Asia-Pacific Financial Forum Virtual Roundtable on Disaster Risk Financing and Insurance

Strengthening Resilience in the Asia-Pacific Region: Insurance and Risk Sharing Models and Options

14 April 2021

ROUNDTABLE REPORT

Straddling the Pacific Ring of Fire, the Asia-Pacific is the region in the world that is most vulnerable to natural disasters. In addition to frequent volcanic eruptions and earthquakes that at times generate destructive tsunamis, typhoons and floods also visit many parts of the region every year, causing significant damage, loss of lives and disruption of economic activities. Set against the backdrop of rapid economic growth, urbanization, the growing concentration of businesses in coastal areas and expansion of supply chains, addressing the problem of economic losses from natural disasters has become a major concern for governments, businesses and communities. The outbreak of the COVID-19 pandemic and its severe impact on daily life and economic activities has added a new dimension to this challenge facing the region's resilience.

With most government budgets increasingly under pressure, risk transfer solutions that enable the private sector to participate in providing protection are becoming increasingly important in dealing with the impact of natural disasters, including pandemics. Also, the effects of climate change are disproportionately affecting socially vulnerable communities and the agriculture sector, requiring inclusive solutions that can help address the challenges they face. This Roundtable was convened to help the APEC Business Advisory Council (ABAC) develop recommendations to APEC Leaders and Finance Ministers on these solutions. Discussions focused on how public-private partnership can help strengthen APEC member economies' resilience in three areas – inclusive consumer-level risk transfer solutions (agriculture and non-agriculture), business interruption insurance against pandemic risk and insurance-linked securities.

Inclusive Consumer-Level Risk Transfer Solutions

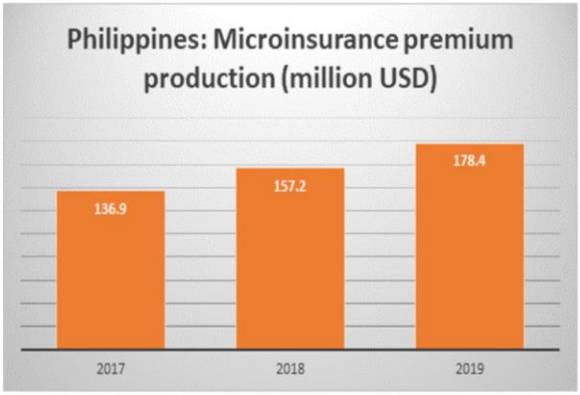
The Roundtable discussed the case study of the Philippines in the use of microinsurance to provide protection to vulnerable consumers and small businesses in disaster-prone areas. The Philippines has enjoyed significant success in microinsurance outreach, with number of clients growing at an average rate of 13 percent year on year over the past decade and 19 percent during the period 2017-2019. The market of 45.13 million clients (around 40 percent of the total population) is dominated by microinsurance mutuals (57 percent of the market) followed by life insurers (24 percent) and non-life insurers (19 percent). Out of the total 122 insurance providers, 42 (34 percent) are in the microinsurance market. [*See Figure 1*.]

The most prevalent microinsurance products are credit-life, term-life, personal accident and hospitalization. These products are often bundled with other traditional coverage such as fire and personal liability, but currently very few players are bundling them with natural catastrophe covers such as typhoon, flood and earthquakes. The market has expanded over the past few years with the introduction and continuous development of an enabling ecosystem since 2008, with the introduction of an overall strategy, a regulatory framework, a roadmap for building financial literacy, an alternative

dispute resolution framework, a health microinsurance framework, an agriculture microinsurance framework and an enhanced regulatory framework. Key success factors are: (a) public-private dialogue; (b) proportionate regulations; (c) microinsurance advocacy and literacy; and (d) support from management.

Figure 1: Microinsurance Outreach in the Philippines

13% average growth, yoy. 19% ave. growth in last 3 years



2.6% (2017), 2.9% (2018) and 3.0% (2019) of industry premium volume of $5.2B (2017), $5.5B (2018) and $6.0B (2019)

Source: GIZ RFPI Asia Program

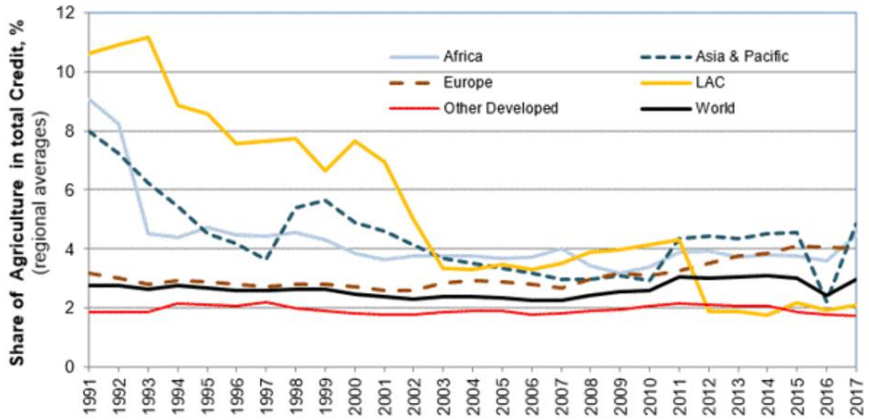
Disaster risk microinsurance product bundling is still a small growing niche within the industry. For as low as PHP250 (current rate USD5.20) a year, clients can obtain a wide variety of calamity, home accident and personal financial aid ranging from PHP2,000 (USD41.50) for property damage to as much as PHP50,000 (USD1,038) for fire insurance. Higher level plans can provide greater benefits, including typhoon or flood aid and insurance against loss of profit due to such catastrophes. Opportunities for growth of this market lie in the Philippines' already existing large microinsurance client base and the broad network of distribution channels such as cooperatives, rural banks, microfinance NGOs and pawnshops that have grown over the past years.

