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**Comparative analysis of EU  
and Kazakhstan banking laws,  
and another country in the east (UAE)  
with an increasing financial economy.**

**Supervisor**

Ch. Prof. Vito Bevivino

**Graduand**

Yelnur Kapyshev

Matriculation Number 898569

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## **Chapter 1. Introduction**

The banking industry, often seen as the foundation of an economy, operates under a complicated system of rules aimed at safeguarding the needs of those involved and upholding economic stability. While legal frameworks may differ from one region to another, they all share the same primary objective of safeguarding the stability of the financial system. This thesis analyzes the subtleties of banking regulations in three separate areas: the European Union (EU), the United Arab Emirates (UAE), and Kazakhstan. Despite having varied economic structures and levels of development, these regions face distinct challenges in maintaining financial stability within a more interconnected global economy.

What is the main focus of this study: Comparing banking laws in the EU, the UAE, and Kazakhstan and examining how these legal systems influence financial stability in their respective banking sectors? Comparing these regions is important because it reveals diverse ways of regulating banking. This study aims to deepen our understanding of how regulatory environments affect banking practices and financial stability by identifying both commonalities and differences. The analysis may reveal opportunities to improve regulation and provide valuable insights for policymakers and industry experts.

This thesis focuses on critical areas that have a significant impact on financial stability, especially considering the growing global emphasis on sustainability and the rise of digitalization. With the global financial landscape being reshaped by green finance initiatives and fintech innovations, these themes have become increasingly important in the evolution of banking laws in recent years. Evaluating these regions' banking sectors' long-term resilience requires an understanding of how they are adjusting to these current trends. The study connects traditional banking law with the urgent needs of the twenty-first century by incorporating these forward-looking themes.

The selection of the European Union (EU), the United Arab Emirates (UAE) and Kazakhstan for this comparative analysis is both strategic and personal. The EU, with its mature banking sector and rich history of regulatory evolution, offers insights into how banking laws have adapted over time to address economic and societal changes. As one of the world's oldest unions, the EU's banking regulations reflect centuries of economic thought, legal development, and lessons learned from past financial crises. The EU banking sector is a key pillar of the region's economy, with a complex structure



comprising a large number of credit institutions. The sector has undergone significant changes over the years, focusing on supporting customers, managing assets, and improving bank profitability. The total value of loans outstanding from EU Monetary Financial Institutions (MFIs) increased by 13% in 2021 to about €26 trillion, the highest level since 2012. Additionally, total deposits from businesses and households grew by 5.7% to €16.5 trillion in the EU.

Kazakhstan is a young nation that finds itself in the process of economic and legal development. Since I am original from Kazakhstan, it is really interesting to me — how the banking laws of my country look like in comparison with other pacific regions. In addition, the banking laws of Kazakhstan provide an intriguing case involving emerging markets and how such a developing country develops a solid banking system. The banking sector of Kazakhstan is a reflection of the socio-economic state, as well to some extent global trends in development. MSMEs have been struggling with a series of problems for the past several years which includes Covid-19 and military struggle in Ukraine.

Despite these challenges, the sector has seen significant changes affecting its corporate structure, assets, liabilities, and overall functioning. The banking sector in Kazakhstan has also been focusing on digitalization, with many banks using big data for business development. This emphasis on innovation places Kazakhstan at a crucial juncture in its financial evolution.

Lastly, the United Arab Emirates (UAE) is a fast-expanding Eastern economy renowned for its progressive financial landscape and adoption of innovative banking practices. The UAE's banking laws offer a unique perspective on how legal frameworks can adapt to support rapid economic growth and digital transformation. The UAE's banking sector has been evolving to adopt new business resilience mechanisms in the post-pandemic period. Local banks' CEOs are focusing on vital areas including digitalization, addressing regulatory issues, corporate governance, and risk management. By leveraging digital transformation techniques such as blockchain, Artificial Intelligence (AI), and Machine Learning (ML), banks are rapidly automating processes to offer seamless customer service within a virtual environment. A sizable proportion have embraced predictive analytical models to evaluate large data sets for quicker and more efficient credit, investment, and business-related decision-making methodologies. Furthermore, the UAE

is increasingly prioritizing sustainability, aligning its banking practices with global trends toward greener finance.

The goal of this thesis is to shed light on various regulatory strategies and their effects on sustainability, digitalization, and financial stability by contrasting the banking laws in these three different regions. This analysis will emphasize the value of flexible legal frameworks and show how they can either promote or impede innovation in response to changing international financial trends.

## **Chapter 2. Literature Review**

One of the most important ways governments attempt to exert their authority over financial institutions is through banking regulations that are meant to ensure the trustworthiness and soundness of a country's entire economy. These rules cover everything from minimum standards, what you can and cannot do as a business to ensure systemic risk is limited, consumers are protected, and exposures would not derail the economy. As the regulatory frameworks developed in each country and region consider their unique economic, cultural, and historical context — varying from case to case including European Union (EU), United Arab Emirates (UAE) & Kazakhstan on how they structure regulations depending upon overarching themes of focus that become reflected in actions.

### **2.1. Banking Regulations in the European Union (EU)**

This is to understand the evolution of banking regulations in the EU, which speaks volume about dedication towards forming a consolidated and stable financial system. This development can be traced back to the interplay of international standards, EU directives and national laws that has led to a legally complex regulatory environment — one of the most harmonized worldwide. The ECB/EU framework represents a feasible regulatory response to banking sector problems: it has centralized power, targets important assets and liabilities on banks 'balance sheets in an adequate manner. However, the focus of this short essay was not necessarily for judging whether or not the EU's approach is appropriate but rather should have shown that significant moments were required at different points throughout history in order to achieve today's status quietness regarding bank regulation within one geographic area.

#### *2.1.1. Historical Context*

The 1957 Treaty of Rome represented an important step toward the economic and financial cohesion of the member states of the European Union. It led to the First Banking Directive of 1977, 77//780//EEC, which was a basic step for establishing the first uniform regulatory norm for credit institutions. The objective of this directive was to establish a level playing field, a transparent environment in which banks could operate across borders within the EU, laying out rules that ensure fair treatment of consumers and facilitate cross-border banking capabilities.

The directive was part of a broader European initiative to harmonize the rules governing financial institutions, ensuring that competition remained fair, and the systemic risks were minimized, especially with the goal of promoting cross-border banking activities.<sup>1</sup>

The Second Banking Directive, 89/646/EEC of 1989, marked one of the most significant steps towards a single market for banking services, allowing banks authorized in one EU member state to operate throughout the union. This was achieved through the harmonization of the bank authorization rules and the establishment of capital standards throughout the EU. The establishment of this directive made the competition of banks increase and gave overall stability to the financial system, where standardized capital adequacy requirements became established within the area.

This was taken one step further by the 1993 Investment Services Directive, 93/22/EEC, which put in place consistent capital adequacy ratios for investment banking houses. It made special rules for stock exchanges and organized trading markets, thus further paving the way for deeper integration of the financial market in the EU. Another block had been added in the direction of the development of a single capital market, reinforcing the new, growing prominence of the EU as a cohesive financial entity.

The FSAP launched in 1999 sought to renew this regulatory framework with measures such as the Regulation on International Financial Reporting Standards, Regulation (EC) No. 1606/2002, and the Markets in Financial Instruments Directive-known as MiFID. These have been major steps in ensuring that financial markets are transparency-ensuring and competitiveness-characterized. The FSAP also enabled the Capital Requirements Directive, commonly known as CRD, which aimed at harmonizing capital adequacy requirements for banks so that they would be resilient against financial jolts.

Another layer of regulatory evolution was the Lamfalussy Process, initiated in 2001. It introduced a four-tier legislative process that lifted cooperation among national supervisory bodies to a new level and thereby upgraded decision-making in securities markets, banking, and insurance supervision. The above process had much significance in accelerating the adoption of financial legislation, enabling the EU to react in a timelier fashion to the appearance of new risks and challenges in financial markets.

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<sup>1</sup> *The EU Banking Regulatory Framework and Its Impact on Banks and the Economy* (30 Jan 2021)

### *2.1.2. Post-2008 Financial Crisis Reforms*

The financial crisis of 2008 exposed weaknesses in the financial system of the EU and ensured that major changes in regulation were made. One of the most fundamental reforms was the establishment of the European Banking Union. The Banking Union shall rest on a framework of three interlinked pillars: a Single Supervisory Mechanism, a Single Resolution Mechanism, and a European Deposit Insurance Scheme.

Basel III, introduced post-crisis, further enhanced this regulatory overhaul by mandating higher capital and liquidity buffers. The framework emphasized the necessity of maintaining capital adequacy during economic stress, primarily through the introduction of the Capital Conservation Buffer and the Liquidity Coverage Ratio (LCR).<sup>2</sup>

The SSM introduced the ECB in 2013 to the core of banking supervision in the Eurozone. It conferred direct supervision over significant banks to the ECB, ensuring that prudential standards would be applied consistently across the union. The leading aim of the SSM was to cut down the probability of failure and boost financial stability by following up closely on the assets and liabilities of banks.

In 2014, the Single Resolution Mechanism was established with a single structure for managing ailing banks. It works by coming up with an arrangement with the Single Resolution Fund to keep bank resolutions orderly, so it minimizes economic impact and reduces the need for taxpayers' money in bailing out a bank; hence, it falls under the Single Resolution Board's conduct.

EDIS is yet to be fully implemented, while it aspires for single insurance protection across the EU for depositors. It would form part of the overall strategy of the Banking Union to improve financial stability, especially in periods of crisis. The EDIS would, therefore, upon implementation, further solidify the position of the European Union on protecting depositors and consolidating confidence in the banking system.

### *2.1.3. Impact of Regulatory Reforms*

Regulatory reforms adopted in the wake of the 2008 crisis, especially those under the Single Rulebook, have changed the banking landscape within the EU. Since the Single Rulebook has harmonized the rules relevant to capital adequacy, liquidity, and risk

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<sup>2</sup> *European Banking Union: An Institutional Analysis* (2020)

management for all member states under the EU umbrella, it has ironed out nearly all the risks due to regulatory arbitrage, wherein banks exploited national variations in regulations. As a result, it has cut compliance costs for banks and promoted an integrated financial market that is more stable.

However, while large financial institutions have adapted smoothly to these changes, smaller and regional banks have struggled to comply with the stringent requirements imposed by Basel III. The leverage ratio and net stable funding ratio (NSFR) have proven particularly challenging for these smaller entities, which often lack the resources and liquidity required to meet these demands.<sup>3</sup>

One of the main regulatory building blocks of the Single Rulebook has been how Basel III was enacted. Basel III had three main, lofty ambitions: enhancing the capital position of banks, improving liquidity, and decreasing systemic risk. While most large financial institutions have largely taken the requirements in stride, smaller banks throughout the Union have continued to struggle. The stringent capital adequacy requirements under Basel III weigh heavily on smaller institutions, which may struggle to meet the new liquidity ratios and leverage limits without recourse to costly restructuring measures. This may turn them into a laggard in competitiveness compared to larger ones with more resources to comply with enhanced regulatory demands.

Furthermore, the increased operational expense due to Basel III could also become another driver for consolidation in the banking sector; smaller players would need to either merge or get acquired by larger ones to survive. Moreover, the regulatory requirements are very complex, and small and medium-sized banks usually cannot afford the advanced risk management systems needed for efficient implementation of Basel III. This has sparked a discussion within the EU on the need for proportionality in implementing Basel III, with appeals to modify the norms to lighten the burden on smaller banks while maintaining the objectives of financial stability and resilience.

