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## **Making markets for uninsured risk: Protection gap entities (PGEs) as risk-processing organizations in society**

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2017 has been a year of devastating natural disasters; Hurricane Harvey caused widespread flooding in Texas and Louisiana, Hurricanes Irma and Maria wreaked havoc on island states in the Caribbean and Latin America, and Mexico has suffered two high magnitude earthquakes in quick succession that left hundreds dead and many more citizens' lives changed forever. Manmade disasters, such as terrorism, are also having devastating impact even beyond war zones. Large-scale, highly organized attacks, such as the attack on the World Trade Centre, have been replaced in recent years by less sophisticated attacks using homemade bombs, guns, knives and cars in cities all over the world, from Paris, to Quetta to London.

As these natural and manmade disasters increase in frequency and severity (Allianz, 2015), they highlight a steadily widening gap between insured and actual economic losses. Some 70% of global losses from natural catastrophes are uninsured, equating to a protection gap of \$1.3 trillion over the past 10 years (Swiss Re, 2015a). Indeed, the total economic loss from Hurricane Harvey is estimated at up to \$90 billion, of which at best only \$35 billion is insured (RMS, 2017). Significant gaps in protection also exist for other large-scale threats such as terrorism, cybercrime and epidemics, where the emergent or constantly evolving nature of risk makes developing adequate insurance protection difficult (Carter & Johansmeyer, 2016; Michel-Kerjan, Raschky & Kunreuther, 2015). This protection gap constitutes an economic and social problem in both developing and developed countries. Lack of insurance in developing countries means that losses from catastrophic disasters roll back development gains and exacerbate inequality (World Bank, 2014). Yet in developed countries, the protection gap is also increasing (Swiss Re, 2015b). For example, while the United States is one of the most insured countries in the world, some 50% of the natural disaster losses in 2016 remained unprotected (Aon, 2016).

***Beyond existing organizational responses to risk and disaster management.*** The burden of paying for such uninsured losses falls largely on governments, individuals and aid organizations, with significant economic and social hardship for those affected. In response, governments and inter-governmental organizations around the world, often joining forces with the insurance market, have developed a range of different types of insurance schemes that attempt to close the protection gap. While these schemes differ considerably, they broadly have the same goal which is to transform uninsured risk into insurance-based products that can be transferred into global financial markets in order to provide capital for recovery following a disaster.

We refer to the entities that convey various schemes as Protection Gap Entities (PGEs), which

we define as organizations specifically set up to operate between government and market in trying to reduce some specific protection gap. Examples of PGEs include the Caribbean Catastrophe Risk Insurance Facility (CCRIF), which was set up to provide its member countries with access to rapid capital for responding to the aftermath of natural disasters, or Pool Re, a risk pool set up to support the insurance market in providing commercial terrorism cover to businesses in the UK. Such PGEs sit at the nexus of a range of critical interdependencies between market and non-market organizations, each with different expertise, interests and objectives that must be drawn together to address the protection gap problem. PGEs are not static organizations. Rather, their organizing practices simultaneously shape and are shaped by the pertinent interdependencies. Further, as ways are found to transform uninsured risk into insured risk, and to attract capital, these interdependencies evolve, so that PGEs themselves are dynamically evolving in tandem with the risk they process. Given the role of organizations as critical agents in “processing and handling risks” (Hutter & Power, 2005, p. 1; see also Gephart, Van Maanen, & Oberlechner, 2009; Hardy & Maguire, 2016; Maguire & Hardy, 2013; Power, 2014; Scheytt, Soin, Sahlin-Andersson, & Power, 2006), an understanding of PGEs as a particular type of risk-processing organization is critical. However, we know little of the organizational, intra-organizational and economic and social dynamics that shape PGEs, and their respective disaster risk management responses.

