The Relational Urban Geographies of Re/insurance

Florida Hurricane Wind Risk and the Making of Singapore's Catastrophe Finance Hub

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Introduction

In the keynote speech at the 2019 Singapore International Reinsurance Conference, a senior Singapore government minister outlined the city-state's plans to expand as an offshore property catastrophe re/insurance[1] centre (Monetary Authority of Singapore 2019). 'The global economy is undergoing a tumultuous period of change, and facing strong headwinds from a continuously changing and challenging environment,' Minister Rajah began. Singapore faced 'two winds of change – the environmental headwinds, and political headwinds' and called for 'decisive and concerted action to mitigate these risks.' The property catastrophe re/insurance industry, 'by combining its risk financing capacity, with its risk mitigation capabilities, can play a huge role in managing these risks,' the minister argued. Minister Rajah in turn outlined several interconnected re/insurance market development initiatives underway with Singapore state support, including the recent launch of a new insurance-linked securities trading market with the capacity to finance catastrophe risk for Asia.

The minister's remarks reflect the ways in which coalitions of states, multilateral organisations like the World Bank, and financial institutions increasingly turn to the property catastrophe re/insurance sector to manage the entwined ecological, political, and economic uncertainties of climate change. Re/insurers constitute a lucrative, multi-billion dollar risk financing system, one which offsets catastrophe losses across a wide range of geographies. Global reinsurers, or insurers for insurers, promised $625 billion of protection capital to their clients in 2019, for example (Aon Benfield 2020). Re/insurers have also emerged as prominent proponents for (and investors) in a range of climate risk finance experiments. This can be seen in the roll-out of multilateral disaster risk pools and other insurance products in support of several sustainable development and humanitarian agendas (Grove 2012; Johnson 2021), or through the extension of re/insurance instruments and models services to help non-insurance financial institutions like real estate

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asset managers to govern their physical climate risk exposure (Taylor and Aalbers 2022). Re/insurers curate and perform epistemologies of risk, build institutional capacities and tools to manage such risk, and profit from a wide array of risk finance and advisory services (Taylor & Weinkle 2020). They play multifaceted roles in the assembly and expansion of regimes of financialised disaster risk governance (Grove 2012), and by extension mediate the moral economies of climate change in powerful ways (Elliott 2021).

Despite this global(-ising) influence, re/insurance markets are geographically uneven, contingent, and provisional (Johnson 2013, 2014; Taylor & Weinkle 2020; Booth 2021). The market's contemporary capital flows and expertise largely remain confined to regions with risks that are sufficiently profitable to lure capital, actuarially well-defined enough to be priced with confidence, and where other conditions (like favourable state regulation) enable and ensure market access. As re/insurers seek to construct new risk capital markets across emergent geographical frontiers, they must also contend with recurrent frictions and dislocations within existing market territories, ranging from debates over insurance affordability, to post-disaster crises of insolvency and market abandonment. Growing anxieties about the 'uninsurability' of a number of well-established underwriting domains – ranging from fossil fuel infrastructure to US coastal real estate – are contemporary examples of the existential headwinds facing the sector.

How do we reconcile the globalising yet provincial, universalising but contingent character of these markets at this crucial juncture, as state and capital alike seek to manage a world of unruly climate risk using re/insurance models, methods, and capital instruments? This chapter responds to these tensions by examining how re/insurance markets evolve through the relational interplays within and between key urban geographies in the hurricane wind risk trade. Contemporary efforts to construct an insurance-linked securities (ILS) and catastrophe finance hub in Singapore provide the touchstone for this essay. By transforming insured risks into an investment asset class, ILS instruments are widely seen to be key to securing the capacity of re/insurance markets to finance new and expanding horizons of catastrophe risk (Johnson 2013, 2014; Taylor 2020)[2]. Singapore's first full-fledged, SEC Rule 144A-compliant ILS was issued on behalf of a Florida insurer, backing the hurricane wind risk exposure within thousands of residential property insurance policies. Florida relies on ILS and other forms of re/insurance capital to finance its hurricane-exposed, real estate-driven political economy. Well-established Florida re/insurance risk capital flows have provided an ideal test case to demonstrate Singapore's competence as an ILS hub, as part of a larger play to capture a growing share of the Asian re/insurance business, and in turn to secure the city-state's advantageous, if precarious position as an international financial centre.

