Comparative Analysis of Post-event Funding Sources

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Abstract

Over time, extreme risk events have been constant, but the frequency and severity of these events have continued to increase over time, and their consequences often trigger economic and public health crises.

Extreme risk events can also cause significant budgetary pressures, with a short-term impact on the fiscal field and a long-term impact on development.

In order to reduce the economic impact of extreme events and to cope with the costs of humanitarian aid, recovery support and economic construction following an extreme event, it is necessary for the authorities to develop various strategies in advance.

The article aims to identify optimal post-event/ post-crisis financing solutions, in order to mitigate the economic impact of extreme risk events.

In this article were used qualitative methods, such as data processing and analysis, comparative analysis, documentation of reports, analysis of reference articles and presentation of conclusions.

Key words: source of financing, insurance, extreme event, risk.
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1. Introduction

Extreme risk events led to the loss of lives and livelihoods, destroyed infrastructure, businesses and buildings, and reconstruction and recovery after such events can take years.

The lack of an emergency financial plan or financial strategy when an event of extreme risk appear has the negative effect of increasing exposure to such events and dependence on funding from grants or post-event external aid.

Most of the time, post-event financing is activated more slowly, due to the lack of tools needed in such chaotic and ever-changing events, the assessment process of financial risk post-event or the bureaucracy of obtaining public funds, which requires legislative approvals.

In post-event financing, it is important to create public-private partnerships because the post-event response is complex and often adequate information is not available and funders cannot assess the risk they are going to take.

These partnerships can help funders or other service providers overcome the limitations of lack of information to provide financial products following an extreme event.

2. Theoretical background. Conceptual approaches on financing risk

Adequate risk management of extreme events also includes the risk financing part.

Risk financing involves the development of a plan that includes everything to be financed and the financial instruments available to a country if an extreme event occur, which also clarifies the responsibilities of the authorities both during and after the extreme event took place.

The Organisation for Economic Co-operation and Development, in 2012, said that financing risk involves maintaining risks and adopting a detailed financing strategy in order to ensure that sufficient funds are available that could be used where there will be financial needs due to the occurrence of an extreme event.

Financing risk includes financial instruments like donor support (emergency aid), donor support (recovery and reconstruction), emergency budgets, reserves, budget reallocation, emergency debt facility (eg CAT DDO), internal credit (eg bond issue), external credit (for example emergency loans), parametric insurance, ART mechanisms (eg CAT bonds, weather derivatives) or traditional insurance (based on indemnity).

3. Research methodology

This article aims to identify optimal post-event/ post-crisis financing solutions, which are needed to reduce the negative economic impact of extreme events,

In the elaboration of this article were used qualitative methods such as data processing and analysis, comparative analysis, studying reference articles and documenting reports.

4. Sources of post-event funding - current status

Financial risk analysis helps government representatives make informed decisions and use the tools to finance the risk of extreme events effectively.

The characteristics that form a country's financial resilience, were highlighted by World Bank, which are constantly improved by financing and transferring disaster risk, namely: adequate risk information, ownership of risk, the cost of capital, the timeliness of post-disaster financing and discipline. These are presented in the following figure.

Decision makers (from the private or public environment) need up-to-date information on risk in order to assess the price of risk as accurately as possible, to perform an analysis of costs and investments that can reduce risk. Another feature, called risk ownership, helps us to better understand who is responsible for the risk that may arise and concretely establishes the responsibility of each actor (donors, governments, private sector or households).

Access to capital involves a cost of it, set according to the time required to procure funds that can be used if an extreme event could occur.

Cost-effective financing of funds is needed to support reconstruction and recovery activities after an extreme risk event occurs. Applying a cost financing strategy makes optimal use of financial resources in order to reduce costs.

The fourth feature, namely the timeliness of post-disaster funding, refers to the fact that the funds should be able to be used at the right time, in order to cover all needs, both intervention and reconstruction and recovery.

The last feature identified by the World Bank is discipline. This means that actors (governments, businesses or households) are helped, through the risk financing plan, to make a plan before the extreme event, which will include how the risk financing budget will be formed, but also details on how this budget will be spent.

Figure no 1. The characteristics identified by the World Bank for the creation of strategies for financial protection against disasters

Source: (GFDRR, World Bank Group, 2014, 27).

Risk financing instruments may be combined by the authorities carrying out such strategies, depending on the frequency and severity of extreme events. Such a strategy involves a stratification of risks, which primarily ensures the use of the funds with the lowest costs, and in exceptional cases the funds with the highest costs are used. For example, insurance may provide coverage against extreme events, but is not adequate to protect against recurring low-intensity events. In such a case, the government could consider setting up a dedicated emergency fund to maintain this lowest level of risk.

