

Banking regulation and environmental sustainability

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INTRODUCTION

This article discusses why environmental sustainability is relevant to banking policy and regulation and shows how G20 countries are using banking policy to meet sustainability challenges through a variety of institutional and regulatory approaches that reflect their own unique national circumstances. The article suggests that G20 countries have still further to go in using banking regulation to promote the mobilization of green capital for investment and for mainstreaming environmental sustainability challenges into bank business strategies, governance and risk management practices. In this way, banking regulation can more effectively support the economy's adaptation and transition to a more environmentally sustainable economic path.

THE RELEVANCE OF ENVIRONMENTAL SUSTAINABILITY RISKS TO BANKING REGULATION

The 2030 United Nations Sustainable Development Goals (SDG) development agenda places environmental sustainability challenges including climate change as a major concern to the stability of the global economy. The World Economic Forum Global Risks Report 2016 demonstrates the links between environmental sustainability risks and economic and financial risks (WEF Global Risk Report, 2016). The WEF report identified the failure of climate change mitigation and adaptation, along with freshwater availability and diminishing biodiversity, as the most significant environmental sustainability risks. The report also emphasised the second order or "cascading" risks arising from climate change and other environmental sustainability challenges and how they impact political conflicts, forced migration, food security and economic and financial stability. These challenges will, in turn, have implications for financial institutions in terms of changing risk assessments that will affect the availability and terms of credit and long-term investment returns.

For most G20 countries, banks play a crucial role in providing credit and investment capital for the economy that

can be used to mitigate the adverse effects of environmental sustainability risks while enabling the economy to grow and become more resilient to sustainability challenges. Most experts agree that the main environmental sustainability risks – physical, transition and liability risks – potentially create negative externalities for the banking sector and broader economy. But banks are doing more to recognise these risks and support the transition to a more sustainable economy by incorporating or mainstreaming sustainability factors into their risk management models and governance frameworks. In doing so, banks are able to mobilise and reallocate capital away from unsustainable economic activity to more sustainable sectors of the economy.

Whilst the banking sector is affected by environmental sustainability challenges directly and indirectly, it also plays an important role in supporting the economy's adaptation to environmental changes and building financial resilience to environmental risks (Carney, Bank of England 2015). By reallocating credit to more sustainable sectors of the economy and managing credit and market risks, banks contribute, in particular, to (1) reducing environmental sustainability risks, (2) mitigating the impact of these risk when they materialize, (3) adapting to the consequences of environmental change, and (4) supporting recovery when adverse environmental events cause massive disruptions.

Across G20 countries, banks have sought to address these risks by adopting different types of green banking practices. Two distinct areas of banking practice have emerged: First, the development of environmental and social governance guidelines with a particular focus on risk management in the area of project finance and reallocating credit to renewable energy resources. The Equator Principles were established in 2003 to provide banks with voluntary guidance for incorporating environmental and social risks into the bank's assessment of credit and operational risks in large infrastructure investment projects. As a result, many large global banking institutions have mainstreamed environmental governance principles into project finance. Second, most G20 banks primarily provide short-term credit to large corporates and small and medium-

sized firms and savings and investment products to individuals. They are uniquely positioned to mobilise capital to the green economy, including renewable and clean energy projects by making loans and investments, and structuring specialized transactions.

The banking sector will play a key role in providing credit and investment for countries as their economies adapt to evolving market structures in response to environmental sustainability challenges. These adaptations may result in volatility in asset prices and in the availability of credit and borrower defaults in economic sectors that the market has determined to be environmentally unsustainable. Where such transition risks are material, they may pose systemic risks to the banking sector. These financial risks associated with environmental sustainability have important implications for the banking sector, as banks are the largest providers of capital for most economies: how they manage the financial risks associated with the economy's transition to a more sustainable development path is an important policy concern.

THE MATERIALITY OF ENVIRONMENTAL SUSTAINABILITY RISKS TO THE BANKING SECTOR

The transition of the global economy to a more sustainable footing may result in market volatility and disruptions in the flow of capital that could introduce systemic financial risks which potentially threaten banking sector and economic stability (Carney, Bank of England, 2016). Many experts agree that there are three broad channels through which environmental factors can affect financial stability, namely:

- physical risks (eg floods/storms that damage property, disrupt trade);
- liability risks (from parties that have suffered loss or damage and seek compensation); and
- transition risks (ie financial risks which could result from the process of adjustment towards a lower-carbon economy), specifically the transition to a low-carbon economy will likely come with financial risks and that, therefore, financial policymakers have a clear interest in ensuring the financial system is resilient to any transition.