The chapter develops the Florida-Singapore ILS case to make two contributions to a growing body of critical insurance studies (Booth 2021). First, the case deepens our understanding the relational ways in which specific urban

geographies are central to the assembly and extension of re/insurance markets. Florida and Singapore play crucial roles in constituting catastrophe re/insurance markets (as a source of insured wind risk, or as a centre for brokering such risk, respectively). Yet as the chapter explores, so too do actors operating in each context seek to cultivate re/insurance in order to hedge against broader, yet distinctive political and economic 'headwinds,' ranging from an uncertain future for risky coastal real estate in Florida, to anxieties about regional competition and stability in Singapore. The chapter underscores how these interwoven, if asymmetrical set of relations shape and extend re/insurance as a powerful modality for governing climate uncertainties. Second, the chapter aims to encourage further relational analysis of the intra- and inter-geographical dynamics which shape the scope and significance of re/insurance geographies. Three analytical focal points – (i) circulations of tools and techniques, (ii) risk capital flows, and (iii) shifting state engagement – are proposed and explored in conversation with the case to advance relational re/insurance analysis.

Following this introduction, the chapter charts the evolution of ILS within and between Florida and Singapore. In turn, the chapter draws on insights from the case to develop the three aforementioned focal points for the relational study of re/insurance market change. The chapter draws on fieldwork conducted in Florida and Singapore between 2016 and 2019, including elite interviews with re/insurance executives and other market stakeholders, public policy and financial statement analyses, and in-person and virtual participation at major industry conferences and events, including RMS Exceedance (2016), the Singapore Reinsurance Conference (2019), and Artemis ILS Asia Conference (2020).

Florida: Underwriting urban fortunes

Re/insurers often characterise Florida as the 'peakest' of 'peak peril' property catastrophe underwriting, due to the exceptional concentration of insured hurricane wind exposure in the state. Swiss Re estimates that a single major-category hurricane[3] landfall in Miami could generate insured losses of up to $180 billion, and economic damages far greater, representing losses of 'a magnitude not yet observed' by the industry, for example (Schwartz & Linkin 2017). To manage this risk, re/insurers collect substantial volumes of policyholder premiums from millions of Florida policyholders every year. In 2018, Florida retail insurers directly collected more than $10 billion in annual premiums, underwriting over $2 trillion of statewide residential exposure (Florida Office of Insurance Regulation. n.d.). Florida insurers cede a large proportion of this premium to dozens of catastrophe reinsurers in Bermuda, the United Kingdom, Germany, and beyond, which agree to finance a share of the insurer's catastrophe risk exposure. Taylor (2020) finds that an important subset of Florida residential insurers spent just over half of every consumer premium dollar earned on reinsurance in 2015, for example.

The size of the residential insurance business in Florida is a function of how and where the state has urbanised in the post-World War II era. Real estate became a core driver of the state's economy, the profitability of which has generally exceeded longstanding concerns about the state's fragile, hurricane- and flood-prone coastal geography (Audirac et al. 1990; Catlin 1997). Over this horizon, local 'growth machines' took root, which became structurally reliant on sustained development to generate property tax receipts, real estate-related jobs, and related service-sector employment (Taylor 2020). At the same time, federal government programs and regulations subsidised post-war urbanisation through growth-inducing and environmental risk-reducing infrastructures (as in the federal highway system, or Army Corps of Engineers projects), through the widespread (but not universally accessible) expansion of mortgage markets, and other spatially redistributive practices, which disproportionately favoured Florida and other 'sunbelt' states (Bernard & Rice 1983).

