JOURNAL

THE CAPCO INSTITUTE JOURNAL OF FINANCIAL TRANSFORMATION $^{\frac{1}{20}}$ $\,N^{\circ}45$

FinTech/RegTech

RegTech is the New Black —
The Growth of RegTech Demand and Investment

Kari S. Larsen, Shariq Gilani

RECIPIENT OF THE APEX AWARD FOR PUBLICATION EXCELLENCE

TRANSFORMATION

CAPCO



Empowering the Financial WorldFISGLOBAL.COM



JOURNAL

THE CAPCO INSTITUTE JOURNAL OF FINANCIAL TRANSFORMATION

Recipient of the Apex Award for Publication Excellence

Fditor

Shahin Shojai, Global Head, Capco Institute

Advisory Board

Christine Ciriani, Partner, Capco Chris Geldard, Partner, Capco Nick Jackson, Partner, Capco

Editorial Board

Franklin Allen, Nippon Life Professor of Finance, University of Pennsylvania

Joe Anastasio, Partner, Capco

Philippe d'Arvisenet, Adviser and former Group Chief Economist, BNP Paribas

Rudi Bogni, former Chief Executive Officer, UBS Private Banking

Bruno Bonati, Chairman of the Non-Executive Board, Zuger Kantonalbank

Dan Breznitz, Munk Chair of Innovation Studies, University of Toronto

Urs Birchler, Professor Emeritus of Banking, University of Zurich

Géry Daeninck, former CEO, Robeco

Stephen C. Daffron, CEO, Interactive Data

Jean Dermine, Professor of Banking and Finance, INSEAD

Douglas W. Diamond, Merton H. Miller Distinguished Service Professor of Finance, University of Chicago

Elroy Dimson, Emeritus Professor of Finance, London Business School

Nicholas Economides, Professor of Economics, New York University

Michael Enthoven, Board, NLFI, Former Chief Executive Officer, NIBC Bank N.V.

José Luis Escrivá, Director, Independent Revenue Authority, Spain

George Feiger, Pro-Vice-Chancellor and Executive Dean, Aston Business School

Gregorio de Felice, Head of Research and Chief Economist, Intesa Sanpaolo

Allen Ferrell, Greenfield Professor of Securities Law, Harvard Law School

Peter Gomber, Full Professor, Chair of e-Finance, Goethe University Frankfurt

Wilfried Hauck, Chief Financial Officer, Hanse Merkur International GmbH

Pierre Hillion, de Picciotto Professor of Alternative Investments and Shell Professor of Finance, INSEAD

Andrei A. Kirilenko, Visiting Professor of Finance, Imperial College Business School

Mitchel Lenson, Non-Executive Director, Nationwide Building Society

David T. Llewellyn, Professor of Money and Banking, Loughborough University

Donald A. Marchand, Professor of Strategy and Information Management, IMD **Colin Mayer**, Peter Moores Professor of Management Studies, Oxford University

Pierpaolo Montana, Chief Risk Officer, Mediobanca

Steve Perry, Chief Digital Officer, Visa Europe

Derek Sach, Head of Global Restructuring, The Royal Bank of Scotland

Roy C. Smith, Kenneth G. Langone Professor of Entrepreneurship and Finance, New York University

John Taysom, Visiting Professor of Computer Science, UCL

D. Sykes Wilford, W. Frank Hipp Distinguished Chair in Business, The Citadel



Transformation

FinTech/RegTech

Opinion: Open APIs and Open Banking:
Assessing the Impact on the European
Payments Industry and Seizing the
Opportunities

Thomas Egner

- 14 Algorithmic Regulation: Automating Financial Compliance Monitoring and Regulation Using Al and Blockchain Philip Treleaven, Bogdan Batrinca
- 22 RegTech is the New Black The Growth of RegTech Demand and Investment
 Kari S. Larsen, Shariq Gilani
- 30 From "Blockchain Hype" to a Real Business
 Case for Financial Markets
 Massimo Morini
- 41 Trade Finance Disrupted: A Blockchain Use Case

André Brunner, Nourdine Abderrahmane, Arjun Muralidharan, Patrick Halfpap, Oliver Süme, Stephan Zimprich

- 49 Towards a Standards-Based Technology Architecture for RegTech Tom Butler
- 60 Machine Learning: A Revolution in Risk Management and Compliance?

