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CHALLENGES TO FINTECH SECTOR DEVELOPMENT IN ARMED
CONFLICT-AFFECTED COUNTRIES: THE CASE OF UKRAINE

Master`s Thesis
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I have written this Master's Thesis independently. Any ideas or data taken from other authors or other sources have been fully referenced.

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Abstract

This paper investigates the challenges to fintech sector development in armed conflict-affected country, with a particular focus on Ukraine during the ongoing war. The study examines the key factors that influence fintech development under wartime conditions and analyses the main challenges faced by fintech companies. The research applies on existing theoretical frameworks related to fintech development, crisis impact, and financial stability to explore how extreme conditions affect the sector.

The study employs qualitative research method, specifically semi-structured interviews with professionals working in the Ukrainian fintech sector, to gather insights into real-world experiences and responses to wartime challenges. The findings provide valuable insights into the factors that prevent or support fintech resilience, highlighting issues such as regulatory pressure, cybersecurity risks, and macroeconomic restrictions. This paper contributes to a better understanding of fintech development during war and offers practical implications for policymakers and industry participants seeking to support the sector under conditions of uncertainty.

Introduction

Financial technology, usually called fintech, has become an important part of modern finance. Fintech includes digital payments, online banking, mobile wallets, and other digital tools that help people and companies use financial services more easily. These technologies allow financial services to work faster and more conveniently, and they can also help financial systems continue working during difficult situations.

Many researchers show that fintech can support financial activity during crises. For example, Zhou and Sun (2024) explain that fintech can help small businesses survive when traditional banks do not work effectively. Kammoun et al. (2023) also show that fintech companies can remain stable during crisis periods if they are able to adapt and introduce new solutions. Because of these abilities, fintech is often seen as an important part of financial resilience during periods of uncertainty.

There is also research that investigates the effects of the Russia-Ukraine war on financial markets. Abakah et al. (2023) show that the war influences investor behaviour in fintech and blockchain stocks. However, existing studies mainly focus on financial markets and investment behaviour.

The war creates a very different environment compared to other types of crises. Armed conflict can damage physical and digital infrastructure, increase cyberattacks, create rapid changes in laws and regulations, and weaken economic activity. These factors may strongly affect how fintech companies operate and develop. Before the war, Ukraine was one of the fast-growing fintech centres in Eastern Europe, supported by strong technological skills and growing digital services. However, the war has changed the conditions for the development of the sector, and these changes have not yet been studied in detail.

Because of this situation, there is a clear research gap in the academic literature. Most existing studies analyze fintech development during general crises such as financial downturns or the COVID-19 pandemic. Very few studies focus specifically on what challenges fintech companies face during wartime. As a result, there is limited understanding of how war-related problems influence the growth and stability of the fintech sector.

Studying this topic is important for several reasons. First, the results may help policymakers in Ukraine better understand how the fintech sector can be supported during wartime conditions. Second, the study can help fintech companies better understand the types of challenges that may appear during extreme crises such as war, including infrastructure

disruption, cybersecurity threats, regulatory uncertainty, and financial instability. Third, the research can add new knowledge to existing studies about fintech development during crises by examining the case of war, which has been studied much less in previous research. Finally, the results may help policymakers better understand what problems limit fintech development during wartime and what factors may support the recovery and future growth of the sector after the war.

The aim of this thesis is to map the key challenges to fintech sector development in a country affected by armed conflict, with an example of Ukraine. Mapping means to identify, analyse, and explain the main challenges, their interconnections, and their influence on fintech sector development during wartime conditions. By challenges, this thesis refers to obstacles that slow down fintech development during wartime, such as disruptions to financial and digital infrastructure, increased cybersecurity risks, reduced investor confidence, regulatory uncertainty, shortages of skilled labour, and overall economic instability.

The context of war-affected Ukraine makes this research especially relevant. Ukraine has been an important centre of technological and financial innovation in recent years. However, the ongoing war has created serious pressure on the economy and the financial system. These pressures may change the development path of the fintech sector. Understanding these changes is important not only for academic research but also for policymakers who try to support financial stability and long-term economic recovery in Ukraine. (Aviv & Ferri, 2023)

In addition to identifying the challenges, the thesis also explores how these problems influence innovation, digital services, and the ability of fintech firms to remain stable during the war. The study also considers how fintech companies respond to these problems and what strategies they use to continue operating.

Previous research on crises provides useful background for this study. During the COVID-19 pandemic, many people began to use digital financial services more often because traditional banking services were harder to access. One global study shows that downloads of finance applications increased strongly during lockdown periods (Fu & Mishra, 2021). This suggests that in times of crisis people often rely more on digital financial services.

Other studies also show how businesses and financial systems adapt during crises. For example, Cele and Mlitwa (2024) interviewed financial experts in South Africa and found

that lockdowns encouraged the use of mobile payments and online banking because many people could not visit bank branches. Similarly, Mishrif and Khan (2023) studied small and medium-sized companies in Oman and found that businesses that were already using fintech tools before the crisis were better able to survive and planned to continue using these technologies in the future.

At the same time, crises can also create new challenges for fintech companies. For example, Tut (2023) shows that during the COVID-19 pandemic mobile fintech wallets usage increased in Kenya, but companies also faced pressure on payment systems and liquidity problems. This means that although crises may increase the demand for digital financial services, fintech firms may also experience operational and financial difficulties.

These findings show that crises can both support and challenge fintech development. Because of this complexity, qualitative research method is useful for studying fintech in difficult situations. Interviews allow researchers to understand real experiences, challenges, and strategies from people working inside the sector.

For this reason, the thesis uses qualitative research based on interviews with professionals working in the fintech in Ukraine. This method makes it possible to explore how experts experience the effects of the war and how fintech companies respond to the challenges created by wartime conditions. The results will help provide a deeper understanding of the resilience and development of the fintech sector in Ukraine during the war.

Keywords: fintech, fintech sector development, digital financial services, fintech during crises

CERCS code: S191

1. The fintech sector development and the impact of crises — literature review

1.1. Drivers of the fintech sector development

The history shows that the development of fintech sector changed how people and companies use financial services. In the past, most financial services were provided only by traditional banks and required physical branches and paperwork. Thanks to the development of fintech companies, financial services became more online, faster, and easier to use. (Boot et al., 2021)

The fintech companies showed that practically all financial services could be done through digital platforms with less time and effort. As a result, users and companies began to

expect financial services to be quick, simple, and available at any time. This change in perception of people played an important role in the growth of the fintech sector and supported digital financial services to become a normal part of everyday economic activity. (Kajol et al., 2022)

The sector includes many different types of services and business models for the companies and individuals. These services can be used for digital payments, online banking, lending, crowdfunding, digital wallets, or digital insurance. In this sector, the companies can work on their own or together with traditional banks. Their services are used by both people and companies. The fintech companies work differently from traditional banks. The companies use digital systems, or more precisely platforms to provide services faster and in an easier way. That's why the financial services become more available to many users. (Lee & Shin, 2018)

The fintech sector plays an important role in the modern economy. Fintech companies are not limited to the financial sector only. Their services are used by firms and individuals in almost every industry. Payments, transfers, online banking, and digital financial tools are necessary for production, manufacturing and services. As economies become more digitalized, fintech infrastructure becomes increasingly interconnected with everyday economic activity, making the sector strategically important not only for financial markets but also for overall economic stability. (Gaibullov et al., 2025)

The companies use digital payments, online banking, and e-wallets to receive payments from customers and manage transactions. The author of this thesis found that the global fintech market was valued at approximately €351.0 billions in 2025. It is expected to grow to about €410.3 billions in 2026 and reach around €1,566.7 billions by 2034, showing an average annual growth rate of 18.2 %. (FinTech Market Size, Share & Industry Analysis, 2026)

This fast growth of the global fintech market is supported by several key drivers. The sector grows as more people and companies rely on digital financial services to make payments, save money, and manage finances quickly and efficiently. These drivers help explain why fintech sector develops faster than other ones. Understanding them is important for analyzing how the fintech sector grows under normal conditions and how its development may change during crises.

The author created a summary to provide a structured overview of the key drivers of fintech development identified in the literature and the studies supporting them. This overview helps to compare different theoretical perspectives and highlight the main factors that influence fintech sector growth. For this reason, the author of the thesis decided to create the Table 1.

Table 1

Summary of Key Drivers Influencing Fintech Development

Drivers	Impact on Fintech Development	Authors
Innovative technologies	Digital innovation increases fintech integration into financial systems Technological progress increases fintech effectiveness Fintech development supports digital transformation	Huang, Dong & Li (2025)
Regulation and Investments	Regulatory environment affects fintech adoption Flexible regulation stimulates growth of the fintech sector Investments support fintech growth Regulatory frameworks shape fintech markets	Wang, Wu & Yang (2026)
Shocking events	Certain crises speed up fintech adoption Shocks underline the need for digital finance External events change fintech development paths	Tut (2023); Fu (2022)
AI and analytics	AI improves productivity and innovation in firms AI enhances fintech functions and capabilities AI supports data-driven financial decisions	Wang & Li (2025)
Competition	Competition encourages growth for the innovation in fintech Market competition increases customer satisfaction Competition stimulates fintech companies to be profitable	Caragea & Dobri (2022)

Source: Compiled by the author.

Innovative technologies are the heart of fintech growth around the world. Innovation in digital finance brings new tools like lending, blockchain, cloud computing, big data analytics, digital payments, and mobile banking, which make financial services faster, easier, and more accessible.

The fintech does not replace traditional banking and financial system, it supports how financial services connect people and businesses. In regions where fintech grows strongly, users and institutions use digital services more often, which increases the business stability

and ensure the growth of the sector as a whole. This means that fintech platforms are not isolated tools, but they are connected with banks and other financial institutions very tightly. It creates a more integrated financial system. (Hodula, 2022)

Fintech financing expanded very fast between 2013 and 2020, growing from about \$16.53 billions to \$3.69 trillions in total fintech financing, which includes both lending and capital raising. This shows that digital financial technologies have become a big part of how companies access funds. SMEs and private firms benefit more from fintech finance than larger or more established companies because these firms usually face the greatest difficulty in obtaining credit from traditional channels. (Khan & Ahmad, 2025)

Fintech technologies are helping companies change the way they do business. Liu et al. (2025) write that when companies use fintech, they can improve their digital business models. Fintech makes it easier for companies to get money and helps reduce problems when banks or investors do not know enough about them. It also makes financial information clearer for investors, so companies can make better decisions. The study shows that fintech does more than provide money or payment tools. It also changes how companies organize their work and offer services. By making it easier to get funds and share information, fintech helps companies be more innovative and stay competitive in a digital world.

