Monday, June 18, 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,

Anton Chekhov believed that any idiot can face a crisis, it's day to day living that wears you out.

Perhaps this is the reason the European Network and Information Security Agency (ENISA) decided to wear us out in their intense scenario:

"Imagine this: It is a normal day at the airport. All of a sudden, the automated check-in machines display a system failure. Travel apps on smartphones stop functioning. The agents at the check-in counters cannot operate their computers.

Travellers can neither check in their luggage, nor pass through security checks. There are huge lines everywhere. All flights are shown as cancelled on the airport monitors. For unknown reasons, baggage claim has stopped working and more than half of the flights must remain on the ground.

A radical group have reportedly taken control of the airport's critical systems by means of digital and hybrid attacks. They have already claimed responsibility for the incident and are using their propaganda channels to spread a call to action and attract more people to adopt their radical ideology."

This was the intense scenario which over 900 European cybersecurity specialists from 30 countries had to face on 6 and 7 June 2018, during the 'Cyber Europe 2018' (CE2018) – the most mature EU cybersecurity exercise to date.

I love Europe. Some travellers are annoyed, nobody dies, and this is the *intense* scenario. I assume that *less intense* scenarios could be:

- IoT refrigerators at the airport are hacked, and travellers must drink wine in a temperature that is considered by sommeliers a stigma. (Important note: Bouquets usually take years to develop, so don't mention the word bouquet in your scenario response when you're describing a recent vintage.)

- Attackers steal many mobile devices at the airport. Consider the privacy violations and the liability of the airport after the GDPR regulation.

Read more at Number 6 below. Welcome to the Top 10 list.

Best Regards,

George Lekatis

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Number 1 (Page 8)

European Commission - Statement

Cybersecurity: Joint Statement by Vice-President Ansip and Commissioner Gabriel on political agreement from the Council

The European Commission welcomes the *political agreement* reached by the Telecommunications Council on a general approach on the Cybersecurity Act, which was presented by President Jean-Claude Juncker in his annual State of the Union Address in 2017.

Today's agreement opens the door to transform and strengthen the mandate of European Union Agency for Network and Information and Security (ENISA) into the EU's Cybersecurity Agency which will support Member States with tackling cybersecurity threats and attacks.

Number 2 (Page 10)

Economics and economic policy

Erkki Liikanen, Governor of the Bank of Finland, Helsinki.

“The central bank is an organisation of public servants. Public service bodies obtain their essential mandate from elected bodies.

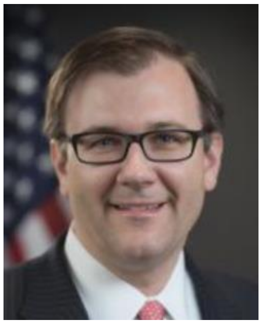
Within the Eurosystem, the central banks and their governing bodies have been given a definite mandate, including independence in monetary policy issues. In recent years, central banks have also been assigned new responsibilities in the field of macroprudential policy.

As part of the Eurosystem, the Bank of Finland participates in monetary policy decision-making and implementation. The Bank also has a role to play as part of the Banking Union.”

Number 3 (Page 20)

Remarks to the Institute of Chartered Accountants in England and Wales: "The intersection of financial reporting and innovation"

Wesley Bricker, Chief Accountant



"London continues to be recognized as one of the world's leading international financial centers, along with New York and other highly globally connected cities. Whether in London or New York or my childhood town of Chambersburg, Pennsylvania, people in every walk of life are affected by financial reporting, the cornerstone on which our process of capital allocation is built."

Number 4 (Page 35)

The Pan-European Personal Pension Product: A step towards sustainable pensions

Gabriel Bernardino, Chairman, European Insurance and Occupational Pensions Authority (EIOPA), International Conference on the "Pan-European Personal Pension Product - Regulation, Effects and Problems" organised by the University of Finance, Business and Entrepreneurship (VUZF) within the framework of the Bulgarian Presidency of the Council of the European Union.

"Today's conference will discuss the Pan-European Personal Pension Product, the PEPP, and let me set the scene with the following three points:

1. Why do we need a PEPP?
2. What are the benefits of PEPP?
3. What is EIOPA's role in the future of the PEPP?"

Number 5 (Page 41)

21st century cash - central banking, technological innovation and digital currencies

Fabio Panetta, Deputy Governor of the Bank of Italy, at the SUERF/BAFFI CAREFIN Centre Conference "Do we need central bank digital currencies? Economics, technology and psychology", Bocconi University, Milan.

"It is a great pleasure to be here. The topic of this conference speaks to the heart of some of the most challenging questions for central banks today: how is the digital revolution affecting the financial system? What is the impact on consumers, the economy and on central banks themselves?

These are complex questions, related to the consequences of the fourth industrial revolution in our society, within which central bank digital currencies (CBDC in short) might one day play an important part."

Number 6 (Page 44)

Cyber Europe 2018 – Get prepared for the next cyber crisis

EU Cybersecurity Agency ENISA organised an international cybersecurity exercise

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Number 7 (Page 47)

A Framework of Trust

Commissioner Kara M. Stein

"I want to talk this evening about two themes. One is the importance of rules in the investment markets. I want to show you how rules play an important role in creating wealth and shouldn't be seen simply as impediments.

The other theme is the role you can serve, as the next generation of advisors and investors, in helping Americans achieve their dreams."

Number 8 (Page 55)

Drone Forensics Gets a Boost With New Data on NIST Website

How do you extract forensic data from an aerial drone? Very carefully.

NIST
National Institute of
Standards and Technology
U.S. Department of Commerce

Aerial drones might someday deliver online purchases to your home. But in some prisons, drone delivery is already a thing.

Drones have been spotted flying drugs, cell phones, and other contraband over prison walls, and in several cases, drug traffickers have used drones to ferry narcotics across the border.

If those drones are *captured,* investigators will try to extract data from them that might point to a suspect. But there are many types of drones, each with its own quirks, and that can make data extraction tricky.

Number 9 (Page 58)

TTO Virtual Proposers Day Calls for New Ideas to Answer National Security Priorities

DARPA's Tactical Technology Office hosted a Virtual Proposers Day to provide information through pre-recorded videos about TTO's goals and areas for investment in advance of a mid-June release of the 2018 Disruptive Capabilities for Future Warfare Broad Agency Announcement (BAA).

The event provided an opportunity for companies and individuals to meet with TTO program managers to discuss concepts for advanced research, development, and demonstration of systems for military missions.

Number 10 (Page 59)

A nanotech sensor turns molecular fingerprints into bar codes

A new system developed at EPFL can detect and analyze molecules with very high precision and without needing bulky equipment. It opens the door to large-scale, image-based detection of materials aided by artificial intelligence. The research has been published in Science.

Number 1

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The European Commission welcomes the *political agreement* reached by the Telecommunications Council on a general approach on the Cybersecurity Act, which was presented by President Jean-Claude Juncker in his annual State of the Union Address in 2017.

Vice-President Andrus Ansip, responsible for the Digital Single Market, and Commissioner Mariya Gabriel, in charge of Digital Economy and Society, issued the following statement:

"We are pleased that the Council adopted today a general approach on the Cybersecurity Act proposals.

Today's agreement opens the door to transform and strengthen the mandate of European Union Agency for Network and Information and Security (ENISA) into the EU's Cybersecurity Agency which will support Member States with tackling cybersecurity threats and attacks.

Additionally, the proposal aims to establish an EU framework for cybersecurity certification, boosting the cybersecurity of online services and consumer devices.

Strengthening Europe's cybersecurity is the only way to assure a strong and viable Digital Single Market for the benefit of all.

It is vital for Member States to work together in building a more cyber secure European Union and avoid the complication of different national laws.

We would also like to congratulate and thank the Bulgarian Presidency for their hard work to find a consensus on this important file, only nine months after we presented our proposal in September 2017. Their work paves the way for the Austrian Presidency to soon reach a final compromise with the European Parliament and adopt the package before the end of 2018."

Background

In September 2017, the Commission proposed a wide-ranging set of measures to deal with cyber-attacks and to build strong cybersecurity in the EU.

This included the Cybersecurity package, a proposal for strengthening the EU Agency for Cybersecurity as well as a new European certification framework, ensuring that products and services in the digital world are cybersecure.

Number 2

Economics and economic policy

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The central bank is an organisation of public servants. Public service bodies obtain their essential mandate from elected bodies.

Within the Eurosystem, the central banks and their governing bodies have been given a definite mandate, including independence in monetary policy issues. In recent years, central banks have also been assigned new responsibilities in the field of macroprudential policy.

As part of the Eurosystem, the Bank of Finland participates in monetary policy decision-making and implementation. The Bank also has a role to play as part of the Banking Union.

How then should the central bank participate in domestic discourse on economics and economic policy formation? The Bank of Finland's statements relating to domestic economic policy are based on objectives set for the Bank and the Eurosystem.

According to the Act on the Bank of Finland and the EU Treaties the primary objective is price stability. Without prejudice to this objective, the Bank also supports the achievement of other EU economic policy objectives, such as balanced economic growth.

The Bank of Finland participates in economic discourse in Finland primarily at those stages of preparation and decision-making that are consistent with the Bank's expertise derived from research, international experience, or other publicly justified economic analysis.

There are two such stages: first, identification of the problems related to the current state of the economy; second, assessment of the potential effects of the alternatives for action.

At the same time, we should bear in mind that decisions on individual items of public spending or revenue often involve such value judgements as a central bank should refrain from making.

In the past decade, there was a lively debate in the United States on whether Federal Reserve Chairman Alan Greenspan went too far in supporting President George W. Bush's tax reforms.

At the Central Bank Symposium in Jackson Hole in Wyoming in 2005, professors Alan Blinder and Ricardo Reis emphasised that it is highly questionable whether central banks should voice opinions on issues of economic policy outside of the realm of monetary policy.

The general opinion of the meeting was that central banks should refrain from making value-based statements, in particular. But it is an entirely different matter if economic policy jeopardises the conditions for price stability or causes disruption on the financial markets.