Currently, the main challenges facing this market are the high claims ratio and the increasing premium rate and decreasing amount of benefits. Ongoing initiatives being undertaken to develop this market include the introduction of parametric business interruption insurance for typhoons and excess rain and the establishment of the Philippine Catastrophe Insurance Facility (PCIF) by the Insurance Commission, the Philippine Insurers and Reinsurers Association (PIRA) and the National Reinsurance Corporation (NatRe). The facility aims to create an environment that would allow non-life insurers to actively distribute and promote catastrophe insurance and reduce the costs of insuring catastrophe risks though efficient exposure management and optimizing portfolio diversification, both at sustainable rates for these risks.

In many developing economies in the region, agriculture has usually been at the frontline of vulnerability from natural disasters such as storms, floods and earthquakes with economic damage in the sector amounting to as much as over 1 percent of GDP per year in some economies on average. These losses are expected to increase in coming years, especially with more extreme weather events. These losses are not limited to food production, but affect the value chain through handling and storage, processing, distribution and consumption.

The agriculture sector has been underserved by the financial sector in spite of its importance for rural development and the economy more broadly. In terms of credit flows to the economy, the share of agriculture globally has averaged around 3 percent of the total over the past 3 decades. During this period, this share has also gone down in the case of Asia and the Pacific and Latin America/Caribbean from 8 and above 10 percent, respectively, since 1991. [*See Figure 2*] This reflects to some extent the risky nature of agriculture, particularly due to weather and climate dependent factors such as droughts, typhoons, forward selling, transport delays and insurance cover and costs, among others, as well as the fact that a large portion of the agricultural sector (in a number of economies as much as about 80 percent) is informal and not insured.

Figure 2: Share of Agriculture in Total Credit Flows to the Economy

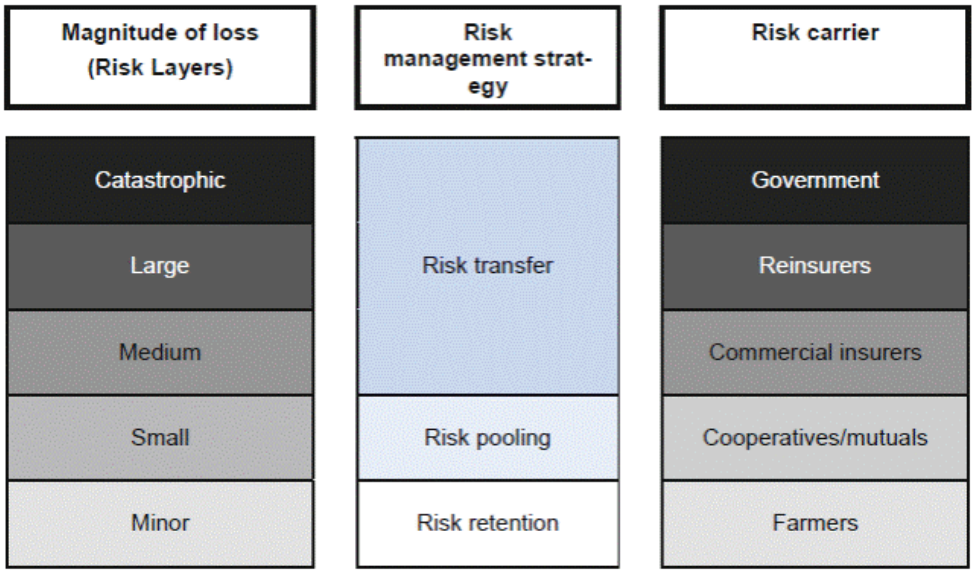


Source: http://www.fao.org/economic/ess/investment/credit/en

Farmers have thus been relying on a broad array of coping strategies, such as delaying sale of crops and different planting dates, diversification and multi-cropping, off-farm income and use of better technology. Decisions on risk coping tools are influenced by a variety of factors including land tenure arrangements, social and farm characteristics (farmer's age, educational status, farming experience, family size, farm size among others), risk sources (flood, heavy rain, pest/diseases, drought, heavy wind, hail storm) and the farmer's degree of risk aversion. Based on these factors, the farmer employs one or all of risk management tools such as contract farming, diversification or agricultural credit.

Risk transfer through insurance plays an important role in de-risking agriculture finance alongside risk reduction (strengthening the productive capacity of smallholders), risk sharing (access to finance through group lending, leveraging social capital to reduce repayment risks) and risk reserves (through mobilization of capital by community saving groups). The lowest layer of risk (normal risk) is where risk retention (e.g., diversification, off-farm income) is normally employed. The highest layer (catastrophic risk) is where market failure occurs and disaster relief is required, with government as the main carrier of risk. In between these two layers is where risk transfer through hail, crop, livestock, margin and revenue insurance, futures and options, and private pooling play a useful role. This is the layer where reinsurers, commercial insurers and cooperatives and mutuals (in descending magnitude of risk) are engaged. [*See Figure 3.*]

Figure 3: How Farmers Normally Manage Financial Consequences of Risks



Source: Approaches to Manage the Specific Risks in Agricultural Finance, Ebrary.net

Insurance is important in reducing weather-related risk and thus enabling famers to access better terms on credit. There are many benefits of linking agriculture credit with crop insurance. For farmers, it insures debt service exposure against catastrophe events and ensures creditworthiness, smoothens income over time, builds up savings and collateral and optimizes earnings through a credit line in addition to crop loans. For the bank, it secures lending and reduces default rates, improves collateral and enables expansion of credit and savings business in rural areas. These in turn benefit the government and economy as a whole.