Equally, setting up the Banking Union has increased the transparency and accountability of the financial system in the EU. Banks are under stricter supervision and have to respect higher standards for risk management; thus, confidence has been restored in this sector.

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<sup>3</sup> *Banking Regulation and Banking Crises in European Countries* (2021)

This, in turn, allows stakeholders to make better decisions that reduce the possibility of excess risk-taking that may destabilize the system.

There is, however, unfinished business. For instance, EDIS is yet to be fully established because of political disputes, which are partly related to risk sharing among the members. The urgent need for further harmonization in conformity with Basel III standards also remains, while the EU attempts to balance maintaining its banks competitive globally without diluting the prudential oversight standards.

These reforms have been underlined even more by the pandemic. The new Pandemic Emergency Purchase Programme devised by the ECB was instrumental in preventing the complete drying up of the financial system during the crisis, but at least showed flexibility in the EU's regulatory framework. However, regarding this, the pandemic underlined the view that the challenge of further strengthening the Banking Union remains an uphill task; full implementation of EDIS will have to be genuinely extended to all member states.

## **2.2. Banking Regulations in the United Arab Emirates (UAE)**

The UAE banking sector operates under an advanced legal framework that reflects the country's twin focus on conventional and Islamic banking. This framework has the Central Bank of the United Arab Emirates at its core, concerned with issuing the currency, guiding credit policies, and guaranteeing the financial soundness of banks. As the UAE's framework is broadly in line with international standards, such as Basel III, some of its requirements are specifically tailored to its unique economic landscape and ensure a level playing field for both conventional and Sharia-compliant banking. It offers a dual approach to enable the UAE to evolve into a significant Islamic finance hub and an important center for conventional banking services within the region. The regulatory approach followed by the UAE is flexible and innovative vis-à-vis financial-free zones. Therein exists a unique offering for an appropriate regulatory environment for international financial institutions.

### *2.2.1. Historical Background and Development of Islamic Banking*

Islamic banking in the UAE began with the establishment of Dubai Islamic Bank (DIB), believed to be the world's first Islamic bank, in 1975. DIB was initiated by local businessmen who sought a bank whose operations conformed to their religious way of

life and cultural traditions. For the first few years following its inception, DIB operated without a Shari'a advisory board and lacked a formal regulatory framework. As a result, the bank had to navigate the financial world with limited guidance on how to conduct operations according to Shari'a principles.

The absence of a formal regulatory system in the early years itself was an inherent cause of uncertainty in the industry. However, with the increasing demand for Islamic financial services, a strong regulatory structure became highly essential. Until 1981, with the establishment of the Central Bank of the UAE-entrusted with the task of regulating the activities of all banks, including Islamic banks-the regulatory framework for Islamic banking in the UAE took proper shape. In 1985, the first law on Islamic banking was enacted; it laid down the necessary guidelines to ensure that the operations and services offered by Islamic banks conformed to the principles of Shari'a. Since then, the framework has taken this complex system and made Islamic banking an integral part of the UAE's financial landscape.

Research evidence in Islamic banking within authoritarian settings has shown that the UAE's regulatory environment remains focused on stability while leaving space for innovation in compliance with Sharia principles. Islamic banking in the United Arab Emirates faces the dual pressure of staying within the lines of Sharia law while competing in a global financial market-a reality which has been emphasized through comparative studies between the UAE and Malaysia with respect to Islamic finance.<sup>4</sup>

Additionally, the Virtual Assets Regulatory Authority (VARA) has played a crucial role in regulating cryptocurrency and digital assets in the UAE. VARA oversees activities such as initial coin offerings (ICOs) and crypto exchanges, ensuring compliance with anti-money laundering (AML) and counter-terrorist financing (CTF) regulations. These frameworks are critical as the UAE advances toward becoming a global hub for fintech and blockchain innovation.

### *2.2.2. Key Regulations*

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<sup>4</sup> *Regulating Islamic Banks in Authoritarian Settings: Malaysia and the UAE* (2018)



The UAE banking sector is governed by a number of key laws to ensure that conventional and Islamic banks operate correctly within a robust, stable framework. These include the following:

The cornerstone in banking regulation for the UAE is:

- Federal Law No. 14 of 2018, which governs the Central Bank and the organization of financial institutions. This covers a wide range of areas, starting from the organization and objectives of the Central Bank, capital reserves, management of the Central Bank. The law requires all banks to maintain a minimum capital adequacy ratio to at least the minimum set by Basel III. In other words, banks are forced to have enough capital to cover in case of a loss, if and when it happens, with respect to periods of economic turmoil, to isolate the financial system from stress. This burden has also upped the ante for small banks, which may, in fact, find it hard to comply with the heightened thresholds Basel III puts on capital, possibly preventing them from expanding or forcing mergers with larger institutions.<sup>5</sup>
- Federal Law No. 6 of 1985: This has regulated Islamic banks, financial entities, and investment companies; it ensures that these work within the tenets of Shari'a law. It allows Islamic banks to perform subject to all or part of banking, commercial, financial, and investment activities and services. Islamic banks have to work within an ethical framework that forbids the collection of interest way of describing interest (riba) and, instead provides alternative concepts such as Murabaha and Mudaraba, which help in distributing the risk between the bank and the customer. Maintaining Sharia compliance while trying to be competitive with conventional banking, however, sometimes creates operational difficulties for Islamic financial houses, especially when dealing in product offerings that are at once competitive yet religiously compliant.<sup>6</sup>
- Law No. 10 of 1980: This law regulates investment banks, providing that they cannot accept deposits with maturities below two years and borrowings from any source if stability and integrity are to be maintained within investment banks. The goal of this regulation is to ensure long-term investment stability and prevent

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<sup>5</sup> *Analyzing Financial Risk and Profitability in the UAE Banking Sector* (2020)

<sup>6</sup> *Regulating Islamic Finance in the UAE: Comparative Perspectives* (2021)

short-term liquidity risks, especially during economic downturns, where investment banks play a critical role in supporting infrastructure projects and business ventures.

The regulatory environment in the financial free zones that exist in the UAE-most notably the Dubai International Financial Centre and Abu Dhabi Global Market-enhances even further the country's potential for attracting international financial institutions. These free zones have their own independent regulatory authorities, whose regulatory environment is much closer to global best practices, providing more flexibility for the financial institutions within them. Also, financial-free zones like DIFC and ADGM enable fintech companies to enjoy wide space for operation, thus allowing them to test innovative financial products in regulatory sandboxes. This constitutes a favorable environment to attract international fintech startups and investment for making the UAE a global financial innovation hub.<sup>7</sup>

### *2.2.3. Impact of Regulations*

Banking in the UAE functions with the dual regulatory mechanism of conventional and Islamic Banks. The Central Bank of the United Arab Emirates basically governs the sector to ensure that financial institutions are working within the ambit of all international requirements while at the same time considering the peculiar demands of Islamic finance.

Federal Law No. 14 of 2018 forms the basis of the UAE's banking regulations. This law puts on record the mandate of the CBUAE which ranges from maintaining monetary stability and regulating credit policies to pursuing the financial soundness of banks. It also prescribes that banks should hold adequate capital reserves to cover the loss likely to be incurred in case of any shock, which is, however, within the Basel III requirements on capital adequacy. While larger banks in the UAE can afford these regulations, given their diversified portfolio and access to capital, it would be burdensome for small banks to maintain the required levels of capital buffers. In this manner, one outcome could be that smaller banks are compelled to merge into bigger ones because of the need to comply with Basel III standards. It also specifies that the Central Bank has to regulate the financial

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<sup>7</sup> *Virtual Assets in the UAE: Regulatory Developments and Opportunities* (2021)

institutions to ensure adequate levels of liquidity as well as proper risk management policies.<sup>8</sup>

Federal Law No. 6 of 1985 regulates Islamic banks, investment companies, and finance houses to enable them to operate within the teachings of Sharia. Consequently, Islamic banks are prohibited from charging interest (riba), that is, interest on deposits and advances; on the other hand, they can provide modes of financing with profit-sharing, such as Murabaha and Mudaraba. This law will ensure Islamic financial institutions can provide ethical banking in accordance with religious principles, while simultaneously contributing to the financial stability of the UAE by encouraging risk-sharing between banks and consumers.

It also regulates investment banks, with Law No. 10 of 1980 preventing them from accepting deposits with maturity periods below two years. In essence, what this regulation seeks to do is ensure that investments are long-term and that the investment banks are stable enough to play the vital role expected of them in the UAE financial markets.

More regulatory flexibility within the UAE's financial free zones exists, for instance, the DIFC and the ADGM. These free zones follow independent regulatory frameworks that are more in tune with best international practices, thereby creating a very conducive climate for international finance institutions. The regulatory sandboxes in these zones provide an enclosed environment for new fintech solutions to be tested in a manner that allows a fintech startup to innovate with confidence, knowing that protection for consumers and overall regulatory oversight are not compromised. In these free zones, regulatory sandboxes enable fintech companies to test innovative financial services in controlled environments, including blockchain and AI-powered banking services. This places the UAE at the forefront in driving fintech innovation, particularly in Islamic finance.

The COVID-19 pandemic indeed took a massive toll on the banking industry within the UAE, compelling the CBUAE to come out with targeted economic support styled as the Targeted Economic Support Scheme (TESS). A comprehensive relief package allowed financial support to the tune of AED 256 billion in facilities to private and business customers, with the goal of cushioning the economic impact of the pandemic. Therefore,

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<sup>8</sup> *Islamic Banking and Finance in the UAE: A Critical Review* (2019)

TESS included free funds supplied to banks, postponed loan repayments, and reduced reserve requirements, among other measures, to guarantee liquidity within the financial system and maintain lending capacity during a period of unparalleled economic disruption. The CBUAE's swift action underscored confidence in the UAE banking system and its regulatory framework. By doing so, the flexibility within the regulatory regime provided an enabling environment where banks rechecking pandemic-associated risks would sustain support for the economy, allowing rapid adaptation to the crisis. In this way, not only was stability achieved in the financial system, but the UAE was also further consolidated as a safe financial hub with good capacity to resist external economic shocks.

However, at the same time, it underlined weaknesses, especially the increasing reliance on digital infrastructure as banks increasingly took operations online. With many of these digital services came increased customer access and efficiencies in operations, which placed additional pressure on improving cybersecurity. Therefore, the UAE banking sector was invited to increase its investments in cybersecurity to counter growing threats and protect both banks and customers in this digital age.

In the future, too, the UAE banking industry is likely to continue along this path of innovation and resilience. The same regulatory framework that has shown its adaptability in crises will continue to evolve to meet new challenges, including those arising from changes in technology and economic conditions. What this indicates is a firm commitment to a stable and robust financial system supported by a flexible regulatory regime that looks to the future.

