

PRODUCT INTERVENTION AS A MACROPRUDENTIAL TOOL: THE CASE OF CATASTROPHE BONDS

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ABSTRACT

One effect of the financial crisis of 2007-2009 was to jump-start a focus on macroprudential supervision, a supervisory approach which adopts a bird's-eye view in assessing and addressing systemic threats to financial stability. In addition to the threats to the financial system posed by the financial reach and exposure of large systemically relevant corporations, threats can also come from broader financial activity such as the design and distribution of innovative financial products within financial markets. Thus, product intervention powers may be useful in the future to financial supervisors attempting to address systemic risk deriving from financial innovation and growth. The utility of product intervention can be demonstrated by using the catastrophe bond markets as a case study.

Extreme climate-related events are increasing in magnitude and frequency as a result of climate change and consequent losses are likewise increasing. The need to transfer these risks is leading to a growth in demand for insurance and the demand is beginning to exceed the capacity of traditional insurance and reinsurance. This has led to a type of beneficial financial innovation—the creation of instruments which transfer these catastrophe risks to the capital markets. The prevalence of catastrophe bonds in the financial markets is therefore growing, with the number of issues increasing steadily year-on-year. On the back of this, a number of catastrophe-linked derivatives are beginning to be traded in the markets. This Article argues that a number of features of the design and distribution of these financial instruments may render them systemically relevant in the future. This is so particularly in view of the potential for significant common exposures to develop, which, should

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widespread and significant losses occur, may engender panic in the financial markets. It also argues that the right way to address these systemic risks may be through the exercise of product intervention powers rather than by other regulatory means. Accordingly, this Article assesses the extent to which such powers, derived from the laws of the United Kingdom and the European Union, can be exercised for the achievement of macroprudential goals. More broadly, it analyzes what lessons can be learned from this case study about product intervention as a macroprudential tool to prevent or mitigate the build-up of systemic risk to financial stability.

I. INTRODUCTION

One effect of the financial crisis of 2007-2009 was to jump-start a focus on macroprudential supervision, a supervisory approach which adopts a bird's-eye view in assessing and addressing systemic threats to financial stability.¹ While a major task following the crisis was to end “too-big-to-fail,”² threats to the financial system may derive not just from the financial reach and exposure of large systemically relevant corporations, but also from broader financial activity such as the design, distribution, and prevalence of innovative financial products within financial markets. Thus, the massive increase in securitization activity leading to the issuance of asset-backed securities between 2000 and 2007 was a significant driver of the systemic problems which followed.³

In this Article, we assert that product-focused supervisory tools developed in Europe following the financial crisis, termed product

1. See MARKUS BRUNNERMEIER ET AL., THE FUNDAMENTAL PRINCIPLES OF FINANCIAL REGULATION xv, 1, 40 (June 2009), <https://www.princeton.edu/~markus/research/papers/Geneva11.pdf> [<https://perma.cc/UN8Q-MTB9>]; BANK OF ENGLAND, THE ROLE OF MACROPRUDENTIAL POLICY 3 (2009), <https://www.bankofengland.co.uk/-/media/boe/files/paper/2009/the-role-of-macroprudential-policy.pdf> [<https://perma.cc/WMP2-XWQ8>]; GROUP OF THIRTY (G30), ENHANCING FINANCIAL STABILITY AND RESILIENCE, MACROPRUDENTIAL POLICY, TOOLS, AND SYSTEMS FOR THE FUTURE 13 (October 2010), http://group30.org/images/uploads/publications/G30_EnhancingFinancialStabilityResilience.pdf [<https://perma.cc/XCL9-JKVP>]; KENNETH FRENCH ET AL., THE SQUAM LAKE REPORT: FIXING THE FINANCIAL SYSTEM 5 (2010); Samuel G. Hanson et al., *A Macroprudential Approach to Financial Regulation*, 25 J. ECON. PERSP. 3, 3-4 (2011); Dirk Schoenmaker & Peter Wierts, *Macroprudential Policy: The Need for a Coherent Policy Framework* 1 (Duisenberg School of Finance, Policy Paper No. 13, 2011), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1876595 [<https://perma.cc/43KC-MBDN>].

2. Arthur E. Wilmarth, Jr., *The Dodd-Frank Act: A Flawed and Inadequate Response to the Too-Big-To-Fail Problem*, 89 OREGON L. REV. 951, 954 (2011).

3. See, e.g., Eric Tymoigne, *Securitization, Deregulation, Economic Stability, and Financial Crisis. Part II: Deregulation, the Financial Crisis, and Policy Implications* 15 (The Levy Economics Institute of Bard College, Working Paper No. 573.2, 2009) and Jeremy C. Stein, *Securitization, Shadow Banking, and Financial Fragility*, 139 (4) DAEDALUS 41, 41 (2010), <https://scholar.harvard.edu/files/stein/files/daedalus-sept-2010-final.pdf> [<https://perma.cc/AN2Z-RE6R>].

intervention powers, will be useful to financial supervisors attempting to address systemic risk caused by financial innovation and growth. This is because product intervention powers permit a supervisor to impose restrictions on the design, use, terms or marketing of financial products. We demonstrate the benefits of product intervention powers by using the catastrophe bond (cat bond) markets as a case study. We explore the reasons for which these markets may expand rapidly in the future, how they might become a source of systemic risk, and how product intervention powers may serve in the hands of regulators to address these risks in an efficient and timely manner.

This Article uses the cat bond markets because, as a result of climate change,⁴ the magnitude and frequency of extreme climate-related events are increasing, as are the consequent losses, including the costs of recovery, repair, and reinstatement after such events.⁵ Thus, the desire to transfer these risks is leading to an increased demand for insurance.⁶ However, the demand is beginning to exceed the capacity of traditional insurance and reinsurance.⁷ This has given rise to growth in a type of beneficial financial innovation—the creation of instruments which transfer these risks to the capital markets.⁸ One such product the prevalence of which in the financial markets is growing is the cat bond, a type of insur-

4. See Ruby Russell, *Climate Change and Extreme Weather: Science is Proving the Link*, DEUTSCHE WELLE, (Apr. 11, 2018) <https://www.dw.com/en/climate-change-and-extreme-weather-science-is-proving-the-link/a-43323706> [<https://perma.cc/2RUZ-BCPM>]. See also *Mapped: How Climate Change Affects Extreme Weather Around the World*, CARBON BRIEF (July 16, 2017), <https://www.carbonbrief.org/mapped-how-climate-change-affects-extreme-weather-around-the-world> (detailing a map of multiple academic studies attributing extreme weather to climate change) [<https://perma.cc/Q7RB-T62U>].

5. See Ralf Toumi & Lauren Restell, *Catastrophe Modelling and Climate Change*, LLOYDS 5, 21 (2014), <https://www.lloyds.com/news-and-risk-insight/risk-reports/library/natural-environment/catastrophe-modelling-and-climate-change> [<https://perma.cc/3PJX-4KPL>].

6. See Robert Myers, *Impact of Natural Catastrophes on Insurance Market*, INS. J., Nov. 20, 2017, at 1–2, <https://www.insurancejournal.com/magazines/mag-features/2017/11/20/471204.htm>. See also *infra* Section II.B.2 (discussing the World Bank MultiCat program) [<https://perma.cc/VPN5-L2KT>].

7. See Vivek J. Bantwal & Howard C. Kunreuther, *A Cat Bond Premium Puzzle?*, J. PSYCHOL. & FIN. MKTS. 1, 1 (2000); Rainer Helfenstein & Thomas Holzheu, 7 SWISS REINSURANCE INST. 3 (2006), *Securitization – New Opportunities for Insurers and Investors*, http://www.researchgate.net/publication/316583575_Securitization_new_opportunities_for_insurers_and_investors [<https://perma.cc/E2H5-7CPU>].

8. Helfenstein & Holzheu, *supra* note 7, at 5. See also *Issues Paper on Index Based Insurances*, INT’L ASS’N OF INS. SUPERVISORS (IAIS) (Nov. 16, 2017), <https://www.iaisweb.org/page/consultations/closed-consultations/2018/draft-issues-paper-on-index-based-insurances/file/70237/draft-issues-paper-on-index-based-insurances> (discussing the ability of index-based insurance to reduce underwriting and claims assessment costs, and to make the claims settlement process quicker and more objective, thus reducing the barriers to

ance-linked security (ILS).⁹ Its popularity with investors is due to its relatively high yield and its low correlation with other asset classes.¹⁰ Its growing commoditization through the use of risk-modeling and parametric indices, which increases transparency, may also make it more attractive.¹¹ There are also further innovations leading to derivative products in the cat bond market that are being proposed¹² and it is also possible to issue catastrophe-linked (cat-linked) futures, swaps, and options. If these instruments are used for speculation, rather than for the genuine transfer of risk, this innovation may eventually develop the potential for the financial impact of catastrophic events to be exponentially multiplied.¹³ Indeed, a number of design and distribution features of these financial instruments may in the future render them systemically relevant, particularly in view of the potential for significant common exposures to develop, which, should widespread and significant losses occur, may engender panic in the financial markets.¹⁴

Due to the fact that cat bonds to date remain a relatively niche product, they have not so far featured in any systemically significant market activity. However, investor reactions to the Alberta Wildfires of 2016¹⁵ and to the Harvey¹⁶ and Irma¹⁷ Hurricanes in

providing effective and affordable insurance and closing the insurance gap) [<https://perma.cc/8LWL-NF2U>].

9. See *infra* Figure 1.

10. See National Association of Insurance Commissioners, *Insurance-Linked Securities: Catastrophe Bonds, Sidecars and Life Insurance Securitization*, CTR. FOR INS. POL'Y & RES. (Dec. 6, 2018), https://www.naic.org/cipr_topics/topic_insurance_linked_securities.htm [<https://perma.cc/FW24-FP9M>].

11. See RISK MANAGEMENT SOLUTIONS, CAT BONDS DEMYSTIFIED: RMS GUIDE TO THE ASSET CLASS 5 (2012), http://forms2.rms.com/rs/729-DJX-565/images/cm_cat_bonds_demystified.pdf (last visited July 20, 2016) [<https://perma.cc/BXW7-6EET>]. See also *infra* Section II.B.4.

12. See, e.g., Krzysztof Burnecki et al., *Valuation of Contingent Convertible Catastrophe Bonds - The Case for Equity Conversion*, CORNELL U. LIBR. 1, 2–3 (Apr. 21, 2018) <https://arxiv.org/abs/1804.07997v1> (proposing contingent convertible catastrophe bonds (CoCOCat)) [<https://perma.cc/CNW5-9YBD>].

13. See *infra* Section II.B.4.

14. See *infra* Section II.B.

15. See *Fort McMurray Wildfire Insurance Loss Up Slightly to C\$4.7bn: PCS*, ARTEMIS (Aug. 17, 2016) <https://www.artemis.bm/news/fort-mcmurray-wildfire-insurance-loss-up-slightly-to-c4-7bn-pcs/> [<https://perma.cc/72PZ-VQ2S>]; *ILS Fund & Sidecar Losses Likely Ahead of Plan in 2016: Panelists*, ARTEMIS (July 8, 2016), <http://www.artemis.bm/blog/2016/07/08/ils-fund-sidecar-losses-likely-ahead-of-plan-in-2016-panelists/> [<https://perma.cc/P3WF-UGEW>].

16. See *Cat Bond Market Drops on Harvey, Close Shave for Fonden 2017 Deal?*, ARTEMIS (Aug. 28, 2017), <http://www.artemis.bm/blog/2017/08/28/cat-bond-market-drops-on-harvey-close-shave-for-fonden-multicat-deal/> (referencing “an investor offloading their stake in these bonds in case of a loss”) [<https://perma.cc/KE2E-2BB6>].

August and September of 2017 demonstrate the kind of impact more widespread holdings and extensive exposures could have. In particular, even before Hurricane Irma struck Florida, “[t]he Swiss Re catastrophe bond price return index suffered its biggest drop since at least 2002, tumbling 16 per cent . . . from the previous week.”¹⁸ These impacts could be even worse should a “black swan”¹⁹ natural catastrophe occur.

The rest of the Article is in four Sections. Section II gives an overview of ILS and cat bonds as products of securitization activity, including an explanation of the structure and triggers of the latter. Section II then argues that the design and distribution of cat bonds may make them systemically significant in the future and that macroprudential supervisors who fail to monitor trends and developments in this market do so at their peril. Section III explains product intervention powers and the reasons why they may be a good option for addressing systemic risks deriving from the design and distribution of cat bonds. Section IV evaluates the product intervention powers at the disposal of the United Kingdom (U.K.) financial regulatory authorities under current law and assesses the extent to which these powers may be used for macroprudential purposes. Section V concludes.

While adopting cat bonds as a financial product case study and focusing mainly on the powers currently available to the U.K. regulator for evaluative purposes, this Article also points to wider implications for macroprudential supervision. It does so by giving an example of products which may at present be non-systemic but which have the potential to become so in the future, and by analyzing how new regulatory powers may be harnessed to address dangerous trends as they are identified. In summary, this Article represents a case study of how macroprudential supervisors may be innovative in achieving their mandates.

17. See Eric Platt & Nicole Bullock, *Investors in Catastrophe Bonds Flee Irma Fury*, FINANCIAL TIMES (Sept. 8, 2017), <https://www.ft.com/content/c3e7b8cc-9429-11e7-bdfa-eda243196c2c> [<https://perma.cc/JC3F-B5SE>].

18. *Id.*

19. See NASSIM NICHOLAS TALEB, *THE BLACK SWAN: THE IMPACT OF THE HIGHLY IMPROBABLE* xvii-xix (1st ed. 2007).

II. BACKGROUND

A. ILS and Cat Bonds

ILS are an alternative to traditional reinsurance, a device for alternative risk transfer (ART).²⁰ In traditional reinsurance, an underwriter of reinsurance agrees to pay specified types and amounts of underwriting loss incurred by an insurer in return for a premium.²¹ This results in the insurer “laying off” the risk to the reinsurer.²² The reinsurance contract may be facultative in that it covers an individual risk exposure or a treaty, which covers multiple risk exposures.²³ By contrast, when ILS are issued, risk originating in the insurance market is transferred to the capital markets.²⁴ ART products are typically collateralized by the capital from investors.²⁵ Typical investors in such products are hedge funds and pension funds.²⁶ ILS are rated for risk of default by credit rating agencies.²⁷ They pay periodic coupons to investors, which consist of a risk-free return plus a spread that depends on the risk of default and market conditions at time of issue.²⁸ The principal is at risk following a trigger event.²⁹ There is also a semi-liquid secondary market, which is facilitated by specialist broker-dealers.³⁰ A

20. See Robert P. Hartwig & Claire Wilkinson, *An Overview of the Alternative Risk Transfer Market*, in 26 HANDBOOK OF INTERNATIONAL INSURANCE: BETWEEN GLOBAL DYNAMICS AND LOCAL CONTINGENCIES 925–52 (J. David Cummins & Bertrand Venard eds., Springer 2007), for a comprehensive discussion of the Alternative Risk Transfer concept.

21. For a comprehensive discussion of reinsurance see J. LOWRY ET AL., *INSURANCE LAW: DOCTRINES AND PRINCIPLES*, ch. 17 (Hart 3d ed., 2011).

22. *Id.*

23. *Id.*

24. See HARTWIG & WILKINSON, *supra* note 20, at 926.

25. See Darius Lakdawalla & George Zanjani, *Catastrophe, Reinsurance and the Optimal Collateralization of Risk Transfer*, 79 J. RISK & INS. 449 (2012).

26. See Carl Svaluto Moreolo, *Insurance-Linked Securities: Taking the Market by Storm*, IPE MAG. (March 2016), <https://www.ipe.com/reports/special-reports/insurance-linked-securities/insurance-linked-securities-taking-the-market-by-storm/10012111.article> [<https://perma.cc/HEF8-Z72J>].

27. See, e.g., *Moody's Approach to Rating Catastrophe Bonds: Rating Methodology*, MOODY'S INVESTOR SERVICE (Sept. 20, 2016) https://www.moody.com/researchdocumentcontent/page.aspx?docid=PBS_1040626 (last visited Sept. 23, 2018) [Permalink unavailable].

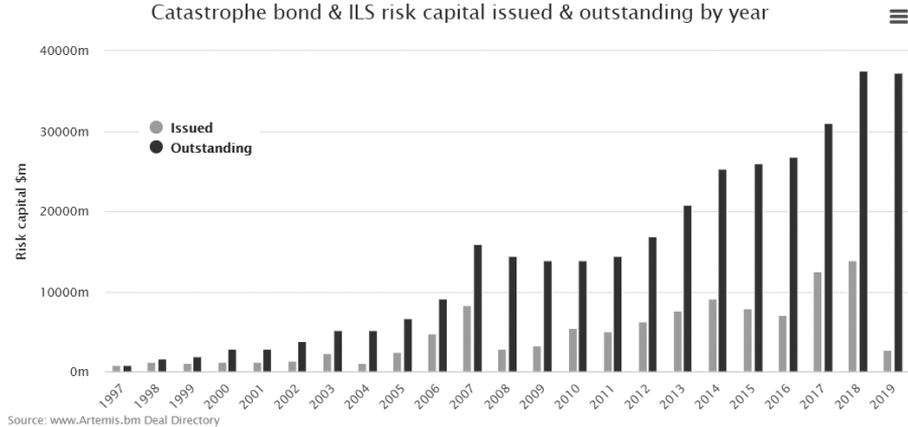
28. See *Introduction to Insurance Linked Securities*, INSURANCELINKED, <https://insurance-linked.com/fundamentals/introduction-to-insurance-linked-securities/> (last visited Dec. 18, 2018) [<https://perma.cc/CP8F-F8J6>].

29. See *id.* On the other hand, if a trigger event does not occur, the premium is returned. See Maria José Pérez-Fructuoso, *Modeling Loss Index Triggers for Catastrophe (Cat) Bonds: An Alternative Continuous Approach*, 6.2 HARV. DEUSTO BUS. RES. 84, 90 (2017).

30. See RISK MANAGEMENT SOLUTIONS, *supra* note 11, at 8. See also *Unusual Levels of CAT Bond Trading Recorded on TRACE*, ARTEMIS (Nov. 22, 2017) <http://www.artemis.bm/blog/2017/11/22/unusual-levels-of-cat-bond-trading-recorded-on-trace/> (“The secondary market for catastrophe bonds is relatively liquid”) [<https://perma.cc/PEM8-428V>].

large proportion of the ILS market consists of cat bonds, but there are other types which are mainly linked to life risk³¹ (including embedded value securitization, extreme mortality securitization, life settlements securitization, longevity swaps, and reserve funding securitization).³² Very recently, there have been discussions about securitizing cyber risk in the future and the possibilities that it presents.³³ The current size of the ILS market is small but growing steadily as presented in Figure 1 below.

Figure 1
Issued/Outstanding ILS as of the First Quarter of 2019³⁴
Catastrophe bond & ILS risk capital issued & outstanding by year



Source: Artemis

1. Cat Bond Structures

Cat bonds are a popular type of ILS and a means for insurers to transfer the risk of property losses caused by natural catastrophes.³⁵ A cat bond is issued by a sponsor, which usually is an insurer wish-

31. See Svaluto Moreolo, *supra* note 26.

32. See Helfenstein & Holzheu, *supra* note 7, at 3, 8, 11, 24.

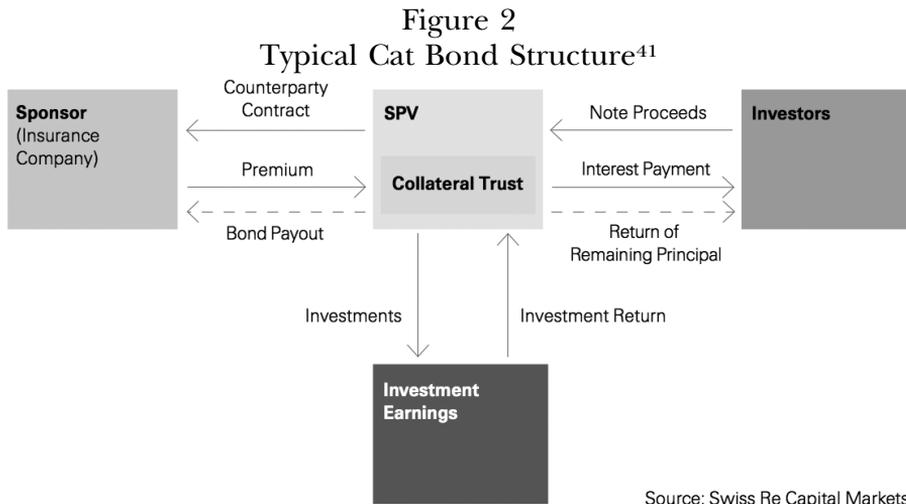
33. See *Capital Markets a Natural Fit for Cyber Risks, as Evidenced by WannaCry*, ARTEMIS (May 18, 2017), <http://www.artemis.bm/blog/2017/05/18/capital-markets-a-natural-fit-for-cyber-risks-as-evidenced-by-wannacry/> [<https://perma.cc/Z5H3-KTE4>]; Rodrigo Amaral, *Cyber Risks and ILS*, RISK & INS. (Oct. 15, 2016), <http://riskandinsurance.com/cyber-risks-ils/> [<https://perma.cc/2UCM-NN9Y>]; PAUL TRAYNOR ET AL., BNY MELLON, INSURANCE LINKED SECURITIES: CYBER RISK, INSURERS AND THE CAPITAL MARKETS (Apr. 2016) https://www.bnymellon.com/emea/en/_locale-assets/pdf/our-thinking/insurance-linked-securities-cyber-risk-insurers-and-the-capital-markets.pdf [<https://perma.cc/SP7H-YH7G>].

