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ABSTRACT: The Financial Services Industry (FSI) is designated as a "critical infrastructure" of the United States, directly affecting national interests and impacting national security. Now is the time to adjust course across the regulatory oversight system, react to a major change in the FSI international market with Brexit, and enhance our resiliency against future threats to FSI cybersecurity vulnerabilities. The U.S. FSI makes a strong, sustainable contribution to national security and economic prosperity. Nonetheless, the government can do more to mitigate the unintended consequences of Dodd-Frank, including the overly complex domestic regulatory structure; potential Brexit impacts; and emerging cybersecurity challenges.

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TABLE OF CONTENTS

INDUSTRY STUDY OUTREACH & FIELD STUDIES 2017

On-Campus Presenters:

Asian Development Bank, Washington, DC
Financial Services-Information Sharing and Analysis Center (FS-ISAC), Reston, VA
General Services Administration (GSA), Washington, DC
HCI Equity Partners, Washington, DC
Kennedy School of Government, Sanctions, Washington, DC
Office of Foreign Asset Control, U.S. Treasury, Washington, DC
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Field Studies—Domestic:

Bank of America (BoA), Charlotte, NC
The Carlyle Group, Washington, DC
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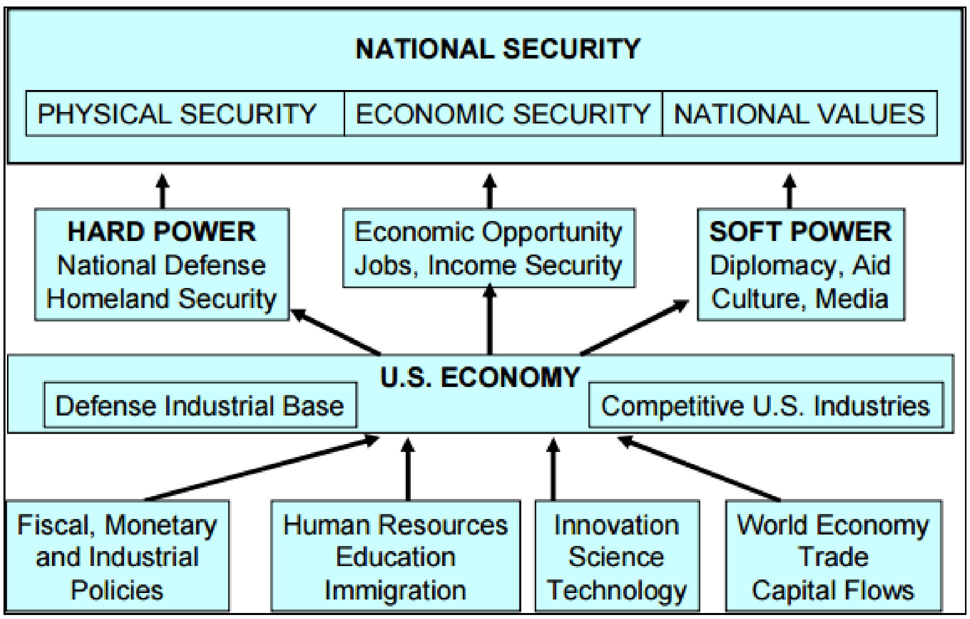
Depository Trust and Clearing Corporation (DTCC), New York City, NY
Export/Import Bank (EXIM), Washington, DC
Federal Bureau of Investigation (FBI): Financial Crimes Division, New York City, NY
Federal Deposit Insurance Corporation (FDIC), Washington, DC
Federal Reserve Bank of New York, New York, NY
Federal Reserve Board, Washington, DC
Financial Crimes Enforcement Network (FinCEN), U.S. Treasury, Vienna, VA
Financial Industry Regulatory Authority (FINRA), Washington, DC
Goldman Sachs, New York City, NY
Ironshore Insurance, New York City, NY
Investors Exchange (IEX), New York, NY
Jade Capital Management, New York, NY
J.P. Morgan Chase and Company, New York, NY
Moody's Investor Service, New York, NY
Pentagon Federal Credit Union, Alexandria, VA
Warburg Pincus LLC, New York, NY
Wells Fargo Securities, Charlotte, NC

Field Studies—International:

Barclays Bank, London, UK
TheCityUK (trade association), London, UK
Deutsche Bundesbank, Frankfurt, DE
DZ Bank, Frankfurt, DE
European Bank for Reconstruction and Development, London, UK
The Financial Times, London, UK
House of Commons, London, UK
HSBC, London, UK
KfW, Frankfurt, DE
Lloyd’s of London, London, UK

INTRODUCTION

The first official National Security Strategy (NSS) was signed in 1987 and codified "a healthy and growing economy" as the second of five U.S. national interests.[1] Economic opportunity and prosperity remain a priority in the 2015 NSS. A healthy economy provides the United States the strength and flexibility to use all instruments of national power, which increasingly includes financial sanctions.[2] The financial services industry provides the structural support to grow and sustain a healthy economy and represents approximately 7% of the U.S. Gross Domestic Product (GDP).[3] It is one of the sixteen designated critical infrastructures of the United States as established by a Presidential Policy Directive (PPD) in 2013, the figure below shows the complexity of the U.S. economy's relationship to national security.



Source: Congressional Research Service

Figure 1. The Economy and National Security[4]

The power of the financial services industry, banks in particular, has grown exponentially since the states formed the "more perfect union." Thomas Jefferson wrote in 1816, "And I sincerely believe, with you, that banking establishments are more dangerous than standing armies…"[5] The state of the U.S. economy is a bellwether to the population's perception of banks and the industry as a whole. That perception guides the politics of the day and shapes regulatory proposals. While the PPD influences the industry's security infrastructure in clear terms, control of the industry's regulatory infrastructure is more complicated and under Congressional influence.

As students of national security policy, the authors have spent the last six months analyzing the financial services industry: an industry that has undergone significant reform under the 2010 Dodd-Frank Wall Street Reform and Consumer Protection Act. This paper is a product of that analysis, and contains the following sections (essays): Section One, an assessment of the health of the financial services industry (FSI); Section Two, the industry's domestic policy considerations; Section Three, international policy considerations; and Section Four, cybersecurity policy considerations. Specific conclusions are contained in each respective section. Section Five highlights our overall conclusions. *These conclusions support our assertion that the U.S. financial services industry is achieving adequate profit at acceptable risk, but that more can be done to mitigate the unintended consequences of Dodd-Frank, potential Brexit impacts, and emerging cybersecurity threats.* Recommendations contained within support the health of the financial services industry, economic growth, and national security. The methodology used was based on a formal industry Structure, Conduct, Performance analysis, as well as perspectives and experiences gained in travel to financial firms throughout the United States and Europe.

SECTION ONE: CURRENT HEALTH AND OUTLOOK OF THE FINANCIAL SERVICES INDUSTRY

The U.S. Financial Services Industry (FSI) supports a strong domestic economy, funds all of its instruments of national power, and facilitates economic growth globally. This necessitates a government goal of a healthy, stable, and sustainable FSI. The FSI is one of the most highly regulated industries in the United States. A Structure-Conduct-Performance (SCP) methodology is used to analyze the overall health of the FSI, including the strength and resilience of the sector and to identify systemic risk in either structure or practice. The SCP analysis informs the authors' conclusions and answers the question: do industry conditions allow major financial services firms to develop and implement successful strategies that achieve adequate profit at acceptable risk, the cornerstone to a sustainable industry. Section-specific conclusions and recommendations follow.

Structure - Defining the Industry

Healthy commercial and investment banks (hereafter referred to as 'banks') are critical to U.S. national security. Consequently, banks are subject to oversight and regulation intended to minimize systemic risk and support industry health and resiliency. Healthy banks act as GDP multipliers and job creators; they connect the funding required to support consumption, business start-ups, expansions, and mergers and acquisitions. Notably, the FSI served as the largest source of U.S. GDP growth expansion in 2016.[6]

The FSI includes thousands of depository institutions, providers of investment products, insurance companies, other credit and financing organizations, and the providers of the critical financial utilities and services that support these functions.[7] For the purpose of this analysis, the FSI is limited to the commercial and investment banking components of the broader industry given their contribution to liquidity in the economy and the role they played in the 2008 financial crisis. Commercial banking is defined as an "industry comprised of banks that provide financial services to retail and business clients in the form of commercial, industrial and consumer loans. Banks accept deposits from customers, which are used as sources of funding for loans."[8] Investment banking is defined as an: "industry composed of companies and individuals that provide a range of securities services, including investment banking and broker-dealer trading services. They also offer banking and wealth management services and engage in proprietary trading (trading their own capital for a profit) to varying degrees. Investment banking services include securities underwriting and corporate financial services while trading services include market making and broker-dealer services."[9] Both commercial and investment banks engage in competitive pricing and have substitutable products, which are important features of any market or industry.

Defining the Competitive Spectrum

A firm's ability to compete in a market is impacted by where the industry, as a whole, falls on the competitive spectrum. The spectrum ranges from a perfectly competitive market to a monopoly, with monopolistic competition and oligopoly falling within these two extremes. Commercial banking falls in the monopolistic competition range of the spectrum, with the market share of the top four firms exceeding 33%.

Investment Banking falls in the oligopoly range of the spectrum; with the market share of the top four firms exceeding 54%. Driven by competition and other factors, banks continue to consolidate through mergers and acquisitions in order to improve economies of scale and reduce competition. Persistently low interest rates continue to challenge bank profits across all firms; the top commercial and investment banks compete in dogged competition with each other for market share.

Prospective new commercial and investment banks face high barriers to entry from complex regulation, fees, established reputable competitors drawing from a small pool of talented personnel that demand high wages, and expensive but critical advanced technologies, including cybersecurity technologies.[10] In addition to acting as barriers to new market entrants, these factors also impact how established banks manage their strategy to stay competitive.

A structural analysis of the market supports a conclusion that both investment and commercial banking are highly competitive markets. The level of market competition observed supports innovation, and serves consumers more broadly.

Conduct – Strategy

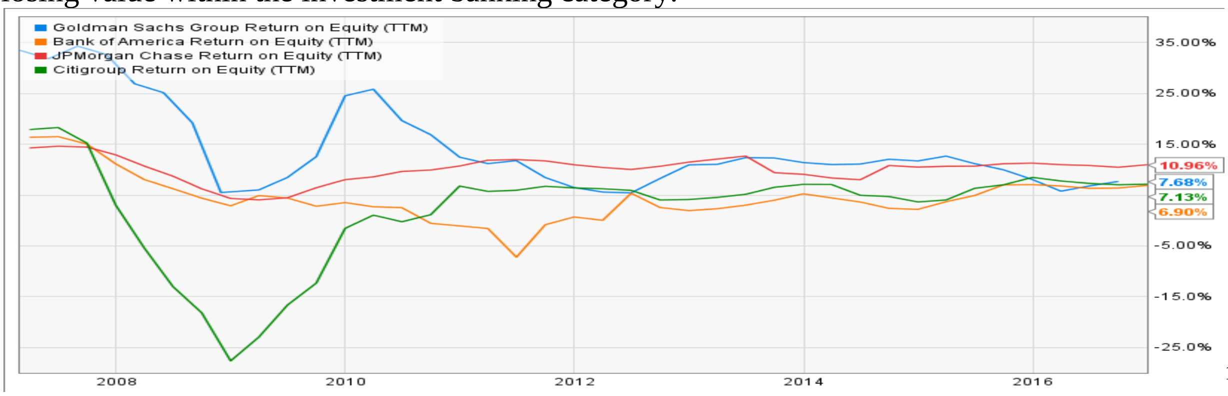
Commercial and financial banks have struggled to innovate and differentiate their products from their competitors. Larger firms are consolidating the market to gain economies of scale, thanks in large part to rivalry and high barriers to entry. Most banks have employed a general strategy of *doing more business better*. Commercial banks offer discounted rates and free checking to undercut the competition. Convenience and cost-cutting measures like closing high-cost brick and mortar branches and replacing them with mobile banking platforms are intended to enhance performance. Investment banking firms are increasingly looking to new global opportunities, fighting to make regulatory requirements more efficient, switching to reliance on the commercial banking part of their parent company, and catering to special clientele. Of note, the partial repeal of the Banking Act of 1933 (also referred to as Glass-Steagall) has made it possible for entities to operate in both the commercial and investment banking spaces while maintaining a firewall to prevent the comingling of these two elements of their business. Notably, the Trump Administration has expressed an interest in reinstituting elements of Glass-Steagall which could have significant consequences for investment banking firms relying on a presence in the commercial banking market to compete.

