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Article

# FinTech in Latvia: Status Quo, Current Developments and Challenges Ahead

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**Abstract:** FinTech has been in the focus of the discussion for quite some time. However, the market share of FinTech companies is still relatively small in compared to more traditional financial services. The purpose of this paper is to analyse the status quo, current developments and challenges ahead for the Latvian FinTech sector. We combine three analyses: the political and legal, the economic, the social and the technological environment (PEST) analysis, an analysis of the size and performance of FinTech companies during the last 10 years, and a survey among FinTech companies. We find that the current status of regulation is one of the main obstacles to FinTech development, because it does not sufficiently consider FinTech-specific aspects. Problems in attracting skilled workforce, and an environment that is not very supportive of new developments in finance are further challenges and might explain at least part of the growth and performance difficulties. A revision, modernization and harmonization of regulation is essential to create a level playing field for all market participants: FinTech companies, traditional financial service providers and those originally traditional players that are integrating FinTech solutions in their business model. Further efforts are also required to foster the Latvia's attractiveness for skilled workforce. We hope that this study helps increase the visibility of Latvian FinTech and contributes to the development of the new Latvian FinTech strategy.

**Keywords:** FinTech; Financial markets; PEST analysis; Survey analysis

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## 1. Introduction

FinTech, i.e. the integration of finance and new technologies, has been in the focus of the discussion in the financial industry, in politics and regulation and in academic research for quite some time. However, even though FinTech has often been labelled a disruption to the financial industry (Gomber et al. 2018; Laivi Laidroo et al. 2021), the market share of FinTech companies is still relatively small in most areas compared to more traditional financial services (IMF 2019). FinTech companies in Latvia provide services that are complementary to traditional financial services, but also services that represent (potential) substitutes for services covered by traditional financial service providers. Therefore, the development of FinTech increases competition in the markets for financial services. It is worth mentioning, though, that FinTech development is not limited to pure FinTech companies. Instead, also traditional financial service providers have made increasing efforts in integrating FinTech solutions into their business models which means that it is not fully possible to consider FinTech completely separately from more traditional financial service providers.

The success of FinTech development depends on, e.g., access to finance and human resources and the attitude of regulators, in particular with regard to openness to innovation and flexibility (Rupeika-Apoga and Thalassinou 2020). Also the risks for potential and actual clients (Horn, Oehler, and Wendt 2020) and trust in financial services play important

roles (Oehler and Wendt 2018). In Latvia, FinTech development meets well developed financial market infrastructure as well as a highly-skilled workforce with relatively high entrepreneurial ability. Besides, Latvia is internationally highly ranked in the context of the information and communications technology (ICT) development, showing strong positions in Internet subscriptions, electricity access and supply quality, and the percentage of Internet users among the adult population (World Economic Forum 2019, 2020). Depending on their specific activities, FinTech companies are regulated and monitored by the Latvian Financial and Capital Market Commission (FCMC 2021a), the Consumer Protection Center (CRPC) or the State Revenue Service. FinTech-specific legislation is not existent in Latvia, though. Additionally, Latvia has a much more detailed and rigorous approach to customer due diligence than other countries (Saksonova and Koļeda 2017), which affects FinTech companies as customers of Latvian banks, and also in cases where FinTech companies want to obtain an FCMC license to provide their service.

Despite the publication of some market factsheets, e.g., by the commercial bank Swedbank (Swedbank 2020) and Fintech News Baltic blogs (FinTech Baltic 2020), a comprehensive understanding of the main drivers of the development of FinTech companies in Latvia has not yet been achieved. The purpose of this study is to add to this understanding, to shed light on the status quo, current developments and challenges ahead for the Latvian FinTech sector and to develop suggestions on how to foster the FinTech development in Latvia.

To achieve the purpose of this study, we combine three analyses: First, we perform an analysis of the *political and legal*, the *economic*, the *social* and the *technological* environment (PEST analysis) that FinTech companies are facing in Latvia. Second, we analyse size and performance development of FinTech companies in Latvia during the last 10 years. Third, we analyse these companies' responses to a survey with particular emphasis on their own assessment of current and potential future developments.

Our contribution to the academic literature and the public and political debate is fourfold. *First*, with its focus on the environment Latvian FinTech companies are facing, their actual size and performance development and their own assessment of various drivers and obstacles of FinTech development, we substantially contribute to a comprehensive understanding of the complex topic of FinTech development in Latvia. Improving such an understanding will also help raise awareness for FinTech in Latvia.

*Second*, based on the results of our analyses, we discuss suggestions how to support FinTech development in Latvia. These suggestions might be of particular interest for FinTech companies, for traditional financial service providers, and for policy makers and regulators.

*Third*, the current research assists in the development of the new Latvian FinTech strategy by providing findings based on the results of the FinTech Survey. This paper helps policymakers to understand the main obstacles and challenges in the development of the FinTech market. The new policy is expected to be finalised by October 31, 2021.

*Fourth*, the findings of this study also provide implications beyond Latvia. Latvia is a small country with a small market, which might not necessarily appear of particular importance on a global scale or when it comes to international comparison in the context of FinTech. However, when it comes to FinTech, small size of a country is not necessarily a disadvantage. As part of the Global Fintech Index City Rankings report 2020, (Findexable 2019) ranks Latvia's immediate neighbours Lithuania and Estonia fourth and tenth, respectively, in its global FinTech country rankings. According to the Fintech News Network, Latvia, Zimbabwe and Israel have witnessed the highest surge in FinTech interest worldwide in 2021 (FinTech Baltic 2021). Hence, our findings for Latvia can also be

relevant to other small countries, such as Lithuania, Estonia, Malta, Belarus, Gibraltar, and others.

We find that the current status of regulation is one of the main obstacles to FinTech development. This is reflected in both the PEST analysis and the responses to the survey. The regulation currently does not sufficiently consider FinTech-specific aspects. A revision, modernization and harmonization of regulation in particular across different categories of financial services, across different types of companies/institutions providing these services, irrespective of a higher or lower degree of involvement of new technologies, and internationally would truly provide a level playing field for all market participants: FinTech companies, traditional financial service providers and those originally traditional players that are integrating FinTech solutions in their business model. Comprehensive regulation would also correspond to our finding that FinTech companies see themselves less in a disruptive role, but they emphasise partnership with traditional banks and that traditional financial service providers will integrate new technology. The size and performance development of FinTech companies in Latvia during the last ten years indicates some difficulties when it comes to growth and also when it comes to establishing and maintaining business models that are financially sustainable. Problems in attracting skilled workforce, and an environment that is not very supportive of new developments in finance are further challenges and might explain at least part of the growth and performance difficulties. Hence, further efforts are required to foster Latvia's attractiveness for skilled workforce.