***Beyond existing understandings of risk, reward and responsibility.*** Frank Knight’s (1921) distinction between risk and uncertainty can be used as a conceptual vehicle to understand risk-taking as entrepreneurial activity for profit making (O'Malley, 2003). This is apparent in markets for large-scale risk, where insurance companies accept risk of loss and responsibility for paying claims in return for a premium that is the basis of their profit. These insurers then transfer some of this risk of large-scale loss, such as a major flood that damages many properties simultaneously, to reinsurers and other capital markets. The reinsurers and markets in turn accept this risk and the responsibility to pay for potentially disastrous losses in return for a premium which is their basis of profit (Jarzabkowski, Bednarek & Spee, 2015). When PGEs are established, they intervene in this risk transfer value chain, acting either as insurers taking the risk directly from policyholders or as reinsurers and capital markets that accept risk from insurers. Sometimes, particularly in developing economies where the insurance market is relatively underdeveloped, they even bypass this value chain altogether, transferring risk directly from government balance sheets into the capital markets.

PGEs thus introduce a new type of actor into the value chain, with a mix of often contradictory market and non-market objectives (Denis, Langley & Rouleau, 2007; Jarzabkowski, Le & Van de Ven, 2013; Smets, Jarzabkowski, Burke & Spee, 2015), such as a remit to protect citizens from economic disaster, rather than specifically to make a profit. The uncoupling of such market based calculations of risk and reward may also dilute the responsibility of market players to pay claims, as this obligation shifts partially to the PGEs that negotiate the products issued against risk. Yet the implications of this intervention, in a market that so critically underpins recovery from devastating losses, are poorly understood, conceptually and empirically (Bruggeman, Faure & Heldt, 2012; Paudel 2012). In particular, the specific forms that PGEs take, how they share risk for public protection and private sector profit, and how they co-evolve alongside government policy over time are critical areas of study (Weinkle, 2015).

For example, the USA public-sector flood insurance scheme, the National Flood Insurance Program (NFIP), originated in response to the lack of private insurance, providing domestic insurance policies to enable householders to recover from damage following floods. However,

it has run into severe problems, arguably due to a failure to share risk with the private market (Elliott, 2017) until 2015, when some risk was transferred to the reinsurance market, to offset NFIP debt. In particular, the scheme has low penetration. During the recent Hurricane Harvey, only some 20% of properties eligible for NFIP coverage actually had flood insurance, with devastating consequences for citizens and for the states of Texas and Louisiana. As Moody's Analytics noted, "a lack of flood insurance for homeowners will prevent the type of full-scale reconstruction effort that might otherwise be expected. This could have significant long-term ramifications, weighing on household wealth and consumption, while even potentially making a dent in the region's very strong population growth" (Evans, 2017).

As such critical examples suggest, we need more studies that examine the use of financial tools for risk taking, whilst looking beyond this as primarily a matter of market actors and objectives. Rather, we need to focus on the reconfiguration of risk, reward and responsibility, in order to further existing understandings of how financial markets work in cooperation with the state, through the vehicle of specific risk-processing organizations, such as PGEs, to build economic and social resilience (e.g. Hamilton & Statman, 1993). In particular, it is necessary to generate theories of risk and risk management that explain the changing risk-reward-responsibility dynamics arising from the interplay between market and non-market actors and their implications on market making.

***Our research.*** Our response to the need for enhanced insight takes a processual approach to PGEs as risk-processing organizations that evolve over time. While PGEs are put in place to address the protection gap, they are not simply solutions to the problem. Rather, they become active participants in defining the protection gap and the potential approaches to it, through the interdependencies they establish to evaluate and trade risk, their effects on the market-based value chain, their progressive shifting of risk from uninsured to insured, and their consequences in increasing insurance penetration and in paying claims following disasters. We are currently examining the processual evolution of 12 different PGEs that span different risks, from terrorism to floods, hurricanes and earthquakes. Our research, based on data across all relevant stakeholders, is designed to capture variation in relational, structural and institutional features of these PGEs, from single nation PGEs to multi-nation risk pools, covering both developed and developing economies. Taking a comparative approach, we aim to develop two types of process theories. First, theories that explain the different paths through which particular types of PGEs evolve, and their consequences. Second, process theories that explain how PGEs as collective phenomena, through their interactions with each other, and with key multinational and inter-organizational actors, shape broader global approaches to risk, the protection gap and disaster risk management.

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