



FINTECH AND COMPLIANCE PRACTICES THROUGH REGTECH:A DIGITAL EVOLUTION IN INDIA

Dr.B.Malleswari

*Academic Consultant, Department of Commerce, S.V.U.College of Commerce,
Management and Computer Sciences, Tirupati-517502.AP.*

Abstract

The Global Financial Crisis 2008 has drastically changed the financial regulations around the world. The crisis exposed significant failures in regulation and supervision. This led to regulatory changes increased to almost unmanageable heights with financial sector dominated by three interrelated themes viz. the financial crisis itself, tremendous increase in financial regulations and the application of a range of new technologies to financial sector such as big data analysis, artificial intelligence, cloud infrastructure and block chain. The advancement of Fintech has posing new challenges for the regulators. The number of regulations that a business enterprise has to deal with is already quite substantial and with the advent of new technologies, more laws are or likely to be in place for data security. To deal with the multitude of compliance regulations, businesses are spending a lot of money on lawyers, consultants and regulatory advisors, and facing a spiral rise in their legal costs. Technology is now coming to the aid of the business enterprises, as a more economical option. This paper is trying to review the studies on role of regulators and technology and their effect on traditional financial institutions and subsequent evolution of fintech and regtech.

Keywords: Financial Regulations; Regulatory Compliance, Fintech, Regtech, Business Model.

1. Introduction and Purpose of the Study

Fintech are new, fast-growing area of the financial services field and also, they are characterised by limited understanding due to new concepts emerging. Zavolokina et al. (2016) were one of the first researchers to more systematically studied the fintech. The emergence of fintech is the result of three main factors simultaneously interacting and challenging the status quo at the same time. These are: organisations, people and locations (markets). Such factors have the potential to change business models, bringing structural changes and changes any aspect of the system under investigation (Coughlan and Coughlan, 2002).

Further, data availability is either scarce or non-existent for investigating fintech deeper and understand more of this observable phenomenon, which is due to its uniqueness and phenomenal speed of development (Dapp et al. 2014).

Many banks have acknowledged the threat coming from the growth of fintech companies. They have also formally raised their concern about fintech competition and regulation held to exactly the same rigorous standards (Bunea et al. 2016). The industry is stifled as the boundaries have also shifted: fintech is no more the preserve of traditional financial institutions and the regulator/government is no longer pre-occupied solely with financial institutions.

2. Growth of Fintech

The Fintech, a dynamic segment right at the intersection of the financial services and technology sectors, is reshaping the financial industry's status quo (Zavolokina et al. 2016). The factors which influence and motivate the emergence and expansion of fintech and how their knowledge is



expanding on the *enablers* of the financial innovations are discussed here. Demand and supply factors influence the interaction process among societal, economic, regulatory and technological factors. The influence of these factors overlaps each other cannot be readily distinguished from one another and creates interaction of stakeholders and fintech firms. These factors are discussed below.

1. Demographics, Kanzler (2015) says that young innovative companies have been created by people who grew up with the internet, for people who have already abandoned visiting physical branches and ATM networks and opted services provided entirely through online and its applications.
2. The banks' inability (or loss of focus or neglect) to gain better insights shifting expectations of client behaviour, their tailor-made requirements, and the failure to shift from product-centric and self-centric thinking to customer-centric offerings is also the reason fintech has earned their fortunes.
3. Re-inventing business models: During the financial crisis, confidence in mainstream banks was deteriorated with customers keen to protect, save, reduce costs and '*self-manage*' their assets (Gulam Huseinwala, 2017).
4. Cost-efficacy: For example, for many incoming players operating expenses as a proportion of their open loan balances are about 2 per cent on average while the corresponding figure for traditional creditors stands at 5-7 per cent (McKinsey, 2015).
5. Digital firms are more physically dispersed than traditional lenders and their lending platform reach is wider enough to accommodate global diversification of portfolios. In terms of de-risking, such firms also naturally avoid two fundamental risk zones inherently unstable in traditional banking; that is *maturity mismatching and leverage* (Jakšič and Marinč, 2015).
6. The current banking regulation has also been partly *responsible* for the current climate and disruptive rise of technology. For example, the new liquidity regulation requirements in banking have made abundantly clear that to a large extent, deposits (accounts) as a source of funding are no longer considered an important source of financing; they rather carry a 'penalty' for over-reliance on such sources considered as less stable for the safeguarding of the financial system. Hence, deposits experience *scaled preference* (further down in the pecking order of financing) for the bank as a whole (Huertas, 2016)