### **2.3. Banking Regulations in Kazakhstan:**

The Kazakhstani banking sector has undergone considerable changes in recent years, shaped both by the domestic reform process and by international economic developments. The banking system of Kazakhstan is small and bank-dominated; it has faced a number of significant changes since the last FSAP in 2014. The recomposing of the balance sheet from corporate to consumer loans, de-dollarization of banking sector assets, and increased emphasis on risk-based supervision are major shifts.<sup>9</sup>

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<sup>9</sup> *IMF Report on Kazakhstan Banking Sector* (2024)

The establishment of the Astana International Financial Center in 2018 was one of those important steps toward creating a jurisdictionally separate regulatory environment with the aim of attracting foreign investments. The regulatory framework of AIFC is modelled on English common law, which will provide flexibility with stability in the legal environment, thus boosting growth in Islamic finance and international financial services.<sup>10</sup>

Despite this positive outlook, though, there is still a host of systemic risks affecting the Kazakh financial system. The IMF report of 2024 expresses concern over the rapid growth of consumer lending, which has been good for domestic demand but increases the risk of credit defaults. Furthermore, while Kazakhstan's banks have capital adequacy ratios that remain high-including a total capital adequacy ratio of 21.7% in the year 2022-the sector continues to overcome its specific legacy problem assets from past financial crises.<sup>11</sup>

In the meantime, some measures have been taken by the NBK in terms of liquidity and interest rate risk management, though data collection gaps still persist, especially with regard to monitoring related-party transactions and consumer lending. The IMF assessment underlined how further reforms are needed that would bring Kazakhstan's regulatory regime closer to international norms, such as those under Basel III, raising the shock-absorbing capacity of its financial system. The international standards set by the Basel III became quite challenging to fulfill for Kazakh banks. Although Kazakhstan has followed almost up to Basel III, but small banks will struggle to meet the onerous capital requirements of these regulations. Pressing on a high capital adequacy ratio is problematic for banks with scarce capital resources, which could be used through mergers or even hamper growth. Furthermore, additional challenges are the Basel III liquidity ratios-the LCR and NSFR-when maintaining it in an economic environment with less capital, thus increasing demand for consumer credit.<sup>12</sup>

With Kazakhstan being reliant on natural resources, the financial system also faces transition risks related to globally framed policies on climate change. Further strains

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<sup>10</sup> *Astana International Financial Center and Foreign Investment* (2019)

<sup>11</sup> *FSAP and IMF on Kazakhstan Banking* (2020)

<sup>12</sup> *Basel III in Emerging Markets: The Kazakh Context* (2021)

could be placed on the banking sector from the country's diversification away from hydrocarbons, and in reaching vulnerabilities pertinent to global energy transitions.

### *2.3.1. Historical Context*

Kazakhstan's road towards a sound banking regulatory framework began in the early 1990s when, in 1993, the National Bank of Kazakhstan was formed. The ambulatory National Bank of Kazakhstan and its founding director, the late Enriko A. Vasilyev, lost no time in laying both a monetary foundation and a sound banking regulation. Moreover, the young central bank—and its governor—took on itself the very demanding task of guiding the restructured banking system from state-controlled to an intermediary system that works with the principles of more or less free banking. By the end of 1995, the National Bank of Kazakhstan had indeed drafted basic legislation which would provide a sound framework for a banking supervisory regime.

The late 1990s and the early 2000s brought new challenges—most significantly the 1998 financial crisis in Russia—which accentuated the acute need for sound, reliable regulation. Thus, came into being in Kazakhstan in 2003 the Agency for Regulation and Supervision of Financial Market and Financial Organizations (AFN). The mandate of the agency: To keep a watchful eye on banks and other financial institutions, while attempting to ensure that they are operating in such a manner so as not to imperil the entire system.

### *2.3.2. Regulatory Framework and Institutions*

Encouraged by regulatory support and the option for quite affordable energy, Kazakhstani developers position themselves as headliners in global blockchain technology and the mining of cryptocurrencies. By 2023, the country took second place in the world ranking of Bitcoin mining hash rate contribution. The Astana International Financial Centre-AIFC Fintech Regulatory Sandbox has laid the way for testing solutions based on blockchain technologies and positioned Kazakhstan for leadership in digital banking and fintech innovation.<sup>13</sup>

Kazakhstan has a dual regulatory framework whereby monetary policy and financial stability come under the authority of the National Bank of Kazakhstan, while day-to-day regulatory functions and inspections are conducted by the Agency for Regulation and

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<sup>13</sup> *Kazakhstan's Blockchain Revolution: A Study of Fintech Development* (2022)

Supervision of Financial Market and Financial Organizations. In that respect, both monetary and regulatory policies could be combined coherently and, consequently, ensure greater stability for the financial system.

The NBK introduced several prudential measures aimed at risk reduction in the banking system: the liquidity ratio, capital adequacy, and exposure limits. Generally speaking, they correspond to international standards under Basel III, although adapted to specific conditions of the Kazakhstani economy, when natural resources make up a large share of GDP and are even more sensitive to external shocks. In retaliation for the turbulence in the oil and gas industries, the NBK imposed an expanded capital buffer against loans in these sectors, which is greater than in the past. Limits on foreign currency exposure have also been established to guard against fluctuations in the value of the Kazakhstani tenge.<sup>14</sup>

To complement these steps, Basel III has introduced new prudential regulations comprising the LCR and NSFR, which are applied to make sure that during periods of stress, banks hold an adequate volume of liquid assets and maintain stable funding over the longer term. With the emerging markets, Kazakh banks also face difficulties in maintaining these ratios, especially in an economic environment that is typical of a lack of capital, where the banking sector is very small as compared to international markets. Particularly, the smaller-scale institutions are at risk from such regulations as they can hardly generate the resources required to satisfy these high capital and liquidity requirements. This will place greater pressure on smaller banks to merge with larger institutions or cut operations to remain in compliance with Basel III standards.

### *2.3.3. Development of Islamic Finance*

One striking feature of Kazakh banking legislation, and increasingly a popular theme for Kazakh finance, may be the development of Islamic finance. This simply was underlined by Kazakhstan's recent attempt to promote itself as a regional Islamic finance hub when, in 2009, it adopted the "Law on the Organization and Activities of Islamic Banks and Islamic Finance."<sup>15</sup>

Regarding this direction, Kazakhstan's attempt to integrate Islamic finance with the use of fintech is supported by the AIFC regulatory sandbox, covering the possibility to

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<sup>14</sup> *Prudential Regulation and Financial Stability in Kazakhstan* (2020)

<sup>15</sup> *Islamic Finance in Kazakhstan: A Comparative Review* (2021)

develop Sharia-compliant digital products by the companies engaged in fintech. Issuance of Sharia-compliant green bonds also go in line with the goal of Kazakhstan to foster both Islamic finance and sustainability supported by blockchain technology. These place Kazakhstan on the frontier of merging Islamic financial principles with modern fintech solutions.

This strategic partnership with the United Arab Emirates allowed for the first Islamic bank in Kazakhstan, Al Hilal Bank, to open in 2009. Further commitment came with the inclusions of ambitions for Almaty to become a regional center for Islamic banking in Central Asia in the Strategic Plan for Development of Kazakhstan until 2020. Official and grassroots efforts have been made to develop Islamic finance: the Development Bank of Kazakhstan issued Sukuk-or Islamic bonds-in 2012, while in 2015, laws enabled the structure for government Islamic securities issuance and the mechanism for converting conventional banks into Islamic banks. Kazakhstan's National Bank was able to join international institutions on Islamic Finance, such as the Islamic Financial Services Board, to adopt best practices in this respect, thus further integrating Kazakhstan into the global Islamic Finance Community.

#### *2.3.4. Impact of Regulatory Reforms*

The Kazakhstani reforms, especially after the global financial crises and establishment of the AIFC, have really shaped the future of the country's financial landscape. These reforms have included enhanced prudential supervision, improvements in the level of transparency to conform Kazakhstani banking regulations to international standards like Basel III.

The most significant outcome of these reforms has turned out to be the stability of the banking sector, which now is more resistant to negative processes in Kazakhstani and world economies. Such a result was reached mainly by means of the actions on behalf of the NBK aimed at the control of liquidity risks, sufficiency of capital, and foreign currency open position.<sup>16</sup> Such risks of Kazakhstan's dependence on natural resources have been partly dampened by the prudential regulations, such as higher capital requirements for loans to volatile sectors like oil and gas.<sup>17</sup>

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<sup>16</sup> *Directions of regulations management of the financial banking sector* (2021).

<sup>17</sup> *Comparative analysis of Islamic banking regulation* (2020).



Besides, the development of Islamic finance contributed to diversifying the financial channel in the banking industry. The Sukuk issued and an Islamic financial institution, such as Al Hilal Bank established, expanded the range of Kazakhstani financial services and attracted both local and international investors who have an appetite for Sharia-compliant products.<sup>18</sup>

The digital transformation of Kazakhstan, with special mention of the CBDC digital tenge, goes on with further expectations to boost efficiency in payment systems and enhance inclusivity in finance. What is perhaps more important- due to its blockchain-based efforts related to green finance, it also tended to get an advanced international role in a few significant aspects concerning technology along with sustainable finance. But this is only part of the progress, as there are still legacy issues that the banking sector faces, particularly the NPLs that emanated from previous financial crises. Moreover, systemic risks also emanate from rapid growth in consumer lending, which could finally lead to an increase in defaults in the future if not managed properly. Apart from that, Kazakhstan is highly dependent on hydrocarbons, making its financial system susceptible to sudden alterations in the global energy markets and thus to transition risks from world climate policy.<sup>19</sup>

The COVID-19 pandemic has further underscored this point of increased digitalization in Kazakhstan's banking sector. While the rapid development of FinTech and the digital tenge are welcome, Kazakhstan will need to continuously strive to improve its regulatory framework to enable digital banking and achieve financial stability in the face of rapid technological changes.<sup>20</sup>

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<sup>18</sup> *Islamic Finance in Kazakhstan: Legal Challenges and Opportunities* (2022).

<sup>19</sup> *Kazakhstan's Energy Dependency and Financial Stability Risks* (2021).

<sup>20</sup> *MF Report on Kazakhstan's Banking Sector Post-COVID-19* (2023).

## **Chapter 3. Comparative Approach**

Although the European Union, United Arab Emirates, and Kazakhstan have regulatory frameworks that purport to maintain stability and integrity within their financial system, they are hugely different with regard to structure, focus, and implementation. Consequently, this fact reflects the particularities of the economic, cultural, and historic settings in each of the mentioned regions that distinguish the paramount regulatory approach in operating banks.

### **Part 1. Comparative Legal Analysis**

#### **3.1. Regulatory Frameworks: Structure and Governance**

The EU is arguably one of the most centralized and harmonized regulatory frameworks in the world, considering that the European Central Bank and the European Banking Authority are at the center, ensuring the homogeneous application of the banking regulations across the union. The bedrock of the regulatory structure in the EU is the Capital Requirements Directive-IV and the Capital Requirements Regulation. It prescribes strict, detailed standards concerning capital adequacy, liquidity, and risk management. These directives are meant to guarantee that banks are sufficiently capitalized to resist financial shocks and maintain the stability of the European Union financial system.<sup>21</sup>

Instead, the United Arab Emirates applies a double regulatory system, one that combines conventional and Islamic banking. On the federal level, the activities of banking are controlled by the Central Bank of the United Arab Emirates, or CBUAE, in pursuance of both federal legislation and Islamic Sharia. Some UAE financial free zones, such as the DIFC and ADGM, have independent regulatory environments dedicated to the highest standards of global best practices, and so are accordingly able to offer an agile, pioneering regime for international financial institutions.<sup>22</sup>

Kazakhstani's regulatory framework is still at somewhat a nascent stage of development; the National Bank of Kazakhstan, together with the Agency of the Republic of Kazakhstan for Regulation and Supervision of Financial Market and Financial

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<sup>21</sup> *European Banking Union – an institutional analysis* (2020).

<sup>22</sup> *Regulation and Governance in Islamic Finance* (2018).

Organizations, are the leading bodies in overseeing and regulating the banking sector. Another major step forward in the field of Kazakhstan's regulatory environment was the establishment of the Astana International Financial Centre back in 2018, which would serve as an independent regulatory framework based on English common law aimed at providing ease in attracting foreign investment and stimulating Islamic finance.