Example from recent years: the structural problems of the Finnish economy

A role that comes naturally to the central bank in domestic economic discourse is to paint a picture of the state of the economy. A balanced picture of the state of macroeconomic developments based on careful analysis serves as an important basis for successful economic policy.

In step with the escalation of the global financial crisis in 2008, economic performance deteriorated across the advanced economies, including Finland.

A few years after the onset of the crisis, economic growth had already gotten underway in many countries. However, in Finland, the weak performance of the economy turned out to be more protracted, despite the expansionary fiscal measures adopted to support the economy.

Realising this took some time in Finland. We had to acknowledge that Finland's economic difficulties were not short-term and transient problems of the global economic cycle but were of a longer-lasting nature. This debate was launched in spring 2013, largely at the initiative of the Bank of Finland.

Finland did not encounter a domestic financial crisis during the global financial crisis; the Finnish financial system remained fully operational. The cost and availability of bank loans did not constitute an obstacle to economic growth, nor did the costs of Finnish government borrowing rise.

Finland's economic hardship was caused by a number of setbacks. Mobile phone manufacture and the related huge inflows of revenue were exhausted. Demand for printing paper decreased in Europe, the forest industry was subject to restructuring and export volumes declined. Although largely unrelated to the global financial crisis, these problems hitting Finnish exports coincided with the crisis.

Export conditions were also subdued by the increase in the level of costs, which was faster than for Finland's trading partners. Just before the outbreak of the global financial crisis, collective bargaining agreements spanning over two years and providing for sizeable wage rises had been concluded in Finland.

These were introduced at the same time as many other countries started to adopt cost moderation in response to the economic recession. Finland suffered a major loss of cost-competitiveness.

An additional factor behind the deteriorating conditions for economic growth in Finland was the reduction in the size of the working-age population. The turnaround occurred in 2010, when the members of the baby-boom generation, in large numbers, began to reach retirement age.

The established methods for capturing fluctuations in macroeconomic developments could partly have led policymakers astray, as the cyclical fluctuations witnessed were not of a standard nature; they also reflected profound structural changes.

The global economic debate, as such, did also not deliver any comprehensive tools for understanding economic developments in Finland, as Finland's economic hardship was different in character to the problems encountered by many other countries in the wake of the financial crisis. In fact, the Finnish financial sector and the Finnish government's credit rating were not exposed to any disruptions or downgrades.

The most common indicators employed to analyse cost-competitiveness were no longer adequate due to the developments in the terms of trade. The deterioration in Finland's terms of trade was exceptionally strong due to the fall in export prices.

As regards the means available to improve cost-competitiveness, it was necessary to recognize that the usual measures of wage moderation did not bring about any improvements in the situation, given that the increase in wages and prices was exceptionally slow elsewhere, too. Despite the very subdued increase in wages witnessed in Finland after 2009 compared with previous years, this did not differ much from wage developments in other advanced economies.

As the slowdown in economic activity was not cyclical and short-term in nature, it resulted in a deterioration in the long-term fiscal outlook. Not only had the fiscal deficit begun to grow immediately upon the onset of the global financial crisis; a large fiscal sustainability gap had also emerged.

Hence, Finland faced a need to consolidate the public finances, improve the long-term outlook for both economic growth and the public finances, and to adopt swift measures to enhance cost-competitiveness.

Awareness of the crucial importance of these economic policy objectives called for an understanding of the current state of the economy. The Bank of Finland presented its assessments based on these considerations to the social partners in early summer 2013.

In recent years, important decisions have been taken in Finland to enhance cost-competitiveness and improve long-term fiscal sustainability, and to adopt fiscal consolidation measures. Decisions have been taken on a competitiveness pact and pension reform and on fiscal consolidation measures.

This has called for a broad consensus on the current state of the economy among the political parties and the social partners. The Bank of Finland also later made its analyses available to decision-makers, for use as a basis of decisions. The analysis conducted in 2015 on cost competitiveness played a crucial role for the decisions taken in recent years.

What is the input of economics in economic policy in general?

In autumn 2017, a significant contribution was brought to the discussion by Nobel laureate Jean Tirole.

When Tirole won the Nobel Prize in Economics in 2014, he became a well-known figure. Tirole has told how he suddenly found himself being stopped in the street by people who wanted to know what economic research is and how it can foster well-being. People were asking whether economics could resolve the great challenges of our times.

The questions presented to Tirole present an important challenge to the economist community as a whole. Economists need to produce a comprehensive and thorough analysis of the key economic policy problems, but they also need to share the results of their analysis in an easily readable form for the intelligent reader who lacks an education in economics.

Jean Tirole turned his reflections into a non-technical book entitled 'Economics for the Common Good'. In his book, Tirole emphasises that economics is a science of the means, not of the aims.

Political objectives incorporate values, and setting these objectives is the task of those mandated to do so by democratic elections. Economics, in turn, can provide an input when the goal is to find tools for meeting the objectives at the lowest possible cost.

The market and the state

One of the key issues of economics is the role of the market. As Tirole emphasises in his book, the market is an instrument for economists, not an end itself. The market cannot always function without failures.

This happens, for example, when buyers have insufficient information about products or when consumers only think about their immediate gratification or make decisions which, over time, involve higher costs than their payment capacity. Market failures also occur if an economic actor has too much market power.

If the market functions properly it can improve efficiency, but there is no reason to assume that it will deliver equity. This is why both the state and the market are needed. They are complementary – not substitutes for one another. The state cannot ensure a decent life for its citizens without a market. The market, in turn, needs the state to guarantee that the legal system operates smoothly and that market flaws and failures are addressed.

Increasing competition through regulatory decisions has brought considerable advantages to consumers. One example: during my term in the European Commission, we drew on Jean Tirole's research and expertise when we proposed the unbundling of the local loop in 2000, thus opening up broadband services to competition. Broadband prices declined rapidly and most households gained access to broadband. This was an important step in the development of the information society.

Tirole writes a lot about incentives. Incentives affect the behaviour of firms and individuals. However, a financial incentive does not always lead to the intended results. As an example, Tirole refers to blood donation: when people started to get a financial reward from donating blood, the number of donors plummeted. Donors were not motivated by money but by the possibility to contribute to the common good.

As the example shows, policy measures can have unintended consequences. This poses a challenge, because economic models used as an aid in analysis are always simplifications – otherwise they would not be usable. And analyses may not always reveal all the side effects.

In academic literature, peer reviewers often ask researchers to expand their models by changing the underlying assumptions and testing the robustness of the analysis under different conditions. This is time-consuming and prolongs the publication process.

And yet it is necessary for quality control when the purpose is to find as universal regularities as possible. In empirical research, the corresponding requirement means, for example, the use of alternative data or estimation methods.

Alternative analyses can remain without the attention and impact they deserve if views on the benefits of the prevailing course of action are too cemented.

Example: predicting the financial crisis

A famous example of this is the discussion held at the Jackson Hole symposium in 2005 when I had just begun my second year as governor of the Bank of Finland. That year's theme at Jackson Hole was the appraisal of Alan Greenspan's era as chairman of the Federal Reserve.

At the conference, Professor Raghuram Rajan, then director of research at the IMF, spoke on the topic 'Has financial development made the world riskier?'

Contrary to the accepted wisdom of the day, Rajan answered three times in the positive: yes, it has made it riskier.

Rajan noted how securitisation, markets for transferring risk and bad incentives were leading to a dangerous accumulation of risks in the global financial system. He was also worried about liquidity. There follows a quote from Rajan's speech and I have also cited it on some previous occasions, as it truly is worth reiterating:

'If banks also face credit losses and there is uncertainty about where those losses are located, only the very few unimpeachable banks will receive the supply of liquidity fleeing other markets. If these banks also lose confidence in their liquidity-short brethren, the inter-bank market could freeze up, and one could well have a full-blown financial crisis.'

Now this is exactly what happened three years later after the failure of Lehman Brothers. Next autumn will mark the passing of 10 years since that event.

The response from many in the audience was very hostile. Rajan was seen as a spoiler at the party and an opponent of innovation and progress. His proposals for reform were called 'non-starters'.

At that time, the policy community was not in a mood to change course just because of one conference presentation, even if it was a balanced and well thought-out contribution. It took a major international disaster for the policy community and the majority of academic opinion to adjust its view.

Rajan's speech was a great example of not only professional competence, but also of professional integrity and even courage.

Economics and climate change

When we examine the major societal issues of our time that also have a strong impact on the economy, we cannot ignore climate change.

Climate change has been described as the largest global market failure, which is due to the fact that a price has not been established for greenhouse gas emissions.

The future of our climate is subject to a considerable degree of uncertainty, but in the scientific community there is broad consensus on the basic issues: climate change is a fact, it is accelerating and it is a human-induced phenomenon.

There are many unresolved and difficult issues in the area of climate policy, but in economics there is a fairly broad consensus on the principles for solving the problem. These principles are discussed also by Jean Tirole in his book 'Economics for the Common Good'.

Climate policy should be effective and equitable. The system should be constructed so that all countries have an incentive to participate in the combat against climate change.

First, I will discuss the issue of effectiveness. Climate change is a global problem that requires global solutions. One global price should be established for greenhouse gas emissions because the impact of greenhouse gas emissions on global warming is the same irrespective of where in the world or in which field of production they are created.

Various country-, region- or industry-specific unilateral solutions may have unwanted effects. For example, if a country introduces a stricter climate policy, it may provide companies an incentive for relocating greenhouse gas-emitting production to countries with a laxer climate policy. Due to this phenomenon – known as carbon leakage – global greenhouse gas emissions would not necessarily decrease.

On the other hand, as a result of subsidies on renewable energy, for example, other forms of low-emission power generation may be replaced. If the price of energy declines due to subsidies, companies may shut down low-emission power generation plants, and in addition to renewable forms of energy, we may be left with power generation that is low-cost but high-emissions. Professor Matti Liski has presented interesting views from this perspective.

A common global climate policy would create effective incentives for developing low-emission technology.

Another key issue in the combat against climate change is equity. The reduction of greenhouse emissions involves costs, and poor countries do not necessarily have sufficient resources or interest to participate. Moreover, advanced economies are responsible for the majority of historical greenhouse gas emissions. If one global price is established for emissions, we would probably need some type of a global system of compensation for poorer countries.

