Financial Stability, Regulation and Politics: Risks, Uncertainties and the International Financial System

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Introduction

In April 2016 the European Parliament noted that "the stability of the financial system, which is essential for the effective allocation of resources for growth and jobs, is a global public good."[2] In the same month the IMF and World Bank held their spring meetings, where participants focused on a range of issues relating to financial stability,[3] including risks involving FinTech and

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[2] European Parliament Resolution of 12 April 2016 on the EU Role in the Framework of International Financial, Monetary and Regulatory Institutions and Bodies (2015/2060(INI)).

[3] *See, e.g.*, IMF, The Managing Director's Global Policy Agenda: Decisive Action, Durable Growth, 2 (Mar. 25, 2016) ("Financial market volatility and risk aversion have risen, tightening financial conditions. This reflects economic, financial and political risks, as well as lower confidence in the effectiveness of

cybersecurity,[4] "geopolitical tensions, refugee crises,[5] and the shock of a potential U.K. exit from the European Union."[6] In May the Federal Reserve Board "announced the Office of Financial Policy and Research (OFS) has been designated a division of the Board and renamed as the Division of Financial Stability (FS)" and stated that "[t]he change reflects the growth in responsibilities and staffing associated with the Board's commitment to identifying and analyzing risks to financial stability and to developing and evaluating macroprudential policy responses to those risks."[7]

By 2016 financial stability became an all-encompassing construct. Immediately after the collapse of Lehman Brothers in the autumn of 2007 governments of the G20 countries committed to focusing on maintaining financial stability by focusing financial regulation on macroprudential risk (systemic risk) as well as on microprudential risk, and ensuring that monetary policy would take account of financial stability concerns. By 2016 the list had grown, as

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policies. Rising vulnerabilities in EMs, persistent legacies in AEs (nonperforming loans) and weak systemic market liquidity represent key challenges. Against this background, and despite a partial recovery in recent months, global financial stability is not yet assured..")

[4] *See, e.g.*, Overheard at the Spring Meetings, IMF Survey (Apr. 27, 2016) at http://www.imf.org/external/pubs/ft/survey/so/2016/new042616a.htm

[5] *See, e.g.*, IMF, Global Financial Stability Report (Apr. 2016) at p. 2 ("Increased political uncertainty related to geopolitical conflicts, political discord, terrorism, refugee flows, or global epidemics loom over some countries and regions, and if left unchecked, could have significant spillovers on financial markets.")

[6] Communiqué of the Thirty-Third Meeting of the IMFC, Chaired by Mr. Agustín Carstens, Governor of the Bank of Mexico (Apr. 16, 2016) ("Downside risks to the global economic outlook have increased since October, raising the possibility of a more generalized slowdown and a sudden pull-back of capital flows. At the same time, geopolitical tensions, refugee crises, and the shock of a potential U.K. exit from the European Union pose spillover risks.")

[7] Federal Reserve Board Press Release (May 11, 2016).

cybersecurity became a more and more visible problem,[8] and Mark Carney, the Chair of the Financial Stability Board (FSB), described financial stability as being concerned with "new and emerging vulnerabilities in the financial system, including potential risks associated with market-based finance, asset management activities, conduct, correspondent banking and climate change."[9]

It is difficult enough for legislatures and regulators to achieve agreement on the necessary rules to address the financial stability risks associated with size and interconnectedness of financial institutions. But these new subjects of financial stability concern raise even more complex issues, ranging from practical issues as to whether financial regulators are and will be able to use financial regulation effectively to address issues of financial stability with respect to new vulnerabilities emerging outside the financial sector to normative questions about when and how financial regulators should address such issues. This paper examines two examples of the new emphasis on financial stability: climate change and Brexit. In many ways climate change is a financial stability issue that resembles other, more familiar financial stability issues (some climate change risks are clearly material, for example) and can be addressed by means of similar types of regulatory and risk management techniques. The climate change problem was created by very large numbers of actors in very many countries over a very long period of time with little reason to suspect the problems they were causing. Climate change requires prompt action, but from a regulatory perspective it is a problem that is developing over time rather than an immediate problem, thus allowing for regulatory thinking to develop. And, to a large extent the perspectives

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[8] *See, e.g.*, SWIFT Customer Communication: Customer Security Issues (May 13, 2016).

[9] FSB Chair's Letter to G20 Ministers and Governors on Financial Reforms – Progress on the Work Plan for the Hangzhou Summit (Feb. 27, 2016). And *cf. e.g.*, Opinion piece from Benoît Cœuré, Member of the Executive Board of the ECB, for the Frankfurter Allgemeine Sonntagszeitung, 1 May 2016, at https://www.ecb.europa.eu/press/key/date/2016/html/sp160501.en.html ("people are not just savers – they are also employees, taxpayers and borrowers, as such benefiting from the low level of interest rates. ...Certainly, monetary policy would become more effective if other euro area policy areas did more to generate stable and sustainable growth, embedded in a credible set of rules.")

of financial regulators on climate change risks are likely to converge with the perspectives of other actors, governmental and non-governmental, who care about climate change. Brexit, on the other hand, represents a very different type of risk. The referendum is happening because David Cameron promised it[10] to silence trouble-making members of his own party and opposition from UKIP.[11] It creates urgent short term financial stability risks which are complicated to understand and address. It is a risk generated in the UK which may spread to other jurisdictions, and management of the risks pits technocrats against citizens.[12]

The Financial Stability Board and financial regulators around the world have worked since the onset of the crisis on developing new approaches to ensure financial stability. The Financial Stability Board, the international body which is now responsible for ensuring implementation of the transnational financial stability agenda, is the Financial Stability Forum, established in 1999 in response to the Asian financial crisis,[13] but with a new name. Assuming that the financial stability rhetoric, and the measures proposed to ensure it, were intended by the G20 and others to be real policy initiatives rather than merely rhetorical devices to calm the markets, it makes sense to take seriously the idea of financial stability as an objective of financial regulation, to evaluate what progress has been made towards achieving any sort of reliable financial stability since the failure of Lehman Brothers and to consider to what extent regulation can likely ensure

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[10] *See, e.g.*, Mads Dagnis Jensen & Holly Snaith, *When Politics Prevails: the Political Economy of a Brexit*, Journal of European Public Policy (2016), p 3 http://dx.doi.org/10.1080/13501763.2016.1174531 ("In January 2013, the British prime minister, David Cameron, promised that should the Conservative Party win the 2015 election, he would 'renegotiate' the UK's future membership of the EU and put it to a referendum by 2017 at the latest.")

[11] *Id.* ("Between 2012 and 2013, Cameron came under increased pressure from (mostly English) Eurosceptic back- benchers within his own party, who smelled blood because of the rise of the UK Independence Party (UKIP). To manage the dissident voices and arrest the surge of UKIP, the prime minister launched the negotiation proposal.")

[12] [See *infra*]

[13] *See, e.g.*, http://www.fsb.org/about/history/ .

financial stability.

What is Financial Stability?