The structure of this paper is as follows. The next section, Section 2, focuses on the data and methodology. Section 3 uses a PEST analysis framework to investigate the environment that the Latvian FinTech companies are facing. Section 4 provides an overview of the performance of a number of FinTech companies in Latvia during the last 10 years. Subsequently, Section 5 presents and discusses these companies' responses to a survey with particular emphasis on their own assessment of current and potential future developments. Section 6 discusses the findings and concludes.

## 2. Data and methodology

The PEST analysis uses desk research methodology, also including the analysis of corresponding regulation. To be able to analyse size and performance development and to identify potential survey participants, we needed to identify FinTech companies that are registered in Latvia, because there is no official list of such companies. Neither the Latvian central bank, nor the FCMC, nor the Ministries of Finance and Economics provide a list of FinTech companies. The only available FinTech landscapes are provided by FinTech Baltic (2020) and Swedbank (2020). The Fintech Latvia Startup Map 2020 consists of 50 FinTech startups (FinTech Baltic 2020). According to the Latvian FinTech Report 2020 prepared by Swedbank in cooperation with Startin, however, the number of FinTech companies in 2019 was 75, and in 2020 it reached 91 (Swedbank 2020).

Such difficulties in classifying FinTech companies relate to the emergence of new business models, which make it difficult to gather a comprehensive list. The commonly used definition provided by the Financial Stability Board explains FinTech as *"technology-enabled innovation in financial services that could result in new business models, applications, processes or products with an associated material effect on the provision of financial services"* (Financial Stability Board 2019). According to the OECD, *"FinTech involves not only the application of new digital technologies to financial services but also the development of business models and products which rely on these technologies and more generally on digital platforms and processes"* (OECD 2018). According to EU Parliament definition, FinTech should be understood *"as finance enabled by or provided via new technologies, covering the whole range of financial services, products and infrastructure"* (The European Parliament 2017). The definition also includes

InsurTech and RegTech as corresponding concepts related to insurance and regulation, respectively.

We use the definition of FinTech provided by the Bank of Latvia. Following this definition, FinTech is *“a company which develops and uses new and innovative technologies in the area of financial services. This leads to the development of new financial products and services or a significant improvement of the existing ones”* (Bank of Latvia 2020). To be included in the dataset, the FinTech companies had to be registered in the Register of Enterprises of the Republic of Latvia and their activity had to fall under at least one of the following seven areas:

- Analytics – data mining, data (business) analytics, big data analysis, machine learning, artificial intelligence used for automated advice, chatbots, customer relations management, and data handling.
- Banking infrastructure – user interface, processing enhancement, technology infrastructure, various trading platforms, and software companies with a focus on the financial sector.
- Deposit and Lending – crowd investing, crowdlending, invoice trading, and other lending forms such as payday loans.
- Distributed Ledger Technology – cryptocurrency and everything encompassing blockchain technology, even from companies that are payment or crowdfunding companies at the same time.
- Insurance – insurance-related products and services, and InsurTech.
- Payments – mobile payments, online payments, money transfers, and anything related to payments.
- Investment management – online investment processes based on algorithms and models, robo advisors, and social trading.

This classification is similar to the one used in the IFZ FinTech Study 2018 (Ankenbrand, Dietrich, and Bieri 2019) and the FinTech Report Estonia 2019 (Tirmaste et al. 2019).

To find companies to be included in our analysis, we identified companies listed as FinTech companies in the Crunchbase, a platform for finding business information about private and public companies (Crunchbase 2020) and checked whether these companies fell under our definition. Then we added FinTech companies found from other data sources: Key Capital for Latvia (Key Capital 2020), Alternative Financial Services Association of Latvia (The Alternative Financial Services Association of Latvia 2021) and Investment and Development Agency of Latvia (Investment and Development Agency of Latvia 2020). Also, the list of FinTech companies was cross-checked against the Register of Enterprises of the Republic of Latvia to ensure that only FinTech companies incorporated in Latvia are considered. This differs from the FinTech lists provided by FinTech Baltic and SwedBank as they also include companies registered in other countries but operating in Latvia. In 2019, we identified 66 companies that meet our criteria. However, during the preparation of the paper, some companies were dissolved due to mergers or acquisitions, some changed countries of registration or are in the liquidation process. As a result, 56 companies were selected for inclusion in the dataset. As the definition of FinTech is controversial and as the FinTech sector is rapidly evolving, we understand that our dataset can never be complete.

The survey questions were mainly based on the IFZ FinTech Study 2019 questionnaire (Ankenbrand, Dietrich, and Bieri 2019) and the FinTech Report Estonia 2019 (Tirmaste et al. 2019), and were modified to assess the development of Latvian FinTech companies. The survey starts with general questions about the company, such as business model (B2B vs. B2C) and fields of activity, and questions on fields of activity, revenue model and on some details of the operations. Then, the survey asks participants to rate a number of problem areas, such as competition, access to finance and regulation, on how pressing they are on a scale from 1 (not pressing) to 10 (extremely pressing).<sup>1</sup> The final section of the survey includes questions on the current and expected future relationship between FinTech and traditional banking and between FinTech and the Latvian state, on the main triggers of FinTech development and the role of regulation. Most of the questions in this section of the survey were open-ended questions; for few questions, some pre-defined response items were included, but always accompanied by an open-ended response option. The results section will provide more details on the response items.

The survey was conducted as online survey in the summer of 2019. Links to the online questionnaire (on Google docs) were sent via e-mail to the 56 companies identified as FinTech companies. Corresponding e-mail addresses were determined based on data presented in local business registries or companies' web-pages, or found through personal contacts. If possible, the e-mail was targeted directly to the company's owners, board members, or executives (e.g., CEO, CFO). In remaining cases, it was sent to the company's general e-mail address. The first e-mail was followed by two to three reminders. In some cases, also follow-up phone calls and instant messaging through social media were used to increase the response rate. Local institutions helped also by spreading the word about the survey and news sites were used for the same purpose. We received a total of 21 responses, which corresponds to a response rate of 37.5 percent. Even though the number of responses does not allow detailed statistical analysis, the response rate can be considered satisfactory for this type of survey (Hoque 2004; Olson and Slater 2002; Rikhardsson et al. 2020).