The key is not to try to resolve the issue of effectiveness and equity of climate policy with a single tool, i.e. country-specific emission targets or country-specific pricing mechanisms. This would easily lead to unwanted effects, such as carbon leakage.

Another key question is how to create incentives for governments to participate in the combat against climate change. The problem is due to the fact that the benefits of climate policy are global, while the costs of reducing greenhouse emissions are usually country-specific or local.

The incentives for free-riding are obvious. To support climate policy, we need global supervision with sufficiently strong powers. Climate policy-related compensation systems could be part of the incentives.

On the need to develop economics competence and teaching in Finland

The examples that I have discussed today show that economics, together with other sciences, can play an important role in resolving key social issues. It is therefore essential that economic research and education have at their disposal sufficient resources, in terms of both quality and quantity.

The University of Helsinki, Aalto University and Hanken School of Economics have established the Helsinki Graduate School of Economics, a graduate school and research unit for economics.

The objective is to meet the growing demand for economics competence and teaching in Finland. The Bank of Finland, together with the Ministry of Finance and the Ministry of Education and Culture, support the establishment of the unit and have expressed their preparedness to provide resources for its operation.

The aim of this project is to create in Finland a globally significant research and teaching unit for economics. The doctoral programmes of the Helsinki Graduate School of Economics will cover all the key areas of economics.

The unit is also responsible for providing a setting for Master's degree programmes for students at the Aalto University, the University of Helsinki and Hanken School of Economics.

The new unit will also be responsible for coordinating the establishment of professorships in the field of economics and the recruitment of economics professors in the universities that are part of the Graduate School.

The unit will be a centre for economics and other quantitative social sciences. It will also cooperate with external stakeholder groups, for example economics researchers and students, as well as researchers and students of the other social sciences at universities located outside the Greater Helsinki area.

The various branches of social sciences have many joint interests, and therefore we may witness an increase in research interaction in future.

The sub-disciplines of economics that are in need of reinforcement are macroeconomics, public economics, applied micro-economics and data-based decision-making. These produce competence and research-based knowledge in key policy areas, such as monetary, financial and EU policies, social and health-care policy, competition policy and pension-related issues.

The input of researchers is also needed in the planning of markets and the impact assessment of policy measures in various fields. Industrial organisation and structural models can provide the necessary tools for analysis. A deep understanding of economic growth – ultimately productivity growth – is also of key importance.

We must also consider what constitutes the optimal amount of resources to be allocated, on one hand, to research communities that produce the critical mass and that have already been established in Finland in some sub-disciplines of economics, and, on the other hand, to ensure a sufficient degree of multidisciplinary research.

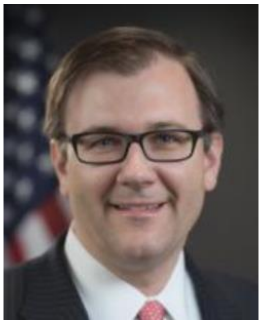
In conclusion

Economics has produced a number of tools for finding the best solutions. Economists play an important role in societal debate by contributing to the discussion the results of economics research and also by informing on the disagreements and interpretational differences in the field of research. This is not only their right but also their responsibility.

Number 3

Remarks to the Institute of Chartered Accountants in England and Wales: "The intersection of financial reporting and innovation"

Wesley Bricker, Chief Accountant



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Introduction

Thank you, Robert [Hodgkinson] for the kind introduction. Thank you, also, to the Institute of Chartered Accountants in England and Wales ("ICAEW") for sponsoring this event. I am delighted to be in London and with you this afternoon.

London continues to be recognized as one of the world's leading international financial centers, along with New York and other highly globally connected cities. Whether in London or New York or my childhood town of Chambersburg, Pennsylvania, people in every walk of life are affected by financial reporting, the cornerstone on which our process of capital allocation is built.

An effective capital allocation process is critical to a healthy economy that promotes productivity, encourages innovation, and provides an efficient market for the purchase and sale of securities and the obtaining and granting of credit.

Such an efficient allocation process would not be possible without financial disclosures, because adequate and high-quality information helps investors to judge the opportunities and risks of investment choices accurately.

Good accounting and auditing may not readily grab the general public's attention, but they are essential to our livelihoods. Whether a long-term Main Street investor, investment professional, or retiree, individuals make investment decisions—or rely on others to make decisions for them—based in part on audited financial statements.

Recent business failures suggest we all benefit when we learn from and strengthen our system of business and financial reporting that underpins decision making within our financial markets.

High-quality financial reporting starts with companies. In companies subject to U.S. federal securities laws, management is required to keep and maintain books and records in reasonable detail.

From those books and records, management prepares financial statements according to a general purpose financial reporting framework, so that the reporting is comparable, verifiable, timely, and understandable by investors and others.

If the starting point of the financial reporting process does not begin with management using high-quality financial information for its preparation of financial statements, then what could result are increased risks and costs in each subsequent phase of financial reporting.

When required, an annual audit or interim period review performed by an independent auditor provides investors with confidence that a company's financial statements are presented in accordance with the financial reporting framework.

The strength of financial reporting—and of our capital markets—depends on thorough and objective audits performed by auditors who are ethical, independent, skeptical, and who apply the diligence necessary to meet professional and regulatory standards.

When an audit committee is effective, each of management's and the auditor's functions is strengthened. The collective goal of all participants in the financial reporting architecture must be for the information to be reliable, the first time it is provided to investors.

It is in this context that the ICAEW, along with my fellow regulators and other leaders, serve such an important role.

Founded by farsighted accountants in 1880, ICAEW is a world leading professional membership organization that promotes, develops and supports chartered accountants worldwide.

You serve alongside and in collaboration with other professional organizations, such as the American Institute of Certified Public Accountants, in advancing financial reporting by providing qualifications and professional development; sharing knowledge, insight and technical expertise; and protecting the quality and integrity of the accountancy and finance profession.

And so, it is a privilege to speak to you this afternoon in the Chartered Accountants' Hall about an appropriately tailored topic for this audience: the intersection of financial reporting and innovation.

I also acknowledge the importance of the discussion occurring in the U.K. about the role and relevance of financial reporting and the accountancy profession, with a recent report on Carillion published by select committees of the U.K. Parliament.

Among many other points to prompt discussion, the report offers recommendations relating to strengthening the external audit. The recommendations should stimulate critical dialogue and root-cause analyses covering each phase of financial reporting (that is, preparation, audit, delivery, and use), with possible solutions examined in the first instance according to their impact on the advancement of quality of audited financial statements upon which investors (and lenders) rely. Investor (and lender) trust, including in the numbers, impacts the extent and level of their participation in the financial markets.

Of course, there are other necessary considerations for sensible solutions, such as an assessment of the costs, benefits, and consequences (both intended and not) to the right expectations of investors and others.

Before I continue, let me remind you that the views expressed today are my own and not necessarily those of the U.S. Securities and Exchange Commission ("Commission"), the individual Commissioners, or other colleagues on the Commission staff.

Let me also express a word of gratitude to the entire OCA team for their work in providing advice to the Commission regarding accounting and auditing matters arising in the administration of the U.S. federal securities laws. I want to also acknowledge Emily Fitts for her valuable assistance in preparing me to make today's remarks.

Also in the spirit of acknowledgment, let me mention the valuable assistance of Ying Compton in preparing three charts that depict the overall financial reporting structure that frame the reference to the phases of the financial reporting system in the U.S. The charts are available under the OCA section of the SEC's website.

Our markets: highly connected global investing

Technology and trade have made our world considerably smaller. Issuers operate in a global market and seek capital globally. In fact, today in the United States, more than ever before American investors are investing directly in the securities of foreign private issuers and companies based outside the United States and registered in non-U.S. jurisdictions.

At the end of 2016, U.S. investors have invested $9.9 trillion (of which U.S. mutual funds have invested over $4.3 trillion, and U.S. pension funds have invested over $1.3 trillion) in equity and debt securities listed in non-U.S. jurisdictions.

Also, as of the end of 2016, according to one industry ranking of the world's largest asset managers, U.S.-based asset managers occupy the top four positions and eight out of the top 10 slots.

This global capital market presents both opportunities and challenges to the securities regulators in executing their mandates to protect investors; maintain fair, orderly and efficient markets; and facilitate capital formation.

The possibilities include greater competition among markets. Also, investors may diversify their portfolio risk across borders more effectively and at less cost. And, companies may seek the lowest price of capital wherever it might be.

Of course, with greater opportunities come greater challenges. The same technologies that allow retail investors to look abroad for investment opportunities also allow fraudsters to look across borders for victims. Additionally, some of the risks that a globalizing capital market poses are not necessarily different from the risks the Commission faces domestically.

Financial reporting information in our markets

Fundamentally an investor (or investment advisor) is trying to decide whether a particular investment is likely to be worth more or less in the future than it is now. The decision-makers are not limited to the information contained within financial statements when making investment decisions. They use other types of information (in no particular order of significance) as well, such as:

- Company reputation, strategic direction, and goals;

- Company developments, outlook, and position in the marketplace, such as management changes, product introductions, and acquisitions;

- Company stock performance; and

- Risks to which the company is exposed and industry outlook.

As my illustrative list suggests, many investors consider, and absorb, information from a wide variety of sources for investment decision-making.

Those involved in financial reporting

Even though decision-makers rely on information other than the financial statements, audited financial statements are a vital element of the overall information architecture that underpins our capital markets. The quality and quantity of the available financial statement information in an economy influence the efficiency of resource allocation and the cost of capital.

We, in OCA, developed three renditions[8] of an overview of organizations involved in the structure of financial reporting in the U.S. markets to help visualize and thereby understand the necessarily complicated system. The versions, of course, also contribute to an analysis of less-obvious aspects. For example, they help identify the multiple points of oversight, review, and advice that both preserve and advance general purpose financial reporting.

I encourage each of the organizations involved in the overall structure to consider how they might use the financial reporting information (or other information) to identify ways on an ongoing basis to prevent failures and add value for investors including by asking what we can do today to support the financial reporting of tomorrow, such as:

- How can we bolster coordination and collaboration among the organizations involved in financial reporting?