Policies to ensure financial stability are essentially about identifying and addressing sources of potential instability to the financial system, rather than risks which affect individual financial institutions, although prudential rules for individual firms also help to maintain stability. The risk that an individual borrower will fail to repay a loan, the credit risk associated with that one transaction, is a risk to the lender. The risk that a large number of borrowers (for example, sub-prime borrowers) will fail to repay their loans is a systemic issue because it affects large numbers of lenders. Lenders which are over-exposed to sub-prime borrowers my fail, causing risks to other financial institutions.[14]

Financial regulators have traditionally focused on the safety and soundness of individual financial firms, and particularly banks. But the safety and soundness of individual banks also has systemic and financial stability implications because of the risks of bank runs and contagion. Systemic risk was a concern of regulators long before the most recent financial crisis: contagion and panics,[15] and speculative bubbles[16] have been features of financial systems, and sources of concern, for generations, if not centuries. More recently central banks and financial regulators have addressed financial stability in regular publications. The European Central Bank has published a Financial Stability Review since December 2004, and this was nearly two decades after the Bank of England published its first financial stability review in 1996 after the failure of BCCI and

[14] *See, e.g.*, Ray Barrell & E. Philip Davis, *The Evolution of the Financial Crisis of 2007-8*, 206 National Institute Economic Review 5-14 (2008).

[15] *See, e.g.*, Alex Preda, FRAMING FINANCE, 221 (2009) (noting that "panics became an object of systematic description in the 1860s.")

[16] *See, e.g.*, J. Bradford De Long & Andrei Shleifer, *The Stock Market Bubble of 1929: Evidence from Closed-end Mutual Funds*, 51 Journal of Economic History 675-700 (1991); Barry Eichengreen, HALL OF MIRRORS, 26-31 (2015) (describing the Florida property market bubble of the 1920s), Peter M. Garber, *Tulipmania*, 97 Journal of Political Economy 535-560 (1989).

Barings.[17]

The Asian financial crisis prompted major economies to focus on issues of financial stability.[18] The IMF and World Bank established a Financial Sector Assessment Program (FSAP)[19] and as a result the IMF began to produce financial soundness indicators in 2001.[20] Nevertheless, institutions with financial stability remits clearly failed to prevent the financial crisis which began in 2007.[21]

Regulatory Measures for Achieving Financial Stability

One response to the financial crisis was to improve the capital adequacy of individual financial firms.[22] The Basel Committee on Banking Supervision promulgated new capital adequacy standards,[23] and new measures to address

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[17] Sander Oosterloo, Jakob de Haan & Richard Jong-A-Pin, *Financial Stability Reviews: a First Empirical Analysis*, 2 JOURNAL OF FINANCIAL STABILITY, 337-355, at 339 (2007).

[18] Report of the Working Group on Strengthening Financial Systems (Oct. 1998).

[19] *See, e.g.*, Matias Costa Navajas & Aaron Thegeya, Financial Soundness Indicators and Banking Crises. IMF Working Paper WP/13/263 (Dec. 2013) at p. 5.

[20] Financial Soundness Indicators and the IMF at https://www.imf.org/external/np/sta/fsi/eng/fsi.htm .

[21] *Cf.* E. Philip Davis & Dilruba Karim, *Could Early Warning Systems Have Helped To Predict the Sub-Prime Crisis?*, 206 National Institute Economic Review 35-47 (2008).

[22] *Cf.* Anat Admati, *The Missed Opportunity and Challenge of Capital Regulation*, p. 2 (Dec. 2015) at https://www.gsb.stanford.edu/sites/gsb/files/missed-opportunity-dec-2015_1.pdf (Suggesting that ".Nonsensical claims that increased capital requirements prevent banks from making loans and "keep billions out of the economy" may resonate with media, politicians and the public just because the jargon is misunderstood.")

[23] Basel Committee on Banking Supervision, Basel III: A Global Regulatory Framework for More Resilient Banks and Banking Systems (Dec. 2010, revised Jun. 2011).

liquidity,[24] and funding[25] as these were problems which contributed to the crisis. In addition, the Basel Committee instituted a new programme to ensure that the transnational capital adequacy standards were being implemented consistently: the Regulatory Consistency Assessment Programme.[26] The RCAP process has prompted some improvements in implementation. For example the RCAP report on Turkey, published in March 2016, notes that at two stages during the process Turkey introduced new rules to conform to the Basel standards: during the initial self-evaluation, and again in response to review by the RCAP Assessment Team.[27] In the Spring of 2016 the Basel Committee announced new measures to limit states' discretion in implementation of the Basel standards, including proposed measures to reduce variations in risk weighted assets across jurisdictions.[28]

In addition to improving the capital adequacy of banks, the G20 and the Financial Stability Board worked to limit the need to bail out banks in future by

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[24] Basel Committee on Banking Supervision, Basel III: The Liquidity Coverage Ratio and Liquidity Risk Monitoring Tools (Jan. 2013).

[25] Basel Committee on Banking Supervision, Basel III: The Net Stable Funding Ratio (Oct. 2014).

[26] *See, e.g.*, Basel Committee on Banking Supervision, Regulatory Consistency Assessment Programme (RCAP) Handbook for Jurisdictional Assessments, 2 (Mar. 2016) ("Recognising the importance of implementation, the Committee established the Regulatory Consistency Assessment Programme (RCAP) in 2012. By means of the RCAP, the Committee's purpose is to ensure the consistent implementation of the Basel III framework, and thus to contribute to global financial stability.")

[27] Basel Committee on Banking Supervision, Regulatory Consistency Assessment Programme (RCAP), Assessment of Basel III Risk-Based Capital Regulations – Turkey, 4 (Mar. 2016).

[28] Basel Committee on Banking Supervision, Reducing Variation in Credit Risk-weighted Assets - Constraints on the Use of Internal Model Approaches (Mar. 2016) at p. 1 ("The proposed changes to the IRB approaches set out in this consultative document include a number of complementary measures that aim to: (i) reduce the complexity of the regulatory framework and improve comparability; and (ii) address excessive variability in the capital requirements for credit risk." (footnotes omitted))

addressing the risk that financial institutions would be considered to be too big to fail. Effective capital adequacy requirements are a component of protecting states from the costs of bailout, and stress-testing is designed to measure how effective capital is likely to be in a range of possible scenarios.[29] Countries were encouraged to develop bank resolution regimes including bail-in of bank creditors and living wills,[30] although the effectiveness of the living wills is doubtful, and even regulators based in the same country may come to different conclusions on whether the living wills of particular financial institutions will work.[31] Bank regulation may be an art rather than a science.

The G20 decided that systemically significant financial institutions — bank and non-bank institutions— should be subject to additional prudential requirements because of a recognition that the largest, most interconnected, financial institutions could threaten financial stability more than smaller institutions.[32] Financial Market Infrastructures may be systemically significant.[33]

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[29] *See, e.g.*, Federal Reserve System, Amendments to the Capital Plan and Stress Test Rules, 80 Fed. Reg. 75419, 75419 (Dec. 2, 2015) ("Capital planning and stress testing are two key components of the Board's supervisory framework for large financial companies.") *Cf.* Jill Cetina, Mark Paddrik & SriramRajan, Stressed to the Core: Counterparty Concentrations and Systemic Losses in CDS Markets, Office of Financial Research Working Paper 16-01 (Mar. 8, 2016).

[30] *See, e.g.*, Financial Stability Board, Second Thematic Review on Resolution Regimes: Peer Review Report (Mar. 18, 2016); United States Government Accountability Office, Resolution Plans: Regulators Have Refined Their Review Processes but Could Improve Transparency and Timeliness, GAO-16-341 (Apr. 2016).

[31] Board of Governors of the Federal Reserve System, Federal Deposit Insurance Corporation, Agencies Announce Determinations and Provide Feedback on Resolution Plans of Eight Systemically Important, Domestic Banking Institutions (Apr. 13, 2016).