Governments can support agricultural insurance through providing a variety of interventions that can provide end-to-end protection for farmers:

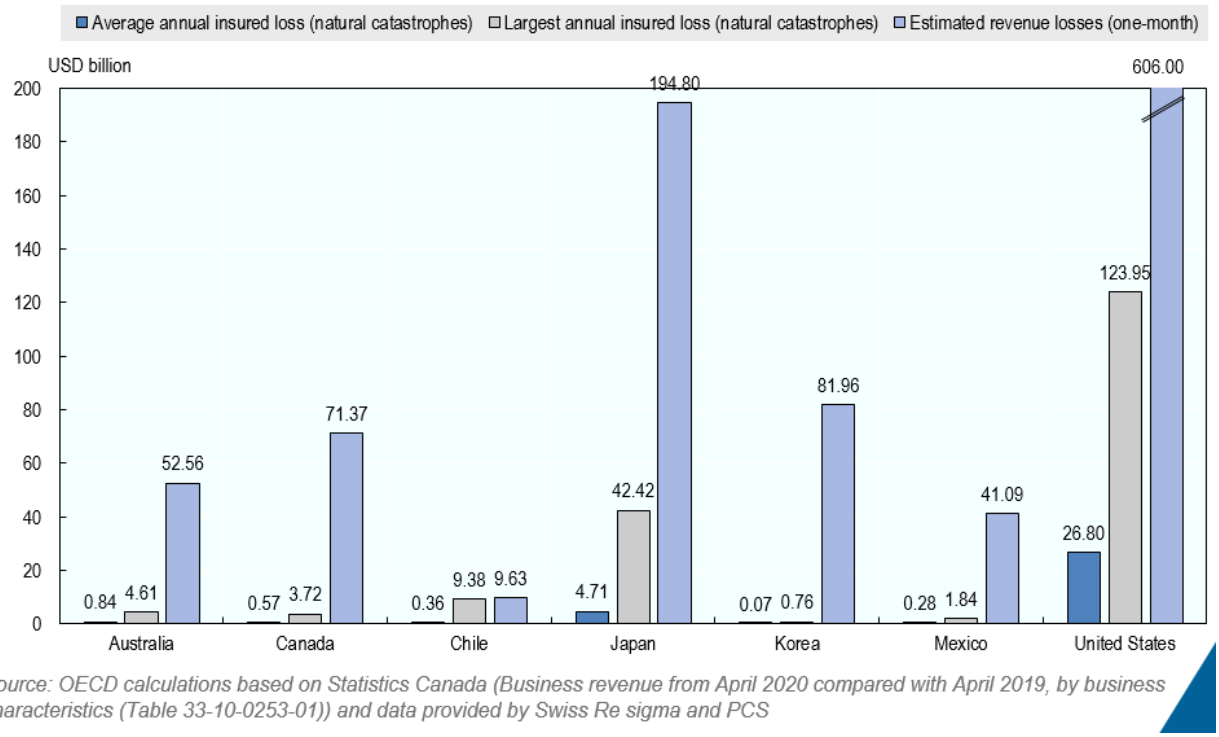
- Data collection, audit and management;
- Outreach (link to social safety nets, link to credit, premium subsidies and awareness building);
- Risk financing (public sector reinsurance and promotion of coinsurance pools);
- Support for product design and development (product development and pricing in the short run, technical support for insurers in the long run); and
- Enabling environment (institutional framework, legal framework, consumer protection).

This, however, also requires action from the industry to invest in data, talent and financial literacy. Digital technology needs to be developed as the backbone of agricultural insurance. This includes technologies such as those for remote sensing, mobile devices, autonomous robotics, smart micro-irrigation, Internet of Things, sensors, smart zone seeding, weather modeling, fertilizer modeling and inter-compatibility and standardization. There is also a role for life insurers in their capacity as ESG investors that can help incentivize investments in resilient rural infrastructure, reduce residual risks and thus promote better and more affordable risk transfer solutions. Public-private collaboration and coordination, and crowding in of ESG investment, would thus be critical in the successful strengthening of the agriculture sector's resilience.

Options for Business Interruption Insurance against Pandemic Risk

The COVID pandemic outbreak introduced a new dimension in disaster risk financing and insurance, in that it has demonstrated that the impact of major pandemics on societies and economies can be as huge as natural disasters but they present different challenges that require a different approach. It has also demonstrated a broad lack of insurance coverage for the revenue losses that businesses face, and the challenges to establishing private insurance coverage for these losses. The first challenge is the large magnitude of economic losses compared to even the largest natural catastrophes in the past. [*See Figure 4.*] The second is significant correlation across economies. [*See Figure 5.*] The third is the difficulty of quantification, from the outbreak (frequency and severity), the response (political decisions and consumer behavior) and the duration (vaccine development, virus mutation). The fourth is adverse selection, with key services such as accommodation, food, arts, entertainment, construction, transportation, as well as manufacturing the most affected by the pandemic. [*See Figure 6*.]

