Monday, November 12, 2018

Top 10 risk and compliance related news stories and world events that (for better or for worse) shaped the week's agenda, and what is next

Dear members and friends,

John A Rolle, Governor of the Central Bank of The Bahamas, gave a great presentation at the 13th ASBA-BCBS-FSI High-Level Meeting on Global and Regional Supervisory Priorities. He explained the challenges for a small country to follow the best practices, international standards and regulations developed by the world's financial rule-makers.

He said: “My topic tonight is: "How Small Nations Interact with the International Financial Rule-Making Architecture". The core elements in this architecture include:

- **Multilateral agencies**, among which the IMF is probably the most impactful for small countries, and the BIS the most impactful for the world's central banks;

- **Rule-making bodies**, among which the Basel Committee is probably the most prominent, but including the international Association of Insurance Supervisors (IAIS), the International Organisation of Securities Commissions (IOSCO), and similar groups, with the Financial Stability Board (FSB) assuming prominence in recent years;

- The ever-growing architecture on **financial crime suppression**, centered on the Financial Action Task Force (FATF); and

- A range of **public, quasi-public, and private groups** that create, impose, and/or enforce standards in international finance, among which leading examples include the ratings agencies, SWIFT, ISDA, LCH and many others.”
Interesting! But which is his experience with the **Basel Committee**?

“The first commendation flows from past years of reasonable receptivity to small country issues, albeit secondary to large country and large bank issues, at the Basel Committee.

There are clearly routes through which a well-prepared small country can inject its views into the Basel processes, often via regional consultation formats.

The second commendation, and it is difficult to overstate its value, is the Basel Committee’s and FSI’s more recent and explicit adoption of proportionality as an accepted and important part of the framework.

This allows small countries to adopt the Basel rules texts in ways that are fully compliant with the texts, but very much simpler and cheaper to supervise and comply with.

To take a topical example, the Bahamas is currently consulting on a Basel III implementation that will require perhaps 10 per cent of the complexity of the full Basel rules text.

Much of this simplification revolves around avoiding model-based approaches, but even the new Standardised Approaches give a great deal more freedom for small countries to adopt simpler but robust rules.

Please continue with proportionality, and encourage the IMF to support this approach as they conduct FSAP reviews.

The matter I would ask you to reconsider is the increasingly fragile assertion that the Basel Committee is only making rules for large, internationally active banks.

That may be the Basel position, but it is not the IMF position when it comes to FSAPs.

This applies to the Basel Core Principles and the capital and liquidity frameworks.

I certainly don’t suggest that you move away from making rules for internationally active banks, but please try to remember, ideally not just around the margins, that a great many non-member countries will strive to adopt the Basel rules, both for international and domestic banks.”
Small countries face a challenge when it comes to compliance with international obligations and standards. Reading John Rolle’s presentation, I remembered what Lao Tzu had said - Governing a great nation is like cooking a small fish - too much handling will spoil it.

Read more at Number 9 below. Welcome to the Top 10 list.

*Best regards,*

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Where do crypto-assets fit into our payment system?
Denis Beau, First Deputy Governor of the Bank of France, at the Bank of France Conference, Rouen IAE, Rouen.

“Bitcoin was valued at USD 0.001 less than a year after its launch in October 2009. Today it is worth USD 6,500, down from a peak of USD 19,500 in December 2017.

The explosion and volatility in Bitcoin's price have done much to fuel the media coverage surrounding the growth of the new monetary and financial instruments known as crypto-assets, of which Bitcoin is merely the best known. In fact, there are now over 2,000 of these types of assets worldwide.

Initially designed as online instruments of exchange, these assets have gradually gained a foothold in the real economy with the development of services that allow them to be bought and sold against currency issued by central banks or financial institutions, to be held, to be used as instruments of exchange against other assets and, with the recent emergence of Initial Coin Offerings (ICOs), to be employed as investment and financing instruments.”

Supply Chain Attacks Back on the Agenda

The world learned last week about the alleged existence of a malicious microchip or hardware modifications, introduced in data centre server’s motherboards from a well-known US vendor, presenting an alleged malicious behaviour.
The investigation, conducted by a US news media corporation, traced back the original manufacturer from the vendor’ supply chain process, identifying a sub-contractor located in China.

Number 3 (Page 22)

An interesting criminal complaint

Number 4 (Page 24)

Exchange of views with members of the Irish Parliament

Introductory statement by Mr Mario Draghi, President of the European Central Bank, during his exchange of views with the House of Representatives, Dublin.

“In full respect of the functional separation between the ECB's monetary policy and its supervisory tasks, today is an opportunity to discuss our monetary policy and policies to make the euro area economy and its
constituent parts more resilient. In this respect, I expect an open exchange from this meeting, which will give us a chance to listen to and better appreciate each other's positions.

I am conscious that I am speaking in a country that went through a severe crisis. The Irish people made tremendous efforts, for which I have great respect. And these efforts are now paying off.”

**Number 5 (Page 29)**

FINMA is advising - cryptoassets should be “assigned a flat risk weight of 800% to cover market and credit risks”

Until the Basel Committee on Banking Supervision makes global recommendations, FINMA is advising financial players that cryptoassets should be assigned a flat risk weight of 800% to cover market and credit risks, regardless of whether the positions are held in the banking or trading book.

**Number 6 (Page 30)**

From repair to vision

Elisa Ferreira, Vice-Governor of the Bank of Portugal, on the panel "From Repair to Vision: Conceptions for a common beneficial and resilient financial Architecture and institutional Framework in the EU" at the "Financial Stability Conference 2018", Lisbon.

The setting up of the Single Rulebook in the European Union (EU) and the launch of the Banking Union (BU) with its rules and institutions constitute a commendable success of the post-crisis financial sector reforms in
Europe; however the lack of political will to complete the architecture seriously jeopardises its key benefits.

Recent cases highlighted what I would call an 'accountability conundrum'. Banks nowadays are mostly 'European in life but remain national in death'.

**Number 7 (Page 33)**

**Cyber security of youth data**

A Girl Scouts of America branch in Orange County, California, has suffered a security breach potentially exposing the sensitive personally identifiable information (PII) of thousands of minors.

Unidentified hackers were able to log into the email account used to coordinate travel for its members. Sensitive PII extended as far back as 2014 and included name, date of birth, email, address, driver licence, health history and insurance policy details.

Following the compromise, hackers used the same account to send out emails of their own. The content of the emails has not been revealed but they were likely attempted spear-phishing attacks on members.

**Number 8 (Page 34)**

**Supervisory implications of rising similarity in banking**


It is now a decade since the financial crisis and the U.S. banking industry has made tremendous progress in terms of repairing its aggregate balance sheet and building greater resilience.
Capital ratios are higher, liquidity pools are deeper, and we've seen fundamental improvements in risk management and governance.

While there are still areas for continued progress, all of this should help financial firms provide critical intermediation services across a range of macroeconomic and financial market conditions.”

Small country interfaces with the world's financial rule-makers
John A Rolle, Governor of the Central Bank of The Bahamas, at the 13th ASBA-BCBS-FSI High-Level Meeting on Global and Regional Supervisory Priorities, Nassau.

My topic tonight is: "How Small Nations Interact with the International Financial Rule-Making Architecture".

