

The Role of Financial Services in Society: Towards Responsible Financial Innovation

Prepared in collaboration with Oliver Wyman

May 2014



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Preface

In 2012, the World Economic Forum, with support from Oliver Wyman, a leading global management consulting firm, launched “The Role of Financial Services in Society”, a multistakeholder initiative that seeks to restore public trust and confidence in the financial system. The initiative brings together financial institution leaders, financial policy-makers, leading economists and academics, executives of commercial firms that rely on financial services, and representatives of civil society. Together, these senior stakeholders of the financial system are developing a common vision for how financial services can better meet the needs of society.

In 2013, participants in the initiative released *The Role of Financial Services in Society: A Multistakeholder Compact*, a shared and publicly articulated view of the societal needs that the financial system should meet. Using the *Compact* as its foundation, this report discusses one important force within the financial system – the innovation process – in the context of these societal needs. Proposed by representatives of its many different stakeholder groups, the report outlines ways to manage risks of financial innovations so that they continue to be a source of growth and development for a prosperous economy and society. We hope that this report and the broader series of discussions on the role of financial services in society will be meaningful steps on the difficult path to earning back public trust and confidence in the financial system.



Introduction

Innovation in financial services, as in other industries, is a source of economic growth and improved living standards over the long run. In the face of social and technological change, innovation allows the financial industry to consistently meet society's evolving needs. Innovations such as annuities have offered financial security to a rising number of retirees; foreign exchange swaps have enabled companies to better manage risks in an increasingly globalized marketplace; and mobile banking has allowed underserved segments to access financial services without the need for expensive physical infrastructure. In recent years, however, "financial innovation" has become synonymous with opaque and complex financial products that were most heavily implicated in the financial crisis. One needs only to consider the byzantine structures of some securitizations and derivatives based on risky mortgage loans, which were poorly engineered by financial institutions and poorly understood by investors, to understand the key criticisms.

While the financial crisis did highlight harmful consequences of innovation, the range of innovative financial products and services (not to mention business models, processes and technologies) is simply too broad to be written off en masse. Many innovations have been not only valuable, but also necessary to keep pace with social and economic trends that change the way people use financial services – annuities, swaps and mobile banking, for example. Further, whether any one innovation is "good" or "bad" is hardly clear cut. A case in point is the bundles of debt sold as asset-backed securities (ABS); the social utility of one of the most vilified products since the financial crisis was once celebrated. These instruments, like other securitized products, allowed financial institutions to extend more credit to households and corporations, and reduced the concentration of risk within the financial system. Recently, regulators have expressed interest in reviving the securitization market, citing these very benefits. This change in outlook is accompanied by new regulations designed to steer these products away from the pitfalls that contributed to the financial crisis, and may lead to problems in the future. The Bank of England's Andy Haldane described securitization as the "financing vehicle for all seasons", if high standards are maintained for the assets that are bundled into these products.¹

A similarly balanced outlook is needed across the broad spectrum of financial innovations. Rather than viewing a new idea in simplistic terms as good or bad, participants in the financial system should seek ways to understand and preserve an idea's benefits, while ensuring that attributes that may prove harmful to society are appropriately contained. This report aims to guide such an approach by:

- Illustrating the benefits of financial innovation in terms of the societal needs they have historically fulfilled
- Defining the circumstances under which an innovation can have negative consequences for society
- Proposing ways in which the industry can avoid these circumstances in order to encourage responsible financial innovation

The report converges on two important themes. First, identifying the risks associated with any innovation is a challenging task; it is impossible to anticipate how an innovation will affect and be affected by the rest of the system it operates in, especially over longer periods of time. Thus, rather than discussing the specific features of prior innovations which have proved problematic, the report points to general problems in the innovation process which, unless appropriately addressed, could continue to turn new ideas into threats over time.

Second, since financial innovation includes a vast array of inventions with a correspondingly vast array of risks, those risks cannot be addressed by any specific "financial innovation policy". Rather, efforts should be directed at building a flexible and resilient system well equipped to handle new and emerging risks. For individual financial institutions, this means enhanced new product approval and enterprise risk management frameworks, incentives designed to discourage excessive risk-taking, a strong emphasis on client protection, and well-developed and maintained financial infrastructure. For regulators, this means developing a supervisory framework designed to identify and proactively respond to potential systemic risks arising from the development and application of financial innovations.

