5\) In many solvency requirement frameworks, insurers can reduce the amount of capital that they hold for a given level of liabilities to account for the level of diversification in their portfolio (as, for most perils, not all policyholders will be affected simultaneously). It would be difficult to demonstrate that liabilities for business interruption losses from an infectious disease outbreak with potentially global implications are diversified and should benefit from a capital requirement deduction. This lack of diversification applies especially for monoline insurers. For insurers with multiple lines of business, there is risk diversification between pandemic losses and losses from other lines such as earthquake, fire or motor.
of uncertainty regarding frequency and severity – would add a substantial amount to the premium requirement.

These estimates suggest that providing comprehensive coverage for all business interruption losses for a pandemic of similar magnitude as COVID-19 would entail absorbing losses at much greater levels than any catastrophe event in the past and would require a significant increase in the amount of premiums collected to fund those losses.

**Challenges in ensuring broad coverage**

The design of a catastrophe risk insurance programme would need to consider the best way to achieve broad coverage. Where optional coverage for pandemic risk has been available, it has not been frequently acquired.

The experience of COVID-19 will certainly lead to an increase in interest for such coverage although it’s not assured that this will lead to a long-term change in voluntary take-up particularly if the cost of coverage is substantial. Experience from other catastrophe risk insurance programmes suggests that merely making coverage available may not be sufficient for achieving broad coverage.

**Correlated exposures across countries and markets**

Given the potential for a pandemic to affect all parts of the world (near) simultaneously, the financial benefits of diversifying exposure geographically will be limited (at least in the context of a global pandemic). The ability of reinsurance markets (including alternative risk transfer through capital markets) to provide coverage for risks at a lower cost than primary insurers operating in a single market depends on their ability to pool uncorrelated risks from around the world.

The nature of pandemic risk challenges the ability of the private market to diversify the risk and would likely lead to a higher cost for reinsurance or retrocession (including through alternative risk transfer markets) than in the case of other perils whose occurrence would not be correlated across countries or with financial markets. In the case of alternative risk transfer markets, one of the attractive features for investors has been a lack of correlation between the performance of these instruments and financial market performance. However, the current crisis has demonstrated that a large-scale pandemic is also likely to have a negative impact on financial markets.

**There may be limited private sector appetite for pandemic risk**

Given the recent experience with COVID-19, it is likely that insurers will be reluctant to provide broad coverage for business interruption in the near future (or at least not at a cost broadly accessible to commercial policyholders). Some reports suggest that insurers are reducing or eliminating any potential coverage for pandemic risk in property damage and business interruption policies (Marsh, 2020[1]) and are considering applying various exclusions in other lines of business where some exposure is likely (e.g. directors and officers liability insurance (Collins, 2020[44])).

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6 Not all infectious disease outbreaks will necessarily result in a global pandemic and therefore some diversification benefits may be possible to achieve.

7 There has been very limited use of alternative risk transfer markets for the coverage of pandemic risks (and no experience focused on business interruption) which would likely lead to a higher cost for such coverage in the short-term. That said, Lloyd’s has recently indicated an interest in examining the potential for capital markets to provide capacity for pandemic-related business interruption coverage (Lloyd’s, 2020[50]).
The potential that confinement measures would be imposed broadly as part of any effective response to an infectious disease outbreak is likely to limit the appetite of private insurance markets to offer significant capacity even in terms of first-loss coverage as such measures would lead to many policyholders being affected simultaneously. In the United States, for example, the insurance associations that have put forward the Business Continuity Protection Program proposal (see below) do not include a risk-taking role for insurers (although (re)insurers in France have indicated that they would be willing to provide EUR 2 billion in (first-loss) coverage capacity with access to reinsurance through CCR (public reinsurer) (FFA, 2020[37]).

There is also a high-level of uncertainty related to the frequency and severity of infectious disease outbreaks. While catastrophe models for pandemic risk have existed for a number years, these models are focused on morbidity and mortality, not the business interruption losses that would be addressed by a pandemic risk business interruption insurance programme.

**Few risk reduction options for policyholders**

There would be challenges in terms of designing a programme that encourages risk reduction by policyholders. There may be more limited actions that policyholders can take to reduce their risk than in the case of other types of perils.

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### Box 3. Potential design features of a pandemic risk insurance programme

Given the nature of pandemic risk, governments wishing to establish a pandemic risk insurance programme should consider how the following practices could support the design of a programme that achieves broad coverage, limits public sector exposure and encourages risk reduction.

**Broad coverage, potentially through automatic coverage extensions**

Governments may wish to consider approaches that involve an automatic extension of coverage for pandemic risk business interruption in order to ensure broad coverage. An **automatic extension** to include coverage for pandemic risk business interruption as part of commercial property insurance policies or an approach that involves the **voiding of relevant exclusions** (on an *ex ante*, not *ex post* or retroactive basis) under specific circumstances (e.g. a pandemic that has been formally declared as such by a government authority) would likely be more effective in ensuring broad coverage than simply making coverage available. As outlined in Annex A, programmes that make coverage available on an optional basis have generally had more limited success in reducing the protection gap for targeted perils. Voiding applicable exclusions might help address the challenges of integrating coverage for pandemic-related business interruption into the existing scope of commercial property policies.