 Bart van Liebergen
- Data-centered Dependencies and
 Opportunities for Robotics Process
 Automation in Banking
 Sandeep Vishnu, Vipul Agochiya, Ranjit Palkar

Investments

Gordon S. Roberts

- 78 John Bull Can't Stand Two Percent: QE's Depressing Implications for Investment Jason M. Thomas
- 90 Do Credit Rating Agencies Inflate Their Ratings? A Review Kee-Hong Bae, Hamdi Driss,

101 The Power of "Negative Beta": Why Every Portfolio Should Include Private Equity Andrew Freeman, Iordanis Karagiannidis, D. Sykes Wilford

- 111 Downside Risk Protection of Retirement Assets: A New Approach Atanu Saha, Alex Rinaudo
- 121 The Asset Management Industry, Systemic Risk, and Macroprudential Policy Claude Lopez
- 129 The Role of Asset Owners in the Market for Investment Research: Where Are the Fiduciary Capitalists? Alistair Haig, Neil Scarth
- 136 Risk, Data, and the Barcodes of Finance Allan D. Grody

Banking

- 159 Opinion: Risk Culture: Risk Prevention Starts With the Individual Ulrich Hunziker
- 164 The Troubled Future of Global Banking Brad Hintz, Roy C. Smith
- 177 Policy Response Asymmetry and the Increasing Risks From Rising Government Debt Level

Blu Putnam, Erik Norland

- 187 Public Disclosure and Risk-adjusted
 Performance at Bank Holding Companies
 Beverly Hirtle
- What do New Forms of Finance Mean for Emerging Markets?M. S. Mohanty

RegTech is the New Black – The Growth of RegTech Demand and Investment

Kari S. Larsen – Counsel, Reed Smith LLP Shariq Gilani – Associate, Reed Smith LLP

Abstract

The financial services industry has undergone significant changes over the past decade, due primarily to technological innovations and regulatory change. In recent years, financial services regulatory requirements have dramatically increased, and the costs of compliance have increased correspondingly. Various regulations in the U.S., Europe, and worldwide have together greatly increased capital, recordkeeping, reporting, administrative, and other compliance costs, significantly raising the barriers to entry.

FinTech is broadly defined as technological innovations that support or enable banking and other financial services, potentially disrupting the financial services sector and/or making it more efficient. RegTech is a subgroup of FinTech, described as technology that is providing solutions to companies across all sectors of financial activity to ensure that they are able to comply with regulatory requirements.

Increased regulatory burden has created high demand for new technological solutions to regulatory challenges. Whilst regulations are becoming increasingly prescriptive as to the result to be achieved (e.g., what details of trades must be reported), they generally are not prescriptive as to how to achieve the required result, so the methods of compliance can be varied. RegTech innovations have the potential to increase margins for companies subject to a myriad of multi-jurisdictional requirements and to allow for competition by creating a path for a less expensive entry for startups into heavily regulated industries. In this article, we discuss the potential regulatory burdens placed on financial institutions and startups, and the related costs, potential solutions being offered, recent investments in RegTech, and what we see for RegTech in an uncertain future.

RegTech is the New Black - The Growth of RegTech Demand and Investment

INTRO TO FINTECH AND REGTECH

The financial services industry has undergone significant changes over the past decade, due primarily to technology innovations and regulatory change. Both have altered how financial services are provided to consumers and each affects the other.

FinTech is broadly defined as technological innovations that support or enable banking and other financial services, potentially disrupting the financial sector and/or making it more efficient. Originally, FinTech referred primarily to back-office technology but now the term applies to any innovation in how people transact business in the financial services sector, including trading, online banking, double-entry bookkeeping, mobile finance apps, peer-to-peer lending sites, digital wallets, and newly created crypto-currencies and digital assets.

RegTech is a more specific term coined to classify a group of companies that, by harnessing the capabilities enabled by new technologies such as cloud computing, big data, and blockchains, are devising solutions to help companies across all sectors of financial activity, ensure that they comply with regulatory requirements. In financial parlance, RegTech is deemed a subgroup of FinTech.

FinTech companies have experienced a massive influx of investment in the last few years. However, among the factors inhibiting further FinTech development and startups are the various regulatory regimes, which restrict the way in which financial services can be provided. These are especially burdensome on new entrants. Even for established companies used to dealing with complex regulations, compliance with the recent slew of regulations has become an even larger cost burden (in money and time) on businesses.

There is, therefore, an increasing demand to create new solutions to overcome the regulatory challenges. Whilst regulations are becoming increasingly prescriptive as to the result to be achieved (e.g., what details of trades must be reported), they are generally not prescriptive as to how to achieve the required result, so the methods of compliance can be varied.