[32] *See, e.g.*, Financial Stability Board, Reducing the Moral Hazard Posed by Systemically Important Financial Institutions: FSB Recommendations and Time Lines (Oct. 20, 2010).

[33] *See, e.g.*, Committee on Payment and Settlement Systems, Technical Committee of the International Organization of securities Commissions,

The collapse of AIG, which was over-exposed to credit default swap risks,[34] justified building non-banks into the SIFI category.[35] Before the financial crisis non-banks, which were not subject to regulation as banks, took on the sort of credit risks that banks had historically been subject to, through, for example, credit default swaps or participation in securitized lending. These types of entity became known as shadow banks, and regulators committed to addressing the problem of risk in shadow banking entities.[36] But identifying which non-bank financial institutions should be subject to additional prudential requirements has proved controversial and complicated. Because of AIG, insurance companies were obvious targets, but AIG challenged its rescue as unnecessary,[37] and the DC District Court struck down the US Financial Stability Oversight Council's designation of Metlife as a SIFI in 2016.[38] Regulators have argued that asset management firms are sources of risk to financial stability but movement on addressing these risks is very slow.[39] Asset managers argue that they do not pose

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Principles for Financial Market Infrastructures (Apr. 2012); Financial Stability Oversight Council, Authority To Designate Financial Market Utilities as Systemically Important, 76 Fed. Reg. 44763 (Jul. 27, 2011)

[34] *See, e.g.*, William K. Sjostrom Jr., *The AIG Bailout*, 66 WASHINGTON & LEE LAW REVIEW 943-991 (2009); William K. Sjostrom Jr., *Afterword to the AIG Bailout*, 72 WASHINGTON & LEE LAW REVIEW 795-827 (2015).

[35] *See, e.g.*, Financial Stability Oversight Council, Authority To Require Supervision and Regulation of Certain Nonbank Financial Companies, 77 Fed. Reg. 21637 (Apr. 11, 2012).

[36] *See, e.g.*, Financial Stability Board, Transforming Shadow Banking into Resilient Market-based Finance: An Overview of Progress (Nov. 12, 2015); Financial Stability Board, Global Shadow Banking Monitoring Report 2015 (Nov. 12, 2015).

[37] Starr International v US, 121 Fed. Cl. 428 (2015).

[38] MetLife v FSOC, DDC, Mar. 30, 2016 at https://ecf.dcd.uscourts.gov/cgi-bin/show_public_doc?2015cv0045-105.

[39] *See, e.g.,* Financial Stability Oversight Council, Update on Review of Asset Management Products and Activities (Apr. 18, 2016); Office of Financial

the same sort of financial stability risks as banks,[40] and the Financial Stability Board plans to carry out a consultation on asset management risks in 2016.[41]

Regulators and policy analysts have devoted significant efforts since the onset of the financial crisis to understanding contagion and interconnectedness in financial markets.[42] They distinguish between direct and indirect interconnectedness: direct connections relate to transactions such as loans, while indirect connections may result from fire sales which lead to sudden declines in asset prices or from a perception that distress at one financial institution suggests risks at others.[43] Direct connectedness is easier to identify and control than indirect connectedness.[44] But work to manage indirect connectedness is ongoing.

Progress towards implementing new financial stability-promoting

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Research, Asset Management and Financial Stability (Sep. 2013).

[40] *Cf.* SIFMA AMG Statement on G-SIFI Designation for Investment Funds and Asset Managers (Mar. 5, 2015). Comments on the Financial Stability Board's March 2015 Consultation on Non-Bank, Non-Insurer (NBNI) Globals SIFIs are available at http://www.fsb.org/2015/06/public-responses-to-march-2015-consultative-document-assessment-methodologies-for-identifying-nbni-g-sifis/ .

[41] Financial Stability Board Press Release, Meeting of the Financial Stability Board in Tokyo on 30-31 March (Mar. 31, 2016).

[42] *See, e.g.*, IMF, Understanding Financial Interconnectedness (Oct. 4, 2010); Paul Glasserman & H. Peyton Young, Contagion in Financial Networks, Office of Financial Research Working Paper 15-21 (Oct. 20, 2015); Marco A Espinosa-Vega & Steven Russell, Interconnectedness, Systemic Crises and Recessions, IMF Working Paper No. 15/46 (Feb. 27, 2015).

[43] Zijun Liu, Stephanie Quiet & Benedict Roth, Banking Sector Interconnectedness: What Is It, How Can We Measure it and Why Does it Matter?, 55:2 Bank of England Quarterly Bulletin 130, 131-2 (2015).

[44] *See, e.g.*, *id.* at 133 ("Broadly speaking, direct interconnectedness from credit exposures has declined since the financial crisis. Direct interconnectedness from financial service and infrastructure dependencies remains significant, but there are a number of policy initiatives directly aimed at addressing risks arising from such dependencies.")

measures and rules is slow and uncertain and it is not clear that, even if implemented, new rules will achieve their objectives. It is a perennial characteristic of regulation that it tends to address issues which are historic, and policy-makers' ability to predict the future is limited. And regulation introduced to control risks which developed in the past may create their own new risks as market participants manoeuvre around the rules.

Critiquing the Idea of Financial Stability as an Objective of Financial Regulation

Financial stability discourse tends to assume that if policy-makers can identify the significant risks to financial stability they can deal with them. But there are clearly limits to what financial policy-makers can achieve through policies designed to improve financial stability.[45] Even if transnational standard setters can identify financial stability risks accurately and can define appropriate and effective measures to address those risks, achieving full implementation of those measures across the globe is complicated. Although the transnational standard setters have focused increasingly on issues of implementation, including limiting discretion about how to implement the standards, implementation is still slow and imperfect. The more broadly the policy-makers conceive of what risks they are addressing in thinking about financial stability the more problematic it becomes to think of what measures can in fact be adopted to ensure financial stability.

Not only is ensuring implementation of transnational financial stability measures complicated, but the substance of those measures also raises questions. In the lead-up to the financial crisis, regulators and financial firms placed great reliance on the idea that financial risks could be identified and controlled. The crisis illustrated that the pre-crisis approaches to identifying and controlling for risks were seriously flawed.[46] Since the financial crisis, those regulators continue

[45] *Cf.* IMF, Global Financial Stability Report (Apr. 2016) at p. 31 ("Banks in advanced economies are more resilient to credit and liquidity shocks thanks to regulatory efforts to increase the amount and quality of capital, raise liquidity buffers, and reduce funding mismatches. Despite these improvements, bank equity prices plunged and funding stresses emerged in late 2015 and early 2016.")