Bringing Photonic Signaling to Digital Microelectronics
DARPA program seeks to unleash the performance of modern multi-chip modules by integrating optical signaling at the chip-level

Parallelism – or the act of several processors simultaneously executing on an application or computation – has been increasingly embraced by the microelectronics industry as a way of sustaining demand for increased system performance.

Today, parallel computing architectures have become pervasive across all application domains and system scales – from multicore processing units in consumer devices to high-performance computing in DoD systems. However, the performance gains from parallelism are increasingly constrained not by the computational limits of individual nodes, but rather by the movement of data between them.
Where do crypto-assets fit into our payment system?
Denis Beau, First Deputy Governor of the Bank of France, at the Bank of France Conference, Rouen IAE, Rouen.

Ladies and gentlemen,

Bitcoin was valued at USD 0.001 less than a year after its launch in October 2009. Today it is worth USD 6,500, down from a peak of USD 19,500 in December 2017.

The explosion and volatility in Bitcoin's price have done much to fuel the media coverage surrounding the growth of the new monetary and financial instruments known as crypto-assets, of which Bitcoin is merely the best known. In fact, there are now over 2,000 of these types of assets worldwide.

Initially designed as online instruments of exchange, these assets have gradually gained a foothold in the real economy with the development of services that allow them to be bought and sold against currency issued by central banks or financial institutions, to be held, to be used as instruments of exchange against other assets and, with the recent emergence of Initial Coin Offerings (ICOs), to be employed as investment and financing instruments.

Issued and stored in electronic form, these assets have specific features that US-based comedian John Oliver jokingly summed up in his Last Week Tonight show on 11 March 2018, as "everything you don't understand about money combined with everything you don't understand about computers".

His comments reflect the fact that crypto-assets have unique financial, monetary and technical features that set them apart from the currencies and payment instruments issued by financial institutions and central banks and which form the foundation of our monetary system in Europe. They have no issuer for whom the assets act as a guarantee of value.
They do not have a guaranteed fixed exchange rate with the currency issued by the central bank, which forms the basis of our payment system because it is the only one with legal tender status, i.e. which must be accepted by everyone. And they rely for their circulation on blockchain, a decentralised and distributed ledger system using cryptographic techniques.

These unique features largely explain the widely varying views that we hear today about the outlook for crypto-assets, keeping in mind that, for now, they constitute a marginal share of holdings of economic agents and within the global economy.

At their peak in January 2018, total outstanding crypto-assets represented EUR 330 billion; in comparison, the euro area’s M1 monetary aggregate amounted to EUR 7.5 trillion.

Some see crypto-assets as disruptive innovations poised to radically overhaul the way that our monetary and financing system works, changing it for the better.

Others believe that these are innovations that still need to find their market. Or, to quote from a special issue on the subject published in September 2018 by The Economist, a weekly economics magazine: "Cryptocurrencies look like a solution in search of a problem."

Given all this uncertainty, I would like to speak today from my perspective as a central banker, supervisor, mindful of innovations that could affect the effectiveness and security of our payment system, since this is a determining factor in the stability of our monetary and financial system.

Accordingly, I would like to share a few ideas and thoughts about where crypto-assets fit into the changes taking place in payment methods, and about the supervisory challenges posed by these new assets.

I. To begin with, let me set the development of crypto-assets in the broader context of the changes affecting payment instruments.

Supporting this transformation is a core activity for us at the Banque de France, in accordance with our statutory tasks of ensuring the security of cashless payment instruments as well as the quality of banknotes in circulation.

Since banknotes are the only payment instruments with legal tender status, we have to make sure that they remain a secure and easily accessible payment instrument for anyone who wants to use them, especially the most vulnerable people in our society.
Given this twofold mission, we base our activities on a principle of neutrality and freedom of choice, which in turn means that we cannot favour one payment instrument over another and do not seek to influence people's behaviour or preferences.

1. In the payment instrument landscape, we are currently seeing a twin trend as cash payments go down, while cashless payments undergo a transformation driven by behavioural changes and technological innovation.

Shifts in consumption approaches, such as the growth of e-commerce, are fuelling a steady decline in the use of cash in transactions, while the use of electronic payment instruments is increasing. Statistically speaking, the volume of banknotes returned by the public to cash processing firms fell by over 10% between 2012 and 2017.

However, this decline needs to be put into context, because banknotes still dominate face-to-face transactions, particularly small-value transactions, as shown by recent Eurosystem research, which found that banknotes continue to be the main payment instrument in Europe and France by number of transactions, accounting for 79% of transactions in the euro area and 68% in France. In value terms, they make up 54% and 28% respectively.

At the same time, we are seeing a rise in electronic payments, which are not merely growing but also developing along four different pathways:

- **Spreading technology**: advances in internet technologies and devices have paved the way to increase the number of channels used to initiate and accept payments. The ways in which these technologies are used are becoming more diversified and increasingly digital. They are no longer confined to cards, as we are seeing with the rise of mobile payments.

- **A broader range of participants**: I am thinking here about how the payments market has expanded to include competition from big techs and major retailers, which are following a wide range of strategies in this respect. The flipside of this trend is the increasingly global nature of the market, which is raising sovereignty and independence issues, including the question of control of data with respect to the American and Chinese tech giants.

- **Payment is becoming less prominent**: nowadays the actual act of paying is becoming less visible, as it is combined seamlessly within the overall transaction process to minimise the impact on the payer. We are seeing
this shift in online payments, for example, which are designed to be increasingly fluid through solutions such as one-click buying.

- **Availability of payment services:** payment services are becoming more available, ignoring physical borders and time constraints to satisfy customer demand for instant, continuous and uniform payment services, as economic agents become ever more mobile.

2. **The development of crypto-assets naturally forms part of these underlying trends** affecting payment instruments, combining the search for anonymity, management of non-intermediated peer-to-peer payments and the use of entirely web-based technologies.

But crypto-assets are also different because of their financial, monetary and technological features that I mentioned in my introduction. These clearly create opportunities to improve payment services in at least three ways, by:

- **Harnessing the underlying blockchain technology to improve or supplement existing processes:** the Banque de France is already employing blockchain technology to improve industry processes. For example, we are using a blockchain project called MADRE to assign SEPA Creditor Identifiers, which are needed for creditors to issue direct debits.

- **Helping to remedy market inefficiencies:** this could be done in the area of international multi-currency payments, for example, with a view to improving the conditions under which individuals transfer funds abroad.

- **Diversifying project financing methods:** a prime example would be ICOs, which have enabled swift and large-scale fundraising in the network technologies sector in the past two years.

3. Yet for all that, can crypto-assets become true currencies that will revolutionise our payment system, providing the decisive innovation that will lead us to the cashless society that some people are predicting and even hoping for?

For the time being, this seems unlikely because existing crypto-assets are far from perfect. As many central bankers have pointed out, today's crypto-assets do not satisfactorily offer the qualities expected of a currency and cannot be considered as such:

- **First, their value fluctuates** enormously, preventing them from being used as units of account. As a result, very few prices are denominated in
crypto-assets and not many large brick-and-mortar or online retailers accept bitcoin for example, although there are some exceptions [i.e. showroomprivé.com, France's second largest flash sale web retailer, which has accepted bitcoins since 2014].