- What can we learn from previous financial reporting failures to evaluate whether and how each organization could more effectively contribute to the prevention of reoccurrences/future failures?

- What more could be done to understand and coordinate technological issues (and the technology languages used) within and across each phase of the financial reporting structure?

- What information should be provided in the financial statements to meet the needs of investors, lenders, and other creditors, even as the context of demographics, technology, and market structures change?

- Can more be done to help identify expectations and minimize expectation gaps, both globally and variations within particular markets?

What are expectations gaps?

Having just mentioned expectations gaps, let me discuss the topic further. Expectations are normative. An expectations gap is typically referred to as a difference between the levels of expected performance such as the differences in expectation between what some investors might expect from general purpose financial statements and what some accountants might be able to communicate within those same financial statements.

The information in financial statements may also be of interest to other groups who are non-capital providers, but the information is not designed to meet their objectives.

The sources of expectations gaps are varied. For example, the sources may be in the design of the standards, their application by accountants or auditors, or invalid expectations. The expectations of investors and others reflect the realities that multiple groups of stakeholders have differing and competing informational needs and desired outcomes.

The complexity of expectations only increase when accounting or audit standards are used across the diverse business, legal, social, cultural, and political environments in our world. These are the realities that should be at the forefront of identifying and managing expectations.

So with the framing of expectations gaps in mind, I would like to discuss next several of the conceptual underpinnings of general purpose financial reporting that provide further context to the charts. I aim to contribute to the broader awareness that can help minimize expectations gaps over time. Any similarity to the financial reporting conceptual frameworks is intentional.

Whom do the standard setters consider when developing general purpose financial reporting?

General purpose financial reporting is a core element of the disclosure of business and financial information to investors. Its objective identifies the decision makers.

The objective is "to provide financial information about the reporting entity that is useful to existing and potential investors, lenders, and other creditors in making decisions about providing resources to the entity."

While other parties, such as those charged with governance, regulators, and members of the public other than investors, lenders, and other creditors, also may find general purpose financial reports useful; those reports are not primarily directed toward these other parties.

Special purpose financial reports, by contrast, are prepared using a particular framework to address specific needs of specific users who intend to use it which can include, among other things, aiding members of a board or regulatory supervision team. They have more specific purposes and uses than general purpose financial reports.

I make the distinction between general and special purpose objectives to emphasize the value of keeping and maintaining general purpose financial reporting free from other objectives.

Standard-setters for general purpose financial reporting are concerned with, among other things, the qualities of information that relate to broad classes of investment and credit decision makers rather than to particular ones.

When formulating standards for general purpose financial reporting, the IASB and the FASB do not seek to influence the outcome of investor capital allocation decisions or actions taken by management; instead, the boards' design standards that provide better information to inform those decisions and actions.

The alternative, whereby standards are designed to privilege specific objectives, economic activities, financial products, or market participants, could diminish confidence in the accuracy or quality of reported information, which could thereby impair capital formation, and in turn, negatively impact economic activity.

Again, by keeping general and special purpose financial reporting objectives distinct, without merging the two, each can serve best their respective purposes and minimize expectations gaps among the parties involved.

As I have mentioned, the need for information on which to base investment, credit and similar decisions underpins the objectives of financial reporting. Each decision maker judges what accounting information is useful, and that judgment is influenced by factors such as, the decisions to be made, the methods of decision making to be used, the information already possessed or obtainable from other sources, and the decision maker's capacity (alone or with professional help) to process the information.

And yet, the baseline is broad, comprising needs of investors and investment advisers. That is, the optimal information for one user will not be optimal for another.

Consequently, management with responsibility for making decisions and judgments about how to prepare information – and standard setters with responsibility for establishing standards to guide management's decisions -- must try to find the balancing point among many different users.

This work of preparing information (or writing standards for preparation of information) is one of walking a fine line between preparing (or requiring) disclosure of too much or too little information for inclusion in general purpose financial information. This point arises in particular because information does not come to the preparer and user without costs or benefits, both direct and indirect.

This suggests the importance of financial literacy

Similarly, because information is not useful to a person who cannot understand it, financial education and literacy among all members of the financial reporting structure is critical. It also reinforces the importance of considerations regarding the relevance of accounting information regarding the capacity of information to influence investment decisions.

Information provided by general purpose financial reporting should be comprehensible to those with a reasonable understanding of business and economic activities who are willing to study the information with reasonable diligence.

This is to say that financial information is a tool and, like most tools, is of direct help to those who are able and willing to use it.

And, so what does general purpose financial reporting not address?

No matter how well we succeed in addressing the continued advancement of general purpose financial reporting, there will inevitably be limitations.

For example, it is highly unlikely that we could ever produce a balance sheet from which an investor could read off a figure and say: "that is what my shares are worth." This is because the market capitalization of a company depends on a mixture of information.

For example, if the shares of a company are being bought by a group that is determined to secure a controlling interest, the price of its shares can rise above what the value of the net assets on the balance sheet would suggest.

Similarly, the liquidation of a large block of shares can drive the market price down below what might be expected from an analysis of even the best of financial information.

These expectations and any gaps are best addressed when the best thinking is shared

The involvement of everyone in the financial reporting structure in supporting the work of the accounting and audit standard-setters is critical. In doing so, standard-setters can maintain a long-range vision, mission, and strategic goals that are consistent with continued advancement of general purpose financial reporting.

Additionally, the collaboration of everyone involved in the financial reporting structure should transcend geographies. In my view, it is essential to continue a policy of ongoing coordination and collaboration on national and international standards, practices, and needs so that the best thinking is identified, shared with each other, and can prompt action. In the same sense, we also should redouble our efforts for coordination within and across each phase of the financial reporting system – preparation, audit, delivery, and use.

These steps will allow us to continue to advance quality in financial reporting.

Critical Role of Audit Regulators and Audit Standard-Setters

Still, there is a second phase of the overall structure of financial reporting: the audit. When it comes to advancing audit quality and related expectations, prevention (as a complement to detection) is a worthy investment so that investors receive reliable financial information the first time.

It is critical that all key stakeholders, including the audit standard-setters and audit regulators, assist in the advancement of audit quality.

One crucial preventive measure is the development of high-quality audit standards, which aid, but can never wholly replace, the role of decision making and judgment by auditors.

Both local and international audit, assurance, ethics, and education standards ("audit-related standards") are relevant to the U.S. and its capital markets participants.

The quality of international audit-related standards, for example, is relevant to U.S. investors and asset managers that hold or manage foreign equity and long-term debt securities.

The quality of international audit-related standards is also relevant to U.S. based multi-national companies. For example, in many cases, U.S.-based multi-national companies have local country statutory and other reporting obligations in jurisdictions outside of the U.S. that are met by the audit reports from audit firms that applied international audit-related standards as a starting point for the execution of the consolidated audit.

Moreover, the U.S. based audit team may also use the results of the statutory audits as part of their audit risk assessment for the audit of the consolidated financial statements.

Many U.S. accounting firms are members of various global networks that incorporate international audit-related standards as part of a common audit methodology, training, and governance, with an aim to increase the consistency of audit execution and reduce the risk of audit failure.

Additionally, the U.S. accounting profession through the American Institute of Certified Public Accountants Auditing Standards Board (ASB) has a strategic objective to converge its standards with those of the IAASB for audits that are not conducted using the PCAOB standards.

The standards of the ASB may be used in conducting governmental and pension plan audits, as well as audits of individual entities with SEC filing obligations, such as in the following instances:

- Examination engagements under the Custody Rule;

- Review and audit engagements under Regulation Crowdfunding; and

- Audit engagements under Regulation A.

High-quality audit standards make audits—and the work of audit committees and others that oversee the audits of companies on behalf of investors—considerably more effective.

And so, we all have an interest in the accountability and inclusiveness of the international audit-related standard-setters.

Role of Monitoring Group in advancing international audit-related standards

Given the importance of international standards to the expectations of the U.S. and its capital markets participants, the importance of the Monitoring Group, and the risk of fragmentation, I was honored to be asked to serve as an IOSCO representative to the Monitoring Group.

I look forward to this new role and advancing our shared goal of fostering quality judgments and decision making by auditors through high quality international audit-related standards.

Last year, the Monitoring Group issued a consultation paper on strengthening the governance and oversight of the international audit-related standard-setting boards in the public interest.

I look forward to working with the other Monitoring Group members to find a way forward on the potential changes to the structure through an inclusive discussion about the issues and choices.

The Monitoring Group's work is important to the oversight of the development of international audit-related standards, in part since international audit standards are not binding of their own accord.

The standards are advisory, but these standards can and do affect audits by obtaining general acceptance among practitioners, by influencing the content of binding standards adopted by local jurisdictions, or by being used in part or whole as binding, local standards.

Role of the PCAOB in protecting investors through audit oversight

I want to pause here to touch on advancements at the PCAOB. Earlier this year, SEC Chairman Clayton and I congratulated incoming PCAOB Chairman Bill Duhnke and Board Member Kathleen Hamm, as they began to serve in those roles as the PCAOB continues its vital mission to promote investor protection through oversight of audits.

Then, in February, Jay Brown joined as a new board member, and Jim Kaiser followed in March. Finally, in April, with the arrival of Duane DesParte, the five member board became complete.

Collectively, their backgrounds span the entire spectrum of the financial reporting process and include public company preparer, auditor, governance, investor, and oversight experience.

This breadth of knowledge will help advance the board as a body with fresh and diverse thinking.

More importantly, each board member has affirmed his or her commitment to promoting audit quality and, in so doing, to protecting investors and furthering the public interest in the preparation of informative, accurate, and independent audit reports.

While the continuity of the PCAOB's core activities remains one of the Board's highest priorities, they are focused simultaneously on defining the pillars of the Board's vision, strategy, and operational plans for the next five years.

Notably, the Board has decided to reach both within and beyond its own four walls for input into what strategic direction to take to improve audit quality through surveys, interviews, and other outreach.

The Board is demonstrating a belief, which I also hold, that consistent and meaningful engagement with key constituencies is critical to effectively shaping the PCAOB's future direction.