3. Regulatory Technology - Regtech

RegTech, also known as Regulatory Technologies, a newly emerging term, is the management of regulatory processes through technology in the financial sector. For the first time the term Regtech was coined by Prof. Philip Treleaven of the University College London, one of the authors of 'Fintech Futures', a report produced by the UK's Government Office for Science in 2015, Financial Conduct Authority (FCA) (Narang, 2021). According to Arner, Barberis, and Buckley (2017), Regtech refers to technological solutions that streamline and improve regulatory processes. RegTech or Regulatory Technology, is a category of technological solutions that are aimed at supporting regulatory compliance in its related domains.

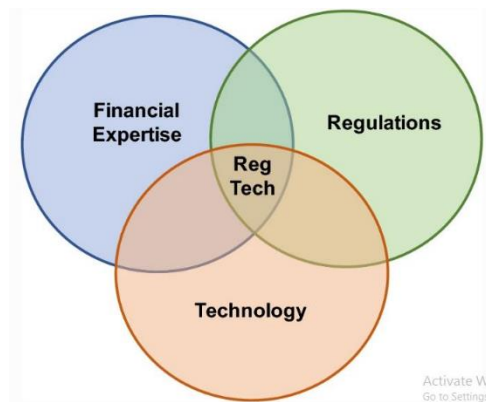
4. Objective of the Study

The main objective of the study is to highlight the role of regulators and technologies in ensuring compliance with regulatory frameworks and legislation that will assist government and other agencies in performing their regulatory functions and subsequent evolution of fintech and regtech. The Regtech is useful in the automation of manual processes and the links between steps in analytical/reporting processes, the improvement of data quality, the creation of a holistic view of data, the automated analysis of data with applications that are able to learn during the process, and the generation of



meaningful reports that can be sent to regulators and used internally to improve key business decision making” (Arner, Barberis, and Buckley, 2017a: 389).

Institute of International Finance (2016) has defined RegTech as, “the use of new technologies to solve regulatory and compliance requirements more effectively and efficiently”. Big Data Analytics (BD), Artificial Intelligence (AI), Natural Language Processing (NLP), Robotic Process Automation (RPA), Distributed ledger technology (DLT), Artificial Intelligence (AI), Cloud Computing (CC), Machine Learning (ML), Application Programming Interface (API), etc. are examples of few emerging digital technologies that has enable RegTech solutions to encounter the increasing demands of the regulatory processes.



Source: Von Solms, 2021.

Based on the development initiatives taken by the stakeholders, Colaert, V. (2021) has divided the RegTech in three type, namely, i) To facilitate compliance, RegTech tools developed or acquired by the financial institutions – ‘Compliance RegTech’; ii) Along with compliance RegTech tools developed by the supervisors for supervision and/or enforcement – ‘Supervisory RegTech; and iii) Machine-readable and/or executable regulation provided by the regulators – ‘Regulatory RegTech’. This ‘Supervisory RegTech’ was again termed as ‘SupTech’ by Chirulli, P. (2021) in a study where a paradigm shift was highlighted in terms of use of technology in the relationship between regulation and supervision in financial sector.

5. Methodology

This paper attempts to establish a strong theoretical overview of the premise and potential of the RegTech for the wider financial ecosystem based on existing academic research and also publicly available practice-oriented insights from industry sources.