Preserving the Benefits

For most critics of financial innovation, the narrower set of wholesale products and services most often criticized for playing a role in the financial crisis is top of mind. However, the financial industry has supported an enormous amount of innovation in recent decades across products, business models and technologies. Most innovations have been not only socially valuable, but also necessary to allow the financial system to meet evolving societal needs.

A broad array of new products has allowed customers to navigate emerging opportunities and challenges, such as an increasingly globalized economy and rising longevity. Innovations in business models have introduced heterogeneity, increasing the system's ability to serve different client segments and reducing the risk of adverse events toppling the entire system. Advances in technology have allowed financial firms to design more effective distribution channels; as a result, previously underserved client segments can better access financial services, and customers can better manage their finances through convenient mobile or online portals.

Figure 1 shows a range of ways in which the financial system serves the needs of society, and the financial innovations that were designed to improve its ability to do so.²

Clearly, not all innovations to come out of the financial industry can be directly tied to a societal need – one would be hard pressed, for example, to place the infamous (and now retired) “CDO-squared” into this view. Moreover, even those innovations that have been instrumental in fulfilling societal needs have come with risks. Consider the handful of derivatives clearing organizations around the world that act as intermediaries between derivatives counterparties. These organizations reduce counterparty risk in the derivatives market by collecting and valuing collateral, issuing margin calls, netting offsetting transactions and settling obligations. While centralizing these tasks provides enormous benefits, it also concentrates risks within these institutions. Indeed, the failure of a clearinghouse could put significant stress on many major financial institutions simultaneously, with adverse repercussions for the economy.

Similar discussions of benefits versus risks can be had for almost every financial innovation, from the most complex securitized product to the credit card. But the lesson should not be to fear, and consequently to discourage, financial innovation. Rather, it should be to recognize that risks will need to be identified and smartly managed if the financial system is to continue to meet society's needs. In the case of securitized products, it is unlikely that the CDO-squared will make a comeback, as regulators and the industry explore safer and more transparent structures. Certain clearing organizations and other critical market utilities have already been designated as systemically important institutions subject to enhanced oversight. And, in the case of yet-to-emerge innovations, an approach that recognizes both the benefits and the risks will help the industry innovate in responsible ways that benefit society in the long run.

Figure 1: Examples of innovations that address societal needs

	SOCIETAL NEED	DESCRIPTION OF NEEDS	EXAMPLES OF INNOVATION
	Promote financial and economic resilience	Mechanisms to reduce large shocks originating in the financial system and minimize amplification via the financial system of shocks that originate outside the system to limit financial contagion and costs to the real economy and society at large	<ul style="list-style-type: none"> • Safety nets such as deposit insurance and state insurance guaranty funds • Instruments that enable risk transfer, including derivatives and securitized products
	Safeguard savings and the integrity of financial contracts	Broad access to a safe way to save, with minimal risk and easy access to funds; legal and operational reliability across all financial contracts, products and transactions	<ul style="list-style-type: none"> • Deposit products, such as savings accounts, certificates of deposit and money market deposit accounts • Low-risk investment products such as money market mutual funds
	Facilitate efficient allocation of capital to support economic growth	Mechanisms to raise debt or equity for current and future needs, raise capital for new ventures/investments, and finance growth projects yielding positive financial returns and benefits to the real economy	<ul style="list-style-type: none"> • Corporate and government bonds • Venture capital • Social impact investment funds • Infrastructure bonds • Peer-to-peer lending
	Provide broad access to financial services products and services	Broad access to financial services across the world, including disadvantaged and low-income segments, and education on financial management to reduce levels of unbanked and uninsured (or underbanked and underinsured) populations across the world	<ul style="list-style-type: none"> • Low-cost distribution channels such as mobile and online banking • Index-based investments that offer diversification benefits at relatively low cost • Microfinance and microinsurance
	Enable smoothing of cash flows and consumption over time	Structures to balance consumption, investment and saving during the different phases of life and provide the ability to deploy savings/investments across a range of time horizons and risk profiles to balance access (liquidity), risk and economic returns	<ul style="list-style-type: none"> • Mortgages and other loans to support large purchases, such as for automobiles and education • Self-directed retirement accounts, annuities, pension funds and other products to ensure income after retirement • Reverse mortgages that allow homeowners to exchange home equity for income • Life, property and casualty, and health insurance
	Enable payments	Safe, low-cost and reliable physical and electronic mechanisms to make payments for goods and services and to transfer money domestically and internationally	<ul style="list-style-type: none"> • Payment cards (e.g. credit and debit cards, prepaid cards, electronic benefits transfer) • Mobile and online payment services • Point-of-sale terminals • Wire transfer services
	Provide financial protection, risk transfer and diversification	Ability to cover unexpected expenses from unforeseen events, share risks among groups to limit individual loss, transfer risks to those that are more able and willing to take them and undertake productive activities while managing risks and volatility	<ul style="list-style-type: none"> • Use of telematics in auto insurance • Derivatives, including credit default and interest rate swaps • Most securitized products, including mortgage- and asset-backed securities • Mutual funds and exchange-traded funds (ETFs) • Insurance-linked securities
	Collect, analyse and distribute information for better economic decision-making	Trusted and objective advice on how to best use financial products and information to meet personal objectives minimizing search costs and investment risks	<ul style="list-style-type: none"> • New financial and economic indices • Personal financial management services • Financial data aggregators
	Provide effective markets	Consistent access to a broad set of investment opportunities at fair, accurate and transparent market prices; reliable provision of liquidity for a wide range of assets and well-functioning transaction execution mechanisms	<ul style="list-style-type: none"> • Online brokerage services • Electronic exchanges • Centralized data repositories, clearing and settlement, and custodial services