The substantial human, ecological, and economic devastation wrought by hurricanes, including Andrew (1992), those of the 2004 and 2005 Atlantic hurricane seasons, and Irma (2017), have focused attention on Florida's environmental precarity more generally, and on the fragility of the real estate-driven political economy built thereupon specifically. Re/insurance became the de facto 'fix' for Florida's risky real estate dilemma for two closely related reasons according to Taylor (2020). First, federal government housing finance regulations institutionalised the use of multi-peril property insurance within the residential property finance market, creating a structural role for insurance within the US housing finance system. Second, decades of pro-growth urban governance in Florida saw rates of building in catastrophe-prone areas far exceed the use of land use controls, building codes, and infrastructure investment to curtail the rise of catastrophe exposure in the built environment. Not only did Florida become economically dependent on ecologically fraught patterns of development, it did so in ways which relied on re/insurers to finance property catastrophe risk, in the absence of meaningfully integrated and comprehensive urban environmental risk management. An executive at a major engineering, construction, and design firm in Florida reflected this sentiment in an interview about contemporary resilience planning efforts in the state:

> So far, there hasn't been much discussion about the real players in this: the re/insurance industry. […] Eventually, you can have all the politics and all the plans you want, but this private sector will eventually have to come to the table. If they come to the marketplace too quickly, they'll destroy value in the market, which is not the value of a resilience program.
>
> (Interview 2018-A)

The Florida market has presented industry-defining challenges and opportunities to global re/insurers and state public policymakers

(Medders et al. 2013; Taylor 2020). These pivot around the complexities of maintaining an underwriting regime that is reliable and profitable, while also sufficiently affordable to property market consumers – and therefore 'resilient' enough to sustain the state's real estate-based political economy (Taylor & Weinkle 2020). Questions of how to actuarially model and price potential catastrophe hurricane wind losses, to capitalise this risk and transfer it from insurers to reinsurers and broader capital market investors, and to appropriately regulate such practices to serve broader societal goals have informed debates and innovations in the re/insurance sector in the three decades since Hurricane Andrew's landfall near Miami (Medders et al. 2013; Taylor & Weinkle 2020).

ILS products were introduced and eventually widely adopted in Florida and beyond in response to such questions. One senior re/insurance investor estimated that half of all ILS are exposed to Florida hurricane risk, for example (Seo 2015). Between March 2017 and June 2020, Florida residential insurers channelled millions of dollars in policyholder premiums to raise $6.2 billion of reinsurance protection through 33 public ILS issuances (Table 11.1). This count does not include ILS transactions sponsored by reinsurers transferring their Florida risk exposure nor does it include privately placed collateralised reinsurance, and therefore represents only a portion of ILS-related activity in the state.

Table 11.1 Florida insurer direct ILS issuance (March 2017–June 2020).

Florida insurer	*ILS issuances*	*ILS cover (cumulative, millions)*
Citizens Property Insurance Corporation	4	$685.0
Heritage Property and Casualty Insurance Co.	2	$160.0
Safepoint Insurance Company	2	$240.0
Southern Oak Insurance Company	2	$99.2
Avatar Property and Casualty Insurance Company	2	$165.0
Castle Key Insurance & Castle Key Indemnity	2	$400.0
USAA	8	$2,040.0
Security First Insurance Company	2	$275.0
American Integrity Insurance Company via Hannover Rück SE (Germany)	4	$489.0
American Strategic Insurance Group	1	$200.0
Nationwide Mutual	3	$1,315.0
State National Insurance Co via Markel Bermuda Ltd	1	$100.0

Notes: Bonds with exclusive Florida exposure and mixed US multiple peril exposure (including named storm) were included. While many of these firms are mostly or entirely specialised in Florida underwriting (e.g. Citizens), some (e.g. USAA, Nationwide) are large national insurers with diversified portfolios and catastrophe risk exposures.

Source: Artemis.bm Deal Database.

Decades-long experiments in capitalising Florida insurers through ILS and other reinsurance instruments have made Sunshine State hurricane wind risk a well-established asset class, for which there exists a significant depth of industry, investor, and regulator familiarity. The geographical specificity of Florida's crisis-prone mode of urbanisation, and the industry's role and response in developing instruments like ILS to hedge against such crisis, helps to foreground how and why Singapore's first full-fledged catastrophe bond issuance should come to be underpinned by Florida residential hurricane wind risk.