Regulation is another important driver for the development of the fintech sector. Regulation means the rules that governments and financial authorities use to control financial markets and protect users. According to Anagnostopoulos (2018), the fast growth of fintech has created new challenges for regulators because fintech companies use digital platforms, big data, and automated systems that are very different from traditional banking.

Old regulatory systems were designed mainly for banks and are often too slow or strict for fintech innovation. As a result, regulators need to update rules to better fit digital financial services and new business models. The study also shows that regulation has a strong influence on investment in fintech.

The author of this article argues that when regulation is unclear or old, investors may hesitate to invest in fintech companies because of high legal and compliance risks. However, when regulators adapt rules to fintech technologies, they create a more stable and predictable environment. This encourages investors to provide funding for fintech startups and digital financial projects. Clear regulation helps reduce uncertainty and increases trust in fintech services, which supports higher levels of investment in the sector.

In addition to that the study highlights that cooperation between regulators, banks, and fintech firms is important for creating effective rules. Such cooperation helps fintech companies grow, attract investment, and integrate into the financial system.

There is huge opportunity for fintech companies in public sector. When governments buy innovative solutions, fintech firms have the opportunities to sell their products, which encourages them to develop new tools, improve existing services, and expand their business. Public sector also gives fintech companies reputation, which attracts investors, and helps their solutions reach more users, which strengthens the growth of the fintech sector overall. (Edler & Yeow, 2016)

To visualize the third driver of the fintech development, the author made Figure 1.

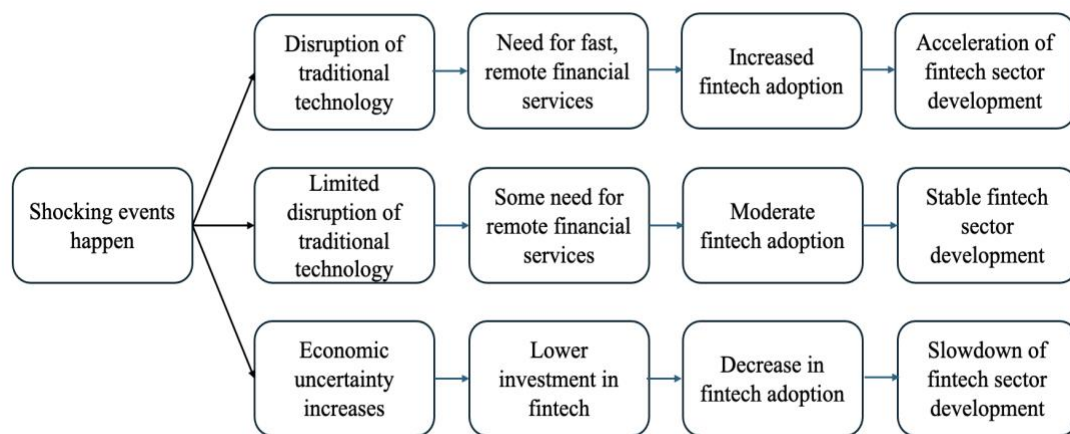


Figure 1. Scenarios of fintech development following shocking events

Source: Compiled by the author

This figure shows how **shocking events**, such a crises, affect fintech development. To support this chart, there is a study by Alalwan (2022), which examined the impact of the COVID-19 pandemic on the use of fintech applications in Jordan. When the shocking event of COVID-19 happened, traditional financial services were disrupted. Many people could not visit bank branches or use cash as easily as before. Because of this disruption, there was a strong need for fast and remote financial services, such as online banking, mobile payments, and digital wallets. As a result, more people and companies started using fintech solutions. This increased fintech adoption accelerated the development of the fintech sector by encouraging innovation, new services, and faster growth.

However, shocking events do not always lead to strong growth. In some cases, the effect can be neutral. For example, during the early period of the Brexit process, financial markets experienced uncertainty, but traditional financial institutions continued to operate. Because of this, the disruption of traditional financial services was limited, and the need for remote financial services increased only slightly. Research on the financial environment after Brexit shows that investment patterns, including venture capital flows that support fintech startups, changed between the United Kingdom and the European Union, generating uncertainty for fintech funding and regional market access (Bosio et al., 2025). As a result, fintech adoption grew only moderately, and the development of the fintech sector remained relatively stable.

In other situations, shocking events can slow down fintech development. For instance, during the Global Financial Crisis, many countries experienced strong economic uncertainty. Investors became more cautious, and funding for technology startups decreased. After the 2008 crisis, research shows that the financial technology industry negatively responded to the crises (Suryono et al., 2020). Because of lower investment in fintech companies, innovation slowed and fewer new services were introduced. This situation reduced fintech adoption and led to a slowdown in fintech sector development.

Artificial intelligence (AI) and analytics are important drivers of fintech development because they help fintech companies make better decisions, improve services, and offer more value to users. According to Kou and Lu (2025), emerging technologies such as artificial intelligence, machine learning, and big data analytics have become central parts of modern fintech systems because they help process large amounts of data faster and more accurately than humans can.

This study shows that these technologies allow fintech platforms to analyze customer behavior, detect fraud, customize products, and make better lending decisions. For example, machine learning can identify patterns in large datasets that show whether a customer will repay a loan, and big data analytics can help fintech firms design products that match what users really need.

AI and analytics also support faster automation of financial tasks that were previously done manually, such as credit scoring or investment advice, which reduces costs and improves efficiency. Because of these capabilities, AI and analytics help fintech firms to

innovate more quickly, offer more reliable services, and attract more users, which in turn accelerates the overall development of the fintech sector. (Roy & Vasa, 2024)

According to Karountzos (2025), using AI makes fintech firms more productive. AI can do routine tasks automatically, analyze large amounts of financial data, and define customer's need. These tools make work faster, safer, and cheaper. For example, AI can help check for fraud, approve loans quickly, and suggest financial products that fit each user. Because AI improves how fintech companies operate and helps customers, it also encourages more people and investors to use fintech services. This shows that AI and analytics are very important driver for the development and success of the fintech sector.

Competition is the last but not least driver of fintech sector development. According to Peón et al. (2024), the rise of fintech start-ups has changed the competitive environment in the financial industry. Their study on the Spanish fintech market shows that traditional banks are reacting to new fintech competitors by changing their own strategies and using digital tools to improve their services, which increases market competition and helps the whole fintech sector grow.

The authors find that competition between different types of fintech firms, including independent start-ups and ventures owned by banks, has led to a larger number of players in the market and a reduction in concentration, meaning that no single firm dominates the industry. This competitive pressure makes fintech firms innovate more, offer better services, and respond faster to customer needs. It confirms that more and more digital financial solutions are developed, and the sector continues to expand and improve.

1.2. The problems and challenges of the fintech sector development during times of crises

In academic literature, a crisis is generally defined as a situation or a series of unexpected events that create serious threats for organizations, markets, or the economy. Crises often disrupt normal economic activity and increase uncertainty for businesses and consumers. If they are not managed effectively, crises can lead to financial losses, institutional failures, and long-term economic instability. Researchers explain that crises usually require fast decision-making and adaptation because organizations must respond quickly in order to reduce negative consequences. (Pedersen & Ritter, 2022)

Crises can appear in different forms depending on their causes and their impact on the economy. One of the most common types is a financial crisis, which occurs when financial

institutions or financial markets experience serious disturbances such as banking failures, strong declines in asset prices, or disruptions in credit markets. Another type is a global health crisis, such as the COVID-19 pandemic, which can strongly affect economic activity and increase the demand for digital financial services. In addition, geopolitical crises and military conflicts may also create instability in financial systems by increasing uncertainty, reducing investment, and disrupting international economic relations. These different types of crises can significantly influence the development and operation of the fintech sector.

At the same time, crises do not only bring challenges for the fintech sector but also create new opportunities for its growth and transformation. Periods of economic and social instability often accelerate the adoption of digital financial solutions, as consumers and businesses seek more accessible, flexible, and efficient alternatives to traditional banking services. For instance, during crises, the demand for online payments, mobile banking applications, and digital lending platforms tends to increase significantly, reflecting a shift toward convenience and speed in financial transactions.

Moreover, crises often reshape consumer behavior and expectations, leading to a greater emphasis on financial resilience and risk management. Individuals become more cautious about spending and more interested in tools that help them monitor, save, and invest their money effectively. As a result, fintech companies increasingly focus on personalized financial services, data-driven solutions, and user-friendly interfaces that enhance financial literacy and decision-making. This transformation strengthens the role of fintech as not only a service provider but also a key facilitator of financial inclusion.

However, despite these opportunities, the fintech sector remains vulnerable during periods of crisis. Many fintech startups rely heavily on external funding, which may decline during economic downturns, limiting their ability to scale and innovate. In addition, increased digital activity can lead to higher risks of cyberattacks and fraud, requiring stronger security measures and more effective regulatory oversight. Therefore, the long-term development of fintech depends on its ability to balance rapid innovation with stability, trust, and compliance within an evolving global financial environment.

Despite the growth drivers and increasing importance of the fintech sector discussed in the previous section, the fintech development is accompanied by a number of significant problems and challenges during times of crisis. While digital financial technologies improve

fast, they also introduce new risks and uncertainties for financial markets, institutions, and the end-users.

The sustainable development of the fintech sector depends not only on growth drivers, but also on the ability of fintech companies to manage these challenges effectively, especially during periods of economic and financial stress. To better understand the main problems and challenges that fintech companies face during times of crisis, the author compiled the Table 2.

Table 2

Key Challenges in Fintech Development During Crises

Challenge	Key findings of the study	Source
Financial instability	During crises like COVID-19 and market instabilities, fintech funding declines sharply as investors become cautious. This leads to reduced capital for expansion, liquidity difficulties, and slower growth, especially for smaller fintech start-ups.	Sampath et al. (2023)
Operational pressure	Crises cause rapid increases in demand for digital finance services, putting pressure on systems and operations. Fintech firms must scale quickly, often without enough infrastructure or resources, which creates performance and reliability challenges.	Ziegler et al. (2020)
Cybersecurity risks	When fintech usage rises rapidly in a crisis, cyber risks also increase. Firms face more threats from hackers resulting in fraud, data breaches, and DDoS attacks.	Li et al. (2025)
Regulatory challenges	Governments may introduce new emergency rules or restrictions very quickly. Fintech firms must adapt to these changes in a short time, which increases compliance costs and legal uncertainty. In some cases, fintech companies are not clearly included in crisis support programs, unlike traditional banks.	Rupeika-Apoga & Wendt (2022)
Consumer trust and confidence	Economic uncertainty and loss of confidence reduce consumers' willingness to adopt and use fintech services. Lower confidence and trust can slow fintech adoption, which weakens growth.	Shahzad et al. (2022)

Source: Compiled by the author.