Defining the Risks

Managing the risks of any innovation is a challenging task, but all the more important in the financial industry, due to certain structural characteristics of financial products that can amplify their impact on society. Specifically, many financial products are:

- **Widely-used, big ticket items:** Financial services play a major role in allowing individuals and corporations to save, smooth cash flows and consumption over time, and make payments, among a variety of other needs. Home mortgages, student loans and retirement annuities are among the most expensive and critical items on most personal balance sheets.
- **Long-term in nature:** Financial products are often long-term arrangements; consider, for example, the 30-year mortgage or a pension product. These may be adopted during one point in the economic cycle, but behave quite differently in another, e.g. when interest rates change. Consequently, flaws in design may not become apparent for years after the product is introduced and undergoes widespread adoption.
- **Vulnerable to behavioural bias:** Although not unique to financial services, biases in human behaviour can have strong implications for the performance and risks of financial products. Individuals may not expend the time and attention required to understand certain complex financial products. And even if they understand them, they may make poor choices – for example, underestimating the likelihood of adverse future events when buying insurance, or undervaluing the benefit of saving for the future.
- **Interconnected:** The performance of the most vanilla financial product, such as a corporate savings account, is tied to a host of other factors, including the provider's performance (which in turn is a product of the provider's investments and exposures in various areas) and the performance of the currency in which the product is denominated (a product of sovereign strength, fiscal and monetary policy, exchange rates, etc.). Interconnectedness can magnify the economic and social effects of failures; not only will the innovation's adopters feel the effect of its failure, but also users who may not have a direct connection to it.

Given the potential for negative implications to ripple through the economy, inventiveness within the industry should be carefully managed. This is a challenging task; the risks of innovations are inherently unknown. While a great deal can be learned from past mistakes, the goal of industry participants and policy-makers should not be to merely react to specific features that became the pitfalls of prior innovations. Rather, a more productive area of focus may be to understand and address the aspects of the innovation process that have given rise to problems in the past and, if left unchecked, have the potential to do so in the future. A few such aspects are described and illustrated with historical examples in the remainder of this section.

1. Innovations may be modified and adapted for use beyond their originally intended purpose.

It is in the dynamic nature of finance to ceaselessly invent, but more often, to improve, extend, adapt, and revise previous inventions. A new product or technique may be motivated by the specific needs of a client (for example, a type of exposure that requires a bespoke hedging instrument), but may consequently undergo a host of incremental changes to appeal to a broader set of users and functions. Strong incentives to create these “mutations” exist among firms fiercely competing for market share. Moreover, market participants stand to benefit from the market depth and liquidity created by an innovation’s mass adoption.