34. *Catastrophe Bond and ILS Issued and Outstanding by Year*, ARTEMIS, http://www.artemis.bm/deal_directory/cat_bonds_ils_issued_outstanding.html (last visited Apr. 24, 2019) [<https://perma.cc/6T6J-G5ZE>].

35. See Svaluto Moreolo, *supra* note 26.

ing to transfer risks that exceed its carrying capacity. Figure 2 below gives a visual representation of a typical cat bond structure.³⁶

In a cat bond, the sponsor transfers premiums to a special purpose vehicle (SPV) to which the risk is contractually being transferred.³⁷ The SPV issues the bonds and receives the capital from the bond-buying investors.³⁸ This capital is held in a collateral trust and invested in typically triple A-rated, low-risk securities.³⁹ The coupon paid to investors derives from the premium paid by the sponsor to the SPV as well as the returns from these securities.⁴⁰



Source: Swiss Re, *The Fundamentals of Insurance-Linked Securities*. All rights reserved.

The bonds typically mature in three years and pay a quarterly coupon to investors.⁴² The principal is repaid to the investors in full upon maturity if no triggering event occurs.⁴³ On the other hand, if a triggering event occurs, the principal will be forfeited in

36. See also Geoffrey Etherington & David Kendall, Locke Lord LLP, *What are the Risks of Insurance Linked Securities?*, *Zeitschrift fuer Versicherungswesen* [J. Insurance] 689–690 (Nov. 2013), <https://media.lockelord.com/files/uploads/ClientAdvisories/ZfV-21%20689-690.pdf> (describing typical structures) [<https://perma.cc/VN35-JLQA>].

37. See RISK MANAGEMENT SOLUTIONS, *supra* note 11, at 2.

38. See *id.* at 2.

39. See *id.* at 3. See also Helfenstein & Holzheu, *supra* note 7, at 5.

40. See RISK MANAGEMENT SOLUTIONS, *supra* note 11, at 2.

41. ILS TEAM, SWISS RE, *THE FUNDAMENTALS OF INSURANCE-LINKED SECURITIES* 7 (Katharina Fehr & Josephine Chennell eds., 2011), <https://www.swissre.com/Library/ils-the-fundamentals-of-insurance-linked-securities.html> [<https://perma.cc/U4PE-6SM7>].

42. See RISK MANAGEMENT SOLUTIONS, *supra* note 11, at 2, 6.

43. See *id.* at 2. See also Pérez-Fructuoso, *supra* note 29, at 90.

part or in full and returns will be reduced or will cease entirely for the remaining period until maturity.⁴⁴ Thus, investors assume two risks peculiar to this type of investment. The first is the insured risk that has been transferred to them via the cat bond.⁴⁵ The second is the credit risk of the collateralized account.⁴⁶ The contractual terms governing the bond must therefore provide protection in the form of clear constraints on the way in which the capital may be invested by the SPV.⁴⁷

2. Cat Bond Triggers

There are three main types of trigger events around which cat bonds tend to be designed:⁴⁸ indemnity, industry loss, and parametric.⁴⁹ Where the indemnity type is used, the trigger event is the actual loss by the insurer as a result of the occurrence of the insured peril (i.e., a specified catastrophic event in a specified geographic region for a specified line of business).⁵⁰ This type of bond bears the closest relation to traditional reinsurance by providing full protection to the sponsor.⁵¹ Achieving this result requires an extensive and carefully conceived contractual framework, particularly with regard to loss definitions.⁵² These contractual terms are

44. See RISK MANAGEMENT SOLUTIONS, *supra* note 11, at 2, 7.

45. See *id.* at 3, 6.

46. See RISK MANAGEMENT SOLUTIONS, *supra* note 11, at 3; Etherington & Kendall, *supra* note 36, at 1–2.

47. Cat bonds predating the 2008–2009 financial crisis made use of a total return swap (TRS) counterparty, usually an investment bank. See SECRETARY-GENERAL, ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT (OECD), POLICY ISSUES IN INSURANCE: RISK AWARENESS, CAPITAL MARKETS AND CATASTROPHIC RISKS 108 (OECD Publishing 2011) [hereinafter OECD] (“A TRS converts the interest earned on the collateral investments to a LIBOR or EURIBOR basis, and the swap counterparty assumes the credit risk and the liquidations/spread risk of the underlying assets. . . [T]he swap counterparty guarantees both the LIBOR or EURIBOR based interest rate and the full return of the principal. Thus, principal defaults would occur only if both the counterparty and the collateral defaulted.”). “During the last quarter of 2008 . . . a number of CAT bonds were directly affected by the global crisis due to the loss of their [TRS] counterparty as a result of the failure of Lehman Brothers.” *Id.* In contrast with the pre-crisis cat bonds, “most recent deals impose strict prudential rules on how the collateral is invested, feature daily mark-to-market accounting on the collateral accounts and ‘top-up’ requirements in the event that asset values fall below par.” *Id.* at 106. See also Etherington & Kendall, *supra* note 36, at 690.

48. RISK MANAGEMENT SOLUTIONS, *supra* note 11, at 4. These three main types may be broken down further into six categories: indemnity, industry index, Modeled Industry Trigger Transaction (MITT), pure parametric, parametric index, and modelled loss. See Helfenstein & Holzheu, *supra* note 7, at 6.

49. RISK MANAGEMENT SOLUTIONS, *supra* note 11, at 4.

50. *Id.*

51. See *id.*

52. See *id.*

especially important because information regarding the risk the investors are actually assuming will not be easily accessible to the investor.⁵³ It is likely to be infeasible for investors to fully inform themselves about every risk that is covered by the policy being transferred to the SPV or to judge the quality of the sponsor's underwriting decisions.⁵⁴ In addition, once the trigger event occurs, settlement of claims by the insurer (which determines the loss to be indemnified) is likely to take considerable time, necessitating an extension of the bond beyond maturity, which can be detrimental to insurers.⁵⁵ Finally, this type of cat bond may create the risk of moral hazard on the part of the insurer who may take payout decisions carelessly as the cost of the payout will ultimately be passed on to the cat bond investor.

In an industry loss triggered bond, the investors forfeit the principal on the basis of losses experienced by the insurance industry as a whole following the occurrence of the insured peril.⁵⁶ The loss is established by reference to the total loss experienced by the industry following a natural catastrophe.⁵⁷ This type of bond structure therefore assumes that the sponsor's portfolio is in line with those of the industry in general. If the bond is triggered, the sponsor recovers a percentage of total industry losses.⁵⁸ Although published estimates of industry losses are available at an early stage⁵⁹ and investors have more clarity about the consequences for their investment when a catastrophe occurs, it can still take considerable time for the official loss to be released.⁶⁰ This consideration leads to a comparable potential for delay as for an indemnity cat bond.⁶¹

In a parametric cat bond structure, triggers consist of the physical characteristics of a catastrophic event⁶² such as an earthquake of a certain magnitude or higher within a certain geographical area. In order to determine whether a parametric bond has been

53. *See id.*

54. *See id.*

55. *See id.*

56. *See id.* at 5.

57. *Id.*

58. *Id.*

59. "In the U.S. and Europe, the main accepted providers of insurance industry loss estimates are Property Claims Services (PCS) and PERILS, respectively. Both firms undertake to provide estimates of the total loss experienced by the insurance industry after a major catastrophe. . . . [The] first industry loss estimates from modelling companies are usually available within a couple of weeks after the event." *Id.*

60. *Id.*

61. *Id.*

62. *Id.*

triggered by a catastrophic event or not, the parameters of the event are entered into an index formula.⁶³ The bond is triggered if the resulting index value is above the pre-defined trigger level threshold.⁶⁴ Underlying indices may be “transparently and objectively measured, available at low cost and . . . highly correlated with exposures to be transferred.”⁶⁵ They are prepared by third parties⁶⁶ and are therefore not open to manipulation by the contract parties. The structuring of parametric bonds can also make use of probabilistic catastrophe loss models.⁶⁷ In a parametric bond, the consequences of a catastrophe for investors are determinable immediately after the occurrence of a catastrophe.⁶⁸ Recent reports also suggest that in the future, parametric cat bonds could be designed as “smart contracts” using blockchain (or distributed ledger) technology to accelerate, simplify, and reduce the costs of payment and settlement between insurers and investors.⁶⁹ On the flip side, the insurer might not obtain coverage for its full exposure because compensation does not depend upon the insurer’s actual loss.⁷⁰ This type of bond therefore is not designed to “indemnify” in the pure sense of the word, and correlation must be carefully assessed.

B. Cat Bonds and Systemic Risk

The issuance of cat bonds is an innovative way of packaging and distributing risk and, as such, it is a type of financial innovation.

63. *Id.*

64. *See id.*

65. Sommarat Chantararat et al., *Index-based Risk Financing and Development of Natural Disaster Insurance Programs in Developing Countries* 3 (2012), https://arefiles.ucdavis.edu/uploads/filer_public/2014/03/27/eria_paper_july2012.pdf. *See also* OECD, *supra* note 47, at 143 [<https://perma.cc/TUX9-8QB6>].

66. *See, e.g.*, PCS, *Everything You Need to Know About the PCS Catastrophe Loss Index*, VERISK INS. SOLUTIONS, <https://www.verisk.com/siteassets/media/pcs/pcs-everything-you-need-to-know.pdf> (last visited Dec. 18, 2018) [<https://perma.cc/68AF-Z8CK>]; *Mercury Investible Catastrophe Loss Index (MiCRIX)*, MERCURY CAPITAL, <http://www.mercury-capital.bm/micrix> (last visited Dec. 18, 2018) [<https://perma.cc/68Y4-NNGV>]; *Welcome to CatIQ*, CATIQ INC., <https://www.catiq.com> (last visited Dec. 18, 2018) [<https://perma.cc/4KQA-4KRRK>].

67. *See* Helfenstein & Holzheu, *supra* note 7, at 6.

68. RISK MANAGEMENT SOLUTIONS, *supra* note 11, at 5.

69. *See* Jonathan Gould, *Allianz Expects Blockchain Tech to Expedite Cat Bond Deals*, INS. J. (June 15, 2016) <http://www.insurancejournal.com/news/international/2016/06/15/416971.htm> [<https://perma.cc/793E-2RH4>]. *See also* Miriam Goldby, Chris Reed, Michaela MacDonald, Katie Richards & Lucy Stanbrough, *From Ink to Code: How Smart Contracts bring Policies to Life*, LLOYD’S OF LONDON (forthcoming 2019) (discussing potential uses of smart contracts in the insurance sector, including in parametric insurance).

70. RISK MANAGEMENT SOLUTIONS, *supra* note 11, at 5.

This kind of financial innovation generally involves the emergence of novel financial instruments, new financial services, and new forms of organization in financial intermediation.⁷¹ Financial innovation holds the promise of improving efficiency in financial markets and thus may increase overall economic welfare.⁷² It often allows for better risk sharing and accordingly, has the potential to enhance financial stability.⁷³ More specifically, cat bonds broaden the dispersion of risk across different financial intermediaries and improve risk allocation to capital markets.⁷⁴ Nevertheless, with the emergence of innovative financial products comes the potential for new risks to financial stability. As the growing exposure of capital markets to cat bonds may have important implications for systemic risk, cat bonds and ILS more generally should be subject to macroprudential oversight or surveillance.⁷⁵

The macroprudential perspective focuses on the financial system as a whole as distinct from individual institutions and its objective is to limit the costs to the economy from financial distress.⁷⁶ In other words, it is aimed at limiting the likelihood of failure and the corresponding costs that would be suffered by a significant portion of the financial system. Macroprudential supervision emphasizes that certain actions which may seem reasonable, or even desirable, from the perspective of individual financial institutions may actually weaken system-wide stability and be undesirable.⁷⁷ This tension can be attributed to the fact that risks taken by individual financial

71. Otmar Issing, *Opening Remarks*, in ECB, RISK MEASUREMENT AND SYSTEMIC RISK, FOURTH JOINT CENTRAL BANK RESEARCH CONFERENCE 14, 15 (2007).

72. Roger Ferguson, *Financial Regulation: Seeking the Middle Way*, in ECB, RISK MEASUREMENT AND SYSTEMIC RISK, FOURTH JOINT CENTRAL BANK RESEARCH CONFERENCE 51, 53 (2007).

73. See Gregor N. F. Weiss et al., *Catastrophe Bonds and Systemic Risk* 4 (Discussion Paper, Aug. 20, 2013) https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2313160 [<https://perma.cc/49J8-3FBV>].

74. See Henri Loubergé et al., *Using Catastrophe-Linked Securities to Diversify Insurance Risk: A Financial Analysis of Cat Bonds*, 22.2 J. INS. ISSUES, 125, 128 (1999).

75. See Miriam Goldby & Anat Keller, *Oversight of Systemically Relevant Insurance Practices Within the EU: The Role Of Macro-Prudential Supervision*, in SYSTEMIC RISK AND THE FUTURE OF INSURANCE REGULATION 65, 71–72 (Andromachi Georgosouli & Miriam Goldby eds., 2016). See also OECD, *supra* note 47, at 155 §§ 9.1.c–d (detailing ways the government can manage CAT risks and losses).

76. See JACQUES DE LAROSIÈRE, THE DE LAROSIÈRE GROUP, THE HIGH LEVEL GROUP ON FINANCIAL SUPERVISION IN THE EU 38 ¶ 147, (2009), http://ec.europa.eu/economy_finance/publications/pages/publication14527_en.pdf [hereinafter de Larosière Report] [<https://perma.cc/DG94-NGKC>]; Samuel G. Hanson, et al., *A Macroprudential Approach to Financial Regulation*, 25 J. ECON. PERSPECTIVES 3, 3 (2011); Schoenmaker & Wierts, *supra* note 1, at 1.

77. See BRUNNERMEIER ET AL., *supra* note 1, at xv, 6 (naming this phenomenon “fallacy of composition”).

institutions may be ultimately borne by the system as a whole (i.e., they create externalities).⁷⁸

The potential for these externalities to arise is evident in the context of cat bonds where the risk originating in the insurance market is transferred to capital markets. Whilst cat bonds are important products that enable insurers to manage their risk more efficiently, the potential negative externalities would be borne by the financial system as a whole and ultimately could have a negative impact on the real economy.⁷⁹ These externalities could emerge through the enhanced interconnectedness between the insurance sector, capital markets, and other financial and sovereign entities because such interconnectedness could lead to contagion when a trigger event materializes or an SPV defaults.⁸⁰ The externalities could also emerge through the market channel if, for example, following a trigger event which affects the value of the bonds, fire sales occur and there is a sudden price drop in the secondary market.⁸¹ This could in itself result in disruption in the market or significant losses.

Macroprudential supervisors may find themselves between the hammer and the anvil. On the one hand, they would want to encourage financial innovation that increases social welfare and economic growth and avoid overregulation that would stifle financial activity. On the other hand, given the potential systemic risk implications of innovative financial products, the macroprudential supervisor may want to impose limitations on the design and use of these products. But is the cat bonds market considered a systemically important market?

The report submitted to the G20 Finance Ministers and Central Bank Governors in October 2009 by the International Monetary Fund, Bank for International Settlements, and the Financial Stability Board (Report) sets out three key criteria for assessing the systemic importance of financial institutions and financial markets

78. *Id.* at xi; GIANNI DE NICOLO ET AL., EXTERNALITIES AND MACROPRUDENTIAL POLICY, IMF 7 (Staff Discussion Note, 2012) <https://www.imf.org/external/pubs/ft/sdn/2012/sdn1205.pdf> [<https://perma.cc/CCH5-TT6Z>].

79. See BRUNNERMEIER ET AL., *supra* note 1, at 4–6. See also Oliver de Bandt & Philip Hartmann, *Systemic Risk: A Survey* 10 (Eur. Cent. Bank, Working Paper No. 35, 2000) <https://www.ecb.europa.eu/pub/pdf/scpwps/ecbwp035.pdf> (for general discussion of systemic risk) [<https://perma.cc/5LPW-EPK6>].

80. See de Nicolo et al., *supra* note 78, at 4–5.

81. See Andrei Shleifer & Robert W. Vishny, *Fire Sales in Finance and Macroeconomics* 2 (Nat'l Bureau of Econ. Res., Working Paper No. 16642, 2010) (regarding the occurrence and effects of fire sales).

and instruments: size, interconnectedness and substitutability.⁸² The Report defines systemic risk as a risk of disruption to financial services that is (i) caused by an impairment of all or parts of the financial system and (ii) has the potential to have serious negative consequences for the real economy.⁸³ The size criterion refers to the volume of financial services provided by the individual component of the financial system.⁸⁴ Substitutability refers to the extent to which other components of the system can provide the same services in the event of a failure.⁸⁵ Interconnectedness refers to the linkages with other components of the system.⁸⁶

According to the Report, “[f]or markets, assessing systemic importance presents more conceptual challenges.”⁸⁷ The Report notes that while the systemic importance of a market derives to some extent from participating institutions, “the size of a market is a determinant of potential economic costs in case of malfunction”⁸⁸ and that “if the function of a stressed market cannot be replicated by other mechanisms, the economic impact can be significant.”⁸⁹ Interconnectedness refers not only to markets’ interdependence on institutions but also to their interdependence on each other.⁹⁰

The Report suggests that an assessment based on the three criteria of size, interconnectedness, and substitutability “should be complemented with reference to financial vulnerabilities and the capacity of the institutional framework to deal with financial failures.”⁹¹ Complexity is listed as a potential source of vulnerability and should be taken into account when assessing the systemic importance of cat bonds.⁹² In particular, where the complexity of cat bonds is associated with a lack of transparency, it could bring about difficulties in understanding the exposures involved and the

82. See IMF, Bank for Int'l Settlements & Fin. Stability Bd., *Guidance to Assess the Systemic Importance of Financial Institutions, Markets and Instruments: Initial Considerations*, Report to the G-20 Finance Ministers and Central Bank Governors, at 2 (Oct. 28, 2009), <https://www.imf.org/external/np/g20/pdf/100109.pdf> (hereinafter IMF/BIS/FSB 2009 Report) [<https://perma.cc/5PBV-GP3W>].

83. *Id.*

84. *Id.* at 15.

85. *Id.* at 9.

86. *Id.*

87. *Id.* at 3.

88. *Id.*

89. *Id.*

90. *Id.*

91. *Id.*

92. *Id.* at 13.

potential magnification of information asymmetries in the case of a systemic event.⁹³

The question arises, to what extent do these criteria apply to cat bonds? A comprehensive analysis of the systemic importance of cat bonds requires both assessment of quantitative indicators and qualitative judgments and is outside the scope of this paper. Nevertheless, several initial observations can be made here with respect to how the systemic risk criteria apply to cat bonds.

1. Size

The size of the cat bonds market is growing (see Figure 1) and is expected to grow further in coming years. This is due to a number of factors.⁹⁴ Cat bonds tend to offer a relatively high yield (although yields have declined slightly in recent years)⁹⁵ at a time when interest rates are generally depressed (although these have been showing some signs of recovery).⁹⁶ Cat bond yields are high because they have to compensate for the risk of non-repayment of part or all of the principal and the novelty for investors of taking insurance risk.⁹⁷ Yields are also high because of the comparatively higher premiums paid for traditional property catastrophe reinsurance.⁹⁸ Thus, key investors in cat bonds are pension funds that have been increasing their allocations to ILS in general and cat bonds in particular⁹⁹ as a result, amongst other things, of the pres-

93. *Id.* See also EUR. INS. & OCCUPATIONAL PENSIONS AUTHORITY (EIOPA), FINANCIAL STABILITY REPORT 29 (2014), <https://eiopa.europa.eu/financial-stability-crisis-prevention/financial-stability/financial-stability-reports/financial-stability-report-december-2014> [hereinafter EIOPA FSR 2014] (“[the increased issuance of cat bonds] may also result in some degree of opaqueness where it is not entirely clear who holds the risk”) [<https://perma.cc/DAC9-2485>].

94. See 2015 Global Insurance Market Report (GIMAR), INT’L ASS’N OF INS. SUPERVISORS (IAIS) (Jan. 6, 2016), <https://www.iaisweb.org/page/supervisory-material/financial-stability-and-macroprudential-policy-and-surveillance/global-insurance-market-report-gimar> [hereinafter GIMAR 2016] [<https://perma.cc/43P4-7R9R>].

95. See *Catastrophe Bond and ILS Issuance Average Expected Loss and Coupon by Year*, ARTEMIS, <http://www.artemis.bm/dashboard/cat-bonds-ils-expected-loss-coupon/> (last visited Apr. 18, 2019) [<https://perma.cc/M9XU-4SJF>].