During periods of crisis such as the COVID-19 pandemic, **financial instability** becomes a significant challenge for fintech firms. Investors tend to become more cautious, leading to sharp declines in venture capital and other sources of funding. This reduction in

investor activity limits the capital available to fintech companies for growth and scaling operations. Smaller fintech start-ups, in particular, are more vulnerable because they often operate with limited reserves and depend heavily on external funding for survival and expansion. Less funding can slow down new product development, make it harder to enter new markets, and create cash shortages, making it difficult for fintech companies to keep running and meet their financial obligations. Research shows that during crises, economic problems can reduce investor confidence and limit funding for innovative financial firms. (Naz et al., 2022)

To reduce financial instability challenge, fintech companies can use several strategies. One of the options is to have different sources of funding. Fintech firms can rely less on venture capital by attracting long-term investors, partnering with traditional banks, using loans when it is possible. Another way to reduce financial instability is for fintech companies to save money and manage cash carefully. By keeping financial reserves, firms can continue operations during crises even if investors reduce funding. This also helps them handle unexpected expenses and maintain stability until new funding becomes available.

Fintech companies often face operational pressure when they grow quickly and need to handle more users and transactions. This challenge includes problems with scalability and system performance, meaning that systems may slow down, struggle to process many operations, or become unstable when user numbers rise rapidly. Research on fintech ecosystems shows that scalability is a major challenge because fintech firms must invest heavily in R&D to support wider service delivery. If firms do not plan or innovate enough, they may not be able to maintain smooth operations, especially as they expand services to new users or regions. Such operational stress can reduce service reliability, slow down business processes, and harm customer experience, which negatively affects the growth and reputation of fintech firms. (Muthukannan et al., 2021)

To help with solving **operational pressure challenge**, fintech companies can build more scalable and flexible technology systems that can adapt to growth without performance loss. Using strategies such as modular systems, cloud infrastructure, and decentralized processing of the transactions help firms expand faster and manage higher volumes of transactions. By planning technology architecture early and investing in infrastructure that supports expansion, fintech firms can improve operational stability and deliver reliable services as they grow. (Cheng et al., 2022)

Cybersecurity risk is one of the most important challenges for fintech development because financial systems are frequent targets for cyberattacks that can disrupt services, steal sensitive data, and reduce trust. Geopolitical tensions and conflicts, such as the Russia-Ukraine war, have been linked to an increase in attacks on the financial sector. These attacks include distributed denial-of-service (DDoS) incidents and data breaches against banks and payment systems, which can interrupt access to digital financial services and expose personal information. (Cyber Peace Institute, 2026)

Threats such as DDoS, ransomware, or phishing can cause operational disruptions and financial losses, highlighting the risks fintech platforms struggle when they expand their services and continue to grow. These risks not only affect companies directly but also weaken user confidence and slow down the adoption of online financial services.

To reduce cybersecurity risks, fintech companies need to adopt multi-layered security measures, including strong authentication, encryption, and continuous system monitoring. Collaboration with regulators and industry partners to share information about threats and comply with cybersecurity standards also helps create a safer environment for digital finance. By investing in security software and preparing for complex attack scenarios, fintech companies can protect their systems, maintain customer trust, and support stable growth in a high-risk environment. (Javaheri et al., 2024)

Regulatory challenges remain a significant problem for the development of fintech sector. Governmental rules often struggle to keep up with rapid technological change. Fintech products and services evolve quickly, which can leave regulators uncertain about how to apply existing laws and how to protect consumers without slowing innovation. Many regulatory frameworks lag behind fintech advances, creating gaps and increasing compliance costs for companies that must interpret unclear or outdated rules. This uncertainty can discourage smaller firms from entering new markets or launching new services because they face high legal risk and unpredictable requirements. (Vijayagopal et al., 2024)

Policymakers and fintech companies need to work together to create frameworks that are clear. Improving international cooperation can reduce complexity for firms operating in multiple markets. Regulators can update licensing, reporting, and compliance procedures to better reflect digital business models, while fintech firms can invest their software to help automate compliance and reduce costs. By creating more technology-aware regulatory systems that balance protection with innovation, the fintech ecosystem can grow faster.

In order to explain the last challenge with numbers in fintech development, the author prepared Figure 2, which illustrates changes in **consumer sentiment** using the OECD Consumer Confidence Index (CCI).



Figure 2. Consumer confidence index (CCI)

Source: Organisation for Economic Co-operation and Development (2026)

Consumer confidence is an important economic indicator reflecting households' expectations about their financial situation and the overall economic environment. Confidence plays a key role in how people use financial services, including fintech solutions. The Consumer Confidence Index (CCI) is a standardized indicator created by the OECD that measures how optimistic households feel about their future financial situation, spending, and saving. A value above 100 suggests that people expect better economic conditions and are more likely to spend money, while a value below 100 shows pessimism, more saving, and less spending in the near future (Consumer confidence index (CCI), 2026).

When the CCI falls, it signals that consumers are less confident about their income, jobs, or the economy, which can lead them to delay spending or avoid new financial commitments. This behavior affects fintech services because lower confidence usually means people are more cautious about trying new digital financial tools, making large purchases, or using financial products that involve risk. Lower confidence can reduce demand for online banking, digital lending, or investment platforms, slowing the growth of fintech adoption and weakening overall sector development.

1.3. Previous studies on Ukrainian fintech sector development

After identifying the key drivers and challenges of fintech sector development, it is possible to form an understanding of how fintech grows and what risks can slow this process during crisis periods. The previous sections show that fintech development depends not only on technology and innovation, but also on external shocks that can change normal market conditions. This theoretical background makes it important to examine how these processes are reflected in existing research on Ukraine. The next section reviews previous studies on the Ukrainian fintech sector and highlights the limited research on fintech development during wartime conditions. To summarise the previous research more clearly, the author compiled Table 3.

Table 3

Previous Studies on the Ukrainian Fintech Sector

Scope of the research	Key findings of the study	Research gap
Early study of fintech development in Ukraine; integration into banking system; global comparison	Ukrainian fintech before 2018 focused on payments, digital banking tools, and technological solutions; strongly linked to banks	Does not analyze fintech during crises or wartime
Formation and current state of Ukrainian fintech; ecosystem and market structure	Around 150 fintech companies by 2020, mainly in payments, money transfers, and tech infrastructure; growth supported by digitalization and e-commerce; SWOT analysis identifies strengths, weaknesses, opportunities, threats	Wartime development not considered; past crises and COVID-19
Survey of 41 Ukrainian fintech companies; market structure and banking cooperation	Majority provide B2B services; many operate in EU; 61% self-financed; limited bank involvement; insight into market structure in 2019	Focuses on non-crisis conditions rather than wartime period.
Fintech development during COVID-19 pandemic	Investment deals decreased; fintechs emphasized cash-flow and profitability; pandemic accelerated digitalization and remote financial services	Examines health crisis only; does not address wartime fintech challenges

Source: Compiled by the author based on the studies by Mulyk (2022); Haber et al. (2018); USAID (2019); Burkovskaya & Khorenzhenko (2020)

The studies summarized in Table 3 provide an important background for understanding how the Ukrainian fintech sector has evolved. Each study focuses on different aspects of fintech development and uses different data, methods, and time periods. However, together they show that research on Ukrainian fintech remains fragmented and does not cover development during wartime conditions.

Haber et al. (2018) is one of the first works to examine fintech in Ukraine. It defines fintech and shows how fintech innovations are integrated into the banking system. When compared with Mulyk (2022), we can see that fintech started mainly within banks before expanding into broader digital services. Both studies describe the role of digital technologies, but Haber et al. focuses on the early stage of development.

The study by Haber et al. (2018) shows that fintech activity before 2018 was mostly in payment services, digital banking tools, and technological solutions for financial institutions. This overlaps with Mulyk (2022), which also identifies payments and banking-related services as important, but Mulyk adds more recent information on company growth, e-commerce, and technology adoption. Both studies show that fintech in Ukraine was closely connected to banks, although later growth began to diversify.

Mulyk (2022) describes the current state of the fintech market. The author defines fintech as a system that combines financial services, digital technologies, and new business models. Compared with Haber et al. (2018), Mulyk gives updated data on market structure, showing how fintech companies expanded beyond bank services to more independent operations.

Mulyk (2022) also shows the number of fintech companies in Ukraine by 2020 and their main areas of activity. Comparing this to USAID (2019), we can see that the survey data supports Mulyk's findings on company numbers, types of services, and market focus. Both studies highlight the growth of payment services, money transfers, and technological infrastructure.

Problems identified by Mulyk (2022), such as limited investment, regulatory gaps, and banking dependence, are also reflected in USAID (2019). The survey confirms that most companies are self-financed and that cooperation with banks is limited. Together, these studies provide complementary views on the market structure, company operations, and financial challenges.

USAID (2019) gives more detailed information about company characteristics and banking cooperation. Compared with Mulyk (2022), the survey data confirms the focus on B2B services and shows that many companies also operate internationally. While Mulyk provides a broad overview, USAID adds specifics about company age, financing, and banking relationships. Both studies do not address wartime conditions.

Burkovskaya & Khorenzhenko (2020) study fintech during the COVID-19 pandemic. Compared with Mulyk (2022) and USAID (2019), this research shows how companies respond during a crisis. Like the earlier studies, payments and digital services remain central, but the pandemic caused a drop in investment deals and a shift toward cash-flow management. The study also notes that digitalization increased during the pandemic, as businesses and consumers used online services more. This connects with Mulyk (2022), which highlights the role of digitalization in growth.

Overall, the reviewed studies show that Ukrainian fintech research mainly focuses on market size, structure, digital payments, and cooperation with banks. Some studies include crisis elements, but only in the context of the pandemic. None of the existing research examines fintech development during the war in Ukraine. The war creates unique challenges in user behavior that are not comparable to standard economic or health crises.

Therefore, despite the availability of studies on Ukrainian fintech, there is no comprehensive research that analyzes how the Ukrainian fintech sector develops during wartime conditions. This underlines the research gap and relevance of this thesis, which focuses specifically on fintech sector development in Ukraine during the war.

2. Wartime challenges and adaptation of the Ukrainian fintech sector — empirical analysis

2.1. Methodology and data

This study used an exploratory qualitative study based on semi-structured interviews. A qualitative method is appropriate because the research focuses on understanding complex situations, behaviours, and responses of firms operating under conditions of uncertainty (Hensman & Sadler-Smith, 2011).

The topic of fintech development during war is still not well studied in academic literature, therefore this research filled this gap. The qualitative method allowed the author to better understand how fintech companies operated in difficult conditions, what problems

they faced, and how they responded to these challenges. The qualitative approach made it possible to analyse factors such as infrastructure disruption, cybersecurity risks, regulatory uncertainty, and economic instability in a more practical and detailed way. This method was suitable because it captured real experiences, detailed insights, and practical perspectives of professionals working in the fintech sector during wartime conditions, which could not be fully explained through quantitative data alone.