Figure 4: Magnitude of Losses from Natural Catastrophes and COVID-19



Source: OECD calculations based on Statistics Canada (Business revenue from April 2020 compared with April 2019, by business characteristics (Table 33-10-0253-01)) and data provided by Swiss Re sigma and PCS

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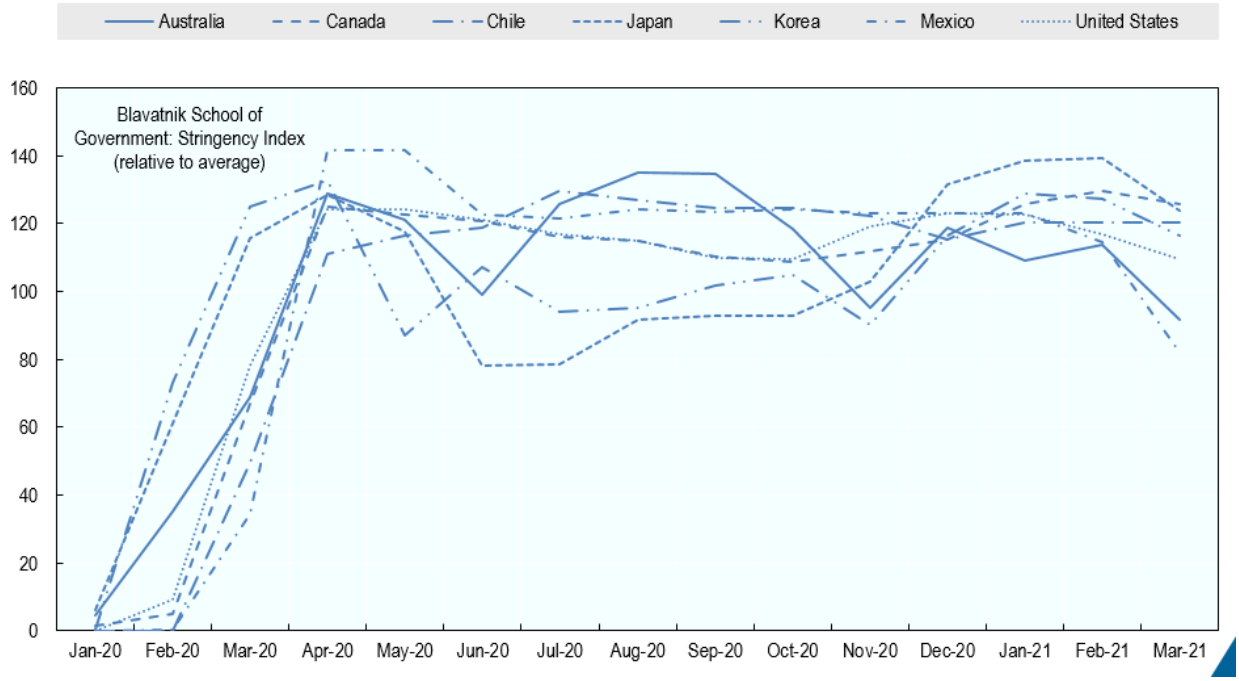
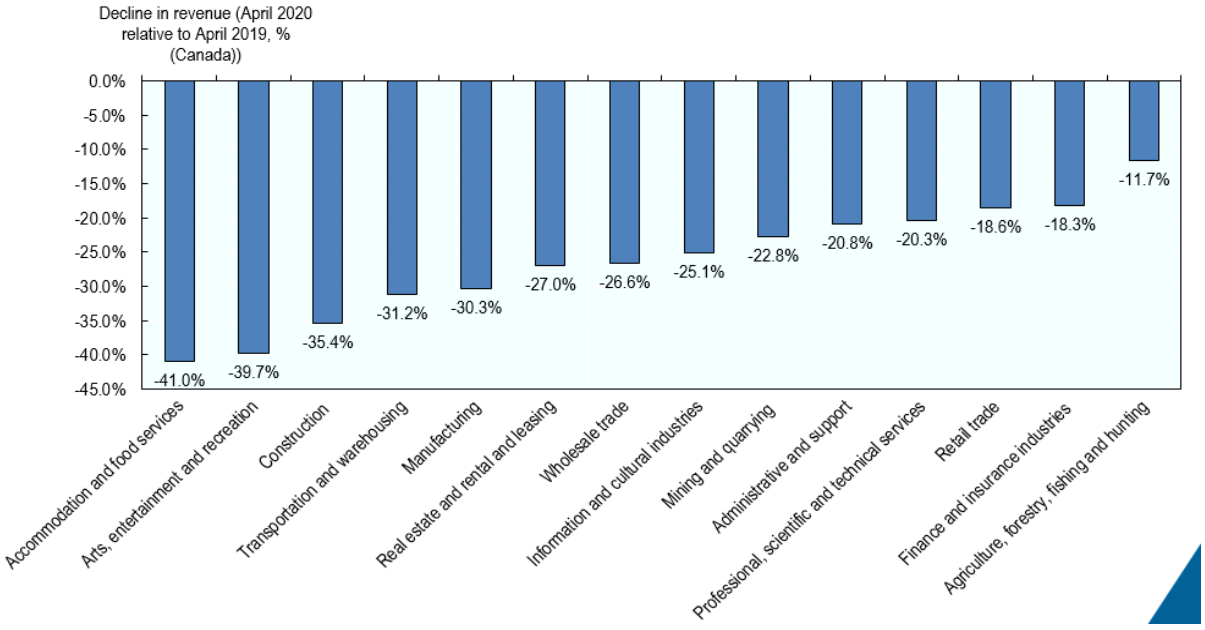
Figure 5: Correlation of COVID-19 Pandemic Impact across Economies



Source: OECD calculations based on Blavatnik School of Government Coronavirus Government Response Tracker (Stringency Index).