In addition, and to examine the latest trends in the development of FinTech companies in Latvia, we collected size and performance measures for the FinTech companies that responded to the survey from Bureau van Dijk's Orbis database (Bureau van Dijk 2021) for the period from 2010 to 2019. As size measures, we include number of employees, turnover and total assets, as performance measures we include return on equity (RoE) and profit margin. Given the low number of companies, we abstain from details statistical analysis, but provide corresponding descriptive statistics instead. Even though using data for these companies instead of all FinTech companies in Latvia might bias our results to some degree, using the smaller sample of companies that responded to the survey allows us to discuss the size and performance development and the responses to the survey jointly.

Another challenge is the increasing number of FinTech companies over time. This means that we do not have data for all companies across the entire period from 2010 to 2019. Also, in very few cases, data points are missing. This means that results from comparing between years need to be interpreted with caution, in particular because new market entries are typically smaller than already established companies.

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<sup>1</sup> The survey additionally included some questions on the financial situation of the companies and how they evaluate themselves vis-à-vis competitors. These questions were not considered for the further analysis though, because we decided to collect financial information on survey participants separately for a longer observation period.

### 3. The Latvian FinTech environment

To provide a thorough overview of the Latvian FinTech environment, we analyse the political and legal, the economic, the social and the technological environment (PEST analysis) (Sammut-Bonnici and Galea 2015). This analysis of the environment FinTech companies are facing in Latvia is essential to be able to understand the status and development of FinTech in Latvia.

The analysis of the political and legal environment is of importance due to increased competition between cities and, in particular, countries to become FinTech centres or hubs. Taking into account the experience of other countries, regulation can be an effective tool in stimulating innovation and economic development. Differences in the legal environment can lead to regulatory arbitrage between different jurisdictions (Rupeika-Apoga and Thalassinou 2020). Combining this thought with differences in political support or goodwill can even lead to regulatory/politically-induced arbitrage within the same jurisdiction between cities or regions with different political situations (Ito et al. 2020). Eventually, this can trigger a race to the bottom between jurisdictions in deregulating the legal environment and/or an escalation in political, and potential financial, support to attract or keep FinTech companies. This becomes even more interesting when considering that relatively similar business models might be categorized pretty differently depending on whether corresponding products and services are offered by traditional financial intermediaries or by FinTech companies and even depending on different types of FinTech companies (Tirmaste et al. 2019).

The economic environment refers to external economic factors that affect the economic, e.g. purchasing, habits of consumers/customers and businesses and, therefore, affect aspects such as actual and potential market size and development, entrepreneurial activity and performance of FinTech companies. Customer purchasing power, taxes, unemployment, and many other economic factors can promote or hinder the development of FinTech companies (Filimonova et al. 2020). The PEST analysis helps us assess how favourable the economic environment is in Latvia compared to neighbouring countries and Europe.

FinTech companies, like any other company, operate in a society, while each society constructs its own social environment. The main factors affecting the social environment and, hence, also FinTech companies include, e.g., the educational system and literacy level, attitudes towards innovative products, lifestyle, occupational distribution and consumer preferences, labour force expectations, consumption habits and social inequality (Kluza, Ziolo, and Spoz 2021). FinTech companies must be aware of the social preferences of society in relation to its needs and desires, and they must adapt to the social environment in which they operate in order to be competitive.

The technological environment includes forces associated with scientific improvement and innovation that provide new ways of producing goods and services, as well as new methods and techniques for doing business (Saksonova 2014). FinTech is inherently connected with technological development. In order to study the current situation and development of the Latvian FinTech sector, it is necessary to analyse aspects such as the pace of technological progress, institutional mechanisms for the development and application of new technologies, to name a few.

### 3.1. Political and Legal Environment

#### 3.1.1. EU Regulatory Framework

As Latvia has been member of the European Union (EU) since 2004, EU regulation provides the main regulatory framework. In 2018, the European Commission adopted the FinTech action plan for the development of a more competitive and innovative financial sector in Europe with the main purpose to increase supervisory convergence toward technological innovation and to allow the EU financial sector to benefit from new technologies (The European Commission 2018). Not only is the purpose to build a capital markets union, but also a digital single market for consumer financial services in order to allow innovative products and solutions to spread quickly across the EU. One of the purposes is to prevent regulatory arbitrage between the legal statuses, legislation and supervision in the Member States. The EU regulation focuses on the application of the same rules to the same services and the same risks regardless of the type of legal entity concerned or its location in the Union, technology neutrality and a risk-based approach, taking into account the proportionality of legislative and supervisory actions to risks and materiality of risks (The European Parliament 2017).

Latvia has implemented European regulation on a number of aspects that also relate to FinTech. Implemented directives include the Payment Services Directive (PSD2) (The European Parliament and of the Council 2015), the Directive on the prevention of the use of the financial system for the purposes of a Money Laundering and Terrorist Financing (AMLD5) (The European Parliament and of the Council 2018), the Markets in Financial Instruments Directive (MiFID-2) (The European Parliament and of the Council 2014), Near-Field Communication (NFC) (European Union 2009), the Investment Firms Directive ((EU) 2019/2034) (IFD) and the Investment Firms Regulation ((EU) 2019/2033) (IFR) (The European Parliament and of the Council 2019b); the new Prospectus Regulation (Commission Delegated Regulation (EU) 2019/980) regarding the format, content, scrutiny and approval of prospectuses has been published in the Official Journal (The European Commission 2019). However, Latvia's more detailed and rigorous approach to customer due diligence than in other countries and higher compliance cost create challenges for FinTech companies as customers of Latvian banks, and when obtaining an FCMC license.

In addition, in November 2021, a new regulation on European providers of crowdfunding services for businesses will enter into force. This regulation is part of the Commission's FinTech action plan with the aim of introducing a unified system across all EU member states to facilitate the provision of cross-border co-financing services (The European Parliament and of the Council 2020).

#### 3.1.2. Latvian Regulatory Framework

As there is no specific legislative framework for FinTech companies in Latvia, they have to obtain licenses that match their business models if they require licensing, such as deposit-taking, investment management, capital raising, issue of financial instruments, provision of payment or electronic money services, insurance or provision of consumer credit services. The FCMC or the CRPC regulate and supervise FinTech companies, depending on their financial services. The main supervisor is FCMC, while CRPC is responsible for, e.g., consumer protection, market surveillance, and the safety of products and services.