- **Second, as intermediaries in exchanges**, crypto-assets are far less effective than a currency with legal tender status, insofar as (i) their price volatility makes it hard to use them as a means of payment, (ii) they generate transaction fees that are far too high for simple retail transactions, and (iii) they offer no guarantee of a refund in the event of fraud.

- Third, the fact that they have no intrinsic value means that they cannot be used to create trustworthy stores of value.

In addition, crypto-assets may be conduits for financial risk, security risk and especially risks of cyber-attacks, money laundering and terrorist financing. These would represent major risks for users and hence for the orderly functioning of our payment system if crypto-assets were ever to play a major role in that system.

**II-** In this complicated context, with crypto-assets undergoing technical and economic trials that offer opportunities but also present material risks for our payment system, should we consider establishing a regulatory framework and supervisory approach and, if so, how should we go about this?

1) Various courses of action are available to the public authorities. The first would be to ignore crypto-assets. But even if the volumes in play remain small and do not represent a threat to financial stability, the risks that I mentioned earlier must be addressed.

The second course of action would be to ban crypto-assets outright because of these same risks. Several countries have already gone down this route, including China in 2013 and Russia in 2017.

A third option, and the one that has so far been the preferred response in Europe and France to innovations with the potential to change the payment services market, is to establish appropriate regulations that make it possible to reconcile two key imperatives:

- **First**, address the risks that I mentioned, notably with a view to ensuring an adequate level of protection for participants, whether they be investors or consumers.
- Second, preserve the potential for technological innovation offered by crypto-assets.

These two imperatives are mutually beneficial. Adopting a framework that protects participants in the real economy will help to increase their confidence in the mechanisms associated with crypto-assets, thereby promoting growth in the new assets.

If we opt for creating a regulatory framework, what should go into it? That is precisely the topic of a number of debates currently being conducted around France’s new PACTE Bill. The proposed legislation includes an approach to crypto-assets based on two pillars.

The first specifically addresses the question of ICOs, proposing an optional labelling system. Under this system, a company planning an ICO would be able to ask the AMF to label the offering. This optional label would give the offering greater credibility and reassure potential token buyers about the serious nature of the project and the associated financing arrangements.

The second pillar concerns providers of crypto-asset services. These essentially include venues used to exchange digital assets against legal currency, and providers of custody solutions for digital assets.

To satisfy anti-laundering obligations, these platforms must be registered. But to address risks relating to security, market integrity and price manipulation, an optional label could be granted at the service provider’s request by the AMF after a more in-depth investigation, in order to provide security for the service offered to users.

The regulation of venues used to exchange digital assets for legal currency, in France and elsewhere, is a key issue for obvious reasons, as these platforms are the interface between the virtual and real worlds and hence where risk can spread from the former to the latter.

As you are doubtless aware, the authorisation and labelling schemes mentioned in the PACTE Bill are optional. But there is an exception when it comes to anti-money laundering and terrorist financing (AML/TF) mechanisms. European regulators have been firm in their resolve not to compromise in any way on this matter.

Accordingly, the Fifth European Anti-Money Laundering Directive makes all participants handling digital assets subject to applicable AML/TF provisions. This is consistent with the system in place since 2014 in France, which states that an exchange of crypto-assets in euro requires a payment
services provider authorisation, and, accordingly, compliance with AML/TF rules.

To take account of the experimental phase that crypto-assets are presently in and to satisfy the key requirements of ensuring payment security while encouraging innovation in the area, a possible alternative to the optional approach currently favoured by the PACTE Bill would be to maintain a proportional approach.

This has been the basis for the European regulation of payment services up to now and consists in setting a mandatory framework whose requirements are adjusted according to the nature, development stage and risk of the associated services.

This approach was employed under the Second Payment Services Directive (PSD2) to regulate the market development of account aggregators and payment initiators.

In conclusion, it is hard to anticipate the role that crypto-assets might play in the payment system of the future, especially since the characteristics and features of these assets look set to change considerably.

Right now, there are major limitations to their everyday use in retail payments, and crypto-assets still have to prove their attractiveness in this regard, particularly since an extensive range of payment solutions is available, and these solutions continue to modernise to address the need for instant exchanges, with, for example, the introduction of mobile payment solutions and instant transfers.

That said, the underlying technologies that I mentioned, and especially blockchain, open up interesting development prospects for major payment and market infrastructures.

Uncertainty over the future of crypto-assets in the world of payments does not relieve us of the need to regulate their development, given the attendant risks. Adopting a framework that protects participants in the real economy will help to increase their confidence in the mechanisms associated with crypto-assets, thereby promoting growth in the new assets.

The intrinsically digital and global nature of crypto-assets means however that a coordinated international approach must be taken to avoid creating an opportunity effect, because experience tells us that participants can easily relocate to another territory offering more flexible laws.
Several international organisations have set up working groups to explore this question, under the leadership of the G20.

While some of the discussions are still in their infancy, the aim in the medium term is to come up with a framework and an international code of conduct to preserve security for everyone and promote financial stability, which is a common good that we all share.

Thank you for your attention.
Supply Chain Attacks Back on the Agenda

Introduction

The world learned last week about the alleged existence of a malicious microchip or hardware modifications, introduced in data centre server’s motherboards from a well-known US vendor, presenting an alleged malicious behaviour.

The investigation, conducted by a US news media corporation, traced back the original manufacturer from the vendor’ supply chain process, identifying a sub-contractor located in China.

The disclosure takes place in the realm of a global trade storm with the US and China in the epicenter and after a long period of mutual accusations of industrial espionage.

Adding to this episode, the growing concerns from the EU over alarming levels of cyber espionage against European industry, revealed by a recent study, with an official position expected any time soon.

In this particular episode, there is more to know about this microchip and its alleged malicious capabilities.

For now, there is no report of an incident resulting from the hardware implant.

All parties involved - including the vendor and its ca. 30 customers – are denying its existence and the UK’s DHS and GCHQ questioning the conclusions of the report.

Aside from all the political and diplomatic discussions, the lesson learned from this episode is to revive the urgency to mitigate the risks associated with hardware vulnerabilities and supply chain attacks.

This Info Note reviews the finding of an investigation to a suspicious microchip found in the motherboard of a major server systems vendor and
the risks associated with the exploit of hardware vulnerabilities and supply chain attacks.

**Contextual Information**

*The Semiconductor Industry*

The Electronic Components and Systems Industry, that includes the manufacturing of semiconductors, plays a critical role in the digital transformation currently ongoing.

During the last decade, the US remained the market leader in this industry with other countries, including China, demonstrating a serious commitment in expanding this sector.

Europe semiconductor industry, representing a pale ca. 9% of the global market in 2017, is a minor player, compared with the leading countries US, China, South Korea and Taiwan.

While the demand for consumer electronic products continues to increase, is not predictable that this situation will reverse any time soon. Vendors will continue manufacturing and sourcing components from Asian suppliers, mainly looking for cheaper productions costs.

*The alleged malicious microchip*

The microchip, firstly noticed in 2015 during a third-party security audit to the US vendor, was reportedly not in the original motherboard design but later introduce by a Chinese subcontractor.

This fact raised suspicions about the real intentions in altering the blueprints and placing this component into the motherboards.

According to the researcher, the microchip was “... placed electrically between the baseboard management controller (BMC) and its SPI flash or serial EEPROM storage containing the BMC's firmware.”

The BMC is part of a computer server Intelligent Platform Management Interface (IPMI), a crucial component in the motherboard, responsible for managing the interface between the system-management software and hardware.