**Limit public exposure by leveraging available private sector capacity**

The design of a pandemic risk business interruption insurance programme should involve a careful assessment of the appetite of private (re)insurance markets to provide coverage for different infectious disease outbreak scenarios as well as the cost effectiveness of different approaches to publicly-provided coverage. The limited ability to diversify risk in reinsurance and retrocession markets would likely lead to higher costs for reinsurance coverage which may suggest that government-backing should **target higher layers of losses**, allowing private insurance (and reinsurance) markets to develop for losses below a threshold for government involvement (as outlined below, many of the proposals put forward to provide coverage for pandemic-related business interruption losses in the longer-term...
recommend a role for government as reinsurer). Catastrophe risk insurance programmes that provide coverage as direct insurance or for lower loss layers (usually) depend on private reinsurance, retrocession and capital markets for leveraging private market capacity although these markets may not have significant capacity for a peril that is difficult to diversify geographically, may be highly correlated with financial markets and could result in very large losses. However, as it may take some time before private (re)insurance markets will be willing to make available significant capacity, thresholds for government involvement may need to be set at fairly low levels initially. It is unlikely that private (re)insurance markets would ever have the capacity to manage the losses resulting from a pandemic on the scale of COVID-19. However, any risk-absorption by private markets would nonetheless reduce public sector exposure.

Some have suggested that any programme established to address pandemic-related business interruption should also provide a solution to other uninsured (or underinsured) non-damage business interruption perils (such as cyber perils or major power disruption) (recommended by the Federation of European Risk Management Associations (FERMA) (FERMA, 2020[45]). Offering coverage for a broader set of perils could offer benefits in terms of the diversification of programme exposure.

**Provide incentives (or requirements) for risk reduction**

One of the challenges that has exacerbated business interruption losses (in some sectors) has been difficulties in transitioning to a work from home approach. Insurers could be required to ensure that policyholders have business continuity plans or other risk mitigation measures in place (or could offer premium discounts) that support the continuity of operations (where possible) and reduce the amount of business interruption losses incurred in the event of widespread business closures.

A pandemic risk insurance programme could also integrate requirements for covered businesses to implement measures to limit the spread of the virus (such as a strengthened capacity for remote working) and protect the health and safety of employees and customers. The Business Continuity Protection Program proposal put forward by US insurance association, for example, includes a recommendation that adherence to federal health guidance be a condition for access to compensation (NAMIC, APCIA and Big I, 2020[46]). The insurance sector could also become an advocate for strengthening government preparedness through a pandemic risk insurance programme.¹

**Consider whether insurance is the most efficient mechanism**

Governments are providing various types of financial support to address the financial implications of COVID-19 on individuals and businesses, including a number of programmes that compensate for costs that would normally be covered under business interruption insurance. Ultimately, governments will need to consider whether it is more cost-effective to provide financial support for a catastrophe risk insurance programme for these losses or simply provide this support directly to businesses from the general government budget. Governments could also consider whether it would be more cost-effective to access private insurance markets as a means to protect public finances rather than through a cost-share catastrophe risk insurance programme. An insurance programme would be most beneficial if it increases private market appetite for assuming pandemic-related risks, supports risk understanding and risk reduction and provides certainty to business regarding their coverage for future pandemic-related business interruption losses.

Note: ¹ In the United Kingdom, for example, insurance companies have historically agreed to provide broad coverage for flood damage based on a commitment by government to make sufficient investment in flood risk mitigation.
Pandemic risk insurance programme proposals

In many jurisdictions, policymakers, legislators and insurance organisations have established working groups, developed legislation and made various proposals on the establishment of pandemic risk insurance programmes. In some cases, these proposals have been published or reported in the media.

Europe (EIOPA)

EIOPA has developed an issues paper setting out some of the issues and options for establishing an insurance solution for addressing pandemic-related business interruption losses ("shared resilience solution"), based on discussions with representatives from the insurance industry and commercial insurance buyers. The issues paper outlines potential options for addressing risk assessment challenges (such as the modelling of non-damage business interruption (NDBI) risk) and incentivising risk prevention measures (through pricing and contractual terms) as well as some potential product design features to provide NDBI cover in the short or medium term (such as the choice of payment trigger, the scope or mandatory nature of the cover). The paper also sets out risk transfer approaches based on different mechanisms for risk sharing between insurers, reinsurers and governments at national or European level (EIOPA, 2020[47]).

France

As noted above, the French Minister of Economy and Finances established a working group in April comprised of representatives from business and insurance associations, CCR and members of Parliament mandated to develop a framework for providing insurance for exceptional events, such as a global pandemic.

The Fédération française de l’assurance, a member of the working group, has published its proposal for a CATEX (catastrophes exceptionnelles) programme to provide coverage for business interruption losses that result from a reduction in economic activity following an extraordinary event (pandemics, terrorist attack, natural catastrophe, etc.). Under the proposal, the coverage could be triggered by a state administrative action that resulted in the closure of businesses in a given geographic region for a specified amount of time and would apply to businesses directly affected by the administrative order as well as those indirectly affected as a result of reduced economic activity outside the specified region. The coverage would be funded by a premium paid by SMEs and backed by the government based on the existing regimes for natural catastrophes and terrorism risk. As noted above, French insurers and reinsurers have indicated that they would provide EUR 2 billion in capacity based on an expectation that CCR would provide reinsurance for additional amounts (FFA, 2020[37]).

It should be noted that, at the time of writing, the formal proposal of the working group has not been published and that other members of the group are reportedly developing alternative proposals (Ladbury, 2020[48]).

Germany

The German Insurance Association (GDV) established an expert group from the insurance industry to develop potential models to address the economic impacts of pandemics. The GDV published a Green Paper in June 2020 proposing the establishment of a legal entity that would collect funds from policyholders (either directly as risk-based premiums or through a compulsory flat-rate levies attached to certain policies)
and would make payments to policyholders in the event of a WHO-declared pandemic and/or the declaration of regional epidemic by the relevant German public authorities. Payments would be made to all businesses (flat-rate levy model) or those that paid premiums for coverage based on the amount of capital accumulated by the legal entity (including as a result of any reinsurance coverage acquired by the entity) – with the government providing a backstop for losses above the capacity of the legal entity (GDV, 2020[49]). According to the GDV, representatives of the business community have initially indicated that they would prefer a voluntary solution.