The main market participants are credit institutions, credit unions, investment management companies, investment brokerage firms, alternative investment fund managers,

insurance companies, payment institutions, private pension funds<sup>2</sup> and electronic money institutions. All institutions are subject to national laws and regulations, including the licensing process. There is a broad variety of rules and regulations, which means that financial institutions are regulated very differently depending on the segment of the financial sector they are active in. Hence, the following overview cannot provide a complete picture of corresponding regulations but is intended to provide a brief idea of the regulatory framework.<sup>3</sup>

*Credit* institutions and credit unions (financial cooperatives) need to submit to the FCMC (The Financial and Capital Market Commission 2002) the corresponding application and documents to receive an operating licence (permit). The minimum initial capital for a credit institution is five million euros, while for credit unions the minimum initial capital is 2,500 euros, and the decision to issue a licence is adopted by the European Central Bank based on a draft proposal by FCMC. Regulation that applies to credit institutions includes, e.g., the Deposit Guarantee Law (The Parliament of the Republic of Latvia 2015a) and the Law on the Recovery and Resolution of Credit Institutions and Investment Firms (The Parliament of the Republic of Latvia 2017). Credit Unions are regulated by the Credit Union Law (The Parliament of the Republic of Latvia 2001a) and the Regulations on the State Fee for the Issue of a Special Permit (Licence) for Individual Types of Entrepreneurial Activity (Cabinet of Ministers 2011). FinTech companies that are only interested in offering consumer lending services are regulated by the Consumer Protection Act (The Parliament of the Republic of Latvia 1999) and monitored by the CRPC. These companies do not need a licence as credit institution but should obtain a license from the CRPC and their initial capital must be at least EUR 425,000.

*Investment*-related services are provided by investment management companies, investment brokerage firms (investment firms) and by alternative investment fund managers. Corresponding regulation includes for investment management companies, e.g., the Law on the Investment Management Companies (The Parliament of the Republic of Latvia 1997), the Commercial Law (The Parliament of the Republic of Latvia 2000), and the Investor Protection Law (The Parliament of the Republic of Latvia 2001b). For investment firms, which provide investment and ancillary (non-core) services, such as brokerage, investment advice, portfolio management and custody services, regulation includes, e.g., the Law on the Financial Instruments Market (The Parliament of the Republic of Latvia 2003) and the regulatory enactments of the FCMC, and potentially regulation by the Latvian Central Depository. For alternative investment fund managers, the Law on Alternative Investment Funds and their Managers (The Parliament of the Republic of Latvia 2013), the FCMC normative acts, EU Regulations, the Commercial Law and other regulatory enactments apply. An alternative investment fund manager can commence its activities after its registration with the FCMC (registered manager) or after the receipt of the corresponding license (licensed manager). Also, investment management companies and investment firms must apply for a licence from the FCMC. The minimum initial capital shall be EUR 125,000 for investment management companies. On 26 June 2021, most investment firms became subject to a new prudential framework, composed of Regulation (EU) 2019/2033 (The European Parliament and of the Council 2019c) and Directive (EU) 2019/2034 (The European Parliament and of the Council 2019a). A permanent minimum

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<sup>2</sup> Private pension funds are not further considered in the following descriptions because of relatively low relevance in the context of FinTech.

<sup>3</sup> Beyond the regulatory situation described in this section, all financial service providers are subject to the Law on the Prevention of Money Laundering and Terrorism and Proliferation Financing (The Parliament of the Republic of Latvia 2008). The main institutions dedicated to combating money-laundering are the Financial Intelligence Unit of Latvia, FCMC, the State Revenue Service and CRPC.

capital requirement set in the regulation is EUR 75,000, EUR 150,000, or EUR 750,000, depending on the activities of the investment firm.

*Insurance* companies are regulated under the Law on Insurance and Reinsurance (The Parliament of the Republic of Latvia 2015b), the Compulsory Civil Liability Insurance of Owners of Motor Vehicles Law (The Parliament of the Republic of Latvia 2004), the Insurance Contract Law (The Parliament of the Republic of Latvia 2018), the Insurance and Reinsurance Distribution Law (The Parliament of the Republic of Latvia 2019) and the Law on Insurance and Reinsurance. If they intend to offer particular insurance classes (motor vehicle third-party liability insurance, aircraft or ship ownership liability insurance, general liability insurance, credit insurance, suretyship insurance or life assurance) a minimum initial capital of EUR 3.7 million applies, in other cases a minimum initial capital of EUR 2.5 million.

Institutions that offer *payment services* as specified in Article 1(1) of the Law on Payment Services and Electronic Money (The Parliament of the Republic of Latvia 2010) need a licence from the FCMC. If a natural or legal person wishes to offer payment services, but is not required to obtain a licence as payment institution, it needs to be registered at the FCMC. The initial capital of a licensed payment institution must be at least EUR 20,000 if it provides only money remittance services, EUR 50,000 if it provides only the payment initiation services, and EUR 125,000 if it provides any of the payment services referred to in the above mentioned Article 1 (1), Subparagraphs a, b, c, d or e. No initial capital is required if it only provides an account information service. However, a payment institution that provides an account information service and/or a payment initiation service needs to have its professional civil liability insurance. Besides, financial allowances for persons intending to provide only an innovative payment service, which requires the authorisation of a payment institution or electronic money institution, are described in the Law on Payment Services and Electronic Money.

Institutions that wish to issue *electronic money* need a licence from FCMC or – if they do not need a licence – need to be registered at the FCMC. These institutions are entitled to provide payment services in accordance with the Law on Payment Services and Electronic Money. The initial capital of a licensed electronic money institution shall be at least EUR 350,000, also in the case that it additionally offers payment services (The Parliament of the Republic of Latvia 2010).

Even though some *other services* provided by FinTech companies might currently not need a licence from FCMC or CRPC, the regulatory framework for such innovative activities is evolving. Investment platforms for example need to obtain a licence from FCMC during the transition period. The State Revenue Service monitors cryptocurrency-related activities. Similar to regulators in other countries, the FCMC has launched a regulatory innovative sandbox and hub<sup>4</sup> to allow testing of innovative financial services, such as a new or substantially improved electronic payment or electronic money service. The intention behind such a testing opportunity is to reveal whether or not the innovative financial service leads to one or more of the following improvements (FCMC 2021b):

- increased competition, i.e. is the innovative financial service more advantageous, less costly and easier to use than traditional services,
- potential response from traditional market participants either by improving their service or by adopting the innovative business model,

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<sup>4</sup> Combined with potential free FCMC expert advice in PSD2, crowdfunding and/or virtual assets.

- access for consumers and non-professional customers to market segments that have traditionally not been available to them.

### 3.2. Economic Environment

One of the preconditions for vibrant FinTech development is a well-developed economic environment. Since the general economic environment in a country, such as economic growth, economic policy, tax rates, ease of doing business and costs, affects FinTech businesses, FinTech companies – due to their high degree of international mobility – are typically located where the economic environment best meets their business needs. Low tax rates and the monetary policy (currency stability, interest rates) are typically considered as most important factors.