It allows administrators to remotely monitor and maintain machines, typically over a network without having to physically locating the server in a data centre.
Typical capabilities of the BMC firmware includes to force the server power-cycle, reinstall or modify the host operating system, mount additional storage, access a virtual keyboard and terminal connected to the computer, among others.

By reaching the BMC software from a malicious motherboard microchip, an adversary can have control over any given server.

It constitutes one of the best places to implement unauthorised access to a server. The controller has access to the server’s main memory, allowing it to create a backdoor into the host operating system kernel, download and execute second-stage malware.

*The threat with Supply Chain attacks*

Supply chain attacks constitute worst case scenario for all kind of companies and due to its high mitigation costs, one for which such organisations are least prepared to deal with. As there is no good fix if the supply chain is being attacked, the impact of such attack may be nefarious and unpredictable.

In 2016, ENISA published a detailed study on “Hardware Threat Landscape and Good Practice Guide”, proving a deeper analysis into aspects of hardware threats, vulnerabilities but also mitigation by means of good practices.

The major hardware non-physical and malicious threats identified by the study:

- Firmware Modification, e.g. of CPU, internal/external Controllers (e.g. hard drive/USB media), chipsets, smart chargers, smart batteries, co-processors, NICs.
- Remote firmware attacks, e.g. in network interface cards.
- Attack Persistence.
- Information Access.
- Traffic sniffing at the network, internal Bus or memory level.
- Surveillance of location, audio, visual data and behaviour.
- Data tampering, spoofing of location and behaviour.
Under this light and having in mind internal market issues in the European Union, manufacturers and consumers alike have reasons to be concerned by supply chain vulnerabilities as cybersecurity issues are exacerbated unless control is retained from A to Z in a supply chain.

While a possible mitigation measure for instance is to design and manufacture own products, such an approach can be affordable to few large consumers that enjoy high market share margins.

All other market actors – and in particular SMEs - might find this approach to be far beyond their financial capabilities. Even in cases of trusted hardware design, it may be the case that actual manufacturing takes place in overseas plants managed under scant principal control.

That might give rise to a host of issues, let alone poor manufacturing practices, that can give way to vulnerable soft or hard components (and firmware) to contaminate otherwise well designed systems.

**Recommendations**

ENISA published a study in 2015 titled “Supply Chain Integrity” reviewing the ISO/IEC 15288, an engineering standard covering systems processes and lifecycle including Supply Chain Integrity and resilience functions.

Besides recommendations made in the quoted ENISA Report on Supply Chain integrity, ENISA recommends:

- Maintain a small supplier base allowing a vendor to have tighter control over its suppliers.
- Security built into the design to detect any previous unauthorized access to the production environment.
- Stringent vendor controls in order to abide by lists of approved protocol.
- Conduct occasional site audits at supplier locations and having personnel visiting the sites on a regular basis for greater control.
- Strict adherence to reporting requirements mandated in the EU regulatory framework (e.g. NISD, GDPR, eIDAS)
- Close cooperation with investigating authorities in case of an incident carrying criminal law implications
Closing Remarks

The inevitability of the risks associated with industrial globalization require from vendors a systemic and detailed approach in Supply Chain processes.

The risk of an adversary implanting a vulnerability in the supply chain is not new, and its mitigation proven extremely difficult regardless if conducted internally, from inside the company or externally from a third country supplier.

A thorough definition of security requirements and adherence to best security-by-design practices should be the industry focus when mitigating these risks.

As there is no specific protection available for consumers, monitoring for suspicious activity in networks and servers remains the best advice possible, to defend from this type of threat.
AFFIDAVIT IN SUPPORT OF A CRIMINAL COMPLAINT

I, David Holt, being duly sworn under oath, do hereby depose and state:

INTRODUCTION

1. I am a Special Agent with the Federal Bureau of Investigation ("FBI") and have been so employed since August 2008.

I am presently assigned to the Washington Field Office where I am responsible for investigations of foreign influence operations and other national security matters with a cyber nexus. I have also conducted national security investigations of foreign intelligence services and the targeting of critical U.S. infrastructure.

As a Special Agent, I have received specialized training and instruction in the field of national security investigations and am authorized to investigate violation of laws of the United States and to execute warrants issued under the authority of the United States.

2. I am submitting this affidavit in support of a criminal complaint and arrest warrant charging the defendant, ELENA ALEKSEEVNA KHUSYAYNOVA...
YNOV A, with Conspiracy to defraud the United States, in violation of Title 18, United States Code, Section 371.

3. The statements contained in this Affidavit are based on my experience and background as a criminal investigator, on information provided to me by other members of the FBI and other law enforcement officers, court records and documents, business records, interviews, publicly available information, and my review of physical and documentary evidence.

I have personally participated in the investigation of the offense set forth below and, as a result of my participation and review of evidence gathered in the case, I am familiar with the facts and circumstances of this investigation.

Since this Affidavit is being submitted for the limited purpose of supporting a criminal complaint, I have not included every fact resulting from the investigation.

I have set forth only the facts that I believe are necessary to establish probable cause to believe the above-named defendant has violated Title 18, United States Code, Section 371, as set forth herein.

To read more: 
Exchange of views with members of the Irish Parliament
Introductory statement by Mr Mario Draghi, President of the European Central Bank, during his exchange of views with the House of Representatives, Dublin.

Thank you, Chairman. I am happy to be back in Dublin and honoured to be invited to speak at the Oireachtas. On this occasion, I am joined by my colleague, Philip Lane, whom you meet regularly in his capacity as Governor of the Central Bank of Ireland.

While the ECB is accountable to the European Parliament, we greatly value our exchanges with national parliaments.

In September, some of you already met the Chair of the Supervisory Board, Danièle Nouy, in Frankfurt and discussed the ECB's supervisory policies.

In full respect of the functional separation between the ECB’s monetary policy and its supervisory tasks, today is an opportunity to discuss our monetary policy and policies to make the euro area economy and its constituent parts more resilient.

In this respect, I expect an open exchange from this meeting, which will give us a chance to listen to and better appreciate each other’s positions.

I am conscious that I am speaking in a country that went through a severe crisis. The Irish people made tremendous efforts, for which I have great respect. And these efforts are now paying off.

The euro area economic outlook
Ten years after the start of the global financial crisis, the euro area economy is performing well - and has been for some time. We have now seen 22 consecutive quarters of economic growth, while over 9 million jobs have been created and the unemployment rate has declined to 8.1%, its lowest level since November 2008.

The Irish economy has seen a particularly strong expansion in recent years. Ireland is now growing at the fastest pace of any euro area country. Unemployment has been falling too, and now stands well below the euro area average.

This is all the more impressive given the severe crisis Ireland went through and the legacies it is dealing with, including high private debt and arrears.

Looking ahead, while some sector-specific data and selected survey results have been somewhat weaker than expected, the latest incoming information overall suggests that the broad-based expansion in the euro area, and in Ireland, is set to continue. Against this background, euro area inflation is expected to continue to converge towards the ECB's objective of below, but close to, 2% over the medium term.

Getting to this point has required considerable monetary policy support. The euro area is looking back on several years of exceptionally low interest rates and unconventional monetary policy measures.