A transition to online banking platforms has augmented concerns regarding cybersecurity threats. Cybersecurity vulnerabilities have become a priority for all financial institutions surveyed, and institutions are spending millions of dollars annually to build and sustain a robust cybersecurity posture. Cybersecurity is further addressed under the technology policy considerations section.

An analysis of market conduct supports a conclusion that banking strategies are sound, and should support adequate profit at acceptable risk. The market performance analysis below further supports this conclusion.

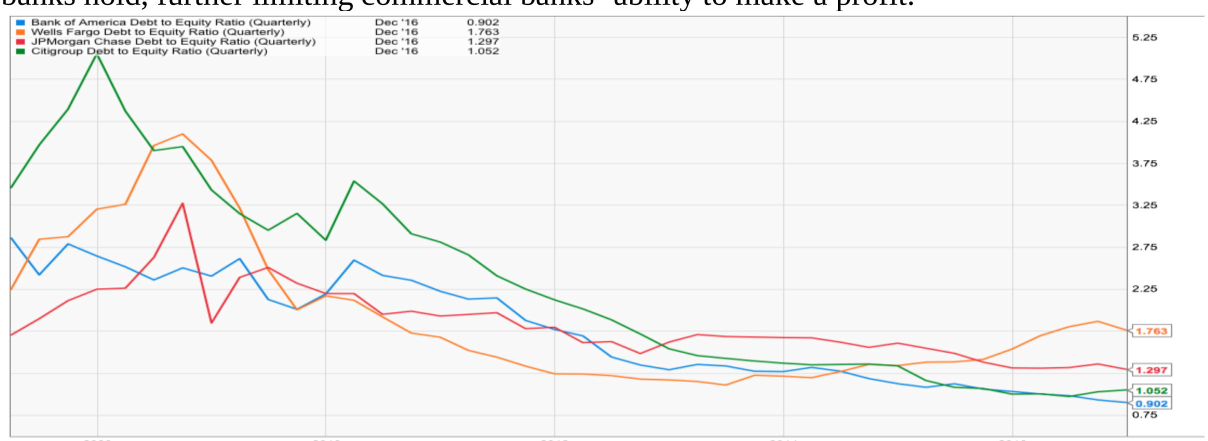
Performance – Sustainability: Adequate Profit for Acceptable Risk?

While the big banks have gained increased market share, investment-banking profit margins have been surprisingly low given historic profit margins. *(See Appendix A)* The Return on Equity of the four top investment banking firms show only J.P. Morgan earned a double-digit return in 2016. With the associated Cost of Equity for investment banking estimated at 8.58% by New York University (NYU) in a capital survey, companies are gaining little value or even losing value within the investment banking category.[11]



12

Profit margins in commercial banking have also been surprisingly low given historic profit margins. *(See Appendix B)* Commercial banks are retaining cash (versus lending it) and have had low leverage rates over the last few years. The authors observe this behavior is partly a reflection of Dodd-Frank legislation that demands a higher capital reserve for the assets these banks hold, further limiting commercial banks' ability to make a profit.



13

U.S. commercial loans and leases are also experiencing negative growth rates, which may be an indicator of reduced future profit for commercial banking.[14] Downward pressure on future profit suggests regulated banks may be struggling to absorb the additional costs of complying with regulatory measures. Requirements that banks maintain high capital reserve ratios, living wills, and annual stress tests are intended to defend against the systemic risk that led to the 2008 financial crisis. Unfortunately, the danger of over-regulation is it provides an incentive for regulated banking activity to move to unregulated shadow banks. The unintended consequence of this transfer to shadow banking may be that a new systemic risk is created. This will be further addressed in the domestic policy considerations section.

The above-referenced SCP analysis supports a conclusion that the FSI is making a strong and sustainable contribution to national security and economic prosperity. However, there is significant downward pressure on profits. Naturally, the industry wants to return to the *more-than-adequate* levels of profit realized before the Great Recession of 2008. With sustained low interest rates and complex regulation, 'adequate' may be the new normal.

An analysis of the performance supports a conclusion that, on balance, firms are able to develop and implement strategies that produce adequate profits at acceptable risk and this trend is postured to continue into the near future. Of note, commercial bank profits are higher than investment bank profits, which underscores the value of the current universal banking model which allows for firms to work in both the commercial and investment space. Notwithstanding this positive outlook, improvements to the regulatory landscape can improve the broader health of the industry.

Industry Health Recommendations

The SCP analysis reveals a number of challenges that could impact the health of the financial services industry going forward, including burdensome regulation, fierce competition further narrowing profit margins, the high and rising costs of maintaining a secure cybersecurity posture, and aggressive competition for a limited pool of talented personnel. Recommendations to improve the industrial health in the long-term follow under the domestic, international, and cybersecurity essays or sections.

Recommendation: Maintain Universal Banking Model

The Trump Administration has expressed an interest in reinstituting elements of Glass-Steagall, which could have significant consequences for investment banking firms relying on a presence in the commercial banking sector to compete. However, the SCP analysis supports a conclusion that the universal banking model is a good long-term model for the United States, and that any efforts to re-institute elements of Glass-Steagall that would preclude universal banking may be harmful to industrial health more broadly. Such changes should be avoided.

Recommendation: Establish Industrial Cluster.

To better position the U.S. government, industry, and academia to address these potential challenges going forward, government and industry leadership should consider establishing an industrial cluster that brings together academia, government, and industry to the same location to research, identify, and develop solutions and policy to address emerging FSI challenges. Such an industrial cluster could facilitate innovation much the same way Silicon Valley drives tech innovation.

An industrial cluster could achieve several objectives, including: preparing government employees to take informed decisions under crisis situations, developing critical skilled labor, and providing a lab for discussion and application of economic theory. To be viable, government, industry, and academia must act as partners, sharing talent, resources, and ideas.

SECTION TWO: DOMESTIC POLICY CONSIDERATIONS

Market Failures

Economists consider market failure to occur when there is "a situation in which the market fails to produce the efficient level of output."[15] Market failures are evident in both the commercial and investment banking sectors. Government regulation has increased barriers to entry, reducing or preventing new banks from entering the market. Moreover, banks that have $50 billion in assets are deemed Systemically Important Financial Institutions (SIFI) and have a further set of regulations that require greater mandatory safeguards.[16] Regulatory requirements impose high costs that reduce profits and increase business complexity. According to the Federal Reserve Bank of Dallas, "practically no new banks have entered the market since 2008" while hundreds of banks have closed or have been shut down by the government since 2000. Community banks are threatened as "too small to succeed."[17] In addition, competition for similar services comes from the shadow banking system through private equity and other sources that do not have to meet the same regulatory requirements as traditional banks. The overly complex nature of the regulatory environment has created market failure, in this case, a condition commonly referred to as government failure. Reducing barriers to entry would allow new, smaller banks to enter the market and encourage competition, keeping banks from growing so large that their collapse poses a systemic risk.

Dodd-Frank Act 2.0

One of the most important lessons learned from the 2008 financial crisis was the need to reduce systemic risk in the FSI and protect against unforeseen contagion from other sectors of the economy. Congress and the White House implemented significant changes with its Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 (Dodd-Frank). Financial stability of global markets should be treated as a common interest and be protected accordingly. However, the current web of regulatory oversight, duplication of effort, and the increased cost of compliance are causing small and medium banks to struggle. *(See Appendix C)* Now is the time to fine-tune the post financial crisis regulations to allow banks to operate effectively and efficiently while protecting the economy from another major financial crisis.

In 2013, the Government Accountability Office estimated the 2008 financial crisis cost the U.S. economy more than $22 trillion. The Dodd-Frank Act proposed new regulatory regimes aimed at achieving financial stability and reducing systemic risk. The act imposed new capital standards, leverage ratios, a range of liquidity coverage percentages, internal and Federal Reserve designed stress tests,[18] established risk management committees, and resolution plans. A greater emphasis is placed on the largest banks to create adequate reserves to cover any unforeseen future crisis and to increase overall firm resilience. Increased financial stability rules are phased in as total bank assets grow, effectively stratified into four broad categories: large community banks, regional banks, SIFI, and global-systemically important banks. *(See Appendix D)*

Since 2008, capital requirements and other stability rules have made banks stronger as "the ratio of the six largest banks' *tier 1 capital*[19] to risk-weighted assets was a threadbare 8-9% before the crisis, since 2010, it has been 12-14%."[20] The Act also established a "process for bringing nonbank financial institutions under regulatory oversight by also designing them as SIFIs."

"Estimates published in the Federal Register put the total cost of implementing major Dodd-Frank provisions at $10.4 billion for all affected institutions. This includes rules for margin and capital requirements for swap entities, margin requirements for uncleared swaps, pay ratio disclosure and home mortgage disclosure."[21]

Basel Committee on Banking Supervision

In 1974, the presidents of the central banks within the Group of Ten created the Basel Committee on Banking Supervision to create global banking regulations and supervisory standards. Today the Basel Committee is seen as the fundamental organization for global financial governance. Basel does not have legal authority to set regulations in any nation; rather, its 27 member nations agree to adopt the Basel Committee standards within the legal frameworks of their own nations (e.g., Congressional, legislative, and other relevant regulatory measures, etc.) The United States is an active participant under the Basel Committee, advocating for stringent global financial services norms that improve global resiliency.

Executives from large American banks generally support the objective of making big banks safer through regulation and recognize banks are far more protected today against another financial crisis. Representatives from banks surveyed maintain they have already made the necessary investments to comply with Dodd-Frank. Therefore, these banks are not seeking a broad repeal of the Dodd-Frank Act, rather they recommend surgical changes or modification to its implementation. Specifically, many surveyed industry leaders recommend reducing the number of banks and non-banks (e.g., regulated insurance companies) designated as SIFI.

Domestic Policy Recommendations:

Recommendation: Redefine SIFI Requirements

The Federal Reserve Bank should redefine the SIFI requirements to take into account not only asset size but four other factors used by the Basel Committee's framework: interconnectedness, cross-jurisdictional activity, complexity, and non-substitutability.[22] SIFI asset size should start at $250 billion in total asset holdings. Such a change would be in line with other views on the "too big to fail" designation. "One idea from progressive economist Simon Johnson is to peg the SIFI threshold to one percent of GDP (currently $16.8 trillion), which would capture 15 banks. Since it is not based on a fixed number, this metric can move as the economy changes."[23] While laudable, fixing the SIFI designation to a percentage would exacerbate current inefficiencies and uncertainty by adding and removing banks to the SIFI list every year. To avoid this uncertainty, we believe it would be preferable to set a hard standard and revisit it every five years. We believe that $250 billion is the correct level as such a level would reduce the number of U.S. commercial banks designated as SIFI.

Dodd-Frank Annual Stress Tests (DFAST)[24] would be undertaken on banks over $250 billion on a rotating schedule. For those banks that pass stress testing with strong performance indicators, a two-year testing follow-up should be the requirement with annual disclosure of bank derived internal stress testing submitted annually on the off-year.

The Federal Reserve Comprehensive Capital Analysis and Reviews (CCAR)[25] currently completed semi-annually for SIFI banks should be reduced to annually with bank derived internal stress testing submitted semi-annually.

The authors' recommendations are common sense measures that eliminate unnecessary compliance while still protecting against large-scale systemic risks. Raising the SIFI dollar threshold level will allow smaller and medium sized financial institutions to lower regulatory compliance costs, leaving more capital and retained earnings to be loaned out in local communities across the United States. While consolidations, mergers and acquisitions may continue in the commercial banking industry, a higher number of strong small to medium sized banks will contribute to a more competitive marketplace allowing for market efficiencies and lower costs to the consumer.

Streamlined application of DFAST and CCAR stress tests will lower regulatory compliance costs on medium and larger banks. Post 2008, the response to the crisis was seen as a "whatever it takes fix" to guarantee that complex risks, like Collateralized Debt Obligations and derivatives would not again cause contagion in the market, leading to total market stagnation and meltdown. After ten years of DFAST and CCAR, it is time to make adjustments that will drive economic growth while ensuring a stable capital market environment that catalyzes innovation and productivity growth.

Recommendation: Restructure the U.S. Federal Financial Regulatory Oversight System

The current FSI regulatory oversight system is comprised of laws, agency regulations, policy guidelines, and supervisory interpretations which govern commercial and investment banks, securities, housing, pension funds, etc. This regulatory system is a spider-web of decentralized agencies that, despite its faults, has served the interests of both the industry and consumers. However, this patchwork system is inherently inefficient and imposes additional cost on the industry; improvements can be made.