Natural disaster risk financing instruments can be classified into pre-event or post-event planned financing instruments.

In order to adopt an effective strategy in case of natural disasters, the combined use of financing instruments, both planned before and after the event, is recommended.

If funding needs are high, obtaining post-event financial resources can be difficult and can lead to high costs and development delays. For this reason, pre-event financial instruments are also needed, which can help better post-event expenditure planning. (International Bank for Reconstruction and Development, Asian Development Bank, World Bank 2017)

The funding mechanisms that governments use to respond to the economic impact of disasters, planned before an extreme event occurs, are emergency budgets, reserve or disaster funds, emergency loans and disaster risk insurance.

Many countries use pre-event budgeting by supporting insurance funds and the use of emergency funds, but it requires trade-offs of current consumption for savings and mitigation, as well as procedural safeguards against opportunistic efforts to redirect disaster savings to other uses.

Planned pre-event budgetary policies increase national economies, reduce risk exposure and promote risk mitigation before the event occurs, while post-event budgetary policies can lead to a reduction in national economies caused by disasters.

When an extreme risk event occurs, it is the government that provides the first response to this event, locally or nationally, but most of the time they do not have large budgets for emergencies, that is, budgets that are spent only if something exceptional happens.

During an extreme event, cash must be mobilized, but this requires new loans (essentially performing an account overdraft), or a government has to reallocate funding from other budgets, which involves a cost. In richer countries, borrowing or reallocating funds can be difficult and expensive, but politically important enough to move forward. For poor countries, its consequences would be more severe, as spending is usually already tight, borrowing is more expensive, and reallocations can affect basic government functions. Thus, these countries can turn to global humanitarian agencies and development partners for support. (Clarke D., Dercon S., 2016)

To meet their post-disaster funding needs, governments typically use budget reallocations, tax increases or loans.

Another source of post-event funding, considered to be the cheapest, is donation or international aid.

5. Comparative analysis of planned financing solutions before and after the event

The fastest financial instrument that can be used to finance risks is budget relocation, but these funds are usually small, while loans may have high costs or be unavailable (especially in countries with high debt). It takes a period of time to apply tax increases and can have negative effects on the already fragile economy after an extreme event.

Donations can cover only about 8% of the direct economic losses of extreme events. (Swiss Re, 2016)

Financial risk transfer is part of a global approach to risk management. Integrated risk management follows four stages: from risk identification and assessment to risk mitigation and adaptation.

The transfer of risk through insurance helps to reduce the pressure on the government after an extreme event and improves the certainty of planning for the public sector, thus managing to avoid long-term fiscal instability.

Risk transfer (insurance) moves external risk to capital markets and investors. It provides the best channel to reduce the costs of major disasters and to provide rapid capital for reconstruction. (Laframboise N., Loko B., 2012)

Financial risk protection complements risk reduction activities. Authorities need to work to reduce risk factors, which will also have the effect of reducing the economic and financial impact of extreme events. In a country, the lack of a risk financing strategy implies an increase in the possibilities of financial shocks. (GFDRR, World Bank Group, 2014)

Financial protection also plays an important role in helping countries become more resilient to climate risks.

It is important for each country to have a document describing the responsibility of the various actors for post-disaster relief, early recovery and reconstruction (including any urgent budget line requirements) and the timetable for key stages in the budget process. Governments also need to review procedures for reallocating budgets after a disaster, preparing and approving additional budgets, and rules governing the release of public resources for disaster response purposes (usually related to declaring a state of disaster at various levels of government). It should be mentioned in this document whether budgetary flexibility is constrained by a limited proportion of expenditure. Finally, should be mentioned any important differences between actual budgetary practice and formal procedures and processes. (International Bank for Reconstruction and Development, Asian Development Bank, World Bank, 2017)

The following table highlights the advantages and disadvantages of using pre-event and post-event planned financial instruments.