### *3.1.1. The European Union's Centralized Approach*

The EU has one of the most harmonized regulatory regimes in the world. Indeed, it has imposed strict, detailed requirements on capital adequacy, liquidity, and leverage ratios through the CRD IV and its sister legislation, the CRR, enforced by powerful central bodies such as the ECB and the EBA.<sup>23</sup>

While this is a sound framework, the burden of regulation for smaller banks is disproportionately high. Moreover, Brexit has raised new regulatory challenges: the withdrawal of the UK has led to fragmentation in cross-border banking services and passporting rights.

The increasing pace of fintech and cryptocurrencies adds further challenges for the EU, which calls for greater agility in its regulatory response. Moreover, PSD2 opened the sector to third-party providers, fostering further growth in the fintech area, but the EU needs to do more to make the regulatory framework simpler, finding a balance between supporting innovation and guaranteeing consumer protection and financial stability.

### *3.1.2. The UAE's Dual Banking System*

In contrast, the UAE follows a hybrid regulatory system where Islamic and conventional banking coexist. Federally, it falls under the umbrella of the Central Bank of the United Arab Emirates, while other free zones such as the Dubai International Financial Centre and Abu Dhabi Global Market have independent frameworks that provide a number of opportunities for comfortable operation.

Further, the UAE leadership in technological innovation is expressed by pioneering in the adoption of blockchain and AI within the banking sector. The country's regulatory framework adapted pretty fast to welcome both digital banking and fin-tech, though there are challenges in place, such as increasing cybersecurity risks and regulatory

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<sup>23</sup> *The EU Banking Regulatory Framework and Its Impact on Banks and the Economy* (2019).

fragmentation between free zones. Harmonizing such regulations could reduce risks and improve the prospects for being globally competitive.

### *3.1.3. Kazakhstan's Evolving Framework*

Meanwhile, the Kazakhstani regulatory framework remains fledgling and is therefore still in development yet increasingly in line with international standards, such as those under Basel III. Certainly, the establishment of the AIFC in 2018 represents the most dynamic U-turn; its legal system-based on English common law-was devised for foreign investment attractions and to develop Islamic finance.<sup>24</sup>

Kazakhstan is working at an active pace in managing the risks associated with its natural resource dependence, especially hydrocarbon. The phasing out of fossil fuels and the growing emergence of green finance brings along both challenges and opportunities for its banking sector. This initiative by the Green Finance Centre at AIFC sounds promising for promoting environmentally sustainable investments, but Kazakhstan has to go forward by continuously strengthening regulatory enforcement and increasing transparency in order to reduce its vulnerability.<sup>25</sup>

## **3.2. Global Trends Impacting Banking Regulations: Cryptocurrencies and Fintech**

### *3.2.1. European Union*

The EU had been actively regulating the fintech sector through its Second Payment Services Directive, PSD2, initiated in 2018. PSD2 broke open the payment services market, enabling third-party providers access to consumer banking data, further facilitating open banking and enhancing competition. This was a legal framework that supported innovation in the field of fintech while ensuring that stringent regulatory standards are observed.<sup>26</sup> PSD2 was supposed to give security and integrity of financial data while allowing the technological advancement of the banking industry. On the cryptocurrency side, there is the Markets in Crypto-Assets Regulation, MiCA, scheduled for 2024. MiCA will create a broad legal framework and establish rules for the regulation of cryptocurrencies and digital assets in the EU. Among the goals are providing

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<sup>24</sup> *Comparative Analysis of Islamic Banking Regulation* (2020).

<sup>25</sup> *Green Finance and Investment in Kazakhstan* (2022).

<sup>26</sup> *SPERI-Paper-38-EU-Financial-Regulation-Banking-Union-Capital-Markets-Union* (2021).

legal certainty for crypto service providers, setting AML and consumer protection measures, and dealing with risks related to fraud. MiCA is actually designed to make the EU the first frontier in terms of digital assets regulation globally, hence providing a secure and organized market.<sup>27</sup>

Legal experts have, however, raised concerns over the increasing complexity of DeFi and crypto generally. Although MiCA offers a number of key protections, a number of people would want increased agility in the regulations to keep up with future changes in blockchain technology and innovations in finance.<sup>28</sup>

### 3.2.2. *United Arab Emirates*

The UAE has so far provided a flexible regulatory environment for rapid adoption of fintech and blockchain. Main regulatory bodies include the Dubai International Financial Centre that allows a 'sandbox' environment where money firms can test innovative services related to AI-driven banking services and blockchain-based solutions, among others. These free zones therefore have specific regulations different from those at the federal level, thus giving agility and adaptability to global fintech trends. The VARA will oversee digital assets like cryptocurrencies from a general AML and CTF perspective. Digital banks, such as Liv., an AI-powered bank, would be policed under cybersecurity protocols as prescribed by the UAE's National Cybersecurity Strategy.<sup>29</sup> These frameworks show how the UAE ensures that innovation prospers while protecting consumer protection and financial stability.

### 3.2.3. *Kazakhstan*

The Kazakhstani government, with its progressive regulatory environment, has quickly positioned itself as a hub in the budding cryptocurrency mining and fintech innovation. The Astana International Financial Centre was established in 2018 under English common law, adding clarity of law and security to foreign investors. The key legal development is the AIFC's Fintech Regulatory Sandbox introduced in 2022, allowing the testing of innovative solutions by FinTech firms under conditions controlled by the

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<sup>27</sup> *European Banking Union – an institutional analysis* (2020).

<sup>28</sup> *The EU Banking Regulatory Framework and Its Impact on Banks and the Economy* (2019).

<sup>29</sup> *Regulation and Governance in Islamic Finance* (2018).

regulator. The framework ensures that technological advancement in digital finance, including blockchain, duly meets the legally set standards.<sup>30</sup>

Further evidence of its commitment to digital finance comes in the work that is being done on developing its CBDC, the digital tenge. The legal framework for the CBDC will be especially important in facilitating its adoption, with the aim of aligning Kazakhstan's regulatory standards with Basel III and international norms. Furthermore, under these conditions, even though the fintech-related legislative framework of Kazakhstan has just started to develop, blockchain-enabled sustainable finance projects are encouraged by the Green Finance Centre at AIFC. One of the decisive factors in the uniform application of regulations is the lack of effective mechanisms for enforcement and more transparency.<sup>31</sup>

### **3.3. Green Finance and Sustainability**

#### *3.3.1. European Union*

The European Union has been in the vanguard of writing a comprehensive legal framework in green finance. It also shows in this framework how closely it is linked with the achievement of carbon neutrality under the European Green Deal by 2050. One of the key legal frameworks making this transition possible is the EU Taxonomy Regulation, which began its operation last year. This regulation provides a classification system through which financial institutions will be in a position to identify and finance those projects that contribute to EU climate goals. Its scope will cover, amongst other areas, renewable energy, energy efficiency, and sustainable agriculture.<sup>32</sup>

Complementing the Taxonomy Regulation, the Sustainable Finance Disclosure Regulation, which came into force in 2021, requires financial market participants to disclose how ESG factors are considered in their investment decisions. This has been a regulatory step taken to counteract greenwashing and make sure that the labeled sustainable products contribute toward environmental objectives.

The EU will be implementing the EU Green Bond Standard, expected soon to become law. This will standardize the issuance of green bonds and provide for how such proceeds shall be used for environmentally sustainable projects. The legislative framework was

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<sup>30</sup> *Perfection of Government Control of Bank Activity* (2021).

<sup>31</sup> *Green Finance and Investment in Kazakhstan* (2022).

<sup>32</sup> *The EU Banking Regulatory Framework and Its Impact on Banks and the Economy* (2020).

further underpinned by the Fit for fifty-five packages developed by the EU in 2021, which targets a 55% reduction of greenhouse gases by 2030 through changes in legislation. These laws and initiatives highlight the broad approach taken by the EU in embedding sustainability into the financial system and making it one of the world leaders in green finance.<sup>33</sup>

### 3.3.2. *United Arab Emirates*

The UAE has taken a strategic approach toward the regulation of green finance and ensured that sustainability objectives are aligned with broader economic goals. Another important framework in this regard is the Sustainable Finance Framework enacted by the UAE's Central Bank, guiding the financial institutions to align their operations with the UAE's environmental sustainability goals in such sectors as renewable energy, clean transportation, and sustainable urban development.<sup>34</sup>

In 2021, the UAE took a huge step with the issuance of its maiden sovereign green bond, valued at \$500 million—a movement that reflects commitment to green financial instruments development. The UAE Green Bond Guidelines follow the Green Bond Principles drawn up by the International Capital Market Association and are under the assurance of meeting international sustainability criteria.<sup>35</sup>

In addition, both DIFC and ADGM have implemented enabling legal regimes that encourage innovation in green finance, including the trading of carbon credits by blockchain. This will introduce further transparency and accountability in the market for green finance. Interfacing Blockchain with green finance in the UAE, therefore, represents a trendsetter for future regulatory frameworks that will guide the future of sustainability-based financial operations within the region.

It also promised to achieve 30% of renewable energy in each new energy project by 2030, part of the UAE Energy Strategy 2050, a path to regulation in terms of decarbonization of the energy sector. Apart from that, it signed UN Principles for Responsible Banking, fixing sustainability commitments within financial sector legal frameworks. Besides that, UAE membership to PCAF shows the commitment to the country's international green

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<sup>33</sup> *European Banking Union – an Institutional Analysis* (2019).

<sup>34</sup> *Analyzing Financial Risk and Profitability in the UAE Banking Sector* (2021).

<sup>35</sup> *Regulating Islamic Banks in Authoritarian Settings: Malaysia and the UAE* (2018).

financial standards that support the Financial Institutions in measuring greenhouse gas emissions within their portfolios and disclosing them.<sup>36</sup>

### 3.3.3. *Kazakhstan*

Kazakhstan is also regarded as a leader in green finance regulation. This is largely underpinned by leading work from the Astana International Financial Centre's Green Finance Centre on the legal framework development of green bonds and other sustainable instruments that might be utilized by the public and private sectors in financing green investments.<sup>37</sup>

In 2022, Kazakhstan issued its very first green bond, worth USD 75 million, to finance renewable energy projects. The related legal framework was developed in line with the Green Bond Principles, ensuring that the projects financed would meet international environmental standards. The GFC hopes it can facilitate the issuance of USD 500 million worth of green bonds by 2025, placing Kazakhstan as an active player in the Global Green Finance movement.<sup>38</sup>

The revised version of the Environmental Code of Kazakhstan enacted in 2021 is also one of the strong legal bases for green finance, including such measures as environmental impact assessment and sustainability reporting that would force companies and financial institutions to disclose their ecological footprints. Such conditions are put by regulations to make corporations responsible for eco-issues.

The Green Finance Advisory Board of AIFC gives recommendations on the best investment practices, which is another way that the legal framework is strengthened. Such a board helps Kazakhstan's green finance regulations stay in line with what is taking place around the world with regard to ESG and sustainability.<sup>39</sup>

The Kazakhstani 2050 Strategy commits this country to a 15% reduction in greenhouse gas emissions by 2030, for which green finance will be highly important. Indeed, the AIFC's regulatory sandbox is integral to this strategy, allowing innovative green financial products such as carbon credits and environmental impact bonds. In this sandbox, there

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<sup>36</sup> *Green Finance and Sustainable Investment in the UAE* (2021).