96. See *Inflation Report – February 2019*, BANK OF ENG., 1, 2–3 (Feb. 7, 2019), <https://www.bankofengland.co.uk/-/media/boe/files/inflation-report/2019/february/inflation-report-february-2019.pdf?la=en&hash=8487F69ED26692F4697D363A4E4711D1B0503D3> [<https://perma.cc/NP8V-MSTS>].

97. See Bantwal & Kunreuther, *supra* note 7, at 77.

98. See Niraj Patel, *The Drivers of Catastrophe Bond Pricing* 5–6, PARTNERRE (Oct. 2015), <https://www.partnerre.com/assets/uploads/docs/The-Drivers-of-Catastrophe-Bond-Pricing.pdf> [<https://perma.cc/UH8T-4H9R>].

99. *More Pension Funds Invest in ILS as Alternatives Allocations Rise: Mercer*, ARTEMIS (June 7, 2017) <http://www.artemis.bm/blog/2017/06/07/more-pension-funds-invest-in-ils-as-alternatives-allocations-rise-merc/> [<https://perma.cc/DSJ8-G636>]; See also ORG. FOR

sure they have been experiencing in recent years to improve returns.¹⁰⁰ Another attractive feature of cat bonds is that they have low correlations with other asset classes,¹⁰¹ although the extent to which this is true will depend on how the relevant collateral trust funds are invested.¹⁰² Additionally, cat bonds are becoming more standardized and investors are becoming more familiar and comfortable with them.¹⁰³

The growth in demand for cat bonds means that the size of the market for these products is also growing. Growth of the ILS market continued in 2018, to reach USD 93 billion of outstanding non-life capital.¹⁰⁴ Artemis reports that in Q1 2019 issuance of cat bonds and ILS was of USD 2.8 billion, making it the second most active Q1 in the market's history after Q1 2018, when issuance

ECON. COOPERATION AND DEV. (OECD), PENSION MARKETS IN FOCUS 15–27 (2015) <http://www.oecd.org/daf/fin/private-pensions/Pension-Markets-in-Focus-2015.pdf> (discussing excessive search for yield) [<https://perma.cc/53PU-L8FR>].

100. “Pension funds may also give rise to systemic risks in the U.S. financial system. While many funds are shifting towards defined contribution, defined benefit plans still remain almost half of the industry, and about 20 percent of multi-employer pension funds are underfunded. Pressure to improve returns could spur undue risk taking, whether via direct credit exposure or through securities lending and cash reinvestment. As noted in the 2015 FSOC Annual Report, the transfer of pension risk to the insurance industry, through “longevity swaps” and other insurance products, increases the interconnectedness of the system.” IMF, *United States, Financial Sector Assessment Program and Financial System Stability Assessment*, at 15, Country Report no. 15/170 (July 2015), <http://www.imf.org/external/pubs/ft/scr/2015/cr15170.pdf?hootPostID=0ae3d0cd6b3a481fb2805b7ab5%2083a3ad> [<https://perma.cc/E9T9-K3AR>].

101. See OECD, *supra* note 47, at 138. See also John Dizard, *Cat Bonds Look Pretty Good After a Few Drinks*, FINANCIAL TIMES (Aug. 5, 2016), <https://www.ft.com/content/c34f4586-5afc-11e6-9f70-badealb336d4> (“So since portfolio managers are continually told by their models, the market and their bosses to buy non-correlated assets, cat bonds look pretty good, late night after a few drinks.”) [<https://perma.cc/C93M-9STM>].

102. See Meryem Savas, *Cat Bonds – Correlation to Traditional Asset Classes*, ENTROPICS ASSET MGMT (Dec. 18, 2016), <http://en.entropics.se/blog/cat-bonds-correlation-traditional-asset-classes/> (“The Lehman Brother[s] collapse during the 2008 financial crisis had . . . a negative impact on cat bonds, as the collateral of four cat bonds was invested in the bank. The nominal value of these bonds decreased and the index dropped -3.1% following the crash. The equity and bond indices fell in the same period about -30% and the hedge fund index dropped -18.2%. Following these events, we saw structural changes to cat bonds in order to minimise the counter party credit risk. As a result of the Lehman crash, the collateral is now almost exclusively invested in government bonds with a high credit rating, minimising correlation to traditional asset classes.”) [<https://perma.cc/3QGH-HN73>]. Cat bonds could therefore have a correlation with government bonds, and a sovereign debt crisis could be significant to their performance. See *id.*

103. See, e.g., Bantwal & Kunreuther, *supra* note 7 (on the impact of cat bonds being a novelty product).

104. *Growth in the gaps: ILS Market Update Q4 2018*, WILLIS TOWERS WATSON (Jan. 29, 2019), <https://www.willistowerswatson.com/en/insights/2019/01/growth-in-the-gaps> [<https://perma.cc/853H-N58F>].

exceeded USD 4 billion.¹⁰⁵ In terms of geographical scope, in 2018 the market expanded to a previously unrepresented region, Latin America.¹⁰⁶ The end of 2017 also saw the first cat bond issuance in the U.K.¹⁰⁷

Despite these figures being a tiny fraction of the total debt outstanding on the worldwide bond market, it is fair to say that this trend is worth monitoring because there is a clear movement towards greater activity in the cat bond and ILS market.¹⁰⁸ The growth of the mortgage-backed securities market is an illustration of how a securities market can expand rapidly from modest beginnings to become a behemoth that can, in combination with other factors, bring an entire financial system to a halt and have radical effects on the real economy. The market for mortgage-backed securities expanded relatively gradually through the 1990s reaching USD 1 trillion in 2001, but quadrupling in size over just two years between 2001 and 2003, when it reached USD 4 trillion.¹⁰⁹

2. Interconnectedness

Cat bonds transfer insurance risks to non-insurance firms (i.e., to the capital markets). This in turn increases the interconnectedness between the sectors and their susceptibility to common shocks.¹¹⁰ It can be argued that the interconnectedness of the cat

105. See *Q1 2019 Catastrophe Bond and ILS Market Report*, ARTEMIS, 1, 3, 5 (2019), https://www.artemis.bm/wp-content/uploads/2019/03/q1-2019-cat-bond-ils-market-report.pdf?utm_source=ReportsPage&utm_medium=Link&utm_content=Q12019Report&utm_campaign=Report [<https://perma.cc/PTA5-SEQD>].

106. See *Insurance-Linked Securities: Alternative Capital Fortifies its Position*, AON SECURITIES, 1, 6 (Sept. 2018), <http://thoughtleadership.aonbenfield.com/Documents/20180905-securities-ils-annual-report.pdf> [hereinafter AON SECURITIES Q2 2018 REPORT] [<https://perma.cc/NUV3-N8F2>].

107. See Carolyn Cohn, *Insurer Neon Launches First UK Catastrophe Bond Vehicle*, REUTERS (Jan. 3, 2018), <https://www.reuters.com/article/insurance-neon-ils/insurer-neon-launches-first-uk-catastrophe-bond-vehicle-idUSL8N1OY167> [<https://perma.cc/3QKQ-LXUL>]; *More UK ILS Deals on the Way as PRA Notes ILS Vital for UK's Competitiveness*, ARTEMIS (June 15, 2018), <http://www.artemis.bm/news/more-uk-ils-deals-on-the-way-as-pra-notes-ils-vital-for-uks-competitiveness/> (noting that further issuances occurred subsequently with more reported in the pipeline) [<https://perma.cc/HYJ8-99ZW>].

108. See *supra* Figure 1.

109. See Neil Fligstein & Adam Goldstein, *The Transformation of Mortgage Finance and the Industrial Roots of the Mortgage Meltdown 20–21* (Inst. For Research on Labor and Emp't., Working Paper No. 133-12, 2012), <http://sociology.berkeley.edu/sites/default/files/faculty/fligstein/The%20Transformation%20of%20Mortgage%20Finance2.pdf>, for an account [<https://perma.cc/5568-8NVF>].

110. See INS. EXPERT GRP., EUR. SYSTEMIC RISK Bd. (ESRB), REPORT ON SYSTEMIC RISKS THE EU IN INSURANCE SECTOR Annex 4, at 12 (2015), https://www.esrb.europa.eu/pub/pdf/reports/2015-12-16_esrb_report_annex_4.pdf?ebaab3693fef82da2e8fba2f4f9cd01a [<https://perma.cc/C4LH-YPRR>].

bonds market is increasing given the range of both issuers and investors of cat bonds in financial markets.¹¹¹ Increasingly cat bonds are not just being issued by insurers such as Lloyd's of London syndicates.¹¹² They are also being sponsored by states and public entities as they can represent a cheaper option than insuring through traditional means.¹¹³

In 2009,¹¹⁴ the World Bank launched a program designed to make this form of risk transfer accessible to developing countries and emerging economies¹¹⁵ despite the technical complexity of the product and the expenses involved. This program, called Multi-Cat, consists of “a catastrophe bond issuance platform that allows governments to use a standard framework to buy insurance on affordable terms through the capital markets.”¹¹⁶ In this program, the World Bank acts as an arranger for the transaction by assisting with technical aspects and providing off-the-shelf documentation. Another interesting, and more recent, initiative is Global Parametrics, “a parametric risk transfer provider backed by a third-party capitalised risk fund . . . [which] aims to focus its products on areas that can help to reduce the protection gap and help to address under- insurance of poor, and vulnerable people in developing countries.”¹¹⁷ Recently, the World Bank has issued cat bonds to Mexico giving it financial protection of USD 360 million (GBP 275 million) against losses from natural disasters, as well as a multi-

111. See Pérez-Fructuoso, *supra* note 29, at 87, for examples of the range of main cat bond investors. See also discussion *supra* Section II.B.2 (for discussion of various schemes for issuing cat bonds); AON SECURITIES Q2 2018 REPORT, *supra* note 106, at 11.

112. See *Buffalo Re Cat Bond Launched at \$125m for ICAT Syndicate at Lloyd's*, ARTEMIS (Feb. 17, 2017), <http://www.artemis.bm/blog/2017/02/22/buffalo-re-cat-bond-launched-at-125m-for-icat-syndicate-at-lloyds/> [<https://perma.cc/43J7-XHPR>].

113. See OECD, *supra* note 47, at 139–41. See also *Product Note: MultiCat Program*, THE WORLD BANK (2015), <http://pubdocs.worldbank.org/en/438301507314977367/product-note-multicat-program-cat-bond-2015.pdf> [hereinafter *MultiCat Product Note*] [<https://perma.cc/G82U-FRVU>]; *Case Study: Insuring Against Natural Disaster Risk in Mexico*, THE WORLD BANK, 1, 2, <http://documents.worldbank.org/curated/en/170311468056076924/pdf/81172-REVISED-Mexico-MultiCatBond-2015.pdf> (last visited Apr. 24, 2019) (explaining how such a cat bond would be structured) [<https://perma.cc/6EQH-KCSK>].

114. See *World Bank Launches “MultiCat Program”*, THE WORLD BANK (Oct. 19, 2009), www.worldbank.org/en/news/press-release/2009/10/19/world-bank-launches-multicat-program [<https://perma.cc/6W9F-8BU6>].

115. *Id.*

116. *MultiCat Product Note*, *supra* note 113.

117. *Global Parametrics to Bring Third-party Capital to Disaster Risk Transfer*, ARTEMIS (June 13, 2016), <http://www.artemis.bm/news/global-parametrics-to-bring-third-party-capital-to-disaster-risk-transfer/> [<https://perma.cc/ZJ5H-2WZR>].

country earthquake bond providing protection to Chile, Colombia, Mexico and Peru.¹¹⁸

A number of factors point to an increasing likelihood that the insurance industry will eventually adopt an “originate-to-distribute” approach to insuring these risks.¹¹⁹ The World Bank schemes described support the insurance of catastrophe risks in emerging economies and developing countries.¹²⁰ In addition, there is an increasing prevalence of schemes to make catastrophe risk insurance more widely accessible also in developed nations.¹²¹ Finally, there is also the high demand for cat bonds among investors.¹²² It is also worth noting that recent reports suggest that non-insurers have started to sponsor cat bonds.¹²³ This expansion to non-insurers emphasizes the interconnectivity that may be created by the issue and distribution of these products.¹²⁴

118. See Sophie Christie, *The World's Largest Ever 'Catastrophe Bond' Issued to Mexico*, TELEGRAPH (Aug. 8, 2017), <http://www.telegraph.co.uk/business/2017/08/08/worlds-largest-ever-catastrophe-bond-issued-mexico/> [https://perma.cc/UE2V-3VVH]; *World Bank Affirms Position As Largest Risk Insurance Provider with Multi-country Earthquake Bond*, THE WORLD BANK (Feb. 7, 2018), <http://www.worldbank.org/en/news/press-release/2018/02/07/world-bank-affirms-position-as-largest-sovereign-risk-insurance-provider-with-multi-country-earthquake-bond> [https://perma.cc/8CN2-FK3T]. See also AON SECURITIES Q2 2018 REPORT, *supra* note 106 at 6.

119. See OECD, *supra* note 47, at 107. But see also *id.* at 109 (while in the context of [mortgage-backed securities (MBS)], the originator of a mortgage loan can completely remove itself from the risk equation, an insurance/reinsurance company issuing ILS remains directly liable vis-à-vis the policyholder/primary insurer. This may avoid distorted incentives of the type that contributed to the sub-prime lending crisis in the United States).

120. See MultiCat Product Note, *supra* note 113.

121. See Holly Black, *Could Catastrophe Bonds Boost your Nest Egg? The High Risk Funds that Offer up to 8% Income a Year, but can Pay Much Less*, THIS IS MONEY (June 6, 2017), <http://www.thisismoney.co.uk/money/investing/article-4578146/Could-TORNADO-bonds-boost-nest-egg.html> (for examples of cat bonds issued by U.S. public entities such as the California Earthquake Authority and the New York Metropolitan Transportation Authority) [https://perma.cc/5VWN-L5GX]. See also *Insurance-Linked Securities Q2 2017 Update*, AON SECURITIES, 1, 4 (2017), http://thoughtleadership.aonbenfield.com/documents/040817_aon_securities_ils_q2_update.pdf (explaining that six different public entities came to market during the Q2 period, with a total of USD 2.2 billion of catastrophe bond issuances) [https://perma.cc/VT9J-B355].

122. See Dizard, *supra* note 101.

123. See HSBC Global Research, Flashnote, *Operational Risk Catastrophe Bonds: The New Kid on the Block* (Apr. 22, 2016), <https://www.research.hsbc.com/R/10/sKgRB7vDSPKT> [https://perma.cc/V5JH-9B8E].

124. In 2015, the European Systemic Risk Board noted that, “insurance-linked securities, for instance catastrophe bonds, transfer insurance risks to investors. This broadens the scope for risk transferral, but it also creates additional links between (re)insurers and financial markets. This might make the reinsurance market more vulnerable to investors’ procyclical behaviour. For instance, the ongoing search for yield in the current environment attracts investors in catastrophe bonds, which in turn drives down the price of risks insured (even though the risks themselves may not have changed materially).” INS. EXPERT

Furthermore, the cat bond market increases the linkages within the insurance sector because investors in cat bonds include catastrophe funds, mutual funds, reinsurers, hedge funds and institutional investors, including insurers.¹²⁵ Thus, cat bonds create unique interconnectedness between insurers, reinsurers, public entities or countries on the one hand and capital markets on the other.

It is worth noting that, at the time of writing, it is reported that “[m]any institutional investors are already successfully including ILS in their portfolios, either through outsourcing to dedicated funds or investing directly.”¹²⁶ As some of the largest institutional investors, insurers may be encouraged to invest in cat bonds because they are treated favorably for Solvency II¹²⁷ purposes.¹²⁸ However, encouraging this investment by insurers may lead to a situation where, in spite of transferring (and therefore divesting themselves of) catastrophe risk,¹²⁹ insurers may become re-exposed to that same risk by the indirect route of investing in cat bonds.¹³⁰ Additionally, it is worth noting that in January 2016, the International Association of Insurance Supervisors reported that in their search for yield, insurers are diversifying their investments and are investing in alternative instruments including private equity and

GRP., EUR. SYSTEMIC RISK BD. (ESRB), REPORT ON SYSTEMIC RISKS THE EU IN INSURANCE SECTOR 19–20 (2015), https://www.esrb.europa.eu/pub/pdf/other/2015-12-16-esrb_report_systemic_risks_EU_insurance_sector.en.pdf [<https://perma.cc/9GWY-34MV>]. Similarly, EIOPA observed in its 2014 Financial Stability Report that “the increased issuance of e.g.[.] catastrophe bonds also creates links between reinsurers and financial markets. It may also result in some degree of opaqueness where it is not entirely clear who holds the risk. This makes the reinsurance market vulnerable to investors’ procyclical behaviour as well.” EIOPA FSR 2014, *supra* note 93, at 29.

125. AON SECURITIES, INSURANCE-LINKED SECURITIES ALTERNATIVE MARKETS FIND GROWTH THROUGH INNOVATION 1, 8 (2016) <http://thoughtleadership.aonbenfield.com/pages/Home.aspx?ReportCategory=Insurance-Linked%20Securities> [<https://perma.cc/G4TE-Q573>]. See also Pérez-Fructuoso, *supra* note 29, at 87 (noting that the main investors in cat bonds are multinational companies, life insurance companies, hedge funds, investment funds, reinsurers, and banks); AON SECURITIES Q2 2018 REPORT, *supra* note 106 at 11.

126. RISK MANAGEMENT SOLUTIONS, *supra* note 11, at 1.

127. See Council Directive 2009/138/EC of the European Parliament and the Council of 25 November 2009 on the Taking-up and Pursuit of the Business of Insurance and Reinsurance (Solvency II) (recast), 2009 O.J. (L 335) 1 [hereinafter Solvency II Directive] (laying down the capital requirements to be complied with by Insurers).

128. See *Cat Bonds an Attractive Investment for EU Insurers in a Solvency II World*, ARTEMIS (Mar. 3, 2017), <http://www.artemis.bm/blog/2017/03/03/cat-bonds-an-attractive-asset-for-eu-insurers-in-a-solvency-ii-world/> [<https://perma.cc/BRB7-KXBG>].

129. See Weiss et al., *supra* note 73, at 4 (2013 study finding that insurers decreased their contribution to systemic risk through issuing cat bonds).

130. Although it is not clear what proportion of institutional investors’ portfolios is constituted of cat bonds and other ILS.

hedge funds.¹³¹ These alternative instruments then may have ILS and cat bonds as part of their portfolios. This situation is reminiscent of reinsurer retrocession to other reinsurers, which may lead to severe interconnectedness among reinsurers, and which led to the high-profile failure of Lloyd's of London in the 1980s.¹³²

Finally, the cat bond market is highly interconnected because financial market risk and insurance underwriting risks can be correlated. Various types of events could conceivably trigger instability simultaneously in financial markets and insurance markets.¹³³ For instance, a global pandemic could not only have a devastating impact on catastrophe risk but could also trigger panic in capital markets.

3. Substitutability

Catastrophe reinsurance can be regarded as a substitute for cat bonds and vice versa.¹³⁴ The increase of significant loss events since the 1990s and the growing demand for natural catastrophe insurance prompted insurers to explore alternative ways to alleviate those risks.¹³⁵ The effects of climate change and global warming have increased the magnitude and severity of extreme weather events and the potential losses that they are able to cause.¹³⁶ As a result, it may not be possible for the traditional reinsurance market to absorb catastrophe risks, and recourse to the capital markets may be the only way in which these risks may be appropriately insured against.¹³⁷ Therefore, the extent to which the cat bond market is substitutable is uncertain.

131. See GIMAR 2016, *supra* note 94, at 22.

132. See ESRB, *supra* note 110, at 19.

133. Daniel Schwarcz & Steven L. Schwarcz, *Regulating Systemic Risk in Insurance*, 81 U. CHI. L. REV. 1569, 1607 (2014).

134. See Martin Nell & Andreas Richter, *Catastrophe Index-Linked Securities and Reinsurance as Substitutes* (Goethe U. Frankfurt am Main, Dep't of Fin, Finance and Accounting, Working Paper No. 56, 2000), <https://www.econstor.eu/handle/10419/76942> [<https://perma.cc/YUC3-A3U2>].

135. See Bantwal & Kunreuther, *supra* note 7, at 76.

136. See *2016 Annual Global Climate and Catastrophe Report*, AON SECURITIES, 1, 8 (2016) <http://thoughtleadership.aonbenfield.com/Documents/20170117-ab-if-annual-climate-catastrophe-report.pdf>. See also TOUMI & RESTELL, *supra* note 5, at 6–7 (explaining the impact of global climate change on temperature extremes, droughts, and storms) [<https://perma.cc/N4AH-CUUV>].

137. See Bantwal & Kunreuther, *supra* note 7, at 1.

4. Complexity and Opaqueness

The standardization trend which sees increased use of modeling is rendering cat bond structures more complex. This complexity becomes more significant in that standardization also facilitates the issue of derivatives, as discussed below.