However, the innovation’s original adopters and intended targets may be the best suited for it, and able to most fully understand its risks. As the innovation diffuses from early adopters to the mass market, the product’s structure and uses may change, giving rise to substantially different benefits and risks.

Exchange-traded funds (ETFs)

ETFs began as a tradable basket of shares replicating a stock market index, such as the S&P 500. Similar to index tracking funds available to institutional investors, ETFs allow smaller investors to diversify their holdings at relatively low cost. Since the early 2000s, the ETF market has grown from under \$100 billion to over \$1.3 trillion, diversifying far beyond the original vanilla ETFs.³ Today, ETFs are linked to a variety of asset classes, including high-yield debt and real estate. There are inverse ETFs that move in the opposite direction to the underlying index and leveraged ETFs offering geared returns. Some ETFs are “synthetic” and do not directly invest in targeted assets, but instead invest in other collateral and swap the returns on the collateral with a counterparty for the returns of the targeted index. Where retail investors were once the primary target investors in ETFs, hedge funds and other institutional investors have moved in, often to take up speculative positions.

Regulators and industry leaders have raised concerns about these evolving forms, not only because they are more complex, opaque and functionally different, but also because the ETF market has attained the volumes to make it systemically risky. As with many other innovations in the industry, the question now is how to manage the risks of these mutations while preserving their benefits.

2. Designing proper incentive systems may be challenging when the risks of newly introduced innovations are not fully known.

The value (and risks) of an innovation may not be fully known for some time after its introduction; thus, associated incentive systems may be misaligned with long-term interests of customers, the financial institution or the broader economy. For example, practitioners may be compensated for the sale of particular innovations as opposed to their long-term performance.

The aim of many financial innovations, including those most heavily implicated in the crisis, has been to intermediate risks between market participants. On the one hand, innovations such as securitization allowed risks to be dispersed more widely in the system, with the advantage of delivering the desired risk-return profiles to different investors and lowering the overall cost of financing. On the other, they diminished the discipline of market forces by disconnecting originators of loans from their pay-offs, creating incentives for originators to engage in riskier activities.

Mortgages and mortgage-backed securities (MBS)

By allowing mortgage originators to transfer risks off their balance sheets under the “originate-to-distribute” model, MBS increase the capital available for mortgage lending and consequently for new home purchases. These securities were not only lauded, but also promoted by US policy-makers with the creation of government-sponsored enterprises (GSEs) that significantly expanded the MBS market.

Today, the implications of this market structure for financial and economic stability are known all too well. For many mortgage originators, incentives were geared towards maximizing the volume of lending, with little consideration for borrowers’ ability to repay their loans. The failure to adequately consider borrowers’ credit risk allowed many with poor credit (and fewer borrowing alternatives and/or low financial literacy) to be steered to expensive and unsustainable loans. The subprime mortgage segments were particularly impacted by these perverse incentives. Meanwhile, the packaging for sale of securities backed by these loans was a lucrative business that encouraged higher quantities of mortgage origination under lax underwriting and risk assessment standards.

Regulators and industry leaders are trying to revive the securitization market, but this time with the right incentives in place. One potentially significant change is in credit risk retention requirements, which will oblige originators to retain “skin in the game”. Other industry-led and regulatory efforts are attempting to tackle a much broader set of compensation reforms, which may ensure that these products are used more safely in the future.

3. The risks and benefits of an innovation are improperly assessed for different client segments.

Information asymmetry between financial institutions and clients is a frequently cited failure of financial markets, and inadequate client protection is one of the most damaging consequences. The risks of financial innovation for different client types take time to emerge and may be ill-understood by financial services providers, regulators and clients. At worst, providers with profit-seeking motivations may take advantage of investors with relatively limited knowledge.

Retail investors in particular, but also certain wholesale client segments, may find it difficult to evaluate benefits and risks of new products and services with which they have little experience. The complexity of financial disclosures and the different potential roles played by financial service providers (e.g. paid adviser versus arms-length counterparty) may lead to misselling or misrepresentation to certain client segments.