Table 1: Different Phases of RegTech

RegTech I Phase	RegTech 2.0 II Phase	RegTech 3.0 III Phase
Period from 1960-2008	Started after the global financial crisis and is the phase we are in today	The future
Focused mainly on internal risk management and monitoring	Mainly driven by the financial market	Technology as a tool
Driven by large institutions	Focussed on solutions for compliance reporting and processes with the new technology available from Know Your Data - KYD	Rethinking the regulatory environment
		All sectors working together
		From Know Your Customer - KYC

Source: Johansson, Ellinor, Sutinen, Konsta, Lassila, Julius, Lang, Valter, Martikainen, Minna, & Lehner, O.M. (2019). Regtech-a necessary tool to keep up with compliance and regulatory changes. *ACRN Journal of Finance and Risk Perspectives*, Special Issue Digital Accounting, 8, 71-85.

6. RegTech - Impact on Banks and the Financial Services Sector

a. Effect on banking institutions

The financial services sector and banks has a reputation of being ingrained in their traditional ways and being resistant to change. Banking has historically been one of the business sectors most resistant and suspicious to disruption by technology (Fichman et al. 2014). As a result, today banks often show a lack of innovation either because of their stable market position or due to complex government regulations.

Banks will have to engage in further cost-cutting since they remain highly costlier, which partly also explains the market penetration by new entrants (Philippon, 2016). The new paradigm spearheaded by fintech start-ups calls for stripping banking operations into separate business segments and holistically specialising in at least one of such segments affords them recognition, higher consumer utility, and as a result, market share. Banks will have to respond to this margin compression since reluctance on the side of banks could result in approximately as much as 20 per cent of revenues being at risk by 2025 (McKinsey, 2015). The new entrants will force banks to accept lower margins - on an already regulatory-diminished Return on Equity - especially for business segments that can be easily replicated (Scott et al., 2017). Traditional intermediaries (i.e. banks) not only will have to re-think and re-design the business models upon which their fortunes have been built; they will have to self-reflect and choose whether, through utilising existing know-how and infrastructure, to co-lead, co-drive and reform the future of open banking. If not, they will be shrunked to regulation-driven, deposit-taking suppliers of services, secondary to emerging, creative institutions (Carney, BoE, 2016).



According to a study by the World Economic Forum (WEF, 2015) reports the impact of fintech on the future outlook specifically, the major disruptive effect revolves around the individual empowerment and 'loyalty'. According to this study, the following markets are expected to see major changes:

- Payments
- Insurance
- Deposits and advances
- Retail and SMEs capital raising
- Investment and wealth management

One cannot say that banks as institutions will disappear in the future. Yet, based on the degree of innovation shown by them so far, many services that banks currently provide could possibly become the basis to a new start up.

De Reuver et al. (2017) suggest that digital platforms have the advantage of being 'editable' and 'reprogrammable' which could make them more responsive to incorporating complementary modules from third-party developers in order to expand functionality. Banks will thus have to *re-train*, re-develop narrowly defined yet effective solutions, and recapture the segments previously neglected; that is re-focus on retail customers. For example, they will be compelled to heavily invest in cutting- edge technology in order to provide:

- B2B solutions
- Peer-to-peer (P2P) marketplaces for customers unable to secure loans from other traditional sources
- Personal finance management tools
- Mobile wallets
- Solutions for clients not capable of getting loans with no or poor credit scores
- Big Data Analytics
- Digital Currency and other Blockchain technologies
- Insurance (InsurTech)
- Investments (Robo-advisors)

b. On Financial Services Sector

An example of how technology is becoming integrated is the copying and use of Software-as-a-Service (SaaS) solutions. It is developed by fintechs in order to amalgamate, restructure, and simplify operative capacities, and deliver digital services. Application program interfaces (APIs) build up value-added products and a variety of pick-and-mix features that can swiftly be integrated within existing bank platforms within which incredible quantities of money can be created and exchanged (Parker et al. 2016).

The regulatory implications of Fintechs untouched area so far as opposed to banks and the shaping of the regulatory level-playing field. Strongly financed, highly connected, and massively attractive start-ups with a large client base are attracts the regulatory scrutiny especially when they challenge state and local laws at a time when they do not clearly fall within the financial regulation sphere (Pollman and Barry, 2017).