The ECB's key interest rates have been at unprecedented low levels since 2009. They have been supported by a series of unconventional measures, introduced in the face of a protracted recession and persistently low inflation.

While we are now at the point where we anticipate - subject to incoming data confirming our medium-term inflation outlook - that we will end net asset purchases at the end of the year, significant monetary stimulus will still be needed to ensure the continued sustained convergence of inflation to levels that are below, but close to, 2% over the medium term.

Even after we end our net asset purchases, monetary stimulus will continue to be provided by the guidance we have given namely that we expect to keep interest rates at their present levels at least through the summer of 2019 and to maintain the stock of assets on our balance sheet by reinvesting maturing bonds purchased under the asset purchase programme for an extended period of time after the end of our net asset purchases.
But the overall favourable outlook and our still accommodative stance should not invite complacency.

Although on the whole the risks surrounding the euro area growth outlook can still be assessed as broadly balanced, risks relating to protectionism, vulnerabilities in emerging markets and financial market volatility remain/are prominent.

We are seeing a growing willingness to question multilateralism, which has underpinned global growth since the end of the Second World War.

The protectionist trade measures implemented may have had very limited effects thus far, but the escalation of trade tensions is undermining confidence.

Financial stability

Allow me also to say a few words about euro area financial stability. The financial stability environment in the euro area overall remains favourable, but it has become somewhat more challenging in recent months.

The results of the European stress test published last Friday show that euro area banks are increasingly resilient to financial shocks. This also reflects the continuing economic expansion, which has strengthened private and public balance sheets alike.

Still, there are risks. These include liquidity risks in the non-bank financial sector that could be transmitted to the broader financial system. Developments in this area should be closely monitored, and the regulatory and supervisory framework for non-banks needs to be strengthened.

Asset prices also require close monitoring. While there is currently no compelling evidence of overstretched asset valuations at the euro area level, we are seeing some localised risks. However, euro area monetary policy is not the appropriate tool with which to address such risks.

They call instead for targeted macroprudential policies, which can be tailored to local and sectoral conditions. The recent decisions by the Central Bank of Ireland are an example of how macroprudential policy can promote financial stability.

As regards Brexit, with negotiations ongoing and less than five months to go until the United Kingdom’s departure from the European Union, it is essential to prepare for all possible outcomes, including a no-deal scenario.
While the direct trade effects of a hard Brexit would be limited for the euro area as a whole, Ireland is more exposed due to its very close trade relations with the United Kingdom. We also see limited overall risks to euro area financial stability.

Without sufficient mitigating action, however, a cliff-edge Brexit could have an adverse impact in certain areas of centrally cleared derivatives markets.

Sources of risk from outside the EU have grown since May. A stronger US dollar and heightened trade tensions triggered renewed stress in a number of emerging market economies.

**Financial integration and the deepening of EMU**

Thanks to our collective efforts at the European and national level, we have come a long way since the start of the financial crisis.

However, to strengthen our economies and preserve financial stability, we need to go further.

Let me highlight in particular some of the concrete steps in the area of financial integration that we need to take at the European level.

**First,** we need to complete the architecture of the banking union. The benefits of having a euro area supervisor are clear when we look at banks' strengthened balance sheets.

Still, more needs to be done to reduce the risks for citizens as both taxpayers and depositors and to break the remaining link between banks and national governments.

In addition to the adoption of banking package which is currently under negotiation among EU legislators, a genuine banking union needs further regulatory harmonisation, for instance through greater reliance on Regulations instead of Directives.

In particular, unwarranted national options and discretions still stand in the way of a level playing field for banks. At the same time, we need to establish a common backstop to the Single Resolution Fund and lay the groundwork for the creation of an effective European Deposit Insurance Scheme.

Significant steps in these areas are a precondition for a truly integrated euro area banking system and single money. The transmission of the ECB's
monetary policy remains at risk of being hampered in crisis situations as long as levels of depositor confidence differ across the euro area.

The second thing we need to do is build a true single market in capital.

Diversified capital markets play an important role in sharing risks and smoothing private consumption over time.

For this reason, the ECB has been a strong supporter of the European Commission's plan for a capital markets union.

To be robust, the capital markets union needs effective regulation and supervision, for example in relation to investment firms and clearing.

Not least given the United Kingdom's imminent departure from the EU, we need to make concrete progress on this agenda and complement it with an ambitious, longer-term vision.

Conclusions

I would like to end by mentioning that recent Eurobarometer data show that support for the euro stands at a record high of 77% among euro area citizens and a large majority believe that their country's membership of the EU is a good thing.

Support for the European project is particularly strong in Ireland, where with 88% of citizens the single currency enjoys the highest level of support in the EU.

Europe has to repay this trust.

We face important global challenges that are naturally causing concern among the people of Europe, especially those who feel left behind. Common institutions and collaboration among Member States give Europe a strong voice in the world.

More importantly, they make it possible for us to find effective answers to joint problems. In other words, we are stronger together. Thank you for your attention.
FINMA is advising - cryptoassets should be “assigned a flat risk weight of 800% to cover market and credit risks”

Until the Basel Committee on Banking Supervision makes global recommendations, FINMA is advising financial players that cryptoassets should be assigned a flat risk weight of 800% to cover market and credit risks, regardless of whether the positions are held in the banking or trading book.

To read more: https://www.swissinfo.ch/eng/risk-weighting_swiss-regulator-gives-risk-guidance-on-crypto-trading/44518298
From repair to vision
Elisa Ferreira, Vice-Governor of the Bank of Portugal, on the panel "From Repair to Vision: Conceptions for a common beneficial and resilient financial Architecture and institutional Framework in the EU" at the "Financial Stability Conference 2018", Lisbon.

The setting up of the Single Rulebook in the European Union (EU) and the launch of the Banking Union (BU) with its rules and institutions constitute a commendable success of the post-crisis financial sector reforms in Europe; however the lack of political will to complete the architecture seriously jeopardises its key benefits.

Recent cases highlighted what I would call an 'accountability conundrum'. Banks nowadays are mostly 'European in life but remain national in death'.

This means that, while supervisory and resolution decisions are mostly taken at European level, the ensuing consequences still lie with taxpayers at national level, with potential serious impacts on national budgets.

As the ultimate guarantor of financial stability remains national, but with limited tools to act, this 'accountability conundrum' needs to be solved.

This unstable balance that emerged in the EU prevents economic agents from fully reaping the expected benefits of economic integration.

Europe needs concrete plans going forward, and must address pressing questions on what is still missing to safeguard financial stability.

Absent a fully-fledged European Deposit Insurance Scheme (EDIS) in the short to medium term, a plan is urgently needed for the interim period (until the BU can be completed).

Among the possible topics for debate, I would suggest:
1. First, the development of a specific institutional regime to address Member States' concerns over the risks of potential failures of cross-border banking groups: host Member States within the BU need tools to address financial stability risks arising from locally systemic undertakings; the absence of such instruments currently hinders progress on issues such as:

(i) the adoption of waivers on liquidity and capital, and

(ii) the removal of options and national discretions (ONDs)

which are in close connection, among others, with:

- the rethinking of the Single Point of Entry (SPE)/Multiple Point of Entry (MPE) resolution models; in particular, the generalisation of the SPE model within the BU requires that both the concerns at group level (home) and at subsidiary level (host) are addressed; and

- the choice between subsidiaries or branches, together with the supervisory powers of host national competent authorities (NCAs).