According to a Global Financial Centres Index (GFCI) survey, the most important elements of a competitive environment for FinTech providers include the availability of skilled professionals and access to finance combined with big data analytics and cybersecurity as most important applications (Yeandle 2015). With regard to the level of development of the financial market infrastructure, there is a need for an efficient trading system and a variety of tradable financial instruments, such as stocks, bonds and derivatives. Well-developed financial markets allow financing via traditional channels, such as stock exchanges or banks, or via alternative channels, such as crowdfunding, venture capital or business angels. The efficiency of the payment system, its speed and security also play important roles (Rupeika-Apoga and Nedovis 2016).

The World Bank's (2020) Doing Business Report ranks Latvia 19<sup>th</sup> among the 190 countries covered by the report (World Bank Group 2020). While that report draws a relatively positive picture for the overall business environment, the Global Financial Centres Index (GFCI) ranks the Latvian capital Riga in March 2020 only 70<sup>th</sup> out of 108 cities. While this rank is nearly the same as in 2016 when Riga ranked 71<sup>st</sup>, the city had climbed to rank 45 in the meantime and outperformed centres such as Stockholm (46<sup>th</sup>), Liechtenstein (48<sup>th</sup>) and Copenhagen (52<sup>nd</sup>) (Long Finance And Financial Centre Futures 2020; Solovjova, Rupeika-Apoga, and Romānova 2018). However, Riga could not maintain this position, mainly due to the major scandals related to the anti-money laundry (AML) processes and involving several Latvian banks.

On the Global Entrepreneurship Index, which measures the quality and dynamics of entrepreneurship ecosystems, Latvia ranked 45<sup>th</sup> out of 137 countries in 2019, which is lower than Latvia's neighbours Estonia (22<sup>nd</sup>) and Lithuania (37<sup>th</sup>). In the different subcategories, Latvia's rank ranged from 38<sup>th</sup> for entrepreneurial ability to 51<sup>st</sup> for entrepreneurial aspiration (Ács et al. 2019)

In the Findexable (2019) Global FinTech Index City Rankings 2020, Latvia ranks 49<sup>th</sup> out of 65 countries with Riga ranking 34<sup>th</sup> among 50 leading European cities and 96<sup>th</sup> among 238 cities worldwide. Again, Latvia is outperformed by Lithuania (4<sup>th</sup> rank) and Estonia (10<sup>th</sup> rank) (Findexable 2019).

### 3.3. Social Environment

One of the main sources of FinTech competitiveness and development is a skilled and educated workforce (Rupeika-Apoga and Saksonova 2018). This relates to the local professional workforce, representing the majority of the workforce, and additionally to a smaller number of international professionals, who follow and develop their business moving from country to country, as well as to the relationship between these two groups. FinTech development requires highly skilled international workforce with deep and extensive knowledge and experience in financial and technology services. A large number

of highly qualified potential local employees as result of, e.g., strong education policies combined with flexible labour legislation would allow companies to recruit and expand according to business needs. Attracting international professionals requires open and flexible immigration policies.

The IMD World Talent Ranking (Institute for Management Development 2019), which evaluates the extent to which economies develop, attract, and retain highly skilled professionals, ranks Latvia 12<sup>th</sup> in Investment and Development, 48<sup>th</sup> in Appeal and 41<sup>st</sup> in Readiness, resulting in an overall rank of 34<sup>th</sup> out of 63 countries. Latvia ranks particularly well when it comes to female labour force (2<sup>nd</sup>), government expenditure on education per student (7<sup>th</sup>) and pupil-teacher ratio in secondary education (9<sup>th</sup>). However, brain drain (50<sup>th</sup>), remuneration in services professions (51<sup>st</sup>) and effective personal income tax rate (47<sup>th</sup>) represent main obstacles.

In 2019, the Global Competitiveness Report (World Economic Forum 2019) ranks Latvia 22<sup>nd</sup> regarding skills, but only 100<sup>th</sup> out of 141 countries when it comes to ease of finding skilled workforce. Overall, Latvia ranks 28<sup>th</sup> regarding labour market with favourable conditions in wage flexibility (10<sup>th</sup>) and workers' rights (26<sup>th</sup>), but low scores in ease of hiring foreign labour (113<sup>th</sup>) and labour tax rate (114<sup>th</sup>). Further, the Europe 2020 Competitiveness Report (World Economic Forum 2020) ranks Latvia 5<sup>th</sup> in labour market and employment, but only 22<sup>nd</sup> in education and training and 25<sup>th</sup> in social inclusion.

### 3.4. Technological Environment

The World Economic Forum (2019) ranks Latvia 15<sup>th</sup> out of 141 countries when it comes to information and communication technology (ICT) adoption, with particularly strong position in mobile-broadband and fibre internet subscriptions (12<sup>th</sup>), even though Latvia only ranks 32<sup>nd</sup> regarding Internet users within the adult population. Moreover, electricity access is excellent (2<sup>nd</sup>), while electricity supply quality (34<sup>th</sup>) and digital skills among active population (39<sup>th</sup>) still need improvement (World Economic Forum 2019).

However, out of 27 European countries Latvia ranks only 20<sup>th</sup> in Digital agenda and 24<sup>th</sup> in Innovative Europe index, significantly lagging behind its neighbours Estonia (5<sup>th</sup> in Digital agenda and 12<sup>th</sup> in Innovative Europe), and Lithuania (11<sup>th</sup> in Digital agenda and 21<sup>st</sup> in Innovative Europe) according to the Europe 2020 Competitiveness Report (World Economic Forum 2020).

## 4. Size and performance of FinTech companies

In this section, we research the 21 FinTech companies that responded to the survey<sup>5</sup> to determine the latest trends in financial performance and size.

Table 1 displays statistics for three size measures: number of employees (Panel A), turnover (Panel B) and total assets (Panel C). On average, the number of employees increases continuously between 2010 and 2017 and remains stable afterwards. Even though the average might be influenced by one relatively large company as reflected by the maximum number of employees in the sample, the median number of employees largely confirms the steady increase until 2017 and stable figures in 2018 and 2019. Moreover, from 2017 on, the number of companies in the sample is quite stable. Interestingly, however, the development of turnover and total assets is not completely in line with the increase in the number of employees. Turnover and total assets increase quite strongly between 2010 and 2013. Subsequently, turnover fluctuates around the 2013 level both in terms of mean and median values and only increases substantially again in 2018. Total assets fluctuate

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<sup>5</sup> Survey results are presented in the next section.

around the 2013 level until the end of the observation period in terms of median values, whereas mean values drop quite significantly between 2013 and 2015 and largely remain at the 2015 level until 2019. The latter effect seems to be driven by the largest company in the dataset as indicated by the development of the maximum value.