*The Stringency Index is a composite measure of nine response metrics: school closures; workplace closures; cancellation of public events; restrictions on public gatherings; closures of public transport; stay-at-home requirements; public information campaigns; restrictions on internal movements; and international travel controls.

Figure 6: Impact of COVID on Different Industries



Source: OECD calculations based on Statistics Canada (Business revenue from April 2020 compared with April 2019, by business characteristics (Table 33-10-0253-01))

These challenges are likely to require solutions that involve loss sharing arrangements between government and the insurance sector. However, these require consideration of a number of key questions in designing such arrangements, including:

- Who should be covered (e.g., should the arrangement be limited to MSMEs or should this cover all sectors);
- What losses should be covered (e.g., should the coverage be limited to business interruption or should it go beyond);
- What perils should be covered (e.g., should it focus on pandemics or should it include other potentially systemic risks);
- Whether purchase should be compulsory;
- Whether coverage offer should be compulsory;
- What type of compensation should be provided and how;
- Should existing programs be leveraged; and
- How losses should be allocated.

Various pandemic risk insurance proposals have been initiated by individual companies, associations and governments with different approaches to distribution, types of coverage, perils covered, eligible policyholders, coverage trigger and government involvement. The OECD in a recent paper has put forward some practices that could be considered by governments in the design of pandemic risk insurance programs to provide greater certainty to businesses of their coverage for business interruption losses due to future pandemics, encourage the private market to assume pandemic-related risks and support risk understanding and reduction:[1]

- *Ensuring broad coverage through approaches that involve automatic extensions of coverage for pandemic risk business interruption in commercial property insurance policies or the voiding of relevant exclusions ex-ante in particular cases* (e.g., when the relevant government authority has officially made a declaration of a pandemic). These are to address the limited success of programs with optional coverage in reducing protection gaps for certain perils and the challenge of integrating the coverage of business interruption due to pandemics into commercial property policies.
- *Leveraging private sector capacity to limit public sector exposure*. This could involve government backing for insuring losses above a certain threshold and playing the role of a reinsurer, thus letting private insurers and reinsurers to enter the market for insuring losses below the threshold. Unlike in the case of traditional catastrophe risk insurance markets, where private sector capacity through reinsurance or capital markets could be leveraged, a pandemic peril such as in the case of COVID presents a challenge because it cannot be diversified geographically, is correlated with financial markets and involves very huge losses. In addition, the thresholds for government backing would probably need to be set fairly low initially to make it sufficiently attractive for private insurers and reinsurers to participate. Also, broadening the coverage of business interruption to other perils (e.g., cybersecurity perils, major power disruptions) could introduce diversification in program exposure.
- *Promoting risk reduction to reduce business interruption losses*. This could be done either through incentives (e.g., premium discounts) or requirements (e.g., for compliance with government health guidance) for covered businesses to have business continuity plans or other similar risk mitigation measures.

Given the characteristics of pandemic risk, making it insurable requires addressing two challenges: developing capacity to cover losses on the supply side, and affordability on the demand side.

[1] OECD, Responding to the COVID-19 and pandemic protection gap in insurance [https://www.oecd.org/coronavirus/policy-responses/responding-to-the-covid-19-and-pandemic-protection-gap-in-insurance-35e74736/]

Collaboration with capital markets is indispensable for the insurance industry, which does not have sufficient capacity to deal with the huge accumulation risk potential of pandemics. Reinsurers usually place derivatives or catastrophe bonds with institutional investors in capital markets (including insurance-linked securities, pension and sovereign wealth funds among others). Governments can provide a backstop by playing the role of a big investor and thus address the supply side issue. Participating in such an Epidemic Risk Markets platform with a reasonable amount of capacity may accelerate the development of a specialty segment, and techniques are available to also address affordability without requiring subsidies.

Possible roles for international cooperation could also be explored. These include sharing knowledge and experience of business interruption insurance against pandemics and consideration of international risk-sharing arrangements (e.g., reinsurance arrangements among individual economies' domestic insurance pools) to improve capacity to deal with huge pandemic-related losses. Risk-adequate incentives are important to stimulate preparedness.