Payment protection insurance (PPI)

PPI can cover loan or debt repayment in the event of death, illness, disability, unemployment or other circumstances in which the borrower is unable to service the debt. Like most insurance products, PPI policies can differ greatly in terms of price, limits on benefits, covered events and other features. Historically, these policies were often sold together with the credit product they were designed to cover, with profits from associated commissions becoming a significant contributor to the credit products' overall profitability.

In 2011, the United Kingdom's Financial Services Authority (FSA) proposed a new regulatory regime for PPI, concluding that "PPI was designed to meet a specific consumer need, but was widely missold in an aggressive way, with harm to consumers occurring as a result."⁴ Problems identified in the PPI market included that the product was misrepresented to consumers (for example, as a necessary condition for purchase of the loan), ineffective (e.g. structured to limit the chances of payout in circumstances that appeared to be covered) and inefficient (with claimants facing lengthy delays or complicated claims procedures).

The new regulatory regime introduces rules-based requirements to limit misselling practices, including prohibitions on selling certain types of PPI products, as well as a new conduct supervisory approach that seeks to identify and proactively address potential threats to consumer protection.

4. Record-keeping and other critical supporting infrastructure may lag while an innovation takes off.

Financial markets rely on a wide array of critical back-office tasks to support pre-trade, trade, and post-trade stages of financial transactions. In the rush to meet demand for an attractive new innovation, however, these tasks can fail to keep pace with the volume of financial transactions.

The gaps in financial infrastructure, resulting from a combination of outdated technologies, inefficient processes and limited resources, came to the forefront in the last financial crisis. For example, delays in post-trade confirmations, collateral transfers and margin calculations and collection prevented financial institutions from understanding and managing risk exposures associated with various financial products. At the same time, the absence of a holistic view of systemwide exposures and risks allowed risk concentrations to increase unnoticed within the system.

Over-the-counter (OTC) derivatives

OTC derivatives are privately negotiated contracts between buyers and sellers which may be cleared through central counterparties. Over the last 10 years, the demand for these contracts has grown enormously, with total notional amounts outstanding rising to nearly \$700 trillion.⁵

By 2005, the growth of this market had outpaced dealers' abilities to process transactions, due to underdeveloped infrastructure and lack of automation. By some estimates, for every 100 new trades executed by a dealer, there were nearly 1,000 existing, unconfirmed trades, which limited the ability of dealers to accurately assess their exposure to counterparties.⁶ The apparent lags in back-office tasks has prompted a host of corrective actions, including more efficient processing capabilities, central repositories for data and processing tasks, and improvements in market design (e.g. higher collateral standards and margin requirements).

However, filling the infrastructure gaps for derivatives and other financial products remains an ongoing task. For example, global legal entity identifiers (LEIs), unique IDs that will allow exposures to be aggregated across the system, have yet to get off the ground, and swap data repositories, created to track data on derivatives transactions, have struggled with inaccurate reporting and substantial data errors.⁷ Furthermore, policy-makers and the financial industry must tackle an even greater challenge – developing the capabilities to mine the troves of data becoming available on major markets to recognize the build-up of risks in the system.



Recommendations

In late 2013, a series of security breaches at major US retailers compromised sensitive information associated with millions of credit and debit card accounts. Within months, most major card issuers had upgraded to a more secure payment method using computer chips and personal identification numbers (PINs). The “chip and PIN” system goes a long way towards preventing fraud, but it is not a cure-all; a number of other innovators are working on better solutions, ranging from cards with rewritable magnetic stripes to security code features that could allow cards to be “turned off” when not in use.

In another area of financial services, pension funds and annuity providers that guarantee retirement income are grappling with the trend towards increased longevity. In response, some capital markets firms are offering longevity risk transfer products – tradable securities that use standardized assumptions on longevity to appeal to a broader investor base. The market for these products is still in its infancy and its risks are still emerging – the build-up of basis risk, for instance – but it could help create better pricing and ultimately increase retirement security.

Innovation is a natural force in a competitive financial services industry, and one that is necessary to meet the evolving needs of its users. Despite periodic breakdowns, innovation has proved beneficial in many ways. Therefore, it is important that the industry and its supervisors avoid adopting a negative bias towards innovation that, at one extreme, would allow only the most vanilla products to come to market. Rather, public- and private-sector leaders should promote both safety and creativity, and commit to make complex ideas work if they have the potential to deliver value to society.