The author collected data through semi-structured interviews. The author reached the point of data saturation, when no new significant information or themes emerged from the responses. In total, the author sent interview requests to approximately 40 potential respondents working in the fintech sector in Ukraine, including professionals from different organisations and seniority levels. The author conducted additional background research to identify Ukrainian companies whose activities and revenue streams were primarily connected to fintech-related services, focusing on firms where fintech represented the core part of the business model and which remained operational during the wartime period. Additional selection criteria was introduced to improve the quality and relevance of the empirical data, with priority given to senior and decision-making employees who had direct involvement in operational, strategic, technological, or regulatory adaptation processes during the war.

Before contacting potential respondents, the author also reviewed publicly available company information, including official websites, business descriptions, media interviews, and professional profiles, to evaluate whether the organisations were actively involved in fintech-related activities during the wartime period. This preliminary screening process helped ensure that the selected respondents had relevant industry experience and could provide practical insights directly connected to the research objectives. In addition, when identifying relevant companies, the author observed that digital platforms and targeted advertising systems often suggested similar fintech firms and competitors, which helped to broaden the pool of potential respondents more efficiently.

In order to ensure a structured coverage of the research objective, the interview questions were organised into three main thematic sections. This structure reflected the logic of the study and allowed a clear comparison between pre-war conditions, wartime developments, and future expectations of the Ukrainian fintech sector. Each section was designed to match the theoretical framework of the study and to make clear links between the literature and the empirical findings. The first section focused on pre-war conditions, the

second on wartime changes, and the third on future outlook. This helped to connect theoretical concepts such as drivers and challenges of fintech development. The author prepared Table 4 to summarise the structure and purpose of each thematic section.

Table 4

Thematic structure and purpose of interview questions

Thematic section of interview questions	Purpose of the questions
Pre-war period	To capture respondents' perceptions of the Ukrainian fintech sector before the war and to identify key development drivers such as innovation, regulation, investment, competition, and external shocks. These questions are directly connected to the theoretical framework on fintech development.
Present time	To analyse how the full-scale war has affected fintech operations, strategy, regulation, and market behaviour. The purpose is to identify key challenges, changes in development drivers, and organisational adaptation mechanisms under conditions of crisis, thereby linking empirical evidence to theories of crisis impact and organisational resilience.
Future period	To explore expectations regarding post-war fintech development, including potential growth drivers, risks, and structural transformations of the sector. These questions focus on capturing long-term strategic perspectives and assess how wartime experiences may shape future sector evolution in the context of recovery and reconstruction.

Source: Compiled by the author

By organising the interview into these three thematic blocks, the author was able to fully address the main objective of the research. The answers from these sections made it possible to analyse how the Ukrainian fintech sector developed before the war, how it changed growth path during the war, and how it may develop in the future. This structure directly reflected the theoretical framework, as the author systematically linked the key concepts identified in the literature with the empirical evidence collected from the interviews.

In total, five interviews were conducted, including one pilot interview. The pilot interview was used to test the clarity and relevance of the questions, and after this, minor changes were made to improve their structure. The pilot interview was successful, and the author decided to include it in the final set of interviews. Based on this pilot, several

questions were improved a little bit to make them clearer and easier to understand. Some questions were rewritten to be more precise, while rating questions were clarified to avoid confusion in answers. In addition, some questions were adjusted to help respondents give more structured and complete answers. These changes improved the overall quality and consistency of the interview data. All interviews were conducted remotely through Google Meets. All interview questions were discussed and confirmed by the supervisor to ensure alignment with the theoretical framework of the study.

The study applied a purposive sampling strategy, when respondents are selected based on their relevance to the research topic and their ability to provide detailed professional insights. The selection focused on individuals with direct involvement in fintech operations during wartime conditions across strategic, operational, compliance, and technological functions, in order to ensure a comprehensive understanding of sector dynamics. In addition, respondents were chosen to reflect different levels of seniority and organisational roles, allowing the study to capture both high-level strategic perspectives and practical, operational experiences. The overview of the interview respondents is presented in Table 5.

Table 5

Information regarding respondents

Respondent	Position	Years in fintech	Business activity	Size of organisation	Length of the interview
R1	Senior Manager	15 years	Currency Exchange	201-500	58 minutes
R2	C-level	18 years	Payments	51-200	62 minutes
R3	Senior Manager	7 years	Payments, Insurance, Credits	500+	47 minutes
R4	C/I	15 years	Credits	500+	60 minutes
R5	C/I	17 years	C/I	500+	54 minutes

Notes. C/I stands for confidential information

Source: Compiled by the author

Ethical considerations were followed throughout the research process. Participation in the interviews was voluntary, and respondents were informed about the academic purpose of the study before the interviews were conducted. To protect confidentiality and sensitive

business information, some organizational details and respondent identities were anonymised in the final thesis. The collected information was used only for academic purposes.

The participants in this study were selected from different fintech fields, and this variation was intentionally included by the author to ensure a diverse and representative view of the industry. By involving respondents from areas such as payments, currency exchange, and related fintech services, the study captured how challenges and problems differ across fintech fields. This approach made it possible to compare sector-specific problems while also identifying common challenges faced by the broader fintech industry. The diversity of participants in terms of sector, company size, and seniority level strengthened the overall depth and relevance of the analysis.

An interesting observation from the respondent profile is that the sample reflected a combination of both highly experienced professionals and diverse organisational structures within the fintech sector. Four out of five respondents have more than 15 years of experience, indicating that the insights were largely based on long-term industry knowledge rather than short-term reactions to the crisis. At the same time, the sample included companies of different sizes, from medium-sized firms to large organisations with more than 500 employees. Another notable aspect was the sectoral diversity: while payments and credit services dominated, the inclusion of currency exchange added a more traditional financial perspective. This combination allowed the study to capture both operational-level challenges and broader strategic responses, providing a more balanced view of how different parts of the fintech ecosystem reacted to wartime conditions.

The collected data from the interviews was analysed by systematically reviewing and comparing respondents' answers in order to identify key patterns, issues, and relevant insights related to the research objective. The interview questions were designed to directly address the main research problem, while also including additional questions to deepen the analysis and provide a more comprehensive understanding of the current situation. This structure ensured that the data captured both focused responses and broader insights, allowing the author to analyse the topic from multiple perspectives and strengthen the overall depth of the study.

The study had several methodological limitations that should be acknowledged. First, the research used a qualitative approach based on semi-structured interviews, which depended on the personal experiences and opinions of the respondents. As a result, different

participants sometimes described similar situations from different perspectives. Second, the study included five respondents from specific fintech sectors, meaning that the findings reflected the experiences of particular companies and organizational contexts. In addition, respondents may have interpreted questions differently based on their professional background and experience.

2.2. Results and discussion

In this chapter, the author divided the interview results into three time perspectives: **past, present, and future**. This structure allowed for a clearer analysis of how the Ukrainian fintech sector evolved over time. The following section began with the pre-war period, focusing on how the sector functioned before 2022.

Pre-war period. All respondents agreed that before the war, the Ukrainian fintech sector was growing and developing actively, although at different speeds and levels of maturity. In terms of growth, most participants (R1-R3, R5) described the sector as rapidly expanding, with increasing digitalisation even in traditional areas such as currency exchange (R1), digital banking, e-commerce ecosystems, and payment services (R5). R4 confirmed this trend but in a more general way.

Regarding innovation, there was a shared view that it existed but was mostly gradual. R3 highlighted strong innovation potential and growth in new digital operations, while R2 stated that innovations mainly improved existing services rather than creating completely new products. Similarly, R5 emphasized the expansion of digital banking and payment solutions integrated into e-commerce ecosystems, focusing primarily on improving customer experience and service accessibility. For investment activity, respondents (R2-R3, R5) indicated it was moderate and limited, with many companies relying on internal resources, optimization, or partnerships instead of large external funding. The regulatory environment was becoming stricter, especially after reforms led by the National Bank of Ukraine. Respondents noted increasing requirements in risk management, governance, and security, aligned with European standards, while R5 additionally highlighted the growing role of fintech development strategies, open banking initiatives, and digital identification infrastructure. It supported market development, but also required significant adaptation from companies.

The author made Table 6 to show the average importance ratings of key factors influencing the Ukrainian fintech sector before the war, using a scale from 1 (not important) to 5 (very important), based on the responses of the five interviewees.

Table 6

Average importance of key factors in the Ukrainian fintech sector growth before the war

Factor	Average score (1 = not important; 5 = very important)
Market competition	5.0
Impact of external shocks	4.6
Innovative technologies	4.4
Regulatory framework and government support	3.8
Use of AI, data analytics, and automation	3.6
Availability of investment and venture capital	3.0

Source: Compiled by the author

The results showed that market competition (5.0) was the main driver of fintech development before the war, as all respondents (R1–R5) consistently linked sector growth to increasing demand, rapid digitalisation, and the need to remain competitive. Innovative technologies (4.4) and impact of external shocks (4.6) were also highly important. Respondents noted that digital tools, mobile payments, and broader digital banking solutions supported market development, while external shocks, particularly the COVID-19 pandemic, significantly accelerated the shift toward online services and digital financial interactions (R1–R3, R5).

The use of AI, data analytics, and automation (3.6) had a moderate role, mainly in areas such as credit scoring, antifraud systems, and process automation (R1, R3, R5). Respondent 5 additionally emphasized the growing use of analytics and automation in embedded financial services and e-commerce-integrated payment systems, particularly in improving customer experience and operational efficiency. The regulatory framework (3.8), shaped by the National Bank of Ukraine, supported sector development but also created additional requirements for companies. In this context, R5 highlighted the gradual

development of fintech-oriented regulatory initiatives, including digital identification infrastructure, which enabled innovation and increased compliance obligations (R2, R3, R5). Finally, investment availability (3.0) was the least important factor, indicating a general reliance on internal resources, optimization strategies, and partnerships rather than large-scale external funding (R2, R3, R5). Overall, fintech growth before the war was mainly driven by competition, demand, and technological development, with investment and regulation playing secondary roles in shaping sector dynamics.

The empirical results largely confirmed the theoretical framework presented earlier, where key drivers of fintech development were identified as innovative technologies, regulatory frameworks, investment, external shocks, AI and analytics, and market competition. In the case of Ukraine before the war, the findings showed that these drivers were not equally important: market competition and technological progress appeared as the strongest factors, while investment played a relatively minor role. The pre-war period can be described as a phase of active but uneven development, where the sector was already moving toward innovations but still faced structural limitations in investment and regulatory adaptation. This created a foundation for growth, but also left the sector partly vulnerable to external shocks.