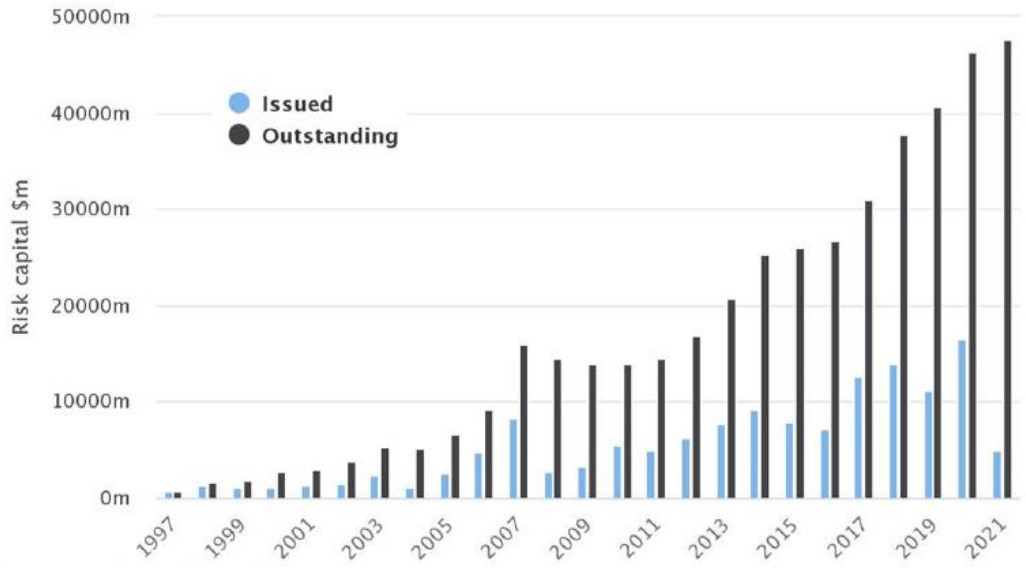
The spectrum of options for re-insurance and risk pooling extend from pure private partnerships to fully public funds for non-insurable risks. In between these extremes are public-private partnership reinsurance schemes. In a typical PPP reinsurance arrangement, a joint reinsurance entity is established and funded by premiums that insurers pay to reinsure the risk, the government provides an explicit backing to the reserve (which could be limited or unlimited), and participation is either voluntary or legally mandated and compulsory.

Economies can consider establishing a PPP pandemic risk insurance program as an urgent task. It can help accelerate recovery by reducing uncertainty. This will provide assurance to lenders and equity markets that companies have protection against future pandemic risk. A pandemic risk insurance facility provides financial protection against future pandemics by absorbing some of the initial financial shocks, enabling businesses to retain employees and meet financial obligations. Finally, it creates the needed economic incentives to drive change in society and to build a more resilient global economy.

Expanding Risk Transfer Options through Insurance-Linked Securities

The issuance of catastrophe bonds (cat bonds) for the Pacific Alliance in 2018 and for the Philippines in 2019 by the World Bank has attracted growing attention to the prospects for expanding the use of insurance-linked securities (ILS) in emerging markets. In 2019, the APEC Finance Ministers endorsed a work program that included an initiative to catalyze the cat bond market in Asian developing member economies, leveraging on the experience of the Latin American member economies with the Pacific Alliance cat bond. The ILS market continues to grow and despite the economic impact from COVID-19 new issuances in 2020 exceeded the previous record set in 2018. [*See Figure 7.*] The cat bond market is dominated by US natural catastrophe risk (principally hurricane and earthquake but also flood and wildfire), such that non-US risks provide diversification to investors resulting in pricing benefit for sponsors. There is significant potential for the ILS market to expand to Asian economies, which can benefit from the market's large capacity (i.e., the trillions of dollars held by bond investors), investor demand for diversifying risk, price transparency and longer maturities compared to conventional reinsurance. In addition, cat bonds eliminate any counterparty credit risk concerns for the sponsor since these are fully funded transactions.

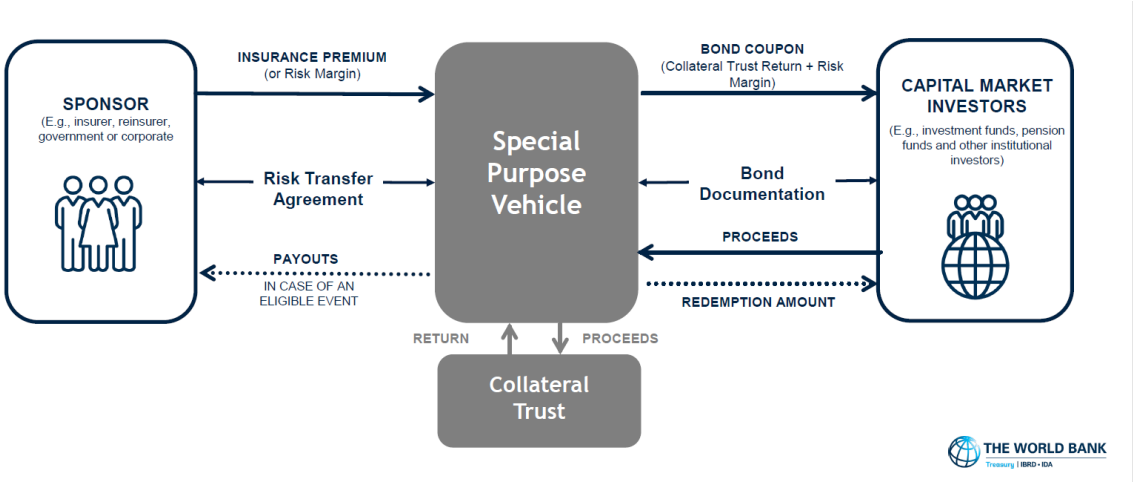
Figure 7: Catastrophe Bond and Insurance-Linked Securities Issued and Outstanding by Year



Source: Artemis.bm Deal Directory

Cat bonds allow entities that are exposed to natural disaster risk, such as insurance companies, corporates or governments, to transfer a portion of that risk to bond investors. In a typical cat bond structure, the entity exposed to the risk (known as the "sponsor" of the bond) enters into an insurance contract with a special purpose vehicle (SPV) that issues the bonds to investors. [*See Figure 8.*]