Singapore: Regionalising risk capital

Surveying Singapore's glass-and-steel financial district skyline from a high-rise conference room, a reinsurance executive recounted the collaborative efforts of state and industry actors to construct a local ILS trading centre in the city-state, which raised just short of $1 billion of catastrophe coverage between the first such issuance in 2019 and mid-2020 (Table 11.2). The executive detailed how, over the course of years of dialogue and through the roll-out of market-making infrastructures, the foundation was laid for

Table 11.2 Singapore-based ILS transactions, May 2019–June 2020.

Bond issuance	*Cover (millions)*	*Peril(s)*	*Sponsor*
First Coast Re II Pte. Ltd. (Series 2019-1)	$100	Florida-named storm & severe thunderstorm	Security First Insurance Co (Florida)
Manatee Re III Pte. Ltd. (Series 2019-1)	$40	US-named storm & severe thunderstorm (Florida, Louisiana, New Jersey & Texas)	Safepoint Insurance Co (Florida)
Integrity Re II Pte. Ltd. (Series 2020-1)	$150	Florida-named storm	American Integrity Insurance Co (Florida) via Hannover Rück SE (Germany)
Akibare Re Pte. Ltd. (Series 2020-1)	$100	Japan typhoon & flood	Mitsui Sumitomo Insurance Co (Japan)
Catahoula Re Pte. Ltd. (Series 2020-1)	$60	Louisiana-named storm & severe thunderstorm	Louisiana Citizens Property Insurance Corporation (Louisiana)
Casablanca Re Pte. Ltd. (Series 2020-1)	$65	Florida-named storm	Avatar Property and Casualty Insurance Co (Florida)
Alamo Re II Pte. Ltd. (Series 2020-1)	$400	Texas-named storms & severe thunderstorms	Texas Windstorm Insurance Association (Texas)

Source: Artemis.bm Deal Directory.

the first ILS issuance in Singapore (Interview 2019-A). Legal frameworks were retooled to accommodate a new offshore special purpose reinsurance institutional structure, while regulatory structures were revised to make oversight and compliance streamlined and cost-effective for issuers and investors. An array of specialist professional services providers (brokers, lawyers, actuaries) had to be recruited or trained. A new state-funded grant scheme was launched to attract issuers, and to offset the 'frictional' costs of issuing a transaction in unfamiliar territory. Asian regional investment managers had to be thoughtfully introduced to this new asset class and courted for future deals.

First Coast Re and the transactions which followed represented a crucial proof of concept, a symbolic and strategic 'practical accomplishment' (Fields 2018) within a larger play to cultivate an expanded role of Singapore as a broker within global catastrophe risk finance circuits. First, the growth of catastrophe re/insurance and risk finance-related services is seen by aligned actors as a means to extend and secure the scope and scale of Singapore's international finance centre. Financial services comprise an increasingly important driver of Singapore's unique state-capitalist economic development model (Olds & Yeung 2004; Chua 2017), growing from 4.6% of Singapore's GDP in 1965, to 12.3% by 2016 (Lai 2018, p. 154). Re/insurance is one of several financial subsectors which have registered state investment in recent years (Lai & Samers 2017; Lai 2018; Dodge 2020). In line with this strategy, many activities like manufacturing have been gradually relocated to neighbouring countries (yet often remain under the control of Singaporean enterprises), in favour of the growth of higher-wage advanced producer services, including finance (Chua 2017; Lai 2018). By 2020, Singapore's financial sector employed more than 170,000 workers, yielding 13.3% of the GDP despite accounting for only 4.5% of the workforce (Monetary Authority of Singapore 2020). Financial institutions also comprise a significant source of demand for 'Grade A' office space, the sustained re/development of which is an important driver and feature of Singapore's unique property-driven state capitalist model (Haila 2016).

Absent the need to finance large volumes of domestic property catastrophe exposure (as in Florida), Singapore-based re/insurance institutions specialise in brokering risks across Asia and Australia. In 2018, Singapore's offshore re/insurance hub wrote $12.8 billion in gross premiums, of which nearly 60% was in property lines (Monetary Authority of Singapore n.d.). The largest sources of premium were China (34.9%, exclusive of Hong Kong), Japan (13.7%), Australia (10.8%), and Thailand (8.3%) (ibid). Nevertheless, the extent of re/insurance activity in Singapore remains modest in comparison to larger reinsurance hubs like London, Bermuda, and Zurich. In 2017, London captured $110 billion of premium, or roughly ten times that of Singapore (London Market Group 2020, p. 2).

