

## Regulatory Technology: Reshaping the Supervisor-Market Participant Relationship

Digital Innovation --- Opportunities and Risks Posed by Disruptive Changes and Emerging Technology  
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Ladies and gentlemen,

It is a great pleasure to be here at the Europlace Financial Forum and I would like to warmly thank the conference sponsors and, in particular, the Global Association for Risk Professionals, for inviting me to be here.

As the global economy marks one decade since the worst financial crisis since the Great Depression, it is clear that the rules of the game have changed. Technological developments are accelerating exponentially while both policymakers and market participants are racing to keep pace. As supervisors, we along with economists, firms and individuals are all wondering what the financial markets of the future will look like so that we can seize the immense opportunities that will emerge, minimize, and prepare for the inevitable risks.

Financial crises introduce hardship to many, in the form of slow (or negative) growth, job losses, societal tensions and political turmoil. The one that began in 2007 was no exception, although its magnitude and breadth are extraordinary. However, changes driven by financial crises can introduce benefits as well, as weaker market participants fall away and capital, both human and financial, is drawn to those sectors providing the most attractive returns. The economy reorganizes and becomes more efficient, stimulating innovation and challenging the existing regulatory frameworks.

This is why I would like to discuss an emerging field with immense potential within the world of finance and regulation --- regulatory technology or “RegTech”. I will begin my remarks by providing some context in terms of change, and then I will discuss the role of the securities market supervisor and how we go about approaching the topic of financial innovation and regulatory technology in particular, then what I see as the responsibility of market participants. Finally, like any good regulator, I will conclude by suggesting some risks.

*First, some context*

Since I began my career in banking almost 30 years ago, certain things have changed. Back then, sitting at my desk in Bank of Boston's corporate lending department, through the haze of cigarette smoke wafting from the desk in front of me, I could just make out the figure of the secretary with an IBM electric typewriter in front of her. In contrast, we on the youthful cutting edge, used word processors that upon reflection were little more than glorified typewriters. Fax machines were the norm for distant communication, while only a privileged few used large, clumsy mobile phones. Within the bank's computing center were refrigerated rooms of mainframe and mini computers whizzing away. On them were names many of you may never have heard of --- Wang and Digital Equipment Corporation or DEC --- because they no longer exist. My bank was a 'vertical' one-stop shop for the client where beyond corporate lending we managed their investments, held their savings, provided checking and offered and serviced their mortgages.

Financial innovation and financial technology in particular have done much to change the way in which we work and communicate. That portable computer we may have first used, such as early generation Toshiba or ThinkPad was expensive, slow and oh so heavy. Today that portable PC has been largely replaced by the smart phone, which comes at a fraction of the cost and weight, and is capable of doing so much more. As well, we know that many of the services my prior employer provided are facing heavy competition in the form of e-mortgages, mobile payments, peer to peer lending and automated advice.

Many institutions that survived the financial crisis still have in place proprietary IT systems from 20 to 30 years ago. Those systems frequently do not communicate with one another, are very expensive to run and maintain, and are prone to crashes and susceptible to cybercrime. In the world of the cloud, big data and artificial intelligence, those systems cannot accommodate the benefits that flow from these innovations. Instead, we have seen the emergence of a host of competing applications that are comparatively inexpensive to operate, less prone to failure, more secure and much better able to accommodate the developments we have seen in artificial intelligence and machine learning.

With this backdrop in mind, I will now turn to Regulatory Technology, which at its most basic means the use of digital technologies to better design, monitor and evaluate regulations.

### *Technological Opportunities*

The use of technology to undertake compliance monitoring existed for many years prior to the financial crisis of 2007. In that sense, we view the current generation of technologies emerging to meet compliance needs as evolutionary rather than revolutionary. However, what is different about today?

First, the regulatory requirements placed on market participants have certainly increased greatly over the past ten years. However, many of those regulations came in response to the known market failures that led to and exacerbated the crisis. Others reflect the increasingly complex nature of global financial services.

Second, for our part as regulators, we believe the move towards a more data-driven and granular approach will improve the design of regulations, enhance monitoring of the financial sector and help ensure better outcomes for market participants and consumers. The use of RegTech is an important tool in supporting that process.

Third, as the financial services sector becomes increasingly digitalized and data-driven the advantages of technology-driven monitoring compared to less automated alternatives have become more and more evident.