Figure 8: Typical Catastrophe Bond Structure



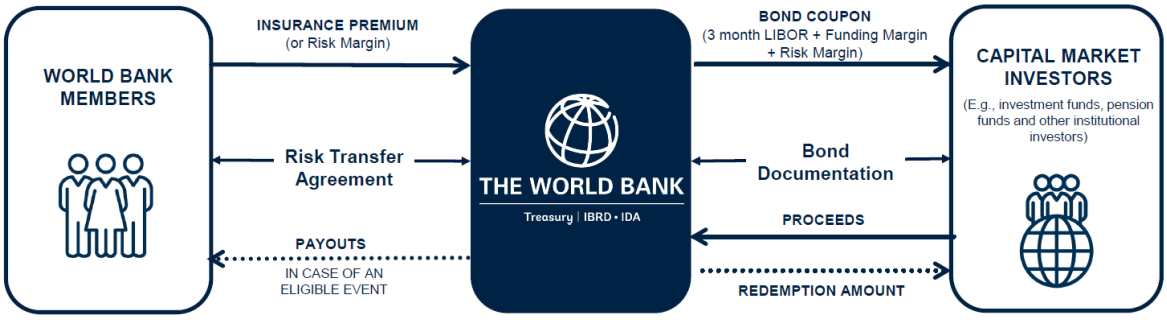
The SPV invests the proceeds of the bond issuance in highly-rated securities that are held in a collateral trust, and it transfers the return of this collateral, together with the insurance premiums received from the sponsor, to the investors as periodic coupons on the bonds. If a specified natural disaster occurs during the term of the bond, some or all of the assets held as collateral are liquidated and that money is paid to the sponsor as a pay-out under its insurance contract with the SPV. If no specified event occurs, the collateral assets are liquidated on the maturity date of the bonds and the money is paid to the investors. In other words, investors risk losing some or all of their principal if a natural disaster occurs, and in exchange receive a coupon that reflects the insurance premium for such risk.

Since most governments in developing economies retain most of their disaster risk, responding to natural disasters can put a significant fiscal burden on those that need to reallocate budget resources to finance their disaster response and recovery efforts. Such budget reallocations, combined with lower revenues caused by decreased economic activity following a disaster, result in less funds available for other government priorities, thereby magnifying the negative developmental impact of the event. With climate change exacerbating the frequency of extreme meteorological events, the fiscal burden of natural disasters on developing economies is expected to continue to rise. In addition, with government budgets stretched due to COVID-19, related reductions in revenues and increases in public health expenditures, financial protection against future shocks is needed now more than ever.

The World Bank helps its members build financial resilience to disasters by supporting governments in preparing for catastrophes before they occur and putting in place financial resources to meet the financial needs that arise in the immediate aftermath of a natural disaster. It does this by making the risk-bearing capacity of reinsurance and capital markets accessible to its members, which may not always be possible due to regulatory, political or procurement challenges.

When the World Bank issues a cat bond on behalf of a member economy's government, it stands between the government and the markets. The World Bank enters into a risk transfer agreement (insurance or derivative or other form) with the government in which the World Bank agrees to provide a pay-out to the economy upon the occurrence of a specified natural disaster. In exchange, the government agrees to make periodic insurance premium payments to the World Bank. Simultaneously with the execution of that risk transfer agreement, the World Bank issues a cat bond to investors with terms that mirror those of the risk transfer agreement. The cat bond provides a hedge to the World Bank for its obligations under the insurance agreement. If the World Bank is required to make a pay-out to the government under the risk transfer agreement, it will be entitled to deduct the same amount from the principal amount of the bond. The World Bank uses the insurance premium it receives from the member economy's government to pay a portion of the bond coupon. [*See Figure 9.*]

Figure 9: World Bank Catastrophe Bond Structure



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The World Bank's cat bonds make use of all its existing bond issuance infrastructure. Since its cat bond structure does not involve an SPV or any collateral arrangements, the structuring of the issue is streamlined and transaction costs for economies are reduced. The World Bank manages and coordinates the preparation, marketing and execution of the cat bond transaction for its members, including the procurement of all external service providers. In addition, the proceeds of the issue are used by the World Bank for its developmental purpose, making the bonds a socially responsible investment (SRI) for the investors and thereby increasing demand for the securities.

The World Bank has to date supported its members with transferring USD5 billion of disaster risk to international markets, of which USD3.1 billion has been in the last four years alone. The risk transfer has been 68 percent in cat bond form and 32 percent in reinsurance form. The most recent transactions intermediated by the World Bank include a four-year USD485 million cat bond transaction for Mexico in March 2020 and a two-year USD225 million cat bond transaction for the Philippines in December 2019, both providing cover against earthquake and hurricane risks. The 2020 Mexico transaction was the longest and largest cat bond transaction for any sovereign and was the latest for Mexico, which had sponsored five cat bonds in between 2006 and 2018.The Philippine transaction was the first World Bank cat bond sponsored by an Asian economy.

The development of robust ILS markets, and of risk transfer instruments more broadly, requires – in addition to effective market infrastructure – a deeper understanding and quantification of risk, which are critical to the design of financial instruments and the identification of their appropriate place in the whole DRFI framework. Risk quantification is an area that needs to be further developed, especially in the region's developing economies. It also requires the application and adaptation of knowledge that the public sector has accumulated on infrastructure PPPs into the DRFI space, where collaboration between the public and private sectors is critical to protecting the region against the ever-increasing losses from natural disasters (especially due to extreme weather patterns) that many economies will be facing in the years ahead.