Long-term visions for Singapore's re/insurance sector therefore tend to focus on exploiting the city'-state's access to Asian risks and capital. In

conference presentations and interviews, re/insurers argue that the combination of growing regional climate risk and high economic growth has yet to be matched by the rate of property re/insurance market take-up, suggesting an array of underwriting opportunities on the horizon (Monetary Authority of Singapore 2019; 2020). In this context, efforts to expand the Singapore centre may be seen as one of several broader state, multi-lateral, and financial market institutional manoeuvres to extend re/insurance underwriting across Asia. At the same time, the ongoing rise of an Asian investor class is seen to represent a vast pool of regional capital that could be deployed as re/insurance capacity through instruments like ILS. Singapore's re/insurance proponents have sought to meld these elements by expanding the offering of products and services available, including ILS issuance and investment management (Interview 2019-B). One Singapore-based reinsurance executive hypothesised that the ultimate aim of Singapore's market-makers was not to rival London or Bermuda in scale, but instead to provide high value-added financial solutions for specialist regional underwriting and investment needs. The executive thus likened the Singapore ILS strategy to a private jet, one able to seat only a handful of precious customers, and with each issuance representing one such seat on the jet (Interview 2019-C).

The development of ILS markets also arguably advances a second political economic agenda for the city-state, one rooted in securing regional stability through catastrophe risk finance. Singapore's economic development strategy has long been informed by recognition of the city-state's precarious geographical position. While this may be acutely true in the case of finance – neighbouring Hong Kong has also set out to develop an offshore ILS hub (Lim et al. 2020) – it also broadly applies to the future of the resource-constrained island nation. Singapore relies on neighbouring nations for many essential inputs, including water, food, and labour. The expansion of Singapore's advanced producer services economy also hinges on the continued political and economic stability of neighbouring countries, given that a significant share of regional economic activities and investments are underwritten by Singaporean enterprises or coordinated by Singapore-based financial institutions (Olds & Yeung 2004). In this context, the economic regionalisation goals of Singapore are intimately linked with anxieties about state security (Lee 2001; compare with Grove 2012).

The expansion of Singapore's re/insurance centre aims to sustain these transnational and intra-regional ties in the face of catastrophic disruption due to climate risk. Parallel to efforts to draw ILS issuance and investment through Singapore, the state and re/insurance institutions have co-sponsored research on regional catastrophe risk modelling at Singapore universities (Interview 2020-D). At the same time, the Singapore government is a host of (and investor in) the Southeast Asia Disaster Risk Insurance Facility (SEADRIF), a World Bank-driven sovereign risk pool which aims to raise risk capital on behalf of ASEAN nations without established retail insurance markets. The opportunistic decision to grow Singapore's catastrophe re/insurance capacities by

leveraging ILS issuance drawn from Florida hurricane wind risk and beyond can therefore also be understood as a project which seeks to secure Southeast Asia's economic trajectory against catastrophic disruptions – and Singapore's advantageous if fragile position therein.

Discussion: Mapping headwinds on the horizon

Florida and Singapore constitute, and in many ways are constituted through, urban geographies of hurricane wind re/insurance exchange. The Florida-Singapore ILS case illuminates how re/insurance markets emerge and expand through disparate yet interwoven ecological, political, and economic dynamics within and between geographies. While Florida continues to serve as an industry-defining source of insured wind risk to be marketised or otherwise managed through re/insurance, Singapore has emerged as a key centre for brokering such risk for new investors, as part of a broader strategy of financialised regional catastrophe risk management (see Grove 2012). Actors operating within and between each context cultivate re/insurance in response to a plurality of 'headwinds' on the horizon, ranging from anxieties about the insurability of growing property catastrophe risk exposure and the search for a safe haven for collateral-seeking capital, to the need to pre-emptively secure particular regional and sectoral relations against destabilisation-by-disaster. While questions about the long-term insurability of particular assets, places, or perils are among the existential headwinds facing re/insurers, so too does this sector remain a powerful force when it comes to defining and managing unruly climate uncertainties through finance.