Cat bond issues are gradually moving from being highly customized and tailor-made transactions to becoming more commoditized, especially with regards to parametric cat bonds¹³⁸ which contract terms are becoming more standardized.¹³⁹ Whilst standardization decreases opacity, as the presence of cat bonds in capital markets increases, it becomes essential to monitor for poor structuring which, in view of the fact that these instruments are inherently high risk, can lead to systemic consequences if a catastrophe leads to widespread negative returns for investors.¹⁴⁰ It is also worth mentioning that as standardization of cat bonds increases, a secondary (derivative) market may also become more established.¹⁴¹ This involves instruments such as catastrophe collateralized risk obligations (CROs) and cat-linked derivatives including futures, swaps, and options.¹⁴²

Further, although standardized contract terms may have made cat bond transactions less opaque, other underlying factors of cat bond transactions remain immensely complicated. Developments in the cat bond market are highly reliant on modeling of risks and standardization of cat bond products and their derivatives.¹⁴³ Good modeling in turn depends on making the right assumptions¹⁴⁴ and using high quality information, which may be scarce.

138. See OECD, *supra* note 47, at 117 (“The proliferation of index-based securitized instruments likely contributed to increased liquidity and trading of securitized instruments prior to the crisis Research has shown that the issuance and trading of index-based products grew rapidly due to the increased acceptance of indexes These indexes are subject to transparent rules and helped to standardize CDS structures.”).

139. See *id.* at 188, for a discussion of the impact of standardization in securitization.

140. See RISK MANAGEMENT SOLUTIONS, *supra* note 11, at 8 (“Although cat bonds are inherently risky, making it possible for the notional amount to be quickly exhausted once the triggering event occurred, they have historically offered excellent returns. The market performed well even in years with multiple cat event occurrences—there has not been a single 12-month period to date where cat bonds incurred a negative return. Interestingly, historical experience suggests that one key to success in this asset class is the avoidance of a small number of poorly structured bonds.”).

141. See OECD, *supra* note 47, at 141.

142. See *id.* at 125–26, 149–50.

143. *Id.* at 141 (“A certain degree of standardisation in capital market structures is critical for the development of CAT-linked securities.”).

144. See Sylianos Perrakis & Ali Boloorforoosh, *Catastrophe Futures and Reinsurance Contracts: An Incomplete Markets Approach*, 38 J. FUTURES Mkts. 104, 122 (2018) (arguing that the

This scarcity is particularly true for regions where property insurance against catastrophe risks is relatively new and there is little historical information regarding losses.¹⁴⁵ This may well have implications in terms of risk-pricing. As noted by Jarzabkowski et al.:

[m]odels do not predict or value the risk, but rather provide the basis for coordination of pricing efforts alongside other knowledgeable practices within the market. Specifically, . . . marketization is enacted within the practical understandings of “technicalizing” deals through calculative devices such as models. However . . . the inadequacy of the models is tempered by importing deep professional knowledge into the calculation of unpredictable risk. Such “contextualizing” includes evoking knowledge of the physical properties of the risk, knowledge of the client, and knowledge of the market cycle [But] bundling risk is weighting the appraisal of deals further towards technicalizing and a dependence on models.¹⁴⁶

Another danger that may emerge from the commoditization process could be a changing perception of catastrophe risks from being unpredictable and volatile to risks that can be analyzed and measured accurately through sophisticated calculative devices.¹⁴⁷ Indeed, the type of risk cat bonds are designed to transfer carries a large element of uncertainty and unpredictability.¹⁴⁸ This means that past climate data is not a reliable indicator of what might happen in the future, and therefore that it is no mean feat to model for this risk.¹⁴⁹ Figure 3 below, showing worldwide natural catastrophes from 1980 to 2018, demonstrates that the number of

long-held Merton assumption that “the rare event risk is fully diversifiable” and that “a unique risk-adjusted distribution of the CAT event can be extracted from other traded financial instruments indexed on the event distribution” is rejected by recent empirical evidence).

145. See TOUMI & RESTELL, *supra* note 5, at 9 (regarding the effect of a lack of exposure data).

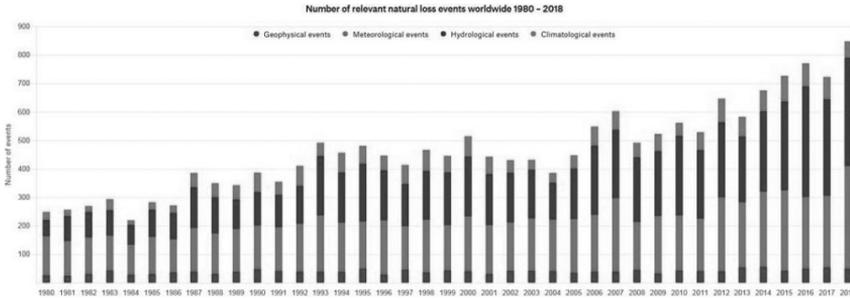
146. PAULA JARZABKOWSKI ET AL., MAKING A MARKET FOR ACTS OF GOD: THE PRACTICE OF RISK-TRADING IN THE GLOBAL REINSURANCE INDUSTRY 74–75 (2015).

147. See *id.* at 176.

148. See OECD, *supra* note 47, at 111.

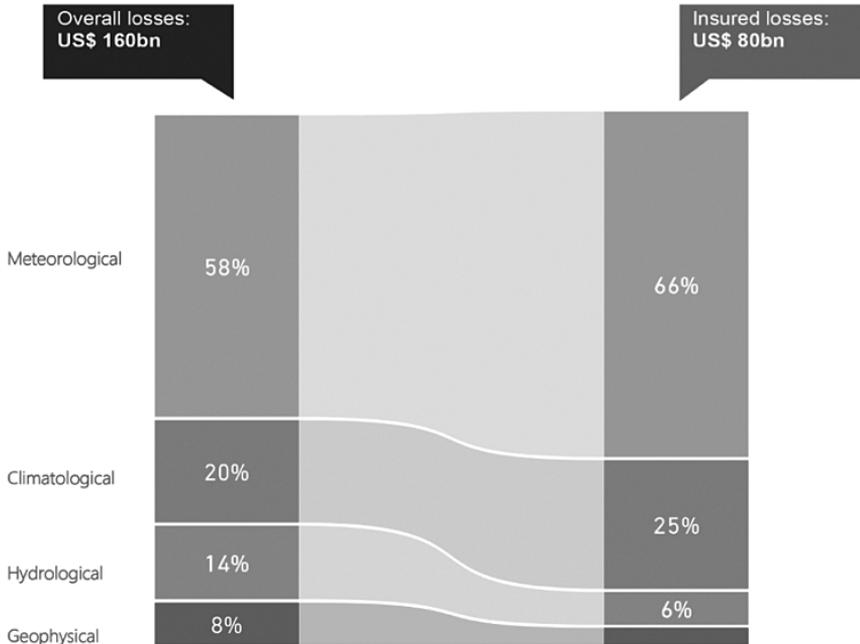
149. See TOUMI & RESTELL, *supra* note 5, at 32, 34–35 (“[t]he impact of climate change is mostly not explicitly reflected in the catastrophe models”). See also Dizard, *supra* note 101 (“The problem for the buyers, if not for US east coast residents, is that there have been far fewer severe weather events than commonly accepted actuarial models predicted in the years since the 2008 global financial crisis.”).

Figure 3
Number of Worldwide Natural Catastrophes 1980-2018¹⁵⁰



Source: © 2019 Munich Re, Geo Risks Research, NatCatSERVICE. As of April 2019.

Figure 4
Global Losses from Natural Disasters in 2018¹⁵¹



Source: © 2019 Munich Re, Geo Risks Research, NatCatSERVICE. As of April 2019.

150. *Number of Relevant Natural Loss Events Worldwide 1980 – 2018*, MUNICH RE NATCATSERVICE, <https://natcatservice.munichre.com/events/1?filter=eyJ5ZWZyRnJvbS16MTk4MCwieWVhclRvJjoyMDE4fQ%3D%3D&type=1> (last visited Apr. 24, 2019) [<https://perma.cc/ER69-QMUA>].

151. P Lōw, *The Natural Disasters of 2018 in Figures: Losses in 2018 Dominated by Wildfires and Tropical Storms*, MUNICH RE NATCATSERVICE (Jan. 8, 2019), <https://www.munichre.com/topics-online/en/climate-change-and-natural-disasters/natural-disasters/the-natural-disasters-of-2018-in-figures.html> [<https://perma.cc/ER69-QMUA>].

catastrophes has been increasing, pointing to the unreliability of past climate data for predicting the future. Figure 4 then shows global losses from natural disasters in 2018, distinguishing between overall and insured losses. Insured losses of course depend on the extent to which property in areas affected by natural disasters has been insured. For regions where insurance is common, the amount of data available will be greater than that for regions where it is a relatively rare practice to take out such insurance. The reduced availability of past data in regions with low levels of insurance coverage makes modeling for the structuring of securities which cover these regions more challenging.

Additionally, if cat-linked derivative products take cat bond issues as their reference point, but the party purchasing protection (i.e., the issuer) were not actually exposed to the catastrophic event and were only using the derivative for speculation (and essentially betting on the catastrophic event happening), financial exposure to the catastrophic event would be created where before there was none,¹⁵² and the impact of any underlying unsound modeling and risk-mispricing would multiply.

The bundling of risks increases the complexity of structured financial products.¹⁵³ Because of the hazards that can derive from the bundling of risks that securitization makes possible, Jarzabkowski et al. liken emerging developments in this field to the processes involving asset- and mortgage-backed securities and collateralized debt obligations, which led up to the 2008-2009 financial crisis.¹⁵⁴ While this contention may be controversial,¹⁵⁵ it is fair to say that regulators who ignore these developments, particularly macroprudential regulators, might well be doing so at their peril, particu-

152. See Schwarcz & Schwarcz, *supra* note 133, at 1585–87 (comparing the use of credit-default swaps in the run-up to the financial crisis).

153. See Andrew Crockett, Gen. Manager of the Bank for Int'l Settlements & Chairman of the Fin. Stability Forum, Issues in Global Financial Supervision, Remarks at the 36th SEACEN Governors' Conference (June 1, 2001), <https://www.bis.org/speeches/sp010601.htm> [<https://perma.cc/R2TT-MDNR>].

154. JARZABKOWSKI ET AL., *supra* note 146, at 179 (“MacKenzie’s work uncovered that the calculative practices used to evaluate CDOs shifted the basis for understanding risk from those professionals who were experienced in the potential sub-prime mortgage default. As CDOs become more remote and abstracted from their underlying assets, they were evaluated by a different group of actors who did not understand the underlying risk, while the models that they used vastly underestimated the probability for default across an entire market.”).

155. This contention produced a backlash. See Alistair Gray, *Catastrophe Bonds Pioneer Hits Back at Book*, FINANCIAL TIMES (May 3, 2015), <https://www.ft.com/content/818eaa56-f180-11e4-98c5-00144feab7de> [<https://perma.cc/7MEP-MGQJ>].

larly in view of the consequences arising as a result of over-reliance on risk models in the recent financial crisis.¹⁵⁶

Lack of transparency may also be a key factor in increasing the complexity of cat bonds.¹⁵⁷ In spite of increasing standardization, market intelligence suggests that the price transparency of ILS has been declining: “Fewer ‘pricing sheets’ are being generated and some of the ones that are produced quote quite wide markets.”¹⁵⁸ These preliminary assessments indicate that supervisors should keep an eye on the development and use of cat bonds, as, while the market is not yet systemically relevant, there is certainly the potential for it to expand rapidly.

C. *State Intervention*

History shows that state intervention can create or enhance the conditions leading to rapid expansion of markets by encouraging certain activities. A prime example is the effect on the U.S. mortgage market of federal government policies of the 1990s.¹⁵⁹ Interestingly, in the U.K., the trend seems to be towards encouraging an increased use of ILS, and this trend appears to espouse a “light regulation” policy. The stated aim of the U.K. Government, through the implementation of the Risk Transformation Regulations 2017 and the Risk Transformation (Tax) Regulations 2017, is to make London a center for insurance-linked securitizations.¹⁶⁰

156. See Erik F. Gerding, *Code, Crash, and Open Source: The Outsourcing of Financial Regulation to Risk Models and the Global Financial Crisis*, 84 WASH. L. REV. 127, 164–69 (2009).

157. See CLEAR PATH ANALYSIS, INSURANCE LINKED SECURITIES FOR INSTITUTIONAL INVESTORS 2017: AN EVOLVING ASSET CLASS POISED FOR GROWTH 13–14 (2017), <https://www.clearpathanalysis.com/reports/insurance-linked-securities-institutional-investors-2017>, (“We are not asking reinsurance companies to publicly release their business critical information, since we understand the sensitivity of that. But transparency helps to increase management and board confidence on the investor side. Additionally, we believe that the primary insurer is well served to understand who finally reinsures its risk.”) [<https://perma.cc/JE29-U25N>].

158. MORTON N. LANE & ROGER BECKWITH, ANNUAL REVIEW AND COMMENTARY FOR THE FOUR QUARTERS 2 (2017), http://www.lanefinancialllc.com/images/stories/Publications/2017-03-31%20Annual%20Review%20_%20Four%20Quarters%20Q2%202016%20to%20Q1%202017 [<https://perma.cc/C5GN-MDQH>].

159. See Fligstein & Goldstein, *supra* note 109. See also Anat Keller, *The Possible Distributional Effects of the Loan-to-Value Ratio and its Use as a Macro-prudential Tool by the European Systemic Risk Board*, 28 J. INTL. BANKING L. REV. 266, 266-67 (2013) (discussing the potential use of loan-to-value ratio as a tool).

160. Insurance Risk Transformation is defined in Regulation 13A of the Risk Transformation Regulations 2017 (RTR), SI 2017/1212. Recently, the first cat bonds have been issued under the new RTR regime. *GC Securities Cites “Strong Investor Support” for First UK Cat Bond from SCOR*, ARTEMIS (June 4, 2018), <http://www.artemis.bm/blog/2018/06/04/gc-securities-cites-strong-investor-support-for-first-uk-cat-bond-from-scor/> [<https://perma.cc/L5PV-E8PP>]. See also HM TREASURY, REGULATIONS IMPLEMENTING A NEW REGULATORY

This securitization activity and the resultant financial products are subject to regulation and supervision by the Financial Conduct Authority (FCA), the U.K.'s Conduct of Business financial supervisor, and by the Prudential Regulation Authority (PRA), the U.K.'s prudential financial supervisor.¹⁶¹ The regulatory framework is based on the possibility of using insurance special purpose vehicles (ISPVs) set up as protected cell companies (PCCs) to facilitate ILS issuances.¹⁶² The protected cell structure is designed to permit multiple issuances of cat bonds to be made by the same ISPV (making it a multi-arrangement ISPV (mISPV)), while keeping such issuances adequately protected in terms of default risk through effective segregation of deals within the mISPV.¹⁶³

When the proposals for legislation permitting these structures were first discussed, the PRA expected to have the power to preapprove the assumption of a new risk and the issue of new ILS (effected by the creation of new segregated cells within the PCC).¹⁶⁴ However, although the PRA is able to specify the kinds of risk transfer deals into which the mISPV is permitted to enter at the time of granting the mISPV authorization to provide financial services, the regulations as finally adopted do not give the PRA the power to preapprove the assumption of new risk by an already authorized mISPV.¹⁶⁵ Rather, the mISPV must notify the PRA within a period of five working days from the risk being

AND TAX FRAMEWORK FOR INSURANCE LINKED SECURITIES: CONSULTATION 3 (2016) (discussing the importance of the London insurance market).

161. See RTR R7. See also Prudential Regulation Authority (PRA), Policy Statement PS26/27, *Authorisation and Supervision of Insurance Special Purpose Vehicles*, at 11–12 (Nov. 2017), <https://www.bankofengland.co.uk/-/media/boe/files/prudential-regulation/policy-statement/2017/ps2617.pdf> [hereinafter PRA Policy Statement PS26/27] (discussing policies regarding regulations) [<https://perma.cc/ZYK8-5Z3Y>]. The Scope of Permission (SOP) “defines the boundaries within which the ISPV may carry on the regulated activity of insurance risk transformation.” PRA, Supervisory Statement SS8/17, *Authorisation and Supervision of Insurance Special Purpose Vehicles*, ¶¶ 2.13–18 (Dec. 2017), <https://www.bankofengland.co.uk/-/media/boe/files/prudential-regulation/supervisory-statement/2017/ss817update.pdf> [<https://perma.cc/4SNK-HAAA>]. Whilst the PRA leads the authorization, the FCA’s consent is required before granting approval. *Id.* ¶ 2.3. In giving its consent, the FCA is required to ensure, according to § 55B FSMA, that the applicant satisfies and continues to satisfy the Threshold Conditions. Financial Conduct Authority (FCA), FCA Statement – Authorizing and Supervising Insurance Special Purpose Vehicles, at 2 (2017), <https://www.fca.org.uk/publication/policy/statement-authorising-and-supervising-insurance-special-purpose-vehicles.pdf>. By so doing, the PRA would be circumscribing the mISPV’s Part 4A Permission of FSMA (i.e., authorization to provide financial services) [<https://perma.cc/HSN3-D3L4>].

162. See RTR R43.

163. RTR R48.

164. See PRA Policy Statement PS26/27, *supra* note 161, ¶¶ 2.3, 2.4.

165. See RTR, pt. 2; RTR R59.

assumed.¹⁶⁶ Care should be taken to ensure that these notifications provide the information required to assess the cumulative impact in systemic terms of cat bond issuances and to gauge whether macroprudential intervention is necessary.¹⁶⁷

It is also worth noting that the Securitisation Regulation¹⁶⁸ of the European Union (E.U.) does not apply to catastrophe risk securitizations because it contemplates only securitized credit risk and not any other type of risk.¹⁶⁹ This being the case, it should be considered whether a risk-retention requirement as well as requirements on simplicity, standardization, and transparency should be otherwise imposed on catastrophe risk securitizations effected in the U.K.

It is important that a box-ticking approach via a strict application of the criteria for assessing systemic importance should be avoided. Decisions made by regulators and supervisors should be based on qualitative assessment that feeds from market intelligence as a complement to numeric application of the test. This is in line with a recent report which reviewed the culture of the FCA, PRA, and the Bank of England.¹⁷⁰ The report identified a “deep seated culture of box-ticking” and suggested that “unless we change the culture of regulators[,] we will be sleep walking into the next financial crisis.”¹⁷¹

III. PRODUCT INTERVENTION POWERS

Cat bonds have the potential to generate systemic risk depending on trends and practices surrounding their structure, sale, and

166. RTR R60(1)–(2). According to RTR R60(3), rules made under § 137G FSMA may specify the form of notification, information to be provided and the form in which it is to be provided.

167. It is essential to monitor carefully the relationship, not just legal but also economic, between the ISPV or mISPV and its sponsor or the risk-transferring entity. See William W. Bratton & Adam J. Levitin, *A Transactional Genealogy of Scandal: From Michael Milken to Enron to Goldman Sachs*, 86 S. CAL. L. REV. 783 (2013) (giving several examples of how special purpose entities were able to escape regulation by funnelling inter-firm connections through contracts, rather than equity ownership).

168. See Commission Regulation 2017/2402 of the European Parliament and of the Council of 12 December 2017 amending Regulation (EU) no. 575/2013 on Prudential Requirements for Credit Institutions and Investment Firms, 2017 O.J. (L347) 6 [hereinafter *Securitisation Regulation*] (laying down common rules on securitization and creating a European framework for simple, transparent and standardized securitization).

169. See *id.* art. 2(1).

170. See ANDRE SPICER ET AL., CULTURAL CHANGE IN THE FCA, PRA & BANK OF ENGLAND (2016), https://newcityagenda.co.uk/wp-content/uploads/2016/10/NCA-Cultural-change-in-regulators-report_embargoed.pdf [<https://perma.cc/5Y8G-9WYQ>].

171. See *id.* at 6.

distribution in the financial markets. In view of this, it is very important that supervisors have the ability to intervene speedily and decisively should this potential start to materialize. In this Section, we discuss the merits of using product intervention powers to this end. Subsequently, in Section IV of this paper we assess the extent to which product intervention powers available to U.K. supervisors can be harnessed for this purpose.

A. What Are Product Intervention Powers?

Product intervention imposes restrictions on the offering, distributing, terms or features, and/or marketing of financial products.¹⁷² Product intervention was first considered seriously as a regulatory option in the aftermath of the 2008-2009 financial crisis,¹⁷³ which eventually led to various product intervention powers being introduced at the U.K. and E.U. level. In the E.U., these powers were introduced as a “second generation” or “legacy” effect of the reform of the E.U. financial regulatory architecture following the crisis, and are an example of regulatory innovation.¹⁷⁴ These new powers are a symptom of a changed approach to financial innovation, which, post-crisis, tends to be viewed with more suspicion.¹⁷⁵ In 2011, the then Financial Services Authority (FSA) defined product intervention as “[r]egulatory interventions focused on products, including greater supervisory focus earlier in the value chain and of ongoing product governance, rules targeting product features, rules limiting sales of products and setting down specific conditions of sale.”¹⁷⁶

Product intervention is still in its infancy and conceptually its boundaries and objectives remain hazy. As shall be seen under Section IV, in its Financial Services and Markets Act 2000 (FSMA) manifestation, product intervention is tied to conduct of business objectives, normally assigned to the FCA.¹⁷⁷ These objectives cur-

172. See discussion *infra* Section IV.

173. See Niamh Moloney, *The Legacy Effects of the Financial Crisis on Regulatory Design in the EU*, in *THE REGULATORY AFTERMATH OF THE GLOBAL FINANCIAL CRISIS* 111, 186 (Eilís Ferran, Jennifer Hill, Niamh Moloney & John C. Coffee eds., Cambridge Univ. Press) (2012).