Transition risks have attracted particular attention from G20 policymakers especially as they relate to the performance of the banking sector. Banks have exposures to large investment projects, particularly infrastructure projects that require environmental impact studies and assessments. If environmental requirements are not met, these projects can be cancelled or curtailed, resulting in substantial direct and indirect losses for banks and investors. Similarly, in

Brazil and Mexico, banks are potentially liable indirectly for environmental damages caused by companies that become insolvent or otherwise incapable of fulfilling environmental regulatory obligations. In Mexico and India, although the private banking sector adheres to the Equator Principles and environmental and social responsibility reporting guidelines, most large environmental infrastructure and renewable energy projects are financed either by national development banks in the case of Brazil, Mexico and Turkey and/or by state-owned or public sector banks in the case of India.

In most countries, institutional and market challenges hinder the provision of bank credit and investment for environmentally sustainable sectors of the economy. In Mexico and India, substantial governmental subsidies for unsustainable agricultural practices have led to a misallocation of capital away from sustainable agricultural and energy sources to unsustainable practices involving, for example, excessive use of fresh water and diesel fuel.

Also, information asymmetries limit the ability of banks to analyze the costs and benefits of environmentally sustainable projects. As a result, banks in most G20 countries have a disproportionately low level of exposure – around 10 per cent of their lending portfolios – to environmentally sustainable projects. This suggests that banks in these countries are not internalising the full costs of socially risky investments and thereby are investing far too much in unsustainable sectors of the economy. Some countries, such as Mexico, have sought to address these inefficiencies through fiscal reforms and a carbon tax policy. On the other hand, other countries, such as Egypt, have not been confronted with the same types of challenges and have instead relied on large private banks to take the lead in identifying sustainable sectors of the economy and developing a risk management strategy for allocating capital to emerging sustainable sectors. This approach has had the effect of influencing other banking institutions – both state-owned and private – to follow suit.

Based on these countries' experiences, it is clear that more incentives are needed, both market-based and regulatory/fiscal, for banks to address the institutional and market challenges to mobilising more capital and investment for sustainable economic activity. Similarly, enhanced market and policy-based incentives may be needed for banks to mainstream environmental factors across their business strategies, risk management and governance practices. Indeed, the mobilisation of green credit and mainstreaming of environmental factors into banking practice are part of a growing trend to support sustainable banking practices that involve banks in managing the environmental and social risks associated with their financial activities. The overriding objective is to avoid or mitigate financial losses and reputation risks arising from bank exposures to unsustainable economic

activity. The question for policymakers is to what extent is governmental or regulatory intervention necessary to guide the banking sector in allocating more credit and investment to sustainable activity and in protecting the economy against the related financial risks. Because G20 countries have different institutional and market structures, they use different combinations of market-based, regulatory and official sector guidance for the banking sector in supporting the economy's transition to a more sustainable path.

BANKING REGULATORY PRACTICES TO ADDRESS ENVIRONMENTAL SUSTAINABILITY RISKS

The overriding objective of banking regulation is to safeguard financial stability and build resilience to shocks, wherever the shocks may come from, and provide a sustainable source of credit, savings products and payment services to the broader economy. Banking regulation potentially can play an important role in mitigating the institutional and market impediments to the banking sector's ability to provide adequate capital and liquidity for the economy in meeting environmental sustainability challenges. Economic theory holds that policy and regulatory intervention in the banking sector is justified by market failures, which can arise from negative externalities resulting from asymmetric information, and competitive distortions. Some evidence suggests that market discipline, on its own, cannot adequately control the externalities in financial markets associated with environmental sustainability challenges (Alexander, *Stability and Sustainability in Banking Reform*, Cambridge, 2014). Accordingly, policy or regulatory intervention may be necessary to prevent a misallocation of resources to unsustainable economic activity and to support a reallocation of capital to sustainable sectors of the economy. Policy intervention, however, if not calibrated properly, can also produce its own distortions in the market that can result in further externalities and misallocations of capital and investment. A careful combination of market innovation and policy frameworks that suit national circumstances may be desirable for some G20 countries in using banking regulation to support the integration of environmental factors into banking practice. In this way, banking regulation can support the efficient operation of the economy by encouraging banks to harness more credit and investment for profitable and sustainable economic activity.