Continued relational analysis of re/insurance markets is vital to our understanding of the broader geographies of climate governance. As a gesture towards this open-ended project, this concluding discussion proposes three analytical focal points for such a relational approach, in dialogue with the Florida-Singapore ILS case. First, the case reiterates how *circulations of tools and techniques* work to secure or extend re/insurance geographies. Insurance-linked securities and the catastrophe risk models used to marketise risks therein, play a constitutive role in the Florida-Singapore ILS case, yet their origin, adoption, and adaptation by the industry remain rooted in specific geographical sites and practices (Jarzabkowski et al. 2015; Taylor & Weinkle 2020). Although catastrophe risk models are integral to contemporary actuarial practice, their initial take-up was closely linked with efforts to address the particular challenges of predicting and pricing low probability, high-value catastrophic loss events, and Florida hurricanes in particular. Models must be continually adapted to enable their deployment across new regions and perils, coevolving with industry investments in data-capture and synthesis to tap (or induce) new market demand, advancements in scientific understandings of particular risks, and changing non-financial stakeholder perceptions of the value and usefulness of risk models. In Singapore,

state and re/insurance industry figures are co-sponsors of scientific research which seeks to translate risk science and existing actuarial capacities to the valuation of perils in Southeast Asia. A history of ILS and its uses could be drawn along similar lines, as instruments have been developed in relation to underwriting capitalisation issues in troublesome submarkets like Florida, and in turn retooled to fund a wide variety of insured perils, including those beyond the horizons of natural disaster risk. Continued attention to the contexts in which actuarial technologies are assembled, adapted, or abandoned can provide a fruitful line of analysis for understanding re/insurance market transformation.

The case also underscores how the analysis of *risk capital flows* helps to reveal where, why, and how re/insurers shape urban-material ties and 'socialities' (Christophers et al. 2020) within and between places and actors. First Coast Re and other ILS organise geographically disparate risks and capital flows to serve multiple if contingent political and economic goals. ILS provides a means through which the industry markets insured risk as an asset class accessible to investors seeking new horizons of risk and return not correlated with the broader economy. Not only do alternative reinsurance products open up a new horizon of accumulation for investors, they also enable financial services firms to capture economic value from risk management services, like brokering and modelling, the activities and capital flows of which undergird international financial centres such as Singapore and London. At the same time, ILS represents a promise to pay to insurers and their policyholders, the confidence in which underwrites a broader range of financial and non-financial activities. From employment to public sector fiscal capacity, Florida's real estate-driven political economy depends on access to re/insurance risk capital. Following risk capital flows through market geographies reveals crucial points of tangency and logics of interdependency between insurance and other political-economic dynamics, which can illuminate the structural importance as well as potential limits of re/insurance within specific geographies. For example, Taylor's (2020) analysis of ILS flows in Florida illuminates the state's expensive reliance on risk capital markets, opening up questions about the array of (extra-) economic values selectively re/produced through re/insurance (Elliott 2021) and the variegated links between finance, property catastrophe exposure, and urban restructuring (Taylor & Aalbers 2022).

As scholars of financialisation have long argued, attention to *shifting state engagement* also sheds light on the geographical presences, absences, and varying public purposes of re/insurance markets. Mainstream insurance scholars and market advocates have at times conceptualised re/insurance using a false binary between the state and market (Taylor & Weinkle 2020), which obscures our understanding of the role of public regulations, investments, and other activities in shaping – or even creating and destroying – the contours of re/insurance markets. The Florida and Singapore contexts reveal multiple examples of entrepreneurial forms of state intervention in support