<sup>37</sup> *Perfection of Government Control of Bank Activity* (2021).

<sup>38</sup> *Kazakhstan's Green Bond Initiative: Achievements and Prospects* (2022).



is room for the testing of such fintech companies while responding with due respect to the environmental laws of Kazakhstan.<sup>40</sup>

Legal Kazakhstani initiatives in green finance are also related to the ambition of this Central Asian nation to move away from a hydrocarbon-based economy. Accordingly, the National Concept for the Transition to a Green Economy, which appeared in 2013, introduced an extensive legal framework to achieve this goal; still, the transition of an economy from being hydrocarbon-based to a sustainable financial system is one of the greatest challenges for Kazakhstan. Ongoing legal reforms both at the AIFC and at the GFC are important in sustaining competitiveness in Kazakhstan within the general global trend for transition to sustainable finance.

### **3.4. Technological Innovation in Banking: A Comparative Analysis of the EU, UAE, and Kazakhstan**

Banking, as a concept throughout the world, has changed greatly due to development in technology. It has shaped the mode of delivery of financial services and the interaction between banks and their customers. In this respect, variations in the degree of digital banking development are at different levels within the European Union, the United Arab Emirates, and Kazakhstan, given their specific regulatory environments, economic priorities, and pace of technological adoption.<sup>41</sup>

#### *3.4.1. The European Union: Fostering Innovation Through Regulation*

The EU has embraced open banking and FinTech innovation through the Second Payment Services Directive, better known as PSD2, which forces secure access to customer banking data for Third-Party Providers, or TPPs, and fosters competition with security via Strong Customer Authentication. PSD2, together with the General Data Protection Regulation, amplifies data security in digital transactions.<sup>42</sup>

The new rules under MiCA will include, among other things, cryptocurrency exchanges, initial coin offerings, and digital wallets. In this broader strategy to regulate the mushrooming digital asset market, the rules under MiCA will come by 2024. This makes

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<sup>40</sup> *Comparative Analysis of Islamic Banking Regulation* (2020).

<sup>41</sup> *The-EU-Banking-Regulatory-Framework-and-Its-Impact-on-Banks-and-the-Economy* (2020).

<sup>42</sup> *SPERI-Paper-38-EU-Financial-Regulation-Banking-Union-Capital-Markets-Union* (2021).

the EU a frontrunner in the governance of digital assets, building on its Digital Finance Strategy to create a single market for digital financial services across the bloc.<sup>43</sup>

#### *3.4.2. The United Arab Emirates: Leading the Charge in Digital Transformation*

The UAE has created a flexible regulatory environment that encourages rapid fintech and blockchain adoption. With regulatory sandboxes in the DIFC and ADGM, among others, fintech firms are afforded the opportunity to test innovations-i.e., AI-powered banking services and blockchain-based solutions-in a controlled legal environment.<sup>44</sup>

Dubai's VARA regulates cryptocurrencies and other digital assets regarding the imperatives of security and transparency in their operations. Digital banks powered by AI, such as Liv., are also regulated by cybersecurity and consumer protection, in accordance with the National Cybersecurity Strategy and its biometric authentication system. The UAE has formulated a balanced regulatory approach to innovation with financial stability.<sup>45</sup>

#### *3.4.3. Kazakhstan: Emerging Player in Digital Banking and Fintech Innovation*

Kazakhstan positioned itself as a real leader in the field of blockchain and digital finance due to the far-reaching package of innovative regulatory frameworks. One of the key drivers behind this success is the Astana International Financial Centre-a leader from the front in legal infrastructure, which underpins fintech innovation.<sup>46</sup>

The AIFC Fintech Regulatory Sandbox is important; it allows testing of blockchain-enabled solutions in a regulatory environment that, while controlled, can permit innovation with compliance with national laws. In 2018, the AIFC launched a Blockchain Laboratory that supported the integration of blockchain technology into financial models-a critical element in the updating of the country's financial sector. These programs create a safe legal environment for using blockchain both for startups and traditional financial institutions.<sup>47</sup>

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<sup>43</sup> *Markets in Crypto-Assets Regulation (MiCA) and its Impact on Digital Finance* (2023).

<sup>44</sup> *Analyzing Financial Risk and Profitability in the UAE Banking Sector* (2021).

<sup>45</sup> *The UAE's National Cybersecurity Strategy* (2022).

<sup>46</sup> *Perfection of Government Control of Bank Activity* (2021).

<sup>47</sup> *Kazakhstan's Blockchain Revolution: Challenges and Opportunities* (2023).

Kazakhstan has not been left behind in the train of cryptocurrency. By 2023, the country was the second-leading contributor to the world's Bitcoin mining hash rate, favored by largely supportive regulation and abundant, inexpensive energy sources. The government has friendly regulations that attract foreign companies for mining, with the aim of ensuring that the mining of cryptocurrencies can operate well within a secure legal framework.

The CBDC also plays an important role in a so-called digital tenge in Kazakhstan's process of financial modernization. A digital tenge's legal framework is currently under development by the National Bank of Kazakhstan in cooperation with AIFC and is expected to enhance the efficiency of the national payment system and extend financial inclusion. The legal basis for a digital tenge would also allow one to use blockchain technology in a wider circle of financial services.

Beyond that, Kazakhstan is also developing the integration of blockchain technology into green finance, such as the issuance of green bonds and carbon credit trading. These efforts support the country's strategic objectives to reduce its hydrocarbon dependency and use digital innovation for environmental sustainability in concert with economic growth. Further governmental regulatory interest in supply chain management, smart contracts, and digital asset regulation manifests the ambitions of Kazakhstan to turn out to be a leading player in the region regarding blockchain and fintech.<sup>48</sup>

### **3.5. Approach to Islamic Banking and Fintech Integration**

Islamic banking plays a leading role in the UAE and Kazakhstan financial markets, where increasingly fintech innovations are being used to create Sharia-compliant financial products. This is part of a broader effort to modernize Islamic finance and to attract new investors, putting these regions at the forefront of Islamic fintech. The regulatory frameworks enacted in the UAE and Kazakhstan reflect more particularly the increasing links between Islamic finance, fintech, and sustainability, while Islamic banking within the European Union framework remains at a quite low level of development.<sup>49</sup>

#### *3.5.1. European Union (EU)*

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<sup>48</sup> *Kazakhstan's Green Finance Centre: Blockchain for Sustainable Finance* (2022).

<sup>49</sup> Fulya Apaydin. "Regulating Islamic Banks in Authoritarian Settings: Malaysia and the UAE in Comparative Perspective," 2018.

Islamic banking is still a niche market in the European Union, which has evidenced less growth when compared with the United Arab Emirates or Kazakhstan. A set of factors has contributed to the limited development of Islamic finance in the EU: lack of homogeneous regulatory framework conditions, unfavorable market fragmentation, and a generally weak awareness by regulators and consumers of the fundamental aspects of Sharia-compliant finance.<sup>50</sup>

Contrary to what happened in the UAE and Kazakhstan, where the share of Islamic finance is either remarkably high or its growth has been very rapid, Islamic banking has not picked up with the same tempo in the EU. Some countries have tried to establish themselves as a hub for allowing Sharia-compliant institutions to operate under regulatory frameworks adapted to their needs; these attempts so far remain largely isolated. For example, the UK has been at the forefront of Islamic finance in Europe, allowing for sukuk issuance and supportive tax laws for Islamic financial products. Another example is Luxembourg, which positioned itself as a hub for Islamic investment funds. All these remain localized and have not become diffused throughout the EU.<sup>51</sup>

### *Structural Challenges to Growth*

One of the reasons Islamic finances has not gained momentum in the EU is the complete lack of any coordinated regulatory approach within the EU as a whole. The financial system of the EU is, for the most part, secular, and its respective regulatory frameworks are designed to support conventional banking practices. Commonly, Islamic banks operating in the EU are required to follow the same set of regulations as conventional banks, with specific accommodations being made for Sharia compliance on an ad hoc basis. The far-reaching implication of this is that it creates a fragmented regulatory landscape in which the Islamic finance institutions could hardly dream of scaling operations across many EU member states due to navigating different national legal requirements and financial regulations.

A lack of a consistent approach to Islamic finance within the EU creates uncertainty for investors and institutions alike. For now, some member states have enacted special laws that accommodate Islamic finance, but most have not. This inconsistency discourages the

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<sup>50</sup> Islamic Finance in Central Asia and Russia. Ruslan Nagayev, Rashed Jahangir. 2022.

<sup>51</sup> The EU Banking Regulatory Framework and Its Impact on Banks and the Economy, 2020.

development of a strong Islamic banking sector and prevents an institution from gaining the much-needed regulatory support that would boost growth.<sup>52</sup>

#### *Consumer Awareness and Demand*

Apart from this, the low level of consumer awareness about Sharia-compliant financial products supports the reason for restricted Islamic finance growth in the EU. Thereby, the Islamic finance market in Europe remains at a nascent stage, as a considerable number of Muslim and non-Muslim consumers are not very aware about the concept of Islamic banking. This is absolutely contrary to the way Islamic finance has deeply engraved its products in Muslim majority regions, such as the UAE and Kazakhstan. Sharia-compliant demands are relatively small in the EU, and the negligible number of Muslims in most European countries further diminishes the potential market for Islamic finance products.<sup>53</sup>

#### *Competitive Pressures and Regulatory Hurdles*

Another factor that is holding Islamic finance back in the European Union is the competitive landscape. The latter is dominated by conventional banks, and, consequently, Islamic banks are finding it increasingly difficult to compete in an environment where their business models are less well-known and accommodated. Besides, regulatory barriers for Islamic financial institutions are higher in the EU than, for example, in the UAE and Kazakhstan, which established specific regulatory frameworks to encourage Islamic finance.<sup>54</sup>

Adherence to conventional banking regulations, coupled with the principles of Sharia, therefore, renders operations for Islamic banks in the EU more expensive and less competitive compared to conventional financial institutions. In addition, another challenge lies in developing Sharia-compliant products which would similarly be acceptable to both Islamic and EU regulatory requirements that would make it even harder for Islamic banks to expand in the region.<sup>55</sup>

#### *3.5.2. United Arab Emirates (UAE)*

Islamic banking is the cornerstone of UAE's financial system and counts among its figures some of the world's largest Islamic banks, including Dubai Islamic Bank and Abu Dhabi

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<sup>52</sup> M. S. Barr & G. P. Miller. "The Law of Banking Regulation," 2011.

<sup>53</sup> SPERI-Paper-38-EU-Financial-Regulation-Banking-Union-Capital-Markets-Union, 2021.

<sup>54</sup> M. M. Mursalov, "Banking Regulation and Banking Crises Probability in European Countries."

<sup>55</sup> "The-EU-Banking-Regulatory-Framework-and-Its-Impact-on-Banks-and-the-Economy," 2020.