Several approaches to encourage a more responsible innovation process are presented in this section.

1. Review and adapt enterprise risk management and new product approval processes to address risks and uncertainties of incremental innovations arising from changes to existing products

Variations of existing products may be overlooked by institutions’ risk management and new product approval processes, but can pose significantly different risks from earlier incarnations. While financial institutions routinely subject “original” innovations to scrutiny by new business committees, risk managers, and legal and compliance functions, deciding when subsequent versions should be processed through this cycle may be much more difficult.

The social utility of most innovations takes time to emerge; historically, many innovations that have gone on to add value did so in ways that were not at first apparent. Therefore, rather than placing excessive restrictions on an innovation as it is being developed and first introduced, financial institutions should define and implement “triggers” that objectively identify risks that may emerge in later stages of the innovation’s life cycle, taking into account the following:

- Use of an innovation beyond its original core purpose (e.g. credit provision, long- or short-term investment, risk mitigation)
- Adoption by different client segments beyond the original target market
- Increased contribution to an institution’s overall business, for example as defined by volume-based or revenue-based limits
- Changes to key assumptions underlying the innovation (e.g. low or high interest rates, market volatility, changes in the macroeconomic cycle)
- Changes to flows of capital and risks associated with an innovation (e.g. introduction of conduits or other new intermediaries, changes to the amount or quality of collateral)

- Increased numbers of customer complaints associated with an innovation

The possibilities for “mutation” will require ongoing vigilance on the part of new product committees, risk managers and others charged with risk governance. Institutionalizing these triggers will ensure that innovations are adequately monitored throughout their life cycles.

2. Redesign incentive systems to incorporate the uncertainties associated with innovation

Some of the most important elements of incentive design within financial institutions are the proper assessment of the values and risks of key activities and, consequently, the amount, form and timing of incentive payments. In the context of an innovation, it is intrinsically harder to assess the value and risks that will emerge through its life cycle, and therefore to appropriately design incentive systems to curb these risks.

However, institutions can certainly do more towards introducing incentives that are tied to the longer-term performance of an innovation, by:

- Improving performance metrics incrementally, as usage of an innovation accelerates and more data becomes available
- Increasing the use of deferrals, vesting and clawback arrangements
- Adopting skin-in-the-game provisions that require originators of new risk exposures to retain some portion of those risks

Ultimately, incentive schemes will have to be designed to take into account the perceived risk structure of each innovation, and incrementally revised as these risks are better understood.

3. Ensure a proper framework to provide adequate protection for different client segments

Changes are already occurring in the way users view financial products and institutions – investors are now less likely to simply accept the verdicts of financial intermediaries and rating agencies. However, the risks posed by future innovations will likely be different from those of the past, and many retail and wholesale investor segments remain ill-equipped to identify these risks.

The responsibility to ensure adequate consumer financial protection in the face of emerging and evolving risks falls to the providers of these innovations, who are best positioned to understand them. Financial institutions need to ensure that their focus remains on customer protection:

- Classifying clients into distinct segments based on their sophistication and experience in a particular market, with each segment having different thresholds for minimum suitability standards
- Introducing financial innovations to small groups of early adopters within each client segment, before marketing these more broadly

- Restricting sales of certain innovations to certain client segments
- Reducing incentives that prioritize the interests of the institution or its employees over those of the client
- Providing clients with timely information that enables them to make informed decisions

Significant variation exists in client sophistication and suitability for different financial innovations. Institutions must be mindful to maintain high standards of care that address each segment's unique needs.

4. Develop and maintain the necessary infrastructure to support innovations

Financial reform is on its way to addressing many types of infrastructure weaknesses, from central counterparty clearing houses that will collect and keep records of collateral, to swap data repositories that will keep track of most derivatives trades. The process of setting up unique global legal entity identifiers is under way to provide a consistent and integrated view of exposures across legal entities. However, the system is far from being able to track data on transactions and resulting exposures on a timely basis and in useful formats for analysis.