Fourth, we have seen over the past few years a sharp drop in the costs of computing power and storage. This enormous increase in capacity is acting as an important catalyst for artificial intelligence and machine learning based tools, which are extremely data-intensive. Many of these tools are at the heart of the RegTech renaissance and could not be deployed in a non-digital infrastructure.

As a student of financial innovation, the emergence of RegTech seems to me a predictable response to the post-crisis regulatory agenda. It is a clear example of what we call the “regulatory dialectic”, whereby regulatory action on the part of public authorities is met by a private sector response designed to ameliorate the impact of the regulation. In some cases, this response may aim to side-step regulations, which may prompt the authorities to tighten the regime further. In other cases, market participants respond in order to manage their regulatory requirements more efficiently. RegTech fits in to the latter scenario, designed to help firms adapt to regulation in an effective, cost efficient manner.

I will now turn to the role of the regulator in using RegTech. I will focus on ESMA’s own dual experience of being a user and a facilitator of RegTech.

### *ESMA Mission*

First, a few words about ESMA and our work on financial innovation. ESMA’s focus is on European securities markets and it has as its primary objective to promote investor protection, orderly markets and financial stability. It achieves this by: assessing risks to investors, markets and financial stability, completing a single rulebook for EU financial markets, promoting supervisory convergence and directly supervising credit rating agencies and trade repositories. In addition, specifically in terms of innovation, ESMA is in charge of ensuring a coordinated approach to the regulatory and supervisory treatment of new or innovative financial activities in the securities markets.

### *Approach to Monitoring Financial Innovation*

ESMA has developed a framework to analyse financial innovation and its impact on markets and consumers. The framework provides a principles-based approach to the work both in terms of the range of financial innovation we track as well as the tools we employ. In designing the framework, we have been guided by the three core objectives of ESMA --- investor



protection, financial stability and orderly markets. The ESMA objectives serve to ground the analysis of financial innovation. We bring to the subject a balanced approach, both protective and supportive.

### *Role of Regulator*

- User

Within ESMA, we are a major user of data as part of our supervisory practices and macro-prudential monitoring. However, as we are a young organization, formed in 2011, we have the benefit of having been born into this world as a 'digital native'. We maintain almost 100 data registers and databases. Some of the primary ones stem from regulations you are no doubt familiar with --- EMIR, CRA Regulation, AIFMD, EMIR, MiFID/MiFIR, MAR<sup>1</sup>.

Within our many databases, there exists a wide range of data records ranging from hundreds of records for some to tens of millions for others. The underlying fields vary from detailed metrics on Alternative Investment Funds to MiFID based investment firms, trading facilities, and counterparties to name but a few. Without having digitized the way in which we request and process the data, we would have soon found ourselves overwhelmed.

The end goal of a data-driven supervisory process is to shift from a retrospective to a forward-looking approach. The fast growing amount of data reported to supervisors combined with technological improvements in fields such as artificial intelligence and machine learning allows for the potential of a much more automated supervisory process. Failure on the part of regulators to develop the technological capabilities to use the regulatory data undermines the policy objectives that gave rise to the data.

- Facilitator

We also act as a facilitator, to encourage the digitalization of entities with whom we interact. In our contact with both Member State regulators and with market participants, we have required data be transmitted in a digital format that can be easily processed and analysed. We have worked closely with Member State regulators, not all of whom are digital natives as many existed long before ESMA, to develop tools to ensure this digital delivery of data. In turn, as they receive much of this data from the market participants that they oversee, they have encouraged the digital transformation of the underlying market participants.

Regulators, then, as major users of supervisory and macro-prudential data, and as facilitators of its production and transmission, have a key role in the evolution of RegTech. Of course, financial sector institutions also have a major part to play. What developments are we seeing in the private sector?

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<sup>1</sup> European Markets Infrastructure Regulation, Credit Rating Agencies, Alternative Investment Fund Directive, Markets in Financial Instruments Directive/Markets in Financial Instruments Regulation, Market Abuse Regulation.