G20 countries are taking a number of banking policy measures to support the greening of the banking sector. These measures fall into three categories: (1) facilitating market reform; (2) public finance and government-supported institutions; and (3) banking regulation.

Facilitating market reform

Market reforms can involve regulatory measures to encourage banks to internalize the negative environmental externalities of bank lending and savings products so that the provision of unsustainable bank credit and investment is efficiently priced with the result that the costs for society are mitigated. Also, governmental subsidies that encourage excessive depletion of natural and energy resources should be curbed. Together, such measures provide a foundation for banks to develop a business strategy for providing an efficient level of green credit and investment.

In addition, some countries facilitate market reforms by providing stable long-term policy frameworks for important areas of the green banking system, such as renewables and energy efficiency. Switzerland uses a policy framework that aims to improve business conditions for the banking sector so that banks can flexibly assess environmental and social risks and determine if they are material. This policy was motivated in part by the experience of Credit Suisse involving negative publicity in 2014 arising from its involvement in a large deforestation project in Indonesia. This highlighted the importance for Swiss banks of conducting due diligence in assessing whether bank lending projects are being considered based on sustainability criteria. Switzerland's long-term policy approach was developed further by the Swiss Government's proposal in 2015 for a national energy strategy that would be implemented over the next 30 years; it aims to incorporate sustainability criteria into all areas of economic policy and regulation and to impose taxes on, and eliminate subsidies for, unsustainable economic activity. Also, Switzerland has joined the European Union's emissions trading regime.

Public finance/government-supported institutions

In several G20 countries, national development banks play an important role in providing credit and long-term financing for large infrastructure projects for renewable and clean energy. For instance, Turkey and Mexico use national development banks to deploy savings and capital towards green investments, especially longer-term funding projects that do not receive adequate financial support from private banks. In contrast, India uses state-owned banks to provide long-term funding for sustainable energy projects and to assist large-scale agricultural businesses in using more sustainable practices. In China, the four largest banks are state-owned and provide a substantial source of credit and long-term funding for large sustainable energy infrastructure projects and for smaller businesses engaged in sustainable economic activity (eg solar panel manufacturers). In these countries, national development banks and state-owned banks use financing from public sources to promote the greening of the banking system and to assist the development of new markets for green assets (ie green bonds). Publicly-owned banks and development banks also support the provision of private bank credit and investment

for sustainable economic activity by leveraging private bank capital through on-lending activities and providing credit guarantees. Moreover, several developed countries, including the United Kingdom and the United States, have established green investment banks for the purpose of providing financing for renewable energy projects.

Banking regulation

An important objective of the banking policies of G20 Member States has been to complete implementation of the extensive financial sector reforms introduced following the global financial crisis. The G20 Leaders' Summit in Pittsburgh in 2009 identified the core aim of banking regulation to be "to generate strong, sustainable and balanced global growth" (G20 Pittsburgh Summit, September 2009). The Basel Committee revised the Core Principles for Effective Banking Supervision in 2012 to enhance the capacity of bank supervisors to monitor individual banking institutions and to take into account risks that threaten banking system stability (Basel Committee, Core Principles for Effective Banking Supervision, 2012). Although the Core Principles do not explicitly address the financial stability risks associated with environmental sustainability, they provide a flexible and voluntary framework for bank regulators to identify, assess, and manage the potential systemic risks for the banking sector that are related to sustainability challenges. Moreover, the Basel Committee in 2016 published a range of good practices by banks and bank regulators about how to increase financial inclusion for economically and socially disadvantaged groups (Basel Committee, Range of practice in the regulation and supervision of institutions relevant to financial inclusion, January 2016).

As discussed below, regulators in some G20 countries are moving voluntarily in this direction by incorporating environmental sustainability factors into bank governance, capital and risk management, and market disclosure. The following areas of banking regulation are relevant for policymakers to consider in addressing environmental sustainability challenges.

Disclosure

Bank disclosure of risks to investors is an important regulatory tool to support market discipline that can encourage banks to mainstream economically relevant environmental sustainability criteria into their business practices and to reallocate capital to more sustainable sectors of the economy. In G20 countries, banks and other listed companies are already required to disclose to investors all material financial risks regarding their economic performance. Some environmental risks can be classified as material financial risks (ie, lender liability for toxic waste cleanup) but most environmental and social risks are not considered by regulators to be material financial risks,

and therefore are not required to be disclosed to the market. However, there is a growing demand by investors and other market participants for useful information on bank and other company exposures to environmental sustainability challenges.