Fintechs will do much of the regulatory-monitored business whereas banks could take in more of the deposit market and hold thicker portfolios of safe and highly liquid investments. Like all ‘revolutions’, the swift revolt of fintech that markets currently experience creates risks as well as opportunities for regulators and market participants alike. The main current concerns of policymakers and the industry arise not from the technology itself only but also from *who* is applying technology to finance along with its speed of development.

7. Regtech as an extension of Fintech

Companies that develop efficient financial technology which not only help financial companies to better comply with regulations but also assist regulators to better enforce appropriate regulation and supervise financial institutions (Arner et al. 2015). The perception of the fintechs are that the challenges to traditional banking at present are simply questions of engineering and technology that can be solved through a combination of high-quality data and automation (FRB Chicago, 2016).

FinTechs amplify the burden on incumbent financial services providers by exposing weaknesses in their existing business models. They also amplify the burden on regulators to effectively monitor their subjects. A blurred line though lies in the interaction of RegTech as a tool to be used and applied by regulators on their *subjects* and the subjects themselves and risks that this interaction brings. That is also partly because in contrast to fintechs, regtechs have been more of a top-down phenomenon.

Regtech is a setting where technology providers act in response to demand from deep packet financial institutions (and regulators) in order to address both the objective of decreasing regulatory and compliance requirements costs as well as increasing market monitoring capabilities introduced opportunities for RegTech start-ups (Eyers, 2016). This increasing use of technology in finance progressively demands more pressure on the regulators to switch their approach from regulating human behaviour to controlling and supervising the algorithmic/electronic processes and this accelerated growth of fintech has also spurred the need for RegTech (Ernst & Young, 2016).

RegTechs have the capacity to simultaneously encompass all tools related and necessary for compliance by utilising near real-time data capabilities, automating advanced algorithmic processes, linking advanced models and analytics with self-taught and fast-moving artificial intelligence. They reduce costs, decision timing and they speed up matching thus they enormously increase the value of compliance functions (Economist, 2016). They have the potential to provide continuous, uninterrupted reporting for audit, finance, and all risk management areas that sharpen the surveillance of market trends and emerging risks. Kaal and Vermuelen (2017).

8. Building Technologies in helping companies to comply

Emerging regulatory technologies were initially applied to FinTech in the wake of rapid development of the financial sector. “RegTech” has evolved into a general phenomenon that has proliferated into other sectors, most important of which are Transportation, Healthcare, Energy, Retail business and Tourism. Global RegTech spending is at \$ 68 billion as of 2022. Global RegTech spending is estimated to increase to \$ 204 billion by 2026 and is estimated to make up 50 per cent of global regulatory compliance budgets by 2026.



RegTech is still in relatively early stages and follows in parallel as a subset of fintech. Yet, neither a strict designation of what it actually is exists nor a trajectory to verify potential full-scale effects. This informatively richer and innovative technology does not properly fit into any current legal category created by recalcitrant regulatory structures. At the same time, the fintech/RegTech ecosystem is not as small to be neglected (Fernández De Lis, 2016) and yet challenger (traditional) banks are still hovering silently away from the regulators' watch owing to their size.

a. Opportunities for Government Agencies from RegTech

The governments which are top regulators of financial institutions, have the opportunities which is good for the stakeholders in fintechs.

Creating Partnerships Partnering with a third-party vendor that delivers RegTech solutions which are appropriate to the nature of the application of these technologies by relevant authorities is considered beneficial to the vendor's ability as a supporting team and government which using the tool, not as a separate organization and implementing them on their own.

Lessening Regulatory Burden RegTech tools could lessen regulatory burdens on the regulatory agencies, if the tools selected can be used both internally and externally to have efficient and immediate communication with government agencies in transparent manner.