**United Kingdom**

In the United Kingdom, industry representatives have formed working groups to develop solutions to the business interruption protection gap for pandemic risk.

A set of working groups have been established to develop a proposal to establish *Pandemic Re* which would create a government-backed reinsurance pool. The initiative includes broad participation from across the UK insurance sector and intends to submit a proposal to the UK government later this year.

In addition, the Lloyd’s market has developed and published details on three proposed solutions to address various elements of the pandemic-related business interruption protection gap (Lloyd’s, 2020[50]). The proposals have been published as open-source frameworks for the design of programmes to deal with non-damage business interruption (including pandemics) in the short and longer-term:

- For the short-term, Lloyd’s has proposed the establishment of a *ReStart* programme that would pool capacity within the Lloyd’s market to provide business interruption coverage for small companies for future potential waves of COVID-19 (with the possibility to extend the scope of the programme to include SMEs more generally).
- For the medium and longer-term, Lloyd’s has proposed the establishment of *Recover Re* which would collect premiums (under a policy that lasts multiple years) to be used to make payments to policyholders for non-damage business interruption after an event, including the current COVID-19 pandemic as well future pandemics or other perils that lead to business interruption (without the physical damage that triggers such coverage in many commercial property policies). Policyholders would make continuous premium payments over many years to fund a pool that would provide this coverage. The role of government would be to provide a guarantee against policyholder premium payment defaults and, potentially, to fund payouts in the initial years before *Recover Re* accumulates sufficient capital.
- For the longer-term, Lloyd’s has proposed the establishment of *Black Swan Re*, a reinsurance pool backstopped by a government guarantee that would provide coverage for systemic non-damage business interruption losses. Under this proposal, the insurance industry layer would be relatively small at first but would increase over time (subject to loss experience).

**United States**

In the United States, a legislative proposal to establish a federal pandemic risk reinsurance programme – the “Pandemic Risk Insurance Act of 2020” (PRIA) – has been introduced in Congress. The programme would operate in a similar way as the Terrorism Risk Insurance Program by providing a federal backstop for business interruption and event cancellation losses incurred by participating insurers as a result of a “covered public health emergency” (i.e. an event certified as such by the Secretary of Health and Human Services, such as a pandemic or infectious disease outbreak). Under the draft PRIA legislation, the private sector would take on some portion of the future pandemic risk. The federal reinsurance would cover 95% of losses above an individual participating insurers’ deductible once an industry loss threshold of USD 250 million was achieved – with an overall annual limit of USD 750 billion in annual payouts. The purchase and offering of the federally-reinsured coverage would be voluntary (Dawson and McCarty, 2020[51]), (Sclafane, 2020[52]).
The legislation has been endorsed by a number of business and insurance associations, including Non-profit New York, the U.S. Travel Association, The National Retail Federation, the American Society of Association Executives, and the Council of Insurance Agents and Brokers (amongst others) (Office of Congresswoman Carolyn Maloney, 2020[53]).

A group of US insurance associations (American Property Casualty Insurance Association (APCIA), the National Association of Mutual Insurance Companies (NAMIC) and the Independent Insurance Agents and Brokers of America (Big I)) have proposed the establishment of a Business Continuity Protection Program that would provide federal compensation for up to 80% of specific types of operating expenses (including payroll, employee benefits and other operating expenses) for up to three months following the declaration of an emergency. Businesses would need to purchase this protection in advance and would need to certify that: (a) the proceeds of the compensation will be used to retain employees and pay necessary operating expenses; and (b) that the business will implement all applicable federal guidance on health and safety measures during the health emergency. The protection could be acquired by any business incorporated in the United States on a voluntary basis. The private sector would not take on any of the future pandemic risk, and it would be completely backstopped by the U.S. federal government (NAMIC, APCIA and Big I, 2020[46], Hatler, Mihocik and Roman, 2020[54]).

A “Pandemic Reinsurance Corporation” proposal has also been reported in the media although it does not appear to have been formally proposed as legislation. Under this proposal, reinsurance coverage would be made available for both small and large businesses although with small businesses receiving payouts based on a standard formula and large businesses receiving payouts calculated on an indemnity basis. The coverage would automatically be included in small business insurance policies (business owner policies or workers compensation policies) although large businesses would need to specifically acquire the coverage. The insurance industry would be responsible for approximately USD 15 billion of losses faced by small businesses and a similar amount for large businesses after a few years (Sclafane, 2020[55]).

In early July, a large US property and casualty insurer (Chubb) released a proposal for establishing a Pandemic Business Interruption Program involving facilities for small companies and for medium and large companies. For small businesses, the programme would provide a fixed payment based on a multiple of payroll costs in the event of a government-declared pandemic and lockdown with a first layer of losses (beyond a deductible and up to USD 250 billion) co-insured by insurance companies and government (with the industry share increasing over time) and an excess layer of USD 500 billion funded by government. Policyholders would only be required to pay premium to cover the industry share of losses which would reduce the cost of this insurance. Companies would be required to opt-out of purchasing this coverage and, in doing so, would confirm that they will not have access to business interruption coverage or federal assistance programmes in the event of a pandemic. For medium and large companies, business interruption coverage could be acquired on a voluntary basis from private insurers who would cede a proportion of the risk (and premium) to a government reinsurer (Pandemic Re). Coverage would be limited to USD 50 million per policy and the industry retention would be limited to USD 15 billion initially and increasing over time (Chubb, 2020[56]).