Globally, there are over 400 initiatives and voluntary disclosure frameworks across countries to encourage companies and financial institutions to report environmental and social risk factors. But the information is not consistent across markets and countries, lacks comparability, and is often unreliable. G20 countries already use the Basel III pillar 3 market discipline disclosure regime that entails extensive disclosure obligations for banks covering quantitative and qualitative aspects of overall capital adequacy and capital allocation, as well as risk exposures and assessments. This disclosure regime was enhanced after the global financial crisis resulting in the adoption of stricter disclosure requirements and greater consistency and comparability across jurisdictions for bank disclosures (Basel Committee Disclosure Document on Disclosure, 2014, and Basel Core Principles 27 & 28)).

International policymakers are considering however whether further enhanced disclosures are necessary for banks and other financial institutions regarding their exposures to environmental sustainability risks to assist investors in assessing the links between sustainability challenges and potential risks to financial stability and the Financial Stability Board established an industry-led task force on 4 December 2015 to make recommendations for improving principles and practices for voluntary disclosure that can promote a "smooth rather than an abrupt transition towards a lower-carbon economy" (Financial Stability Board, 2015).. The task force consists of representatives from the private sector, including investors, preparers and other market participants from a variety of industries and regions. They are considering what role that voluntary disclosure of climate change risks by banks and other financial institutions to regulators, investors and customers can play in promoting financial stability (FSB press release, 4 December 2015). The task force is conducting its work in two phases: its first report issued on 31 March 2016 proposed some objectives including making bank and company climate change reporting more consistent, comparable, reliable and efficient across countries and markets and a set of principles to achieve these objectives.

In addition, European Union policymakers adopted the Disclosure Directive in 2014 that requires Member States to require listed companies, banks and certain financial groups to disclose to the market non-financial information, including environmental sustainability risks and related environmental sustainability information related to renewable and non-renewable energy, land use, water use, air pollution, greenhouse gas emissions and the use of hazardous materials. The obligation to disclose applies only to large listed credit

institutions and large listed insurance companies which are parent undertakings of a large group, in each case having an average number of employees in excess of 500, in the case of a group on a consolidated basis. The legislation does not prevent EU states from requiring disclosure of non-financial information from undertakings and groups other than those subject to this requirement by the Directive. As a result, there is a wide diversity of institutions covered by this disclosure requirement across EU countries.

Some countries have implemented the minimum requirements, but others, implicitly or explicitly, have included a number of other entities such as investment companies, large non listed companies according to precise size criteria, state owned companies, pension funds, etc. For instance, France has adopted disclosure requirements that all listed companies (including listed banking companies) should disclose their carbon exposures as part of broader climate change reporting requirements. These national approaches can inform other countries regarding how disclosure of environmental sustainability risks can be applied flexibly in different countries and should accord with current best practices at the national level and in conformity with international reporting standards.

Whilst disclosure is an important regulatory tool to inform the market about the financial stability risks associated with climate change, other policy instruments to assess the risks associated with environmental sustainability challenges should be considered as well.

Risk management

Adequate risk management at the level of the bank is the first line of defence against risk in the financial system. The Basel Committee has identified an extensive but non-exhaustive list of significant risks confronting banks including: credit risk, liquidity risk, market risk, concentration risk, country risks, transfer risks, operational risk, and reputational risks (Basel Committee, Enhancement to the Basel II Framework). The Core Principles contain principles on the risk management process (principle 15), concentration risk and large exposure limits (principle 19), and market risk (principle 22), interest rate risk in the banking book (principle 23), liquidity risk (principle 24), and operational risk (principle 25). These principles taken together allow bank regulators and risk officers to develop approaches that consider empirically what type of environmental sustainability measures can be used as proxies for recognised areas of financial risks, such as credit, market, liquidity and operational risks.