Critical role of auditors

The quality of an auditor's interim reviews and annual audits are also crucial to meeting investor expectations. Auditing is about confidence and trust in financial information.

Trust in the audit is nurtured as the profession consistently delivers audit quality and value to audit committees and the investing public. Trust can be nurtured or broken—it is neither static nor assumed.

The audit profession continues to evolve and, as a recent IFIAR survey suggested, deficiencies cited in regulatory inspections remain high but are decreasing.

The audit profession must continue to focus, and in some respect do more to meet expectations.

In previous remarks, I have discussed the role of audit firm governance and culture in continuing to advance the quality of annual audits and interim period reviews.

Audit firm governance serves a vital purpose in maintaining an effective, proportionate firm-wide (enterprise) risk management system, as a framework to anticipate and mitigate the risk of breakdowns and failures.

Auditor choice

Audit quality is a touchstone to our capital markets. Secondary to audit quality, there are also considerations regarding whether with increased concentration of audit firms there may be a lack of choice among audit firms. While the number of available firms remains higher in the private company, not-for-profit, and governmental sectors, the same is not true in the public company markets.

These issues mostly go beyond the scope of my remarks today and are evolving, particularly in the U.K. While acknowledging the importance of scale so that audit firms can audit the largest public companies, I also believe analyzing sensible ways to foster the growth of smaller firms is also worth considering.

For example, would collaborations across firms of all sizes on people development, methodologies, and technology build capacity and competitiveness among audit firms of all sizes in the public company markets, thereby increasing auditor choice for audit committees? Collaboration is just one approach in an evolving discussion, of which I am sure there are many questions.

The integrity with which auditors, as well as all other stakeholders in the financial reporting process, execute their responsibilities is foundational to the enduring confidence of the investing public in our capital markets, and maintaining the confidence of investors is vital.

The counterpart to this point is that even in meeting the rightfully high expectations and needs of investors, lenders, and other creditors, audits are not capable of providing absolute assurance—a guarantee—of the integrity of management’s financial statements or the viability and soundness of a business model.

It is essential for all of us to fully understand what audited financial statements can provide and not suggest that audited financial statements provide investors with more information than such statements are designed to provide.

Auditors of tomorrow

We must also keep an eye on the talent required to sustain the role and relevance of the audit. In this room, some of you went through college with limited or no exposure to computers. Others of you, how can we forget, learned computers using punched cards. Then there is also among us the first generation who had to buy a personal computer for college.

Moreover, today, even my six-year-old son is adept at using a smartphone to send me emails.

Today's students – tomorrow's investors – are going to require faster, more timely dissemination of quality information, on a global basis. Tomorrow, in fact, may be here now.

In that regard, audit firms and others should consider the impact of technological developments to this ever-changing profession.

For example:

- While audit firms hire some of the brightest graduates, are the audit firms planning sufficiently for retention and succession planning so that the skillsets needed for a changing profession are available at the right time in the future?

- What mechanisms are in place to promote sufficient technical expertise, including within critical quality control functions such as a national office?

- What is the best way to reward auditors for high-quality work?

- How will the audit profession identify and find ways to respond to the quickly changing needs of investors and the technologies they use?

These are illustrative questions. I believe the profession's ability to attract and retain the best and brightest talent will continue to be impacted by how well leaders identify solutions that inspire the best candidates to invest in a career of adding trust and integrity to the financial information that underpins the world's capital markets.

Addressing these questions requires all stakeholders—including academics—to take an active role. For example, as I said in another forum last year, the research that accounting academics perform has made (and will continue to make) significant contributions to the accounting and reporting practice.

Additionally, academics help foster the necessary skills that the auditors of tomorrow will need, and help determine how audit firms can attract and retain the best professionals.

The most useful academic research, in my opinion, identifies solutions to problems, more than just suggesting a problem itself.

Even as we work to safeguard the public's confidence in financial reporting, we must also position ourselves and future generations of accountants, auditors, standard setters, and regulators to innovatively identify and solve the challenging and complex issues facing investors.

It is critical for the livelihood of the profession for all members of the profession to take an active role in defining the profession's future.

Conclusion

Let me close. It has been my pleasure to speak with you today. In our time together, I have provided thoughts on how we can continue to give investors quality financial information for their use in making informed investment decisions.

The financial reporting system's strength is the result of the shared and weighty responsibility of all stakeholders in providing investors the right financial information the first time.

We are witnessing a whole succession of technological innovations, but none of them will do away with the need for integrity in the individual or the ability to think.

Thank you.

Number 4

The Pan-European Personal Pension Product: A step towards sustainable pensions

Gabriel Bernardino, Chairman, European Insurance and Occupational Pensions Authority (EIOPA), International Conference on the "Pan-European Personal Pension Product - Regulation, Effects and Problems" organised by the University of Finance, Business and Entrepreneurship (VUZF) within the framework of the Bulgarian Presidency of the Council of the European Union.

Dear Deputy Prime Minister, Valeri Simeonov, Dear Minister of Labor and Social Policy, Biser Petkov, Dear Chairperson of the Committee of Budget and Finance in the 44th National Assembly, Menda Stoyanova, Dear Chairperson of the Committee of Labor, Social and Demographic Policy in the 44th National Assembly, Hasan Ademov, Dear Chairwoman of the Financial Supervision Commission and Member of EIOPA's Board of Supervisor, Karina Karaivanova, Dear Rector of the VUZF University of Finance, Business and Entrepreneurship, Prof Grigorii Vazov, Dear Vice-Rector of the VUZF University of Finance, Business and Entrepreneurship, Prof Virginia Zhelyazkova, Ladies and Gentlemen,

It is a great pleasure to address this audience today on this very relevant topic that affects all of us - personal pensions. A big thank you to the organisers for having chosen this topic and for inviting EIOPA and me to deliver the opening address.

Today's conference will discuss the Pan-European Personal Pension Product, the PEPP, and let me set the scene with the following three points:

1. Why do we need a PEPP?
2. What are the benefits of PEPP?
3. What is EIOPA's role in the future of the PEPP?

To my first point: Why do we need a PEPP?

We are all aware of the fact that Europe faces a major challenge in ensuring sufficient retirement income for its citizens.

The national pensions systems are challenged by demographic and labour market changes, as well as by the pressure on national budgets.

The population in the European Union is ageing due to a combination of increasing longevity and low birth rates. National pensions systems rely more and more on supplementary private pensions.

However, traditional employment-based pensions systems are not necessarily prepared to support the changing environment of the labour market and cannot cater for unemployed, entrepreneurs or mobile workers.

To find relevant solutions to the challenges European pensions face, one needs to appreciate seriously the different starting points of the European Member States. In some Member States, a market of personal pensions' products is nearly non-existent.

Only 27% of Europeans - aged between 25 and 59 - are enrolled in a personal pension product with a long-term pension objective. This represents an enormous potential to develop a European personal pensions market, but at the same time calls for a practical solution in providing Europeans with appropriate means to save for their retirement.

Last year, a brave step towards unlocking this potential has been made.

The European Commission, based on EIOPA's Advice on the development of a European Union single market for personal pension products, proposed a regulation for a *pan-European Personal Pension Product, the PEPP,* that would foster the development of a large and competitive European market for personal pensions.

This step is a key milestone and an important precondition for the required next steps in the process of development and implementation.

I would like to thank the Bulgarian Presidency for the excellent work done so far in the Council.

Coming to my second point: What are the benefits of the PEPP?

A more developed market for personal pensions in the European Union will help in reaching two major goals:

- Firstly, to provide a better chance for adequate retirement for European citizens;

- Secondly, to stimulate more savings and channel them into long term investments, promoting growth and contribute to the objective of the Capital Markets Union.

At a micro-economic level, PEPP will benefit individuals saving for their retirement and providers to have the opportunity to enter an enlarged market as well as to offer new types of products.

The PEPP is designed to be a safe, transparent and cost-effective long term retirement savings product that will offer pensions savers new savings opportunities for future retirement income within a European personal pension framework.

With PEPP, savers would have more choice from a wide range of providers and the right to switch providers, both domestically and cross-border.

The PEPP will be portable between different Members States. This means that savers will be able to continue contributing to the same scheme when moving to another Member State.

Within the default option, savers will benefit from a high-level consumer protection and strong information requirements, including in online distribution.

PEPP will also encourage competition where providers are able to offer their products across several Member States by using a European Union passport to facilitate cross-border distribution. The cross-border business opportunities together with a standardised default option will allow achieving important economies of scale to reap cost efficiencies, provide opportunities for new products as well as enable new market players to enter the market.

The regulated design of this personal pension product framework, in particular through its standardised elements, can also help to increase transparency and consumers' understanding. In addition, it will provide a level playing field for providers, increase trust among consumers and cater for the changes in the European labour market.

In light of the current economic environment and the challenges faced by products with long-term obligations, the design of the default investment option will - to a significant extent - determine the success of the PEPP.

Furthermore the much needed conceptual link between the accumulation phase of the PEPP, (the savings phase), and the decumulation phase (phase when retirement income is received) is important. The most relevant outcome that counts is the right result of receiving adequate retirement income for the consumer.

To ensure that the PEPP is indeed a truly pension product and to ensure the adequate protection of savers benefitting from successful long term investment strategies against longevity risk, it is my personal view that the default option should include the following requirements:

- If provided, guaranteed only at the point of decumulation

- A specification of default conversion of a significant part of the accumulated amount into programmed withdrawals or annuities

The design of the PEPP also needs to ensure conditions to allow European Union citizens to invest in a balanced portfolio, including assets such as equities, property, infrastructure and green technologies.

With the appropriate safeguards, this will provide a good chance to accumulate a pension that outperforms inflation and grows to levels that can provide a decent standard of living.

Finally, the design of PEPP has to ensure the highest standards in transparency, fairness, governance and risk management.

To my third point: What is EIOPA's role in the future?

- Authorisation
- Transparency
- Supervision

Due to its European nature, and the conceptually inherent requirements on standardisation and portability, EIOPA, as a European supervisory authority can ensure consistently high standards for authorised PEPPs throughout Europe.