The federal regulatory framework is comprised of many different agencies – the Federal Reserve System (FED), the Federal Deposit Insurance Corporation (FDIC), the Consumer Financial Protection Bureau (CFPB), the Office of the Comptroller of the Currency (OCC), the Securities and Exchange Commission (SEC), the National Credit Union Administration (NCUA), the Commodities Futures Trading Commission (CFTC), and the Federal Housing Finance Agency (FHFA). There are several additional agencies that have coordinating responsibility or play ancillary roles within the system. *(See Appendix E, Figure 1)* A restructured U.S. financial regulatory system that is more integrated with fewer agencies would improve the competitiveness of the U.S. capital markets around the globe, reduce inefficiencies in oversight, and increase stability in the marketplace. Former Treasury Secretary Timothy Geithner remarked,

> We need a simpler structure that would make sure the more conservative rules we envisioned were applied more evenly and more broadly across the financial system, with clear accountability for monetary risk within every major firm and especially across the entire system.[26]

Recommendation: Convene a Bi-partisan Panel on Prudential and Macroprudential Regulation

The President and Congress should commission a bi-partisan panel to study the current U.S. federal financial regulatory structure and make recommendations to improve the system. The bi-partisan commission would focus on "prudential and macroprudential regulation" (safety and soundness), foster efficiency and competition, and ensure market integrity and consumer protection. One key component included in the commission's mandate should be that recommendations must be approved by the President and submitted to Congress for an up or down vote. Congress cannot make changes to the commission's recommendations. Congressional failure to act on the commission's recommendation within 60 calendar days would automatically render the recommendations approved. Such a system will ensure that the recommendations are not "watered-down" and reduces lobbying and regulatory capture during the legislative process.

Specific areas on which the commission would be asked to focus are: should the regulatory framework consist of one single regulator or multiple regulators, to look for efficiencies in consolidation, should federal regulatory agencies operate under a "rules-based or principle-based" system, and what authorities should be granted the FED to prevent a financial crisis.

The authors argue a wholesale change to simplify the U.S. federal financial regulatory structure would reduce inefficiencies and provide improved stability in the marketplace. An argument against implementing a more simplified and streamlined structure is the current complex system has gaps that have failed to prevent several major financial crises; this observation might lead one to suggest adding additional measures, not streamlining them. On balance however, the authors recognize that no structure is fool proof, and believe the efficiency gained from streamlining far outweighs the risks from excessive, overlapping regulatory measures. A more streamlined regulatory framework of the four below-referenced elements may be difficult to design and implement under any political climate, but is one that merits pursuit nonetheless.

<u>Recommended Model</u>

I. Consumer Protection and Market Integrity Regulator
   a. Administer federal consumer-related and investor-related regulations for all financial service providers
   b. Consumer protection laws

II. Safety and Soundness Regulator for relatively small non-complex insured depository institutions
   a. Grant federal charters and establish capital requirements
   b. Enforce corrective action and perform oversight

III. Safety and Soundness Regulator for other insured depository institutions (large and complex institutions)
   a. Grant federal charters and establish capital requirements
   b. Enforce corrective action and perform oversight
   c. Supervision of the parent financial holding company and nonbank affiliates

IV. Regulator for federal deposit insurance programs
   a. Administer deposit insurance programs
   b. Receivership and back-up supervisory enforcement authority

<u>Recommendation:</u> Implement a Principle-based Regulatory Management Structure

In response to the 2008-2009 global financial crisis, the United Kingdom established the Vickers Commission, a non-partisan, independent group, with a mandate to review and recommend changes to build greater resiliency into United Kingdom's financial industry. If similarly aligned with the efforts of the Vickers Commission, the U.S. financial model would afford our regulatory agencies the power to mitigate identified risks with an overarching goal of economic stability and prosperity. The United Kingdom employs a principle-based regulatory structure and provides its regulatory agencies (e.g., the Prudential Regulation Authority (PRA)[27], the Financial Policy Committee (FPC),[28] and Financial Conduct Authority (FCA)[29]) with general guidelines, subject to interpretation, providing greater latitude and flexibility in implementing banking oversight. Essentially, if it appears a particular banking practice is adversely affecting the UK banking system, the PRA, FPC, and FCA have the oversight powers to identify a particular banking practice as per their mandate and regulate it for proper operation and risk mitigation.

The U.S. regulatory oversight structure is primarily *rules- based* vice a *principle-based* regulatory structure. The U.S. employed rules-based concept incentivizes financial firms to seek banking practices outside stated regulatory rules in order to gain a competitive advantage or avoid regulatory oversight.

For example, Dodd-Frank regulations are intended to address the risk of moral hazard, over leveraged banking practices, and improper mortgage lending standards. However, Dodd-Frank has also had the alternate effect of sending high-risk banking practices into the less regulated areas of the banking industry. Specifically, there has been explosive growth of shadow bank institutions. Today, there are many non-bank entities essentially performing banking functions, but are not subject to the same regulatory requirements and oversight as commercial banks. Continued growth of shadow banking exposes the financial industry to increased systemic risk while giving regulatory agencies no effective tools to either mitigate the risk or respond adequately to a resulting crisis.

The market-share of shadow banks has grown significantly in the last five years as the lack of regulation and oversight have effectively given shadow banks a competitive advantage over regulated banks. In 2011, the three largest banks in the mortgage business, JP Morgan Chase, Bank of America, and Wells Fargo owned a 45% market share. In 2016, these same three banks saw their market share decrease to 22%, and six of the top ten lending institutions now include shadow banks. *(See Appendix E, Figure 2)*

"The withdrawal of banks from the mortgage business is the result of the fundamental shift in regulations that took place in response to the housing crisis."[30] As greater capital requirements were imposed by regulations, banks began ratcheting down enforcement of consumer lending practices while imposing stiff penalties on commercial banks. Consequently, banks became risk averse and reduced their mortgage business while imposing stricter lending requirements.

Recommendation: New Regulatory Authority for the FED

New regulatory authority should be granted to the FED to implement a principle- based approach that incorporates the stated goals of the Vickers Commission to provide for proper oversight at the macro level. The mandate should include the following Vickers Commission goals:[31]

- Reducing systemic risk in the banking sector, exploring the risk posed by banks of different size, scale, and function;
- Mitigating moral hazard in the banking system;
- Reducing both the likelihood and impact of firm failure; and
- Promoting competition in both retail and investment banking.

Such a mandate would provide the Fed sweeping authorities to identify banking practices that are generating systemic risk and implement controls to adequately control risk pooling in providing for the overall health of the financial markets. Additionally, this would deter firms from seeking to achieve competitive advantage through the exploitation of rules-based criterion for conducting banking activities outside of the rigid regulatory approach.

SECTION THREE: INTERNATIONAL POLICY CONSIDERATIONS

To effectively wield the instruments of national power, the United States should be positioned to have credible influence diplomatically, informationally, militarily, and economically. International trends in financial services will have an impact on the United States and its ability to exert its influence. Financial sanctions have become an increasingly important instrument of national power, however to be effective, they must be global in nature. Financial cooperation must be global as well.

Having voted to leave the European Union (EU), the United Kingdom is now developing plans for its departure from a political and economic association that has served it effectively for decades. In the months since the vote, there have been countless articles about Brexit's potential impact on the United Kingdom. However, few of those articles have focused on the impact of Brexit on the United States. As the United Kingdom recalibrates its instruments of national power post-Brexit, the United States must look to see how Brexit impacts the economic and financial services relationship between the two nations. The United States and the United Kingdom have worked in concert to influence the international financial services norms. As the United Kingdom's relative bargaining power dissipates with diminished influence on the European Community post-Brexit, the United States may find itself with an important ally with diminished global influence.

London wields a disproportionate influence on financial services policy across the European Union, and the second most influential EU city is arguably Frankfurt. Frankfurt is home to the European Central Bank and to Germany's Central Bank: Deutsche Bundesbank. The Frankfurt Stock Exchange is the tenth largest stock exchange by market capitalization, and Frankfurt is headquarters to one of Europe's largest commercial banks: Deutsche Bank.[32] Many large foreign banks have a presence in Frankfurt, to include Société Générale, BNP Paribas, ING Group, and Crédit Lyonnais. Banks that have relied on a presence in London for access to the broader EU market will need to establish a presence inside the European Union before Britain formally exits; many bank executives surveyed have indicated their organization will have a presence in Frankfurt within the next two years, even if they do not formally move their headquarters outside of London. It therefore appears Frankfurt is poised to absorb at least some small increment of the financial services footprint presently located in London, and as a result Germany will enjoy increased regional and global influence on financial service policies and norms.

The United States' ability to most effectively wield its economic power will be reliant on the strength of its relationship with other allies. The United States should view Brexit as an impetus to recalibrate its economic instrument of power to best operate in an increasingly multi-polar world. Germany is poised to take on an important global role in financial services, and will be an indispensable partner to the United States going forward. In addition, Singapore, Hong Kong, and Tokyo are also likely to also enjoy greater global influence given their current roles and influence in the global financial markets, particularly if London's influence is muted. Each of these cities will be explored further in the context of the below-referenced Global Financial

Centers Index rankings. The United States should therefore accelerate efforts to cultivate a closer relationship with these important allies. The ongoing rebalance to the Pacific presents one opportunity to strengthen ties with these important Asian partners. Similarly, other nations in the EU stand to gain from London's loss.

Before analyzing the impacts of Brexit and making policy recommendations for the United States government, it is necessary to establish two major ideas: first, how international regulations are promulgated and then how economic power is concentrated in major financial centers. Understanding those two ideas will then frame the impact of Brexit on the U.S.'s ability to influence world standards.

As the economies of the world became more interlinked in the mid-20th Century, the leading industrialized nations realized their individual domestic regulations were insufficient to regulate international banks in a way that would prevent economic risk from moving unchecked from one country to another. In 1974, the presidents of the central banks within the Group of Ten created the Basel Committee on Banking Supervision (hereafter referred to as the Basel Committee or Committee) to create global banking regulations and supervisory standards. Today the Basel Committee is seen as the fundamental organization for global financial governance. Basel does not have legal authority to set regulations in any nation; rather, its 27 member nations agree to adopt the Basel Committee standards within the legal frameworks of their own nations (e.g., Congressional, legislative, and other relevant regulatory measures, etc.)

In theory, the Basel standards are created through unanimous consensus. To achieve consensus, the Basel Committee foregoes votes in favor of continued debate and deliberation, until a unanimous decision is made.[33] In reality, the United Kingdom has been a reliable ally in pushing for conservative international financial standards under the Committee. For example, in the 1980s, the United States and the United Kingdom established a bilateral agreement on capital adequacy standards for banks. The two countries hinted to the world that nations who did not adopt similar standards would be unable to do business in the United States or the United Kingdom. Although other Basel members were reluctant to allow two countries to push their standard to the rest of the committee without consultation and consensus, they formally adopted the U.S.-UK framework within the committee.[34] More recently, the UK not only implemented large portions of the U.S.'s Dodd-Frank bill to regulate its own banks, it also helped to push for the key attributes to be global standards as well. In the future, regardless of the form that "Dodd-Frank 2.0" eventually takes, the United States will need allies to influence the implementation of key global Dodd-Frank attributes.

The preceding raises the question of what might happen if the United States were to lose the United Kingdom as an influential ally in advancing global financial standards. Before exploring potential impacts of diminished U.K. influence, it is prudent to examine the source of Britain's current strong influence, and why London plays such a substantial role in global financial matters.

Financial centers are the result of the "flow and aggregation of key 'network node' cities in the global scope."[35] These cities have the heaviest concentrations of the world's network of financial services - banks, stock exchanges, wealth managers, etc. - and act as the intermediaries to the flow of financial capital across their respective countries and around the world.[36] Becoming, and remaining, an international financial center is dependent on a number of factors, to include competitiveness of financial markets, communication infrastructure, growth potential, and political climate. The growth, distribution, and movement of financial centers through time is linked to, and reflects, shifts in the world's economies and trade patterns.[37]

There are several ways to rank the size, impact, and importance of financial centers. The London-based Z/Yen Group think tank first published rankings of the Global Financial Centers Index (GFCI) in March 2007, and has updated the rankings every six months. The Index rates 103 financial centers on five factors that the think tank believes make a financial center competitive: business environment, financial sector development, infrastructure, human capital, and reputational and general factors.[38] In its most recent ratings from March 2017, the GFCI ranks the following global financial capitals:[39]

1. London	4. Hong Kong
2. New York	5. Tokyo
3. Singapore	*(For the full list, see Appendix F)*

With London and New York at the top of the list of global financial centers, it is little wonder that the United States and United Kingdom have been able to advocate for their government policies to be or strongly influence the global norm. Notably Singapore may become an even more influential actor: representatives from one large commercial bank and one large investment bank independently highlighted Singapore's advanced financial-services related cybersecurity measures. Singapore-driven cybersecurity policies and regulatory measures are increasingly influencing the global financial services cybersecurity posture and per certain bank executives, some of the largest U.S. and European Banks. Frankfurt is one of the highest-ranked cities in the European Union; the authors believe Frankfurt's standing will soon rise for reasons already articulated.