[46] *Cf.* Bank of England, One Bank Research Agenda: Discussion Paper, 1 (Feb. 2015) ("The Bank of England is one of only a handful of institutions

to focus on identifying and controlling risk. The standards have been refined to be more demanding of firms and regulators. New risks are being addressed.[47] But some of the real risks to financial stability, such as some aspects of indirect interconnectedness which may produce contagion, are about changes in market participants' perceptions of reality, and it is difficult to imagine how financial regulators can ensure the stability of perception. In the post-crisis period regulators have focused on securitization (changes in perception of the value of the securities was a cause of the crisis), but new examples of problems of perception have emerged, from accounting issues to manipulations of indices and benchmarks. The value of many financial "assets" depends on others' assessments of value rather than on any true value. Whether or not securities and derivatives have this characteristic, gold, diamonds, oil, and art clearly do. Moreover, some market participants purposely see the world differently from the crowd to identify opportunities for profit, hoping that events, perhaps even their own investing behavior, will alter perception. And to characterize the issues as being issues of perception may also be misleading, to the extent that investment strategies are

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internationally with responsibility for monetary, macroprudential and microprudential policy, and the operation of all of these to achieve policy outcomes. All of these areas face big questions, not least of which is the interaction between them. Conventional thinking about these policies has been challenged by the financial crisis. New policies and interventions have been deployed; new regulations introduced; new supervisory practices adopted. While enhancing understanding of the economy and financial system is of timeless importance, the recent explosion in the amount and variety of available data offers the prospect of deeper insight. And fundamental technological, institutional, societal and environmental change means that we have an ongoing need to reassess our thinking and policies over a long horizon.")

[47] *See, e.g.*, Basel Committee on Banking Supervision, Consultative Document, Identification and Measurement of Step-in Risk, 1 (Dec. 2015) ("Step-in risk is the risk that a bank may provide financial support to an entity beyond or in the absence of any contractual obligations, should the entity experience financial stress. To capture and address such risk, the focus is on identification of unconsolidated entities, to which a bank may nevertheless provide financial support, in order to protect itself from any adverse reputational risk stemming from its connection to the entities.")

systematic and automated —a function of programming[48] —rather than a product of human decision-making.[49] Whatever the source, if value is malleable and inherently shifting, stability is elusive.

Financial stability concerns may not be entirely consistent with other financial regulation concerns.[50] Fully informed pricing of financial market assets is desirable. But from the perspective of financial stability, volatility in financial asset prices is a concern, and policy makers may seek to intervene in the markets to support asset prices. The financial crisis and EU sovereign debt crisis have provoked this type of action.[51] And during 2015, China supported prices in its securities markets for a while when unjustified speculation threatened investors with losses. Restrictions on borrowing to invest in securities reduced the need for state support of the markets for a while, but China resumed supporting the markets in January 2016.[52] Policies to maintain financial stability sometimes seem to be designed to maintain the illusion that markets are working properly, in other words, maintaining confidence, rather than justifying confidence.

Whereas financial regulators can address some financial stability risks by controlling or attempting to control the behavior of financial firms subject to their authority, sometimes sources of risk to financial stability are beyond the control of

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[48] Nb. Programs are the result of human decisions.

[49] *Cf.* Pensions and Lifetime Savings Association, Systematic Investing. Made Simple Guide (Mar. 2016) at http://www.plsa.co.uk/PolicyandResearch/DocumentLibrary/~/media/Policy/Documents/0578-PLSA-SYSTEMATIC-INVESTING-made-simple.pdf.

[50] There are other concerns about financial regulation that are beyond the scope of (this version of) this paper. *See, e.g.*, What Is the Future of Global Finance? at https://www.weforum.org/agenda/2016/01/what-is-the-future-of-global-finance/ .

[51] *See, e.g.*, European Central Bank, ANNUAL REPORT, 40-42 (2015) (discussing the ECB's asset purchase actions).

[52] *See, e.g.*, China Said to Intervene in Stocks After $590 Billion Selloff (Jan. 5, 2016) at http://www.bloomberg.com/news/articles/2016-01-05/china-said-to-intervene-in-stock-market-after-590-billion-rout.

financial regulators. Geopolitical developments may affect asset prices or create instability that affects the financial markets. Recent examples of such developments are changes in global oil prices and the international refugee crisis. Neither issue is primarily a financial stability issue, neither is subject to the control of financial regulators or central bank governors, yet both have implications for financial stability. In some cases financial regulators may be able to address aspects of risks originating outside the financial system as they have an impact on the financial system, but at other times it is harder to address the risks in any organized way. The next section of the paper examines these issues using two examples of financial stability risk: climate change and Brexit.

Climate Change[53]

Climate Change is an "urgent threat" requiring "an effective and progressive response."[54] Temperatures and sea levels have been rising.[55] There have been changes in precipitation and in the salinity and acidity of the oceans.[56] Scientists predict future changes in precipitation: dry areas are likely to become

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[53] [Discuss fossil fuel divestment].

[54] *See* recitals to the Paris Agreement, Paris, December 12, 2015. The Paris Agreement was opened for signature on April 22, 2016. See https://treaties.un.org/pages/ViewDetails.aspx?src=TREATY&mtdsg_no=XXVII-7-d&chapter=27&lang=en.

[55] *See, e.g.*, Intergovernmental Panel on Climate Change, Climate Change 2014: Synthesis Report Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)]. IPCC, Geneva, Switzerland (2015) (IPCC 2014) at p 2 ("Each of the last three decades has been successively warmer at the Earth's surface than any preceding decade since 1850. The period from 1983 to 2012 was likely the warmest 30-year period of the last 1400 years in the Northern Hemisphere, where such assessment is possible (medium confidence). The globally averaged combined land and ocean surface temperature data as calculated by a linear trend show a warming of 0.85 [0.65 to 1.06] °C 2 over the period 1880 to 2012, when multiple independently produced datasets exist.")

[56] *See, e.g.*, *id.* at 4.

drier, wetter areas are likely to become wetter.[57] These changes have implications for the viability of animals and plants,[58] and for food security,[59] and water availability.[60] The changes have clear but uncertain economic[61] and security implications.[62] But, although climate change represents a collective action problem,[63] it is not a problem with one optimal set of responses. The Intergovernmental Panel on Climate Change says:

> The design of climate policy is influenced by how individuals and organizations perceive risks and uncertainties and take them into account. Methods of valuation from economic, social and ethical analysis are available to assist decision-making. These methods can take account of a wide range of possible impacts, including low-probability outcomes with large consequences. But they

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[57] *See, e.g.*, *id.* at 11 ("Changes in precipitation will not be uniform. The high latitudes and the equatorial Pacific are likely to experience an increase in annual mean precipitation under the RCP8.5 scenario. In many mid-latitude and subtropical dry regions, mean precipitation will likely decrease, while in many mid-latitude wet regions, mean precipitation will likely increase under the RCP8.5 scenario.")

[58] *See, e.g.*, *id.* at 13 ("A large fraction of species faces increased extinction risk due to climate change during and beyond the 21st century, especially as climate change interacts with other stressors (high confidence). Most plant species cannot naturally shift their geographical ranges sufficiently fast to keep up with current and high projected rates of climate change in most landscapes; most small mammals and freshwater molluscs will not be able to keep up at the rates projected under RCP4.5 and above in flat landscapes in this century (high confidence).")

[59] *See, e.g.*, *id.* at 13.

[60] *See, e.g.*, *id.* at 13-14.

[61] For an example of an assessment of the economic consequences of climate change see OECD, The Economic Consequences of Climate Change (Nov. 2015) DOI:10.1787/9789264235410-en.

[62] *See, e.g.*, IPCC 2014, supra note 55, at 14.

[63] *See, e.g.*, *id.* at 17.

> cannot identify a single best balance between mitigation, adaptation and residual climate impacts.[64]

The IPCC suggests that climate change should be addressed through mitigation and adaptation.[65] Both mitigation and adaptation require the involvement of governmental and non-governmental entities at all levels, as well as changes in behavior by individuals.[66]

In April 2015, the G20 asked the Financial Stability Board to focus on climate change.[67] In September 2015, Mark Carney, Governor of the Bank of England and Chairman of the Financial Stability Board, spoke about climate change as a risk to financial stability,[68] citing a Prudential Regulation Authority

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[64] IPCC 2014, supra note 55, at 17.