In this context, the transformation of subsidiaries into branches has emerged as an answer to the host responsibility for covered deposits - however that implies, at least, when local undertakings are of systemic relevance to the concerned Member State, that:

- domestic supervisors should have a say in the day-to-day supervision and should have the capacity to react to strategic decisions affecting branches as they would have had it been a standalone entity;

- national resolution authorities are adequately involved and empowered in the definition of resolution plans and in the resolution action when it occurs.

2. Second, solutions need to be found for the orderly exit of traditional medium-sized deposit-taking banks without disrupting financial stability.

Whereas MREL and bail-in requirements may work for larger banks, there may be no clear room for a 'middle class' of institutions whose business model may be incompatible with MREL requirements; institutions that may be of no public interest at EU level but still have systemic relevance at local level.

Instead of moving immediately towards a further straitjacketing of Member States' room for manoeuvre with the harmonisation of EU banks' liquidation regimes, efforts must be made towards the establishment of an
enabling framework for the "orderly" winding-down of locally systemic relevant banks, combining elements of the resolution and liquidation frameworks, while preserving value and protecting creditors and non-financial borrowers.

Possible paths to be explored might include:

- the establishment of special insolvency proceedings, with recourse to administrative options, attributing some of the instruments currently envisaged in the BRRD for banks in resolution to a liquidating authority, as an alternative to the 'atomistic' court-led liquidation regime. (The liquidating authority and the funding sources available would need to be identified.)

- ensure effective financing of the deposit insurance systems for deposit transfers abiding by the least cost principle with the liquidating authority having the option to offer guarantees or enter into profit and loss sharing regimes. (For that, a revision of the applicable state aid rules would be required.)

Recent calls to form a sort of European FDIC, merging the Single Resolution Fund and EDIS into one single entity, merit our attention in this regard in the medium-term, provided that the legal framework is fixed and that financial stability - both at European as well as at national level - is enshrined as the first and fundamental objective of any intervention.

3. Let me conclude. What we have achieved in terms of the architecture of the BU is astonishing but the entire project remains fragile. Europe has stopped moving and currently stands in the middle of a very sensitive and unstable 'bridge'.

If, realistically, sufficient progress cannot be expected in the medium term to establish EDIS and fine-tune the existing framework, then let's concentrate on preserving the great value of the project.
Cyber security of youth data
A Girl Scouts of America branch in Orange County, California, has suffered a security breach potentially exposing the sensitive personally identifiable information (PII) of thousands of minors.

Unidentified hackers were able to log into the email account used to coordinate travel for its members. Sensitive PII extended as far back as 2014 and included name, date of birth, email, address, driver licence, health history and insurance policy details.

Following the compromise, hackers used the same account to send out emails of their own. The content of the emails has not been revealed but they were likely attempted spear-phishing attacks on members.

According to the UK’s Charity Digital News [https://www.charitydigitalnews.co.uk/2018/09/04/data-breaches-among-charities-doubles/], the number of reports of data breaches among charities has doubled over the last two years with education and childcare organisations reporting a 142% increase.

Fraudsters can use children’s details to make financial applications and create a credit history for the child whose identity they’ve stolen. Children typically do not have credit records, so it is likely that any activity surrounding the identity theft will remain undetected for a long time.

NCSC’s Cyber security: Small Charity Guide [https://www.ncsc.gov.uk/charity] provides small charities with cost-effective measures to improve security across their IT estate and to achieve GDPR compliance.
Supervisory implications of rising similarity in banking

Introduction

Thank you very much for the invitation to speak at the "U.S. Banking Forum." It is a pleasure to be here to talk about the continued evolution of the U.S. financial sector.

Before proceeding, I will emphasize that the views expressed today are my own and do not necessarily reflect the views of the Federal Reserve Bank of New York or the Federal Reserve System.

It is now a decade since the financial crisis and the U.S. banking industry has made tremendous progress in terms of repairing its aggregate balance sheet and building greater resilience.

Capital ratios are higher, liquidity pools are deeper, and we've seen fundamental improvements in risk management and governance.

While there are still areas for continued progress, all of this should help financial firms provide critical intermediation services across a range of macroeconomic and financial market conditions.

This progress reflects both the recognition by financial institutions of the need for greater resiliency in order to insulate themselves from shocks and a stronger, more comprehensive, forward-looking regulatory and supervisory framework.
Over the same period, we've seen continued evolution of the underlying business models for some of the largest U.S. financial firms in response to external forces.

Firms are navigating statutory changes and a suite of new regulations that are still evolving and being implemented; responding to investor pressures for higher returns in a rising rate and more competitive environment; and seeking to capitalize on fundamental technological advances, while managing the risks associated with cybersecurity and greater competition from potentially disruptive new entrants.

One recent observation is that the largest firms in the U.S. appear to be growing increasingly similar in terms of their underlying business models and strategies. This has implications for balance sheet structure, earnings profile, and organizational structure.

For example, some firms traditionally focused on capital market activities, are shifting into lending activities, while other more traditional banks, are expanding capital markets activities.

In both cases, this serves to diversify the individual firms, while also making them more similar in terms of the business strategies they pursue, the products they offer, and the customers they serve.

If firms are responding to the same exogenous forces, this might not be surprising.

Indeed, similar observations were made in the late 1990s as the deregulatory forces that culminated in the Gramm-Leach-Bliley Act (GLBA) led to predictions of a few "financial supermarkets" that would offer the full range of financial services to all customers.

More recently, industry analysts and commenters have pointed to the range of capital and liquidity regulations that may be pushing firms toward the same target state business model where large firms provide a wider range of financial services.

If true, an obvious follow-up question is whether this should be a concern from a supervisory and regulatory perspective.

Today, I will discuss the premise that large banks in the U.S. have indeed become more similar and then consider some reasons why this might be a topic of interest for the official sector.
I can think of several compelling microprudential and macroprudential reasons why this would be the case: the need for an appropriate risk management framework that is commensurate with evolving risks; the need for supervisors to ensure that our assessments are proactive and flexible enough to evaluate evolving firms; the potential for similar firms to become "systemic as a herd," where a given shock leads to correlated responses and large-scale disruption in the provision of financial services; and the potential for firms to move away from areas of comparative advantage, which could diminish the overall efficacy of the financial sector.

I'll conclude with some implications for our supervisory regime.

Environmental Context

The performance of financial firms in the decade since the financial crisis has been influenced by a broad range of external forces.

I'll focus on three factors impacting how financial services are provided and their impact on large firm similarity: the regulatory response to the financial crisis, the interest rate environment, and technological innovation.

Regulation

The U.S. official sector has taken meaningful steps since the financial crisis to promote greater resiliency and stronger risk management at the largest firms.

This includes: a greater focus on both the quantity and quality of loss-absorbing capital; standards that focus on both short-term and long-term liquidity management and positions; activity restrictions; enhanced risk management standards and expectations; and new resolution and recovery regimes.

I will focus on the capital side, where the largest banks face a number of regulatory standards and supervisory expectations that impact both capital positions and the firms' capital planning process.

The standards include point-in-time regulations that target a simple leverage ratio and risk-based ratios. They also include forward-looking standards for both types of ratios that reflect estimates of potential capital needs across a range of plausible, but severe macroeconomic and financial conditions.
These forward-looking estimates that result from our Comprehensive Capital Analysis and Review (CCAR) program are now an integral, and some would say leading, part of the post-crisis capital regime.