Uncertainty in the United Kingdom

Today, London is a gateway for emerging economies from around the world. However, there is still great uncertainty as to the impact of Brexit; seemingly for every article predicting great change, there is a corresponding article predicting little change. When diagnosing the countless major issues Brexit will introduce, one can see that each challenge stems from one of two variables: the United Kingdom's strength as an economic power, and London's role as a global financial center. Using a Shell 2-Axis[40]methodology, one can map the two variables into four scenarios giving an indication of the political and structural changes that may impact London as a financial center, the economic influence the United Kingdom will have, and the impact on the United States. A visualization of the model can be found in Appendix G; an examination of the challenges and changes indicates that the United States needs to be prepared to find a new partner (or partners) should the United Kingdom find itself with diminished influence.

One scenario is there is so much infrastructure already in place in London that many financial services firms will remain post-Brexit. Additionally, human capital is so concentrated in London that companies will find they cannot easily leave London and still retain or hire talent elsewhere in Europe. Further, The United Kingdom has two seats on the Basel Committee, one for the Bank of England and one for the Prudential Regulation Authority; they will not lose either seat as a result of Brexit.[41] In this scenario, the United Kingdom breaks from the EU but London continues to be a hub of international finance.

Another scenario is London will be a much smaller financial center post Brexit. The United Kingdom and EU will spend the next two years negotiating their future relationship and establishing the terms of the separation. Current EU regulations will not allow a country outside of the EU to sell services within the EU without additional tariffs, making it financially difficult for a company to remain exclusively in London and continue to serve clients in the EU. Rules for work permits and visas remain to be settled in the coming years, and could cause European nationals living in the United Kingdom to no longer be allowed to work there. Yet even if the final settlement of Brexit does not require large-scale departure of financial firms and personnel *de jure*, it has already begun *de facto*. Faced with uncertainty that will take years to unravel, some firms have already started relocating to other cities. Richard Gnodde, the Chief Executive Officer of Goldman Sachs International, stated in an interview with CNBC that Goldman Sachs had started moving some of its personnel out of London and across Europe as part of a "contingency plan".[42] HSBC is planning to move 20% of its personnel who currently work in London to Paris, thus maintaining a foothold in the EU. Citigroup is considering a similar move to Frankfurt.[43] Bank of America and Barclays are both planning to move their headquarters to Dublin based on its similar domestic regulations to the UK and Dublin's English-speaking population. Appendix H gives an indication of the number of jobs that major firms already plan to move out of London to other parts of Europe, totaling approximately 12% so far. In this scenario, London drops in the financial rankings but the United Kingdom still maintains significant influence over standards.

A third scenario envisions that London will remain a strong global financial center, yet the UK government would be unable to wield economic influence. In this construct, the political forces at play within the United Kingdom as a result of Brexit would offset London's status as a financial center. In such a scenario, Basel Committee members would look at a faltering economy as a sign of waning influence. The Committee would no longer see the United Kingdom as a leader in setting financial standards despite the ability of the City of London to remain a strong financial center. The United Kingdom has actually already started to demonstrate signs that it is trending in this direction; in the last four years, Moody's has dropped the UK's credit rating from AAA to AA1-stable to AA1-negative, even as London has held at #1 in the global financial center rankings. Moody's predicts a future credit rating drop if the UK is unable to secure a trade deal with the EU before Brexit is complete in the next two years.[44] In this scenario, London's status will limit its global influence on financial services issues, and the United Kingdom would be a less influential partner.

Finally, the last scenario holds that Britain would not lose global clout so much as their views may no longer be as in line with U.S. views. The United Kingdom is a reliable ally and partner, particularly when pushing for conservative international financial standards. As the United Kingdom leaves the EU, its economy could falter, forcing its leadership to push for lower standards, inconsistent with U.S. views and interests.[45]

Each of these scenarios is a reminder that the United Kingdom's future influence on global financial norms post-Brexit remains uncertain, and the United States must bear this in mind when considering ways in which to advance shared interests. The United States and the United Kingdom have been able to exercise disproportionate influence on global financial standard-setting in a bipolar financial-services world. For the United States to be able to keep doing so, it must broaden its circle of financial-services allies in an increasingly multipolar world.

A Case for Multilateralism

Could the United States alone exert sufficient, disproportionate influence to advance its interests? The aforementioned GFCI rankings elaborated financial centers numbers one through five; numbers six through ten illustrate an interesting picture as well. What is again notable is Frankfurt does not currently fall on the top ten ranking, though the authors maintain this will change.

6. San Francisco
7. Chicago
8. Sydney
9. Boston
10. Toronto

The United States occupies five of the top ten places on the list. It follows that the United States will continue to have significant global influence on financial services matters regardless of what happens to the UK's influence as a result of Brexit. However, it also remains true that global norm-setting reflects multilateral cooperation and effort. Therefore, the United States must maintain current relationships with traditional and more-established finance allies, to include the United Kingdom, Germany, and the EU more broadly. Simultaneously, the United States must strengthen partnerships with emerging Asian financial centers that will likely enjoy increased global influence: Singapore, Hong Kong, and Tokyo.

<u>International Policy Recommendations:</u>

<u>Recommendation:</u> A Continued *Special Relationship* with the United Kingdom and an enhanced U.S.-Germany Partnership

The United States does not have a publicly-articulated policy in place regarding the impacts of Brexit, including the impacts related to the FSI, but it should. Such a policy should underscore the merits of a continued *special relationship* with the UK, and an enhanced partnership with Germany as Frankfurt absorbs elements of London's services.

<u>Recommendation:</u> Financial Services "Rebalance to the Pacific"

Much as the United States began a rebalance to the Pacific that includes strengthened American military and diplomatic commitments, the United States should integrate a financial-services aspect to the rebalance as well. Asian nations will continue to exert increased economic influence, and are important future partners in the development of future global financial standards. Importantly, the recommendation to rebalance to the Pacific should in no way be understood to mean a turn away from other allies, including critical European partners.

Advancing the rebalance will require increased understanding of one another's banking industries and policies, which can be advanced through strategic dialogues between the U.S. Department of the Treasury and its equivalents in Singapore, Hong Kong, and Tokyo. Similar exchanges between the Federal Reserve and the central banks of Singapore, Hong Kong, and Tokyo would engender greater understanding regarding best practice on each countries' respective monetary policies.

SECTION FOUR: CYBERSECURITY POLICY CONSIDERATIONS

Background: Cyber and Technology Landscape

Cyber-attacks are a significant threat to the FSI; they bring an aspect of deliberate human manipulation and disruption with an accompanying exploitation factor that other threats lack. Exploitation of cyber vulnerabilities from state actors, hacktivists, and criminals include brute force attacks, denial of service campaigns, malware, phishing, and are triggered mainly by unsuspecting network users who unknowingly click on the malicious link, install the malicious software, or connect to corrupted hardware. Corporate and state sponsored espionage have resulted in ramped up offensive capabilities as vulnerabilities leave critical information accessible for those who are technologically capable of exploiting them.

Similarly, new technology brings disruptive ideas, which defy traditional business practices. Alternative currencies, or crypto currencies can be used for nefarious purposes by providing users the ability to transfer money globally; then the filtered funds flow directly into the legitimate global economy. Alternative currencies offer nefarious actors the ability to circumnavigate the current regulatory landscape and offer a plausible financial option to facilitate narcotics proliferation, weapons trafficking, and money laundering. Though new technology can offer legitimate users an enhanced front and back end virtual experience, financial regulators and enforcers must stay abreast of threats in order to help the sector counter them.

Not surprisingly, there is a strong market for new technology and innovation –some designed to exploit cyber vulnerabilities, and others designed to mitigate cyber vulnerabilities and deter threat actors. Financial Technology, also known as FinTech, is defined as any technology used and applied in the financial services sector to assist with the facilitation of business.[46] Historically, FinTech streamlined business operations and cut costs. However, today, FinTech has come to represent technologies that are disrupting the industry landscape. Some examples include "personal finance, investment management, lending, Wall Street trading and data analysis, payments, money transfer and currency, crowd funding, and blockchain.[47] In 2016, global investment in FinTech companies was estimated to be over "$19 billion"[48] with more than "12,000 companies."[49] As FinTech becomes increasingly interwoven into the financial services sector, both industry and government will need to address associated vulnerabilities and risks.

Policy & Oversight Landscape

While the financial services sector is largely operated in the public and private domain, the U.S. government does play an important role in ensuring the protection and resiliency of the sector. Presidential Policy Directive (PPD) 21 – *Critical Infrastructure Security and Resilience*, identifies the FSI as a critical sector and designates the Department of the Treasury as the Sector Specific Agency (SSA) to coordinate with the Department of Homeland Security (DHS) in providing oversight.[50] Designation as a critical infrastructure sector requires that processes, procedures, and responsibilities are in place to address threats and vulnerabilities. It also means the sector must be afforded certain levels of protection to ensure resiliency from all hazard threats (manmade and natural).[51]

Executive Order (EO) 13636 – *Improving Critical Infrastructure Cybersecurity*, outlines the U.S. government's role in assisting non-government entities that are part of critical infrastructure in protecting their systems from cyber threats. The EO outlines roles for DHS (designated lead for critical infrastructure protection), the Director of National Intelligence, and the Attorney General along with several other organizations who have responsibility for assisting critical sector entities. Specifically, it requires the Department of Commerce to direct the National Institute of Standards and Technology (NIST) to develop a "Cybersecurity Framework."[52]

In coordination with DHS, NIST and the sector lead agents provide specific guidance and a methodology for each sector to assess their cyber posture, address threats, vulnerabilities, and manage risk.[53] "The Framework enables an organization—regardless of its sector, size, degree of risk, or cybersecurity sophistication—to apply the principles and effective practices of cyber risk management to improve the security and resilience of its critical infrastructure. It recommends an approach that enables organizations to prioritize their cybersecurity decisions based on individual business needs and without additional regulatory requirements."[54]

It is important to note however, PPD – 21, EO 13636, DHS and NIST standards do not apply across the entire financial industry. The financial services sector is a Gordian knot of intertwined relationships; banks are exposed to the vulnerabilities of bank partners, vendors, and other third parties, some of whom are owned by foreign entities and operated outside the United States. Firms absorb the cost of complying with cyber-related legislative and regulatory measures, and multinational firms are often forced to comply with different requirements from the many nations in which they operate. Efforts identifying, complying with, and staying abreast of regulatory requirements across jurisdictions create costly inefficiencies. These costs and inefficiencies would typically generate support for regulatory harmonization across national jurisdictions through treaties and nonbinding agreements or other arrangements. Remarkably, there is little global governance on cybersecurity broadly, and far less that is specific to the financial services sector, despite the potential cost-savings and security benefits that might benefit the industry from harmonizing efforts.

Analysis of Research

The financial services sector has a symbiotic relationship among industry, users, and regulators. The goal of the U.S. government, which partially executes the regulatory and enforcement mission for the industry, is to ensure financial markets are efficient and being used for lawful business purposes. The U.S. government is also working with the financial services sector to ensure proper cyber practices are being followed, offering solutions, advice, and as needed, response options to cyber events. When bank executives were asked if U.S. regulatory measures are sufficient to ensure adequate cybersecurity across the financial services sector, several observed that the financial services sector is already ahead of regulators when it comes to cybersecurity. Large banks are incentivized to pursue a gold-plated cybersecurity approach that exceeds operational and legal requirements because banks are highly concerned with the long-term impact of reputational harm should they incur a cybersecurity breach. For example, JP Morgan Chase spent upwards of $500 million on cybersecurity.[55] Small and medium size banks cannot afford such a massive investment.