Islamic Bank. The UAE has one of the most developed regulatory frameworks in this regard, providing a complete system, starting from product development up to risk management, with proper Sharia compliance.<sup>56</sup>

The UAE has been at the forefront of integrating Fintech with Islamic finance. This creates Sharia-compliant digital financial products. Fintech initiatives aiming at innovation in Islamic finance have been instituted within the financial free zones such as DIFC and the Abu Dhabi Global Market. Initiatives ranging from blockchain and smart contract-powered Sharia-compliant robo-advisors to AI, all the way to digital sukuk platforms, aspire to make Islamic finance reach a global audience while keeping their principles intact in accordance with Sharia.<sup>57</sup>

Fintech is changing the outlook of Takaful Islamic insurance and sustainable Islamic finance even further in the UAE. Blockchain, together with the use of AI, enhances the transparency and efficiency of Sharia-compliant investment management. It shall be in line with a wider vision for the UAE to feature among the leaders globally in Islamic fintech, offering modernization to the landscape of Islamic finance as a way of attracting investors while assuring the interpretation of Sharia principles.<sup>58</sup>

### 3.5.3. *Kazakhstan*

Kazakhstan is rapidly developing its Islamic finance sector, while at the same time, fintech is bound to play a key role in the development of wider Sharia-compliant financial offerings. The Astana International Financial Centre has now materialized as the centerpiece for this, providing a regulatory framework based on common English law-an enabling environment for both Islamic financial institutions and fintech startups.<sup>59</sup>

Kazakhstani fintech innovations continue to further enhance its Islamic finance capabilities through the AIFC Fintech Regulatory Sandbox launched in 2022.<sup>60</sup> It allows these fintech firms to be empowered to design and test Sharia-compliant financial products from digital sukuk to Islamic microfinance platforms. Innovating with Sharia-

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<sup>56</sup> Central Bank of the UAE. Targeted Economic Support Scheme (TESS) during COVID-19 Pandemic, 2020.

<sup>57</sup> Dubai Islamic Bank v. Tamweel LLC (2014).

<sup>58</sup> Mukdad Ibrahim, "Analyzing Financial Risk and Profitability in the UAE Banking Sector," 2021.

<sup>59</sup> AIFC Court and International Arbitration Centre. Common Law-Based Legal Framework for Financial Institutions.

<sup>60</sup> Astana International Financial Centre (AIFC). Regulatory Framework for Financial Services, 2018.

compliant digital banking services to achieve increased financial inclusion among Kazakhstan's Muslim population.<sup>61</sup>

Kazakhstani commitment to green finance also supplements the Islamic finance initiatives. The AIFC's Green Finance Centre has been developing Sharia-compliant green bonds meant for renewable energy projects. It, therefore, contributes to Kazakhstan's diversification strategy at which point the Islamic finance logic combines with the fintech and sustainability pillars to make Kazakhstan the Islamic leader in modernity, thus foreign investors interested in Sharia-compliant and environmentally sustainable financial products.<sup>62</sup>

#### *3.5.4. Implications for Banks Operating in These Regions*

Banks in the EU, UAE, and Kazakhstan operate in different regulatory environments- which provide a setting of opportunities and obstacles.

- While in the EU, the lack of a pan-European Islamic banking framework itself presents barriers to institutions willing to offer Sharia-compliant services. The regulatory fragmentation confines the sector from its full potential of growth and keeps Islamic banking concentrated within specific member states.
- The flexible regulatory environment in the UAE enables banks to consider a variety of options, including both conventional and Islamic banking. Fintech innovations, especially in Islamic finance, mean that UAE banks can develop novel products and extend their investment portfolios by leveraging the strategic position of the country in becoming a global Islamic fintech hub.
- Stable and predictable legal environment in Kazakhstan for banks operating within AIFC's independent regulatory framework. AIFC is considered basically a fintech and green finance platform; therefore, banks operating there enjoy an enabling environment that fosters innovation with best international practices relevant to the country's needs in fostering Islamic finance.

Both the UAE and Kazakhstan are modernizing their financial sectors by linking Islamic finance with fintech innovation. This linkage not only serves a global market but also

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<sup>61</sup> Directions of Regulations and Management of the Financial and Banking Sector, 2021.

<sup>62</sup> Green Finance and Investment in Kazakhstan (2022).

attracts new Islamic and non-Islamic investors alike, enhancing the global appeal of Sharia-compliant financial products.

## Part 2. Comparative Economic Analysis

### 3.6. Key Performance Metrics

#### 3.6.1. Key Performance Metrics for the European Union (EU)

From the supervisory data for significant institutions (SIs) and less significant institutions (LSIs) in the EU, here are some metrics:

- **Total Assets (EUR billions) (Q1 2023 vs. Q1 2024):**
  - SIs: €26,403.91 (Q1 2023) → €26,614.57 (Q1 2024)
  - LSIs: €4,838.70 (Q1 2023) → €4,833.48 (Q1 2024)
- **Cost-to-Income Ratio (Q1 2023 vs. Q1 2024):**
  - SIs: 60.35% (Q1 2023) → 55.94% (Q1 2024)
  - LSIs: 59.04% (Q1 2023) → 59.43% (Q1 2024)
- **Return on Equity (RoE) (Q1 2023 vs. Q1 2024):**
  - SIs: 9.57% (Q1 2023) → 9.67% (Q1 2024)
  - LSIs: 8.93% (Q1 2023) → 9.90% (Q1 2024)

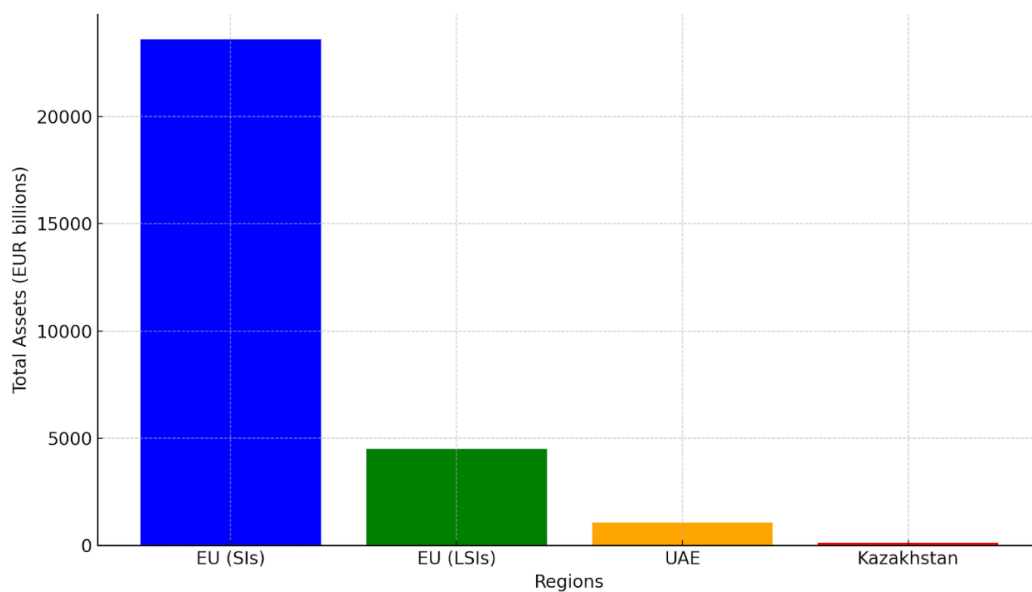


Figure 1: Total assets of Banks (EUR billion)



### 3.6.2. Key Performance Metrics for the UAE

From the UAE Financial Stability Report (2022), the key indicators for the UAE's banking sector:

- **Credit Growth (2022):** Private sector loans increased by **3.7%** year-on-year.
- **Liquidity Conditions:** Funding and liquidity remained strong, supported by resident deposit growth outpacing credit growth.
- **Profitability:** UAE banks exceeded pre-pandemic levels due to higher net interest income and lower impairment charges.

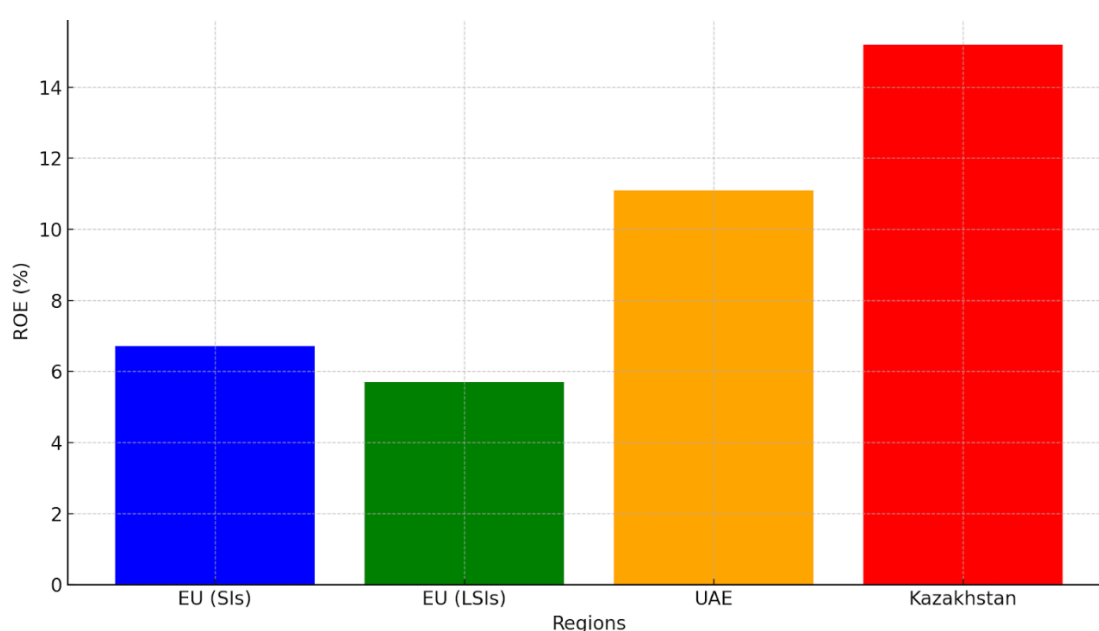


Figure 2: Return on Equity (ROE) in 2022 (%)

### 3.6.3. Key Performance Metrics for Kazakhstan

From the **IMF Financial System Stability Assessment (January 2024)** and **supervisory reports**, the following metrics can be added for Kazakhstan:

- **Credit to GDP Ratio:** Kazakhstan's private credit to non-oil GDP saw a decline, reflecting a cautious approach to credit expansion amid economic challenges.
- **Capital Adequacy Ratio:** Kazakhstan remains compliant with **Basel III** standards, maintaining a capital adequacy ratio of **16%**.