[65] *Id.* at 17-19. *See also, e.g.*, OECD, Climate Change Mitigation Policies and Progress (Oct. 20, 2015) DOI:10.1787/9789264238787-en.

[66] *See, e.g.*, IPCC 2014, supra note 55, at 19 ("Adaptation planning and implementation can be enhanced through complementary actions across levels, from individuals to governments (high confidence). National governments can coordinate adaptation efforts of local and sub-national governments, for example by protecting vulnerable groups, by supporting economic diversification and by providing information, policy and legal frameworks and financial support (robust evidence, high agreement). Local government and the private sector are increasingly recognized as critical to progress in adaptation, given their roles in scaling up adaptation of communities, households and civil society and in managing risk information and financing (medium evidence, high agreement).") And *see also, e.g.*, *id.* at 26 ("Adaptation and mitigation responses are underpinned by common enabling factors. These include effective institutions and governance, innovation and investments in environmentally sound technologies and infrastructure, sustainable livelihoods and behavioural and lifestyle choices.")

[67] G20 Finance Ministers and Central Bank Governors, Communiqué, Washington DC, (April 17, 2015) at http://www.g20.utoronto.ca/2015/150417-finance.html ("We ask the FSB to convene public- and private-sector participants to review how the financial sector can take account of climate-related issues. ")

[68] Mark Carney, Breaking the Tragedy of the Horizon - Climate Change and Financial Stability, Speech at Lloyd's of London (Sep. 29, 2015) at http://www.bankofengland.co.uk/publications/Documents/speeches/2015/speech8

(PRA)[69] report on the impact of climate change on UK insurers.[70] The report identified three categories of climate change risks to insurers: physical risks (insurance claims and impacts on valuation of financial assets from weather-related events), liability risks, and transition risks.[71] Non-financial firms will look to insurers to cover some climate change-related costs. Financial firms also will be subject to climate change-related risks, for example with respect to implications of sea-level rise for their physical premises and with respect to the impact of climate change on their counterparties' financial soundness. The interconnectedness of financial firms means that climate change risks that do affect insurers matter to the financial system as a whole. In April 2016 the G20 emphasized climate change as a matter of concern.[72]

44.pdf ("The need to manage emerging, mega risks is as important as ever. Alongside major technological, demographic and political shifts, our very world is changing. Shifts in our climate bring potentially profound implications for insurers, financial stability and the economy.")

[69] The UK's two main financial regulatory bodies are the Prudential Regulation Authority, which is responsible for prudential regulation of financial firms and the Financial Conduct Authority which regulates the conduct of business.

[70] Prudential Regulation Authority, The Impact of Climate Change on the UK Insurance Sector (Sep. 2015) at http://www.bankofengland.co.uk/pra/Documents/supervision/activities/pradefra0915.pdf .

[71] *Id.* at 4.

[72] G20, Communiqué of the G20 Finance Ministers and Central Bank Governors Meeting (Apr. 27, 2016) ¶ 11 ("Recognizing the importance of the operating entities of the financial mechanism of the United Nations Framework Convention on Climate Change, we welcome the endorsement of the Strategic Plan for the Green Climate Fund (GCF) and call for the Fund's continued efforts to scale up its operations. We reiterate our call for timely implementation of the Paris Agreement on Climate Change and the commitments made by developed countries and international organizations and announcements made by other countries on climate finance. We affirm the importance of monitoring and transparency of climate finance. We ask the Climate Finance Study Group

Climate change does clearly involve financial stability risks. Increases in food insecurity, insecurity resulting from migration to avoid the effects of climate change, and disruption to economic welfare resulting in geopolitical uncertainties all present risks for the economic systems of states and for the international financial system. Financial regulators, embedded in networks with other financial regulators are part of a transnational multi-level, technocratic, policy-making project.

Climate change risks are complex to understand, difficult to quantify and largely beyond the control of financial regulators, although financial regulators are in a position to encourage financial firms to engage in adaptation to and mitigation of climate change risks. If financial regulators can encourage financial firms to focus on mitigation and adaptation those firms may also be able to encourage their customers to change their behaviours.

In this way, relying on financial firms to help to address problems of climate change is similar to using financial firms to control terrorism via anti-money-laundering (AML) rules and sanctions and to control nuclear proliferation and other threats to international security by means of sanctions. Because finance is everywhere, finance can be used as a mechanism for exercising control. In the case of AML and sanctions measures the control financial firms can exercise is often through exclusion (leading to concerns about derisking and a focus on ensuring financial inclusion),[73] rather than as a way of encouraging changes in behaviour through positive reinforcement.

In other contexts financial regulation has attempted to change behaviour more pro-actively. Transnational campaigns to require corporations to make disclosures with respect to payments for resource extraction[74] and use of conflict

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(CFSG) to finalize this year's work and report back to us at our July Meeting. We reaffirm our commitment to implementing the 2030 Agenda for Sustainable Development.")

[73] *See, e.g.*, Global Partnership for Financial Inclusion (GPFI), Global Standard-Setting Bodies and Financial Inclusion: The Evolving Landscape (Mar. 2016).

[74] *See, e.g.*, Securities & Exchange Commission, Disclosure of Payments by Resource Extraction Issuers, Proposed Rule, 80. Fed. Reg. 80058 (Dec. 23,

minerals[75] are precedents for encouraging corporations to make climate-change-related disclosures. And climate change disclosures would relate to matters that are much more likely to be material to investors' assessment of the financial condition of an issuer than are disclosures relating to resource extraction and conflict minerals.[76]

In March 2016 the Task Force on Climate-related Financial Disclosures, which was established by the Financial Stability Board, and includes in its membership "private providers of capital, major issuers, accounting firms, and rating agencies,"[77] published a report on climate-change-related disclosure

2015). The NPR notes that "Rule 13q–1 was initially adopted by the Commission on August 22, 2012, but it was subsequently vacated by the U.S. District Court for the District of Columbia." *Id.* at 80058. See American Petroleum Institute v SEC, 953 F. Supp. 2d 5 (D.D.C. 2013). The SEC's proposed rules rules seek to give effect to the Extractive Industries Transparency Initiative Standard. *See* Extractive Industries Transparency Initiative Standard (2016) at https://eiti.org/files/english-eiti-standard_0.pdf .

[75] *See, e.g.*, Securities & Exchange Commission, Conflict Minerals, 77 Fed. Reg. 56274 (Sep. 12, 2012). But see NAM v. SEC, 748 F. 3d 359 (D.C. Cir. 2014) (invalidating the rule). *Cf.* Holly Dranginis, Doing Good, while Doing Well: Is There a Win-Win Formula for Investing Responsibly in Congo's Minerals Sector? (Jul. 2014).

[76] In American Petroleum Institute v SEC, 953 F. Supp. 2d 5 (D.D.C. 2013) the Court suggested that there might be an issue as to the validity of §13(q) of the Securities Exchange Act (15 U.S.C. 78m(q)) under the First Amendment. ("As for the constitutional challenge to section 13(q) itself, the Commission has yet to interpret section 13(q) in light of its discretionary authority, and the interpretation it adopts could alter the First Amendment analysis. Different analytical approaches may be required for a rule that compels disclosure only to the Commission with compilation deemed impracticable, a rule that provides for confidential disclosure followed by a government-authored compilation, and a rule that requires the companies themselves to publicly post detailed information in a particular format.")