Meanwhile, technology continues to advance, and one such innovation is blockchain. Blockchain is a secure distributed ledger technology that allows simultaneous ledger transactions through a network of databases. Through the shared record of transactions, the blockchain is verified and electronically chained and secured to the previous blocks of data. The use of a blockchain eliminates the need for central authorities, such as depository clearing houses, to verify and certify asset ownership. The core purpose of the blockchain technology is to allow for more efficient, reliable, and secure data exchange. Given this, blockchain could revolutionize any industry that relies on securely exchanging data between multiple parties. Examples in the FSI where blockchain is seen to have significant impact are initiatives in payment structures, financial recording, and protection and dissemination of personal information. However, the danger of FinTech, such as blockchain, is its inherent reliance on cyber and the "internet of things." Additionally, the speed at which new FinTech enters into the market far surpasses the market's ability to truly assess its ability to withstand a cyber hack or potential to be manipulated for fraudulent purposes.

Given the threat to the financial sector and the ever-evolving FinTech challenges, it is important to examine the effectiveness of policy and oversight from a domestic and global perspective. Notwithstanding the critical infrastructure aspects of the FSI, the regulatory and oversight structure brought about by Dodd-Frank is very complex. Add in DHS oversight for critical infrastructure and cybersecurity (on top of regulators who are also providing cybersecurity guidance) and the landscape presents an enormous opportunity for security gaps and presents potential for exploitation.

DHS is the designated lead for critical infrastructure protection. The Department of Treasury is not only responsible for regulatory oversight, but also is responsible for ensuring the industry can operate as a critical sector. Together, they are responsible for ensuring the protection and resilience of the FSI. However, the FSI has a host of other organizations that provide oversight and regulation. While oversight and regulation is focused primarily on transparency, consumer protection, and the reduction of risk, some regulators also have taken on a role in cybersecurity. For example, the Office of the Comptroller of the Currency in association with Federal Financial Institutions Examination Council offers a Cybersecurity Assessment Tool.[56] The Federal Deposit Insurance Corporation also provides guidance to consumers and institutions on cybersecurity protection. For brokers and dealers, the Financial Industry Regulatory Authority "reviews firms' approaches to cybersecurity risk management, including: technology governance, system change management, risk assessments, technical controls, incident response, vendor management, data loss prevention, and staff training."[57] Meanwhile, the Securities and Exchange Commission issues guidance and regulation to its community on cybersecurity and requirements.[58]

Outside of government, the most expansive and arguably the most critical financial services cooperation on cybersecurity is happening under the Financial Services – Information Sharing and Analysis Center (FS-ISAC). FS-ISAC is an industry, member-driven, not-for-profit organization that describes itself as "the global financial industry's go to resource for cyber and physical threat intelligence analysis and sharing."[59] The organization "shares threat and vulnerability information, conducts coordinated contingency planning exercises, manages rapid response communications for both cyber and physical events, conducts education and training programs, and fosters collaborations with and among other key sectors and government agencies."[60] Of all of the organization's services, the most critical is the ability to share information anonymously and in real time. There is a great deal of anecdotal evidence suggesting firms are reluctant to publicly report cybersecurity breaches because they are concerned with reputational harm. To counter this concern and incentivize information sharing, FS-ISAC offers members, nonmembers, and government partners the opportunity to share information regarding cybersecurity breaches without attribution. Although FS-ISAC addresses detection and prevention, we found collaboration on the front-end of the cybersecurity lifecycle to be lacking and may be difficult for any number of reasons, including: (1) the dynamic and rapidly evolving nature of the cyber threat, (2) the speed with which FinTech advances, and (3) an overall reluctance to transparently engage on pre-breach best practice that could result in reputational or real cybersecurity harm.

Of direct relevance to cybersecurity from a global perspective is the work of the Basel Committee on Banking Supervision (BCBS) Committee on Payments and Market Infrastructures (CPMI). The CPMI and the International Organization of Securities Commissions have together published the *Guidance on cyber resilience for financial market infrastructures* ("Cyber Guidance"). The Cyber Guidance calls on financial services to integrate cyber risk awareness into business models, and to continually re-evaluate cybersecurity infrastructure against new and evolving threats. An underlying value throughout the Cyber Guidance is the view that effective cybersecurity requires collaboration and information sharing across and among institutions.

The above-referenced international efforts are noteworthy considering the barren global governance landscape. There are three possible reasons for the lack of international activity on cybersecurity. First, global governance may just be catching up to rapidly evolving FinTech. The rapid pace of technological change may simply be incompatible with the many traditional global governance arrangements that are time consuming to enumerate. Second, the transparency involved in global cooperation and global governance may be a disincentive from pursuing them. A survey of existing governance arrangements indicates ongoing cooperation among financial services firms is predominantly reactive. A third possible explanation for the paucity of global governance on cybersecurity is there has been little value-added from international cybersecurity governance measures since many financial firms may already be out in front of government initiatives.

Cybersecurity Policy Recommendations:

The financial services sector will continue to grow and become more globally interconnected. Consequently, threats, vulnerabilities, and new tactics to exploit those vulnerabilities will evolve. The impact of a catastrophic event to the financial sector has great potential to affect both domestic and global security and therefore, the U.S. government and international partners must forge a strong relationship with industry to address these challenges.

Recommendation: Streamline Cybersecurity Roles and Responsibilities

Financial sector regulation is far too complex to have multiple organizations overseeing and issuing cybersecurity requirements. There should be a designated lead for cybersecurity who coordinates with DHS and the regulators on cybersecurity threats, vulnerabilities, and risks. DHS, as the lead for U.S. critical infrastructure protection should assume the role as "cyber lead" within the U.S. government and ensure financial regulators coordinate all cyber initiatives through DHS. A thorough assessment should be made as to whether DHS is staffed and resourced to provide the level of cyber support necessary across all critical infrastructure sectors.

Recommendation: Regulations and Requirements Must be Meaningful

In discussions with industry representatives on cybersecurity, it became evident some requirements designated by regulatory authorities offered little reduction of risk, and in some cases increased risk through data aggregation. Prior to levying cybersecurity requirements on the industry, the requirement must link to an objective that overall reduces risk. Having a designated lead as mentioned above would help contribute to "objective-based" measures.

Recommendation: Create Incentives for Information Sharing

There is minimal global governance on cybersecurity, and the focus of existing measures is predominantly on the post-breach environment. U.S. policymakers should work with the FSI to assess whether additional global measures to augment pre-breach cooperation on cybersecurity is merited. Furthermore, to address the reluctance to report cyber breaches, U.S. policy makers should explore opportunities to expand and incentivize global participation in the FS-ISAC anonymous information-sharing model.

Recommendation: Stay Abreast of Technology and Innovation

Unfortunately, like most new technologies, regulation in the FinTech space is lagging. In order for FinTech to have desired effects, government and regulators must remain engaged with industry. FinTech standards should be developed and published that are designed to protect the industry, assets, and individuals.

SECTION FIVE: CONCLUSIONS

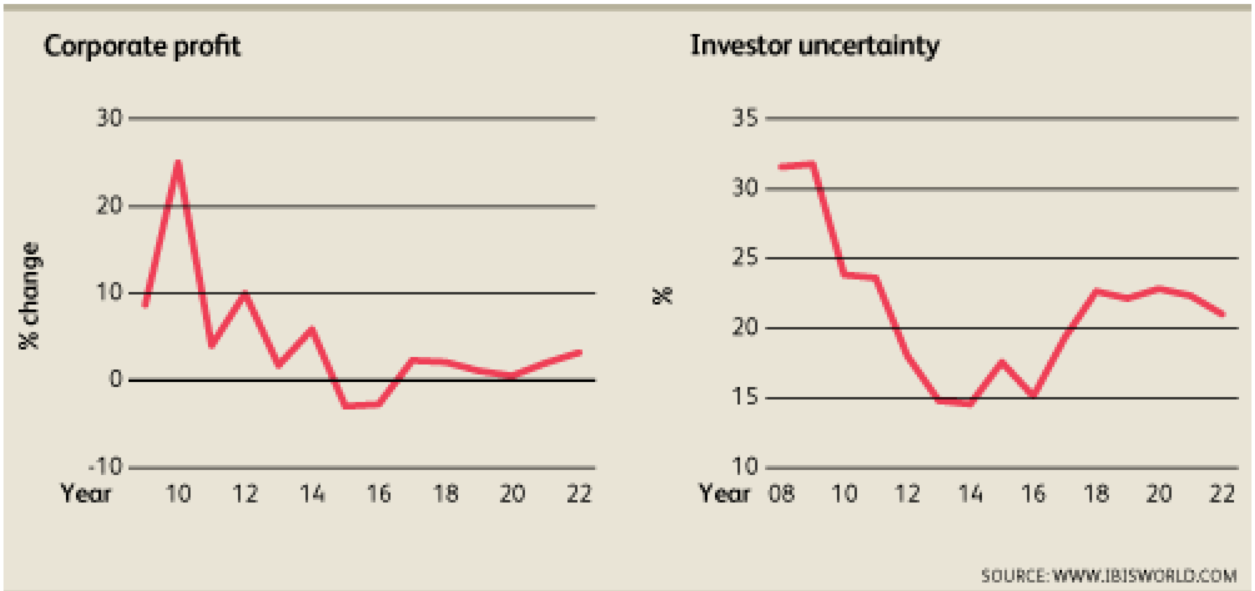
The U.S. FSI makes a strong, sustainable contribution to national security and economic prosperity. Major financial services firms are able to achieve adequate profit at acceptable risk. However, the government can do more to mitigate the unintended consequences of Dodd-Frank, including the overly complex domestic regulatory structure; potential Brexit impacts; and emerging cybersecurity challenges. Fiscal, monetary, and industrial policies are part of the foundation of our economy.

The policy-development process must be open and transparent. We must reduce regulatory and legislative capture and build a more resilient and stable financial services regulatory infrastructure. Each requirement must be tied to an oversight agency that has the authority, accountability, and responsibility to provide strong oversight. The simpler the structures and regulations are, the easier it will be for the industry to follow and abide. We must better leverage our international relationships to remain relevant in the global FSI footprint, and work with these partners to develop measures that support a healthy financial services industry. Cyber threats, vulnerabilities, and related intelligence must be shared across the industry in a way that protects proprietary banking information while also protecting the customer and industry as a whole. (See Appendix I for a consolidated list of recommendations.)

At the Constitutional Convention of 1787, John Adams remarked, "All the perplexities, confusion and distress in America arise not from defects in the Constitution or Confederation, not from a want of honor or virtue so much as from downright ignorance of the nature of coin, credit and circulation."[61] Congress and the President's economic advisors must ensure the FSI regulatory infrastructure does not hinder our national interest of "a healthy and growing economy."