**Table 1.** Size of FinTech companies

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
<i>Panel A: Number of employees</i>										
Mean	6	14	18	32	33	39	43	46	47	46
St. Dev.	6	17	25	57	67	70	80	74	70	64
Median	5	8	9	14	11	14	20	24	24	26
Min	1	0	1	1	1	3	3	1	3	2
Max	18	56	86	200	243	260	322	311	295	266
N	6	8	9	10	11	12	14	15	15	16
<i>Panel B: Turnover in thousand USD</i>										
Mean	528	3,953	7,710	12,571	9,773	9,623	8,306	8,852	10,589	9,213
St. Dev.	266	6,978	15,712	28,498	22,360	22,037	11,798	11,417	13,233	10,733
Median	703	787	926	2,698	1,822	3,078	1,910	2,586	5,121	4,069
Min	105	103	82	89	247	3	1	8	32	101
Max	761	20,920	48,959	92,909	76,504	85,168	39,230	36,770	42,509	30,354
N	5	7	8	9	10	13	16	17	17	18
<i>Panel C: Total assets in thousand USD</i>										
Mean	776	4,622	16,548	30,970	27,527	21,734	21,029	24,150	21,153	19,252
St. Dev.	605	8,122	40,316	76,071	78,379	51,725	42,655	46,834	36,511	30,893
Median	585	1,736	2,141	2,980	1,675	3,201	3,450	4,093	2,549	3,677
Min	181	270	374	861	55	162	43	141	368	595
Max	2,050	25,912	130,451	245,895	297,402	204,791	176,417	195,143	149,172	124,631
N	6	8	9	9	13	14	16	17	18	19

Table 2 presents financial performance figures in terms of return on equity (RoE, Panel A) and profit margin (Panel B). Most striking is the huge variation in performance over time, as indicated by the development of mean and median values, and between companies, as indicated by standard deviation and minimum and maximum values. The relatively few FinTech companies that are included at the beginning of the observation period show quite high performance in 2010 and 2011. Performance drops, though, in 2012 and fluctuates around this level with quite substantial swings in performance until around 2016 or 2017, depending on the measure. Only towards the end of the observation period, performance seems to improve to a higher level, at least for some of the measures.

As indicated above, we need to interpret these results with caution. However, the huge variation over time and across companies indicates that, overall, the FinTech sector does not appear to have found a basis for stable business development and performance. Furthermore, the huge negative performance by some of the companies, as partially reflected by the minimum values, might indicate that some of the business models might not (yet) be financially sustainable.

**Table 2.** Financial performance of FinTech companies

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
<i>Panel A: Return on Equity in percent</i>										
Mean	77.8	51.9	2.1	20.0	2.8	-11.2	20.2	2.2	9.9	26.6
St. Dev.	65.6	24.6	83.7	38.5	36.7	64.4	77.5	107.5	180.8	38.3
Median	77.8	58.7	15.6	14.3	13.5	-4.9	3.7	38.7	26.6	25.5
Min	12.2	12.6	-177.7	-36.6	-60.3	-128.7	-123.4	-330.7	-555.1	-72.4
Max	143.4	81.7	107.8	74.8	48.6	100.0	199.0	93.8	410.5	99.4
N	2	5	8	8	11	11	11	12	15	14
<i>Panel B: Profit margin in percent</i>										
Mean	2.7	36.1	15.4	2.1	3.8	11.3	9.4	4.4	19.9	8.5
St. Dev.	43.9	16.4	22.7	27.9	29.0	20.8	42.3	25.3	25.6	40.9
Median	22.6	42.0	12.4	2.1	9.3	5.5	2.1	0.8	15.2	13.2
Min	-71.7	3.3	-28.4	-41.6	-59.5	-15.3	-79.4	-40.6	-25.4	-71.4
Max	37.2	56.2	53.1	45.9	38.5	44.4	93.1	50.2	91.5	95.4
N	4	7	7	9	8	10	12	13	14	16

## 5. Survey results

In total 21 FinTech companies responded to the survey. Twelve of them state their field of activity as *deposit & lending*, three state *payments* and two state *investment management* or *investment brokerage*. One states *invoice discounting/financing*, one *P2P lending*, one *analytics, payments, transaction processing, public finance management* and one states *analytics, banking infrastructure*. This means that even though *deposit & lending* represents the largest group, the group of respondents is quite diverse and includes representatives of most of the essential areas of FinTech activity.

Even though FinTech is often considered disruptive of traditional financial services (Gomber et al. 2018), the survey responses to the questions of how FinTech companies will change traditional banks, as presented in Table 3, leave a different impression. Nineteen of the 21 respondents expect that FinTech companies will be partners of traditional banks and sixteen respondents expect that traditional banks will adopt new technologies, modernize and digitalize. Still, nine respondents also expect that customer ownership will be with FinTech companies while traditional banks will become commoditized service providers. Only three respondents assume that traditional banks will not survive, and one respondent expects that traditional banks will become irrelevant.

**Table 3.** Responses to the question how the FinTech companies will change traditional banks (multiple responses allowed)

Response items	Number of responses
<i>Pre-defined items</i>	
Traditional banks will adopt new technologies, modernize and digitalize.	16
Traditional banks will not survive and will be replaced by new technology-driven banks.	3
FinTech companies will be partners of traditional banks.	19
Traditional banks will become commoditized service providers, leaving customer ownership to FinTech companies.	9
Traditional banks will become irrelevant as customers interact directly with individual financial services providers (FinTech).	1
<i>Other responses</i>	
Traditional banks will not save retail and SME business.	1
Situation will vary from market to market, thus so many scenarios selected.	1

Exploring further the potential cooperation between FinTech companies and traditional banks, we specifically asked the open-ended question how the respondent's FinTech company has cooperated with traditional banks. The answers reflect the variety of FinTech business models among our respondents. The cooperation ranges from the use of banking services, such as bank account services, daily payments or transfers and funding opportunities, to client/customer identification and exchange, providing analytics and other services to banks, API<sup>6</sup> access to banking infrastructure, credit card acquisition and payment innovations, and promotion of the financial industries.

We also asked in an open-ended question what the main triggers behind FinTech development are. Six respondents mention IT/technology development/digitalisation, changes in technological opportunities or innovation as main trigger. Additionally, strong customer focus is reflected in several responses that see customer mind-set and expectations, customer needs and customer centric products as main triggers. However, six respondents also see the regulatory framework as main trigger.