**Inflation:** Inflation rates have gradually reduced to **7.7%** by 2024, improving economic stability.

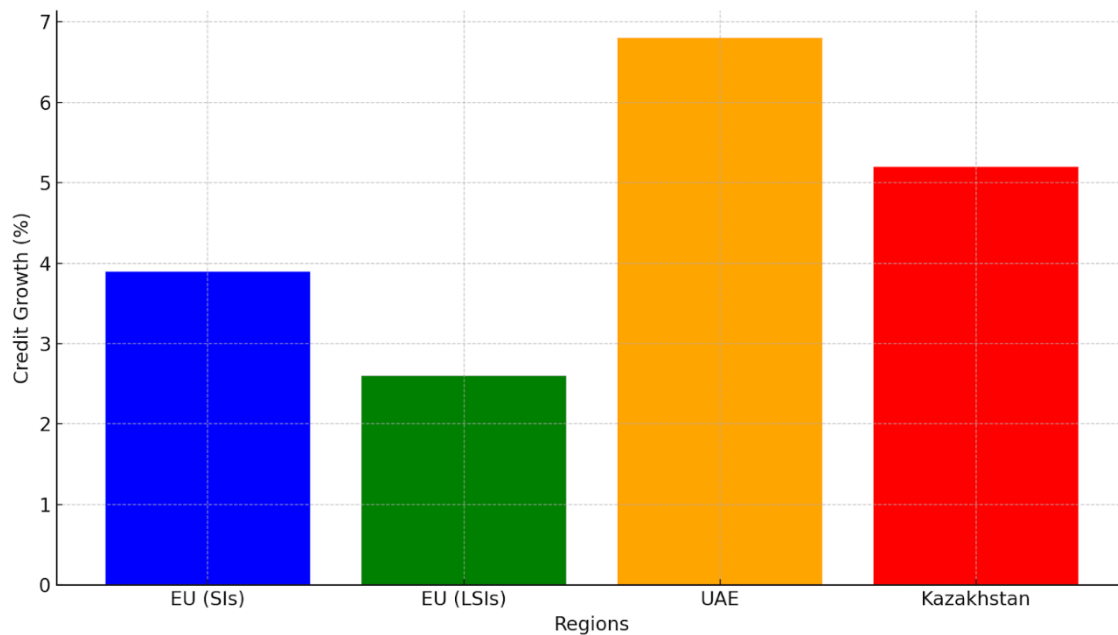


Figure 3: Annual Credit Growth (2022) (%)

### 3.7. Economic Impact of Digital Banking and Financial Innovation

#### 3.7.1. European Union

PSD2 has been a revolutionary economic force for change in the European Union, as open banking-possible through this directive-allows the financial market entry for third-party providers, boosts competition within the sector, and catalyzes major economic effects, growth in the fintech industry that greatly enables much lower costs for both consumers and businesses. This has made PSD2 a catalyst for change in the digital transformation of the banking sector, making the financial environment more dynamic and competitive.<sup>63</sup>

MiCA's implementation will go a step further to unlock the economic potential of the EU cryptocurrency market, currently valued at an estimated €160 billion, by the end of 2023. By offering the much-needed legal clarity, the wider adoption of digital assets will be ensured by MiCA, investor confidence increased, and capital inflow into the crypto sector pushed, further nurturing growth with stability and minimizing risks associated with fraud and money laundering.<sup>64</sup>

In the same breath, it has also faced its fair share of criticism because the regulatory framework, even as it was meant to engender economic stability, has proven overly

<sup>63</sup> European Banking Authority (EBA). "PSD2 in Europe: Open Banking's Evolution."

<sup>64</sup> European Commission. "Markets in Crypto-Assets (MiCA)."

burdensome and comes with excessive costs of compliance, especially for the small fintech players. As much as strict regulations may insulate the financial system from risks, there is fear that this may kill innovation, bringing a full stop to the economic potential of the smaller players in the market.<sup>65</sup>

### 3.7.2. *United Arab Emirates*

Regulatory flexibility extended by DIFC and ADGM has made the UAE an attractive destination for international fintech investment. UAE's Blockchain Strategy, in addition to AI initiatives, has been very pivotal in positioning the country as a Global Fintech Hub. Estimates say that AI technologies alone will add value to the nation's GDP, amounting to \$182 billion by 2035.<sup>66</sup> The UAE hosts more than 1,000 blockchain companies due to the successful implementation of regulatory frameworks, which help attract international businesses. Such initiatives as the Dubai Blockchain Strategy may further drive economic growth and thus solidify the UAE's leading position in the world with regard to digital finance. On the other hand, such steps have, in fact, improved foreign investment; there is, however, still a concern about cybersecurity risks and regulatory fragmentation between the federal system and free zones, which may act as a deterrent to long-term economic development.<sup>67</sup>

### 3.7.3. *Kazakhstan*

By 2023, Kazakhstan has appeared as the main character in the most important cryptocurrency market, contributing 13.22% to the global Bitcoin mining hash rate, making the country currently rank among the largest hubs of Bitcoin mining.<sup>68</sup> This has drawn foreign investment, especially within the technology and cryptocurrency sectors, and spurred economic growth. Many cryptocurrency mining operations have flocked to Kazakhstan due to its cheap energy resources and crypto-friendly regulatory regime. These have translated into serious economic consequences as the country's fintech market is set to grow annually by 15% driven by burgeoning fintech innovation and an increasingly important role of digital assets.<sup>69</sup>

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<sup>65</sup> NADEGE JASSAUD AND FABIANA MELO. "European Union Banking Regulatory Framework and Authorities: An Overview."

<sup>66</sup> UAE Government. "UAE AI Strategy."

<sup>67</sup> Central Bank of the UAE. "National Cybersecurity Strategy."

<sup>68</sup> National Bank of Kazakhstan (NBK). "Regulatory Guidelines for Financial Institutions."

<sup>69</sup> AIFC. "Regulatory Framework for Financial Services."

The development of the digital tenge, CBDC of Kazakhstan, develops one more layer of its digital financial infrastructure. Such innovation does not only strengthen the leading role of the country in the global digital finance ecosystem but also contributes to the diversification of its economy. The regulatory sandbox of AIFC has been very instrumental in creating an enabling environment for fintech to flourish and, consequently, for making the economy of Kazakhstan more resilient. It further enhances Kazakhstan's economic profile, where the Green Finance Centre promotes blockchain-based sustainable finance initiatives, such as green bonds and carbon credits, positioning the country for a leading role in the future of sustainable fintech.<sup>70</sup>

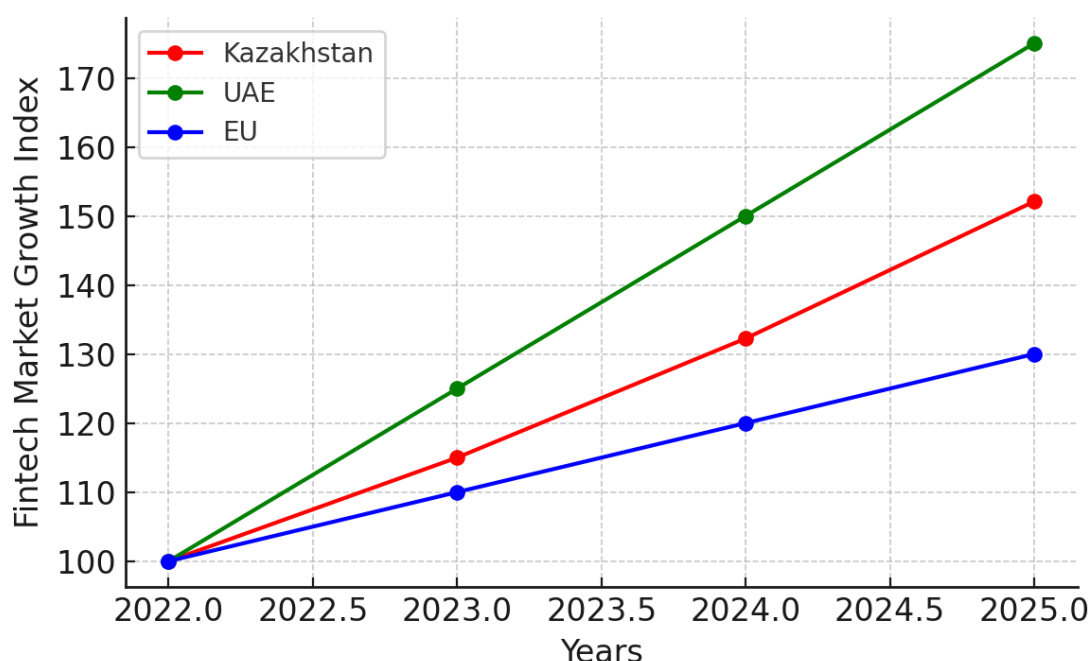


Figure 4: Fintech Market Growth Project (2022-2025)

The fintech market growth projections show:

- **Kazakhstan:** 15% annual growth starting from 100 (2022) and reaching about 152.09 by 2025.
- **UAE:** Growing rapidly, projected at 125 in 2023 and 175 by 2025 due to strong AI technologies.
- **EU:** Stable growth, starting at 100 and reaching around 130 by 2025.

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<sup>70</sup> Kazakhstan's Green Finance Centre. "Blockchain for Sustainable Finance (2022)."

### **3.8. Economic Impact of Green Finance and Sustainability Initiatives**

#### *3.8.1. European Union*

The strong regulatory push of the EU on green finance has therefore brought about considerable economic implications and hence has created new opportunities for sectors aligned with environmental sustainability. The issuance of € 267 billion in green bonds in 2022 is a clear indication of the region's commitment toward mobilization of capital for projects linked to sustainability. It has, however, been instrumental in providing avenues for legal frameworks like the EU Taxonomy Regulation and the future Green Bond Standard to create investment opportunities into clean energy, sustainable infrastructure, and green technologies.<sup>71</sup>

These are not only environmental targets but also principal drivers of economic growth. For example, the European Green Deal is likely to unleash tremendous economic activity across renewable energy and sustainable technology. Innovation has been accelerated, along with a variety of job creation, by such proposals; it has placed Europe at the forefront of the fast-expanding green finance market. It also attracts an elevated level of private sector investment in the region, since adhering to ESG standards remains one of the most crucial activities within the EU. That helps to further solidify the EU's role in fostering sustainability and economic development.<sup>72</sup>

#### *3.8.2. United Arab Emirates*

The UAE has enacted a very well-considered approach to the regulation of green finance, establishing sustainability goals in agreement with wider economic aspirations. Underpinning this has been the Sustainable Finance Framework launched by the UAE Central Bank, which guides financial institutions to align their operations with the UAE's environmental sustainability goals, especially in renewable energy, clean transportation, and sustainable urban development.<sup>73</sup>

This has further been done with a major step in the year 2021, through the issuance of a \$500 million sovereign green bond, a move reflective of the country's determination

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<sup>71</sup> European Union Banking Regulatory Framework and Authorities: An Overview. Nadege Jassaud and Fabiana Melo.

<sup>72</sup> The EU Banking Regulatory Framework and Its Impact on Banks and the Economy (2020).

<sup>73</sup> Analyzing Financial Risk and Profitability in the UAE Banking Sector (2021).

toward promoting green financial instruments. The UAE Green Bond Guidelines ensure that the country's green bonds meet the set international criteria on sustainability by adherence to the Green Bond Principles as set by ICMA.<sup>74</sup>

Also, DIFC and ADGM have provided legal frameworks that will support the latest innovations in green finance, such as trading in carbon credits using blockchain technology. These innovative ideas mean to bring better levels of transparency and accountability in the green finance market. In turn, due to the integration of blockchain technology with green finance, UAE is setting a particularly good example of what all regulatory frameworks will look like in order to guide all sustainability-driven financial operations in the region - now and in the future.<sup>75</sup>

The UAE has committed to attaining 30% renewable energy in all new energy projects by 2030. This forms part of the UAE Energy Strategy 2050, including establishing a regulatory path for the decarbonization of the energy sector. The country also signed the UN Principles for Responsible Banking, embedding sustainability commitments into the legal frameworks of the financial sector. Furthermore, UAE's participation in the Partnership for Carbon Accounting Financials makes it committed to integrating global standards of green finance, since it helps the financial institutions undertake appropriate measurement and disclosure of greenhouse gas emissions in respective portfolios.<sup>76</sup>

### 3.8.3. *Kazakhstan*

The first green bond, issued in 2022 by Kazakhstani, which had mobilized \$75 million, represents a critical milestone in the country's economic shift towards sustainability. Indeed, that means Kazakhstan is proving its commitment to greening its economy, for the elaboration of green finance instruments became a pivotal role in diversifying the economic base of the country away from hydrocarbons.<sup>77</sup>

The Green Finance Centre at AIFC is aimed at enabling the issuance of green bonds for \$500 million by 2025, placing Kazakhstan in a leading position in the global green finance market. In this regard, the development of green financial products contributes to

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<sup>74</sup> Green Finance and Sustainable Investment in the UAE (2021).