Appendix A

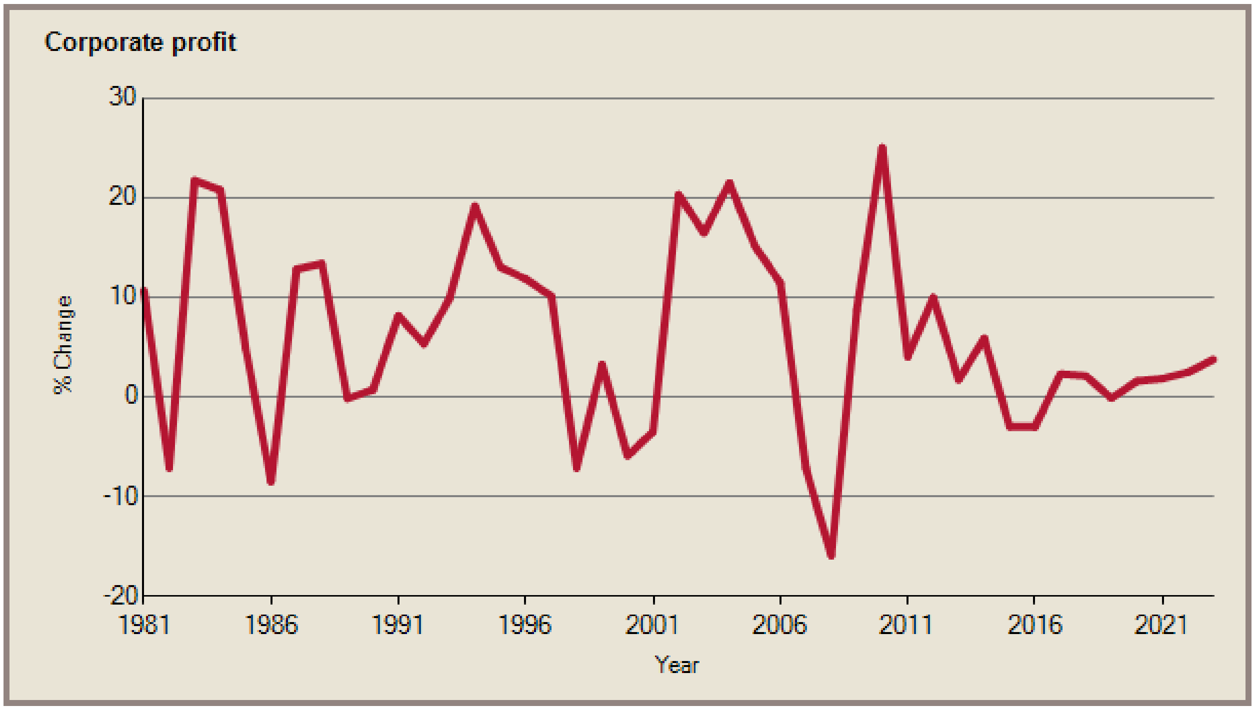
Investment Banking Profit and Revenue



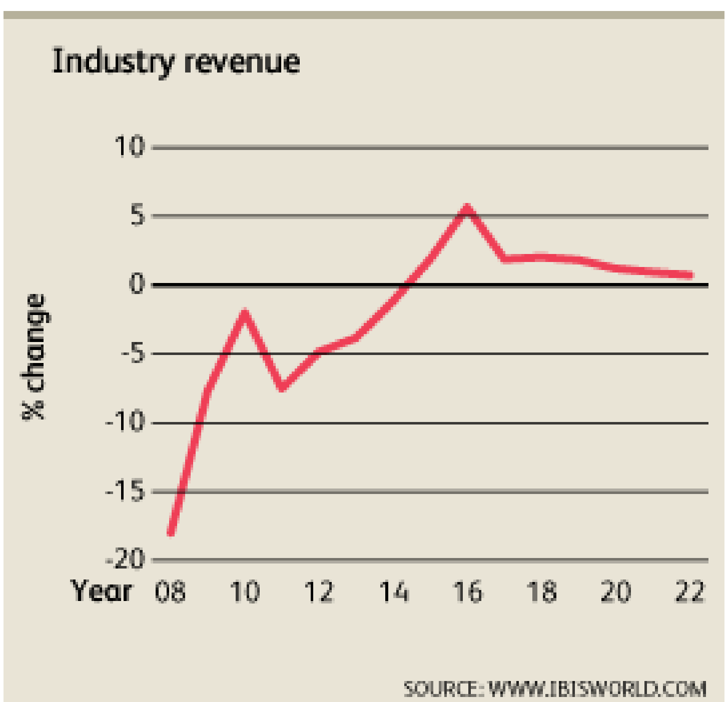
Source:
IBISWorld, 2016, accessed January 31, 2017.
http://clients1.ibisworld.com/reports/us/industry/currentperformance.aspx?entid=1307

Appendix B

Commercial Banking Corporate Profit and Industry Revenue



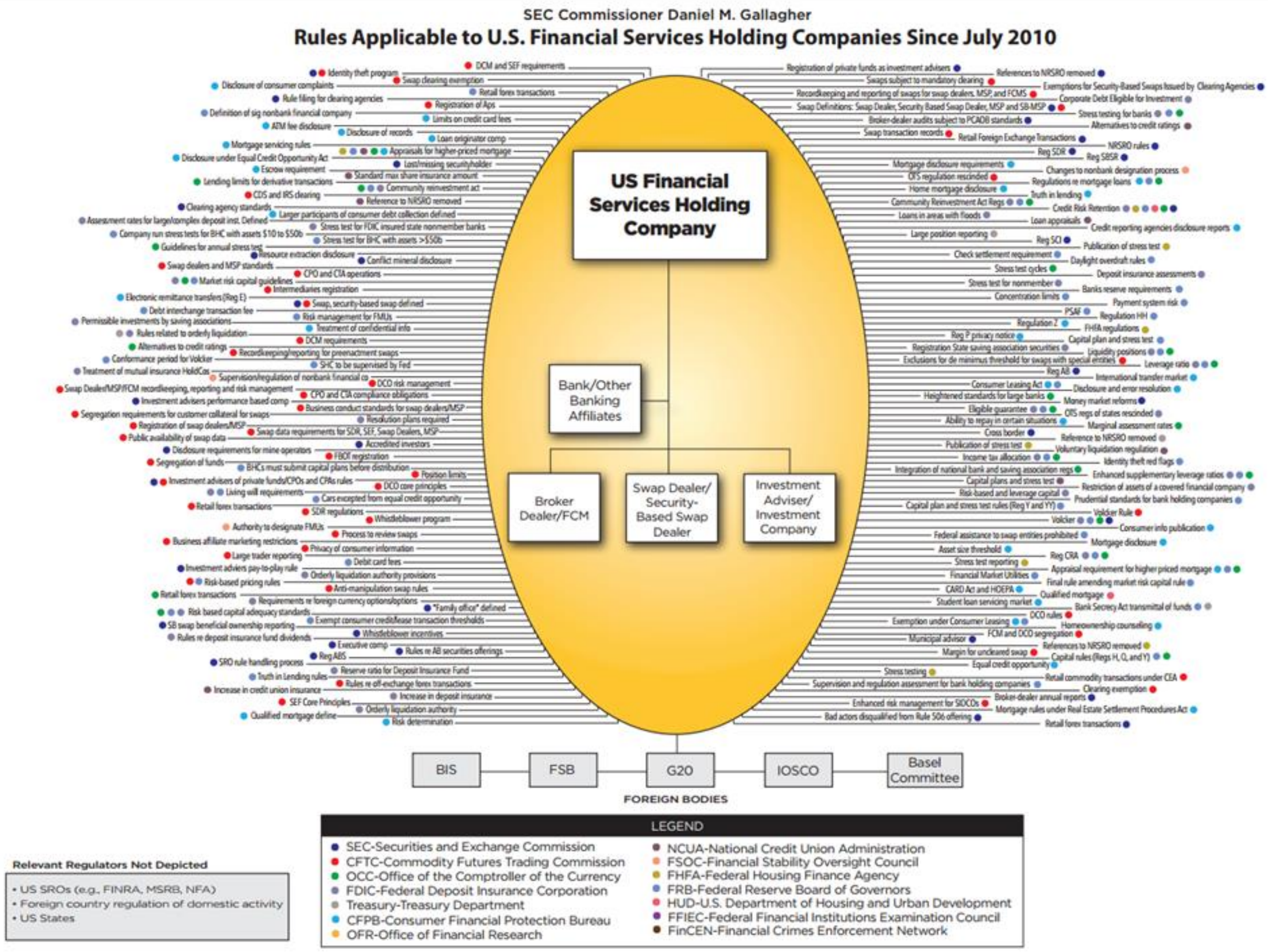
(SOURCE: WWW.IBISWORLD.COM)



Source:
IBISWorld, 2016, accessed January 31, 2017.
http://clients1.ibisworld.com/reports/us/bed/default.aspx?bedid=4802

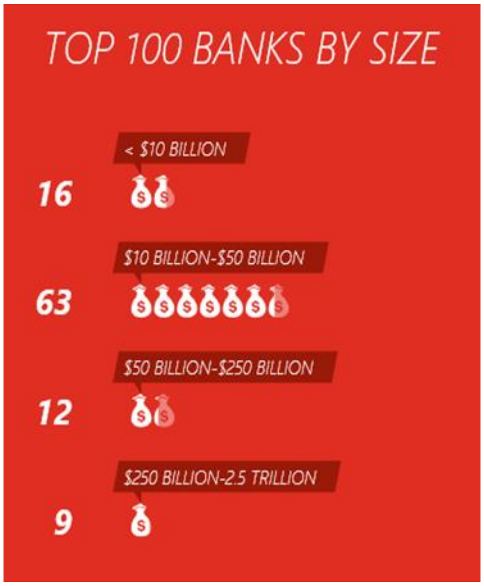
Appendix C

Rules Applicable to Financial Service Holding Companies
(Color coded by Regulating Agency)



Source:
Gallagher, Daniel, M., SEC Commissioner, Rules Applicable to U.S. Financial Services Holding Companies Since July 2010, March 2, 2015, https://www.sec.gov/news/statement/aggregate-impact-of-financial-services-regulation.html, accessed May 1, 2017.

Appendix C (Continued)



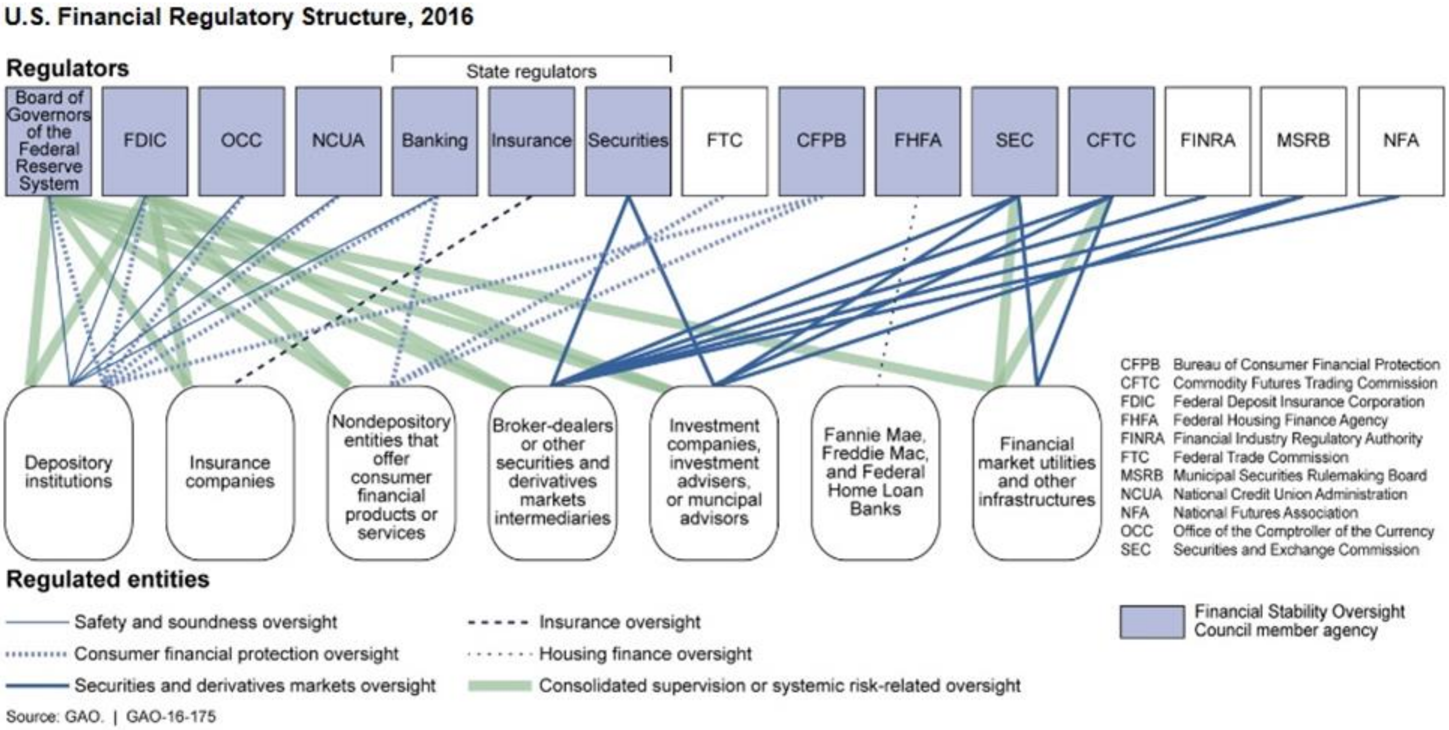
Source:
Badenhausen, Kurt, Full List: Ranking America's 100 Largest Banks, January 10, 2017, https://www.forbes.com/sites/kurtbadenhausen/2017/01/10/full-list-ranking-americas-100-largest-banks/#522ad6f04c5a, accessed May 1, 2017. Chart created by Robert E. Miller.

Appendix D

Source:
Liner, Emily, Understanding SIFIs: What Makes an Institution Systemically Important?, November 6, 2015, http://www.thirdway.org/report/understanding-sifis-what-makes-an-institution-systemically-important, accessed May 1, 2017.

Appendix E

Figure 1 - Regulatory Agencies



Note: This figure depicts the primary regulators in the U.S. financial regulatory structure, as well as their primary oversight responsibilities. "Regulators" generally refers to entities that have rulemaking, supervisory, and enforcement authorities over financial institutions or entities. There are additional agencies involved in regulating the financial markets and there may be other possible regulatory connections than those depicted in this figure.