I welcome the proposal of the European Commission that EIOPA plays a key role in enabling consistent implementation and European Unionwide consistent authorisation requirements to safeguard the proper use of the PEPP label and to ensure high-quality PEPPs throughout Europe.

Furthermore, EIOPA's mandate to promote supervisory convergence is of paramount importance for the trust and confidence in the PEPP.

In my view, a stronger coordination through the development of supervisory plans for PEPPs is needed to support the initiative of a truly pan-European product.

To strengthen the transparency of PEPPs supervision towards EU consumers, I propose that EIOPA should be mandated to publish an annual report on the PEPP's supervision activities performed throughout Europe.

For EIOPA, standardised, comparable and relevant information about available PEPPs needs to be easily accessible to consumers to help them make well-informed and conscious decisions about their plans to save for retirement.

At the same time, the information about PEPPs needs to be relevant.

Therefore, pension-related consumer-friendly disclosures for the precontractual and the regular benefit statements need to be further developed.

Furthermore, PEPP should have an attractive tax regime. By designing the PEPP with appropriate characteristics it should be possible, at least, to give the PEPP the same tax treatment of the national pension products.

Ladies and gentlemen,

PEPP has the high potential to become a truly European, safe, transparent and cost-effective long-term retirement savings product that will offer pensions savers an entirely new personal pensions framework for saving for adequate future retirement income.

The potential is huge but we also need to have a look at the reality of the 3rd pillar and pension savings: scale, competition and transparency are key.

Let's be frank, in Europe, yet also in many other developed and developing countries, the pensions funding gap is increasing and will be harder and harder, if not impossible to close it.

The pensions' "time bomb" has been on our agenda since at least 30 years.

However, the outlook on the sustainability of pension promises, from state, occupational funds or private savings, is anything but comforting.

The European pensions sector is under pressure to address urgently its challenges and to promote sustainable pension promises.

We need more long-term thinking in political decisions and these decisions have to be bold and taken now.

The PEPP is not a silver bullet and the only response to this ticking "time bomb". But it can be an important tool to help closing the pensions gap and showing the European Union citizens that Europe helps them in building a more stable and sustainable retirement.

The PEPP will help European Union citizens to be closer to the European project. For the sake of ours and future generations and for the sake of Europe. We cannot fail.

Thank you for your attention.

Number 5

21st century cash - central banking, technological innovation and digital currencies

Fabio Panetta, Deputy Governor of the Bank of Italy, at the SUERF/BAFFI CAREFIN Centre Conference "Do we need central bank digital currencies? Economics, technology and psychology", Bocconi University, Milan.

1. Introduction

It is a great pleasure to be here. The topic of this conference speaks to the heart of some of the most challenging questions for central banks today: how is the digital revolution affecting the financial system? What is the impact on consumers, the economy and on central banks themselves?

These are complex questions, related to the consequences of the fourth industrial revolution in our society, within which central bank digital currencies (CBDC in short) might one day play an important part.

I will not attempt to provide comprehensive answers to all of these questions.

Rather, I will focus on some general issues related to the digital transformation of our society, the pros and cons of digital cash (as a means of payment and store of value) and, before concluding, recall some of the open issues regarding CBDCs.

2. The digital transformation of society

Technological progress is fostering the digital representation of many of our daily activities.

For example, the use of physical letters and postcards has been dwarfed by emails and digital photos, with the estimated number of letter-like items sent worldwide in one year roughly equal to the number of emails sent in a single day.

Instant messaging apps such as QQ and WhatsApp allow their estimated three billion users to have digital conversations across the globe.

The process of digitization reflects increasing demand for immediacy by individuals, and is transforming our behaviour, our culture and the structure of the economy.

Digitization has also been prominent in the financial system. For example, the dematerialization of financial assets has been instrumental in the emergence of electronic trading platforms.

Online banking, the digital representation of brick-and-mortar bank branches, has gained in popularity since its introduction in the 1990s. The advent of digitization is particularly evident in the payment system.

Until not long ago retail payments could only be made with cash or cheques. But these days who uses cheques anymore? Digital innovation in payments has gone even further, with payment tools available directly through an app on a smartphone or even by simply using a smartwatch.

The issuance of CBDCs – a digital version of cash – could accordingly be seen as a natural consequence of the broader process of digitization of the financial system.

In a world where securities and contracts are dematerialized and traded electronically, where payments are made with smartphones and investment advice is provided by computers, why should cash be only physical? Is the central bank missing out on the benefits of innovation by not issuing a CBDC?

Crypto-assets (or virtual currencies as they were called before it was realized that they cannot perform the functions of money) are sometimes associated with digital currency.

Let me emphasize, though it is redundant for this audience, that CBDCs have nothing to do with crypto-assets such as Bitcoin. In fact – just like banknotes – a CBDC would be a liability of the central bank and would be backed by its assets.

It would be supported by the credibility of the central bank and, ultimately, by the rule of law.

Crypto-assets, on the other hand, are a liability belonging to nobody: there is no asset that backs them up and no clear governance structure that can guarantee trust.

For these reasons, the value of a CBDC would not suffer from the excessive volatility that affects crypto-assets.

To read more:
https://www.bis.org/review/r180607c.pdf

Number 6

Cyber Europe 2018 – Get prepared for the next cyber crisis

EU Cybersecurity Agency ENISA organised an international cybersecurity exercise

enisa European Union Agency for Network and Information Security

Imagine this: It is a normal day at the airport. All of a sudden, the automated check-in machines display a system failure. Travel apps on smartphones stop functioning. The agents at the check-in counters cannot operate their computers.

Travellers can neither check in their luggage, nor pass through security checks. There are huge lines everywhere. All flights are shown as cancelled on the airport monitors. For unknown reasons, baggage claim has stopped working and more than half of the flights must remain on the ground.

A radical group have reportedly taken control of the airport's critical systems by means of digital and hybrid attacks. They have already claimed responsibility for the incident and are using their propaganda channels to spread a call to action and attract more people to adopt their radical ideology.

This was the intense scenario which over 900 European cybersecurity specialists from 30 countries had to face on 6 and 7 June 2018, during the 'Cyber Europe 2018' (CE2018) – the most mature EU cybersecurity exercise to date.

The two-day exercise was orchestrated by ENISA. The participants either stayed at their usual workplace or gathered in crisis cells.

ENISA controlled the exercise via its Cyber Exercise Platform (CEP), which provided a 'virtual universe' (integrated environment) for the simulated world, including incident material, virtual news websites, social media channels, company websites and security blogs.

Organised by the EU cybersecurity agency ENISA in collaboration with cybersecurity authorities and agencies from all over Europe, the CE2018 was intended to enable the European cybersecurity community to further strengthen their capabilities in identifying and tackling large-scale threats as well as to provide a better understanding of cross-border incident contagion.

Most importantly, CE2018 focused on helping organisations to test their internal business continuity and crisis management plans including media crisis communication, while also reinforcing cooperation between public and private entities.

The scenario contained real life-inspired technical and non-technical incidents that required network and malware analysis, forensics, and steganography. The incidents in the scenario were designed to escalate into a crisis at all possible levels: organisational, local, national and European.

Mariya Gabriel, Commissioner for the Digital Economy and Society, said:

"Technology offers countless opportunities in all sectors of our economy. But there are also risks for our businesses and our citizens.

The European Commission and the Member States must work together and equip themselves with the necessary tools to detect cyber-attacks and protect the networks and systems. This is how ENISA's 'Cyber Europe' exercise was born eight years ago.

It has grown into a major cybersecurity exercise and has become an EU flagship event which brings together hundreds of cybersecurity specialists from all over Europe.

We should build on this success and I am confident that we can develop further the EU cooperation mechanisms, in particular to respond to large scale cyber incidents."

Prof. Dr. Udo Helmbrecht, Executive Director of ENISA, explained: "Over the last decade, the aviation sector has made a tremendous leap into the evolving age of technology.

We can now enjoy the benefits of navigational apps, online check-in, and automated baggage screening. Smart technology saves time, money, and makes travellers' lives easier. However, just as technology evolves, so do cyber threats.

Through events such as the Cyber Europe 2018, our agency strengthens the level of cybersecurity within the EU. European countries and organisations working together as one entity is the modern response to borderless cyber threats. On behalf of ENISA and its staff, I would like to congratulate everyone involved in the Cyber Europe 2018."

In the end, the participants were able to mitigate the incidents timely and effectively. This shows that the European cybersecurity sector has matured over the last few years and the actors are much more prepared.

ENISA and the participants will shortly follow up on the exercise and analyse the actions taken to identify areas that could be improved. ENISA will publish a final report in due course.

Facts at a glance

- Participating countries: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, United Kingdom

- Participating organisations: approximately 300

- Number of participants: over 900 cybersecurity professionals

- Number of injects: 23 222

About Cyber Europe exercises

'Cyber Europe' exercises are simulations of large-scale cybersecurity incidents that escalate to EU-wide cyber crises. The exercises offer opportunities to analyse advanced cybersecurity incidents, and to deal with complex business continuity and crisis management situations. ENISA has already organised four pan-European cyber exercises in 2010, 2012, 2014 and 2016.

International cooperation between all participating organisations is inherent to the gameplay, with most European countries participating. It is a flexible learning experience: from a single analyst to an entire organisation, opt-in and opt-out scenarios, the participants can customise the exercise to their needs.

Number 7

A Framework of Trust

Commissioner Kara M. Stein

Thank you, Cindy [Esparragoza], for that kind introduction and for inviting me to speak at the Girls Who Invest (GWI) Summer Intensive Program.

I am very pleased to have been invited to speak to so many bright young women interested in pursuing careers in asset management. As we've seen over and over, diversity is a strength. When women, minorities, and people of diverse backgrounds have a seat at the table, decision-making improves, and businesses grow. To achieve that, we need to ensure that young women are shown all of their options and can access the paths to rewarding careers.

For women, building a career in finance and investment has not been easy. As you can see from my background, my path to the Securities and Exchange Commission was not a direct one.

In many ways, my career path has been a strength. Diversifying one's experience can broaden your perspective and help you see the big picture. But it also means that my path is not necessarily easy to replicate. To make a meaningful difference in the diversity of the investment industry, we need paths that are easier to follow. I hope that, for you and those that follow, this program can be part of that.