174. See *id.* at 112, 115–17.

175. See *id.* at 136–37, 186–201.

176. Financial Services Authority, *Product Intervention* 6 (Discussion Paper DP11/1, 2011).

177. See discussion *infra* Section IV.A.1.

rently include consumer protection,¹⁷⁸ and competition.¹⁷⁹ Thus, product intervention in this manifestation is not connected with financial stability and the need to monitor and minimize systemic risk.¹⁸⁰ On the other hand, under E.U. law, the power may be exercised in furtherance of the objective of financial stability.¹⁸¹

An example of the FCA's exercise of product intervention powers occurred in August 2014 when the FCA issued temporary product intervention rules introducing restrictions on the distribution of contingent convertible instruments (CoCos) to retail investors.¹⁸² The rules issued by the FCA generally did not permit firms "to sell, promote, or intermediate transactions in CoCos that would result in ordinary retail investors investing in CoCos."¹⁸³

Indeed, it seems that product intervention was initially conceived as a way of protecting consumer investors from the risks associated with both the poor design and poor distribution practices (e.g., mis-selling) relating to financial products (particularly innovative ones).¹⁸⁴ Prior to the financial crisis, there was a preference on the

178. Consumer protection also appears to be the primary goal of product intervention in the United States. Indeed product intervention powers under Dodd-Frank were conferred upon the Consumer Financial Protection Bureau. See Dodd-Frank Wall Street Reform and Consumer Protection Act, 12 U.S.C § 5531. See also Vincent Di Lorenzo, *Barriers to Market Discipline: A Comparative Study of Regulatory Reforms*, 20 ARIZ. J. INT'L COMP. 517, 527-28 (2012) ("[T]he Dodd-Frank Act empowered the Consumer Financial Bureau to issue regulations and take enforcement actions with respect to 'abusive' acts or practices"). However, it should be noted that one of the two financial stability regulators in the U.S.—the Financial Stability Oversight Council (FSOC) — intersects with product intervention regulation in a number of ways: In the consumer lending context, the Consumer Financial Protection Bureau (CFPB) is the market conduct regulator and has ample product intervention powers. The Director of the Bureau is a voting member of FSOC and the Bureau in the course of the Director's FSOC duties has undertaken analyses of consumer financial products for systemic risk. FSOC can also overrule any product intervention rules by the Bureau that jeopardize financial stability. See Patricia A. McCoy, *Countercyclical Regulation and its Challenges*, 47 ARIZ. ST. L. J. 1181, 1195–96, 1208–18 (2016) (discussing the availability and use of countercyclical tools in the U.S. regulatory landscape, in particular the "ability-to-repay" rule introduced by Dodd-Frank which is implemented by the CFPB).

179. See discussion *infra* Section IV.A.1.

180. See *id.*

181. See discussion *infra* Section IV.B.

182. FCA, TEMPORARY PRODUCT INTERVENTION RULES: RESTRICTIONS IN RELATION TO THE RETAIL DISTRIBUTION OF CONTINGENT CONVERTIBLE INSTRUMENTS ¶ 23 (2014) <https://www.fca.org.uk/publication/tpi/restrictions-in-relation-to-the-retail-distribution-of-cocos.pdf> [<https://perma.cc/S7X3-CZ7W>].

183. *Id.* ¶ 8.

184. See Moloney, *supra* note 173, at 188–89. See also ERNST & YOUNG, PRODUCT INTERVENTION CONSUMER PROTECTION AGENDA: GLOBAL REGULATORY REFORM 2 (2014), formerly available online at [https://www.ey.com/Publication/vwLUAssets/Product_intervention_-_Consumer_protection_agenda_-_Global_regulatory_reform/\\$File/EY-Product-Intervention.pdf](https://www.ey.com/Publication/vwLUAssets/Product_intervention_-_Consumer_protection_agenda_-_Global_regulatory_reform/$File/EY-Product-Intervention.pdf) (Product intervention is intended to proactively address decisions during new

part of regulators to use disclosure and distribution rules to protect retail investors,¹⁸⁵ but following the crisis these have come to be seen as insufficient and greater recourse is being made to product intervention.¹⁸⁶ However, it should be borne in mind that, as a new and untested regulatory tool, the use of product intervention may have “unexpected effects.”¹⁸⁷ Thus, while maintaining an open mind as to its potential, it has been argued that it is prudent to remain realistic about what product intervention can do.¹⁸⁸ This is particularly true when one bears in mind that the regulator needs to tread a fine line between supporting innovation and investor choice while also intervening where such innovation poses risks that are within the regulator’s mandate to address.¹⁸⁹ The risks that may be addressed by effective product intervention include not just risks to investors (particularly retail investors) but also systemic risk to financial stability.

When using product intervention powers in fulfilment of this mandate, not only would regulators need to assess when a financial product may become systemic, raising the need for preventive action, but they would also need to assess what *type* of product intervention is needed to prevent or mitigate the relevant risk appropriately. In addition, regulators will need to conduct a balancing exercise between two opposing aims. On the one hand, they need to control the build-up of systemic risk and on the other hand, they need to ensure that intervention does not depress the market more than is warranted, ultimately inhibiting economic growth.¹⁹⁰ Regulators’ inaction bias may well mean that the latter concerns may be given more weight than the former, inhibiting the use of product intervention as a macroprudential tool.¹⁹¹ However we argue that it is incumbent on regulators to overcome such

product design and management of existing products to mitigate any subsequent impact on distribution and consumer outcomes.).

185. Moloney, *supra* note 173, at 187.

186. *Id.* at 187–94.

187. *Id.* at 196.

188. *Id.* at 197 (arguing that “if the new regime enmeshes the regulator in complex, detailed and resource-intensive oversight of industry product-development processes, with the attendant moral hazard and resource risk to the regulator, this could affect adversely supervisory effectiveness”).

189. *Id.* at 198.

190. Both the Financial Policy Committee and the European Systemic Risk Board have these opposing objectives in their mandates. *See generally* Anat Keller, *The Mandate of the European Systemic Risk Board and Resilience as an Essential Component: Part 1*, 31 J. INT’L BANKING L. & REG. 13 (2016) (on the complexities and the challenges these bring).

191. *See id.* at 20.

inaction bias,¹⁹² and that they should not hesitate to intervene in a robust manner when such intervention can be justified on data-driven analysis of the relevant product market and similar past regulatory interventions (either in the U.K. or elsewhere).

B. *Why Product Intervention to Regulate Cat Bonds?*

As explained in Section II.B, it is possible that a number and variety of factors and circumstances may conspire to exponentially increase the volume of cat bond issuances and their prevalence in the financial markets over the coming years. If low interest rates persist, their comparatively high yields are likely to continue to be perceived as attractive.¹⁹³ If demand for these instruments should continue to rise, an originate-to-distribute approach might start to prevail among issuers that could lead to a less careful pricing of risk.¹⁹⁴ Widespread common exposures to a single catastrophe could multiply the impact such an event would have on the financial markets and cause financial panic and eventually instability. For this reason, we argued in 2015, that constant and careful monitoring of ILS activities in general, and cat bond activities in particular, was essential to the performance of the macroprudential supervisor's role.¹⁹⁵ In line with this, the potential systemic significance of ILS has not escaped the notice of the U.K. Financial Policy Committee (FPC) at the Bank of England.¹⁹⁶

The next question then relates to the means and/or tools for taking action to address and mitigate failures that come to light as a result of this macroprudential monitoring. If the design or distribution practices relating to a particular financial innovation causes concern to the macroprudential supervisor, such supervisor needs to have the means to address them. If the systemic concerns are prompted by market-wide trends in the design or distribution of financial products rather than by the solvency or liquidity of any individual financial institution, then the most efficient way of

192. *Id.*

193. See discussion *supra* B.2.1.

194. There are indications that even now supply is failing to meet demand. See CLEAR PATH ANALYSIS, *supra* note 157, at 14 (The small size of the ILS market prevents investors from allocating more assets to the market.). See also *More Risk Required to Enable Greater Allocations to ILS, Finds Report*, ARTEMIS (May 23, 2017), <http://www.artemis.bm/blog/2017/05/23/more-risk-required-to-enable-greater-allocations-to-ils-finds-report/> (explaining that investors appear unable to allocate more assets to the ILS market because of the lack of new risk entering the market) [<https://perma.cc/P4NW-8FGS>].

195. Goldby & Keller, *supra* note 75, at 71–72.

196. See Andrea French & Mathiey Vital, *Insurance and Financial Stability*, 3 BANK ENG. Q. BULL. 242, 252 (2015).

addressing such concerns would be to take action against such trends, rather than addressing the potential impact through microprudential supervisory action targeting individual institutions.¹⁹⁷ We argue that product intervention powers are particularly well-suited to addressing such systemic risks.¹⁹⁸ As seen in Section IV below, supervisors can make rules targeting specific problematic features of the product's design or problematic practices surrounding its distribution.¹⁹⁹ These interventions can create rules that apply indefinitely or can be designed as temporary measures as the circumstances require.²⁰⁰ Thus, arguably, by exercising its product intervention powers in a well-considered and appropriately targeted manner, the supervisor could correct trends and practices that, if allowed to carry on unchecked, could result in a build-up of systemic risk.

Targeting design and distribution with precision, as would be possible if appropriate product intervention powers were wielded at a macro level, might make better sense for the achievement of financial stability than, for example, attempting to address overexposure by simply changing a product's status as an admitted asset for solvency purposes, which could lead to fire sales.²⁰¹

The type of product intervention would vary in accordance with the source of risk. For instance, taking the example of cat bonds, if the risk emanated from the opacity of the product, macroprudential supervisors could intervene in the design of cat bonds and require certain information be included. If the risk originated in modeling of the product, the supervisor could introduce product intervention rules in relation to the standards of pricing or impose

197. See Saule T. Omarova, *License to Deal: Mandatory Approval of Complex Financial Products*, 90 WASH. U. L. REV. 63, 66 (2012) (“[I]f we cannot effectively regulate and control systemic risk associated with the increasing complexity in financial markets, we need to reduce and control the overall level of complexity in the system. Because much of that risk-generating complexity is a result of strategic efforts of financial intermediaries that structure, market, and deal in complex financial instruments, the most radical and direct method of reducing systemic risk is to insert regulatory controls at the point of product development, before the risk is introduced into the financial system.”). See also *Activities-Based Approach to Systemic Risk – Public Consultation Document*, INT’L ASS’N OF INS. SUPERVISORS (IAIS) (Dec. 8, 2017), <https://www.iaisweb.org/page/consultations/closed-consultations/2018/activities-based-approach-to-systemic-risk//file/70440/interim-aba-cp-final-for-launch> (proposing an activities-based approach to the mitigation of systemic risk in the insurance sector) [<https://perma.cc/86GF-EQ5T>].

198. See discussion *infra* Section IV.B.1.

199. See discussion *infra* Section IV.

200. *Id.*

201. See generally Andrew Ellul et al., *Regulatory Pressure and Fire Sales in the Corporate Bond Market*, 101 J. FIN. ECON. 596 (2011) (discussing how insurance companies that are more constrained by regulation are more likely to sell downgraded bonds at reduced prices).

entry requirements for entities that conduct the modeling. If the risk were connected to the distribution of the product, the supervisor could require that cat bonds be sold only in specific marketplaces or that they be purchased only by certain types of entities. Therefore, a strong link may be perceived between the attainment of macroprudential objectives and product intervention powers, a link which suggests that the macroprudential supervisor should have a strong involvement in the product intervention process, whether to (i) direct the powers towards the achievement of financial stability goals or (ii) monitor the impact where such powers are exercised to achieve conduct-of-business goals.

Therefore, where the exercise of product intervention powers rests on a conduct-of-business supervisor, the interaction between such supervisor and the agency charged with macroprudential oversight is crucial. But the conferment of product intervention powers exclusively on a conduct-of-business regulator to be exercised solely for the attainment of consumer protection objectives can be problematic even where such interaction is present.²⁰² In view of the potential for systemic risk to build up gradually over time, a product may be systemically relevant without necessarily being detrimental to individual investors.²⁰³ If, in spite of being conferred to attain consumer-protection goals, the power is exercised in furtherance of financial stability objectives, such exercise may be challenged as *ultra vires*.²⁰⁴ In light of this, product intervention can and should be legislatively designed as a tool not merely to achieve consumer protection objectives but also to further macroprudential goals.

In the next Section, we analyze how U.K. and E.U. law respectively have approached the design of product intervention powers. This analysis is intended to evaluate the principles and regulatory objectives that informed the legal framework establishing the powers, assess the extent to and the ease with which these powers may be used for macroprudential purposes under current law, and

202. See discussion *infra* Section IV.A.

203. See Claudio Borio, *Implementing a Macroprudential Framework: Blending Boldness and Realism*, 6 CAPITALISM & SOC'Y 1, 3 (2011).

204. See *Padfield v. Minister of Agriculture, Fisheries and Food* [1968] A.C. 997 (HL) 1033; see also *Britcits v. Secretary of State for the Home Department* [2017] EWCA (Civ) 368 [63] (“The [Padfield] principle is that a discretion conferred by statute on a minister must be exercised so as to promote and not to defeat the object of the legislation in question. It is for the court to interpret the legislation in order to identify the policy and objects of the legislation in question.”).

gauge whether their use for such purposes may give rise to conflicts.

IV. PRODUCT INTERVENTION POWERS THAT MAY BE EXERCISED IN THE U.K.

In this Section, we analyze product intervention powers that may be exercised in the U.K. We start by examining powers derived from U.K. law. In Part 1 of Section A we discuss the product intervention powers of the PRA and the FCA as assigned in FSMA as amended by the Financial Services Act 2012 and whether these powers could be utilized for macroprudential purposes. In Part 2 we outline the powers assigned in the Bank of England Act 1998 (BEA) to the FPC and whether these could assist in triggering, where necessary, product intervention for macroprudential purposes in the U.K. We conclude Section A by arguing that the use of product intervention powers in pursuit of financial stability under U.K. law is not straightforward and requires action by Her Majesty's Treasury (Treasury) (possibly on the advice of the FPC) as well as a consultation process before it may be exercised.

Section B then deals with product intervention powers deriving from E.U. law. These sources are varied and range from the founding Regulations of the European Supervisory Authorities (the ESAs Regulations)²⁰⁵ to product-specific pieces of legislation. We examine each one of these legal sources and the respective intervention powers they assign to the European Supervisory Authorities (ESAs) or to the national competent authorities (NCAs) of the member states. In particular, we focus on NCAs in the U.K. In the process, we also consider the extent to which these powers may be used to address systemic risk arising from ILSs such as cat bonds. We see that the legal framework for product intervention in the E.U. is complex, patchy, and at times even contradictory. Never-

205. See Council Regulation 1093/2010 of the European Parliament and of the Council of 24 November 2010 establishing a European Supervisory Authority (European Banking Authority), amending Decision No 716/2009/EC and repealing Commission Decision 2009/78/EC, 2010 O.J. (L. 331) 12 [hereinafter EBA Regulation]; Regulation (EU) No 1094/2010 of the European Parliament and of the Council of November 24 2010 establishing a European Supervisory Authority (European Insurance and Occupational Pensions Authority), amending Decision No 716/2009/EC and repealing Commission Decision 2009/79/EC, 2010 O.J. (L. 331) 48 [hereinafter EIOPA Regulation]; Regulation (EU) No 1095/2010 of the European Parliament and of the Council of 24 November 2010 establishing a European Supervisory Authority (European Securities and Markets Authority), amending Decision No 716/2009/EC and repealing Commission Decision 2009/77/EC, 2010 O.J. (L. 331) 84 [hereinafter ESMA Regulation]. The EBA Regulation, EIOPA Regulation and ESMA Regulation are together referred to as the "ESAs Regulations."

theless, we conclude that E.U. law may provide NCAs in the U.K. with tools for product intervention where financial stability concerns arise. These tools go beyond those provided by domestic law, and may be relevant to addressing any systemic risk originating in the cat bonds market. The exercise of these powers will depend on the fulfilment of various conditions and requirements as detailed in this Section.

A. *Product Intervention Powers Conferred by U.K. Law*

1. The FSMA

The U.K. legislator has introduced product intervention powers into the financial supervisory regime by the insertion of two new provisions into the FSMA. These are Section 137D, which confers product intervention rule-making powers on the FCA, and Section 138M, which empowers the FCA to make temporary product intervention rules.

Section 137D of FSMA confers on the FCA product intervention rule-making powers.²⁰⁶ Section 137D(2) provides that the product intervention rules made by the FCA may prohibit authorized persons from (i) entering into specified agreements with any person or specified person, (ii) entering into specified agreements with any person or specified person unless requirements specified in the rules have been satisfied, (iii) doing anything that would or might result in the entering into of specified agreements by persons or specified persons, or the holding by them of a beneficial or other kind of economic interest in specified agreements, and (iv) doing anything with respect to specified agreements mentioned in (iii) above unless requirements specified in the rules have been satisfied.²⁰⁷

“Specified agreements” are those agreements that meet the description specified in general rules made by the FCA.²⁰⁸ The intervention may involve prescribing content which should or should not be included in such agreements or restricting sales and

206. Financial Services and Markets Act 2000, c. 8, § 137D (U.K.), *amended* by Financial Services Act 2012, c. 21, § 24 (U.K.) (creating §§ 137A–141A of the Financial Services and Markets Act 2000) [hereinafter FSMA].

207. *Id.* § 137D(2). “[T]he requirements that may be specified under subsection (2)(b) or (d) include in particular, requirements as to the terms and conditions that are to be, or are not to be, included in specified or other agreements, and requirements limiting invitations or inducements to enter into specified or other agreements to those made to specified persons.” *Id.* § 137D(6).

208. *Id.* General rules of the FCA are made in accordance with § 137A of the FSMA. “Specified persons” are those meeting the description specified in rules by the FCA.

marketing.²⁰⁹ If contravened, the rules may provide for a relevant agreement or obligation to be unenforceable, for money or other property to be recovered, or for compensation to be paid.²¹⁰

Product intervention powers can be exercised when it is necessary or expedient for the purpose of advancing the FCA's consumer protection objective or its competition objective.²¹¹ These operational objectives advance the FCA's strategic objective, which is to ensure that the relevant markets function well.²¹² The consumer protection objective is aimed at securing an appropriate degree of protection for consumers²¹³ and the competition objective is aimed at promoting effective competition in the interests of consumers.²¹⁴

In addition, if the Treasury makes an order, these powers may also be applied to advance the integrity objective.²¹⁵ This operational objective is defined as protecting and enhancing the integrity of the U.K. financial system.²¹⁶ The "integrity" of the U.K. financial system includes, its soundness, stability and resilience, and the orderly operation of the financial markets.²¹⁷ In pursuance of this objective, the FCA explains that it acts to ensure that "firms' business models, activities, controls and behaviour maintain trust in the integrity of markets and do not create or allow market abuse, systemic risk or financial crime."²¹⁸ Therefore, this integrity objective could potentially provide a basis for product intervention to address financial stability concerns.

But product intervention powers may only be used in furtherance of the integrity objective if the Treasury makes an order permitting it.²¹⁹ Here, one may ask: what is the logic behind limiting the use of product intervention powers for the purpose of protecting and enhancing the integrity of the U.K. financial system? In the white paper issued for public consultation prior to the adop-

209. FSMA § 137D(6).

210. FSMA § 137D(7).

211. *Id.* § 137D (1)(a).

212. *Id.* § 1B(1), (2).

213. *Id.* § 1C(1).

214. *Id.* § 1E(1).

215. *Id.* § 137D(1)(b).

216. *Id.* § 1D(1).

217. *Id.* § 1D.

218. *Enhancing Market Integrity*, FCA (Jan. 9, 2016) <https://www.fca.org.uk/about/enhancing-market-integrity> [<https://perma.cc/8HHR-58CY>]; FCA, *THE FCA'S APPROACH TO ADVANCING ITS OBJECTIVES 2015*, 33 (2015), <https://www.fca.org.uk/publication/corporate/fca-approach-advancing-objectives-2015.pdf> [<https://perma.cc/3GXY-SDYY>].