Figure 1 – Regulatory Agencies

Source:
GAO, "FINANCIAL REGULATION Complex and Fragmented Structure Could Be Streamlined to Improve Effectiveness", GAO 16-175, Feb 2016, p. 12, http://www.gao.gov/assets/680/675400.pdf.

Appendix E (Continued)

Figure 2 - Top 10 Lenders by Market Share

This is a snapshot of the top 10 lenders in 2011 and in 2016. Overall, the top three big banks (JPMorgan Chase, Bank of America and Wells Fargo) went from providing nearly 50 percent of all new loans in 2011 to about 21 percent of all new loans in 2016. Also in 2016, six of the top 10 lenders were non-banks. The share of non-bank loans among the top 10 lenders went from 10.9 percent in 2011 to 17.11 percent in 2016.

2011 market share		2016 market share	
Wells Fargo	24.20%	Wells Fargo	12.55%
Bank of America	10.58%	JPMorgan Chase	5.95%
JPMorgan Chase	9.95%	Quicken Loans	4.90%
U.S. Bank Home Mortgage	4.38%	U.S. Bank Home Mortgage	4.12%
Citigroup	4.29%	Bank of America	4.07%
Ally-GMAC	3.81%	PennyMac Financial Services	3.37%
PHH Mortgage	3.51%	Freedom Mortgage	2.90%
Quicken Loans	2.03%	PHH Mortgage	2.01%
Flagstar Bancorp	1.80%	Caliber Home Loans	2.00%
MetLife	1.60%	loanDepot	1.89%

Source:
Lerner, Michele, “The mortgage market is now dominated by non-bank lenders”, The Washington Post, 23 Feb 2017, https://www.washingtonpost.com/realestate/the-mortgage-market-is-now-dominated-by-nonbank-lenders/2017/02/22/9c6bf5fc-d1f5-11e6-a783-cd3fa950f2fd_story.html

Appendix F

Full list of Global Financial Centers Index (GFCI)

1. London 2. New York 3. Singapore 4. Hong Kong 5. Tokyo 6. San Francisco 7. Chicago 8. Sydney 9. Boston 10. Toronto 11. Zurich 12. Wash DC 13. Shanghai 14. Montreal 15. Osaka 16. Beijing 17. Vancouver 18. Luxembourg	19. Los Angeles 20. Geneva 21. Melbourne 22. Shenzhen 23. Frankfurt 24. Seoul 25. Dubai 26. Taipei 27. Munich 28. Abu Dhabi 29. Paris 30. Casablanca 31. Cayman Islands 32. Tel Aviv 33. Dublin 34. Bermuda 35. Kuala Lumpur 36. Bangkok	37. Guangzhou 38. Qingdao 39. Doha 40. Amsterdam 41. Warsaw 42. Tallinn 43. Jersey (CD) 44. Oslo 45. Riga 46. Stockholm 47. Guernsey (CD) 48. Liechtenstein 49. Calgary 50. Busan 51. British Virgin Islands 52. Copenhagen 53. Glasgow 54. Edinburgh	55. Brussels 56. Milan 57. Bahrain 58. Isle of Man 59. Johannesburg 60. Trinidad & Tobago 61. Mexico City 62. Sao Paulo 63. Mumbai 64. Vienna 65. Manila 66. Istanbul 67. Jakarta 68. Madrid 69. Prague 70. Budapest 71. Mauritius 72. Rome	73. Rio de Janeiro 74. Monaco 75. Dalian 76. Riyadh 77. Malta 78. Lisbon 79. Cyprus 80. Almaty 81. Gibraltar 82. Helsinki 83. The Bahamas 84. Panama City 85. Moscow 86. St Petersburg 87. Reykjavik 88. Athens

Figure 1 - Full list of GFCI Financial Centers

Source:
Yeandle, Mark. "The Global Financial Centers Index 21." Long Finance. March 2017. Accessed May 10, 2017. http://www.longfinance.net/images/gfci/GFCI21_05_04_17.pdf .

Appendix G

Potential Impacts of Brexit

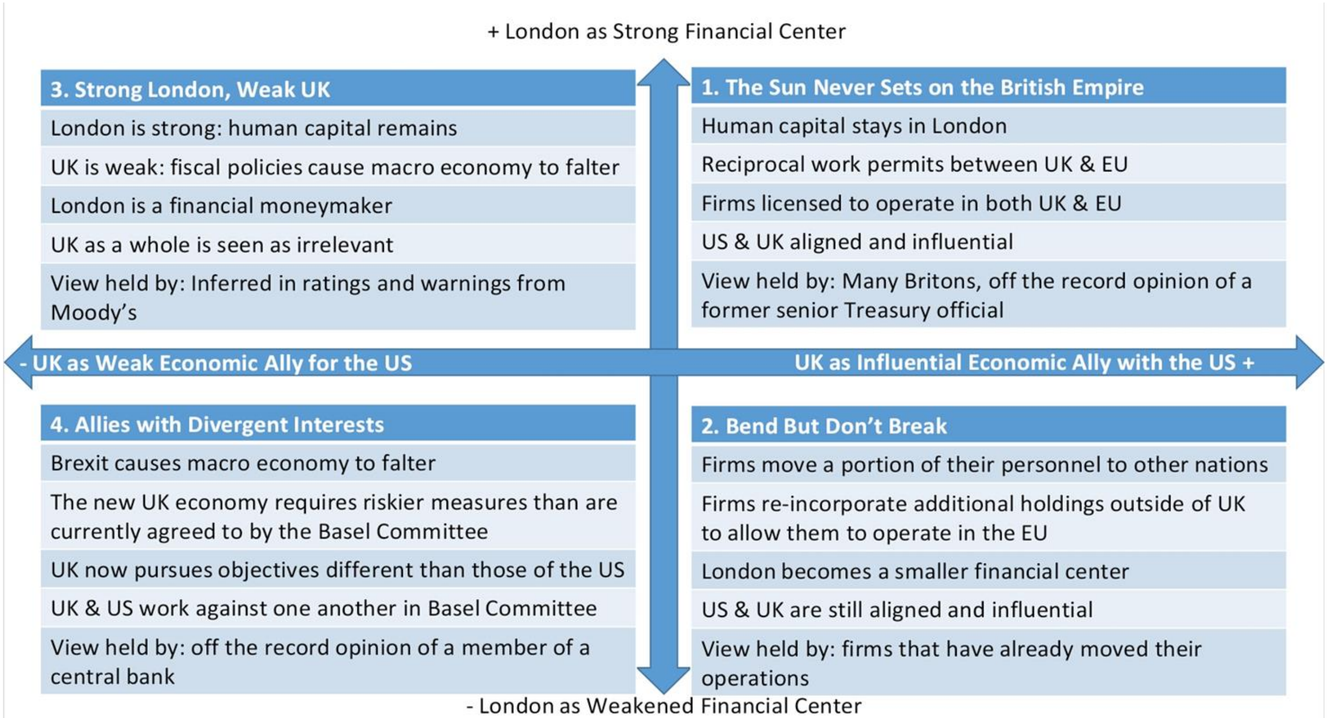


Figure 1~~2~~ - Shell 2-Axis Model (original work by the author)

Appendix H

Banking Jobs Moving Due to Brexit

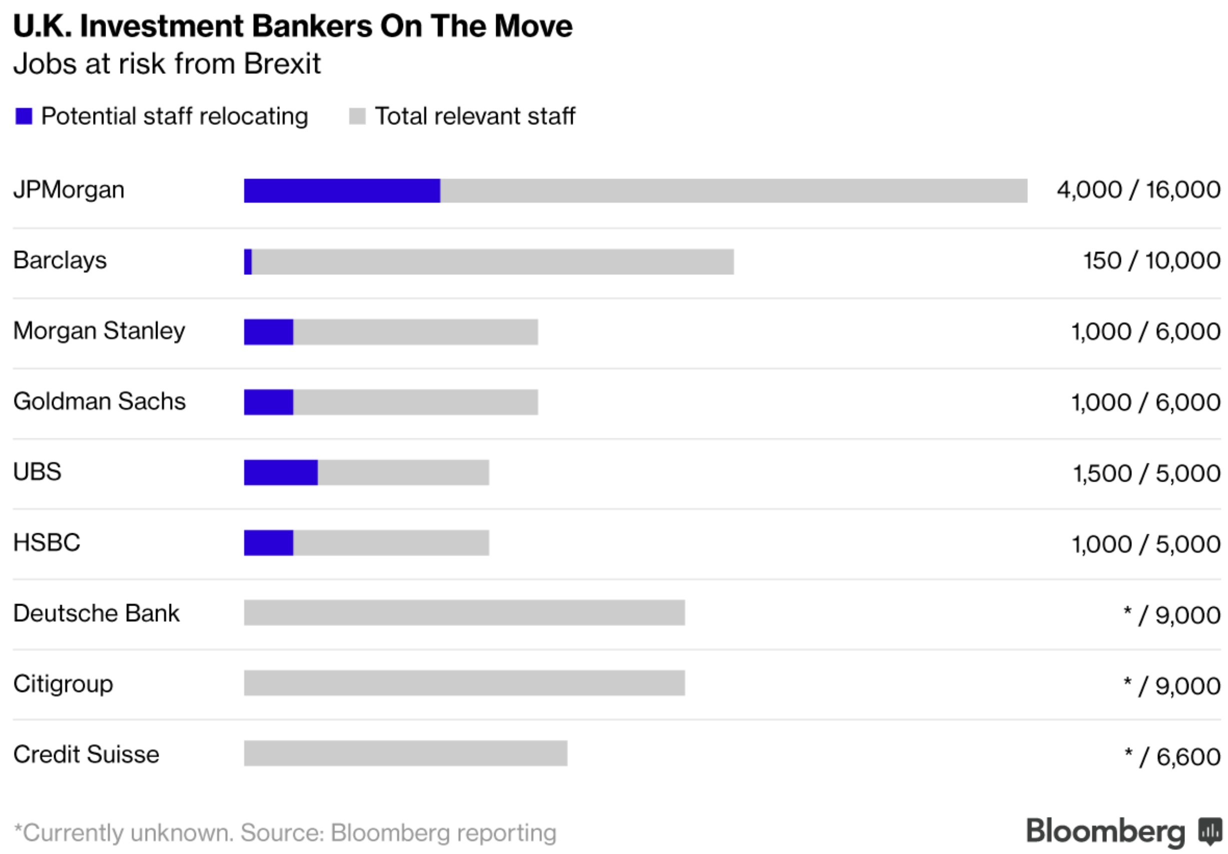


Figure 2 – Jobs leaving London as a result of Brexit (As announced by firms, and recorded by Bloomberg)

Source:
Finch, Gavin. "What the Biggest Banks Are Planning as May Sets Brexit Timing." Bloomberg.com. March 20, 2017. Accessed April 10, 2017. https://www.bloomberg.com/politics/articles/2017-03-21/what-the-biggest-banks-are-planning-as-may-sets-brexit-timing.

Appendix I

Consolidated Recommendation List

Summary:

Total Recommendations: 13
Recommendations by Section:
Industry Health: 2
Domestic Policy: 5
International Policy: 2
Cybersecurity Policy: 4

Industry Health Recommendations:

Recommendation: Maintain Universal Banking Model
The Trump Administration has expressed an interest in reinstituting elements of Glass-Steagall, which could have significant consequences for investment banking firms relying on a presence in the commercial banking sector to compete. However, the SCP analysis supports a conclusion that the universal banking model is a good long-term model for the United States, and that any efforts to re-institute elements of Glass-Steagall that would preclude universal banking may be harmful to industrial health more broadly. Such changes should be avoided.

Recommendation: Establish Industrial Cluster.
To better position the U.S. government, industry, and academia to address these potential challenges going forward, government and industry leadership should consider establishing an industrial cluster that brings together academia, government, and industry to the same location to research, identify, and develop solutions and policy to address emerging FSI challenges. Such an industrial cluster could facilitate innovation much the same way Silicon Valley drives tech innovation.

An industrial cluster could achieve several objectives, including: preparing government employees to take informed decisions under crisis situations, developing critical skilled labor, and providing a lab for discussion and application of economic theory. To be viable, government, industry, and academia must act as partners, sharing talent, resources, and ideas.