Present time. All respondents noted that after the start of the war, fintech companies faced major changes in operational, strategic, and market areas. In operations, Respondent 1 mentioned initial instability, including shortages and reduced working hours, while Respondents 2 and 3 highlighted a strong focus on business continuity, such as remote work, stronger security, and the use of cloud infrastructure to keep services stable. Respondent 5 also supported this view and stressed the importance of keeping services running without interruption, maintaining payment systems, and quickly adapting internal processes. The respondent also highlighted stronger digital channels inside e-commerce systems and a focus on services that customers needed in everyday life during the crisis.

From a strategic perspective, Respondents 2 and 3 stated that companies shifted their focus from long-term innovation to stability, risk management, and customer support, while also exploring new products and international opportunities. In terms of the market, Respondents 1- 5 noted changes in customer behavior, with increased demand for digital and remote financial services, although overall activity was limited by external factors such as power outages and instability.

Five respondents noted that the organization went through three stages: the initial shock, a phase of stabilization, and the current stage of more stable operations. Respondent 1 described this evolution in a very clear way, pointing out that the first period was marked by panic, unstable demand, and operational disruptions, followed by a phase of restructuring, and later a return to relatively stable work, although under strict limitations and strong competition.

Respondent 2 explained the stages in more detail: February-March 2022 was focused on survival, the second phase involved adapting infrastructure and strengthening security, and the current stage was characterized by relative stability but growing regulatory pressure and higher compliance costs. At the same time, the company was actively looking for new products and revenue streams.

Respondent 3 also confirmed this pattern, emphasizing that the challenges changed from crisis management to adaptation and then to long-term resilience. Initially, the priority was keeping operations running and responding quickly to disruptions. Later, the focus shifted to optimizing processes and supporting affected clients. Now, companies were working under conditions of uncertainty, investing more in digital services, cybersecurity, and diversification. Respondent 4 briefly added that many business areas were closed at the beginning of the war, and only later some of them gradually began to recover.

Respondent 5 added a similar view, highlighting that the organization moved from crisis response to operational stability. Early focus was on continuity of financial services and infrastructure reliability. Later attention shifted to risk management, efficiency, and prioritization of customer value. In the current stage, the focus is on stable digital operations, gradual product development, and maintaining resilience under ongoing uncertainty.

The author of this thesis decided to include the practical example of how Ukrainian fintech sector started to innovate during the war and tough regulations by NBU. Respondent 1 explained that due to NBU restrictions such as prohibition of displaying exchange rates in external advertising, the company was forced to innovate and developed a Telegram bot integrated with CRM, which became a key customer channel.

Regulation became stricter and more complex, but also partly more flexible due to support measures from the National Bank of Ukraine focused at stabilizing the financial system (R3, R5). At the same time, new uncertainties emerged, especially related to currency controls and cross-border restrictions (R2, R3, R5). Competition also changed significantly.

Companies now compete not only in the local market but also internationally, as some firms exited the market while others expanded abroad. Competition intensified in key segments such as online payments, P2P transfers, and international transactions (R1-R5), with overall stronger competitive pressure across the sector. Respondent 5 additionally emphasized a shift toward more pragmatic competition, where efficiency, resilience, and speed of adaptation became more important than purely product innovation.

The author of the thesis also calculated the average severity ratings for the key wartime challenges based on the responses of the interviewees and prepared the table below. Respondents were asked to rate the impact of each challenge on a scale from 1 to 5, allowing for a comparative assessment of the most and least severe factors affecting organizations during the war in the Table 7.

Table 7

Average severity of key wartime challenges in Ukrainian fintech sector during the war

Challenge	Average score (1 = not important; 5 = very important)
Macroeconomic and monetary restrictions	5.0
Cybersecurity threats	4.8
Operational pressure	4.8
Regulatory uncertainty	4.6
Financial instability	4.4
Talent loss and HR constraints	4.0
Company relocation	3.6
Consumer trust and confidence	3.2

Source: Compiled by the author

The results showed that the most severe wartime challenges were macroeconomic and monetary restrictions (5.0), followed by cybersecurity threats (4.8) and operational pressure (4.8). Regulatory uncertainty (4.6) also remained a significant factor, indicating that systemic economic constraints, security risks, and operational pressure were the most influential

pressures on fintech organizations during the war. Less severe but still relevant challenges included financial instability (4.4) and talent loss and HR constraints (4.0), which affected operational efficiency and long-term capacity but were less critical than core systemic risks. Company relocation (3.6) had a more mixed impact across organizations, depending on their structure and exposure to international operations. Consumer trust and confidence (3.2) was assessed as the least severe factor, suggesting that despite the war context, trust in digital financial services remained relatively stable compared to other risk dimensions.

Respondent 1 highlighted regulatory and currency restrictions as the most difficult factors, noting that they changed client behaviour due to financial monitoring requirements. Respondent 2 emphasized the strong increase in regulatory pressure, including stricter licensing, capital, high interest rates and compliance requirements, higher costs (risk management, audits, IT, compliance), and the need to adapt business models such as moving to acquiring and obtaining currency licences, while also pointing to growing cybersecurity threats requiring continuous investment in protection. Respondent 3 stressed that operational and strategic adaptation was critical in the early months of the war to ensure business continuity under uncertainty. Respondent 4 identified talent loss, declining consumer trust, and cybersecurity threats as the most critical issues. Respondent 5 added that the most difficult issues were maintaining operational continuity, managing regulatory and macroeconomic pressure, and ensuring resilience of digital financial services under constant uncertainty, with particular emphasis on operational stability, cybersecurity risks, and the need to prioritise customer value while adapting to rapidly changing conditions.

These findings aligned with the theoretical perspective that crises increase uncertainty and disrupt financial systems, forcing organizations to rapidly adapt while facing heightened regulatory pressure, financial instability, and cybersecurity risks, which is reflected in the high severity ratings observed in this study.

The responses showed that organizations adapted by becoming more flexible, digital, and risk-focused. Respondent 1 emphasized a shift toward digital channels, giving the example of a Telegram bot that replaced part of marketing and now generates over 50% of requests. Respondent 2 highlighted a strategic shift from growth to compliance with regulatory requirements. Respondent 3 provided a broader view, noting changes across all areas: strategy focused on continuity and risk management, technology on digital services, automation, and cybersecurity, and partnerships on cooperation with government and

international companies. Respondent 4 added that companies became faster and more agile, significantly reducing decision-making time, more specifically the person tells that they were forced to decrease decision time in 3-4 times faster. Respondent 5 added that organizations also became more pragmatic in digital transformation, focusing on stable digital payment ecosystems inside e-commerce, stronger coordination between banks and processors, and building seamless customer payment experiences integrated into daily online activity. The findings suggested that wartime adaptation required a combination of digitalization, regulatory alignment, and organizational flexibility.

The author of the thesis decided to ask additional question regarding the relocation of the companies to other countries. The responses showed that relocation was limited. Respondents 1, 2 and 4 stated that their organizations continued operating in Ukraine, while Respondent 3 mentioned partial relocation of back-office and IT functions to EU countries to ensure stable work. Respondent 5 also confirmed a similar pattern, noting that some employees were relocated to EU countries as part of a distributed work model, while core services remained focused on Ukrainian clients. At the same time, organizations strengthened internal processes, formalized access and compliance procedures, and improved operational resilience through distributed team structures.

The responses showed mixed experiences regarding cyber threats. Respondents 1 and 2 reported no significant increase, although Respondent 1 noted that internal security controls were strengthened. In contrast, Respondent 3 identified common threats such as DDoS attacks, phishing, and hacking attempts, and explained that the response included stronger infrastructure protection, transaction monitoring, and client awareness. Respondent 4 confirmed a real cyber incident in 2023, where a database breach occurred and was resolved within a few days with external support. Respondent 5 also reported a significant increase in cyber risks, including DDoS attacks, phishing, account takeover attempts, fraud schemes involving money withdrawal, and coordinated attacks focused at disrupting financial services

The answers showed different changes in operational load. Respondent 1 reported a decrease in transactions (around 30%), with peak periods managed using CRM, automation, and a Telegram bot. In contrast, Respondents 3 and 4 noted an increase in transactions and system load, which required scaling servers, including the use of European infrastructure (R4). Respondent 3 also mentioned a shift to AI customer support, while Respondent 4 added that prior planning helped the company handle these changes more easily, since a lot of the

companies expected the war and knew beforehand what they would do. Respondent 5 similarly highlighted increased operational demand driven by the growth of online payments, P2P transfers, and remote financial services, which placed higher requirements on infrastructure stability, monitoring, and scalability.

The responses showed that the regulatory environment became stricter and more demanding, creating both pressure and the need for fast adaptation. Respondents 1, 2, 4 and 5 stressed increased restrictions, higher costs, and slower growth, while Respondent 3 also noted some supportive elements such as simplified mechanisms and client support tools. Measures by the National Bank significantly affected business models, shifting focus toward compliance, digital services, and smaller retail transactions, while also increasing demand for currency exchange (R1, R4).

Interaction with the state platform Diia varied: some respondents did not use it (R1, R4), while others saw it as a useful tool for verification and digital services (R2, R3, R5). Participation in social initiatives is generally indirect, mainly through internal support or enabling payments (R1, R2, R4). Strategic partnerships either became more cautious and limited (R1, R4) or remained stable (R2), while in some cases they expanded, especially with international and public partners (R3).

Cross-border activities were often restricted or limited, although some firms adapted by finding alternative channels (R3). Innovation showed mixed dynamics: some respondents reported acceleration driven by constraints, such as the Telegram bot (R1), while others noted a shift toward compliance and slower development (R2, R4). At the same time, digital tools and analytics were widely used for decision-making, although AI adoption remains limited. Overall, respondents described the fintech sector as resilient but constrained, with strong dependence on regulation, high costs, and cautious innovation, while still having potential for growth through digitalization and international expansion.

In general, the wartime period transformed the fintech sector from a growth-oriented environment into a survival-driven system, where stability, flexibility, and risk management became more important than expansion. This shift reflected a broader structural change in priorities under crisis conditions.

Future period. The respondents emphasized that the sector's future depends primarily on predictable and balanced regulation and stronger support for digitalization. Respondents 1 and 2 highlighted the need for stable rules and reduced regulatory uncertainty,

while Respondent 3 and 5 stressed structural factors such as infrastructure, access to capital, and cybersecurity. As one respondent noted: “*Regulatory environment became more demanding, but at the same time more dynamic, requiring constant adaptation of risk management and compliance processes.*” (R2)

Across responses, a key catalyst is seen as digitalization and integration with state platforms (e.g., Diia) (R3), as well as broader access to investment and technological development. Respondents also agreed that the post-war period could enable growth through international integration, innovation, and reconstruction, creating opportunities that are currently limited (R1, R3).