Most G20 bank supervisors use the Basel III pillar 2 *Internal Capital Adequacy Assessment Process (ICAAP)* as part of the Supervisory Review Process (SREP) to assess the risk management and governance of banks (see [\[26+%28CP+on+GL+on+ICAAP+and+ILAAP+Information%29.docx\]\(#\), accessed 23 February 2016\). Under pillar 2, banks are required to identify material risks that affect the bank's stability, and describe their risk management controls in addressing material risks. In Brazil, the Brazilian Banking Association \(Febraban\) has adopted voluntary standards based on the pillar 2 framework to enhance bank assessments of environmental risks. Based on this, the Brazilian Central Bank \(Banco Centrale do Brasil\) published a mandatory Resolution 4327 in 2014 on the Social and Environmental Responsibility for Financial Institutions that requires banks to incorporate socio-economic factors into their risk governance frameworks. In doing so, each bank is required to do an assessment of its own environmental risk exposures based on the principles of proportionality and relevance. Similarly, the China Banking Regulatory Commission \(CBRC\) adopted the "Green Credit Guidelines" in 2012 to encourage banks to conduct environmental and social risk assessments and to originate more green loans. By 2015, the majority of Chinese banks controlling over 80 per cent of Chinese banking assets have adopted environmental and social risk management practices. France adopted legislation in 2015 that requires financial institutions to incorporate environmental sustainability risks into the institution's risk management strategy. And Indonesia has taken a step in this direction with its regulatory body – the Financial Services Authority – announcing a Sustainable Finance Roadmap in 2014 that would require all financial firms and banking institutions to develop business plans and risk management strategies to offer green financial products and lending guidelines.](http://www.eba.europa.eu/documents/10180/1307235/EBA-CP-2015-</p>
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Most G20 countries, however, do not require banks to assess the risks associated with environmentally unsustainable economic activity on their loan and bond portfolios. Switzerland does not require banks to incorporate environmental and social risks into their prudential risk assessments, but the Swiss regulator (Finma) follows a principles-based approach that requires the bank to identify material risks. Over time, as markets and risks evolve, Finma's principles-based approach allows the regulator discretion to ask the bank to integrate other risks – for instance, environmental risks – into their risk management models. So the flexibility exists for Switzerland and other G20 countries to ask banks about their risk models and whether they should include environmental sustainability risks. In the European Union, the determination that environmental risks should be incorporated into bank risk models must be approved by the European Banking Authority that has discretion to adopt regulatory technical standards that are applied by EU national competent authorities (EBA consultation paper: *Guidelines on ICAAP and ILAAP information collected for SREP purposes*, EBA/CP/2015/26, 11 December 2015). But as the case with France shows, EU Member States have discretion to adopt legislation that requires environmental risk assessments to be incorporated into bank risk assessments.

In addition, IFRS reporting standards require granular data relating to the income statement and balance sheet including the breakdown of loan advances to non-financial firms. However, these reporting standards generally do not allow for detailed information of credit exposure to sectors with immediate, emerging or elevated environmental sustainability risks.

Governance

Enhanced corporate governance mechanisms are necessary to reduce the incentives for banks to take on excessive risks that can threaten the stability of the banking sector. The main elements for designing bank governance frameworks that promote environmental and social sustainability are intrinsic to good corporate governance on two levels: First, good corporate governance calls on the use of ethical judgment of what is acceptable and what is not. Second, corporate governance has an important role in overseeing and ensuring effective risk management for the bank and ensuring sustainable returns for owners and shareholders. It is widely recognized that there is a strong correlation between good corporate governance and effective environmental and social risk management.

Bank governance is also affected by stewardship codes and international efforts to recognize whether bank boards should consider environmental and social governance issues in reviewing bank management and whether failing to do so is a failure of the board's fiduciary duty to the bank and investors.

The EU Disclosure Directive can play a role in improving bank governance by improving bank transparency for investors regarding its involvement in unsustainable economic activity. Institutional investors are already beginning to ask banks about their efforts to mainstream sustainability challenges into their business models and their strategies to mobilize capital for sustainable economic activity.

With the exception of China and Brazil, G20 countries do not require banks to incorporate environmental sustainability risks into the bank's risk governance and management strategy. Brazil adopts the principle of proportionality for individual banks to decide – based on the bank's particular risk exposures – to what extent environmental sustainability risks should be incorporated into the bank's governance and risk strategy.

Capital requirements

G20 countries generally do not require banks to incorporate environmental sustainability risks into their regulatory capital calculations. Most G20 countries, including Switzerland, believe that Basel III provides adequate flexibility for bank supervisors to work with banks in identifying sustainability risks as they occur in the banking sector. Although the Basel Accord does encourage banks to calculate regulatory capital

for credit and operational risk exposures to borrowers who are in violation of environmental regulations (Basel Capital Accord, para 510), there is no broader recognition that regulatory capital risk weights should be adjusted to include environmental sustainability risks. More data and stress testing are needed before most G20 countries will act in this area.