One respondent elaborates:

*Fintech embraces inclusiveness of financial services within different areas and allows to create targeted solutions for customers to try out without changing their bank. Incumbents have failed in both innovation and communication, thus creating space for new players. As well - payment services directives are a significant trigger for increase of competition.*

Further, respondents mention economic and business environment, bank charges and outdated banks, qualified human resources and talents, access to capital and start-up incubators as main triggers for FinTech development.

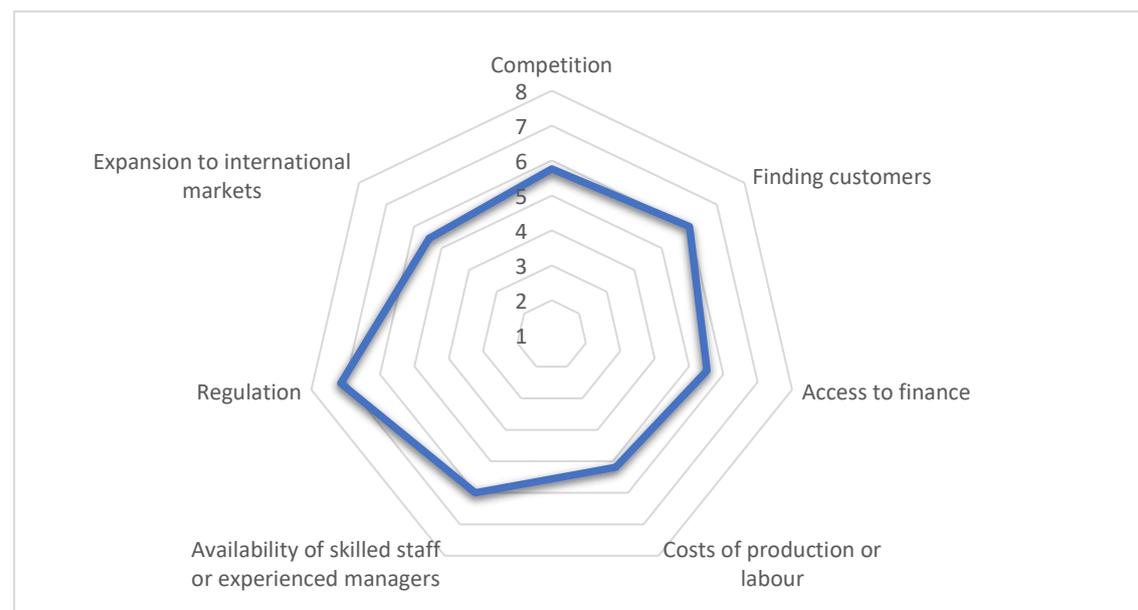
When asked about how pressing specific predefined problems are on a scale from 1 (not pressing) to 10 (extremely pressing), the respondents answered as shown in Table 4 and

<sup>6</sup> Application programming interface.

Figure 1. When considering the median values, regulation is the most pressing problem (median: 8), followed by availability of skilled staff or experienced managers (median: 7). Competition, finding customers and access to finance rank third with a median of 6 for each of these three categories. Cost of production or labour and expansion to international markets are relatively speaking less pressing (median: 5). When considering the distribution of the responses, however, it also becomes obvious that agreement among respondents about how pressing the given problems are is low, in particular with regard to access to finance and competition. A relatively low level of variation is apparent for, e.g., cost of production or labour.

**Table 4.** Responses to the question how pressing specific problems are; 1=not pressing, 10=extremely pressing.

Level of how pressing	1	2	3	4	5	6	7	8	9	10	N	Me- dian
<i>Number of responses to prede- fined items</i>												
Competition	2	0	1	2	2	6	5	1	1	1	21	6
Finding customers	0	1	3	1	2	4	5	3	2	0	21	6
Access to finance	2	2	3	1	1	2	5	2	1	2	21	6
Cost of production or la- bour	0	0	6	2	4	4	2	2	1	0	21	5
Availability of skilled staff or experienced managers	0	0	5	1	2	2	4	6	1	0	21	7
Regulation	0	1	3	0	2	1	0	6	5	3	21	8
Expansion to international markets	0	1	3	4	3	2	3	3	0	1	20	5
Other	1	0	0	0	0	0	0	0	0	0	1	1



**Figure 1.** Responses to the question how pressing specific problems are; 1=not pressing, 10=extremely pressing (means).

The responses to the question how the Latvian state could contribute to the FinTech sector development as presented in Table 5 confirm the request for special regulation for FinTech companies (sixteen responses). Also, eleven respondents see regulatory sandboxes as meaningful contribution and seven respondents consider tax relief important. Although the predefined response items only focus on a limited range of potential government support, none of the respondents suggested further government support options.

**Table 5.** Responses to the question how the Latvian state could contribute to the FinTech sector development (multiple responses allowed).

<b>Response items</b>	<b>Number of responses</b>
<i>Predefined items</i>	
Special regulations.	16
Regulatory sandboxes.	11
Tax relief.	7
<i>Other responses</i>	
Mostly none.	1

The request for special regulation for FinTech companies is also reflected in the responses to the open-ended question if participants feel that existing financial service regulations are restricting their activities and – if yes – in what way. Only three of the sixteen responses indicate that financial service regulations are not restricting their activities. Twelve respondents answer that financial service regulations are restricting their activities. They elaborate on this by mentioning, e.g.,

*There is no 100% relevant regulation for our specific business.*

or

*They try to box all new innovations in existing framework which mostly does not work.*

Several respondents also mention the loan price limit from July 1, 2019 on, which is in their opinion not in alignment with the cost of capital of non-bank lenders.

However, FinTech companies who responded to our survey are in regular communication with state organizations (see Table 6). Communication with the State Revenue Service and the FCMC are mentioned most frequently with twelve and eleven responses, respectively. Even though not included in the predefined response items, nine respondents mention in the open-ended part of the question the Consumer Rights Protection Center as organization that they regularly communicate with. Only single respondents mention other organizations, such as the Bank of Latvia or the Ministry of Economics.

**Table 6.** Responses to the question which state organizations they communicate with on a regular basis.

<b>Response items</b>	<b>Number of responses</b>
<i>Predefined items</i>	
State Revenue Service.	12
Financial and Capital Market Commission.	11
Bank of Latvia.	1
<i>Other responses</i>	
PTAC/Consumer Rights Protection Center.	9
VARAM [Ministry of Environmental Protection and Regional Development]	1
Ministry of Economics	1
LIAA [Investment and Development Agency]	1
Municipalities	1
None	1
“We are trying to avoid communication with state authorities without necessity. Usually officials in Latvia are very conservative and they are not ready to help young entrepreneurs”	

## 6. Discussion and conclusions

The purpose of this paper was to analyse the status quo, current developments and challenges ahead for the Latvian FinTech sector. Our analysis has been divided into three parts: a PEST analysis to investigate the environment that the Latvian FinTech companies are facing, an analysis of the performance of FinTech companies in Latvia during the last 10 years, and an analysis of survey responses with particular emphasis on FinTech companies' own assessment of current and potential future developments.