Main drivers of growth included economic recovery, digital transformation, demand for financial services, and technological progress, while key risks were overregulation, economic instability, and limited access to capital (R1, R2, R3). Respondents 4 and 5 additionally highlighted an ongoing shift toward cashless payments and a transition from survival to transformation, with growing demand for remote financial services. Reflecting on their experience since 2022, respondents noted that they would have improved crisis preparedness, infrastructure resilience, and cybersecurity (R1, R3, R4). At the same time, they emphasized successful adaptations, particularly maintaining operations, enabling digital services, and ensuring good quality of the services under war conditions (R3, R4).

An additional insight from the responses was that the future development of the sector would likely depend on how effectively Ukraine balances regulation with innovation incentives. While stricter control was necessary in crisis conditions, excessive regulatory pressure may limit the ability of fintech firms to scale and compete internationally. At the same time, the expected post-war reconstruction creates a unique environment where fintech can play a key role in rebuilding financial infrastructure, supporting SMEs, and improving access to financial services. In this context, fintech companies may shift from purely service-oriented models toward more integrated financial ecosystems, combining payments, lending, and digital identification solutions. This evolution is also reflected in the view that “*the sector is moving from basic transactional services toward fully integrated digital financial ecosystems*” (R5). This also suggested that the sector’s growth would not only be driven by technology itself, but by its ability to integrate with public systems, attract international capital, and respond to changing user needs in a recovering economy.

The future trajectory of the sector depends on how quickly it can move from crisis adaptation to sustainable growth. As one respondent noted: *“the sector is moving from survival mode to a phase where growth becomes possible again, but only for those organizations that can combine stability, regulatory discipline, and continuous digital transformation under uncertainty”* (R3). This transition will require not only technological development, but also institutional stability and improved coordination between the state and private sector. The growth of the Ukrainian fintech sector can be described as conditionally optimistic. Growth potential exists, particularly through innovation, international integration, and post-war reconstruction. However, this growth is not guaranteed and will depend on how effectively the sector manages regulatory pressure, investment constraints, and operational risks. Companies that successfully combine flexibility, technological capability, and regulatory compliance are more likely to benefit from emerging opportunities.

From a theoretical perspective, the findings showed that the Ukrainian fintech sector development does not fully match the models described in existing fintech literature. In most studies, fintech development was explained through a combination of innovation, investment, and supportive regulation. However, this research showed that in crisis conditions these drivers changed their role and importance. Innovation was no longer mainly a growth strategy but became a response to operational pressure and external constraints. Companies innovated not to gain advantage in the market, but to ensure that services continued to function under unstable and high-risk conditions. This meant that innovation shifts from being opportunity-driven to necessity-driven, which was an important deviation from traditional fintech theory.

A similar shift can be seen in the role of investment. In classical fintech theory, external funding and venture capital were usually considered key drivers of growth. However, the results of this study showed that investment played a relatively limited role during both the pre-war and wartime periods. Instead, companies relied more on internal resources, efficiency improvements, and operational adjustments. This suggested that in uncertain or crisis environments, fintech development became less dependent on external capital and more focused on internal resilience. At the same time, digitalization also changed its meaning. It was no longer just a competitive advantage or an innovation tool, but became a basic infrastructure needed to keep systems running. Digital tools, automation, and AI were mainly used to maintain service continuity, ensure access to financial services, and supported operational stability rather than to create entirely new market opportunities.

Regulation also showed a more complex role than was usually described in the literature. In stable conditions, regulation is often seen as a mechanism that balances innovation and market efficiency. However, the findings showed that during the war, regulation became primarily a stability mechanism. It helped maintain control over the financial system and ensures basic functioning under crisis conditions, but at the same time it increased compliance costs and created additional pressure for companies. This created a dual effect where regulation supported system survival but limited flexibility and slowed development down. In addition, the data showed that fintech development during the war was not a linear process. Instead of continuous growth or decline, the sector moved through clear stages: initial disruption, adaptation, and later stabilization. This pattern suggested that fintech evolution under extreme conditions was highly dynamic and depended on the ability of companies to quickly adjust their operations to changing external factors.

The findings of this study both supported and differed from the existing literature regarding the main challenges affecting fintech sector development during crisis conditions. Similar to previous studies, the results confirmed that crises increased operational pressure, cybersecurity risks, regulatory uncertainty, and financial instability for fintech organizations. The respondents also confirmed that maintaining business continuity, adapting infrastructure, and managing uncertainty became central challenges during the wartime period, which strongly aligned with existing crisis and resilience literature. However, several findings differed from the traditional understanding presented in fintech research. The empirical results showed that macroeconomic and monetary restrictions became the most severe challenge for Ukrainian fintech companies, even more significant than investment limitations or declining consumer trust, which were often emphasized in previous studies. In addition, consumer trust remained relatively stable despite the wartime environment, which contrasted with much of the literature that typically associated crises with a major decline in confidence toward financial systems. Another important difference was that regulatory pressure during the war was viewed not only as a challenge but also as a necessary mechanism for maintaining stability of the financial system. These findings suggested that fintech organizations operating under armed conflict faced a different hierarchy of challenges compared to fintech firms operating during traditional economic or financial crises.

Based on these observations, this study identified an important conceptual contribution. The Ukrainian fintech sector demonstrated a shift from a growth-oriented model

to a resilience-oriented model during crisis conditions. In the growth model, the main focus is on expansion, innovation, and competition. In contrast, the resilience model focuses on survival, operational stability, risk management, and maintaining essential services under pressure. This shift was important because it showed that fintech development was not always driven by expansion logic, but could temporarily move into a survival logic when external conditions became extreme. Finally, the findings suggested that the future development of the sector will depend on the ability to combine both models. After the crisis, fintech companies will need to keep the resilience mechanisms developed during the war, such as strong risk management and operational flexibility, while also returning to innovation and growth strategies. This means that the post-war fintech system is likely to develop as a hybrid model where resilience and growth exist together and reinforce each other rather than replace one another.

The findings of this study provided several practical implications for policymakers and regulators. The results showed that fintech services played an important role in maintaining financial stability and continuity of economic activity during wartime conditions. At the same time, excessive regulatory pressure, high compliance costs, and bureaucratic procedures created additional difficulties for companies operating under crisis conditions. Therefore, governments may need to introduce more flexible regulation, stronger business support measures, investment in digital infrastructure and cybersecurity, and closer cooperation between the public and private sectors. The Ukrainian case also demonstrated that developing a strong fintech sector may improve the resilience of the financial system and help countries respond more effectively to future geopolitical or economic shocks.

Conclusion

This thesis analysed the key challenges to Ukrainian fintech sector development in a country affected by armed conflict. The research focused to identify the main obstacles faced by fintech companies during wartime, to understand how these challenges influence sector development, and to explore how firms adapt to extreme conditions.

By combining a theoretical review with qualitative empirical evidence, the study provided a comprehensive view of fintech development under conditions of war. The theoretical part of the thesis demonstrated that fintech development is driven by several key factors, including technological innovation, regulation, investment availability, competition, external shocks, and the use of artificial intelligence and data analytics. At the same time, the

literature showed that crises introduce significant challenges, such as financial instability, operational pressure, cybersecurity risks, regulatory uncertainty, and declining consumer confidence. However, existing research mainly focuses on financial crises or the COVID-19 pandemic, while the effects of armed conflict on fintech development remained underexplored. This research gap provided the foundation for the empirical analysis. The empirical findings of this study confirmed that many of the drivers and challenges identified in the literature are also relevant in the Ukrainian context, but their importance changes significantly under wartime conditions, indicating that fintech development logic becomes context-dependent under extreme environments.

Before the war, fintech development in Ukraine was primarily driven by market competition, increasing demand for digital services, and technological progress. Innovation was present but mostly gradual, while investment played a relatively limited role, with many companies relying on internal resources. The regulatory environment supported development but also introduced stricter requirements, reflecting a gradual alignment with international standards.

The event in 2022 fundamentally changed the operating environment for fintech companies. The findings showed that the development of the sector could be understood through three main phases: initial shock, adaptation, and relative stabilization. During the initial phase, companies faced operational disruptions, uncertainty, and a need to ensure basic continuity of services. In the adaptation phase, firms adjusted their infrastructure, strengthened cybersecurity, and shifted towards more flexible and digital operations. In the current phase, companies operate in a more stable but still constrained environment, characterized by high regulatory pressure, macroeconomic restrictions, and ongoing uncertainty.

One of the key findings of this study is that wartime conditions significantly shift the relative importance of fintech development drivers. While competition and technology remain important, external constraints such as macroeconomic and monetary restrictions become dominant factors shaping sector development. The empirical results showed that macroeconomic restrictions, including capital controls and foreign exchange limitations, represented the most severe challenge for fintech companies. These restrictions directly affected business models, reduced cross-border activity, and changed customer behaviour.

Cybersecurity risks also emerged as a critical challenge, reflecting the increased exposure of financial systems during geopolitical conflict. Although experiences varied across respondents, the overall findings indicated that fintech companies must invest more in security infrastructure and risk management to maintain stable operations. Operational pressure and regulatory uncertainty further complicated the environment, requiring firms to continuously adapt to changing rules and increased compliance costs. At the same time, the findings highlighted the resilience and adaptability of the Ukrainian fintech sector.

Companies responded to wartime challenges by accelerating digitalization, improving operational flexibility, and adopting new technologies. A notable example is the use of alternative digital channels, such as Telegram-based solutions, which allowed firms to maintain customer interaction despite regulatory and physical limitations. This demonstrated that constraints can also stimulate innovation, although this innovation was often focused on short-term adaptation rather than long-term development.

The empirical results also showed that fintech firms shifted their strategic focus during the war. Instead of prioritizing rapid growth and innovation, companies emphasized stability, risk management, and regulatory compliance. This shift reflected a transition from a growth-oriented model to a survival and resilience-oriented model. While this approach allowed firms to continue operating under extreme conditions, it may limit long-term innovation and investment in new products.

Another important finding was that wartime conditions increase the role of the state and regulation in shaping fintech development. The National Bank of Ukraine played a central role in maintaining financial stability, but at the same time, stricter regulations and emergency measures created additional challenges for firms. This created a complex environment where regulation was both a stabilizing factor and a constraint on growth. The study also showed that relocation and internationalization play a limited but important role in adaptation strategies. While most companies continue operating in Ukraine, some have partially relocated functions to other countries to ensure operational stability. This created new challenges related to multi-jurisdictional regulation and coordination but also opens opportunities for international integration.

Looking forward, the findings suggested that the future development of the Ukrainian fintech sector depended on several key factors. Stable and predictable regulation, improved access to investment, and continued digitalization were identified as the most important

conditions for growth. In the post-war period, there is significant potential for expansion through international integration, technological innovation, and participation in economic reconstruction. However, risks such as overregulation, economic instability, and limited access to capital may constrain this growth.