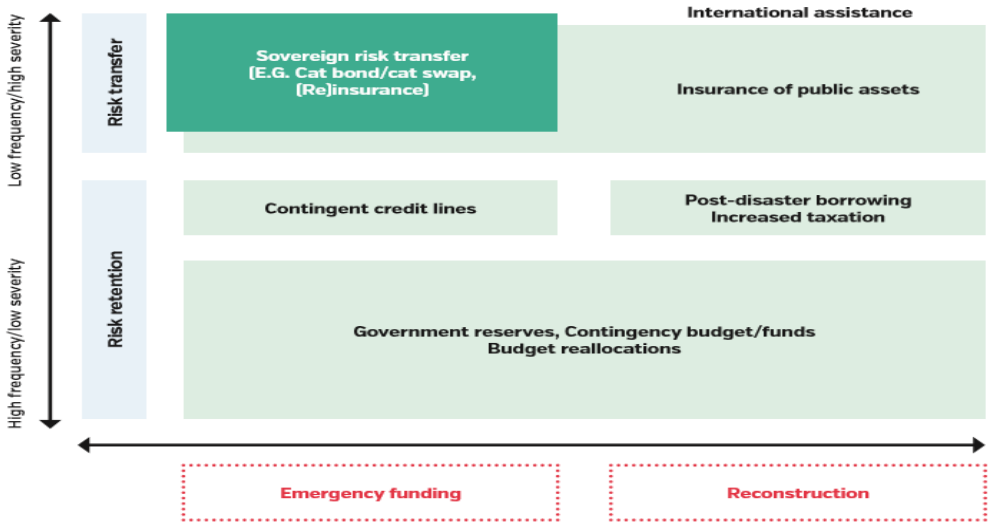
Table no 1. Advantages and disadvantages of planned financial measures before and after the event

Pre-event planned financial measures		
Measures	**Advantages**	**Disadvantages**
Well developed private insurance industry	It transfers risks to the private market and stimulates price competition	It requires the legal framework, acceptance by the population and the development of the local insurance sector
Government as a buyer of insurance (macro insurance)	Provides financing as needed, with no obligation to reimburse	Innovative solution, requires time for implementation
Emergency financing	Guaranteed financing under pre-agreed conditions	Increases indebtedness, and additional borrowing may be restricted
Reserve funds	At the discretion of the owners, a positive signal for investors	The opportunity costs of holding liquidity and takes a long time to reach the critical dimension
Post-event planned financial measures		
Measures	**Advantages**	**Disadvantages**
Budget	Governments can allocate funds autonomously	Limited funds, divert resources
Tax increases	Governments can act autonomously	Limited, politically sensitive funds can diminish economic recovery
Debt/ Claims	Standard, proven tool	Potentially slow and expensive, it often requires a credit rating
Donor help	Cheap	The granting process can be slow and the amounts are uncertain

Source: (Swiss Re, 2016, 5).

Better financial protection against extreme events that differ in severity and frequency, involves the combined use of different financial instruments (known as risk layering). A recommended risk stratification model is presented in the following figure.

Figure no. 2. Risk stratification strategy that can be applied by governments



Source: (International Bank for Reconstruction and Development, Asian Development Bank, World Bank, 2017, 22).

Governments should make decisions on the use of financial instruments on the basis of economic and social considerations.

Emergency budgets and reserves, being the cheapest sources of risk financing, can be used to cover recurrent losses, and after their exhaustion or if they last until they can be accessed, financial instruments such as emergency credit can be used, loans and insurance. It is recommended that governments first use funds for recurring events, and increase their financial capacity to fund less frequent but more severe events.

The resources needed for larger reconstruction programs are rarely needed immediately after a disaster, and reconstruction planning takes time, engineers need to design new infrastructure, projects need to be tendered and contractors need to mobilize.

Reconstruction operations often begin six months or more after a disaster, and rehabilitation can sometimes take several years. (Ghesquiere F., Mahul O., 2010)

A pattern of combined use of financial instruments was also identified by the authors Clarke D., Mahul O., Poulter R., Teh T. L. (2017).

Their paper presents a framework for assessing the costs and timing of alternative risk finance strategies and what are the key factors for governments to consider when establishing appropriate strategies to ensure financial resilience to disasters. Thus, they present a disaster risk financing model, which allows the government to consider the costs of financing their urgent debt in the event of a disaster, using different combinations of financial instruments and to minimize this cost based on their preferences for risk and the proposed objectives.

Such a model refers to two stages. A first stage involves the analysis by the authorities of budgetary and financial instruments, and the second stage involves decisions by the authorities on the financial and budgetary instruments that can be used to finance costs when the event takes place.

At the beginning of an year, the government considers that it will be exposed to an uncertain loss and has access to five financial instruments, namely: the reserve fund, an emergency credit line, budgetary reallocation, post-disaster emergency loans and insurance. In the first phase the government sets the maximum amounts that can be used for each financial instrument at its disposal and in the second phase it decides how much of each financial instrument to use to finance expenditures and cannot use more than initially set.

After conducting these analyzes, the authors compared the opportunity cost of each financial instrument, but pointed out that some instruments, although more expensive, have other benefits (for example, they can be obtained more quickly). The authors concluded that different risk financing strategies have different costs for the government.

Governments in countries such as Japan, New Zealand and Turkey use pre-disaster budgeting as more cost-effective. Many countries offer insurance directly, others support private insurance through reinsurance or guarantees and others create general emergency funds.