Financial institutions need to ensure that well-developed infrastructure – including reliable systems for accounting, auditing, tax, back-office monitoring of positions, stress testing and collateral valuation – is supporting financial transactions. More importantly, the resulting information should inform decision-making about the future use of an innovation, by:

- Helping management understand the effect of innovation on business performance while reflecting the associated risks
- Monitoring and challenging the underlying assumptions for innovations and their planned or budgeted role in the institution's portfolio
- Tracking the utilization of internally imposed limits on innovations at the institutional level

A related issue, highlighted all too well by the financial crisis, is that the focus on the behaviour of individual institutions is insufficient to ensure systemic stability. Rather, risks to the system may go unnoticed among the interactions between intermediaries, products and markets. As with the market for derivatives, regulators and the industry need to align on the asset classes for which it is useful to have an aggregated, systemwide view of positions and risks.

The financial services industry has fostered an enormous amount of innovation in recent decades and is poised to continue this trend as customer needs continue to evolve and as fundamental changes to the regulatory framework compel financial institutions to adapt the way they do business. While the risks from future innovations are likely to be different from those already encountered, there are important lessons to be learned to ensure that the innovation process balances safety and creativity.

The recommendations in this report support the core theme that financial institutions must not only manage the risks of new products, but continue to iteratively evaluate their social utility throughout the life cycle. Ultimately, beneficial financial innovations have been defined as those which meet one of the societal needs outlined herein. However, it is possible that a society- or customer-centric view may be overly restrictive in the early stages of an innovation, when its applications and risks are unknown. Therefore, institutions should shift the emphasis from requiring many checks and approval processes for new products, to actively monitoring the value and risks as these products evolve, and particularly as they attain greater scale.

Further, while financial institutions are the primary audience for this report's recommendations, regulators and supervisors have important roles to play, both in monitoring the adequacy of institutions' efforts and, most importantly, in identifying systemic risks. An innovation that poses little risk when used by a few institutions can present substantial systemic risks when used by many institutions across the industry. Regulators with a holistic view of the financial system may be best placed to identify these systemic risks, including those arising from correlated risk profiles and large counterparty exposures among financial institutions. Policy-makers and regulators should focus their assessments of the risks and benefits of financial sector innovations on those innovations that have or may soon achieve the scale to have widespread impact in the event of an unforeseen problem. Furthermore, policy efforts that result in a more resilient overall financial system should allow for a more innovative one as well, creating more room for experimentation without risking systemic consequences.

Endnotes

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Acknowledgements

Steering Committee

The project team would like to offer its special gratitude to the members of the multistakeholder steering committee for its leadership in the Role of Financial Services in Society initiative.

Co-chairs of the Steering Committee

Alan Blinder, Gordon S. Rentschler Memorial Professor of Economics and Public Affairs, Princeton University (USA); Vice-Chairman of the Board of Governors, Federal Reserve System (1994-1996)

Anshu Jain, Co-Chief Executive Committee, Deutsche Bank

Robert Johnson, President, Institute for New Economic Thinking

Adair Lord Turner, Senior Fellow, Institute for New Economic Thinking; Chairman, United Kingdom Financial Services Authority (2008-2013)

Steering Committee members

Erik Berglöv, Chief Economist, European Bank for Reconstruction and Development (EBRD)

Michael C. Bodson, President and Chief Executive Officer, Depository Trust & Clearing Corporation

Patrick Combes, Chairman, Compagnie Financière Tradition

Michel Demaré, Chairman, Syngenta International

William Downe, President and Chief Executive Officer, BMO Financial Group

Darrel Duffie, Dean Witter Distinguished Professor of Finance, Stanford Graduate School of Business, USA

Hikmet Ersek, President and Chief Executive Officer, The Western Union Company

Douglas Flint, Group Chairman, HSBC; Chairman of the Board of Directors, International Institute of Finance

Reto Francioni, Chief Executive Officer, Deutsche Börse

Jacob Frenkel, Chairman, JPMorgan Chase International; Chairman of the Board of Trustees of the Group of Thirty (G-30); former Governor, Bank of Israel

Mario Greco, Chief Executive Officer, Assicurazioni Generali

Phillip J. Jennings, General Secretary, UNI Global Union

Michel Liès, Chief Executive Officer, Swiss Re

John Lipsky, Senior Fellow, Foreign Policy Institute, Johns Hopkins School of Advanced International Studies (SAIS), USA; former First Deputy Managing Director, International Monetary Fund

Walt Macnee, Vice-Chairman, MasterCard Worldwide

Guillermo Ortiz, Chairman, Grupo Financiero Banorte

Gary Parr, Vice-Chairman, Lazard Frères & Co.