of the construction of local re/insurance markets, which underpin distinctive urban political-economic projects. Florida's Citizens Property Insurance Corporation has been among the most prolific catastrophe bond issuers in recent years (Table 11.1). Public insurers in Louisiana and Texas are also among early issuers in Singapore (Table 11.2). Beyond issuing ILS, Florida state agencies invest in the market, and shape private insurer demand for reinsurance through regulations, subsidies, and guarantees, as part of a broader play to secure its housing- and property development-driven political economy (Taylor 2020). Similarly, the Singapore government maintains a grant scheme for ILS market entrants, which offsets the costs of preparing a new issuance. The case also highlights indirect forms of state-firm collaboration and intervention, like public-private partnerships which sponsor risk-related scientific research in Singapore, or state-sanctioned real estate growth strategies which reproduce a structural market for re/insurance in Florida. While states actively seek to extend re/insurance markets to further particular policy outcomes, it is important to recognise that inherited public policies, enduring path dependencies, and evolving state capacities can also normalise or otherwise enable specific re/insurance market patterns and logics. How, then, do these patterns of statecraft shape how, where, and when urban geographies come to be entangled with re/insurance? And how might they be repurposed to confront emerging dilemmas raised by climate disruptions?

These three focal points – circulations of tools and techniques, risk capital flows, and shifting state engagement – seek to populate a critical imagination for how we might continue to trace the evolving project of re/insurance within and between urban geographies, in the face of complex headwinds on the horizon. Insofar as these risk underwriting institutions increasingly govern diverse configurations of ecological, economic, and political contingencies against climate uncertainties through the universalising rubrics and rationalities of finance, so too must they be understood to be simultaneously provincial and cosmopolitan, contingent yet interdependent, powerful yet malleable.

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Notes

1 Re/insurance is shorthand for the insurance and reinsurance market. Reinsurance is a form of insurance for insurers.
2 While ILS refers to a specific subset of insurance-based financial instruments, it also signals a larger universe of 'alternative capital' arrangements within the re/insurance industry.
3 Hurricanes in the Atlantic Basin are categorised by wind speed along the Saffir-Simpson Scale: Category 1 (74–95 mph, 119–153 km/h), Category 2 (96–110 mph, 154–177 km/h), Category 3 (111–129 mph, 178–208 km/h), Category 4 (130–156 mph, 209– 251 km/h), Category 5 (≥157 mph, ≥252 km/h). Categories 3-5 storms are classified as 'major.'

References

Aon Benfield 2020, 'ILS annual report 2020', *Alternative Capital: Growth Potential and Resilience*, Chicago: Aon Benfield.

Audirac, I, Shermyen, A & Smith, M 1990, 'Ideal urban form and visions of the good life: Florida's growth management dilemma', *Journal of the American Planning Association*, vol. 56, no. 4, pp. 470–482.

Bernard, R & Rice, B 1983, *Sunbelt Cities: Politics and Growth since World War II*, Austin: University of Texas Press.

Booth, K 2021, 'Insurance, and the prospects of insurability', In Knox-Hayes, J & Wojcik, D (eds), *The Routledge Handbook of Financial Geography*, London: Routledge.

Catlin, R 1997, *Land Use Planning, Environmental Protection, and Growth Management: The Florida Experience*, Chelsea, MI: Ann Arbor Press.

Christophers, B, Bigger, P & Johnson, L 2020, 'Stretching scales? Risk and sociality in climate finance', *Environment and Planning A*, vol. 52, no. 1, pp. 88–110.

Chua, B.H 2017, *Liberalism Disavowed: Communitarianism and State Capitalism in Singapore*, Singapore: NUS Press.

Dodge, A 2020, The Singaporean natural gas hub: Reassembling global production networks and markets in Asia, *Journal of Economic Geography*, vol. 20, no. 5, pp. 1241–1262.

Elliott, R 2021, *Underwater: Loss, Flood Insurance, and the Moral Economy of Climate Change in the United States*, New York: Columbia University Press.

Fields, D 2018, 'Constructing a new asset class: Property-led financial accumulation after the crisis', *Economic Geography*, vol. 94, no. 2, pp. 118–140.

Florida Office of Insurance Regulation n.d., *Quarterly Supplemental Report – Market Share Report, All Insurers, All Residential Lines, Q4 2018*, <www.apps.fldfs.com/QSRNG/Reports/ReportCriteriaWizard.aspx>.

Grove, K 2012, 'Pre-empting the next disaster: Catastrophe insurance and the financialization of disaster management', *Security Dialogue*, vol. 43, no. 2, pp. 139–155.