RegTech offers the potential for smaller companies subject to significant regulatory requirements to expand quickly, by using new technologies such as machine learning, cloud computing, and blockchains to give them the know-how with regard to the regulatory environment, help them interact with it, and allow them to meet their obligations, without the need for a large and expensive operations and compliance infrastructure.

Similarly, RegTech innovations have the potential to reduce costs and increase margins for large banks and companies that are being challenged by FinTech startups. RegTech innovations also have benefits outside the financial services sector; for example, for companies that would benefit greatly from performing quick identity checks.

The potential solutions and cost savings that RegTech offers have caused an increasing proportion of FinTech investments to be made specifically in the RegTech area.

Below we discuss some of the potential regulatory burdens placed on financial institutions and startups, and the related costs. We next discuss how some RegTech companies are addressing those requirements and solving potential issues. We also discuss investments in RegTech and what we see for RegTech in an uncertain future.

THE COSTS AND ADMINISTRATIVE BURDEN OF RECENT REGULATORY REFORMS

In the last decade or so, financial services regulatory requirements have dramatically increased, and the costs of compliance have increased correspondingly. The 2007–2008 financial crisis affected markets worldwide. The G20 held a Summit on Financial Markets and the World Economy in November, 2008, in Washington, D.C. There was general agreement among the G20 on how to cooperate in key areas to strengthen economic growth and to deal with the financial crisis. With the subsequent G20 Summit in Pittsburgh in 2009 and implementation of the Basel III accords, the foundations were laid for reforms aimed at avoiding similar crises in the future.

The new regulatory requirements and laws implemented to give effect to the G20's plans imposed additional burdens on financial institutions that have dramatically raised the cost of doing business and making it increasingly difficult for new entrants to access the sector. The Dodd–Frank Wall Street Reform and Consumer Protection Act¹ (Dodd-Frank) in the U.S. and various regulations in Europe, including the Markets in Financial Instruments Directive (MiFID),² the Market Abuse

¹ The Dodd–Frank Wall Street Reform and Consumer Protection Act (Pub.L. 111– 203, H.R. 4173)

² Directive 2004/39/EC of the European Parliament and of the Council of 21 April 2004 on markets in financial instruments amending Council Directives 85/611/EEC and 93/6/EEC and Directive 2000/12/EC of the European Parliament and of the Council and repealing Council Directive 93/22/EEC

Regulation (MAR),³ and the European Market Infrastructure Regulation (EMIR),⁴ have together greatly increased capital, recordkeeping, reporting, administrative, and other compliance costs, significantly raising the barriers to entry. At the same time, more onerous regulations have been introduced that not only focus on the stability of the financial sector, but also on areas such as data protection, cybersecurity, and increasingly stringent know-your-customer (KYC) requirements.

U.S. regulations

The extensive increases in regulation of the U.S. financial sector began in the early 2000s. The accounting malpractice scandals that affected companies like Enron Corporation and WorldCom resulted in a lack of investor confidence. Then, the financial crisis of 2007–2008 plunged the U.S. economy into a recession. As a result of the accounting scandals, Congress passed the Sarbanes–Oxley Act of 2002 (Sarbanes-Oxley) to protect investors against the potential for fraudulent corporate accounting activities. The recent financial crisis led to wide-spread calls for reform and resulted in Dodd–Frank, signed into law in 2010. At the same time, the increased use of and reliance on technology, and the corresponding threats, have led to new cybersecurity rules, such as those put in place by the National Futures Association⁵ and the U.S. Financial Industry Regulatory Authority.⁶

These new layers of regulation are intended to provide rigorous standards and supervision; to protect the economy as well as consumers, investors, and businesses; provide an advanced warning system to ensure the stability of the economy; enhance corporate governance; and provide transparency to markets and investors. While many argue that the greatly enhanced regulatory regime has made the markets and financial

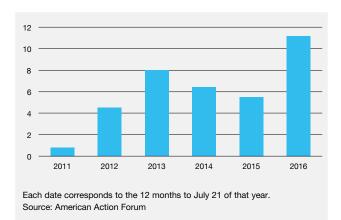


Figure 1 - Cost of Dodd-Frank to U.S. business (U.S.\$ bln)

institutions safer and more stable, there is no doubt that regulation has also brought significant increases in compliance costs to both large and small companies – much of which ultimately has to be borne by the customer. For example:

- Sarbanes-Oxley: the costs for compliance with Sarbanes-Oxley continue to increase for many companies.
 Internal and external audit fees, the associated costs of man-hours, and the fees for IT processes and controls are still rising. A 2015 poll of audit executives and professionals revealed that 58% of large companies spent more than U.S.\$1 million each on Sarbanes-Oxley compliance in 2014.7
- 2. Implemented Dodd–Frank regulations: the Dodd–Frank regulations have imposed more than U.S.\$36 billion in costs on the economy since 2010 and have created approximately 73 million paperwork hours, according to a new report from the conservative American Action Forum (AAF).8 The largest sources of costs related to margin and capital requirements for swap entities (costing U.S.\$5.2 billion in the past year) and margin requirements for uncleared swaps (costing a further U.S.\$2.1 billion). Certain disclosure requirements have resulted in approximately U.S.\$3 billion in costs. During 2015–2016, costs resulting from rules implemented under Dodd–Frank which reached its sixth anniversary on July 21, 2016 totaled U.S.\$10.4 billion, the highest amount in any year since the introduction of the regulations (Figure 1).9
- 3. **Outstanding Dodd–Frank regulations:** the AAF report also estimated that there were 61 regulations remaining in the Dodd–Frank rulemaking mandates that could add an additional U.S.\$3.3 billion and 1 million paperwork hours to the regulations, although the change in the U.S. presidency may mean that some or all of these do not come to pass. ¹⁰ However, any further changes to the regulations will bring additional, albeit perhaps only temporary, costs of compliance as the requirements change.

³ Regulation (EU) No. 596/2014 of the European Parliament and of the Council of 16 April 2014 on market abuse (market abuse regulation) and repealing Directive 2003/6/EC of the European Parliament and of the Council and Commission Directives 2003/124/EC, 2003/125/EC and 2004/72/EC

⁴ Regulation (EU) No. 648/2012 of the European Parliament and of the Council of 4 July 2012 on OTC derivatives, central counterparties and trade repositories

⁵ http://bit.ly/2ll2HuF

⁶ http://bit.ly/2eCt9h9

⁷ http://bit.ly/2mpKPDU

⁸ http://bit.ly/2ma1CdH

⁹ http://bloom.bg/2m4bBRr

¹⁰ http://bit.ly/2lvGCdK

RegTech is the New Black - The Growth of RegTech Demand and Investment

Data breaches: data breaches themselves can be extremely costly - according to the Ponemon Institute's 2016 "cost of data breach study" (sponsored by IBM),11 the average consolidated total cost of losing sensitive corporate or personal information was approximately U.S.\$4 million per breach in 2016 - up 29 percent since 2013. Consequently, it is understandable that spending on information security products and services globally will be approximately U.S.\$81.6 billion in 2016, which is an increase of 7.9 percent over 2015.12,13

European Union regulations

In Europe, the European Commission (the E.U. Commission) has focused on overhauling the supervisory framework of the financial services sector. The European market infrastructure regulation (EMIR) aims to reduce the risks posed to the financial system by derivatives trades. It imposes obligations to report trades, clear trades, and take additional steps to mitigate the risks associated with OTC derivatives transactions. The Markets in Financial Instruments Directive (MiFID II) aims to improve the regulation of firms that provide services linked to financial instruments, and the venues where those financial instruments are traded, aiming to update the regulatory regime for investment services and activities in Europe.

MiFID II is set to come into full effect on January 3, 2018. It had originally been due to be implemented at the start of 2017 but was put back a year because of the time it was taking for the national regulators to build the necessary IT systems. In its press release relating to this delay, the European Commission stated that the European Securities and Markets Authority (ESMA) had to collect data from about 300 trading venues on about 15 million financial instruments. To achieve that result, ESMA needed to work closely with the competent national authorities and the trading venues themselves, but informed the E.U. Commission that neither the competent authorities, nor the market participants would be ready in time.14 MiFID II implementation is illustrative of the costs to businesses of preparing for compliance with legislation that continues to shift in scope and timing because of the complexity of the relevant markets and the technical challenges involved with compliance.

The enhanced European regulation regime has also imposed significant costs on industry. In 2014, the E.U. Commission estimated that one-off compliance costs would be between €512 million and €732 million, and ongoing costs between €312 million and €586 million per year.15

A recent report, however, forecasted that the top 40 global investment banks and the top 400 asset managers would spend

U.S.\$2.1 billion in 2017 in order to meet MiFID II guidelines.¹⁶ While many companies already comply with MiFID, the costs of compliance will only increase under MiFID II.