[77] Task Force on Climate-related Financial Disclosures, Phase 1 Report of the Task Force on Climate-related Financial Disclosures, 3 (Mar. 31, 2016).

issues.[78] The Report notes that generally disclosure requirements already require disclosures relating to climate change if they are material,[79] that there are private-sector initiatives already relating to climate-change disclosures, such as the Montreal Carbon Pledge,[80] but that more work was necessary to make disclosures more useful and more consistent:

> The Task Force will seek to promote and drive voluntary adoption by ensuring that its recommendations reflect a consensus view of leading practices for disclosure; advance principles of good governance, fiduciary duty, and stewardship; and provide a basis for consistent and comparable application by firms in countries throughout the G20.[81]

The project is thus very limited in scope. It imagines voluntary rather than mandated disclosures.[82] And whereas disclosure is an easy way in to thinking about climate change risks from the perspective of financial regulation, as the Task Force notices, disclosure relating to climate change is only useful to the extent that users of disclosure care about the substance of disclosure.[83] If financial

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[78] *Id.*

[79] *Id.* at 4. But see also *id*. at 13 (noting that "there is a lack of consensus on what constitutes a material climate risk, particularly at the sector, subsector, and asset-class level. As a result, disclosure frameworks can differ widely in terms of content, metrics reported, form, and linkages to financial risks.")

[80] *Id.* at 7. And see also *id.* at 8 ("By some measures, almost 400 climate or sustainability disclosure regimes promulgated by industry groups, NGOs, stock exchanges, regulators, and international organizations are estimated to exist.")

[81] *Id.*

[82] The report does address required disclosures apart from material financial disclosures at pages 18-20.

[83] *See, e.g.*,Task Force on Climate-related Financial Disclosures, *supra* note 77, at 14 ("The Task Force recognizes that the impact of increasing the supply of relevant and timely information to the market will depend on whether there is sufficient demand for such data by market participants. Therefore, the Task Force will need to consider possible constraints on the demand for such information. For example, investment managers may not be properly incentivized

regulators are to be effective participants in the sort of mitigation and adaptation processes envisaged by the IPCC, they must go further than encouraging the co-ordination of voluntary disclosures about climate change risks.

Politics and Financial Stability: Brexit

The decision about whether the UK should remain in the EU or leave is a political decision which the Government has decided to submit to popular vote in a referendum. Although this is not the first UK referendum on whether to remain part of the European project,[84] and not the first referendum to raise questions about how the European project should be constructed,[85] it is significant for citizens, not just of the UK, but of other EU Member States. Polling suggests uncertainty about the likely outcome of the referendum,[86] and a vote to leave would result in a prolonged period of uncertainty for the UK because the terms on which the UK would leave, and the terms of its future relationship with the EU, would need to be negotiated and then approved by all of the EU Member States.

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by their asset owner clients to incorporate such information in decision-making. The Task Force will thus seek to explore how reporting by investment managers and asset owners on how they manage climate-related risks in their portfolios can increase incentives to utilize climate risk data.")

[84] The UK held a referendum on Europe in 1975 shortly after joining the European Communities. *See, e.g.*, Peter Byrd, *The Labour Party and the European Community, 1970-1975*, 13 Journal of Common Market Studies 469 (1975).

[85] *See, e.g.*, Liesbet Hooghe & Gary Marks, Europe's Blues: Theoretical Soul-searching after the Rejection of the European Constitution, PS: Political Science & Politics, 2006 ("Efficient governance should be multi-level because externalities and scale economies vary across policies. But governance is also an expression of community. Citizens care—passionately—about who exercises authority over them. The functional need for human cooperation rarely coincides with the territorial scope of community. This tension is, we believe, a key to understanding the path of European integration.")

[86] *See, e.g.*, Rafal Kierzenkowski, Nigel Pain, Elena Rusticelli & Sanne Zwart, The Economic Consequences of Brexit: a Taxing Decision, OECD Economic Policy Papers No. 16 (Apr. 2016) at 10 ("Opinion polls increasingly suggest that Brexit is conceivable.")

This uncertainty has implications for financial stability. News reports suggest that the European Central Bank asked eurozone banks to explain their plans to deal with a possible Brexit,[87] and the ECB's Bond Market contact group announced plans to discuss Brexit.[88] The G20 commented on Brexit in a Communiqué from the February 2016 meeting of Finance Ministers and Central Bank Governors.[89] The OECD published a paper which noted the likely costs associated with Brexit,[90] and that "[f]inancial markets have increasingly begun to price in the risk of Brexit. Economic uncertainty has also risen and started to hurt confidence and business investment, weakening UK growth."[91] The paper stated that "Brexit would generate a financial shock beyond the UK."[92] In the context of an Article IV consultation with the UK the IMF said that a "vote for exit would precipitate a protracted period of heightened uncertainty, leading to financial market volatility and a hit to output."[93] The IMF's Statement suggested a range of possible risks to financial stability that would follow a vote to leave the EU, including a possible abrupt market reaction to such a vote,[94]

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[87] *See, e.g.*, Arno Schuetze, ECB Asks Euro Zone Banks to Detail Brexit Plans (May 10, 2016) at http://uk.reuters.com/article/us-britain-eu-ecb-idUKKCN0Y11QK

[88] ECB, Bond Market Contact Group, Work Programme for 2016 (Nov. 12, 2015)

[89] G20, Communiqué of G20 Finance Ministers and Central Bank Governors Meeting (Mar. 2, 2016).

[90] The Economic Consequences of Brexit, *supra* note 86.

[91] *Id.* at 6.

[92] *Id.*

[93] IMF, United Kingdom—2016 Article IV Consultation Concluding Statement of the Mission (May 13, 2016). The Statement noted that "that the choice of whether to remain in the EU is for UK voters to make and that their decisions will reflect both economic and noneconomic factors."

[94] *Id.* ("Another risk is that markets may anticipate such adverse economic effects, provoking an abrupt reaction to an exit vote that effectively brings these

In the lead-up to the UK referendum on whether the UK should leave the EU,[95] an issue commonly referred to as "Brexit," politicians and others campaigned for their point of view. The Cameron Government argued for remaining,[96] but prominent Conservatives, notably Boris Johnson,[97] argued for Brexit. Some businesses and business groups expressed their views for[98] and against[99] Brexit. Others refrained from the debate, perhaps because they were nervous about how their customers would react. Eight former US Treasury

costs forward. This could entail sharp drops in equity and house prices, increased borrowing costs for households and businesses, and even a sudden stop of investment inflows into key sectors such as commercial real estate and finance. ")

[95] The referendum is to take place on June 23, 2016. *See. e.g.*, House of Lords European Union Committee, The EU Referendum and EU Reform, 9th Report of Session 2015-16, HL Paper 122 (Mar. 30, 2016) at p. 3; European Union Referendum Act 2015, 2015 c. 36.

[96] HM Government, Why the Government Believes That Voting to Remain in the European Union Is the Best Decision for the UK (Apr. 6, 2016). *Cf.* The Prime Minister, Personal Minute to All Ministerial Colleagues, EU Referendum (Jan. 11, 2016).

[97] *See, e.g.*, EU Referendum: Boris Johnson compares EU's aims to Hitler's (May 15, 2016) at http://www.bbc.com/news/uk-politics-eu-referendum-36295208 .