Domestic Policy Recommendations:

Recommendation: Redefine SIFI Requirements
The Federal Reserve Bank should redefine the SIFI requirements to take into account not only asset size but four other factors used by the Basel Committee's framework: interconnectedness, cross-jurisdictional activity, complexity, and non-substitutability.[62] SIFI asset size should start at $250 billion in total asset holdings. Such a change would be in line with other views on the "too big to fail" designation. "One idea from progressive economist Simon Johnson is to peg the SIFI threshold to one percent of GDP (currently $16.8 trillion), which would capture 15 banks. Since it is not based on a fixed number, this metric can move as the economy changes."[63] While laudable, fixing the SIFI designation to a percentage would

exacerbate current inefficiencies and uncertainty by adding and removing banks to the SIFI list every year. To avoid this uncertainty, we believe it would be preferable to set a hard standard and revisit it every five years. We believe that $250 billion is the correct level as such a level would reduce the number of U.S. commercial banks designated as SIFI.

Dodd-Frank Annual Stress Tests (DFAST)[64] would be undertaken on banks over $250 billion on a rotating schedule. For those banks that pass stress testing with strong performance indicators, a two-year testing follow-up should be the requirement with annual disclosure of bank derived internal stress testing submitted annually on the off-year.

The Federal Reserve Comprehensive Capital Analysis and Reviews (CCAR)[65] currently completed semi-annually for SIFI banks should be reduced to annually with bank derived internal stress testing submitted semi-annually.

The authors' recommendations are common sense measures that eliminate unnecessary compliance while still protecting against large-scale systemic risks. Raising the SIFI dollar threshold level will allow smaller and medium sized financial institutions to lower regulatory compliance costs, leaving more capital and retained earnings to be loaned out in local communities across the United States. While consolidations, mergers and acquisitions may continue in the commercial banking industry, a higher number of strong small to medium sized banks will contribute to a more competitive marketplace allowing for market efficiencies and lower costs to the consumer.

Streamlined application of DFAST and CCAR stress tests will lower regulatory compliance costs on medium and larger banks. Post 2008, the response to the crisis was seen as a "whatever it takes fix" to guarantee that complex risks, like Collateralized Debt Obligations and derivatives would not again cause contagion in the market, leading to total market stagnation and meltdown. After ten years of DFAST and CCAR, it is time to make adjustments that will drive economic growth while ensuring a stable capital market environment that catalyzes innovation and productivity growth.

<u>Recommendation:</u> Restructure the U.S. Federal Financial Regulatory Oversight System

The current FSI regulatory oversight system is comprised of laws, agency regulations, policy guidelines, and supervisory interpretations which govern commercial and investment banks, securities, housing, pension funds, etc. This regulatory system is a spider-web of decentralized agencies that, despite its faults, has served the interests of both the industry and consumers. However, this patchwork system is inherently inefficient and imposes additional cost on the industry; improvements can be made.

The federal regulatory framework is comprised of many different agencies – the Federal Reserve System (FED), the Federal Deposit Insurance Corporation (FDIC), the Consumer Financial Protection Bureau (CFPB), the Office of the Comptroller of the Currency (OCC), the Securities and Exchange Commission (SEC), the National Credit Union Administration (NCUA), the Commodities Futures Trading Commission (CFTC), and the Federal Housing Finance Agency (FHFA). There are several additional agencies that have coordinating responsibility or play ancillary roles within the system. *(See Appendix E, Figure 1)* A restructured U.S. financial regulatory system that is more integrated with fewer agencies would improve the competitiveness of the U.S. capital markets around the globe, reduce inefficiencies in oversight, and increase stability in the marketplace. Former Treasury Secretary Timothy

Geithner remarked,

> We need a simpler structure that would make sure the more conservative rules we envisioned were applied more evenly and more broadly across the financial system, with clear accountability for monetary risk within every major firm and especially across the entire system.[66]

Recommendation: Convene a Bi-partisan Panel on Prudential and Macroprudential Regulation

The President and Congress should commission a bi-partisan panel to study the current U.S. federal financial regulatory structure and make recommendations to improve the system. The bi-partisan commission would focus on "prudential and macroprudential regulation" (safety and soundness), foster efficiency and competition, and ensure market integrity and consumer protection. One key component included in the commission's mandate should be that recommendations must be approved by the President and submitted to Congress for an up or down vote. Congress cannot make changes to the commission's recommendations. Congressional failure to act on the commission's recommendation within 60 calendar days would automatically render the recommendations approved. Such a system will ensure that the recommendations are not "watered-down" and reduces lobbying and regulatory capture during the legislative process.

Specific areas on which the commission would be asked to focus are: should the regulatory framework consist of one single regulator or multiple regulators, to look for efficiencies in consolidation, should federal regulatory agencies operate under a "rules-based or principle-based" system, and what authorities should be granted the FED to prevent a financial crisis.

The authors argue a wholesale change to simplify the U.S. federal financial regulatory structure would reduce inefficiencies and provide improved stability in the marketplace. An argument against implementing a more simplified and streamlined structure is the current complex system has gaps that have failed to prevent several major financial crises; this observation might lead one to suggest adding additional measures, not streamlining them. On balance however, the authors recognize that no structure is fool proof, and believe the efficiency gained from streamlining far outweighs the risks from excessive, overlapping regulatory measures. A more streamlined regulatory framework of the four below-referenced elements may be difficult to design and implement under any political climate, but is one that merits pursuit nonetheless.

Recommended Model

V. Consumer Protection and Market Integrity Regulator
   a. Administer federal consumer-related and investor-related regulations for all financial service providers
   b. Consumer protection laws

VI. Safety and Soundness Regulator for relatively small non-complex insured depository institutions
   a. Grant federal charters and establish capital requirements
   b. Enforce corrective action and perform oversight

VII. Safety and Soundness Regulator for other insured depository institutions (large and complex institutions)
   a. Grant federal charters and establish capital requirements
   b. Enforce corrective action and perform oversight
   c. Supervision of the parent financial holding company and nonbank affiliates

VIII. Regulator for federal deposit insurance programs
   a. Administer deposit insurance programs
   b. Receivership and back-up supervisory enforcement authority

Recommendation: Implement a Principle-based Regulatory Management Structure

In response to the 2008-2009 global financial crisis, the United Kingdom established the Vickers Commission, a non-partisan, independent group, with a mandate to review and recommend changes to build greater resiliency into United Kingdom's financial industry. If similarly aligned with the efforts of the Vickers Commission, the U.S. financial model would afford our regulatory agencies the power to mitigate identified risks with an overarching goal of economic stability and prosperity. The United Kingdom employs a principle-based regulatory structure and provides its regulatory agencies (e.g., the Prudential Regulation Authority (PRA)[67], the Financial Policy Committee (FPC),[68] and Financial Conduct Authority (FCA)[69]) with general guidelines, subject to interpretation, providing greater latitude and flexibility in implementing banking oversight. Essentially, if it appears a particular banking practice is adversely affecting the UK banking system, the PRA, FPC, and FCA have the oversight powers to identify a particular banking practice as per their mandate and regulate it for proper operation and risk mitigation.

The U.S. regulatory oversight structure is primarily *rules- based* vice a *principle-based* regulatory structure. The U.S. employed rules-based concept incentivizes financial firms to seek banking practices outside stated regulatory rules in order to gain a competitive advantage or avoid regulatory oversight.

For example, Dodd-Frank regulations are intended to address the risk of moral hazard, over leveraged banking practices, and improper mortgage lending standards. However, Dodd-Frank has also had the alternate effect of sending high-risk banking practices into the less regulated areas of the banking industry. Specifically, there has been explosive growth of shadow bank institutions. Today, there are many non-bank entities essentially performing banking functions, but are not subject to the same regulatory requirements and oversight as commercial banks. Continued growth of shadow banking exposes the financial industry to increased systemic risk while giving regulatory agencies no effective tools to either mitigate the risk or respond adequately to a resulting crisis.

The market-share of shadow banks has grown significantly in the last five years as the lack of regulation and oversight have effectively given shadow banks a competitive advantage over regulated banks. In 2011, the three largest banks in the mortgage business, JP Morgan Chase, Bank of America, and Wells Fargo owned a 45% market share. In 2016, these same three banks saw their market share decrease to 22% , and six of the top ten lending institutions now include shadow banks. *(See Appendix E, Figure 2)*

"The withdrawal of banks from the mortgage business is the result of the fundamental shift in regulations that took place in response to the housing crisis."[70] As greater capital requirements were imposed by regulations, banks began ratcheting down enforcement of consumer lending practices while imposing stiff penalties on commercial banks. Consequently, banks became risk averse and reduced their mortgage business while imposing stricter lending requirements.

Recommendation: New Regulatory Authority for the FED

New regulatory authority should be granted to the FED to implement a principle- based approach that incorporates the stated goals of the Vickers Commission to provide for proper oversight at the macro level. The mandate should include the following Vickers Commission goals:[71]

- Reducing systemic risk in the banking sector, exploring the risk posed by banks of different size, scale and function;
- Mitigating moral hazard in the banking system;
- Reducing both the likelihood and impact of firm failure; and
- Promoting competition in both retail and investment banking.

Such a mandate would provide the Fed sweeping authorities to identify banking practices that are generating systemic risk and implement controls to adequately control risk pooling in providing for the overall health of the financial markets. Additionally, this would deter firms from seeking to achieve competitive advantage through the exploitation of rules-based criterion for conducting banking activities outside of the rigid regulatory approach.

International Policy Recommendations:

Recommendation: A Continued *Special Relationship* with the United Kingdom and an enhanced U.S.-Germany Partnership

The United States does not have a publicly-articulated policy in place regarding the impacts of Brexit, including the impacts related to the FSI, but it should. Such a policy should underscore the merits of a continued *special relationship* with the UK, and an enhanced partnership with Germany as Frankfurt absorbs elements of London's services.

Recommendation: Financial Services "Rebalance to the Pacific"

Much as the United States began a rebalance to the Pacific that includes strengthened American military and diplomatic commitments, the United States should integrate a financial-services aspect to the rebalance as well. Asian nations will continue to exert increased economic influence, and are important future partners in the development of future global financial standards. Importantly, the recommendation to rebalance to the Pacific should in no way be understood to mean a turn away from other allies, including critical European partners.

Advancing the rebalance will require increased understanding of one another's banking industries and policies, which can be advanced through strategic dialogues between the U.S. Department of the Treasury and its equivalents in Singapore, Hong Kong and Tokyo. Similar exchanges between the Federal Reserve and the central banks of Singapore, Hong Kong, and Tokyo would engender greater understanding regarding best practice on each countries' respective monetary policies.

Cybersecurity Policy Recommendations:

The financial services sector will continue to grow and become more globally interconnected. Consequently, threats, vulnerabilities, and new tactics to exploit those vulnerabilities will evolve. The impact of a catastrophic event to the financial sector has great potential to affect both domestic and global security and therefore, the U.S. government and international partners must forge a strong relationship with industry to address these challenges.

Recommendation: Streamline Cybersecurity Roles and Responsibilities

Financial sector regulation is far too complex to have multiple organizations overseeing and issuing cybersecurity requirements. There should be a designated lead for cybersecurity who coordinates with DHS and the regulators on cybersecurity threats, vulnerabilities, and risks. DHS, as the lead for U.S. critical infrastructure protection should assume the role as "cyber lead" within the U.S. government and ensure financial regulators coordinate all cyber initiatives through DHS. A thorough assessment should be made as to whether DHS is staffed and resourced to provide the level of cyber support necessary across all critical infrastructure sectors.

Recommendation: Regulations and Requirements Must be Meaningful

In discussions with industry representatives on cybersecurity, it became evident some requirements designated by regulatory authorities offered little reduction of risk, and in some cases increased risk through data aggregation. Prior to levying cybersecurity requirements on the industry, the requirement must link to an objective that overall reduces risk. Having a designated lead as mentioned above would help contribute to "objective-based" measures.

Recommendation: Create Incentives for Information Sharing

There is minimal global governance on cybersecurity, and the focus of existing measures is predominantly on the post-breach environment. U.S. policymakers should work with the FSI to assess whether additional global measures to augment pre-breach cooperation on cybersecurity is merited. Furthermore, to address the reluctance to report cyber breaches, U.S. policy makers should explore opportunities to expand and incentivize global participation in the FS-ISAC anonymous information-sharing model.

Recommendation: Stay Abreast of Technology and Innovation

Unfortunately, like most new technologies, regulation in the FinTech space is lagging. In order for FinTech to have desired effects, government and regulators must remain engaged with industry. FinTech standards should be developed and published that are designed to protect the industry, assets and individuals.

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