Conclusion

Insurance has a crucial economic development role in today's world, which is increasingly characterized by heightened risks associated with extreme weather conditions and pandemics. This applies particularly to Asia-Pacific economies, many of which are located along the Pacific Ring of Fire. The Roundtable provided insights on the challenges and opportunities in three important areas - inclusive consumer-level risk transfer solutions, business interruption insurance against pandemic risk and insurance-linked securities. It is clear from these discussions that close partnership between the public and private sectors is needed in order to overcome the challenges and maximize the opportunities in these areas.

Following are key messages from the Roundtable:

- Public-private dialogue, proportionate regulations, and promotion of advocacy and greater literacy are needed to develop resilience against natural hazards in the most vulnerable sectors of society through microinsurance.
- Government and industry need to work together to improve resilience in the agricultural sector. On the part of governments, they should promote data collection and its use in calibrating risk for insurance underwriting, support risk financing by involving the public sector and reinsurers, promote the establishment of insurance pooling mechanisms, support product design and development, and provide an enabling environment through institutional, legal and consumer protection frameworks. On the part of industry, they need to invest in data, talent and financial technology.
- Life insurers can harness their capacity as ESG investors to invest in resilient rural infrastructure, help improve governance, reduce residual risks and thus incentivize the development of more affordable risk transfer solutions.
- Making pandemic risk insurable requires close collaboration between government and industry in addressing two challenges: developing capacity to cover losses on the supply side, and affordability on the demand side. Governments can help address the supply side issue by providing a backstop and playing the role of a big investor.

- Governments should design pandemic risk insurance programs to provide greater certainty to businesses of their coverage for business interruption losses due to future pandemics, encourage the private market to assume pandemic-related risks and support risk understanding and reduction.
- APEC should consider how international cooperation could be harnessed to share knowledge and experience of business interruption insurance against pandemics among member economies, and develop international risk-sharing arrangements (e.g., reinsurance arrangements) among individual economies' domestic insurance pools to improve capacity to deal with huge pandemic-related losses.
- Developing APEC member economies should incorporate cat bonds into their DRFI frameworks to protect against potentially huge losses from very severe catastrophes that are becoming more frequent in our region. By engaging with the World Bank and ABAC/APFF, APEC member economies and domestic stakeholders can build capacity in the use of cat bonds (through workshops) and benefit from the experience of other economies in this area. Economies in the region intending to develop market infrastructure for the issuance of cat bonds can also benefit from this collaboration.
- Finally, the overarching message is that governments need to be prepared to respond to different types of disasters, which will continue to destroy lives and property, and recognize that protection from the effects of disasters, including those resulting from climate change and infectious disease, is an important public good. In the same manner that public-private partnerships in infrastructure development allow governments to create public goods by leveraging private sector investment and expertise where they could be effectively harnessed, economies can benefit from PPPs in disaster risk insurance. APEC would do well to help economies design enabling policy environments and operating requirements to attract private sector participation and bring disaster risk insurance PPPs into the mainstream.

- **ANNEX: ROUNDTABLE AGENDA** (*Times displayed are Japan Standard Time*)

19:00-19:10	**OPENING SESSION**
19:00-19:05	**Welcome Remarks** Mr. Guillermo Luz, Associate Director, Ayala Corporation
19:05-19:10	**Opening Remarks** Mr. Hiroshi Nakaso, Chair, Advisory Group on APEC Financial System Capacity Building; and Chairman, Daiwa Institute of Research
19:10-20:05	**SESSION 1** **Inclusive Consumer-Level Risk Transfer Solutions** Moderator: Dr. Antonis Malagardis, Program Manager, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)
19:10-19:15	**Introduction** by Moderator
19:15-19:30	Agriculture Insurance Mr. Arup Chatterjee, Principal Financial Sector Specialist, Asian Development Bank
19:30-19:45	Non-Agriculture Insurance Mr. Dante Portula, Senior Adviser, GIZ Regulatory Framework Promotion of Pro-Poor Insurance Markets in Asia
19:45-20:05	**Open Discussion**
20:05-20:45	**SESSION 2** **Options for Business Interruption Insurance Against Pandemic Risk** Moderator: Mr. Leigh Wolfrom, Policy Analyst, OECD
20:05-20:20	**Introduction and Presentation** by Moderator
20:20-20:25	Commentator: - Dr. Gunther Kraut, Global Head of Epidemic Risk Solutions, Munich Re Markets, Münchener Rückversicherungs-Gesellschaft Singapore Branch
20:25-20:30	Commentator: Ms. Ruth Lux, Head of Public Sector EMEA, Placement Solutions Group, Guy Carpenter
20:30-20:45	**Open Discussion**
20:45-21:25	**SESSION 3** **Expanding Risk Transfer Options through Insurance-Linked Securities** Moderator: Mr. Masaaki Nagamura, Sherpa, APFF Disaster Risk Financing and Insurance Network; and Fellow and General Manager International Initiatives, Corporate Planning Dept., Tokio Marine & Nichido Fire Insurance Co., Ltd
20:45-20:50	**Introduction** by Moderator
20:50-21:05	Ms. Naomi Cooney, Senior Financial Officer, Market Solutions & Structured Finance, World Bank Treasury
21:05-21:10	Commentator: Mr. Augusto Hidalgo, Head of Climate and Resilience Hub, Southeast Asia, Willis Towers Watson

21:10-21:25 **Open Discussion**

21:25-21:30 **CLOSING SESSION**

Concluding Remarks
Mr. Guillermo Luz, Associate Director, Ayala Corporation