I want to talk this evening about two themes. One is the importance of rules in the investment markets. I want to show you how rules play an important role in creating wealth and shouldn't be seen simply as impediments. The other theme is the role you can serve, as the next generation of advisors and investors, in helping Americans achieve their dreams. I want you to think about these two themes this evening, as you go through the program, and as you make career choices in the future. They have helped guide me in a career that has been satisfying and, I hope, has improved the lives of others. Perhaps they can do the same for you.

Before I dive in, however, let me pause to say that I am speaking today as an individual Commissioner and not on behalf of the SEC as a whole.

Starting with my first theme—why do we need rules? If you decide to build your career in asset management, you will inevitably encounter the rules that govern investment markets. I understand that your curriculum includes instruction on valuation and investment selection, and you'll be hearing from industry leaders who have enjoyed tremendous success managing investments.

Compared to that, talking about rules isn't very exciting. At first glance, many rules sound like frustrating limitations on what we'd like to do. For example, when you were a child, didn't you really dislike the rule that you had to go to bed by a specific time? Or the rule that you had to clean your room before going out to play with friends?

But in finance and investment, rules play an incredibly important role—they enable strangers to trust each other. Let's say you've saved $10,000. You could use that $10,000 in a number of ways. You could spend it, invest it, or put it under your mattress. Putting it under your mattress is probably the safest bet, but it won't do you much good there.

Indeed, over time, you will be able to buy fewer smart phones with that same $10,000 that's been sitting under your mattress. Investing, on the other hand, might help it grow. Investing also could help the businesses in which you invest, may help create jobs for others, and can benefit society as a whole. The problem is, when Jane Doe comes around asking you to invest in her company, how do you know whether to trust her? Maybe she isn't very good at running a company. Maybe she'll run off with your money.

The rules that govern investment markets are designed to address this uncertainty. They provide a framework for trust so that businesses can grow and savings aren't either tucked under mattresses or lost to the dishonest. So, how did we end up with this framework? Where did these rules come from?

To answer that, I'm going to tell you the story of Mr. Edgar D. Brown. Mr. Brown was a local businessman in Pottsville, Pennsylvania. He had recently sold his business and was preparing for a long vacation in California when he saw an advertisement from a bank offering advice. It said, if you're thinking of taking a lengthy trip, get in touch with us so we can "keep you closely guided" regarding your investments.

That seemed just right for Mr. Brown, so he answered the advertisement. Soon after, an advisor from the bank came calling.

Mr. Brown explained to the advisor that he had some money following the sale of his business and he wanted advice on how to invest. At the time, he had cash and some government bonds.

The advisor looked over Mr. Brown's portfolio and came back with some advice. The advice was, essentially, everything you own is wrong—let me sell you some bonds instead. Mr. Brown decided to put his trust in his new advisor. And the advisor began buying and selling bonds for Mr. Brown's account.

He traded a lot for Mr. Brown, including bonds from all over the world, from Germany to Greece to Peru. But the advisor didn't think this went far enough. So, he started arranging loans secured by Mr. Browns' investments. The advisor used the loans to more than double the amount of Mr. Brown's investments. Double the opportunity, but also double the risk.

Unfortunately, soon after his advisor sold him the bonds, their value began dropping. Mr. Brown complained. The advisor told him, "that is your fault for insisting upon bonds.... Why don't you let me sell you some stock?"

This went against Mr. Brown's earlier inclinations, but, again, he decided to trust the expert. Stock trading ensued—a lot of it. Mr. Brown, in his words, didn't "know whether the companies [the stocks] represented made cake, candy, or automobiles," but he figured his advisor knew better than him.

After a while, though, Mr. Brown found that he couldn't get the numbers in his accounts to add up. He went to the bank offices to take it up with management. Management referred him back to the advisor. The advisor told him, here's what we'll do, we'll sell all the stock you have now and buy stock of the bank instead.

And, for the third time, Mr. Brown found himself holding losing investments. Mr. Brown, seeing his savings dwindle, told the bank he wanted to sell its stock while the price was still high. In response, bank representatives treated him as if he were acting foolishly.

When Mr. Brown continued to ask to sell the bank stock, the representatives resisted. Until, that is, the day the bank's stock collapsed. On that day, the bank bought his stock from him at $320 a share.

Of course, at the time, it was quoting at $360 a share, and a day before, it had been at $450 a share. In the end, Mr. Brown, who once was a successful businessman with savings, had to return to work as an office clerk.

What went wrong here? A bunch of things. Mr. Brown wasn't wrong to trust in an advisor. Broker-dealers and investment advisers can play an important role in helping investors understand investments and make good choices.

But trust requires honesty and honest motivations. All that trading and the loans were probably "not suitable" for someone in Mr. Brown's position. In this case, however, the bank had numerous conflicts of interest that motivated acting in its interest instead of Mr. Brown's. For example, the bank earned fees from some of the bonds sold to Mr. Brown.

However, even while the advisor was selling those bonds to Mr. Brown, bank leadership thought the issuer was in bad shape.

The advisor and his bank were working in their own interests, and Mr. Brown was left to live with the consequences.

As you may have guessed, Mr. Brown's story is actually an old one. In fact, these events took place in 1929, in the run-up to the Great Crash. Back then, there were no federal rules for this type of activity, and the SEC didn't exist.

This left a vacuum where fraud could thrive. A Congressional report from the time found that, "in the decade after World War I, approximately fifty billion dollars of new securities were floated in the United States, and half of them were worthless."

These conditions in the 1920s and 1930s made it clear that some discipline and oversight were called for. In 1933, the U.S. government adopted the Securities Act, its first rules for investment offerings. And in 1934, it created the Securities and Exchange Commission to protect and improve the markets.

As far as I know, there was no justice for Mr. Brown in 1929. To be sure, there are still plenty of dishonest people willing to cheat investors out of their savings. Unfortunately, I see such cases every week as part of my job. However, unlike in 1929, we now have rules that help to protect investors, such as those that require investment advisers to work in their clients' best interests and reveal conflicts of interest.

We also have the SEC to police the capital markets. The SEC brings hundreds of enforcement cases each year. When possible, these cases return money to harmed investors. For example, in one case, a large broker-dealer agreed to return more than $25 million to individual customers.

Other times, we successfully get bad actors out of the industry. For example, in one case, we charged an attorney, who was offering investors an opportunity to receive what he claimed were 100% to 300% guaranteed returns with “minimal” or “no” risk. In reality, he, along with his collaborator, were selling very risky investments.

They ended up spending more than $1 million of investor money on personal expenses, including a loft in downtown L.A. As a result of the SEC’s intervention, the attorney is now barred from the investment industry.

Take note as you learn about evaluating investments—any time you hear someone call an investment “no risk,” walk the other way.

More importantly, the SEC has programs that seek to protect investors before they are harmed. Some of these programs are aimed at industry participants—for example, through the examination of investment advisers or periodic chief compliance officer outreach.

Other programs are aimed at investors—for example, rewards for whistleblowers and investor education through websites like investor.gov, where investors can find information on avoiding fraud.

The SEC has also launched the SEC Action Lookup for Individuals, or “SALI,” an online search feature that enables investors to research whether the person trying to sell them investments has a judgment or order entered against them in an enforcement action.

And, most recently, the SEC launched a mock initial coin offering website called *HoweyCoin.com* that mimics a bogus coin offering to educate investors about what to look for before they invest in a scam.

These efforts aim to reduce the hidden risks of investing, making investment activity safer.

Why does all this matter? First, if you decide to work in the financial industry, whether as a portfolio manager or a regulator, I ask that you remember Mr. Brown. There are real people behind the numbers, the calculations, and the financial theories. Don’t forget about them. They have real hopes, real dreams, and real needs.

Second, these are all issues that will personally impact your lives and the lives of your parents and friends. Over the last few decades, investment has become much more important to the well-being of Americans. Unfortunately, jobs that provide a pension have become far less common over the last few decades. Many employers have scaled back pensions or eliminated them entirely.

Workers must now save for their own retirements, either in plans their employers provide, like 401(k)s, or in investment accounts they establish for themselves, like IRAs. In fact, we're heading toward a world in which your investments will be your most significant source of retirement income.

At the same time, for young people today to do better than their parents, they generally face more years of schooling at higher tuition costs.

I imagine this part of the story is deeply familiar to all of you. As a result, Americans may be saving for college bills while their children are still in elementary school. Indeed, many are now making investments through 529 plans for this purpose.

Altogether, these changes mean that more Americans have become investors. For many of us, financial security depends, at least in part, on how well our investments meet our needs.

In some ways, this is a good development. Investing means putting money to work in today's economy. And there are a broad range of choices, from individual stocks to mutual funds, from infrastructure projects to municipal bonds. Through investment, a broad range of Americans may now be able to share in the entrepreneurial possibilities of dynamic businesses.

However, without a framework of trust, that investment wouldn't be possible. Instead, we would all have to make a choice between tucking our savings under the mattress or taking the risk of becoming a Mr. Brown.

So, where do you all fit into the story? At the very least, you will almost certainly be faced with choices about investing your own money or helping your parents navigate their retirement. My hope for you is that, at the end of the summer, you will decide to go a step further and pursue a career in finance and investment.

Maybe that will mean becoming a portfolio manager or running a venture capital fund. For some of you, it may even mean spending part of your career working for the government, using your talents to help promote the framework of trust that makes all this investment possible.

Whichever role you choose, you will face a world that has evolved rapidly in recent years. Some of this is really exciting. For example, many new investment opportunities have opened up that allow you to invest not just for short-term profit but also for social impact.

You can invest in portfolios designed around sustainability, long-term growth, or quality of corporate governance. The existence of these investment options suggests a desire on the part of a new generation of investors to interact with their investments in a different way.

Technology is also rapidly changing both what people invest in and how people find and make investments. Crowdfunding, robo-advisers, and artificial intelligence are technologies that, while having potential for both positive and negatives effects on the market, are sure to continue making an impact.

For your generation, these technologies are a native form of interaction. You will be the first to try the new apps and decide whether they succeed or fail. And you will be the ones who help my generation figure out how to navigate in this new world.