- EMIR: EMIR includes similar requirements to Dodd-Frank, such as those relating to reporting and clearing. A member group that prepared data for the E.U. Commission's impact assessment on EMIR, provided in December 2016, estimates the compliance costs for non-financial companies related to the ongoing reporting obligations to be up to €500,000 a year per company. Even for smaller companies the annual costs of reporting amount to €20,000 and upwards. The European Association of Corporate Treasurers has estimated that EMIR will cost non-financial companies between €50,000 and €200,000 to implement.17
- Market abuse: another area of focus for regulators has been cracking down on market abuse and market manipulation. The E.U.'s Market Abuse Regulation (MAR) came into effect on July 3, 2016 and aims to increase the integrity of financial markets and reduce incidences of financial crime. The penalties for breach of MAR are significant; for example, in the U.K., the Financial Conduct Authority (FCA) can impose unlimited fines, order injunctions, or prohibit regulated firms or approved persons from participating in financial services. In addition, criminal sanctions for insider dealing and market manipulation can incur custodial sentences of up to seven years and unlimited fines.
- KYC and anti-money laundering (AML): the E.U. adopted the fourth Anti-Money Laundering Directive in May 2015 as a means to combat money laundering and terrorism financing. The E.U. has explicitly raised the prospect of FinTech innovations, such as virtual currencies, being used to circumvent the traditional financial system and conceal illegal financial transactions carried out in an anonymous manner. This poses a risk to companies that create innovative financial products but do not have the technological capacity to meet their regulatory obligations. According to Thomson Reuters' 2016 KYC survey, the average annual costs to banks of KYC compliance is U.S.\$60 million, with some banks spending as much as

¹¹ Ponemon Institute, 2016, "2016 cost of data breach study: global analysis," June

¹² http://bit.ly/2lvPvUD

¹³ http://gtnr.it/2b3s6I7

¹⁴ http://bit.ly/1V34Jfp

¹⁵ http://bit.lv/2lvHVtf

¹⁶ http://bit.lv/2d0JISO

¹⁷ http://bit.ly/2mHQ51S

RegTech is the New Black - The Growth of RegTech Demand and Investment

U.S.\$500 million on annual compliance. ¹⁸ These costs are providing an opening for RegTech KYC solutions, whether they be blockchain, data aggregator, cloud, or artificial intelligence based technologies.

4. Data protection: another area of focus for regulators with obvious RegTech opportunities is data protection. As part of a comprehensive reform of data protection rules, the E.U. Data Protection Directive came into force on May 5, 2016 and will have to be transposed into national law by May 6, 2018 and the E.U. Data Protection Regulation¹⁹ came into force on May 24, 2016 and will apply from May 25, 2018, imposing various obligations on a range of firms including financial services companies, and stringent penalties for non-compliance. RegTech should be able to assist firms in areas such as identifying risks, auditing infrastructure, and reporting.

Global compliance

Companies that operate in the U.S., in Europe, and worldwide have the added burden of compliance with numerous regulatory regimes that frequently differ, often considerably. Maintaining policies, procedures, and systems to address different jurisdictional requirements places an increasing strain on global corporations' budgets. Due to the greater global regulatory demands placed upon managing risk, three-quarters of all firms surveyed by Thomson Reuters for its 2016 KYC survey expect the focus on managing regulatory risk and corresponding compliance costs to continue to rise, with 15% of companies expecting to spend "significantly more" on compliance in coming years.

Costs on government and on regulators

Regulatory requirements are, of course, not only expensive for companies. They are costly to government agencies responsible for oversight as well. IBM recently conducted a survey on potential implementation of blockchain technology in the public sector, polling 200 government executives from 16 different countries worldwide. 14% expect to utilize production-grade blockchains in 2017 and 48% anticipate launching some use of a blockchain between now and 2020. In its survey report, IBM stated: "For example, nine in ten government organizations plan to invest in blockchain for use in financial transaction management, asset management, contract management and regulatory compliance by 2018. And seven in ten government executives predict blockchain will significantly disrupt the area of contract management, which is often the intersection of the public and private sectors."²⁰

Following the release of a report in January 2016 by the U.K. Government Office for Science that called for the U.K.

government to experiment with distributed ledger technology within government operations, the U.K. Department for Work and Pensions launched an experimental blockchain system to distribute welfare payments partnered with Barclays, the U.K. arm of German energy firm RWE, FinTech startup GovCoin, and University College London.²¹

In the U.S., the State of Delaware is investigating using block-chain technology to store contracts and other essential corporate data on a distributed ledger. Delaware anticipates that this will allow companies and agencies to keep documents more secure in multiple locations and automate access by constituents, shareholders, and employees. Additional important benefits include lower costs and the capacity for longer document-retention, according to Caitlin Long, chairman and president of Symbiont. Symbiont provides smart contract and financial market distributed ledger technology and is working with Delaware on this project.²²

Potential cost savings for taxpayers are just as important a consideration for government as lower costs are for companies.