Effective Regulatory Processes The government promotes digital transformation in the country and this can be assisted by digital knowledge of the government agencies adopting RegTech tools. By automating workflows, regulators can reduce the cost and complexity of regulatory reporting and compliance. The application of regulatory techniques will therefore be positively reflected on both regulators and regulated agencies.

Building Proactive approach RegTech tools allow the empowerment of agencies to reduce the regulatory burden imposed on stakeholders. This requires that tools can be used both internally and externally to maintain immediate and effective communication with others agencies.

b. Challenges

Until recently, regulators have been relatively impartial. The concentration on the outcome of the application of fintechs in the finance domain regulation is slow because regulation is fact-based, it is a trial-and-error-rule making process with stable and presumptively optimal rules, and it always emerges ex-post. At the same time, in a fast-paced, technology-led environment that makes money move a lot faster where important systemic risks include:

- fast credit has the potential to undermine loan-to-value (LTV) caps and hence increase credit risk in the market (Braggion et al.2018)
- Liquidity risks emerging from either faster maturity mismatching in money market funds or exponentially simultaneous unexpected withdrawals of retail funds on demand (Aggarwal and Stein, 2016).
- Capital requirements quickly becoming irrelevant or inappropriate. For example, while algorithms are tremendously effective in producing routine decisions quickly when it comes to managing complex decision-making duties, they can also produce judgement errors at intense paces that are difficult to contain if something sets off wrong. A very recent example is the massive algorithmic sell-offs of assets in the recent financial crisis.



Other equally valid reasons that help explain the caution and scepticism around RegTech are

1. A cultural, knowledge, and incentives gap between fintech specialists on the one hand and regulatory agencies on the other;
2. Uncertainty surrounding the development potential and dynamic of the RegTech market from an entrepreneur’s point for venture capital (that is, companies supported by venture capital focus on the development of absorptive capacity and they do so by utilising esoteric R&D and acquiring exoteric knowledge. Absorptive capacity has been defined as ‘a firm's ability to recognise the value of new information, assimilate it and apply it to commercial ends’ (Da Rin and Penas, 2017);
3. Resistance resulting from the potential for dislocations in the financial and labour markets (Komlos; 2014, Kaal and Vermeulen; 2017); and

9. Global presence of RegTech

Leading RegTech companies of the world providing RegTech solutions include names such as ACTICO, GmbH, Acuant, Ascent, Broadridge Financial solutions Inc., International Business Machines (IBM) MetricStreamInc, NICE Ltd, Thomson Reuters etc. The table below provides the list of global players in the field of RegTech along with the fields in which they operate.

RegTech	Firm	Solutions
Regulatory Reporting	Acarda GmbH	Offers standardized solution for asset management and fund administration, insurance companies and banks.
	Alessa	To comply with AML and CTF regulations, it offers real time due diligence, transaction monitoring, sanctions screening/watch list filtering and regulatory reporting capabilities
	April Software	Data management and reporting software for fund professionals.
Risk Management	360 factors	Designs and develops enterprise regulatory change management cloud-based management systems.
	Albany Group	Deals in software solutions and has created third-party management and oversight platforms.
	AlgoDynamix	Detects disruptive events in global financial markets and anticipates price movements.
Identity Management and Control	Accuity	Provides services for payment efficiency, compliant transactions, etc.
	Acctimize	Is a provider of anti-financial crime, risk and compliance solutions?
	Agreement Express	Is an onboarding automation platform for financial services while providing analytics?

Source: RegTech Universe (2021) by Deloitte.



In India, one of the leading RegTech players are Advantis (Avacom compliance Management Software). In this software deep domain capabilities have been developed with twin partnership of law and technology. Advantis has a robust team of law experts focus on the upkeep of data base. They keep track of the various Acts, sections, paragraphs, fixed penalties, various penalties, repeat offence penalties, reference texts, forms required for various compliances. Various compliances have been categorized, classified, complied etc. and on the other hand companies are investing in emerging technologies so that the regulations are easily searchable, accessible and usable.