Table 1 provides a comparison of some of the common design features across the various proposals.
Box 4. The scope for international cooperation

COVID-19 has become a truly global event that has created similar challenges for the insurance and reinsurance sector (and for policyholders) in almost every country around the world. Responding to these challenges will require a global response. There is a significant opportunity for countries to share lessons and experience from both existing catastrophe risk insurance programmes as well as from the analyses and examinations that are being invested in developing a response to COVID-19. There may also be opportunities to examine the potential benefits of risk-sharing arrangements across countries for the extreme events. For example, in the case of nuclear insurance, a number of national nuclear insurance pools have entered into reinsurance arrangements with other national nuclear insurance pools with the aim of ensuring sufficient overall capacity to address the losses from a major event (Nuclear Pools, n.d.[57]). Ultimately, international cooperation can support a response that meets the policy objectives of governments and the financial needs of businesses and their insurers.
<table>
<thead>
<tr>
<th>Proposal</th>
<th>Distribution</th>
<th>Type of coverage</th>
<th>Perils</th>
<th>Eligible policyholders</th>
<th>Coverage trigger</th>
<th>Government involvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>EIOPA (Europe)</td>
<td>Insurance sector (bundled with other coverage)</td>
<td>Non-damage business interruption (potentially parametric)</td>
<td>Pandemic</td>
<td>SMEs (potentially)</td>
<td>Not specified</td>
<td>National government (third risk layer)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Europe (fourth risk layer)</td>
</tr>
<tr>
<td>CATEX (Fédération française des assureurs)</td>
<td>Insurance sector (attached to commercial property or business interruption policies)</td>
<td>Business interruption (fixed amount)</td>
<td>Extraordinary events (cyber, terrorism, pandemic, etc.)</td>
<td>SMEs</td>
<td>Government administrative order</td>
<td>Reinsurance (CCR)</td>
</tr>
<tr>
<td>GDV (Germany)</td>
<td>Insurance sector (levy or policy extension)</td>
<td>Business interruption</td>
<td>Pandemic (or epidemic)</td>
<td>No restriction</td>
<td>WHO/German authority declaration</td>
<td>Retrocession/guarantee (highest layer)</td>
</tr>
<tr>
<td>ReStart (Lloyd’s)</td>
<td>Insurance sector</td>
<td>Business interruption</td>
<td>COVID-19</td>
<td>Small companies (potentially all SMEs)</td>
<td>Not specified</td>
<td>None</td>
</tr>
<tr>
<td>Recover Re (Lloyd’s)</td>
<td>Insurance sector (stand-alone, multi-year policy)</td>
<td>Non-damage business interruption</td>
<td>Pandemic and other perils</td>
<td>No restriction</td>
<td>Not specified</td>
<td>Guarantee against default on future premium payments</td>
</tr>
<tr>
<td>Black Swan Re (Lloyd’s)</td>
<td>Insurance sector</td>
<td>Non-damage business interruption (systemic event)</td>
<td>Systemic risk perils</td>
<td>No restriction</td>
<td>Not specified</td>
<td>Government backstop for reinsurance pool</td>
</tr>
<tr>
<td>Pandemic Risk Insurance Act (United States)</td>
<td>Insurance sector</td>
<td>Business interruption and event cancellation</td>
<td>Pandemic and infectious disease outbreaks</td>
<td>No restriction</td>
<td>Certification by Secretary of Health and Human Services</td>
<td>Cover losses above insurer (and industry) deductible</td>
</tr>
<tr>
<td>Business Continuity Protection Program (APCIA, NAMIC, Big I – United States)</td>
<td>Insurance sector (stand-alone policy)</td>
<td>Business interruption (80% of eligible operating expenses for up to 3 months)</td>
<td>Pandemic</td>
<td>No restriction</td>
<td>Health emergency declaration</td>
<td>Government would pay all claims</td>
</tr>
<tr>
<td>Pandemic Business Interruption Program (Chubb – United States)</td>
<td>Insurance sector</td>
<td>Business interruption (fixed payment based on a multiple of payroll costs)</td>
<td>Pandemic</td>
<td>SME programme and larger company programme</td>
<td>Pandemic declaration and lockdown order</td>
<td>Co-insurance and backstop (SME programme) Government reinsurer (larger companies)</td>
</tr>
</tbody>
</table>
Annex A. Catastrophe risk insurance programmes

In a number of countries, insurance programmes or pools have been established, usually with the support of the public sector, to provide insurance coverage for certain risks and/or for certain segments of the population. In many cases, these programmes have been established to provide affordable insurance coverage for risks that have been deemed uninsurable through private insurance markets – although in others, the programmes have been established in order to promote solidarity in terms of loss-sharing across regions. Since 2000, approximately 40% of all economic losses due to flood, storms and earthquakes in OECD countries have been incurred in countries (or regions) covered by catastrophe risk insurance programmes.

Overview of catastrophe risk insurance programmes

Perils covered

Some of these programmes have a broad scope, covering multiple perils and lines of insurance. For example, the Consorcio de Compensación de Seguros (CCS) in Spain provides insurance coverage for residential and commercial property, motor vehicles as well accident and sickness against a broad range of both natural and man-made perils. Others are focused on specific (high-risk) perils (e.g. earthquake in Japan or wind in the US state of Florida), specific lines of business (e.g. residential property for natural hazards or commercial property in the case of terrorism) or even a particular exposed segment (e.g. residential property at high-risk of flooding in the United Kingdom).

Type of coverage provided

There is a broad range of approaches to providing programme coverage. Some programmes offer direct (primary) insurance while others provide a reinsurance coverage. Many of the terrorism insurance programmes (and some natural catastrophe insurance programmes) are organised as co-insurance pools that collectively access reinsurance and (in some cases) a government backstop. The US Terrorism Risk

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8 There are also a number of catastrophe risk insurance programmes that provide governments with a source of funding for emergency response and recovery, usually established on a regional basis in order to benefit from geographic diversification (e.g. CCRIF in the Caribbean and Central America, PCRIC in the Pacific Islands and SEADRIF in South East Asia).