The results of the analysis of the political and legal, the economic, the social and the technological environment (PEST analysis) draws a mixed picture. The legal environment is largely predetermined by EU regulation, which also means that it is scattered across different types of financial services. Depending on the provided financial services, FinTech companies are regulated and monitored by the FCMC, the CRPC, or the State Revenue Service, since there is no legislation that comprehensively focuses on FinTech in Latvia. Instead, regulation that was established with focus on what nowadays are considered traditional financial services also applies to FinTech companies or no regulation exists yet for some of the new services. The overall economic environment can be considered positive, but Latvia still falls behind, e.g., its neighbours Estonia and Lithuania in quality and dynamics of the entrepreneurship ecosystems. Also in the specific finance-related economic environment, Latvia should improve its situation. The social environment is favourable in particular with regard to level of skills and educational aspects as well as, e.g., labour market and female labour force. However, brain drain, remuneration in service professions, the labour tax rate, difficulties in hiring foreign labour and in general difficulties in finding skilled workforce raise substantial concerns. Even though Latvia does not reach top ranks when it comes to digital agenda and digital skills, its technological environment regarding, e.g., ICT adoption and electricity access is well developed.

The size and performance development of FinTech companies in Latvia during the last ten years indicates some difficulties when it comes to growth and also when it comes to establishing and maintaining business models that are financially sustainable. This is of course in line with the general situation in areas with high levels and speed of innovation. Not all business ideas turn out successful, some business will disappear while new business models take over. However, when jointly looking at the results of the PEST analysis and the size and performance development, the weaknesses that some of the aspects of the environment reveal, seem to be significant obstacles for FinTech development.

The survey responses confirm what the PEST analysis already indicated. For Latvian FinTech companies, regulation is the most pressing problem. This, however, is not a purely Latvian issue. Studies in neighbouring countries confirm that regulation represents a serious obstacle for FinTech development. In Poland FinTech companies consider regulation ambiguous, imprecise and requiring too much bureaucracy. They "*[claim] that the rules are backward, neither follow the rapidly changing reality nor take the existence of the FinTechs into account*" (Kliber et al. 2021). The same is true in Estonia, where the most critical problems are related to finding customers and to regulation (L. Laidroo et al. 2021). Another result of the survey analysis is that the availability of skilled staff or experienced managers is perceived as quite pressing problem, which is again in line with the PEST analysis results. Further aspects, such as competition, finding customers and access to finance, are perceived as pressing but to a lower degree than regulation and availability of skilled staff.

A results that is quite interesting in the context of the general idea of FinTech as disruption to the (traditional) finance industry that is typically purported in the literature and in the public debate is the survey respondents' view of integration of and collaboration between traditional banks and FinTech companies. FinTech is less perceived disruptive, but as a driving force for innovation and modernization in the entire finance sector.

In the context of our findings regarding regulation, it is no surprise that FinTech companies request specific FinTech regulation. The response to this request, however, requires some further considerations. On one hand, the absence of legal framework that specifically focuses on FinTech might provide some additional comparative advantages to the FinTech market players compared to traditional financial service providers, at least in initial stages of development. On the other hand and in particular in subsequent stages, this absence slows down the development of the market and the creation of a level playing field both nationally and in the context of positioning Latvia as FinTech hub internationally. More meaningful, however, both in the context of avoiding regulatory arbitrage, of single market considerations, and of increasing integration of FinTech solutions in more traditional financial service providers, is a revision, modernization and harmonization of regulation, in particular across different categories of financial services, across different types of companies/institutions providing these services, irrespective of a higher or lower degree of involvement of new technologies, and internationally. Such a regulation would truly provide a level playing field and would foster competition.

In 2018, the Committee of Experts on the Evaluation of Anti-Money Laundering Measures and the Financing of Terrorism (MONEYVAL) granted Latvia supervisory status (Council of Europe 2019). As a result, supervision of the financial sector has been significantly strengthened, and Latvia has a much more detailed and rigorous approach to due diligence of clients than other countries, which creates a competitive disadvantage. Similarly, regulatory uncertainty is causing problems to FinTech companies looking to obtain an FCMC license to provide their service. Particular uncertainty exists regarding activities related to cryptocurrencies and other cryptoassets. Additional regulation is often seen as an obstacle to the development of the sector. However, the thoughts on regulation pre-

sented above would not necessarily result in more regulation. Instead, a revision, modernization and harmonization might actually lead to less or at least less complex regulation. It requires though that the regulation needs to cover all financial services and should not leave blank spots for some of them. Currently, the FinTech industry needs to rely on the traditional banking industry as, for example, all FinTech companies require a traditional bank account, as results making them dependent on banking policy.

It is worth mentioning, though, that Latvia's rigorous approach to strengthen its AML/CFT framework has proven fruitful and, according to the Financial Action Task Force Status (FATF), Latvia is not on the FATF List of Countries that have been identified as having strategic AML deficiencies (Financial Action Task Force 2021). This allows Latvia to think ahead and develop the FinTech strategy, with an aim to identify and reduce any barriers to the growth of FinTech start-up companies. As the Latvian FinTech strategy is under development by a workgroup made up of the Ministry of Finance, the Financial and Capital Market Commission of Latvia, Fintech industry representatives, banks, the Investment and Development Agency of Latvia (LIAA), and various professional industry associations, our study provides contributions to the discussion and strategy development. Beyond regulation, the strategy development should particularly focus on further increasing the skill base and improving access to skilled employees, both nationally and internationally.

Our study is not without limitations. First, even though the response rate to our survey can be considered satisfactory, the survey respondents still only cover part of FinTech in Latvia. For future research and for the debate in the context of Latvian FinTech strategy development, it would be beneficial to include more FinTech companies. Second, we primarily focus on supply-side related drivers of FinTech development. To achieve a comprehensive understanding of drivers of FinTech development, also the demand side needs to be considered regarding, e.g., consumers' and other customers' demand for FinTech solutions, their technology acceptance, financial and IT literacy, and individual characteristics of (potential and actual) users of FinTech services (Oehler, Horn, and Wendt 2021).

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