The study focused mainly on fintech companies that continued operating during wartime conditions. Companies that suspended operations or left the market were not included in the analysis. In addition, because the wartime and regulatory environment changed rapidly, some conditions described by the respondents may have changed over time. Therefore, the findings reflected the specific context and time period in which the study was conducted.

Overall, this thesis contributed to the academic literature by extending the understanding of fintech development in extreme conditions, specifically in the context of armed conflict. The findings showed that while many theoretical drivers and challenges remained relevant, their relative importance changes significantly under wartime conditions. The study also highlighted the importance of adaptability, digitalization, and regulatory balance in maintaining fintech sector resilience.

The findings of this study also create several opportunities for future research. Since this research was based on a qualitative approach and focused specifically on the Ukrainian fintech sector during wartime, future studies could expand the analysis by using quantitative methods or larger cross-country comparisons involving other conflict-affected economies. Additional research could also examine how different fintech segments, such as payments, digital banking, lending, or cryptocurrency services, respond differently to crisis conditions. Furthermore, future studies may explore the long-term effects of wartime adaptation strategies on post-war fintech growth, innovation capacity, and international competitiveness. Such research would help develop a broader understanding of how fintech sectors evolve under prolonged geopolitical instability and crisis environments.

References

1. Abakah, E. J., Adeabah, D., Tiwari, A. K., & Abdullah, M. (2023). Effect of Russia–Ukraine war sentiment on Blockchain and Fintech stocks. *International Review of Financial Analysis*, 90, 102948. <https://doi.org/10.1016/j.irfa.2023.102948>
2. Al nawayseh, M. K. (2020). Fintech in covid-19 and beyond: What factors are affecting customers' choice of fintech applications? *Journal of Open Innovation: Technology, Market, and Complexity*, 6(4), 153. <https://doi.org/10.3390/joitmc6040153>
3. Alalwan, A. A., Baabdullah, A. M., Al-Debei, M. M., Raman, R., Alhitmi, H. K., Abu-ElSamen, A. A., & Dwivedi, Y. K. (2023). *Fintech and contactless payment: Help or hindrance? The role of invasion of privacy and information disclosure*. *International Journal of Bank Marketing*, 41(7), 1467–1493. <https://doi.org/10.1108/IJBM-11-2022-0510>
4. Anagnostopoulos, I. (2018). Fintech and Regtech: Impact on regulators and Banks. *Journal of Economics and Business*, 100, 7–25. <https://doi.org/10.1016/j.jeconbus.2018.07.003>
5. Aviv, I., & Ferri, U. (2023). Russian-Ukraine Armed Conflict: Lessons Learned on the digital ecosystem. *International Journal of Critical Infrastructure Protection*, 43, 100637. <https://doi.org/10.1016/j.ijcip.2023.100637>
6. Boot, A., Hoffmann, P., Laeven, L., & Ratnovski, L. (2021). Fintech: What's old, what's new? *Journal of Financial Stability*, 53, 100836. <https://doi.org/10.1016/j.jfs.2020.100836>
7. Bosio, A. O., Buttice, V., Crisanti, A., Croce, A., & Signore, S. (2025). How brexit reshaped venture capitals market: An analysis of UK and EU Investments. *Research Policy*, 54(8), 105289. <https://doi.org/10.1016/j.respol.2025.105289>
8. Burkovskaya, A., & Khorenzhenko, V. (2020). Fintech-industry development in the crisis period. *Modern Economics*, 20, 36–40. [https://doi.org/10.31521/modecon.V20\(2020\)-06](https://doi.org/10.31521/modecon.V20(2020)-06)
9. Caragea, D., Cojoianu, T., Dobri, M., Hoepner, A., Peia, O., & Romelli, D. (2023). Competition and innovation in the financial sector: Evidence from the rise of fintech start-ups. *Journal of Financial Services Research*, 65(1), 103–140. <https://doi.org/10.1007/s10693-023-00413-7>

10. Carbó-Valverde, S., Cuadros-Solas, P. J., & Rodríguez-Fernández, F. (2022). *Entrepreneurial, institutional and financial strategies for FinTech profitability. Financial Innovation*, 8(15), 1–24. <https://doi.org/10.1186/s40854-021-00325-2>
11. Cele, S. K., & Mlitwa, N. B. W. (2024). *The global COVID-19 impact on the financial services industry in South Africa. South African Journal of Information Management*, 26(1). <https://doi.org/10.4102/sajim.v26i1.1887>
12. Cheng, M., Qu, Y., Jiang, C., & Zhao, C. (2022). Is cloud computing the digital solution to the future of banking? *Journal of Financial Stability*, 63, 101073. <https://doi.org/10.1016/j.jfs.2022.101073>
13. Consumer confidence index (CCI) (2026). Organisation for Economic Co-operation and Development (OECD). Retrieved from: <https://www.oecd.org/en/data/indicators/consumer-confidence-index-cci.html>
14. Cyber Peace Institute (2026). *Cyber attacks: Impact and harm on the financial sector*. Retrieved from: <https://cyberconflicts.cyberpeaceinstitute.org/impact/sectors/financial>
15. Edler, J., & Yeow, J. (2016). Connecting demand and supply: The role of intermediation in public procurement of innovation. *Research Policy*, 45(2), 414–426. <https://doi.org/10.1016/j.respol.2015.10.010>
16. FinTech Market Size, Share & Industry Analysis, By Technology (AI, Blockchain, RPA, and Others), By Application (Fraud Monitoring, KYC Verification, and Compliance & Regulatory Support), By End Use (Banks, Financial Institutions, Insurance Companies, and Others), and Regional Forecast, 2026–2034 (2026). Retrieved from: <https://www.fortunebusinessinsights.com/fintech-market-108641>
17. Fu, J., & Mishra, M. (2022). Fintech in the time of COVID–19: Technological adoption during crises. *Journal of Financial Intermediation*, 50, 100945. <https://doi.org/10.1016/j.jfi.2021.100945>
18. Gaibulloev, K., Mirzaei, A., Moore, T., & Saad, M. (2025). The effect of fintech financing on firm performance: Evidence from emerging economies. *Journal of International Financial Markets, Institutions and Money*, 103, 102201. <https://doi.org/10.1016/j.intfin.2025.102201>
19. Haber, J., D'yakonova, I., & Milchakova, A. (2018). *Estimation of fintech market in Ukraine in terms of global development of financial and banking systems. Public and Municipal Finance*, 7(2), 14–23. [https://doi.org/10.21511/pmf.07\(2\).2018.02](https://doi.org/10.21511/pmf.07(2).2018.02)

20. Hensman, A., & Sadler-Smith, E. (2011). Intuitive decision making in banking and Finance. *European Management Journal*, 29(1), 51–66.
<https://doi.org/10.1016/j.emj.2010.08.006>
21. Hodula, M. (2022). Does Fintech credit substitute for traditional credit? evidence from 78 countries. *Finance Research Letters*, 46, 102469.
<https://doi.org/10.1016/j.frl.2021.102469>
22. Huang, X., Dong, J., & Li, X. (2025). Fintech, technological innovation and Regional Economic Growth: Theoretical Modeling and empirical evidence. *China Economic Review*, 91, 102397. <https://doi.org/10.1016/j.chieco.2025.102397>
23. Israel, R., Kelly, B. T., & Moskowitz, T. J. (2020). *Can machines “learn” finance? SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.3624052>
24. Javaheri, D., Fahmideh, M., Chizari, H., Lalbakhsh, P., & Hur, J. (2024). Cybersecurity threats in Fintech: A systematic review. *Expert Systems with Applications*, 241, 122697. <https://doi.org/10.1016/j.eswa.2023.122697>
25. Kajol, K., Singh, R., & Paul, J. (2022). Adoption of Digital Financial Transactions: A review of literature and future research agenda. *Technological Forecasting and Social Change*, 184, 121991. <https://doi.org/10.1016/j.techfore.2022.121991>
26. Kammoun, S., Romdhane, Y. B., & Loukil, S. (2023). Assessing the resilience of Fintechs to epidemic crises from a monetary stability perspective: Evidence from Africa. *Economic Alternatives*, 29(4), 687–702. <https://doi.org/10.37075/ea.2023.4.03>
27. Karountzos, V. (2025). The Impact of AI Adoption on Productivity Across FinTech, Retail, and Advanced Manufacturing: A Systematic Quantitative Literature Review Approach. Retrieved from: <https://www.productivity.ac.uk/research/the-impact-of-ai-adoption-on-productivity-across-fintech-retail-and-advanced-manufacturing-a-systematic-quantitative-literature-review-approach/>
28. Khan, H. H., & Ahmad, M. R. (2025). The Fintech Revolution: Exploring the potential of fintech finance in reducing corporate credit constraints. *Research in International Business and Finance*, 79, 103033. <https://doi.org/10.1016/j.ribaf.2025.103033>
29. Kou, G., & Lu, Y. (2025). *FinTech: A literature review of emerging financial technologies and applications*. *Financial Innovation*, 11(1), 1–40.
<https://doi.org/10.1186/s40854-024-00668-6>

30. Lee, I., & Shin, Y. J. (2018). Fintech: Ecosystem, business models, investment decisions, and challenges. *Business Horizons*, 61(1), 35–46.
<https://doi.org/10.1016/j.bushor.2017.09.003>
31. Li, C., Li, Y., Xu, Y., & Sun, G. (2025). Research on the impact of financial technology on risk-taking of commercial banks. *Research in International Business and Finance*, 76, 102804. <https://doi.org/10.1016/j.ribaf.2025.102804>
32. Mulyk, T. (2022). *Formation and development of fintech in Ukraine. Economics and Education*, 7(1), 23–30. <https://doi.org/10.30525/2500-946X/2022-1-3>
33. Muthukannan, P., Tan, B., Chian Tan, F. T., & Leong, C. (2021). Novel mechanisms of scalability of financial services in an emerging market context: Insights from Indonesian Fintech ecosystem. *International Journal of Information Management*, 61, 102403. <https://doi.org/10.1016/j.ijinfomgt.2021.102403>
34. Nariyanuri, S. S. (2023). *Global fintech funding nearly halves to \$23B in H1 2023. S&P Global Market Intelligence*. Retrieved from: <https://www.spglobal.com/market-intelligence/en/news-insights/research/global-fintech-funding-nearly-halves-to-23b-in-h1-2023>
35. Naz, F., Karim, S., Houcine, A., & Naeem, M. A. (2022). Fintech growth during COVID-19 in MENA region: Current challenges and future prospects. *Electronic Commerce Research*, 24(1), 371–392. <https://doi.org/10.1007/s10660-022-09583-3>
36. Pedersen, C. L., & Ritter, T. (2022). The market-shaping potential of a crisis. *Industrial Marketing Management*, 103, 146–153.
<https://doi.org/10.1016/j.indmarman.2022.03.008>
37. Peón, D., Antelo, M., & Sun, Y. (2024). Market competition and strategic interaction in the Spanish fintech industry. *Research in International Business and Finance*, 70, 102365. <https://doi.org/10.1016/j.ribaf.2024.102365>
38. Roy, J. K., & Vasa, L. (2024). Machine Learning and artificial intelligence method for fintech credit scoring and risk management. *International Journal of Business Analytics*, 11(1), 1–23. <https://doi.org/10.4018/ijban.347504>
39. Rupeika-Apoga, R., & Wendt, S. (2022). *FinTech development and regulatory scrutiny: A contradiction? the case of Latvia. Risks*, 10(9), 167.
<https://doi.org/10.3390/risks10090167>