9 OECD calculations based on (Swiss Re sigma, 2019[63]). For the purposes of this calculation, catastrophe risk insurance programmes include Denmark (storm), France (storm, flood, earthquake), Iceland (storm, flood, earthquake), Japan (earthquake), New Zealand (earthquake), Norway ((storm, flood, earthquake), Spain (storm, flood, earthquake) and Turkey (earthquake) as well as Switzerland (flood and storm, depending on the canton that was mainly impacted) and the United States (flood, earthquake (California), and storm (if the main impacts occurred in Alabama, Florida, Georgia, Mississippi, North Carolina, South Carolina or Texas)). It should be noted that in France and Spain, only some storm events are covered by the catastrophe risk insurance programme as these programmes include a wind speed threshold.
Insurance Program is a federal backstop administered as a co-insurance arrangement that shares losses between the government and insurance companies at a defined ratio once losses exceed a specific threshold. Table A.1 provides an overview of the types of insurance programmes for catastrophe risk that have been established in OECD and a few non-OECD countries and territories.

<table>
<thead>
<tr>
<th>Programme</th>
<th>Risks covered</th>
<th>Type of insurance</th>
<th>Public sector involvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Australian Reinsurance Pool Corporation (ARPC)</td>
<td>Terrorism</td>
<td>Reinsurance</td>
<td>ARPC is a government enterprise Backstop for losses above ARPC capacity and up to AUD 10 billion</td>
</tr>
<tr>
<td>Austria</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Österreichischer Versicherungspool zur Deckung von Terrorisiken (OVDT)</td>
<td>Terrorism</td>
<td>Co-insurance/ Reinsurance</td>
<td>None</td>
</tr>
<tr>
<td>Belgium</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Terrorism Reinsurance and Insurance Pool</td>
<td>Terrorism</td>
<td>Co-insurance/ Reinsurance</td>
<td>Backstop for losses above TRIP capacity and up to EUR 300 million</td>
</tr>
<tr>
<td>Denmark</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Danish Storm Council</td>
<td>Storm surge and inland flood</td>
<td>Direct insurance</td>
<td>The Storm Council is a public entity that provides compensation for damages funded by a tax on fire insurance policies.</td>
</tr>
<tr>
<td>Danish Terrorism Insurance Pool for Non-Life Insurance (TIPNL)</td>
<td>Terrorism (NBCR)</td>
<td>Reinsurance</td>
<td>Reinsurance coverage provided for up to DKK 15 billion for losses exceeding industry retention</td>
</tr>
<tr>
<td>France</td>
<td>Caisse centrale de réassurance (CCR)</td>
<td></td>
<td>CCR is a government entity backed by an unlimited government guarantee</td>
</tr>
<tr>
<td>Country</td>
<td>Company Name</td>
<td>Coverage</td>
<td>Type of Insurance</td>
</tr>
<tr>
<td>--------------</td>
<td>--------------------------------------------------</td>
<td>--------------------------------------------------</td>
<td>----------------------------------------</td>
</tr>
<tr>
<td>Germany</td>
<td>Extremus</td>
<td>Terrorism</td>
<td>Direct insurance</td>
</tr>
<tr>
<td>Iceland</td>
<td>Natural Catastrophe Insurance of Iceland (NTI)</td>
<td>Volcanic eruptions, earthquakes, landslides, avalanches, flood</td>
<td>Direct insurance</td>
</tr>
<tr>
<td>Japan</td>
<td>Japan Earthquake Reinsurance (JER)</td>
<td>Earthquake, volcanic eruptions, tsunami</td>
<td>Reinsurance</td>
</tr>
<tr>
<td>Netherlands</td>
<td>Nederlandsche Hervzekeringmaatschappij voor Terrorismeschaden (NHT)</td>
<td>Terrorism</td>
<td>Reinsurance</td>
</tr>
<tr>
<td>New Zealand</td>
<td>Earthquake Commission (EQC)</td>
<td>Earthquake, volcanic eruptions, tsunami, landslides, storm/flood (for land only)</td>
<td>Direct insurance</td>
</tr>
<tr>
<td>Norway</td>
<td>Norsk Naturskadepool</td>
<td>Flood, storm, landslide, avalanche, volcanic eruption, earthquake</td>
<td>Direct insurance</td>
</tr>
<tr>
<td>Spain</td>
<td>Consorcio de Compensación de Seguros</td>
<td>Flood, earthquake, tsunami, volcanic eruption, windstorm, terrorism</td>
<td>Direct insurance</td>
</tr>
<tr>
<td>Switzerland</td>
<td>Kantonalen Gebäudeversicherungen (19 cantons) (e.g. Neuchâtel)</td>
<td>Flood, cyclone, hail, avalanche, landslide (as well as fire)</td>
<td>Direct insurance</td>
</tr>
<tr>
<td></td>
<td>Interkantonale Rückversicherungsverband (IRV)</td>
<td>Flood, cyclone, hail, avalanche, landslide (as well as fire)</td>
<td>Reinsurance for cantonal insurers</td>
</tr>
<tr>
<td></td>
<td>Schweizerische Pool für Erdbebebedeckung</td>
<td>Earthquake</td>
<td>Direct insurance (compensation)</td>
</tr>
<tr>
<td>Country</td>
<td>Insurance Pool</td>
<td>Perils</td>
<td>Type</td>
</tr>
<tr>
<td>------------------</td>
<td>-----------------------------------------------------</td>
<td>-------------------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>Schweizerischer Elementarschadenpool of the private insurance sector</td>
<td>Flood, cyclone, hail, avalanche, landslide</td>
<td>Direct insurance</td>
<td>None</td>
</tr>
<tr>
<td>Turkey</td>
<td>Turkish Catastrophe Insurance Pool (TCIP)</td>
<td>Earthquake, tsunami, landslide (and other perils triggered by earthquake)</td>
<td>Direct insurance</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>Flood Re</td>
<td>Flood</td>
<td>Reinsurance</td>
</tr>
<tr>
<td></td>
<td>Pool Re</td>
<td>Terrorism</td>
<td>Reinsurance</td>
</tr>
</tbody>
</table>
| United States    | National Flood Insurance Program (NFIP)             | Flood                         | Direct insurance and risk management program | NFIP is administered by the Federal Emergency Management Agency (a government agency)  
<p>|                  |                                                     |                               |                  | The NFIP collects premiums and has the authority to borrow from the US Treasury; NFIP has transferred part of its risk to private reinsurance companies and capital market investors                      |
|                  | Terrorism Risk Insurance Program                    | Terrorism                     | Co-insurance    | Federal government backstop through co-insurance for losses above industry loss of USD 200 million with cap on overall losses of USD 100 billion annually |
|                  |                                                     |                               |                  |                                                                                     |
|                  | California Earthquake Authority                    | Earthquake                    | Direct insurance | Established by legislation                                                       |
|                  | Citizens Property Insurance Corporation (Florida)²  | Storm (wind)                  | Direct insurance | Citizens is a state government entity                                            |
|                  | Florida Hurricane Catastrophe Fund (FHCF)          | Storm (wind)                  | Reinsurance (reimbursement)           | Established by legislation and administered by a government agency                |
| China            | China Residential Earthquake Insurance Pool (CREIP) | Earthquake                    | Direct insurance (co-insurance pool)   | The co-insurance pool is reinsured by a state-owned reinsurer                   |</p>
<table>
<thead>
<tr>
<th>Country</th>
<th>Insurance Pool</th>
<th>Peril(s)</th>
<th>Co-insurance/Reinsurance</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>India</td>
<td>Indian Market Terrorism Risk Insurance Pool</td>
<td>Terrorism</td>
<td>Co-insurance/Reinsurance</td>
<td>The co-insurance pool is reinsured by a state-owned reinsurer</td>
</tr>
<tr>
<td>Romania</td>
<td>Pool-ul de Asigurare Impotrivă Dezastrelor Naturale (PAID)</td>
<td>Earthquake, flood, landslide</td>
<td>Direct insurance</td>
<td>Government is lender of last resort for losses beyond PAID’s financial capacity</td>
</tr>
<tr>
<td>Russian Federation</td>
<td>Russian Anti-Terrorism Insurance Pool</td>
<td>Terrorism (and SRCC)</td>
<td>Co-insurance/Reinsurance</td>
<td>None</td>
</tr>
<tr>
<td>Russia</td>
<td>Assistance for damaged and lost dwellings with priority of insurance indemnity</td>
<td>Fire, flood and other natural disasters</td>
<td>Co-insurance/Reinsurance</td>
<td>Losses are shared by the government and industry</td>
</tr>
<tr>
<td>South Africa</td>
<td>Sasria</td>
<td>Terrorism (and SRCC)</td>
<td>Direct insurance</td>
<td>SASRIA is a government entity although is not backstopped by an explicit guarantee</td>
</tr>
<tr>
<td>Chinese Taipei</td>
<td>Taiwan Residential Earthquake Insurance Fund (TREIF)</td>
<td>Earthquake, tsunami, landslide (and other perils triggered by earthquake)</td>
<td>Reinsurance</td>
<td>TREIF may seek access to government collateral to support funding for losses beyond TREIF’s financial capacity</td>
</tr>
</tbody>
</table>