CogNext Analytics Pvt Limited is a RegTech startup promoted by Alok Tiwari and Sandip Mukherjee which offers 'PlatformX' which is a next generation RegTech automation platform. It enables financial institutions to remain in control of risk, finance and regulatory compliance. It promises a fully declarative configurable and scalable technology framework platform (Cognext, (2021).

Customer XPs, based in Bangaluru, provides financial crime risk management and customer experience management to banking institutions. It sells its product under the brand name Clari5. Clari5 uses intelligent models based on neural networks, time series and complex analytics to provide the requisite insights (moneycontrol.com).

10. Conclusion

What led to the emergence of RegTech was the complicated field of discussion around the world. Though RegTech is comparatively new concept but it acts as a subset of FinTech to construct automated systems to assist compliance with the law. Emergence of RegTech has changed the traditional way of ensuring compliance by various financial institutions. Lower cost, effective and efficient compliance, flexibility, easy reporting, security, analytics, accurate information and real time data made RegTech to be considered as an independent sector.

India has complex regulatory framework where around 1536 Acts and close to 70,000 compliances which affect entrepreneurs related to labour, taxations, corporate and other business laws. Also there are over 2200 websites in India which publish regulatory changes and searching through them is not easy task. RegTech is able to provide right information at right time for decision and compliance. A proper balance between innovation, financial stability and consumer protection is of utmost important in RegTech. The probable benefits of RegTech innovations are extensive. By using RegTech applications efficiently Banks and Financial institutions can improve their risk and compliance management. The success of RegTech on a perfect blend of public-private organizational model of financial regulators to carry out financial regulation and supervision.

Only a few companies around the world are able to quickly export their fintech/regtech products and services to other countries. These are usually the 'first movers' and they are strongly financed by established financial markets and supported by advanced technology-platforms for scaling. For smaller markets, the small and medium-sized companies potentially face the future scaling and funding problem. It is difficult to forecast the future and what direction the fintech/regtech wave of change will take especially when that direction depends on the future direction of scientific knowledge. In a way, fintech's and regtech's combined dynamics is positioned way beyond any single industry's or regulator's domain. By providing cost effective and efficient solutions, RegTech has surely starting to create a space for itself and its popularity and market is only expected to grow especially in developing economies like India.



References

1. Agrawal R. (2021), The Avantis RegTech Simplifying Compliance, you tube video – podcast- Principles of navigating compliance in India & building good governance practices. <https://www.youtube.com/watch?v=g8nlkb1FV-0>
2. Anagnostopoulos, & Ioannis (2018). FinTech and RegTech: Impact on regulators and banks. *Journal of Economics and Business* forthcoming. JEB_2017_104_R1.
3. Arner, D. W., Janos Barberis, and Ross P. Buckley. (2017). FinTech, Regtech And the Reconceptualization of Financial Regulation. *North western Journal of International Law & Business* 37: 371-413.
4. Braggion, F., Manconi, A. and Zhu, H., (2018), Is FinTech a Threat to Financial Stability? Evidence from Peer-to-Peer Lending in China, November 10, Available at SSRN: <https://ssrn.com/abstract=2957411> or <http://dx.doi.org/10.2139/ssrn.2957411>
5. Bunea, S., Kogan, B. and Stolin, D. (2016), Banks Versus FinTech: At Last, it's Official, *Journal of Financial Transformation*, 44: 122-131
6. Chirulli, P. (2021). FinTech, RegTech and SupTech: Institutional challenges to the supervisory architecture of the financial markets. In *Routledge Handbook of Financial Technology and Law* (pp. 447-464). Routledge.
7. Cognext, (2021), A new generation of solutions for Financial Services – Cognext Accessed on 12 December 2021 from <https://cognext.ai/global/>
8. Colaert, V. (2021). ‘Computer says no’– benefits and challenges of RegTech. In *Routledge Handbook of Financial Technology and Law* (pp. 431-446). Routledge.
9. Coughlan, P. and Coughlan, D. (2002), Action Research for Operations Management, *International Journal of Operations & Production Management*, 22(2): 220-240
10. Coughlan, P. and Coughlan, D. (2002), Action Research for Operations Management, *International Journal of Operations & Production Management*, 22(2): 220-240
11. Dapp, T.F., Slomka, L. and Hoffmann, R. (2014), Fintech–The digital (r)evolution in the financial sector, Deutsche Bank Research,
12. De Reuver, M., C. Sørensen, and R. Basole. (2017), The Digital Platform: A Research Agenda, *Journal of Information Technology*, 1-12 <https://doi.org/10.1057/s41265-016-0033-3>
13. Evers, J. (2016), Welcome to the new world of ‘regtech’, *Australian Financial Review*, 20 June 2016, <http://www.afr.com/technology/welcome-to-the-new-world-of-regtech-20160619-gpmj6k>
14. Gulamhuseinwala, I., (2017), FinTech in the UK: next steps for investment, skills and regulation, Westminster Business Forum, Keynote Roundtable Discussion and Seminar, 17 January
15. Jakšič, M. and Marinč, M. (2015), The Future of Banking: The Role of Information Technology, *The Journal of Money and Banking*, 64(11): 68- 73, November, Special Issue, Banking at the CrossRoads: Challenges for the Future / Micro Aspects of Changes in Bank Business Models
16. Kaal, W. A. and Vermeulen, E. P. M., (2017), How to Regulate Disruptive Innovation - From Facts to Data, *Jurimetrics*, 57(2): 169-209.
17. Kanzler, V. (2015), How do Fintech Startups and a Changing Consumer Behaviour Reshape the Financial Services Industry? GRIN Publication, Thesis, June
18. Management Today. (2018). How Regtech is Changing Banking?. <https://www.managementtoday.co.uk/Regtech-changing-banking/futurebusiness/article/1492799>. September.
19. Narang, S. (2021). Accelerating Financial Innovation Through RegTech: A New Wave of