The fact that firms must manage against multiple capital constraints has both intended and potentially unintended consequences. On the intentional side, this framework enhances robustness.

Risk assessment approaches and models are imperfect and a capital regime that relies on a range of assessment techniques can increase robustness and mitigate the inherent uncertainty around risk measurement. It also provides a check against potential regulatory arbitrage.

A potential unintended consequence is pressure toward greater homogeneity of the largest banks. Think about a simple example of a firm with a low-risk balance sheet where the leverage ratio currently is binding, but the risk-based capital ratio is not.

This firm may have incentives to shift out of low-risk assets into higher-risk assets in order to optimize its balance sheet and the corresponding risk-adjusted return on equity.

A key point is that different firms face different marginal capital requirements for holding the same asset, depending on the other attributes of their balance sheet and business model.

This type of response can impact both the size and the composition of a bank’s balance sheet. Of course, the world is much more complicated than this simple example.

Optimizing firms likely consider a number of capital factors such as the current point-in-time ratios, current post-stress ratios, and the potential impact of both types of ratios in the future, as well as other balance sheet influences such as liquidity ratios and the recovery and resolution regime.

Recent academic work has begun to explore this topic and I think it is an important area where regulators and supervisors concerned with optimal regulatory design can learn from the theoretical literature.

Research suggests that in a world with multiple capital constraints, e.g., a leverage ratio and a risk-based capital, banks face incentives to do the same thing rather than specializing in areas where they each have a natural competitive advantage.
This type of academic work provides a conceptual framework for understanding how optimizing behavior against multiple constraints might lead banks to pursue similar strategies and become more homogenous over time.

**Interest Rates**

A second dominant theme over the post-crisis period has been unconventional monetary policy, both in the U.S. and around the world, which has direct implications for the profitability and returns of U.S. commercial banks.

The low rate environment experienced through 2015, for example, constrained bank earnings, particularly net interest income earned through traditional banking activities over this period.

More recently, current and expected future returns on equity for large banks have improved, in part reflecting higher interest rates and net interest margins, as well as other factors such as lower tax rates and expectations for a stronger economy.

Despite recent improvements, *earnings pressures* over most of the post-crisis period have pushed banks to reassess business strategies.

For example, some banks attempted to enhance returns by building capacity and reach in new businesses; some looked to benefit from scale and scope activities by leveraging existing infrastructure, technology, and processes to offer a broader set of services at lower cost; some looked to reduce risk through greater diversification, and others pulled back from activities outside of their core focus.

It is unclear what the net impact will be, but if all firms pursue the same strategies in search of higher risk-adjusted returns, greater similarity could result. This pressure is potentially stronger now than in the past due to the highly competitive nature of banking and this is an area for further study.

**Technology**

A third theme is the emergence of "fintech", which I think of as the intersection between technological innovation and the provision of financial services.
While innovation has always been a competitive driver in banking, there is a sense that both the pace of change and the potential impact have become more pronounced.

As prices for technology services and capacity continue to fall and technological opportunities expand, more firms are able to adopt and leverage the latest technological breakthrough.

Scale is likely to remain a relevant factor in the deployment of the latest technology, but, at least among the largest firms, the playing field may be leveling as firms have the opportunity to benefit from direct investments, consultants, and third-party vendors offering the latest services. If the largest financial firms are responding to the same technological forces and pursuing the same opportunities, one might expect their resultant strategic choices to contribute to greater similarity over time.

Again, this is an empirical question that deserves further inquiry.

Next Steps

An important next step is to look at the data to assess whether recent industry trends are consistent with the premise that large banks are becoming more similar.

We examined a range of balance sheet and income statement items, market indicators, and organizational structure data to draw some preliminary conclusions.

The results, reported in the appendix, are generally supportive of the notion of greater homogeneity among the largest banks, but a more rigorous assessment of these preliminary conclusions would be a fruitful area of investigation.

Why Do We Care?

I now turn to a final question - does this matter for supervisors and regulators? I think it does. I will consider four potential reasons why this shift is relevant for the official sector's concern for safety and soundness and efficient financial intermediation: a firm's risk management approach, the evolution of supervisory focus, the development of macroprudential risks, and allocative efficiency of financial services.

I'll begin with our core microprudential focus on ensuring that banks develop and implement the appropriate risk management infrastructure for
their evolving risks. While this is more linked to the changes in business models than greater similarity, the underlying drivers are the same.

As banks respond to environmental factors by expanding into new activities or shifting their strategic focus, they naturally face new risks and must adapt their risk management infrastructures along with their evolving business models.

This entails ensuring the appropriate level of expertise about the new businesses; assessing that all relevant risks are identified, monitored, measured, and managed for each business line and the firm as a whole; and establishing the appropriate interaction with the enterprise risk management functions and Boards of Directors.

These are core parts of supervisory expectations for traditional risk management and banks need to ensure that they are applied appropriately as they evolve.

Moreover, expansion into new activities can bring entirely new risks beyond the direct risks of each specific business. For example, a firm that expands by offering a broader set of products to its existing base of customers.

This has the potential to introduce greater correlation of business line results and a different type of shock if a financial firm potentially loses multiple revenue streams should a single customer face distress. Alternatively, a firm might be inclined to use one business line to cross-subsidize another, which makes measuring and managing risks and allocating capital more difficult from a business line perspective.

In both cases, the potential risks would need to be managed at the enterprise level to reflect these cross-business linkages.

A second implication is the need for the supervisory community to be responsive to the evolution of firms’ strategies and business models. As firms evolve and pursue new strategies, supervisors need to understand those changes and assess firms accordingly.

We must constantly evaluate the strategic focus of the firms we supervise and assess whether our approach and perspective are appropriate for the new activities.

In a world with a core of diversified firms that are more similar, for example, cross-firm exams and horizontal analysis increase in value and supervisors might require broader skills.
Moving beyond individual firms, there is the potential for microprudential risks to transform into macroprudential ones. If firms expand, diversify and become more similar, each might become safer individually.

The industry as a whole, however, might not be any safer or more resilient. If all firms are effectively the same, they could become "systemic as a herd" and susceptible to the same shocks in a way that leaves the aggregate provision of financial services more volatile.

The propagation mechanisms for an industry with a set of similar firms with a wider range of activities may be very different from one where firm heterogeneity can offset and smooth the impact of shocks.

This suggests that supervisors and regulators should be concerned not just with the firm as an entity, but with the industry as a portfolio of firms where aggregate outcomes reflect both each firm's individual contribution and correlation properties across firms.

Finally, supervisors are concerned about the efficient provision of financial services and the ability of the financial industry to support the real economy.

If firms' mix of activities is overly determined by the regulatory environment, firms will have incentives to expand into activities where they do not have a comparative advantage.

As a result, the potential gains of specialization would be lost. This could make the provision of financial services less efficient overall.

Judging the cumulative impact of these changes in a comprehensive way that includes an assessment of costs, benefits, and risks is challenging, but seems an important goal for optimal policy design.

**Conclusion**

A fundamental challenge for effective supervision is that the landscape is constantly evolving and adapting in response to a wide range of regulatory, financial, and technological forces.