Note: ¹ As noted, there are public cantonal insurers in 19 Swiss cantons. The information provided in the table is for the Établissement cantonal d’assurance et de prevention in the canton of Neuchâtel (as an illustrative example). ² There are a number of other pooled and/or residual insurance arrangements for wind risk in other states, including Alabama, Georgia, Louisiana, Mississippi, North Carolina (the North Carolina Coastal Property Insurance Pool, formerly known as the Beach Plan), South Carolina and Texas (the Texas Windstorm Insurance Association). Similar to Citizens in Florida, these programmes are aimed at making insurance coverage available to households that are unable to secure coverage in the private market.

Source: (OECD, 2020[58]), (OECD, 2018[59]), (OECD, 2016[60]), (IFTRIP, 2017[61]), (World Forum of Catastrophe Programmes, n.d.[62])

The different approaches lead to different outcomes in terms of: (i) achieving a broad level of coverage for catastrophe perils (or the specific peril targeted); (ii) improving the affordability of coverage for targeted perils; (iii) maximising the role of private markets; and (iv) providing incentives for risk reduction. The following section provides a brief discussion of good practices for achieving these outcomes.

**Achieving broad coverage for targeted peril(s)**

An obvious indicator of a catastrophe risk insurance programme’s success is the extent to which the intervention achieves broad coverage for the targeted peril(s), whether through the programme directly or in combination with coverage provided by the private insurance market.

To achieve this, a number of countries impose requirements such as:

- **Policyholders** are required to purchase coverage for the targeted perils (e.g. Iceland, some Swiss cantons, Belgium for terrorism in some lines of business);
• **Insurance companies** are required to include coverage automatically (e.g. France, Spain, Australia for terrorism) or make coverage available (e.g. Japan and California for earthquake, United States for terrorism); or

• **Lenders** are required to ensure that their borrowers are properly insured (e.g. United States for flood in designated high-risk flood zones).