219. FSMA § 137D(1)(b).

tion of the Financial Services Act 2012 (White Paper),²²⁰ the government noted that use of the FCA product intervention power is unlikely to be appropriate in relation to the protection of professional or wholesale consumers.²²¹ This position was strongly supported by respondents to the consultation and ultimately led to the exclusion of the use of these powers to advance the integrity objective.²²² Nevertheless, recognizing that there may be circumstances in which it may be necessary to make product intervention rules for market integrity reasons, the FSMA provided the Treasury with an order-making power to extend the power to cover the FCA's integrity objective.²²³

Interestingly, the White Paper indicates that “[i]n line with its general powers, the FPC will be able to advise the Treasury on the exercise of this order-making power.”²²⁴ As discussed in Part 2 below, the FPC's primary objective is to identify, monitor and take action to remove or reduce systemic risks with a view to protecting and enhancing the resilience of the U.K. financial system.²²⁵ Where such concerns necessitate the initiation of the Treasury order-making power, the FPC would be able to advise that product intervention powers be used for the purpose of preserving or enhancing market integrity.²²⁶

To date, the Treasury has not exercised this power and has not expressed the intention to do so. Moreover, even if the Treasury were to make such an order, the exercise of product intervention powers for the purpose of preserving or enhancing market integrity would be subject to a consultation process and a cost-benefit analysis unless delay would be “prejudicial to the interests of consumers.”²²⁷ Therefore, intervention in the absence of a consultation process is only permitted in pursuance of the consumer protection objective.

In addition to the powers conferred by Section 137D, Section 138M of FSMA empowers the FCA to make Temporary Product Intervention Rules (TPIR). TPIR may be made without consulta-

220. HM TREASURY, A NEW APPROACH TO FINANCIAL REGULATION: THE BLUEPRINT FOR REFORM 30–31 (2011), https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/81403/consult_finreg_new_approach_blueprint.pdf [<https://perma.cc/A5AP-G6K2>].

221. *Id.* at 31.

222. *Id.*

223. *Id.*

224. *Id.*

225. Bank of England Act 1998 (BEA) § 9C(1).

226. See discussion *infra* Section IV.A.2.

227. FSMA §§ 138(I),(L). “Interests of consumers” defined in FSMA § 425A.

tion (and without complying with other requirements under FSMA, such as conducting a cost benefit analysis)²²⁸ where the FCA considers that it is “necessary or expedient” to do so to advance the consumer protection objective or the competition objective (or the integrity objective if the requisite order is made by the Treasury).²²⁹ TPIR are valid for a maximum of twelve months and cannot be remade once they have expired.²³⁰ An FCA Policy Statement explains that:

Rules may range from requiring certain product features to be included, excluded, or changed, requiring amendments to promotional materials, to imposing restrictions on sales or marketing of the product or, in more serious cases, a ban on sales or marketing of a product in relation to all or some types of customer.²³¹

It should be noted that in making any rule, including temporary or permanent product intervention rules, the FCA is under obligation to seek to promote effective competition in the interests of consumers where doing so is compatible with its consumer protection objective (or the integrity objective).²³² Nevertheless, where promoting competition would conflict with the consumer protection or market integrity aims of a proposed product intervention rule (if applicable), the consumer protection or market integrity aims will take precedence over competition considerations.²³³ This indicates that the primary objective of the intervention powers assigned in the FSMA is the protection of investors and consumers of financial products. However, if the Treasury were to make an appropriate order, these intervention powers may be used in furtherance of the FCA’s integrity objective.²³⁴ If such an order were made, therefore, the FCA could use TPIR to address financial stability concerns, without being found to have acted *ultra vires*.²³⁵

It should, however, be borne in mind, that financial stability is not the FCA’s primary concern nor is it likely to treat it as a priority. The Turner Review identified the FSA bias towards the con-

228. *Id.* § 138M(1).

229. *Id.* § 138M(1).

230. *Id.* §§ 138M(3), (5).

231. Financial Services Authority (FSA), Policy Statement PS 13/3, The FCA’s Use of Temporary Product Intervention Rules, at 31 (Mar. 2013), <https://www.fca.org.uk/publication/policy/fsa-ps13-03.pdf> [hereinafter FSA Policy Statement PS13/3] [<https://perma.cc/Z583-6RSP>].

232. FSMA § 1B(4).

233. FSA Policy Statement PS13/3, *supra* note 209, at 25.

234. FSMA § 138M(1)(b).

235. *See* discussion *supra* Section III.B.

sumer protection goal vis-à-vis its microprudential supervision as one of the failures of financial supervision in the U.K. in the years leading to the 2008-2009 financial crisis.²³⁶ This bias was the *raison d'être* for breaking up the FSA and the adoption of a twin peaks structure with the FCA and the PRA as its successors.²³⁷ The FCA was viewed as a “dedicated, specialist body with focused and clear statutory objectives and regulatory functions” responsible for “regulation of conduct within the financial system—including the conduct of firms towards their retail customers, and the conduct of participants in wholesale financial markets.”²³⁸ Thus, the FCA is unlikely to act in furtherance of financial stability unless ordered to do so by authorities pursuing financial stability objectives, including macroprudential authorities.²³⁹

It is the PRA that has a general objective to promote the safety and soundness of the firms it regulates.²⁴⁰ This objective is to be advanced primarily, by seeking to ensure that these firms conduct their activities in such a way that any adverse effect on the stability of the U.K. financial system is avoided, and by seeking to minimize the adverse effect that these firms' failure could be expected to have on the stability of the U.K. financial system.²⁴¹ Even though the PRA does have the power in certain circumstances to veto FCA action,²⁴² the PRA is not empowered with any product intervention powers by the FSMA. So, barring any exercise by the Treasury of its power to make an order prescribing a macroprudential measure conferring a discretion to the PRA,²⁴³ the latter's ability to have an impact on product intervention where financial stability concerns arise is a negative one (i.e., it can only require the FCA to *refrain* from exercising its intervention powers where such exercise may threaten the stability of the U.K. financial system or result in the failure of a firm the PRA regulates in a way that would adversely affect the U.K. financial system. It cannot require the FCA to exercise such powers).²⁴⁴

236. FSA, THE TURNER REVIEW: A REGULATORY RESPONSE TO THE GLOBAL BANKING CRISIS, 87 (2009), http://www.fsa.gov.uk/pubs/other/turner_review.pdf [hereinafter TURNER REVIEW] [<https://perma.cc/NG8V-9ZX6>].

237. See Eilís Ferran, *The Break-up of the Financial Services Authority*, 31.3 OXFORD J. LEGAL STUD. 455, 455–80 (2011) for discussion on events leading up to this reform.

238. HM TREASURY, *supra* note 220, at 5–6.

239. See discussion *infra* Section II.D.1.2, 2.

240. See FSMA § 2B(2).

241. See *id.* § 2B(3).

242. See *id.* § 3I.

243. See BEA § 9L; see also discussion *infra* Section IV.A.2.

244. See FSMA § 3I.

2. The BEA as the Source of the Macroprudential Powers of the FPC

The FPC is charged with a primary objective of identifying, monitoring and taking action to remove or reduce systemic risks with a view to protecting and enhancing the resilience of the U.K. financial system.²⁴⁵ The FPC is required, while complying with its objective, to seek insofar as possible, to avoid exercising its functions in a way that would prejudice the advancement by the FCA of any of its operational objectives, or the advancement by the PRA of any of its objectives.²⁴⁶ The FPC has the power to give directions to the PRA or the FCA requiring macroprudential measures²⁴⁷ as prescribed by the Treasury's order in accordance with Section 9L of the BEA.²⁴⁸ The FPC's direction, however, cannot require the PRA or FCA to do anything that they do not have the power to do.²⁴⁹ Rather, it can only direct the discretion that was conferred on them.²⁵⁰ Hence, only if the Treasury makes the necessary order, can the FPC direct the FCA to use its product intervention powers in furtherance of the integrity objective. The FPC can make a recommendation to the Treasury to make such an order.²⁵¹

As can be seen, the use of product intervention powers in pursuit of financial stability under U.K. law is not straightforward and requires action by the Treasury (possibly on the advice of the FPC) as well as a consultation process before it may be exercised. This means that supervisors in the U.K. currently do not have the tools to rapidly intervene when sudden and acute systemic risk concerns arise. For instance, the regulator might want to intervene if a trigger catastrophic event were to take place and spur not just a sudden large-scale fire sale²⁵² of the affected cat bonds, but also panic selling of cat bonds generally, which may be detrimental to finan-

245. See BEA § 9C(1). Its secondary objective is to support the economic policy of the Government. *Id.* § 9C(2).

246. *Id.* § 9F(2).

247. *Id.* § 9H.

248. *Id.* § 9L. Section 9L(4)(b) of the BEA provides that the Treasury's order prescribing the macroprudential measure may, among other things, "confer a discretion on the Financial Policy Committee, the FCA or the PRA."

249. *Id.* § 9H(8).

250. *Id.* § 9H(8).

251. *Id.* § 9P(2)(d).

252. The recent price drop in cat bonds following hurricane Irma is an example of a sudden price drop which could potentially trigger a fire sale. See *Citrus Re 2017 Cat Bond Notes Trade Down 50% on Hurricane Irma Threat*, ARTEMIS (Sept. 6, 2017 <http://www.artemis.bm/blog/2017/09/06/citrus-re-2017-cat-bond-notes-trade-down-50-on-hurricane-irma-threat/> [<https://perma.cc/887Y-T29K>]).

cial stability. In this situation, a useful macroprudential tool would be to impose a fire breaker, by temporarily prohibiting the sale of affected cat bonds. The fire breaker could then stay in place pending clarity as to the actual losses incurred by the trigger event. If the regulators wanted to do this under current U.K. law, they would not be able to do so without first obtaining the required order from the Treasury, which is hardly conducive to prompt intervention to address an urgent market situation.

B. *Product Intervention Powers Deriving from E.U. Law*

Various instruments of E.U. law confer product intervention powers on the ESAs and the NCAs. These powers include (i) the ESAs' power to make Guidelines and Recommendations conferred by the ESAs Regulations,²⁵³ (ii) emergency temporary product intervention powers conferred on the ESAs and NCAs by the ESAs Regulations,²⁵⁴ (iii) the European Systemic Risk Board's power to make warnings and recommendations,²⁵⁵ and (iv) temporary product intervention powers²⁵⁶ conferred by the Markets in Financial Instruments Regulation (MiFIR),²⁵⁷ and the E.U. regulation on key information documents for packaged retail and insurance-based investment products (PRIIPs Regulation).²⁵⁸ These powers are discussed in the forthcoming sections with a view to assessing the extent to which they permit a supervisory authority to use product intervention powers in furtherance of the financial stability objective.

1. The European Systemic Risk Board Regulation and the ESAs Regulations

The FCA can also exercise the FSMA product intervention powers in furtherance of guidelines, recommendations, or warnings emanating from one or more of the ESAs.²⁵⁹ The objective of the ESAs is to protect the public interest by contributing to the short,

253. Recall the group of regulations that collectively make up the ESA Regulations, *supra* note 205. See also discussion *infra* Section IV.B.1.

254. See *id.*

255. See *id.*

256. See discussion *infra* Sections IV.B.2, IV.B.3, IV.B.4.

257. Regulation (EU) 600/2014 of the European Parliament and of the Council of 15 May 2014 on Markets in Financial Instruments and Amending Regulation 648/2012, 2014 O.J. (L 173) [hereinafter MiFIR].

258. Regulation (EU) No. 1286/2014 of the European Parliament and of the Council of 26 November 2014 on Key Information Documents for Packaged Retail and Insurance-based Investment Products, 2014 O.J. (L 352) [hereinafter PRIIPs Regulation].

259. ESAs Regulations, *supra* note 205, arts. 9(2), 16.

medium, and long-term stability and effectiveness of the financial system, for the E.U. economy, its citizens and businesses.²⁶⁰ It is also part of their role to promote transparency, simplicity, and fairness in the market for consumer financial products or services across the internal market.²⁶¹ Therefore, the ESAs pursue both prudential and conduct-of-business objectives in their respective sector.

To achieve these tasks, the ESAs are given a wide range of powers. They can adopt guidelines and recommendations addressed to NCAs or financial institutions with a view to promoting the safety and soundness of markets and convergence of regulatory practice.²⁶² According to Article 16 of the ESAs Regulations, the aim of these guidelines and recommendations is to establish consistent, efficient, and effective supervisory practices within the European System of Financial Supervision (ESFS), and to ensure the common, uniform, and consistent application of E.U. law.²⁶³

NCAs are required to comply with the ESAs' guidelines and recommendations or, in case of non-compliance, explain the reasons behind their decision.²⁶⁴ The ESAs can also issue warnings about financial activities posing a serious threat to their objectives,²⁶⁵ including the medium and long-term stability of the financial system.²⁶⁶ Nevertheless, the warnings issued to date by the ESAs were addressed to investors or consumers rather than NCAs, urging them to be aware of potential perils in specific investment activities, hence with the aim of consumer protection rather than in pursuit of financial stability.²⁶⁷

260. EBA Regulation, *supra* note 205, art. 1(5); EIOPA Regulation, *supra* note 205, art. 1(6); ESMA Regulation, *supra* note 205, art. 1(5).

261. ESAs Regulations, *supra* note 205, art. 9(1).

262. *Id.* arts. 9(2), 16.

263. *Id.* art. 16.

264. *Id.*

265. EBA Regulation, *supra* note 205, art. 1(5); EIOPA Regulation, *supra* note 205, art. 1(6); ESMA Regulation, *supra* note 205, art. 1(5).

266. ESAs Regulations, *supra* note 205, art. 9(3). The ESMA, for instance, issued a warning in December 2011 about trading in foreign exchange; however, in that case, the focus of the warning was consumer protection rather than financial stability. See ESMA, Investor Warning, Trading in Foreign Exchange (Dec. 5, 2011), https://www.esma.europa.eu/sites/default/files/library/2015/11/2011-412_1.pdf [<https://perma.cc/WNU3-R3NK>].

267. The ESAs have issued numerous warnings. See, e.g., ESMA, Investor Warning, Pitfalls of Online Investing (Sept. 10, 2012), https://www.esma.europa.eu/sites/default/files/library/2015/11/investor_warning_1.pdf; ESMA [<https://perma.cc/SUK4-LRG3>], Investor Warning, Trading in Foreign Exchange (CFDs) (Feb. 28 2013), https://www.esma.europa.eu/sites/default/files/library/2015/11/investor_warning_-_cfds_-_esma_2013_00070000_nl_tra.pdf [<https://perma.cc/MEX7-KNEE>]; ESMA, Warning About CFDs, Binary

Whilst the PRA does not have the statutory power for product intervention, the FCA may have, subject to the fulfilment of certain conditions, discussed under Section A above, the authority to exercise these powers based on financial stability grounds.²⁶⁸ Where the FCA fails to do so and the relevant ESA identifies a serious threat to the stability of the financial system, it may issue a warning addressed directly to the FCA or to the FPC that, in turn, can give a direction to the FCA or advise the Treasury to use its order-making power.²⁶⁹

Two important points should be considered. First, the FCA's objectives refer to the financial system in the U.K.²⁷⁰ whilst the ESAs' realm is the financial system in the E.U. Given that the ESAs guidelines or recommendations are based on "comply or explain,"²⁷¹ the FCA would be entitled to refuse to act in circumstances where, although beneficial at E.U. level, it is not beneficial to do so at U.K. level. Second, in contrast to the authorities in the U.K., the ESAs differ according to the sector they supervise rather than according to their functions.²⁷² Therefore, determining, which is the relevant NCA in the U.K. for the purpose of the ESAs Regulations, may not always be straightforward.

Which NCA will be the relevant one depends on the actual powers of the NCA and the objective that the product intervention serves: financial stability or consumer protection.²⁷³ For instance, the EBA refers on its website to the PRA as well as the FCA as the NCA for the U.K.²⁷⁴ But if the EBA were to recommend the PRA to exercise product intervention powers to protect the stability of the market, the PRA would simply not be able to do so as a matter of U.K. law.²⁷⁵ It might be that the FPC would have to persuade

Options and Other Speculative Products (July 25, 2016), https://www.esma.europa.eu/sites/default/files/library/2016-1166_warning_on_cfds_binary_options_and_other_speculative_products_0.pdf [<https://perma.cc/9KLN-STRP>].

268. See discussion *supra* Section IV.A.1.

269. See *id.*

270. FSMA § 1D.

271. See ESAs Regulations, *supra* note 205, art. 16.

272. The three ESAs are the European Banking Authority (EBA), the European Securities and Markets Authority (ESMA) and the European Insurance and Occupational Pensions Authority (EIOPA). See *supra* note 205.

273. See discussion *supra* Section IV.A.1.

274. See *Competent Authorities*, EUR. BANKING AUTHORITY, <https://www.eba.europa.eu/supervisory-convergence/supervisory-disclosure/competent-authorities> (last visited Dec. 19, 2018) [<https://perma.cc/MHZ9-Z4HC>].

275. See discussion *supra* Section IV.A.1 (U.K. law does not confer on the PRA any product intervention powers).

the Treasury to make the necessary order to permit the necessary exercise of product intervention powers.²⁷⁶

The ESAs Regulations therefore provide a mechanism to encourage NCAs to act where risks to the financial system in the E.U. arise. The success of such mechanism depends on the existence of the necessary powers at the national level as well as the will to cooperate with the ESA given that the latter only has power to make “soft” law in the form of either guidelines or recommendations. It will be appreciated that the process described above whereby this may be achieved is a rather unwieldy one and not amenable to speedy intervention. Nevertheless, the different levels of consultation required may have their advantages in view of the necessity of striking the right balance between permitting innovation in response to demand and taking preventive action in the face of systemic risk.

In addition to instigating action by the Member States’ NCAs through guidelines, recommendations, or warnings, the ESAs themselves have temporary product intervention powers.²⁷⁷ According to Article 9(5) of the ESAs Regulations, they may temporarily prohibit or restrict certain financial activities²⁷⁸ that threaten the orderly functioning and integrity of financial markets or the stability of the whole or part of the financial system in the E.U. when given the authority to do so under E.U. legislative acts listed in Article 1(2) of the ESAs Regulations. Those legislative acts include, for instance, the second Markets in Financial Instruments Directive (MiFID II)²⁷⁹ and MiFIR²⁸⁰ both discussed below. The PRIIPs Regulation, also discussed below, is not listed in Article 1(2) of the ESAs Regulations since it was enacted after the establishment of the ESAs. However, the list in this Article includes a reference to “all directives, regulations, and decisions based on those

276. See discussion *supra* Section IV.A.2.

277. ESAs Regulations, *supra* note 205, art. 9(5).

278. The ESAs Regulations do not define “financial activities,” but paragraph 50 of the preamble of each refers to the power temporarily to prohibit activities or products.

279. Directive 2014/65/EU of The European Parliament and of the Council of 15 May 2014 on markets in financial instruments and amending Directive 2002/92/EC and Directive 2011/61/EU (recast), OJ L 173/349 [hereinafter MiFID II].

280. The limited application of the powers of Article 9(5) that is currently confined to a few legislative acts was highlighted in the European Commission Review of the ESAs and it was suggested to consider converting Article 9(5) into a self-standing empowerment. See *Report from the Commission to the European Parliament and the Council on the Operation of European Supervisory Authorities (ESAs) and the European System of Financial Supervision (ESFS)*, at 8, COM (2014) 509 final (Aug. 8, 2014), http://eur-lex.europa.eu/resource.html?uri=cellar:52c42d53-1ef0-11e4-8c3c-01aa75ed71a1.0002.02/DOC_1&format=PDF [https://perma.cc/J6DN-HL6L].

acts, and of any further legally binding Union act which confers tasks on the Authority.”²⁸¹

Alternatively, temporary product intervention is permitted where there is an emergency situation.²⁸² According to Article 18 of the ESAs Regulations, an emergency situation may emerge where adverse developments may seriously jeopardize the orderly functioning and integrity of financial markets or the stability of the whole or part of the financial system in the E.U.²⁸³ In that case, the ESA, the European Commission or the European Systemic Risk Board (ESRB)²⁸⁴ can request the Council to adopt a decision addressed to the ESA, determining the existence of an emergency situation.²⁸⁵ The decision is made in consultation with the Commission and the ESRB and, where appropriate, the ESAs.²⁸⁶

The emergency intervention powers of the ESAs are temporary and, therefore not suitable for making permanent bans or prohibitions of specific products or financial activities. Accordingly, an ESA’s decision to use its intervention power has to be reviewed in appropriate intervals and at least every 3 months.²⁸⁷ If it is not renewed within that timeframe it automatically expires.²⁸⁸ A Member State can request the relevant ESA to reconsider its decision and, in that case, the latter has to follow a specified procedure.²⁸⁹

Despite the potential for intervention by the ESAs, directly or through the NCAs, the realm of the ESAs is confined to the microprudential level.²⁹⁰ Therefore, the ultimate leading force in preventing and mitigating systemic risks to financial stability within the E.U. is the ESRB.²⁹¹ The ESRB is responsible for the macroprudential oversight of the financial system within the E.U. in order to contribute to the prevention or mitigation of systemic risks to financial stability in the E.U. that arise from developments

281. ESAs Regulations, *supra* note 205, art. 1(2).

282. *See id.* art. 18.

283. *See id.*

284. Council Regulation (EU) No 1096/2010 of 17th 2010 conferring specific tasks upon the European Central Bank concerning the functioning of the European Systemic Risk Board, OJL 331/162, pmb. ¶ 5 [hereinafter ESRB Regulation].

285. ESAs Regulations, *supra* note 205, art. 18(2).

286. *See id.*

287. *See id.* art. 9(5).