Another significant change, but one I'm less excited about, is the trend toward more complex products being sold to individuals.[19] As we saw earlier, Mr. Brown ended up in plenty of trouble almost 90 years ago with plain old stocks and bonds.

If he were seeking investment advice today, what would his advisor recommend? Well, chances are that it would be much more complex than the bonds sold to him in 1929. Perhaps he would be recommended a complex structured note that is linked to an index or that pays interest based on the difference between two swap rates?

My point here is not to overwhelm you with the complexity. What I want you to take from this is an appreciation of how important you can be in this business. We need people with your talents and perspectives to help sort the investments that build wealth from the investments that obscure risk.

We need smart women like you, who will promote a culture in which advisors put their clients' interests first and make level-headed assessments of risk.

Pursuing these opportunities may not be as easy as pursuing some others. You may have to step outside of your comfort zone. You may be in environments where there are not many people who look, think, speak, or act like you.

But you should be strong and move forward each time and create your role. Envision where you can, and should, be, and you will benefit all of us.

Even if you choose not to become a portfolio manager or investment adviser, you are still going to be part of the next generation of entrepreneurs, executives, regulators, and investors. You will have an opportunity to shape the businesses in which Americans invest, as well as the business of investing.

I hope you will use that opportunity not just to promote growth but to foster growth that sticks. Ten years ago, we unfortunately saw what happens when business becomes focused on profits at any cost.

As you think about a possible career in finance and investing, I want you to come back to the two themes I've discussed this evening—how can smart rules help promote healthy investment?

And what is your role, as an investor, adviser or entrepreneur, in helping Americans achieve their dreams? If talented women like you focus on those questions, I am confident that we will be in good hands as your generation steps into leadership roles in the years to come.

With that, I want to open it up to your questions and thoughts. What have you learned so far that is interesting? What questions do you have for me?

Number 8

Drone Forensics Gets a Boost With New Data on NIST Website

How do you extract forensic data from an aerial drone? Very carefully.

NIST
National Institute of Standards and Technology
U.S. Department of Commerce

Aerial drones might someday deliver online purchases to your home. But in some prisons, drone delivery is already a thing.

Drones have been spotted flying drugs, cell phones, and other contraband over prison walls, and in several cases, drug traffickers have used drones to ferry narcotics across the border.

If those drones are *captured,* investigators will try to extract data from them that might point to a suspect. But there are many types of drones, each with its own quirks, and that can make data extraction tricky.

It would help if investigators could instantly conjure another drone of the same type to practice on first, and while that may not be possible, they can now do the next best thing: download a "forensic image" of that type of drone.

A forensic image is a complete data extraction from a digital device, and NIST maintains a repository of images made from personal computers, mobile phones, tablets, hard drives and other storage media.

The images in NIST's Computer Forensic Reference Datasets, or CFReDS, contain simulated digital evidence and are available to download for free. Recently, NIST opened a new section of CFReDS dedicated to drones, where forensic experts can find images of 14 popular makes and models, a number that is expected to grow to 30 by December 2018.

"The drone images will allow investigators to do a dry run before working on high-profile cases," said Barbara Guttman, manager of digital forensic research at NIST. "You don't want to practice on evidence."

The drone images were created by VTO Labs (https://www.vtolabs.com), a Colorado-based digital forensics and cybersecurity firm. NIST added the images to CFReDS because that website is well-known within the digital forensics community.

"Listing the drone images there is the fastest way to get them out to experts in the field," Guttman said.

Work on the drone images began in May of last year, when VTO Labs received a contract from the Department of Homeland Security's (DHS) Science and Technology Directorate.

"When we proposed this project, there was little existing research in this space," said Steve Watson, chief technology officer at VTO.

The drone research was needed not only to combat drug smuggling, but also to allow officials to respond more quickly should a drone ever be used as a weapon inside the United States.

For each make and model of drone he studied for this DHS-funded project, Watson purchased three and flew them until they accumulated a baseline of data. He then extracted data from one while leaving it intact.

He disassembled a second and extracted data from its circuit board and onboard cameras.

With the third, he removed all the chips and extracted data from them directly.

He also disassembled and extracted data from the pilot controls and other remotely connected devices.

"The forensic images contain all the 1s and 0s we recovered from each model," Watson said.

The images were created using industry standard data formats so that investigators can connect to them using forensic software tools and inspect their contents.

The images for each model also come with step-by-step, photo-illustrated teardown instructions.

Watson was able to retrieve serial numbers, flight paths, launch and landing locations, photos and videos. On one model, he found a database that stores a user's credit card information.

Investigators can use the images to practice recovering data, including deleted files. Universities and forensic labs can use them for training, proficiency testing and research.

And application developers can use the images to test their software. “If you’re writing tools for drone forensics, you need a lot of drones to test them on,” Guttman said.

A description of the drone images and instructions for accessing them are available on the new drones section of the CFReDS website.

Number 9

TTO Virtual Proposers Day Calls for New Ideas to Answer National Security Priorities

DARPA's Tactical Technology Office hosted a Virtual Proposers Day to provide information through pre-recorded videos about TTO's goals and areas for investment in advance of a mid-June release of the 2018 Disruptive Capabilities for Future Warfare Broad Agency Announcement (BAA).

The event provided an opportunity for companies and individuals to meet with TTO program managers to discuss concepts for advanced research, development, and demonstration of systems for military missions.

TTO seeks orthogonal approaches – coming at a problem from a novel angle that neither we nor our adversaries have considered – to drive enterprise disruption within, beyond, and across the seams of traditional warfighting domains on the ground, at sea, in the air, and in space.

"We want ideas that upset the enterprise, unexpected approaches that could fundamentally change the way we develop, design, build, deploy, and operate military systems," said Fred Kennedy, director, DARPA's Tactical Technology Office.

"Don't be afraid to challenge the most basic assumptions about how we fight, and what we give our warfighters to fight with. Proposers Day is the perfect opportunity to float a novel concept that takes us in completely different directions, and just might lead to a strong proposal."

TTO's goal is to identify and demonstrate alternative warfighting concepts, architectures, and capabilities that disrupt our adversaries' decision calculus, and which create surprise and impose significant costs to counter.

Event information and more details on the forthcoming BAA are available at: https://events.sa-meetings.com/ehome/index.php?eventid=325719&

Number 10

A nanotech sensor turns molecular fingerprints into bar codes

A new system developed at EPFL can detect and analyze molecules with very high precision and without needing bulky equipment. It opens the door to large-scale, image-based detection of materials aided by artificial intelligence. The research has been published in Science.

Infrared spectroscopy is the benchmark method for detecting and analyzing organic compounds. But it requires complicated procedures and large, expensive instruments, making device miniaturization challenging and hindering its use for some industrial and medical applications and for data collection out in the field, such as for measuring pollutant concentrations. Furthermore, it is fundamentally limited by low sensitivities and therefore requires large sample amounts.

However, scientists at EPFL's School of Engineering and at Australian National University (ANU) have developed a compact and sensitive nanophotonic system that can identify a molecule's absorption characteristics without using conventional spectrometry. The scientists have already used their system to detect polymers, pesticides and organic compounds. What's more, it is compatible with CMOS technology.

You may visit:
https://actu.epfl.ch/news/a-nanotech-sensor-turns-molecular-fingerprints-int/

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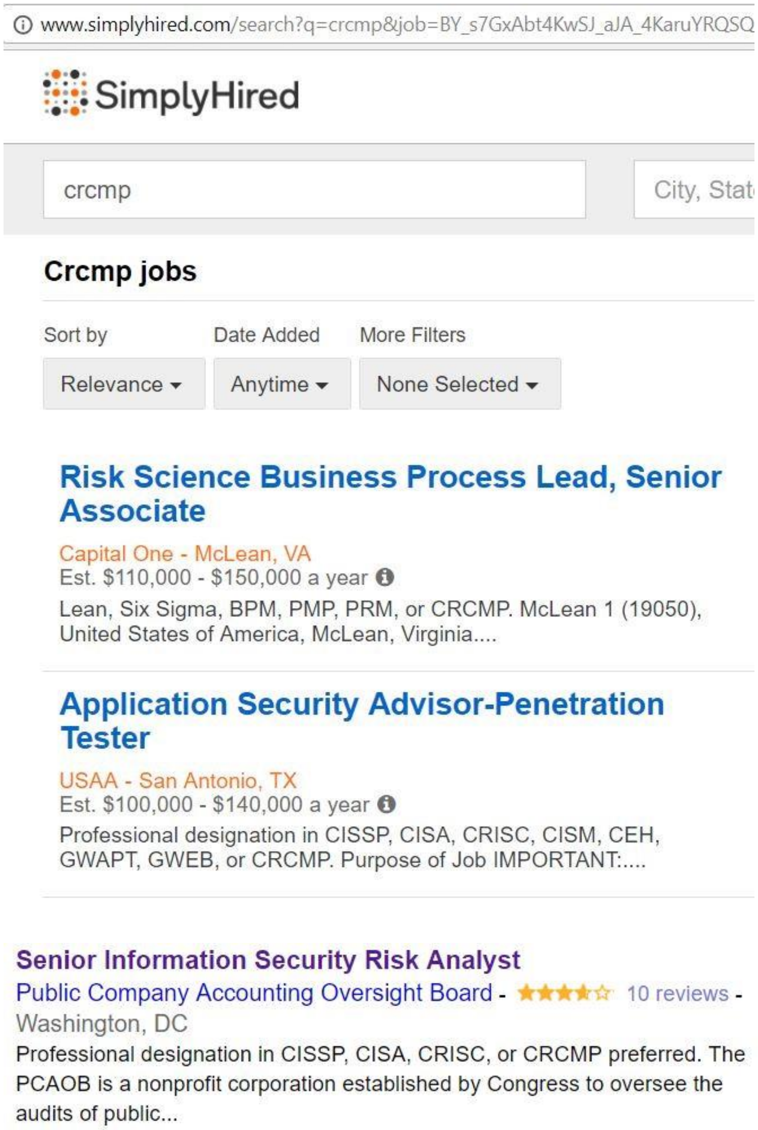
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