SPECIFIC AREAS OF REGULATION AND TECHNOLOGICAL SOLUTIONS

Reporting and recordkeeping

One of the main areas of focus of financial regulators world-wide is reporting of transactions, requiring companies' IT teams to dedicate an ever-increasing amount of resources to ensure regulatory compliance. This, though, is often not an option for smaller companies. There is, therefore, a significant demand for RegTech products that would make regulatory reporting easier and cheaper for market participants and allow them to meet changing regulatory requirements. This provides opportunities for RegTech companies entering this market like Cappitech, a privately held boutique that assists with full EMIR compliance by reviewing trade information, validating it, and then submitting it to the regulator.²³

¹⁸ http://tmsnrt.rs/2kRpQsD

¹⁹ Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regards to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC

²⁰ Building trust in governments: study conducted by IBM Institute for Business Value (January 2017), http://ibm.co/2kKYtMU

²¹ http://bit.ly/29p7oi4

²² http://bit.ly/2cEazX1

²³ https://yhoo.it/2mHE4JK

RegTech is the New Black - The Growth of RegTech Demand and Investment

Regulatory reporting is also an issue beyond the U.S. and Europe. The Indian company Fintellix, for example, offers clients the ability to access global systems while allowing in-country teams to concentrate on local regulatory rules.²⁴

Another area of technological development is outsourcing recordkeeping to the "cloud." As part of its Project Innovate, the U.K. FCA published guidance in July 2016 on outsourcing to the cloud and to other third-party services. It recognized that the cloud can give firms greater flexibility in the services they receive, enabling innovation and reducing costs. Broadly speaking, it is supportive of the use of the cloud, provided that there is a clear business case for doing so, and that the outsourcing firm carries out sufficient due diligence of, and maintains oversight over, the service provider.

Blockchain solutions may also contribute to cost savings for companies. For example, rather than the traditional model in which firms collate and send data to the regulator to review, blockchain-based technology could provide regulators with almost instant access to transaction information. This could lead to significant cost savings by simplifying recordkeeping processes. Accenture recently published a report proposing that large investment banks could cut operational costs by as much as U.S.\$12 billion annually by implementing blockchains in their businesses. The report estimates that financial reporting expenses could fall by at least 70% and compliance costs by between 30% and 50%.²⁶

The potential of RegTech on regulatory reporting has also caught the attention of regulators. In November 2016, the U.K. FCA hosted a two-day "TechSprint" event aimed at unlocking regulatory reporting by finding collaborative solutions for the future.

RegTech is not just a means of making life easier for market participants, but can potentially also make government agencies' own activities more efficient, by changing the way in which they receive and view data.

Monitoring and surveillance

Under MAR and other regulations, firms have an obligation to identify and reduce the risk of market abuse and report suspicious transactions to the relevant regulator; for example, MAR Article 16(2) places an obligation on anyone professionally arranging or executing transactions to establish and maintain effective arrangements, systems, and procedures to detect and report suspicious transactions.

A breach of MAR can lead to unlimited fines and the imposition

of restrictions on the company and individuals. The risks, therefore, are high.

Given the potential risks, financial firms employ large teams of compliance personnel to monitor the activities of their traders and other individuals. The use of technology based on artificial intelligence and behavioral software offers the potential to reduce the risks of market abuse, and reduce compliance costs.

While regulations prescribe the red flags that companies need to identify, they do not tell firms how to identify those red flags. Again, this provides opportunity for innovation. Sybenetix is a London-based company that offers market surveillance and compliance tools that works with companies to help them meet their regulatory obligations. Ancoa, also based in London, is another example of a RegTech startup. It provides contextual surveillance and insightful analytics for exchanges, regulators, and buy- and sell-side firms. It can operate on the cloud, and can save smaller exchanges and firms significant deployment costs, allowing more competition among brokers and exchanges. But the red flags that companies are supported by the significant deployment costs, allowing more competition among brokers and exchanges.