288. *Id.*

289. ESAs Regulations, *supra* note 205, art. 9(5). The procedure is set out in the second subparagraph of Article 44(1) of the ESA’s Regulations.

290. *See European System of Financial Supervision*, EUR. PARLIAMENT, <http://www.europarl.europa.eu/factsheets/en/sheet/84/european-system-of-financial-supervision-esfs> (last visited Nov. 20, 2018) [<https://perma.cc/VJ58-W59F>].

291. *See id.*; ESRB Regulation, *supra* note 284, art. 3.

within the financial system and taking into account macro-economic developments, so as to avoid periods of widespread financial distress.²⁹²

When significant risks to the achievement of the ESRB macroprudential objective are identified, the ESRB can provide warnings and, where appropriate, issue recommendations for remedial action.²⁹³ The warnings or recommendations can be addressed to the E.U. as a whole, to one or more Member States, to one or more of the ESAs, or to one or more of the NCAs.²⁹⁴ The ESRB warnings or recommendations are backed by a “comply or explain” mechanism as set out in Article 17 of the ESRB Regulation.²⁹⁵ In addition, the ESRB can decide on a case-by-case basis to make a warning or recommendation public.²⁹⁶ Thus, in a cat bond scenario, if the ESRB were to consider that the cat bonds market had grown sufficiently and were sufficiently interconnected to pose a real systemic threat, it could issue a recommendation for action to be taken. For instance, it could recommend that any models used in structuring new cat bond issues be audited by independent third parties in order to ensure that they are robust, taking into account available contextual knowledge,²⁹⁷ and in order to have assurances from a diversity of sources as to the soundness of the risk-pricing.

Therefore, the ESRB is likely to be the driving force in ensuring macroprudential concerns in the E.U. are taken into account and acted upon. This can be achieved, *inter alia*, through the ESAs’ product intervention powers or through product intervention powers given at Member State level (as discussed in Section I). In addition, under recent E.U. legislation, NCAs in the U.K., including the FPC²⁹⁸ and the PRA, and not just the FCA, may be able to make use

292. ESRB Regulation, *supra* note 284, at art. 3.

293. *Id.* art. 6.

294. *Id.* art. 16(2).

295. *Id.* art. 17.

296. *Id.* art. 18.

297. *See* discussion *supra* Section II.B.

298. As a Committee of the Bank of England, the FPC can be considered as a competent authority for certain directives and regulations. *See* Letter from Nikhil Rathi, Director, Financial Services, HM Treasury, to Nadia Calviño, Deputy Director General for Directorates F, G, and H – Financial Services Policy, European Commission (Apr. 29, 2013), https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/210034/Notification_of_competent_authority_to_the_EU_Commission.pdf (listing the Bank of England as a competent authority for the purposes of the Council Regulation (EU) No 648/2012 on Over-The-Counter (OTC) Derivatives, Central Counterparties and Trade Repositories [2012] L OJ 20/1) [<https://perma.cc/4C4E-25W5>].

of product intervention powers for macroprudential purposes.²⁹⁹ These include the MiFIR, the PRIIPs Regulation and the Regulation on over-the-counter (OTC) Derivatives, Central Counterparties and Trade Repositories (EMIR).³⁰⁰

2. Product Intervention Powers under MiFIR

On 12 June 2014, the European Parliament and the Council adopted a new legislative package that included MiFID II and MiFIR, both of which came into force on January 3, 2018.³⁰¹ The legislation applies, *inter alia*, to investment firms and credit institutions when providing investment services and/or performing investment activities.³⁰² Articles 40, 41 and 42 of MiFIR, broadly share the same wording and empower the ESMA, the EBA (with respect to structured deposits) and NCAs respectively, to temporarily prohibit or restrict the marketing, distribution or sale of certain financial instruments or financial instruments with certain specified features or a type of financial activity or practice.³⁰³ The scope of these powers is circumscribed in two important ways: first in relation to the entities to which any restrictions may be addressed, second by the definition of “financial instruments” and “financial activity or practice.”³⁰⁴ In this Section, these two limitations are first discussed, focusing on whether cat bonds fall within the scope of product intervention powers conferred by MiFIR. Subsequently, the powers themselves are examined.

Article 2(1)(a) of MiFID II excludes from the application of MiFID II insurance undertakings or undertakings carrying out the reinsurance and retrocession activities referred to in the Solvency II Directive, when carrying out the activities therein referred to.³⁰⁵ Although as a consequence of this, MiFID II’s authorization and operating conditions for investment firms would not be applicable

299. See discussion *infra* Sections IV.B.2, IV.B.3, IV.B.4.

300. Regulation (EU) No 648/2012 of the European Parliament and of the Council of 4 July 2012 on Over-The-Counter (OTC) Derivatives, Central Counterparties and Trade Repositories [2012] L OJ 20/1 [hereinafter EMIR].

301. See *MIFID II*, EUR. SEC. & MKTS. AUTHORITY, <https://www.esma.europa.eu/policy-rules/mifid-ii-and-mifir> (last visited Nov. 20, 2018) [<https://perma.cc/4MMQ-7M67>].

302. See MiFID II, *supra* note 279; MiFIR, *supra* note 257; Directive 2013/36/EU of the Parliament and of the Council of 26 June 2013 on access to the activity of credit institutions and the prudential supervision of credit institutions and investment firms, amending Directive 2002/87/EC and repealing Directives 2006/48/EC and 2006/49/EC, 2013 O.J. (L 176) 338.

303. See MiFIR, *supra* note 257, arts. 40–42.

304. See discussion *infra*.

305. MiFID II, *supra* note 279, art. 2(1)(a).

to insurance and reinsurance undertakings, it would not appear in itself to affect the scope of product intervention powers in MiFIR. However, there are suggestions elsewhere that a restriction of the marketing, distribution or sale of financial instruments imposed by the exercise of MiFIR product intervention powers may not be addressed to an insurance undertaking.³⁰⁶ Even if this is the case, such restrictions may presumably be addressed to structuring agents and/or distributors listed in the MiFID investment firms register.³⁰⁷ Further, product intervention under MiFIR could presumably also lead to intervention in the secondary markets for cat bonds.³⁰⁸ Limiting the power to address product intervention to only specific types of entities lies awkwardly with the purposes of product intervention, which is to address issues in the design and distribution of products regardless of the class of entity that designed, sponsored or distributed them. If the coverage of entities is not sufficiently comprehensive, that would immediately result in regulatory arbitrage.³⁰⁹

The product intervention powers within the scope of MiFIR apply to financial instruments.³¹⁰ A financial instrument is an asset, evidence of the ownership of an asset, or a contractual agreement between two parties to receive or deliver another financial instrument.³¹¹ Instruments considered as financial are listed in MiFID II (Annex I).³¹² Pursuant to Section C(1) of the Annex

306. Indeed, in the Frequently Asked Questions on MiFIR Product Intervention Powers, it is indicated that “The entities to which these powers can be applied are firms authorized under Directive 2014/65/EU (MiFID) and credit institutions (i.e., banks) authorized under Directive 2013/36/EU (CRD).” See *Product Intervention*, ESMA, www.esma.europa.eu/policy-activities/mifid-ii-and-investor-protection/mifir-product-intervention-powers (last visited Nov. 25, 2018) [<https://perma.cc/HYJ8-YCRQ>].

307. See *Firm Registers*, ESMA, <https://registers.esma.europa.eu/publication/> (last visited Nov. 25, 2018) [<https://perma.cc/9FS3-NN3G>].

308. See MiFID II, *supra* note 279, art. 1(2).

309. On January 12, 2017, ESMA delivered an opinion calling for a modification of the scope of the powers of the National Competent Authorities (NCAs) and ESMA under Articles 40 and 42 of MiFIR. ESMA stated that “the way the scope of the intervention powers is designed under MiFIR could create a risk of arbitrage between MiFID firms and fund management companies . . . ESMA is very concerned about this risk of arbitrage because it could reduce the impact of future measures by leaving outside the scope of the restrictions entities performing similar activities or distributing funds directly, as well as creating competitive distortions.” ESMA, *Opinion, Impact of the Exclusion of Fund Management Companies from the Scope of the MiFIR Intervention Powers* (Jan. 12, 2017), www.esma.europa.eu/sites/default/files/library/esma50-1215332076-23_opinion_mifir_intervention_powers.pdf [<https://perma.cc/2HQU-CCHK>].

310. MiFIR, *supra* note 257, arts. 40–42.

311. *Id.* art. 2(1)(9); MiFID II, *supra* note 279, art. 4(1)(15).

312. See Commission Staff Working Document Impact Assessment accompanying the document Commission Delegated Regulation supplementing Regulation (EU) No 600/

financial instruments include transferable securities.³¹³ Article 4(1)(44) of MiFID II includes a definition of transferable securities which covers bonds.³¹⁴ Importantly for our purposes, it should therefore cover also cat bonds.

In addition, cat-linked futures, swaps and options would be classified as “derivatives,” and would therefore also fall within the ambit of MiFIR.³¹⁵ The definition of derivatives is common to both MiFID II and MiFIR.³¹⁶ Derivatives are defined in Article 2(1)(29) of MiFIR as:

any other securities (i.e.[,] other than transferable securities, including shares, bonds or other forms of securitised debt), giving the right to acquire or sell any such transferable securities or giving rise to a cash settlement determined by reference to transferable securities, currencies, interest rates or yields, commodities or other indices or measures.³¹⁷

Annex I Section C (10) of MiFID II lists among the types of derivatives to which it is applicable, “options, futures, swaps, forward rate agreements, . . . that must be settled in cash or may be settled in cash at the option of one of the parties other than by reason of default or other termination event”³¹⁸

Given that cat bonds as well as cat-linked derivatives fall within the scope of MiFIR, it is useful to examine the product intervention powers conferred by MiFIR because these can be used to regulate their design and distribution.³¹⁹ When exercising the product intervention powers conferred by MiFIR, the discretion of the EBA and ESMA is confined and requires that the following conditions are cumulatively met before it can be exercised:

- (a) The proposed action addresses a significant investor protection concern or a threat to the orderly functioning and integrity of financial markets (or commodity markets in

2014 of the European Parliament and of the Council with regard to Definitions, Transparency, Portfolio Compression and Supervisory Measures on Product Intervention and Positions C (2016) 2860 final, 61.

313. MiFID II, *supra* note 279, § C(1).

314. *Id.* art. 4(1)(44)(b).

315. MiFIR, *supra* note 257, art. 2(1)(29); MiFID II, *supra* note 279, art. 4(49).

316. *Id.*

317. *Id.*

318. This is reinforced by Commission Delegated Regulation (EU) of 25 of April 2016 supplementing Directive 2014/65/EU of the European Parliament and of the Council as regards Organisational Requirements and Operating Conditions for Investment Firms and Defined terms for the purposes of that Directive C (2016) 2398 final, at art. 8(e) [hereinafter Delegated Regulation].

319. MiFIR, *supra* note 257, arts. 40–42.

relation to ESMA and NCA) or to the stability of the whole or part of the financial system in the EU;³²⁰

- (b) The regulatory requirements under EU law that are applicable to the relevant financial instrument or activity do not address the threat;
- (c) A competent authority or competent authorities have not taken action to address the threat or the actions that have been taken do not adequately address the threat.³²¹

In addition, when taking action, the ESMA or the EBA have to ensure that the action does not have a detrimental effect on the efficiency of financial markets or on investors that is disproportionate to the benefits of the action and that it does not create a risk of regulatory arbitrage.³²² Before deciding to take any action, the ESMA or the EBA is required to notify competent authorities of the action it proposes.³²³

Given that cat-linked derivatives, including futures, swaps and options very probably fall within the ambit of MiFIR, EMIR would also apply to such cat bond-derived instruments.³²⁴ One of the key implications of this would be that certain information relating to transactions in these derivatives will be available to the entities on which MiFIR confers product intervention powers. This information will be available because EMIR introduces a mandatory requirement to report certain details of derivative transactions in the E.U. to trade repositories.³²⁵ So information on the risks inherent in derivatives markets will be centrally stored and easily accessible to the relevant competent authorities.³²⁶ Under EMIR, ESMA as the sole authority with the responsibility to register and exercise surveillance of trade repositories in the E.U.,³²⁷ can ensure unfet-

320. Where the conditions set out in the first subparagraph are fulfilled, EBA may impose the prohibition or restriction referred to in paragraph 1 on a precautionary basis before a structured deposit has been marketed, distributed or sold to clients. According to Article 42(2) that relates to NCA product intervention, there reference is to the stability of the whole or part of the financial system in the Union within at least one member state. *See* MiFIR, *supra* note 257, art. 42(2).

321. *Id.* arts. 40(2), 41(2).

322. *Id.* arts. 40(3), 41(3), 42(3). There is another condition with regard to the ESMA intervention powers to consult the public bodies competent for the oversight, administration and regulation of physical agricultural markets under Regulation (EC) No 1234/2007, where the measure relates to agricultural commodities derivatives. *See id.*

323. *Id.* arts. 40(4), 41(4).

324. EMIR defines “derivative” as a financial instrument as set out in points (4) to (10) of Section C of Annex I to MiFID I. *See* EMIR, *supra* note 300, art. 2(5). This definition is similar to the one in MiFID II. *See* MiFID II, *supra* note 279.

325. EMIR, *supra* note 300, art. 9.

326. *Id.* art. 81.

327. *Id.*

tered access for all the relevant European authorities, including the ESRB, to the data stored in the trade repositories.³²⁸ It can also act as the European contact point to deal with competent authorities of third countries' trade repositories.³²⁹ The information disclosed under EMIR is important for macroprudential supervision and will give authorities with product intervention powers the macro picture of how these products are being used and distributed.³³⁰

With regard to the product intervention powers conferred upon the NCA, they may be exercised if the NCSA is satisfied on reasonable grounds that:³³¹

- (a) either
 - (i) a financial instrument, structured deposit or activity or practice gives rise to significant investor protection concerns or poses a threat to the orderly functioning and integrity of financial markets or commodity markets or to the stability of whole or part of the financial system within at least one Member State; or
 - (ii) a derivative has a detrimental effect on the price formation mechanism in the underlying market;³³²
- (b) existing regulatory requirements under EU law applicable to the financial instrument, structured deposit or activity or practice do not sufficiently address the risks referred to in point (a) and the issue would not be better addressed by improved supervision or enforcement of existing requirements;
- (c) the action is proportionate taking into account the nature of the risks identified, the level of sophistication of investors or market participants concerned and the likely effect of the action on investors and market participants who may hold, use or benefit from the financial instrument, structured deposit or activity or practice;

328. *Id.* art. 81(3).

329. *Id.* The European Data Protection Supervisor (EDPS) has also raised concerns regarding the vast powers entrusted with the ESMA. *See Opinion of the European Data Protection Supervisor on the Proposal for a Regulation of the European Parliament and of the Council on OTC Derivatives, Central Counterparties and Trade Repositories*, EDPS (Apr. 19, 2011), https://edps.europa.eu/sites/edp/files/publication/11-04-19_otc_derivatives_en.pdf [<https://perma.cc/WF79-7CED>].

330. Importantly, the ESMA is responsible for development of regulatory technical standards specifying the details of the information to be disclosed. *See EMIR, supra* note 300, art. 81(5). This addresses the need for the information to be comparable across E.U. trade repositories, to make it more easily usable in the macroprudential arena. *See id.*

331. MiFIR, *supra* note 257, art. 42(2).

332. Where the conditions set out in the first subparagraph are fulfilled, the competent authority may impose the prohibition or restriction referred to in paragraph 1 on a precautionary basis before a financial instrument or structured deposit has been marketed, distributed or sold to clients. *See id.*

- (d) the competent authority has properly consulted competent authorities in other Member States that may be significantly affected by the action;
- (e) the action does not have a discriminatory effect on services or activities provided from another Member State; and
- (f) it has properly consulted public bodies competent for the oversight, administration and regulation of physical agricultural markets under Regulation (EC) No 1234/2007, where a financial instrument or activity or practice poses a serious threat to the orderly functioning and integrity of the physical agricultural market.

Several observations can be made with regard to these temporary product intervention powers. First, a pre-requisite for the exercise of the intervention power where it relates to the orderly functioning and integrity of financial/commodity markets or stability of the financial system is the existence of a “threat.”³³³ In contrast, where it is being exercised for investor protection purposes, there needs to be a “significant concern.”³³⁴ According to the ESMA, the latter requires the existence of a more intense detriment before the intervention power can be used.³³⁵ This reflects the priority given to financial stability as an objective.³³⁶

Second, the European Commission has adopted delegated acts (following a technical advice by the EBA and the ESMA) to identify the considerations to be taken into account by the EBA, the ESMA or an NCA in determining when, such significant concern or a threat (depending on the area of intervention) exists.³³⁷ The long list of criteria includes, for instance, the complexity of the product or activity, the potential for detrimental consequences, the type of clients involved and the degree of transparency.³³⁸ The criteria seem to be mostly orientated towards the investor protection objec-

333. *Id.* art. 42(2)(a)(i).

334. *Id.*

335. EUROPEAN SECURITIES & MARKETS AUTHORITY, FINAL REPORT: ESMA’S TECHNICAL ADVICE TO THE COMMISSION ON MiFID II AND MiFIR 188 (2014), https://www.esma.europa.eu/sites/default/files/library/2015/11/2014-1569_final_report_-_esmas_technical_advice_to_the_commission_on_mifid_ii_and_mifir.pdf [<https://perma.cc/WPW7-NTFF>].

336. *See generally* Schoenmaker & Wierds, *supra* note 1 (suggesting construction of a hierarchy of objectives in which the macroprudential concerns overrides the microprudential concerns); Christian Noyer, *Macroprudential Policy: From Theory to Implementation*, 18 *BANQUE DE FRANCE FIN. STABILITY REV.* 7, 11 (Apr. 2014).

337. MiFIR, *supra* note 257, art. 40(8), 42(7); Delegated Regulation, *supra* note 318.

338. The Delegated Regulation (recital 19) clarifies that the need to assess all criteria and factors that could be present in a specific factual situation should not prevent NCAs, ESMA and the EBA from using a temporary intervention power when only one of the factors or criteria leads to such a concern or threat. *See* Delegated Regulation, *supra* note 318, arts. 19–21.

tive but some were clearly drafted with financial stability considerations in mind. For instance, whether there is a high risk of disruption to systemically important institutions;³³⁹ whether the instrument or activity presents risks to payment, settlement or clearing systems;³⁴⁰ or whether it may threaten investors' confidence in the financial system.³⁴¹

Third, according to Articles 40(7) and 41(7) the intervention action adopted by the EBA or the ESMA prevails over any previous action taken by a competent authority.³⁴² The EBA and the ESMA are required to notify the NCA and publish a notice on its website.³⁴³

Fourth, the NCAs are subject to more onerous conditions than the EBA and the ESMA before they can use their temporary intervention powers. These conditions include the requirement that the issue would not be better addressed by improved supervision or enforcement of existing requirements; that the action is proportionate; the requirement to consult with competent authorities that might be affected by their proposed intervention action and that the action does not have a discriminatory effect on services or activities provided from another Member State.³⁴⁴ Some of these conditions similarly appear in the intervention power of the NCAs under the PRIIPs Regulation and will be further explored in the following Section. The NCAs need to provide at least a month's notice to the ESMA and other authorities when taking a temporary action.³⁴⁵

Finally, the EBA and the ESMA play a facilitation and coordination role in ensuring that action taken by a NCA is justified and proportionate and that where appropriate, a consistent approach is

339. *Id.* arts. 19(2)(r), 20(2)(r)–(s).

340. *Id.* arts. 19(2)(t), 20(2)(t)–(u).

341. *Id.* arts. 19(2)(u), 20(2)(u), 21(2)(v).

342. MiFIR, *supra* note 257, arts. 40(7), 41(7).

343. *Id.* arts. 40(4)–(5), 41(4)–(5).

344. *Id.* arts. 42(2).

345. *Id.* art. 42(3). Nevertheless, according to Article 42, “[i]n exceptional cases where the competent authority deems it necessary to take urgent action under this Article in order to prevent detriment arising from the financial instruments, structured deposits, practices or activities referred to in paragraph 1, the competent authority may take action on a provisional basis with no less than 24 hours’ written notice, before the measure is intended to take effect, to all other competent authorities and ESMA or, for structured deposits, EBA, provided that all the criteria in this Article are met and that, in addition, it is clearly established that a one month notification period would not adequately address the specific concern or threat. The competent authority shall not take action on a provisional basis for a period exceeding three months.” *Id.* art. 42(4).

taken by competent authorities.³⁴⁶ In practical terms, the ESMA or the EBA are required to issue an opinion on whether the prohibition or restriction is justified and proportionate and whether similar action by other competent authorities is required.³⁴⁷ Nevertheless, where an NCA has taken a measure under Article 42, the ESMA or the EBA may take any of the measures referred to in Article 40(1) and 41(1) respectively without issuing the opinion provided for in Article 43.³⁴⁸

The above discussion demonstrates that a U.K. NCA would be able to exercise product intervention powers conferred by E.U. rather than by U.K. law in furtherance of the financial stability objective, subject to the conditions stated in MiFIR. These powers should be seen as additional to those conferred by U.K. law, and exercisable independently of those conferred by FSMA or BEA. However the U.K.'s decision to withdraw from the E.U., depending on what is decided regarding the survival of the *acquis communautaire* in the U.K., may mean that in order that these powers be preserved, U.K. legislative action will be necessary.