Haila, A 2016, *Urban Land Rent: Singapore as a Property State*, Chichester, UK: John Wiley & Sons Ltd.

Jarzabkowski, P, Bednarek, R & Spee, P 2015, *Making a Market for Acts of God: The Practice of Risk Trading in the Global Reinsurance Industry*, Oxford: Oxford University Press

Johnson, L, 2013, 'Catastrophe bonds and financial risk: Securing capital and rule through contingency', *Geoforum*, vol. 45, pp. 30–40.

Johnson, L 2014, 'Geographies of securitised catastrophe risk and the implications of climate change', *Economic Geography*, vol. 90, no. 2, pp. 155–185.

Johnson, L 2021, 'Rescaling index insurance for climate and development in Africa', *Economy & Society*, vol. 50, no. 2, pp. 248–274.

Lai, K 2018, Singapore: Connecting Asian markets with global finance In Cassis, Y & Wójcik, D (eds.) *International Financial Centres: After the Global Financial Crisis and Brexit*, Oxford: Oxford University Press.

Lai, K & Samers, M 2017, 'Conceptualizing Islamic banking and finance: A comparison of its development and governance in Malaysia and Singapore', *The Pacific Review*, vol. 30, no. 3, pp. 405–424.

Lee, W 2001, 'Economic restructuring in Singapore: A reflection on regional security in Southeast Asia', *Asian Affairs: An American Review*, vol. 27, no. 4, pp. 211–221.

Lim, T.L, Spitzer, R & Yi, J.W.U 2020, Hong Kong on the Verge of Launching an ILS Regime, *Mayer Brown*, May 11.

London Market Group 2020, *London Matters 2020 Annual Report*, London: London Market Group.

Medders, L, Nyce, C & Karl, J 2013, 'Market implications of public policy interventions: The case of Florida's property insurance market', *Risk Management and Insurance Review*, vol. 17, no. 2, pp. 183–214.

Monetary Authority of Singapore, n.d. *2018 Insurance Data, Table AG 10: Gross Premiums of Offshore Insurance Fund Business by Line*, Retrieved online, viewed 18 December 2020, <www.mas.gov.sg/statistics/insurance-statistics/annual-statistics/insurance-statistics-2018>.

Monetary Authority of Singapore 2019, *Keynote Address by Ms Indranee Rajah, Minister in the Prime Minister's Office and Second Minister for Finance and Education at the 16th Singapore International Reinsurance Conference* (SIRC), 30 October 2019, viewed 18 December 2020, <www.mas.gov.sg/news/speeches/2019/keynote-address-by-ms-indranee-rajah>.

Monetary Authority of Singapore 2020, *Gearing Up for New and Evolving Jobs in Financial Services*, Remarks by Mr Ravi Menon, Managing Director, Monetary Authority of Singapore, at 'Growing Timber' MAS-IBF Webinar Series on 26 November 2020, viewed 18 December 2020, <www.mas.gov.sg/news/speeches/2020/gearing-up-for-new-and-evolving-jobs-in-financial-services>.

Olds, K & Yeung, H 2004, 'Pathways to global city formation: A view from the developmental city-state of Singapore', *Review of International Political Economy*, vol. 11, no. 3, pp. 489–521.

Schwartz, M & Linkin, M 2017, *Hurricane Andrew: The 20 Miles that Saved Miami, Armonk, USA*, Swiss Reinsurance Company.

Seo, J 2015, *Statement before the US Department of Treasury*, Federal Advisory Committee on Insurance Hearing, 4 November, <www.yorkcast.com/treasury/events/2015/11/04/faci/part-2>.

Taylor, Z 2020, 'The real estate risk fix: Insurance-linked securitization in the Florida Metropolis', *Environment and Planning A*, vol. 52, no. 6, pp. 1131–1149.

Taylor, Z & Aalbers, M. 2022, 'Climate gentrification: Risk, rent and restructuring in Greater Miami', *Annals of the American Association of Geographers*, DOI: 10.1080/24694452.2021.2000358

Taylor, Z & Weinkle, J 2020, 'The riskscapes of re/insurance', *Cambridge Journal of Regions, Economy and Society*, vol. 13, no. 2, pp. 405–422.