KYC

Innovators, such as virtual currency providers and online wallet providers, risk being subject to KYC regulations that would be onerous without technological solutions to aid compliance.²⁹ For example, London-based Onfido seeks to use machine learning technology to verify identities and carry out adverse history searches.³⁰

This is also an area where blockchains may improve compliance processes. For example, Singapore-based startup KYC-Chain aims to use distributed ledger technology as a basis for onboarding that allows sensitive information to be shared easily and securely.³¹

Cybersecurity

2015 and 2016 saw significant venture capital funding in the area of cybersecurity in the expectation that cybersecurity startups will only continue to grow. Regulators require more

²⁴ http://bit.ly/2m4aJvU

²⁵ http://bit.ly/2czYQX5

²⁶ http://reut.rs/2lljyNP

²⁷ http://bit.ly/2ma2kaO

²⁸ http://ancoa.com/

²⁹ http://bit.ly/2l8x7oK 30 http://bit.ly/2l8HU28

³¹ http://bit.ly/2lvlbbL

RegTech is the New Black - The Growth of RegTech Demand and Investment

robust data storage, systems testing, and technical controls, resulting in smaller companies increasingly looking to outsource these duties and larger institutions trying to become more secure and efficient at the same time.

Startups are using big data and artificial intelligence to provide next-generation, platform-based solutions that may be responsive to the needs of both small and large companies. For example, public cloud-technology adoption is increasing, and is expected to begin to meaningfully reduce firewall spending by 2019.

Penalties high for non-compliance

By the end of 2015, U.S. banks had paid more than U.S.\$200 billion in fines since the financial crisis for non-compliance with regulatory requirements, and for problematic behavior.³²

There is no question that non-compliance with the various regulatory requirements can be very costly. The U.S. Commodity Futures Trading Commission (CFTC), for example, continues to prioritize the enforcement of reporting violations. In 2016, the CFTC issued more than twice the number of enforcement orders for reporting violations that it issued in the previous year. A number of these violations involved new reporting requirements under Dodd–Frank. For example, the Division of Enforcement recently fined two large banks U.S.\$560,000 and U.S.\$400,000, respectively, for violating the Swaps Large Trader Reporting Rule.³³

In another recent example, the CFTC fined two agribusinesses, a cooperative, and a processor/trader, jointly U.S.\$1 million³⁴ and Golden Agri U.S.\$150,000³⁵ for failing to file the appropriate reports. The CFTC also aggressively pursues sanctions against traders that fail to keep required records and/or file complete and accurate reports pursuant to its regulations, which has resulted in significant fines.

But it is not just the U.S. authorities who are taking a tough approach. In the U.K., the FCA also has imposed fines for reporting violations. Its heads of enforcement and financial crime have said that effective market surveillance is critical to maintaining the integrity of markets and depends on accurate and timely reporting of transactions. It has, therefore, taken enforcement action against firms failing to meet their obligations. The FCA has also recently carried out several high-profile enforcement actions against major global institutions for failing to reduce the risks associated with financial crime.

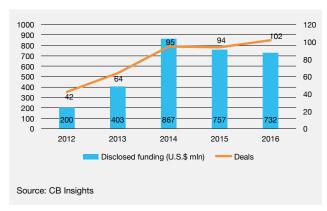


Figure 2 - RegTech annual global financing history

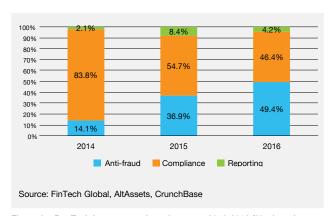


Figure 3 – RegTech investments by sub-sector, 2012-2016 (% of total amount invested) $\,$

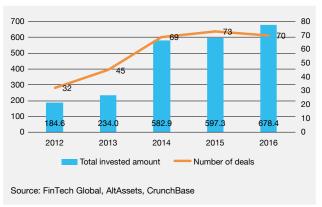


Figure 4 - RegTech investments, 2012-2016 (U.S.\$, number of deals)

³² http://cnb.cx/1Q3HGSd

³³ http://bit.ly/2mHCTtJ

³⁴ http://bit.ly/1p8uaSe

³⁵ http://bit.ly/2llg9i4

RegTech is the New Black - The Growth of RegTech Demand and Investment

REGTECH INVESTMENT GROWTH

Against this background, it is no surprise that more and more venture capitalists and private equity firms are looking to FinTech generally and to RegTech opportunities specifically. Since 2012, investments in RegTech have raised approximately U.S.\$2.3 billion in over 300 deals (Figure 2).36 This activity has continued into 2017.