3. Data Informing the Exercise of Product Intervention Powers: Product Governance under MiFID II

The decision to exercise product intervention powers can be a difficult one for supervisors as explained under Section III, and they are likely to be reluctant to intervene in the absence of compelling evidence of the need to do so.³⁴⁹ The availability of data about relevant products is therefore key. Article 16(3) and Article 24(2) of MiFID II introduced product governance obligations for manufacturers and distributors.³⁵⁰ Product governance is aimed at strengthening the level of investor protection across the Union and

346. *Id.* art. 43(1).

347. *Id.* art. 43(2).

348. *Id.* The opinion need only be issued where the NCA exercises powers under Article 42. *See id.*

349. *See* discussion *supra* Section III.A.

350. *See* MiFID II, *supra* note 279, arts. 16(3), 24(2). Manufacturer according to Recital 15 and Article 9(1) of the MiFID II Delegated Directive is a firm that manufactures an investment product, including the creation, development, issuance or design of that product, including when advising corporate issuers on the launch of a new product; Distributer according to Recital 15 and Article 10(1) of the MiFID II Delegated Directive is a firm that offers, recommends or sells an investment product and service to a client. Commission Delegated Directive (EU) 2017/593 at Recital 15, arts. 9(1), 10(1) [hereinafter MiFID II Delegated Directive]. The obligations are further specified in Articles 9 and 10 of Commission Delegated Directive (EU) 2017/593, the MiFID II Delegated Directive. *See* MiFID II Delegated Directive, arts. 9, 10.

reinforcing the confidence in financial markets.³⁵¹ While not specifically required for the purpose of gauging systemic significance, compliance with these obligations will generate data that will be useful for macroprudential oversight and potentially, the decision whether to exercise product intervention powers. For instance, Article 16(3) requires an investment firm that manufactures financial instruments to make available to any distributor all appropriate information on the financial instrument and the product approval process, including the identified target market of the financial instrument.³⁵² The guidelines on the product governance requirements issued by ESMA further specify the criteria for identification of the potential target market by manufacturers.³⁵³ The criteria include data on the financial situation of the target clients with a focus on the ability to bear losses as well as risk tolerance (i.e., the general attitude that target clients should have in relation to the risks of investment).³⁵⁴ These considerations could be useful in analyzing build-up of risks related to the use of a specific financial product and thus of interest to the macroprudential supervisor.

4. PRIIPs Regulation

The PRIIPs Regulation took effect on 1 January 2018.³⁵⁵ It defines packaged retail and insurance-based investment products (PRIIPs) as including both packaged retail investment products (PRIIP) and insurance-based investment products.³⁵⁶ The former are defined as follows:

an investment, including instruments issued by special purpose vehicles³⁵⁷ or securitisation special purpose entities,³⁵⁸ where, regardless of the legal form of the investment, the amount repayable to the retail investor is subject to fluctuations because

351. ESMA, FINAL REPORT: GUIDELINES ON MiFID II PRODUCT GOVERNANCE REQUIREMENTS, ESMA pt. 3 ¶1 (June 2, 2017), https://www.esma.europa.eu/sites/default/files/library/esma35-43-620_report_on_guidelines_on_product_governance.pdf [hereinafter ESMA 2017 PG REPORT] [<https://perma.cc/2XXS-N7C8>].

352. MiFID II, *supra* note 279, art. 16(3).

353. ESMA 2017 PG REPORT, *supra* note 351, pt. 3.4, § V.

354. *See id.*

355. *See Document 32014R1286*, EUR-LEX, <https://eur-lex.europa.eu/legal-content/en/ALL/?uri=CELEX%3A32014R1286> (last visited Oct. 5, 2018) (providing dates of effect for application and entry into force) [<https://perma.cc/JF93-F3SA>].

356. PRIIPs Regulation, *supra* note 258, art. 4(3).

357. *See Solvency II Directive*, *supra* note 127, art. 13(26) (defining special purpose vehicles).

358. *See Directive 2011/61/EU of the European Parliament and of the Council of 8 June 2011 on Alternative Investment Fund Managers and amending Directives 2003/41/EC and 2009/65/EC and Regulations (EC) No 1060/2009 and (EU) No 1095/2010 (OJ L 174, 1.7.2011, p. 1), art. 4(1).*

of exposure to reference values or to the performance of one or more assets which are not directly purchased by the retail investor.³⁵⁹

The latter are defined as “an insurance product which offers a maturity or surrender value and where that maturity or surrender value is wholly or partially exposed, directly or indirectly, to market fluctuations.”³⁶⁰

The question whether cat bonds would classify as PRIIPs is not an easy one to answer. First of all, the FCA notes that:

[i]dentifying whether a particular product is a PRIIP may not be straightforward as the concept of “exposure to reference values” is wide. In some cases, you will need to consider the specific terms of a product before determining whether or not it is a PRIIP.³⁶¹

It is suggested that cat bonds do not fall within the definition of insurance-based investment products, even though they are insurance-based, because cat bonds are not subject to market fluctuations since they are linked to a catastrophe event rather than the stock market or economic conditions. However, arguably, cat bonds do fall within the definition of PRIIP. First of all, it is to be noted that this definition makes reference to the definition of “special purpose vehicle” found in the Solvency II Directive, which is as follows:

“[S]pecial purpose vehicle” means any undertaking, whether incorporated or not, other than an existing insurance or reinsurance undertaking, which assumes risks from insurance or reinsurance undertakings and which fully funds its exposure to such risks through the proceeds of a debt issuance or any other financing mechanism where the repayment rights of the providers of such debt or financing mechanism are subordinated to the reinsurance obligations of such an undertaking.³⁶²

As explained in Section II, the amount repayable to the investor in a parametric cat bond depends on whether relevant catastrophes fall at or above a certain reference value on the index to which the cat bond is linked.³⁶³ Similarly, in an industry loss cat bond, the amount repayable depends on the losses experienced by the insurance industry following a catastrophe (the industry losses

359. See PRIIPs Regulation, *supra* note 258, art. 4(2).

360. *Id.*

361. *PRIIPs disclosure: Key Information Documents*, FCA (Feb. 13, 2018), <https://www.fca.org.uk/firms/priips-disclosure-key-information-documents> [https://perma.cc/5V4C-QAXD].

362. Solvency II Directive, *supra* note 127, art. 13(26).

363. See discussion *supra* Section II.A.2.

being the reference value).³⁶⁴ Both these types of cat bond may be seen as falling under the first alternative within the definition of PRIP. An indemnity cat bond, for its part, could fall under the second alternative within the definition, as the investors who buy cat bonds will not be a party to the underlying insurance contract (i.e., they are not directly incurring the liability, as insurers, to indemnify the assured for a covered loss).³⁶⁵

Without distinguishing between products offered to retail and institutional investors respectively Chapter III of the PRIIPs Regulation gives EIOPA and NCAs monitoring powers over PRIIPs³⁶⁶ and product intervention powers.³⁶⁷ Article 16 of PRIIPs Regulation empowers EIOPA temporarily to prohibit or restrict in the E.U.: (a) the marketing, distribution or sale of certain insurance-based investment products or insurance-based investment products with certain specified features or (b) a type of financial activity or practice of an insurance or reinsurance undertaking.³⁶⁸ The conditions that need to be fulfilled are identical to the ones required of EBA and ESMA under MiFIR to exercise their product intervention powers, as outlined in Part 2 above.³⁶⁹ While as explained, cat bonds would not fall under the definition of “insurance-based investment products,” the issue of a PRIP is likely to be considered “a type of financial activity or practice of an insurance undertaking.” If yes, it would qualify as an object of product intervention under Article 16.

Article 17 of the PRIIPs Regulation empowers NCAs to prohibit or restrict the following in or from its Member State: (a) the marketing, distribution or sale of insurance-based investment products or insurance-based investment products with certain specified features; or (b) a type of financial activity or practice of an insurance or reinsurance undertaking.³⁷⁰

For the intervention power to be exercised five conditions must be met:³⁷¹

364. *See id.*

365. While it should be pointed out that in insurance-linked securities, it is the insurer's liabilities which are securitized (and not assets), as this provision is designed to cover insurance-based investments, it is difficult to see what it could have been referring to if the word “assets” was meant to exclude securitized liabilities.

366. PRIIPs Regulation, *supra* note 258, art. 15.

367. *Id.* arts. 16, 17.

368. *Id.* art. 16(1).

369. *See id.* art. 16(2)(3); discussion *supra* Section IV.B.2.

370. PRIIPs Regulation, *supra* note 258, art. 17(1).

371. *Id.* art. 17(2).

- (a) an insurance-based investment product, or activity or practice gives rise to significant investor protection concerns or poses a threat to the orderly functioning and integrity of financial markets or the stability of whole or part of the financial system within at least one Member State;³⁷²
- (b) existing regulatory requirements under Union law applicable to the insurance-based investment product, or activity or practice do not sufficiently address the risks referred to in point (a) and the issue would not be better addressed by improved supervision or enforcement of existing requirements;
- (c) the action is proportionate taking into account the nature of the risks identified, the level of sophistication of investors or market participants concerned and the likely effect of the action on investors and market participants who may hold, use or benefit from the insurance-based investment product, or activity or practice;
- (d) The competent authority has properly consulted competent authorities in other Member States that may be significantly affected by the action; and
- (e) The action does not have a discriminatory effect on services or activities provided from another Member State.

In addition, the competent authority cannot impose a prohibition or restriction under Article 17 unless, not less than one month before the measure is intended to take effect, it has notified all other competent authorities involved, and EIOPA, of certain details, including the evidence upon which it has based its decision and upon which it is satisfied that each of the required conditions are met.³⁷³ The NCA is required to publish a notice on its website of a decision to impose a prohibition or restriction.³⁷⁴

EIOPA provided its Technical Advice, as requested by the Commission, on measures specifying the criteria and factors to be taken into account in determining when there is a significant investor

372. Where the conditions set out in the first subparagraph are fulfilled, the competent authority may impose the prohibition or restriction referred to in paragraph 1 on a precautionary basis before an insurance-based investment product has been marketed or sold to investors. *See id.*

373. Nevertheless, according to Article 17(4), “In exceptional cases where the competent authority deems it necessary to take urgent action under this Article in order to prevent detriment arising from the insurance-based investment products, activities or practices referred to in paragraph 1, the competent authority may take action on a provisional basis with no less than 24 hours’ written notice before the measure is intended to take effect to all other competent authorities and EIOPA, provided that all the criteria in this Article are met and that, in addition, it is clearly established that a one-month notification period would not adequately address the specific concern or threat. The competent authority shall not take action on a provisional basis for a period exceeding three months.” *Id.* art. 17(4).

374. *Id.* art. 17(5).

protection concern or a threat to the orderly functioning and integrity of financial markets or to the stability of the whole or part of the financial system of the E.U. generally or individual member states.³⁷⁵ According to the Technical Advice, the criteria should include, *inter alia*, the complexity of the product or activity, the size of the potential problem or detriment, the types of investors involved and the degree of transparency.³⁷⁶ Under the risk to the orderly functioning and integrity of financial markets factor, the Technical Advice outlines more detailed elements to be considered. These include, whether activities or practices pose a particularly high risk to the resilience or smooth operation of markets; whether a product or practice or activity poses particular risks to the market or payment systems infrastructure; and whether it would threaten the investors' confidence in the financial system.³⁷⁷ Several observations can be made.

First, Member States are required to designate the competent authorities responsible for the supervision of the compliance with the PRIIPs Regulation.³⁷⁸ The competent authority for that purpose in the U.K. is the FCA.³⁷⁹ There are however differences in the powers assigned to the FCA in the FSMA and in the PRIIPs Regulation. Article 17 of the PRIIPs Regulation refers to the competent authority power to prohibit or restrict "in *or from* its member states."³⁸⁰ This may be interpreted as meaning that the power assigned in the PRIIPs Regulation extends to activities of firms passporting into or from that Member State. In other words, the PRIIPs extends beyond the FCA power as assigned to it in the FSMA increasing its competence and jurisdiction.

Second, similar to the facilitation and coordination role of the ESMA and EBA under MiFIR, EIOPA is required to issue an opinion, published on the EIOPA website, on whether it considers the

375. See generally EIOPA, Technical Advice on Criteria and Factors to be Taken into Account in Applying Product Intervention Powers (June 29, 2015), <https://eiopa.europa.eu/Publications/Opinions/Technical%20Advice%20on%20certain%20product%20intervention%20criteria%28published%29.pdf> [hereinafter EIOPA 2015 TA] [<https://perma.cc/R2QW-UCJL>].

376. This is not the full list of criteria. EIOPA emphasizes in the preamble to the Technical Advice that Criteria and factors should be non-exhaustive. *Id.* at 3.

377. *Id.* § 7 ¶¶ c, e, f.

378. See PRIIPs Regulation, *supra* note 258, pmb. ¶ 10, art. 4(8).

379. See FCA, Consultation Paper CP16/18, Changes to disclosure rules in the FCA Handbook to reflect the direct application of PRIIPs Regulation (July 2016) <https://www.fca.org.uk/publication/consultation/cp16-18.pdf> [<https://perma.cc/ANG9-4XX3>].

380. PRIIPs Regulation, *supra* note 258, art. 17(1).

action taken by the NCA to be justified and proportionate.³⁸¹ Where a competent authority proposes to take, or takes, action contrary to an opinion adopted by EIOPA or declines to take action contrary to such an opinion, it is required to immediately publish on its website a notice fully explaining its reasons for doing so.³⁸²

Third, the PRIIPs Regulation appears to be mainly geared towards achieving investor protection rather than financial stability.³⁸³ These objectives are normally complementary, but at times may conflict. For instance, the requirement to consider the level of investor sophistication could be problematic when the desire to intervene is prompted by financial stability concerns. Even sophisticated investors (who may be deemed capable of protecting themselves if appropriate disclosure has been made),³⁸⁴ are liable to act in a way that generates systemic risk and leads to financial instability, as suggested by the evidence from the 2008-2009 financial crisis.³⁸⁵

Nevertheless, like the MiFIR, the PRIIPs Regulation may provide NCAs in the U.K. with tools for product intervention where financial stability concerns arise which are related to the design or distribution of cat bonds, and the same considerations arise with respect to the potential consequences of E.U. withdrawal as were raised above in Part 2. In view of the fact that the U.K. does not take a sectoral approach to financial regulation, should the decision be taken to transpose these powers into U.K. law as a result of E.U. law ceasing to apply in the U.K., the respective product intervention

381. *Id.* arts. 18(1), (2).

382. *Id.* art. 18(3).

383. *Id.* pmb. ¶ 40 (“Since the objectives of this Regulation, namely to enhance retail investor protection and improve retail investor confidence in PRIIPs, including where those products are sold cross-border, cannot be sufficiently achieved by the Member States but can rather, by reason of its effects, be better achieved at Union level.”).

384. Though it should be noted that the 2007-2009 financial crisis suggests that even disclosure requirements did not have the desired effect. See Steven M. Davidoff & Claire A. Hill, *Limits of Disclosure*, 36 SEATTLE UNIV. L. REV. 599, 638 (2013). This has prompted proposals for reform to disclosure regimes. See Emilius Avgouleas, *The Global Financial Crisis and the Disclosure Paradigm in European Financial Regulation: The Case for Reform*, 6 EURO. COMPANY & FIN. L. REV. 440, 475 (2009); Erik F Gerding, *Disclosure 2.0: Can Technology Solve Overload, Complexity and Other Information Failures?*, 90 TUL. L. REV. 1143, 1180 (2016); Tom C. W. Lin, *A Behavioral Framework for Securities Risk*, 34 SEATTLE UNIV. L. REV. 325, 378 (2011).

385. See TURNER REVIEW, *supra* note 236; Emilius Avgouleas, *Global Financial Crisis, Behavioural Finance and Financial Regulation: In Search of a New Orthodoxy*, 9 J. CORP. L. STUD. 23 (2009); Erica Beecher-Monas, *The Risks of Reward: The Role of Executive compensation in Financial Crisis*, 6 VIRGINIA L. & BUS. REV. 101 (2011); Lynne L Dallas, *Short-Termism, the Financial Crisis and Corporate Governance*, 37 J. CORP. L. 265 (2012).

powers conferred by PRIIPs and MiFIR could be merged and re-enacted as powers supplementary to those already conferred by FSMA and BEA.

V. CONCLUSION

From being niche and custom-designed financial instruments, cat bonds are becoming more common and commoditized as the need to turn to the capital markets to absorb catastrophe risks becomes more evident and as the popularity of these instruments increases due to the relatively high yield they offer.³⁸⁶ A number of features of the design and distribution of these financial instruments may in future render them systemically relevant. The pricing of catastrophe risks is far from straightforward and the increasing frequency and size of natural catastrophes in recent years suggests that caution should be exercised in originating and transferring financial risks correlated to these events.³⁸⁷

Yet, in view of the popularity of these products, there is the possibility that a market of risk origination will evolve that underprices catastrophe risks, passing them on to investors who lack the ability to price them correctly.³⁸⁸ An over-reliance on models, without supplementing them with calculative practices that draw upon contextual knowledge,³⁸⁹ can increase the “surprise factor” when a catastrophe strikes and the extent of the loss becomes evident. If the size of the market (including the cat-linked derivatives market) continues to increase, there is the potential for significant common exposures to develop, which, should widespread and significant losses occur, may engender panic in the financial markets.³⁹⁰ So while the alternative risk transfer function that cat bonds perform can be extremely beneficial in distributing and managing existing risks, the design and distribution of these products must be monitored with care in order to ensure that a beneficial innovation is not hijacked by a desire to speculate which poses a threat to financial stability.

Cat bonds may not pose an immediate systemic risk at the time of writing but it is the build-up of systemic risk that should be monitored and mitigated by macroprudential supervisors. Avoiding box-ticking in supervisory practices is key to effective supervi-

386. See discussion *supra* Section II.B.1.

387. See discussion *supra* in Section II.B.4.

388. See discussion *supra* Section II.B.4.

389. See Jarzabkowski, *supra* note 146, at 180–81.

390. See discussion *supra* Section II.B.

sion. Thus, whilst the question whether cat bond markets are systemically important should take into account size, interconnectedness and substitutability, it should also consider other factors, including complexity and opacity or investor complacency as these products become more standardized and “cookie-cutter.” Product intervention could provide an effective tool in the armory of macroprudential supervisors to address any consequent risks.

While bearing in mind that product intervention powers are new and largely untested, this paper suggests that, in view of the potential systemic relevance of the product itself and its distribution, the right way to address these risks may be through the exercise of product intervention powers rather than by other regulatory means. The Article also examines the scope and content of product intervention powers that may be exercised in the U.K., both powers conferred by U.K. law as well as powers conferred by E.U. law. The examination of these powers reveals a complex and fragmented landscape of varying approaches. Product intervention powers are currently hedged around with various conditions and requirements that need to be met prior to their exercise. These obstacles are mainly the result of an attempt to achieve a workable balance between permitting innovation in response to market demand and precluding developments that are harmful to the interests of investors and/or pose a threat to financial stability.³⁹¹ However, the various hurdles which need to be overcome before a product intervention power may be exercised in furtherance of the financial stability objective may reduce regulators’ appetite to exercise these powers.³⁹² This is especially true if the justification does not involve the protection of consumers but a more vague and uncertain threat to the financial system as a whole.

Nevertheless, the availability of the powers arguably leaves open to the financial authorities an additional macroprudential tool that can be wielded in appropriate circumstances, where the better-known macroprudential tools such as capital buffers and loan-to-value ratio limits are unsuitable for the task at hand.³⁹³ Should the powers conferred by E.U. law be repealed pursuant to the U.K.’s withdrawal from the E.U., careful consideration should be given to whether what is left is sufficient for macroprudential purposes, or whether additional powers need to be built into the U.K. regulatory framework.

391. See discussion *supra* Section III.A.

392. See discussion *supra* Section IV.

393. See *id.*

The implications of our findings extend much beyond the systemic risk impact of cat bonds or more generally, ILS. They emphasize the need for macroprudential supervisors to have a varied array of tools and to apply them where appropriate. Macroprudential supervisors may suffer from inaction bias, particularly when expected to supervise innovative financial instruments.³⁹⁴ Of course, risk-taking is essential to the efficient functioning of financial markets and ultimately, for economic growth.³⁹⁵ Still, where innovation threatens financial stability, this is exactly where the intervention of macroprudential supervisors is needed. We attempt to point out a way in which supervisors can be innovative and use available tools creatively to meet their financial stability objective. Whilst product intervention powers were designed primarily for investor protection, when the design, issuance, distribution and use of a product could have systemic risk implications, macroprudential supervisors could and should use this tool to address the risk.

394. See discussion *supra* Section III.A.

395. OECD, BANK COMPETITION AND FINANCIAL STABILITY 19–20 (2011), www.oecd.org/daf/fin/financial-markets/48501035.pdf [<https://perma.cc/6LPR-RCXH>].