[98] *See, e.g.*, Christopher Hope, EU Referendum: 200 Small Firm Bosses and Entrepreneurs Tell Britons to Vote for Brexit (Mar. 2, 2016) at http://www.telegraph.co.uk/news/newstopics/eureferendum/12181306/EU-referendum-200-small-firm-bosses-and-entrepreneurs-tell-Britons-to-vote-for-Brexit.html.

[99] *See, e.g.*, Confederation of British Industry (CBI), Two Futures: What the EU Referendum Means for the UK's Prosperity (Apr. 2016) at p. 2 ("Our best future is inside the European Union... An uncertain future awaits outside the European Union."); the Britain Stronger in Europe Campaign at http://www.strongerin.co.uk/#xI9ry7ozorvkP272.97 ; City of London Corporation Warns over Brexit (May 5, 2016) at http://news.cityoflondon.gov.uk/city-of-london-corporation-warns-over-brexit/.

Secretaries wrote in The Times to argue that Britain should remain in the EU.[100]

In the period before the start of the referendum campaign the UK Government had carried out a long process of evaluation of the benefits and disadvantages to the UK of membership in the EU.[101] A report by the House of Lords European Union Committee in March 2015 stated that the Committee believed "that, for the most part, the individual reports within the Review give a fair and neutral assessment of the balance of competences between the EU and the UK,"[102] but that a "lack of balance in the Single Market: Free Movement of Persons, Animal Health and Welfare and Food Safety and Fisheries reports, and the undue weight given to evidence reflecting the Government's own position, is a disappointing blemish on the Review as a whole."[103] The Committee noted that the Government failed to produce a document summarizing the results of the Review (despite stating in the 2012 White Paper that it would do so) and that its failure to publicize the Review meant that it would not inform public debate:

> Ministers have repeatedly informed us, and both Houses of Parliament, that the purpose of the Review is to ground the public debate on the EU on a strong evidence base. This seems an unrealistic aim, as long as the public are unaware of the Review's existence. We have already noted the Minster for Europe's comments on publicity: but the groups he mentions as being

[100] *See, e.g.*, Anthony Barnett, It's a Bad Referendum, as Obama Discovers, (Apr. 25, 2016) at https://www.opendemocracy.net/uk/anthony-barnett/obama-v-can-we-stand-on-our-own-two-feet.

[101] *See, e.g.*, Review of the Balance of Competences between the United Kingdom and the European Union, Cm 8415 (July 2012); Foreign & Commonwealth Office, Review of the Balance of Competences (Dec. 12, 2012) at https://www.gov.uk/guidance/review-of-the-balance-of-competences (With links to the individual reports).

[102] House of Lords European Union Committee, The Review of the Balance of Competences between the UK and the EU, 12th Report of Session 2014-15, HL Paper 140 (Mar. 25, 2015) at p. 11.

[103] *Id.* at 12.

> targeted via social media ("Commissioners, senior Commission officials, Ministers and officials in other Governments, and business organisations in other European countries") are both well-informed already, and are not based in the UK.. What is missing is any attempt to inform the debate taking place in the UK media, which could involve the general public and those who are not policy professionals. (footnote omitted)[104]

After the Balance of Competences Review the UK sought to renegotiate relations with the EU, achieving agreement in February 2016.[105] The European Council acknowledged that EU "processes make possible different paths of integration for different Member States, allowing those that want to deepen integration to move ahead, whilst respecting the rights of those which do not want to take such a course."[106] The Decision stated commitments to the single market and to the euro area, cited mutual respect and sincere co-operation between the euro-area and non-euro-area States, and declared that the further deepening of the euro area would "respect the rights and competences of the non-participating Member States."[107] The Government argued that the settlement set out in the Decision was what the UK needed,[108] and the House of Lords European Union Committee concluded that the settlement reflected in the Decision "while not perfect... is a significant achievement, which justifies the Government's assertion that, for the UK, the high-water mark of EU integration has been passed."[109]

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[104] *Id.* at 18.

[105] Decision of the Heads of State or Government meeting within the European Council, Concerning a New Settlement for the United Kingdom Within the European Union, Annex I to European Council Conclusions, EUCO 1/16 (Feb. 19, 2016).

[106] *Id.*

[107] *Id.*

[108] HM Government, The Best of Both Worlds: The United Kingdom's Special Status in a Reformed European Union (Feb. 2016).

[109] The EU Referendum and EU Reform, *supra* note 95, at 3.

In October 2015 the Bank of England published a report on membership of the EU which focused on the implications of UK EU membership for the Bank's objectives.[110] The Report stated that these implications were mixed: the EU both helped the UK and was a source of potential financial stability issues:

> There are three ways in which EU membership affects the Bank of England's objectives:
> - First, to the extent it increases economic and financial openness, EU membership reinforces the dynamism of the UK economy. A more dynamic economy is more resilient to shocks; can grow more rapidly without generating inflationary pressure or creating risks to financial stability and can also be associated with more effective competition.
> - Second, increased economic and financial openness means the UK economy is more exposed to economic and financial shocks from overseas. In recent years, as a result of closer integration with the EU and, more recently, with the euro area, this may have increased the challenges to UK economic and financial stability; and,
> - Third, EU regulations, directives and rules define many of the Bank of England's policy instruments particularly in relation to financial stability. These must be sufficiently flexible and effective to manage the consequences for the United Kingdom of shocks originating in both the domestic and global economy and financial system.[111]

In 2016 the Bank of England took note of risks of Brexit to financial stability,[112]

[110] Bank of England, EU Membership and the Bank of England (Oct. 2015).

[111] *Id*. at p.3.

[112] Bank of England, Monetary Policy Summary and minutes of the Monetary Policy Committee meeting ending on 11 May 2016 (May 12, 2016) at p 8 ("A vote to leave the European Union could materially affect the outlook for output and inflation. In the face of greater uncertainty about the UK's trading relationships, sterling was likely to depreciate further, perhaps sharply. In

and its Financial Policy Committee said in March that it "assesses the risks around the referendum to be the most significant near-term domestic risks to financial stability."[113] The Bank of England also made clear that it was taking steps to try to mitigate stresses to financial stability following a referendum vote which supported leaving the EU.

Individual issuers of securities have addressed the risk of Brexit in their regulatory disclosures. For example, in May 2016 Ryanair Holdings PLC,[114] RMG

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addition, households could defer consumption and firms could delay investment decisions, lowering labour demand and increasing unemployment. Asset prices might fall, leading to tighter financial conditions. Slower capital accumulation and the need to reallocate resources across the economy in response to changing trading and investment patterns would likely reduce potential supply over the forecast horizon. Taken together, the combination of movements in demand, supply and the exchange rate could lead to a materially lower path for growth and a notably higher path for inflation than in the projections set out in the May Inflation Report. In those circumstances, the MPC would face a trade-off between stabilising inflation on the one hand and output and employment on the other. The implications for the direction of monetary policy would depend on the relative magnitudes of the demand, supply and exchange rate effects. The MPC would take whatever action was needed, following the outcome of the referendum, to ensure that inflation expectations remained well anchored and inflation returned to the target over the appropriate horizon.")

[113] Bank of England Press Release, Financial Policy Committee Statement from its Policy Meeting (Mar. 23, 2016).