This type of dynamism is normal and inherently productive for the industry as firms continue to optimize in order to serve customers efficiently and satisfy investors, but it does raise issues that supervisors must consider.

As I've discussed, one recent type of evolution is the trend toward greater similarity of the largest financial firms in the U.S.
In response, supervisors and regulators must continue their focus on taking a broad perspective on supervision and risks.

It is not enough to look at individual business lines or products, but we should continue to focus on enterprise risk management that reflects each business and the interdependencies among them. Moreover, supervisors should be dynamic and continue to evolve as the supervised firms do.

Finally, supervisors should continue to develop an industry-wide, macroprudential perspective to understand the impact of the continuing evolution of the U.S. financial industry.

To do this, supervisors need to continue to leverage our cross-firm, horizontal perspective to better understand how the industry is evolving and what it might mean for our objectives around safety and soundness of individual firms and the efficient provision of financial services for the economy as whole.
Small country interfaces with the world's financial rule-makers

John A Rolle, Governor of the Central Bank of The Bahamas, at the 13th ASBA-BCBS-FSI High-Level Meeting on Global and Regional Supervisory Priorities, Nassau.

Introduction

The Central Bank of The Bahamas is pleased and honoured to be able to co-host this gathering of eminent persons from Latin America, the Caribbean, the Basel Committee on Banking Supervision (BCBS), the Financial Stability Institute (FSI), and the Bank for International Settlements (BIS).

My topic tonight is: "How Small Nations Interact with the International Financial Rule-Making Architecture". The core elements in this architecture include:

- **Multilateral agencies**, among which the IMF is probably the most impactful for small countries, and the BIS the most impactful for the world's central banks;

- **Rule-making bodies**, among which the Basel Committee is probably the most prominent, but including the international Association of Insurance Supervisors (IAIS), the International Organisation of Securities Commissions (IOSCO), and similar groups, with the Financial Stability Board (FSB) assuming prominence in recent years;

- The ever-growing architecture on **financial crime suppression**, centered on the Financial Action Task Force (FATF); and

- A range of **public, quasi-public, and private groups** that create, impose, and/or enforce standards in international finance, among which leading examples include the ratings agencies, SWIFT, ISDA, LCH and many others.
The small country experience in general

What has been the experience of small countries in dealing with these groups? In a few words: generally positive, but mixed.

From a small country perspective, the ideal engagement with an international rules-making body would feature four key elements:

- The body explicitly considers small countries when making and enforcing rules;

- The body provides, directly or through its membership, reasonable assistance to help small countries adopt and maintain the relevant rule set;

- The body’s governance arrangements allow for small country representation, and for staff from small countries to engage on working groups, task forces, secretariats, and the like; and

- When conducting compliance assessments and similar engagements, the body’s evaluation process gives small countries a fair chance to demonstrate compliance, in the context of each country’s economy and society

To read more:
https://www.bis.org/review/r181102c.pdf
Bringing Photonic Signaling to Digital Microelectronics

DARPA program seeks to unleash the performance of modern multi-chip modules by integrating optical signaling at the chip-level

Parallelism – or the act of several processors simultaneously executing on an application or computation – has been increasingly embraced by the microelectronics industry as a way of sustaining demand for increased system performance.

Today, parallel computing architectures have become pervasive across all application domains and system scales – from multicore processing units in consumer devices to high-performance computing in DoD systems.

However, the performance gains from parallelism are increasingly constrained not by the computational limits of individual nodes, but rather by the movement of data between them.

When residing on modern multi-chip modules (MCMs), these nodes rely on electrical links for short-reach connectivity, but once systems scale to the circuit board level and beyond, the performance of electrical links rapidly degrades, requiring large amounts of energy to move data between integrated circuits.

Expanding the use of optical rather than electrical components for data transfer could help significantly reduce energy consumption while increasing data capacity, enabling the advancement of massive parallelism.

“Today, microelectronic systems are severely constrained by the high cost of data movement, whether measured in terms of energy, footprint, or latency,” said Dr. Gordon Keeler, program manager in DARPA’s Microsystems Technology Office (MTO). “Efficient photonic signaling offers a path to disruptive system scalability because it eliminates the need to keep data local, and it promises to impact data-intensive applications, including machine learning, large scale emulation, and advanced sensors.”

Photonic transceiver modules already enable optical signaling over long distances with high bandwidth and minimal loss using optical fiber.
Bottlenecks result, however, when data moves between optical transceivers and advanced integrated circuits in the electrical domain, which significantly limits performance.

**Integrating** photonic solutions into the microelectronics package would remove this limitation and enable new levels of parallel computing.

A new DARPA program, the **Photonics in the Package for Extreme Scalability (PIVES)** program, seeks to enable future system scalability by developing high-bandwidth optical signaling technologies for digital microelectronics.

Working across three technical areas, PIVES aims to develop and embed integrated optical transceiver capabilities into cutting-edge MCMs and create advanced optical packaging and switching technologies to address the data movement demands of highly parallel systems.

The efficient, high-bandwidth, package-level photonic signaling developed through PIVES will be important to a number of emerging applications for both the commercial and defense sectors.

The first technical area of the PIVES program is focused on the development of high-performance optical input/output (I/O) technologies packaged with advanced integrated circuits (ICs), including field programmable gate arrays (FPGAs), graphics processing units (GPUs), and application-specific integrated circuits (ASICs).

Beyond technology development, the program seeks to facilitate a domestic ecosystem to support wider deployment of resulting technologies and broaden their impact.

Projections of historic scaling trends predict the need for enormous improvements in bandwidth density and energy consumption to accommodate future microelectronics I/O.

To help address this challenge, the second technical area will investigate novel component technologies and advanced link concepts for disruptive approaches to highly scalable, in-package optical I/O for unprecedented throughput.

The successful development of package-level photonic I/O from PIVES’ first two technical areas will create new challenges for systems architects. The development of **massively interconnected networks with distributed parallelism** will create hundreds to thousands of nodes that will be exceedingly difficult to manage.
To help address this complexity, the third technical area of the PIPES program will focus on the creation of low-loss optical packaging approaches to enable high channel density and port counts, as well as reconfigurable, low-power optical switching technologies.

A full description of the program is available in the Broad Agency Announcement.

For more information: https://www.fbo.gov/spg/ODA/DARPA/CMO/HR001119S0004/listing.html
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4. IARCP Authorized Certified Trainer (IARCP-ACT) Program - Become a Certified Risk and Compliance Management Professional Trainer (CRCMPT) or Certified Information Systems Risk and Compliance Professional Trainer (CISRCPT).

This is an additional advantage on your resume, serving as a third-party endorsement to your knowledge and experience. Certificates are important when being considered for a promotion or other career opportunities. You give the necessary assurance that you have the knowledge and skills to accept more responsibility.

To learn more, you may visit:
5. Approved Training and Certification Centers (IARCP-ATCCs) - In response to the increasing demand for CRCMP training, the International Association of Risk and Compliance Professionals is developing a world-wide network of Approved Training and Certification Centers (IARCP-ATCCs).

This will give the opportunity to risk and compliance managers, officers, and consultants to have access to instructor-led CRCMP and CISRCP training at convenient locations that meet international standards.

ATCCs use IARCP approved course materials and have access to IARCP Authorized Certified Trainers (IARCP-ACTs).

To learn more: www.risk-compliance-association.com/Approved_Centers.html