For example, Droit Financial Technologies, a New York-based firm specializing in trading compliance, raised U.S.\$16 million from investors including Goldman Sachs and Wells Fargo in its first fundraising in late 2016.37 Droit aims to assist clients by analyzing whether or not they are up-to-date with regulatory regimes including Dodd-Frank and MiFID II.38

In terms of startups that focus on monitoring, RedOwl analytics obtained U.S.\$17 million in funding in 2015.39 It aims to capture data from multiple sources in order to detect and deter unwanted behavior that might otherwise result in regulatory enforcement action.

Significant deals in the KYC space include the British firm Onfido raising U.S.\$25 million in Series B funding,40 and ComplyAdvantage, a RegTech startup that has built a proprietary database on AML risk, covering sanctions and watchlists, politically exposed persons, and adverse media, received U.S.\$8.2 million in Series A funding.41

Another interesting case study is Fundapps, a London-based RegTech company that assists clients with solutions in relation to investments restrictions and shareholding disclosure. Founded in 2010, it monitors U.S.\$2 trillion in client assets daily and has become profitable without any outside investment so far.42

A provocative development in the artificial intelligence space has been the acquisition by IBM of Promontory Financial, a risk management and regulatory compliance consultancy, in November 2016. IBM's intention is to use Promontory's knowhow to train IBM's Al computer system, Watson, to help firms meet a range of regulatory and compliance obligations, from financial risk modeling to AML and KYC.43

Despite these examples, an analysis of investment in the sector has shown that the total investment in RegTech is still relatively small as compared to the total amounts spent on regulatory compliance in financial services, suggesting that there is a lot of room for increased investment in the RegTech sector in the coming years.44 Prior to any capital raise, RegTech startups should consult their counsel to ensure applicability of their technology to current, proposed or potential regulation to ensure the most effective growth.

LOOKING AHEAD

There is no doubt that the events of 2016, specifically Brexit and the U.S. election, have brought uncertainty to the future shape of U.S., U.K., and E.U. regulatory regimes, in particular. The new U.S. administration has stated the goal of reducing regulatory burdens on businesses, but it is unclear where and how that will be accomplished. The U.K. may be crafting regulations separate from the known and expected E.U. requirements. Navigating the morass of regulations in multiple jurisdictions often requires involving global legal and government experts who also are familiar with the company's subject matter and with potential technological compliance solutions.

Political events and technological developments likely will spur further regulatory changes worldwide. However, instead of relief, many commercial players are worried these changes will bring even more costs, on top of the existing investment in compliance. Companies should actively engage regulators in discussions regarding any potential regime changes to ensure their needs, and anticipated costs, are considered during the rule-making processes. Companies can then guide regulators to consider technological advances and potential alternative compliance methods while crafting new rules, as RegTech companies and consumer can provide a unique perspective to government agencies.

It remains essential that market participants have available to them convenient, cost-efficient regulatory compliance options in order to continue to compete in a global and fragmented regulatory environment. We, therefore, expect the significant investment in, and demand for, RegTech solutions to continue in 2017 and beyond.

³⁶ http://bit.ly/2f3xwEx

³⁷ http://on.ft.com/2ll5JPO

³⁸ http://bit.lv/2f66aOI

³⁹ http://bit.lv/2lvUcOf 40 http://tcrn.ch/29a5JSq

⁴¹ http://bit.ly/2m9WwOs

⁴² http://bit.lv/2m4tM9J 43 http://ibm.co/2m9WxC0

⁴⁴ https://medium.com/@ianmaartenmulder/regtech-is-real-and-120-startups-toprove-it-6b396d94dd8c#.6ixf8shkr

Layout, production and coordination:

Cypres – Daniel Brandt, Kris Van de Vijver and Pieter Vereertbrugghen

© 2017 The Capital Markets Company, N.V. De Kleetlaan 6, B-1831 Machelen

All rights reserved. All product names, company names and registered trademarks in this document remain the property of their respective owners. The views expressed in The Journal of Financial Transformation are solely those of the authors. This journal may not be duplicated in any way without the express written consent of the publisher except in the form of brief excerpts or quotations for review purposes. Making copies of this journal or any portion thereof for any purpose other than your own is a violation of copyright law.

BANGALORE BRATISLAVA **BRUSSELS** CHICAGO DALLAS DÜSSELDORF **EDINBURGH** FRANKFURT GENEVA HONG KONG HOUSTON KUALA LUMPUR LONDON **NEW YORK** ORLANDO **PARIS** SINGAPORE **TORONTO** VIENNA WASHINGTON D.C. ZURICH



CAPCO.COM