In general, the share of losses insured tends to be higher where the purchase of insurance is mandatory or where standard property policies are automatically extended to include coverage for the targeted peril(s) (New Zealand and Chinese Taipei in the case of earthquakes, France, Norway, Spain and Switzerland for the broader set of perils) (see Figure A.1).

**Figure A.1. Insured share of losses for perils covered by catastrophe risk insurance programmes**

![Insured share of losses across all sample countries](image)

Note: For the purposes of this calculation, catastrophe risk insurance programmes include Denmark (storm), France (storm, flood, earthquake), Iceland (storm, flood, earthquake), Japan (earthquake), New Zealand (earthquake), Norway (storm, flood, earthquake), Romania (storm, flood, earthquake), Spain (storm, flood, earthquake), Chinese Taipei (earthquake) and Turkey (earthquake) as well as Switzerland (flood and storm, depending on the canton that was mainly impacted) and the United States (flood, earthquake (California), and storm (if the main impacts occurred in Alabama, Florida, Georgia, Mississippi, North Carolina, South Carolina or Texas)). It should be noted that in France and Spain, only some storm events are covered by the catastrophe risk insurance programme as these programmes include a wind speed threshold.

Source: OECD calculations based on (Swiss Re sigma, 2019[63]).

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10 In Australia, this is achieved by the voiding of terrorism exclusions in the event that a terrorist incident is declared.

11 In Romania and Turkey, there are requirements to purchase insurance coverage for earthquakes (as well as floods and landslides in Romania) although there are challenges in both countries in enforcing these requirements.
Improving the affordability of coverage

By pooling a large share of a country’s exposure to a given peril (or set of perils), a catastrophe risk insurance programme might be able to achieve a lower aggregate cost of coverage than individual insurers could achieve on their own.

Risk diversification

A single pool providing coverage for all of a country’s building stock, for example, would create a more diversified portfolio of risks than any insurance company could achieve on its own (without a 100% market share). An insurance company (or pool) with a higher level of risk diversification will have lower economic and (often regulatory) capital needs (other things equal) and can therefore offer lower pricing.

Reduced cost of reinsurance

Also, the cost of reinsurance tends to decline as the level of diversification increases so the cost to reinsure a single (diversified) pool of risks should be lower than the aggregate cost of reinsuring multiple (less diversified) pools of risks – which also should contribute to lower pricing for the policyholder.

Lower capital required

An assessment of the amount of capital required to protect against a 1-in-100 hurricane affecting eight US states was found to be 45% less (USD 71 billion instead of USD 130 billion) if the states pooled their risks rather than covering the risk independently (Dumm, Johnson and Watson, 2015).

The impact of a catastrophe risk insurance programme on improving affordability will be greatest where the programme is able to establish a highly diversified pool of risks.

Limiting public sector exposure

An important objective of catastrophe risk insurance programmes should be to limit the exposure of the public sector to losses from the targeted peril – potentially by maximising the contribution of private markets to providing coverage. The catastrophe risk insurance programmes that have been established for various perils aim to achieve this objective through a variety of approaches.

Coverage limits

Some programmes that provide government-backed direct insurance limit public sector exposure by placing ceilings on the amount of coverage available (New Zealand, Romania, Chinese Taipei, Turkey, United States (flood) – Japan’s Basic Earthquake Insurance policy is also limited although the government-backed coverage is provided through reinsurance). In some of these cases, coverage is limited to an amount that is significantly below the sum insured under the standard property insurance policy which limits the government’s potential exposure. In a few countries (e.g. New Zealand), the private market has developed coverage for amounts above the limits imposed by the catastrophe risk insurance programme although in most countries, losses above the basic coverage are often uninsured (see Figure A.A.1).

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12 However, it should be noted that the establishment of a single pool for all risk also creates an accumulated exposure which would likely increase the need for public-sector backing.
Risk selection

Programmes can also be made available only to policyholders who are not adequately served by the private market. The insurance coverage for terrorism provided by Extremus in Germany (which benefits from a government backstop) is only available as an endorsement for policies with sums insured above EUR 25 million as the market is able to provide coverage against terrorism for smaller coverage levels. Some US states have residual market mechanisms that act as insurers of last resort and will only accept policyholders that can demonstrate that they could not access coverage in the private market.

Flexibility to leverage market capacity

Many programmes provide government-backed coverage as reinsurance (or as a backstop through co-insurance in the United States for terrorism) which usually means that, through the use of retention requirements, direct insurers will absorb most or all losses for smaller-scale events and only high loss events above the threshold would be covered by the programme. Some countries adjust the level of direct insurer retention over time, either based on specific measures of the capacity of the private market (e.g. Japan for earthquake) or with the aim of increasing the private market's share of risk over time (Australia, United Kingdom, United States for terrorism, see Box A.1). In the United States, the trigger for Terrorism Risk Insurance Act backstop is set at a level where direct insurers will often seek private reinsurance to cover losses below the programme trigger.

Many of the catastrophe risk reinsurance programmes make reinsurance available but do not require direct insurers to make use of that reinsurance capacity (Australia, United States for terrorism, United Kingdom for terrorism and flood, France for natural catastrophe risk and for terrorism risk coverage for smaller companies) which allows direct insurers to retain the risk if they have sufficient capacity or transfer the risk to private market reinsurers.

Returning risk to the market

Most catastrophe risk insurance programmes make use of private market reinsurance (for programmes that provide direct insurance coverage) or retrocession (for programmes that provide reinsurance coverage). Many of the terrorism (re)insurance programmes operate as co-insurance pools that jointly access reinsurance coverage from private reinsurance markets (Austria, Belgium, France, Netherlands, India, Russian Federation) while programmes providing reinsurance tend to access private retrocession markets to increase their claims-paying capacity for large (infrequent) events (Australia and United Kingdom for terrorism, Turkey for earthquake). Japan Earthquake Reinsurance retrocedes a part of its exposure back to direct insurers. As noted above, the pooling of risk prior to transferring that risk to the market can have cost-saving benefits.