## Role of Financial Institutions

There are parallels between the adoption of FinTech – the use of digital technology to power innovation in financial products and services – and that of RegTech. Since the financial crisis, the majority of new entrants into financial services have brought with them a shared competitive advantage, namely financial technology. We see this in online payment services, foreign exchange processing, automated advice, and crowd sourcing. In response, many incumbent firms have begun to adopt such technologies as part of their business strategy whether through acquisition, partnering or in-house development. The technology frequently allows the firm to deliver services at a fraction of the cost previously charged. As a consequence, we witness an ongoing reduction in physically staffed locations, as these digitally focussed incumbent institutions move their business online allowing them to focus on improving the quality and efficiency of their services,

Just as many firms are turning to technology to deliver financial services in a more cost efficient manner so too are they allocating capital to technology that allows them to meet their regulatory requirements. Customer data such as checking account information provides firms with valuable insight into the product needs of their clients. Increasingly, the technology is being employed in a predictive manner to anticipate client behaviour. The data housed within a financial institution, if processed and analysed effectively, can likewise be a valuable source of insight. It provides a more effective and cost efficient way to monitor such compliance activities as anti-money laundering or know your customer requirements. However, the 'big data' that exists in these systems are only made usefully realizable if the institution can make it available in consistent digital format. Only then, can it be deployed to better anticipate not only the product needs of customers from a FinTech perspective but also regulatory requirements from a RegTech perspective.

Some traditional financial institutions, including the major banks have been among the first movers in the use of RegTech post-financial crisis. As mentioned earlier, the extensive regulatory reforms and compliance requirements that have been introduced over the past 10 years are among the more important reasons for the adoption of these tools. As regulations emerge, the firm must identify which ones apply to a given part of the institution, analyse the implications of the rule, and assign oversight for the monitoring of it. Indeed, some specialist RegTech firms are emerging to meet this need. Many established financial firms operate in multiple geographical jurisdictions, with differing regulatory requirements across those areas. It is for this reason that most are increasingly looking to technology as a response.

While technology clearly brings many benefits in helping firms fulfil regulatory requirements and in helping regulators monitor and supervise effectively, it is not without risks. As part of our balanced approach to regulation at ESMA, we need to take care to identify these risks and to look at them in an objective manner.

## *Risks and challenges*

1. Delegate tasks, not responsibilities

The first risk I will highlight relates to a major structural shift in the financial sector brought about by FinTech and RegTech – that of disintermediation. When collaborating with RegTech firms, financial institutions cannot delegate responsibility for their compliance and risk management activities. Instead, the ultimate responsibility remains with the regulated financial institution. While greater specialisation brings efficiency gains, it means there is a risk that full oversight does not extend all the way down the value chain. Additionally, while established financial firms have experienced compliance staff, this may not be true of all new entrants in the sector, who may be unaware of exactly how far their responsibility extends.

## 2. Digital Security

Digital security is a major concern across sectors, and of course security needs are especially acute in the financial sector. It is clear that the migration to a digital centralized data infrastructure increases a firm's vulnerability to attack, theft and fraud. At the same time, large datasets are essential to the algorithms that power digitalised financial services. We must develop mind-sets in which client data is viewed with the same level of security as that given to money placed in secure vaults. To achieve this, we may need to promote increased real-time collaboration between financial sector institutions on digital security matters.

## 3. Digital Transition Challenge

A final set of risks I wish to highlight relate to the differential adoption of new technology. Failure on the part of market participants to adapt to the newer digitalized infrastructure presents business risk that may separate winners from losers in the coming years. As well, failure to adapt to a more automated regulatory compliance process may leave participants with platforms ill suited for the current regulatory framework. For their part, regulators must migrate to a digital based supervisory process, only then can they cope with the volume of data they will soon receive.

### *Conclusion*

At the start of the financial crisis 10 years ago, I do not think anybody thought that we would still be suffering from the aftershocks a decade later. We cannot see into the future, but if I had to speculate, I would think that if we had some of the regulations, as well the tools and technology that we have discussed today, in place then, the results would have been very different.

Just as FinTech is introducing changes to the way in which market participants offer their services, so too RegTech will [alter the way in which financial institutions and regulators comply and supervise/reshape the regulator-market nexus/relationship]. Implemented correctly and monitored effectively, RegTech has the potential to improve a financial institution's ability to meet regulatory demands in a cost efficient manner. Similarly, as regulators, we are constantly looking for tools to improve the way in which we can better supervise market behaviour. Provided both parties manage this process of change suitably, we can work towards putting in place an effective, fair and transparent financial services sector that stimulates growth and benefits society as a whole.



I look forward to the interesting debates and discussions that will unfold here today. Thank you for your time this morning.