Joseph Peter, Executive Vice President and Chief Financial Officer, Nissan Motor Co.

Marcello Sala, Executive Vice-Chairman of the Management Board, Intesa Sanpaolo

Martin Senn, Group Chief Executive Officer, Zurich Insurance Group

Davide Serra, Founder and Chief Executive Officer, Algebris Investments

V. Shankar, Group Executive Director and Chief Executive Officer, Europe, Middle East, Africa and the Americas, Standard Chartered

Nick Studer, Managing Partner Financial Services, Oliver Wyman

Lance Uggla, Chief Executive Officer, Markit

Axel Weber, Chairman, UBS; former President, Deutsche Bundesbank and member of Governing Council, European Central Bank

David Wright, Vice-Chairman, Barclays Capital; former British diplomat and Ambassador to Japan

Working Group

The project team would like to thank the Working Group for their contributions to the Role of Financial Services in Society initiative

Working Group members

Peter Axilrod, Managing Director, Head of Strategy, Depository Trust & Clearing Corporation

Francis Bouchard, Group Head of Government and Industry Affairs, Zurich Insurance Group

Fabrizio Campelli, Head of Group Strategy and Planning, Deutsche Bank

Miles Celic, Director of Group Strategic Communication, Prudential

Luella Chavez D'Angelo, Chief Communications Officer, The Western Union Company

Geoff Davis, Director, Perpetual Education Fund

Philipp Freise, Partner, Kolberg Kravis Roberts

Giovanni Giuliani, Head, Strategy and Business Development, Assicurazioni Generali

Alexandra Hachmeister, Senior Advisor, Regulatory Strategy, Deutsche Börse

Christopher Hamilton, Chief Marketing Officer, The Capital Markets Company

Denise Lanfredi Hills, Superintendent of Sustainability, Banco Itaú Unibanco

Steve Hottiger, Managing Director and Head, Group Governmental Affairs, UBS

Donald R. Howard, Chief Risk Officer, Standard & Poor's

Michael Jacobides, Sir Donald Gordon Chair of Entrepreneurship and Innovation, London Business School, UK

Kurt Karl, Chief US Economist, Swiss Re

Reto Kohler, Head of Strategy, Corporate and Investment Banking and Wealth Management, Barclays Capital

Dino Kos, Head of Global Regulatory Affairs, CLS Bank International

Timothy Lyons, Head of Global Strategy, Morgan Stanley

Anne Mathias, Managing Director, Global Macro Research, Guggenheim Partners

Marianne Mwaniki, Head of Social and Economic Impact, Standard Chartered

Oliver Niedermaier, Chairman and Chief Executive Officer, Tau Investment Management

Moshe Orenbuch, Managing Director and Equity Research Analyst, Credit Suisse

Tomás Riestra, Economist, Economic Research and Public Policy, Santander

David Rodin, Co-Director and Senior Research Fellow, Oxford Institute for Ethics, Law and Armed Conflict, University of Oxford, UK

John Tuttle, Managing Director, Global Affairs, NYSE Euronext

Project Team

The development of the publication has been supported by the project team below:

Project team members

Giancarlo Bruno, Senior Director, Head of Financial Services, World Economic Forum

Matthew Blake, Director, Head of Banking Industry, World Economic Forum

Todd Glass, Senior Project Associate, Financial Services, World Economic Forum

Michael Poulos, Partner and Head of Americas Financial Services, Oliver Wyman

John Lester, Partner, Oliver Wyman

Aditi Kumar, Engagement Manager, Oliver Wyman



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World Economic Forum
91-93 route de la Capite
CH-1223 Cologny/Geneva
Switzerland

Tel +41 (0) 22 869 1212
Fax +41 (0) 22 786 2744

contact@weforum.org
www.weforum.org