Box A.1. Increasing the sharing of terrorism risk with private markets: Australia, United Kingdom and United States

In Australia, the United Kingdom and the United States, a number of changes have been made to terrorism (re)insurance programmes in order to increase the share of risk retained by (or transferred to) private (re)insurance markets:

- In Australia, deductibles (retentions) are established (per event) as a share of fire insurance premiums and subject to both a company minimum and maximum deductible and an industry-wide maximum deductible. Since 2007, the company-specific deductible has been increased to
5% of the company’s fire insurance premium (from 4%) and a minimum deductible of AUD 100 000 has been implemented. Maximum company and industry-wide deductibles have been increased from AUD 10 million to AUD 12.5 million and from AUD 100 million to AUD 200 million, respectively. ARPC has also developed a retrocession programme to increase its capacity to absorb losses before calling on the government guarantee.

- In the United Kingdom, a per event industry deductible is applied and has been increased from GBP 100 million to GBP 150 million. Pool Re has also transferred a significant amount of risk to retrocession markets in recent years.

- In the United States, the co-insurance provided under the Terrorism Risk Insurance Act is only available for events that lead to industry losses above USD 200 million (an increase from USD 100 million in 2015). Individual company deductibles have increased from 15% of TRIA-eligible premiums to 20% (i.e. premiums written in lines of business that are eligible for coverage under the Act) while the industry share of losses once the programme is triggered has increased from 15% to 20%.

These changes have led to a significant increase in the share of losses that would be covered by private insurance companies and a corresponding reduction in government exposure. For example, based on an estimate of the losses incurred after the September 11th terrorist attacks and a simplified application of the programme triggers and thresholds in place in 2017, the amount of losses that would not be covered by the programmes (and left to be absorbed by policyholders or the state) would decline by approximately USD 4 billion in Australia, USD 2.7 billion in the United Kingdom and USD 800 million in the United States (see Figure A A.2).

Figure A.1. Estimated impact of terrorism (re)insurance programme changes on loss distribution

![Graph showing estimated impact of terrorism (re)insurance programme changes on loss distribution](image)

Note: The distribution of losses was estimated based on insured loss estimates provided in (Swiss Re sigma, 2019[63]) and the terms of coverage of each terrorism insurance programme in 2017 and 2007 (or 2014 in the case of the United Kingdom). A number of simplifying assumptions were made, including: (i) that all reported losses fell within the scope of coverage of the programmes; and (ii) related to the market share of different primary insurers (required for the calculation of applicable deductibles in Australia, United Kingdom and United States – simplified with the assumption that only the 6 largest providers of commercial insurance faced losses).

Source: OECD calculations
Ceiling on government exposure

Another way to limit government exposure to losses for perils targeted by catastrophe risk insurance programmes is to establish a ceiling on the amount of losses that the government will absorb. Most programmes that apply a ceiling will force losses above the ceiling to be absorbed by policyholders on a pro rata basis (Australia, Netherlands and United States for terrorism). Some programmes also reduce the ultimate public exposure by allowing or requiring insurance companies to repay the government for any amounts paid.

Providing incentives for risk reduction (directly or indirectly)

Insurance will make a greater contribution to managing catastrophe risks if the process of transferring these risks supports risk management. Insurance can play an important role in improving risk management by supporting risk assessment/understanding and encouraging risk reduction.

Use of modelling for risk management

The (re)insurance sector has developed a strong capacity for modelling the financial consequences of catastrophe risks, whether natural or man-made. This modelling capacity has broader (if underutilised) applications to other aspects of risk management, including for informing land-use planning and building code development as well as in decisions on investing in structural mitigation infrastructure.

The need for private sector (re)insurers to accurately price and provision for the occurrence of catastrophe events has driven the development of the modelling industry which means that model availability and sophistication is generally highest where private (re)insurers play a large role in providing coverage for catastrophe perils. Programmes that maximise the role of private insurance markets are therefore more likely to support the development of a modelling industry and its derivative benefits.\(^{13}\)

Pricing that reflects risk reduction

Pricing for insurance (or reinsurance) coverage that varies by level of risk should provide an incentive for policyholders (or insurers) to invest in risk reduction (or ensure underwriting discipline) in order to lower the cost of that coverage.

While a number of catastrophe risk insurance programmes have implemented pricing that varies by risk zone or building type – none have implemented an approach to pricing their insurance, reinsurance or co-insurance coverage that provide significant incentives for reducing risk. Implementing variable pricing (and particularly, premium reductions for risk mitigation measures) is a challenge for many types of perils (and potentially impossible for some) although advances in modelling will continue to support the ability of these programmes to price their coverage based on more granular assessments of risk.

Risk reduction pre-requisites

Some programmes include specific risk reduction requirements as part of programme design – which is particularly relevant in countries where important risk management decisions are made at different levels of government. For example, the US National Flood Insurance Programme is only made available in communities that have agreed to implement certain floodplain management techniques. In France, deductibles are increased for properties that face repetitive losses if the municipality has not implemented

\(^{13}\) Catastrophe risk insurance programmes in some countries have also played a large role in supporting the development of catastrophe models for the perils that they cover, particularly where the peril is not widely covered by private insurance markets (e.g. terrorism).
a risk reduction plan. In the United Kingdom, the reinsurance coverage made available through Flood Re is only available for properties constructed after 2009 which is meant to ensure that new developments only occur in areas where insurers are willing to provide coverage without Flood Re backing.
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