- FinTech. In *Fostering Innovation and Competitiveness with Fin Tech, RegTech, and SupTech* (pp. 61-79). IGI Global.
20. Philippon, T. (2016), *The FinTech Opportunity*, NBER Working Paper, No. 22476, August
 21. Regtech in financial services: technology solutions for compliance and reporting. Retrieved from <https://www.iif.com/publication/research-note/regtech-financial-services-solutions-compliance-and-reporting>.
 22. Romānova, I. and Kudinska, M. (2016), *Banking and Fintech: A Challenge or Opportunity?*, in Simon Grima , Frank Bezzina , Inna Romānova , Ramona Rupeika-Apoga ed., *Contemporary Issues in Finance: Current Challenges from Across Europe* (Contemporary Studies in Economic and Financial Analysis, 98:21 – 35, Emerald Group Publishing Limited
 23. Scott, S., Van Reenen, J., and Zachariadis, M. (2017), *The long-term effect of digital innovation on bank performance: An empirical study of SWIFT adoption in financial services*, *Research Policy*, 46(5): 984–1004.
 24. Von Solms, J. (2021). *Integrating Regulatory Technology (RegTech) into the digital transformation of a bank Treasury*. *Journal of Banking Regulation*, 22(2), 152-168, <https://doi.org/10.1057/s41261-020-00134-0>
 25. Wiley, N.D., *The ROI of RegTech*: [https://www.wiley.com/en-us / The+REGTECH+Book%3A+The+Financial+Technology+Handbook+for+Investors%2C+Entrepreneurs+and+Visitors+in+Regulation-p-9781119362142](https://www.wiley.com/en-us/The+REGTECH+Book%3A+The+Financial+Technology+Handbook+for+Investors%2C+Entrepreneurs+and+Visitors+in+Regulation-p-9781119362142)
 26. World Economic Forum, n.d. *Regulatory Technology for the 21st Century*. <https://www.weforum.org/whitepapers/regulatory-technology-for-the-21st-century/>
 27. Zavolokina, L., Dolata, M. and Schwabe, G. (2016), *The FinTech phenomenon: antecedents of financial innovation perceived by the popular press*, *Financial Innovation*, 2:1-16.