[114] Ryanair Holdings PLC, Form 6-K, Report of Foreign Private Issuer (May 23, 2016) at https://www.sec.gov/Archives/edgar/data/1038683/000119163816002124/rya201605236k.htm ("As the UK's largest airline, Ryanair strongly believes that the UK economy and its future growth prospects are stronger if it remains a member of the European Union ("EU"). One of Europe's great success stories was airline deregulation in the late 1980s which allowed Ryanair to break up the high fare cartel of Europe's flag carrier airlines, and has enabled us to transform air travel, tourism, economic growth and jobs all over Europe. Ryanair is actively campaigning for a "Remain" vote in the referendum on June 23 next. If the UK leaves the EU then this, we believe, will damage economic growth and consumer confidence in the UK for the next 2 to 3 years as they begin to negotiate their exit from the EU and re-entry to the single market in very uncertain market

Networks Holding Corporation,[115] LivaNova PLC,[116] and Aerohive Networks

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conditions.")

[115] RMG Networks Holding Corporation, Form 10Q (May 12, 2016) https://www.sec.gov/Archives/edgar/data/1512074/000139843216000652/a12945.htm ("In the event of Brexit, we would likely face new regulatory costs and challenges, the scope of which are presently unknown. Depending on the terms of Brexit, if any, the U.K. could also lose access to the single E.U. market and to the global trade deals negotiated by the E.U. on behalf of its members. Such a decline in trade could affect the attractiveness of the U.K. as a global investment center and, as a result, could have a detrimental impact on U.K. growth. Such a decline could also make our doing business in Europe more difficult, which could delay new sales contracts and reduce the scope of such sales contracts. The uncertainty prior to the referendum could also have a negative impact on the U.K. and other European economies. Although we have an international customer base, we could be adversely affected by reduced growth and greater volatility in the U.K. and European economies. ")

[116] LivaNova PLC, Form 10Q (May 9, 2016) at https://www.sec.gov/Archives/edgar/data/1639691/000163969116000042/livn-20160331x10q.htm ("In the event voters elect to leave the European Union (the so-called "Brexit"), LivaNova will face risks associated with the potential uncertainty and consequences that may flow from the Brexit vote. Since a significant proportion of the regulatory framework in the U.K. is derived from European Union directives and regulations, the referendum could materially change the regulatory regime applicable to LivaNova's operations in the future. A Brexit vote would also result in the U.K. no longer being an European Union Member State and a member of the European Union single market, which may result in increased trade barriers, which could impact LivaNova's results of operations and share price. Any increased costs may result in higher costs being passed to customers. As a company domiciled in the European Union, and with operations across Europe, Brexit could result in restrictions on the movement of capital, distribution and sale of goods, and the mobility of LivaNova's personnel, which could have adverse material effect on LivaNova's operations. Conversely, a vote to remain in the European Union may also create similar uncertainties and adverse policy consequences in the event the U.K. Government and the European Union enter into negotiations to further reform the U.K's membership of the European Union.")

Inc.[117] all noted risks associated with the referendum.

The Brexit issue, as it relates to financial stability, links issues of technocratic expertise and democratic politics. It pits elite policy-makers against the forces of populism. The referendum vote is a matter for the UK electorate, after intensive lobbying from interested groups. As of May 2016 the outcome of the vote is not easy to predict, but there is a risk that a majority of voters will choose to leave. Much of the opposition to the EU seems to be based on concerns about immigration, rather than about other aspects of the relationship between the UK and the EU. At the time Cameron promised a referendum it was not obvious that the EU would suffer from a refugee crisis, but the EU was enmeshed in a sovereign debt crisis and concerns about austerity which raised questions about the future of the eurozone and even the EU. If the referendum vote is for a UK exit from the EU there will inevitably be significant uncertainty about the future relationship between the UK and the EU. And this uncertainty could well have an impact on financial stability. The Bank of England's rather careful technocratic analysis of these financial stability issues, a matter for which it is responsible under statute,[118] has, however, been challenged as pro-EU advocacy.[119]

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[117] Aerohive Networks, Inc., Form 10Q (May 5, 2016) at https://www.sec.gov/Archives/edgar/data/1372414/000137241416000048/aerohive2016q110-q.htm ("To the extent we continue to expand our business globally, our success will depend, in large part, on our ability to effectively anticipate and manage these and other risks and expenses associated with our international operations. For example, political instability and uncertainty in the European Union and, in particular, the pending decision whether Britain as well as other countries may choose to exit the E.U. (Brexit) has slowed economic growth in the region and could further discourage near-term economic activity, including delay decisions to purchase Aerohive products. Our failure to manage any of these risks successfully could harm our international operations and reduce our international sales, and business generally, adversely affecting our business, operating results and financial condition.")

[118] See Section 2A of the Bank of England Act 1998, 1998 c. 11, as amended by Financial Services Act 2012, 2012 c 21, section 2 (setting out the Bank of England's financial stability objective).

[119] *See, e.g.*, Rowena Mason, Brexit Minister Accuses Bank of England of 'Dangerous Intervention', (May 15, 2016) at

Some Conclusions: A Comparison of Climate Change and Brexit as Sources of Risk to Financial Stability

As regulators develop financial stability analyses beyond microprudential and (financial system) macroprudential risk into broader categories of risks that may harm the financial system it becomes apparent that the new areas of risk that financial regulators may care about have different characteristics. One factor that may make a difference is how sudden or immediate a financial stability risk is. For example, although a UK referendum on the EU was always somewhat risky, the refugee crisis that hist the news in 2015 and 2016 probably make the risks of a leave vote significantly higher than they were beforehand. Once it became clear that there was a substantial risk of a vote to leave, financial stability was threatened.

As well as seeming to arise suddenly, the Brexit-related risks were political, originating outside the financial system. The Brexit example illustrates that financial stability risks may be created by decisions that are political and beyond the control, or even influence, of financial regulators (and yet financial regulators are likely to be blamed if they do not ensure financial stability). To the extent that political decisions may create financial stability risks, it makes sense for policy-makers and politicians in future to think about how to incorporate financial stability concerns in political decision-making. And this is even more important to the extent that risks generated within one jurisdiction (like the Brexit-related risks) may affect financial market participants in many jurisdictions in ways that are unpredictable. One moral lesson of the financial crisis is surely that politicians should be careful about the risks they impose on citizens of other countries. There is a moral hazard here if politicians can externalize the costs of their decisions (to be clear, I am not arguing that the referendum decision involves this sort of externality as the costs are just as likely to be borne by UK citizens as others).

Climate change is a political problem too, in the sense that dealing with

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http://www.theguardian.com/politics/2016/may/15/brexit-minister-bank-of-england-dangerous-intervention-andrea-leadsom-financial-markets-eu. But cf. The Bank of England is right to intervene in the Brexit debate (May 17, 2016) at http://www.economist.com/news/britain/21698877-mark-carneys-job-identify-threats-britains-economy-brexit-exactly-bank.

climate change requires legislative and regulatory action, and people have different views about how to go about dealing with the issues. Unlike the Brexit referendum it is not a phenomenon for which politicians are primarily responsible (except that they failed to act more effectively sooner). It is a transnational problem, produced by actors around the world, which requires a collective response. Technocratic financial regulators can have some positive impact on encouraging mitigation of and adaptation to climate change risks. Their interventions in debates about climate change are less likely to be seen as inappropriate than interventions with respect to issues like Brexit. And encouraging financial institutions and markets to address the risks associated with climate change may promote a positive more general movement towards behaviours that can mitigate those climate change risks.