40. Shahzad, A., Zahrullail, N., Akbar, A., Mohelska, H., & Hussain, A. (2022). COVID-19's impact on fintech adoption: Behavioral intention to use the financial portal. *Journal of Risk and Financial Management*, 15(10), 428. <https://doi.org/10.3390/jrfm15100428>
41. Suryono, R. R., Budi, I., & Purwandari, B. (2020). Challenges and trends of Financial Technology (Fintech): A systematic literature review. *Information*, 11(12), 590. <https://doi.org/10.3390/info11120590>
42. Tut, D. (2023). *Fintech and the COVID-19 pandemic: Evidence from electronic payment systems*. *Emerging Markets Review*, 54, 100999. <https://doi.org/10.1016/j.ememar.2023.100999>
43. USAID (2019). Ukrainian FinTech and Banks Survey 2019. Retrieved from: <https://special.ain.ua/en/usaaid-report-eng/>
44. Vijayagopal, P., Jain, B., & Ayinippully Viswanathan, S. (2024). *Regulations and Fintech: A comparative study of the developed and developing countries*. *Journal of Risk and Financial Management*, 17(8), 324. <https://doi.org/10.3390/jrfm17080324>
45. Wang, L., & Li, Y. (2025). *Artificial Intelligence, Fintech and corporate new quality productive*. *Finance Research Letters*, 85, 108090. <https://doi.org/10.1016/j.frl.2025.108090>
46. Wu, H., Yang, Y., & Wang, J. (2026). Flexible fintech regulation and Corporate Digital Innovation: Evidence from a quasi-natural experiment. *Research in International Business and Finance*, 82, 103262. <https://doi.org/10.1016/j.ribaf.2025.103262>
47. Zhou, N., & Sun, R. (2024). Coping with the storm: The role of Fintech in SME survival. *International Review of Financial Analysis*, 93, 103157. <https://doi.org/10.1016/j.irfa.2024.103157>
48. Ziegler, T. (2025). Global COVID-19 Fintech Market Rapid Assessment Study. Cambridge Judge Business School. Retrieved from: <https://www.jbs.cam.ac.uk/faculty-research/centres/alternative-finance/publications/2020-global-covid-19-fintech-market-rapid-assessment-study/>

APPENDIX A

Interview questions

SECTION 1: Respondent & Organisation Profile

1. Could you briefly introduce yourself your current role, key responsibilities, and your organisation's involvement in fintech or digital financial services?
2. How long have you been working in the Ukrainian fintech sector, and how has your professional focus evolved over that period?

SECTION 2: Pre-War Environment (Before February 2022)

1. How would you characterise the overall state of the Ukrainian fintech sector before the war in terms of growth dynamics, innovation capacity, investment activity, and the regulatory environment?
2. Please rate how important each of the following factors was in driving fintech development in Ukraine before the war (Use N/A if a factor was not relevant to your organisation or segment). (Adoption of innovative technologies (mobile payments, open banking, blockchain); Regulatory framework and government support (NBU regulatory sandbox, licensing reforms, Diia ecosystem); Availability of investment and venture capital; Use of AI, data analytics, and automation; Market competition and growing consumer demand for digital services; Impact of external shocks (COVID-19 pandemic, 2014–2015 conflict, economic crises))
3. Among the drivers above, which had the strongest positive effect on fintech development before the war — and why?

SECTION 3: Wartime Impact (February 2022 – Present)

4. What were the most significant changes your organisation experienced in the immediate aftermath of the full-scale Russian invasion — operationally, strategically, and in terms of market conditions?
5. Looking back, how has your organisation's experience of the war evolved across its different phases? Did the nature of the challenges change significantly between the initial shock period (February–March 2022), the stabilisation phase (mid-to-late 2022), and the current sustained wartime operating mode?
6. How has the war affected the key drivers of fintech development you identified in Section 2? Please consider each in turn: Innovation — has it slowed, accelerated, or changed direction?; Investment — how has funding availability and investor appetite shifted?; Regulation — has the policy environment become more uncertain, more supportive, or both?; Competition — how has the competitive landscape evolved?
7. Please Wartime Challenges – Severity Rating: Please rate the severity of impact of each of the following challenges on your organisation during the war. (Financial

instability (funding disruption, cash-flow pressure, reduced investment); Operational pressure (transaction volume, infrastructure resilience, scalability); Cybersecurity threats (DDoS attacks, payment fraud, data breaches); Regulatory uncertainty (compliance burden, new wartime rules, licensing gaps); Erosion of consumer trust and confidence in digital financial services; Talent loss and human resource constraints (mobilisation, relocation, brain drain); Macroeconomic and monetary restrictions (capital controls, FX limits, cross-border payment disruption); Company relocation and distributed operations across multiple jurisdictions)

8. Which of the challenges above has been most critical for your organisation, and what made it particularly difficult to address?
9. How has your organisation adapted its strategy, technology stack, and partnerships in response to wartime challenges?
10. Has your organisation relocated part or all of its operations abroad since February 2022 — while continuing to serve Ukrainian customers? If so, to which countries, and how has operating across multiple jurisdictions affected your business model, regulatory obligations, and team cohesion?
11. Has your organisation experienced a notable increase in cybersecurity threats since the start of the war? What types have been most prevalent, and how have you responded?
12. How have operational demands — transaction volumes, system load, and customer service requirements — changed during the war, and how has your infrastructure coped?
13. How has the regulatory environment affected your operations since February 2022? Have wartime measures created new obstacles, new opportunities, or both?
14. How have the NBU's emergency monetary measures — such as capital controls, FX restrictions, and limits on cross-border transactions — specifically affected your business model, revenue streams, and product offering?
15. How does your organisation relate to Ukraine's state digital infrastructure — in particular the Diia ecosystem — during the war? Do you see Diia primarily as a distribution platform, a competitive force, or a complementary public layer?
16. Has your organisation played a role in humanitarian or social finance during the war — for example, distributing aid payments, processing charitable donations, serving internally displaced persons, or providing financial access to vulnerable populations?
17. How have your strategic partnerships — with banks, other fintechs, international organisations, or government bodies — changed since the start of the war?
18. How has the war affected your organisation's cross-border payment capabilities and international market integration? Have disruptions to correspondent banking, card network relationships, or SWIFT access changed how you operate internationally?
19. To what extent has the war accelerated, slowed, or redirected innovation and new product development in your organisation? Please provide concrete examples if possible.

20. Have you deployed AI, advanced analytics, or other digital tools specifically to manage wartime operational or strategic challenges? If so, how?
21. How would you characterise the overall current state of the Ukrainian fintech sector — its resilience, key vulnerabilities, and areas of undiscovered strength?

SECTION 4: Future Outlook

22. What structural, regulatory, and market conditions are most necessary for the Ukrainian fintech sector to sustain operations and continue growing while the war persists?
23. If you could identify one decisive development catalyst for the sector under current wartime conditions — whether a policy change, a technological shift, or an investment breakthrough — what would it be and why?
24. How do you envision the trajectory of the Ukrainian fintech sector in a post-war reconstruction environment? What specific opportunities might the reconstruction period create that do not exist today?
25. What will be the primary drivers of fintech growth in the post-war period, and what are the most significant risks or structural obstacles that could constrain that growth?
26. Reflecting on your organisation's entire experience since February 2022, what would you do differently if you were starting that period again today? And what decisions or adaptations are you most proud of?

Resümee

FINTECH-SEKTORI ARENGU VÄLJAKUTSED SÕJALISE KONFLIKTIGA MÕJUTATUD RIIKIDES: UKRAINA NÄIDE

Yaroslav Nedvyga

Käesolev magistritöö analüüsib Ukraina finantstehnoloogia sektori peamisi väljakutseid sõjalise konflikti tingimustes. Uuringu eesmärk oli tuvastada peamised takistused, millega ettevõtted sõja ajal silmitsi seisavad, hinnata nende mõju sektori arengule ning analüüsida ettevõtete kohanemist ebakindlates tingimustes.

Töö põhineb teoreetilise käsitluse ja kvalitatiivse empiirilise uurimuse kombinatsioonil. Teoreetiline osa käsitleb finantstehnoloogia arengu peamisi tegureid, sealhulgas innovatsiooni, regulatsiooni, investeringuid, konkurentsi, väliseid šokke ja digitaalse transformatsiooni rolli. Samuti käsitletakse erinevaid kriiside liike, nagu finants-, tervise- ja geopoliitilised kriisid.

Empiiriline osa põhineb poolstruktureeritud intervjuudel Ukraina finantstehnoloogia sektori spetsialistidega. Vastajad valiti erineva ametipositsiooni ja organisatsioonilise taustaga, et tagada mitmekesine vaade. Analüüs näitab, et pärast täiemahulise sissetungi algust kujunes kolm etappi: šokk, kohanemine ja stabiliseerumine. Tulemused näitavad, et sõja tingimused muutsid oluliselt sektori arengu tegurite tähtsust ning suurendasid väliste piirangute mõju.

Kõige olulisemateks väljakutseteks osutusid makromajanduslikud piirangud, küberturvalisuse riskid, operatiivne surve ja regulatiivne ebakindlus. Samal ajal näitasid ettevõtted tugevat kohanemisvõimet, muutes strateegiaid, kiirendades digitaliseerimist ning tagades teenuste jätkumise keerulistes tingimustes.

Teoreetiliselt viitavad tulemused sellele, et kriisiolukorras toimub üleminek kasvukeskselt mudelilt vastupidavuskesksele mudelile, kus keskendutakse rohkem ellujäämisele ja stabiilsusele kui kasvule. Innovatsioon jääb alles, kuid muutub praktilisemaks ja vajaduspõhiseks. Kokkuvõttes aitab töö paremini mõista finantstehnoloogia sektori arengut kriisiolukorras ning rõhutab paindlikkuse, digitaalse infrastruktuuri ja regulatiivse tasakaalu tähtsust.

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