The Central Bank of Brazil, however, has begun to investigate under pillar 1 of Basel III whether environmental and social risks can serve as proxies for credit and other types of financial risks. Brazil and China are also utilising pillar 2 of Basel III to require banks to assess whether additional capital is required for a bank because of its exposures to environmental sustainability risks. These assessments can involve forward-looking stress testing of bank portfolios against macroprudential or system-wide risks associated with unsustainable economic activity. Most G20 countries, however, do not believe that Basel III should be used to assess environmental and social risks.

Financing structures

Financial innovation in products and investments will play an important role in stimulating more demand for “green” investment assets and providing more liquidity for green assets. However, G20 countries with the exception of China have not begun assessing which financing structures for banks might be conducive to providing more credit to sustainable sectors of the economy. Banking policy and regulation can play an important role in facilitating the creation of new financial products and investments that will attract capital to more sustainable sectors of the economy. For example, the use of simple and transparent financial instruments and investment structures, such as sustainable asset-backed securities, to facilitate more investment in “green” assets could stimulate increased investment in “green” credit and other sustainable assets.

Central banks may also have a role to play by developing new instruments of monetary policy that can encourage banks to bundle loans together into transparent asset classes that can issue highly rated securities that can be used by banks as collateral for central bank funding. National authorities should have discretion to experiment with innovative financing structures that incentivize more investment in green assets and thus provide an impetus for further development of a sustainable economy.

In applying the above criteria, G20 country approaches demonstrate that successful banking policy should be tailored to national circumstances. For instance, China's Green Credit Guidelines suggest a particular approach that involves a combination of “carrots” and “sticks” to induce banks to make more credit available to sustainable sectors of the Chinese economy. In contrast, Brazil's regulatory approach reflects the growing recognition that environmental risks and

sustainability challenges pose risk management and strategic business risks for banks but each bank is different and should assess its own particular risk exposures based on the principles of proportionality and relevance.

The variety of institutional approaches and policy levers used by G20 countries to address sustainability challenges in banking suggests that policymakers and banking practitioners are in uncharted areas in a world of increasing environmental sustainability risks and their consequences for economic growth and development. Generally, these initiatives are aimed to reduce environmental risks, transform our economies into environmentally sustainable ones, and build economic and financial resilience against the systemic risks caused by unsustainable economic activity. Regulators are given the important task of adopting guidelines and standards to encourage increased bank lending and funding for more sustainable sectors of the economy. However, it is vital that such regulatory initiatives avoid the potential unintended consequences and market distortions. Rather than direct intervention in the financial sector, banking policies should focus on providing an enabling environment for the system to mitigate climate and other environmental sustainability risks.

THE G20 AND THE WAY FORWARD

G20 countries have taken significant steps to develop banking policy instruments to address the environmental challenges associated with a more sustainable economy. However, no common definitions of key terms, such as “green assets” or “green finance” are accepted by countries or by banking associations. Without basic definitions of green banking and sustainable economic activity, it will be very difficult – if not impossible – for policymakers, regulators and bankers to agree standards for measuring whether a country or individual banks and market sectors are progressing towards a more sustainable economic path.

G20 countries can share data with one another on green finance and greening sectors of the economy; they could develop data registries providing information on how countries define certain terms such as green assets and to measure the impact of policy measures on a country’s transition to a more sustainable economy. Data registries could also contain surveys and industry indices to show baselines for measuring progress in achieving sustainability objectives. The G20 could also mandate that the Financial Stability Board and international financial standard setting bodies continue further work in measuring financial risks associated with environmental sustainability challenges and adopt voluntary frameworks in the following areas:

- Assess environmental risks and their increasing impact on financial stability and the sustainability of the economy and identify institutional and market

challenges to achieving more durable links between the banking and other financial sectors and sustainable sectors of the economy.

- Mandate that bank regulators explore the feasibility of incorporating forward-looking risk assessments into bank risk management of scenarios where environmental risks appear to have become embedded in the financial system and how they may affect bank performance and banking sector stability.
- Develop industry-led voluntary disclosure frameworks for environmental risks that are standardized across countries, possibly building on international financial reporting standards (IFRS).
- Encourage banks and regulators to work together to develop simple and transparent investment products to attract more stable investment in “green” bank assets.
- Encourage banks to build capacity for mainstreaming green finance into bank business practices and strategies across G20 countries.
- Ensure effective transparency by banks in how they manage environmental sustainability challenges as part of their strategies for green banking.