For example, in Japan, a country prone to natural disasters (earthquakes and active volcanoes, between 199-2005, 20% of earthquakes that reached a magnitude of 6.0 or greater had an epicenter in Japan and 7% of active volcanoes from the world is in this country) promotes loss mitigation and pre-event saving. Japan has a disaster policy that consists of mitigating and insuring disaster risk. (Phaup M., Kirschner C., 2010)

Being aware of the risk of disasters in Japan, government officials have created an emergency budget and a reserve fund for disaster management, namely for disaster mitigation, preparedness, response and recovery activities. This budget represents about 5% of the national budget and is divided into four areas: scientific and technological research (1%), disaster prevention and preparedness (23.6%), national land conservation (48.7%) and disaster recovery and rehabilitation (26.4%). The emergency budget used in Japan is flexible, most of the funds are spent on land conservation, but in some years with a higher number of disasters, a larger amount of this budget has been spent on recovery and rehabilitation.

Another financial instrument used in Japan is insurance for households in the event of an earthquake. These insurances are not compulsory to buy, but the government obliged the insurance companies to have in their offer insurances for earthquakes (in 2008, 23-27% of the households had such insurances). In Japan there is also the Japan Earthquake Reinsurance Company (JER), established in 1966, to ensure that in the event of a catastrophic earthquake, insurance claims will be paid.

In developed countries, losses from natural disasters are small relative to national income, rarely exceeding 2% of gross domestic product (GDP), and they are more concerned about not being affected by major economic recessions.

Some countries may choose a strategy that combines pre-event and post-event planned instruments, making it difficult to predict how countries will choose to form their budgets to respond to disasters.

The World Bank has recommended a multi-level approach to disaster risk financing - a strategy consisting of different financial instruments for different levels of risk, as appropriate and cost-effective. (Clarke, D.J., Mahul, O., Poulter, R, 2017)

6. Conclusions

Over time, the authorities in each country have used financial instruments to a greater extent without a well-established strategy to reduce the economic effects of extreme events. Currently, countries are focusing on implementing a risk financing strategy before an extreme event occurs.

Such proactive planning has gradually been used by most governments, as this risk financing aims to increase the resilience of countries that are vulnerable to the financial impact of extreme events.

A comprehensive strategy can ensure access to post-disaster funding before an event occurs, ensuring rapid and cost-effective liquidity to fund recovery efforts. The main groups benefiting from financial protection are homeowners, governments, SMEs, farmers and low-income people or no income people.

Even if the planned pre-event budget has the potential to increase well-being compared to the planned post-event budget, policy makers may prefer the latter for several reasons. Pre-event budget planning is done more in countries at high risk of disaster.

7. References

- Clarke D., Dercon S., 2016, *Dull Disasters? How planning ahead will make a difference,* Oxford: Oxford University Press, Available at: https://library.oapen.org/bitstream/handle/20.500.12657/32368/611710.pdf?sequence=1&isAllowed=y

- Clarke D., Mahul O., Poulter R., Teh T. L., 2017. *Evaluating Sovereign Disaster Risk Financing Strategies: a Framework,* Available at: accesat pe https://link.springer.com/article/10.1057/s41288-017-0064-1
- GFDRR, World Bank Group, 2014, *Financial protection against natural disasters: from products to comprehensive strategies,* Available at: https://www.gfdrr.org/sites/default/files/documents/Financial%20Protection.pdf
- Ghesquiere F., Mahul O., 2010. Financial Protection of the State against Natural Disaster, The World Bank Latin American and the Carribean Region Finance and Private Sector Development Sustainable Development Network, *Policy Research Working Paper 5429*, p. 19;
- International Bank for Reconstruction and Development, World Bank, Asian Development Bank, 2017. *Assessing Financial Protection against Disasters: A Guidance Note on Conducting a Disaster Risk Finance Diagnostic*, Available at: http://documents1.worldbank.org/curated/en/102981499799989765/pdf/117370-REVISED-PUBLIC-DRFIFinanceProtectionHighRes.pdf
- Laframboise N., Loko B., 2012. Natural Disasters: Mitigating Impact, Managing Risks, IMF Working *Paper No. 12/245*, Available at: https://ssrn.com/abstract=2169784
- Phaup M., Kirschner C., 2010. *Budgeting for Disasters: Focusing on the Good Times*, Available at: https://www.oecd.org/gov/budgeting/48168599.pdf
- Swiss Re, 2016. *Disaster risk financing: Smart solutions for the public sector*, Available at: https://www.swissre.com/dam/jcr:61067508-f362-442c-9795-095862b2ee48/Closign_the_protection_gap.pdf