Summing up

The G20 countries have utilized flexible institutional approaches and policy levers to use banking policy and regulation to support the economy in achieving sustainable outcomes. Recent reports demonstrate the linkages between environmental sustainability challenges and banking and financial market risks and the relevance of environmental and social risks to banking policy. The experiences of G20 countries suggests that banking policy can play an important role in reducing the institutional and market obstacles to providing more bank credit for the green economy. Most G20 bank supervisors have the flexibility under the Basel Capital Accord and Core Principles for Banking Supervision to begin assessing the environmental risks that are material to their banking and financial sectors. Advanced developed countries such as Switzerland and the United States focus on creating sound market-based economic frameworks that promote the efficient pricing of assets and reducing fiscal subsidies for unsustainable economic activity. Other G20 countries – mainly large emerging market countries – use state-owned banks and national development banks to take the lead in investing in renewable and clean energy projects.

In addition, G20 countries have begun considering and using certain regulatory measures to encourage banks to address the institutional and market challenges to providing green finance. The paper suggests that the usefulness of

certain areas regulation can be explored by G20 countries on a voluntary basis to determine their efficacy: enhanced disclosure, risk management, bank governance, capital adequacy, and financing structures. The Financial Stability Board and other international standard setting bodies can support national efforts in addressing the linkages between financial risks and environmental sustainability by encouraging the exchange of information between national supervisors and regulators and the development of common definitions of green finance and data registries for banks and bank supervisors to draw on to develop a better understanding of environmental and social risks in the banking sector. Brazil and China incorporate environmental risk assessments into prudential bank regulation and link-up regulatory practices with market-based reforms and government-supported finance for renewable and clean energy projects. Financial innovation and market developments will encourage G20 countries to develop forward-looking strategies at assessing the financial risks related to environmental sustainability challenges.

CONCLUSION

The G20 has in several of its communiqués highlighted the importance of achieving environmentally sustainable economic growth as well as a stable financial system (Leaders' Declaration at the G20 Seoul Summit, November 2010). G20 countries use a variety of institutional approaches and policy levers to mainstream environmental sustainability criteria into banking management and governance and to mobilize green credit and investment across economic sectors and asset classes. The banking sector plays an important role in reallocating credit and investment away from unsustainable economic sectors to more sustainable economic activity.

National authorities have adopted a variety of financial policy and regulatory initiatives to mitigate the financial risks associated with the transition to a more sustainable economy. Country practices range from introducing environmental sustainability factors into bank risk management practices and stress testing (China's Green Credit Guidelines 2012), to more debatable calls for re-considering how to apply certain Basel III rules, such as the Central Bank of Brazil requiring

environmental risk assessments to be included in the Basel III Internal Capital Adequacy Assessment Program (ICAAP). Moreover, the Peoples Bank of China (China's Central Bank) are exploring the use of central bank financing operations to make short-term liquidity available to banks to fund green projects.

These policy and regulatory initiatives are aimed at reducing environmental risks by mainstreaming green banking practices into bank risk management and governance and mobilizing capital to transform G20 countries' economies into sustainable ones. However, the uncertainty and lack of clearly defined terms and standards for measuring progress in becoming more sustainable suggests that policymakers and practitioners need more economic data on sustainable economic activity and empirical evidence regarding how green credit and investment practices will affect economic growth and development. This paper offers regulatory options for policymakers to encourage increased bank lending and funding for more sustainable economic activity, while ensuring the banking sector's resilience to environmental risks. However, it is vital that such regulatory initiatives avoid unintended consequences and significant market distortions. Rather than direct intervention in the financial sector, banking policies should focus on providing an enabling environment for the system to mitigate climate and other environmental sustainability risks.

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Chair for Banking and Financial Market Law, University of Zurich, Senior Research Fellow, Institute of Advanced Legal Studies, London and Professorial Fellow in Financial Regulation, Centre for Risk Studies, Judge Business School, University of Cambridge. Professor Alexander is the author of a new report commissioned by the G20 that analyses the regulatory and legal issues of incorporating environmental sustainability measures into banking regulation. This paper is based on a lecture he gave at the IALS on 22 March 2016 discussing some of the issues in his report and the broader green banking policy agenda, including the regulatory policy options for banks to adopt environmental standards into their governance and business strategies.