<sup>75</sup> How Effective is the Banking and Financial Services Sector in the United Arab Emirates in Using Technological Innovations. M. Jumaa, Jumeira University.

<sup>76</sup> Green Finance and Sustainable Investment in the UAE (2021).

<sup>77</sup> Kazakhstan's Green Finance Centre: Blockchain for Sustainable Finance (2022).

achieving the environmental sustainability goals of Kazakhstan and simultaneously enhances its economic competitiveness in the global arena.<sup>78</sup>

Linking fintech innovation and sustainability objectives in Kazakhstan's economic strategy during this period is likely to change the face of the financial sector, with more resilience. However, the transition from a hydrocarbon-based economy to a more sustainable model remains quite a big challenge. Further regulatory reform and economic innovation will be required to ensure long-term growth and financial stability.<sup>79</sup>

### **3.9. Response to the COVID-19 Pandemic:**

The COVID-19 pandemic had been one of the high-level challenges for the world financial system to run under strain, stretching the resilience of so many global banking sectors to breaking point. Thereafter, governments and central banks applied a number of measures with regard to ensuring economic stability, liquidity, business, and personal support. While the pandemic disrupted traditional financial services, it accelerated at warp speed the adoption of digital banking technologies, fintech solutions, and digital asset regulation. This section discusses how the European Union, the United Arab Emirates, and Kazakhstan tackled financial challenges created by the pandemic and mainly focused on the role that technological transformation has played in their respective financial sectors.

#### *3.9.1. The European Union: Balancing Relief Measures with Regulatory Rigor*

The European Union response to the COVID-19 pandemic adopted a strategic mix of temporary relief measures and ongoing regulatory oversight. Mindful of the immense economic disruption, the European Central Bank put in place a set of liquidity programs such as the PEPP, injecting a total amount of €1.85 trillion into the financial system. The markets were steadied among other effects; lowering of the cost of borrowing assured credit continued to flow to households and businesses.<sup>80</sup>

In the meantime, the pandemic accelerated the digital transformation of the EU financial system. The PSD2-a number of years in the making-driven fintech innovation to the next level of relevance when digital payments and contactless banking became critical for

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<sup>78</sup> Kazakhstan's Green Bond Initiative: Achievements and Prospects (2022).

<sup>79</sup> IMF Report on Kazakhstan's Banking Sector Post-COVID-19 (2023).

<sup>80</sup> European Central Bank (ECB). Legal Framework for the Single Supervisory Mechanism.

keeping services running during lockdowns. Growing consumer demand for digital banking services prompted EU banks to scale up on fintech adoption to handle that demand. The move underlined how the pandemic was indeed not a health crisis alone but, rather, a moment when the financial sector had to accelerate its process of digitalization.<sup>81</sup>

The pandemic accelerated this pressure on traditional financial services to make EU regulators do more when it comes to regulating digital assets. A good example of how the EU is trying to maintain its lead in the regulation of cryptocurrencies and digital assets is the up-and-coming MiCA, the Markets in Crypto-Assets Regulation, scheduled to come into force in 2024. It will ensure that the Union remains at the forefront of financial innovation while maintaining strict oversight, doubling back on resilience in crisis situations.<sup>82</sup>

### *3.9.2. The United Arab Emirates: Leveraging Flexibility for Economic Stability*

The UAE has taken a wide set of measures against the pandemic, focusing on ensuring liquidity and supporting the real economy. The Central Bank of the UAE introduced the Targeted Economic Support Scheme, an AED 256 billion relief package to sustain banking sector liquidity with an eye to maintaining the flow of credit.<sup>83</sup> Another crucial element of regulatory flexibility is the one which was in place within the Financial Free Zones, such as the Dubai International Finance Centre and the Abu Dhabi Global Market, which truly supported banks in their rapid response to the challenges that faced them from the pandemic. This regulatory flexibility supported banks in the quick implementation of relief measures, with consideration for the special operative environment of each bank, and further stabilizing the economy during crisis.<sup>84</sup>

Beyond these immediate economic responses, however, the pandemic served to accelerate UAE's digital transformation. With ever-increasing demand for digital payments and contactless services, the banks across the UAE have been hastening their progress with advanced technologies like Artificial Intelligence and blockchain toward better operational efficiency and customer experience. For instance, the fully digital bank Liv.

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<sup>81</sup> European Banking Authority (EBA). Guidelines on Stress Testing and Risk Management for EU Banks. 2016.

<sup>82</sup> Markets in Crypto-Assets Regulation (MiCA) and its Impact on Digital Finance (2023).

<sup>83</sup> Central Bank of the UAE. Targeted Economic Support Scheme (TESS) during COVID-19 Pandemic. 2020.

<sup>84</sup> Overview of Financial Institutions in the United Arab Emirates. Mohammad Bayzid, Asma Alshamsi, Salah Albeshr, Aaron Smith, Shamma Al Mulla, Meshal Almutairi.



from Emirates NBD realized more-than-usual growth during the pandemic among its target of a millennial and tech-savvy population. The heavy usage of AI, blockchain, and biometric authentication reflected in broad usage underlined the UAE's commitment to leverage state-of-the-art technology in updating its financial services and supporting the country's economic resilience.<sup>85</sup>

Another critical role was played by the integration of fintech and digital innovation in maintaining economic stability. The UAE further developed its cybersecurity frameworks as the financial sector continued to modernize digitally at an unprecedented rate. Its remarkable adaptability to technological change, alongside the flexibility of its regulatory environment, exposed the capability of the UAE to innovatively develop yet protect its financial sector during times of a global crisis.<sup>86</sup>

### *3.9.3. Kazakhstan: Strengthening Financial Stability Through Digital Innovation*

Like many other countries in the world, Kazakhstan also suffered economic misfortune because of the COVID-19 pandemic. To this end, the NBK had taken a number of measures that included the reduction of the reserve requirement to ensure that banks were liquid enough to finance businesses and people during the economic slowdown.<sup>87</sup> These were very instrumental in cushioning the immediate financial detriments of the pandemic. But more than offering economic relief, the crisis accelerated Kazakhstan's attention to digital banking and fintech innovation as an essential means of maintaining financial stability and long-term growth.

Where the Astana International Finance Centre was concerned, it had been a key factor in Kazakhstan's response to the pandemic, while the fintech regulatory sandbox it had provided an opportunity for fintech companies to develop and test innovative solutions in a live but controlled environment. All this has been very instrumental in promoting digital banking and online payment solutions, both particularly important components of Kazakhstan's economic recovery. The significant contribution to the development of digital finance at AIFC contributed to transforming Kazakhstan into a regional fintech

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<sup>85</sup> Analyzing Financial Risk and Profitability in the UAE Banking Sector. Mukdad Ibrahim. 2023.

<sup>86</sup> The UAE's National Cybersecurity Strategy (2022).

<sup>87</sup> National Bank of Kazakhstan (NBK). Monetary Policy Guidelines and Regulatory Reports, 2022.

hub, thus reinforcing the commitment of this country to digital transformation that it tries to achieve.<sup>88</sup>

The accelerated development of the Kazakhstani CBDC, digital tenge, was also included in the digital advancement. The same urgency that the pandemic brought to the world provided a strong reason for acceleration of the initiative on the digital tenge because this CBDC would enable increasing the efficiency of payment systems and will further the greater goals of financial inclusiveness. Integrating digital currency into its overall economic strategy positions Kazakhstan not only at the modernization front of its financial infrastructure but also at the forefront of future technological advancement.<sup>89</sup>

By emphasizing fintech innovations along with prudential regulations, Kazakhstan was able to overcome the economic impact caused by the pandemic. This is also in line with the long-term goals of Kazakhstan to make its economy more resilient and sustainable, thus underlining an increasing role of technology in shaping its financial future.<sup>90</sup>

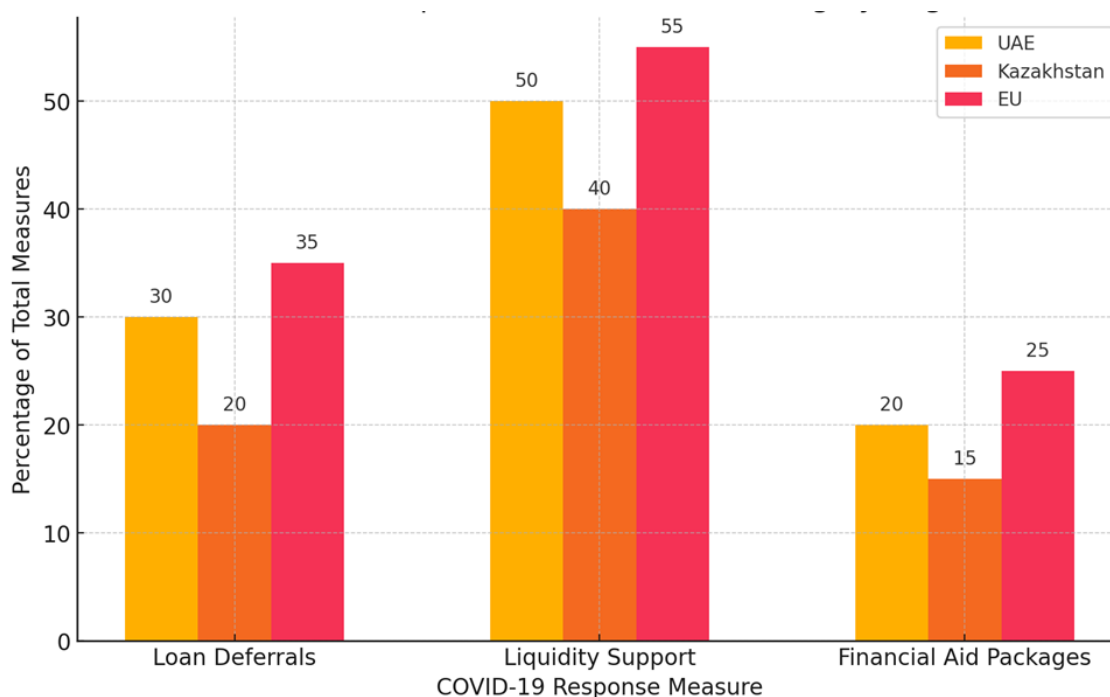


Figure 5: COVID-19 response measures in banking by region

<sup>88</sup> Astana International Financial Centre (AIFC). Regulatory Framework for Financial Services, 2018.

<sup>89</sup> Kazakhstan's Blockchain Revolution: Challenges and Opportunities (2023).

<sup>90</sup> THE BANKING REGULATION & SUPERVISION PERFECTION IN THE REPUBLIC OF KAZAKHSTAN: THEORY & PRACTICE. Sadvokasova K.Zh. 2015.

Here is a bar chart showing the impact of COVID-19 response measures in the banking sectors of the UAE, Kazakhstan, and the EU:

- **Loan Deferrals:** The EU leads with 35% of total measures, UAE at 30%, and Kazakhstan at 20%.
- **Liquidity Support:** EU has the highest support at 55%, followed by UAE at 50%, and Kazakhstan at 40%.

**Financial Aid Packages:** EU tops with 25%, UAE follows at 20%, and Kazakhstan is at 15%.

### **3.10. Economic Impact of Technological Innovation in Banking**

#### *3.10.1. European Union: Digital Transformation and Economic Competitiveness*

The introduction of Fintech and Digital Banking solutions has economically benefited the European Union immensely. The introduction of PSD2 has allowed more players in financial service provision, reducing costs by consumers and increasing efficiency in digital payment settlement.<sup>91</sup>

This has also attracted foreign investment into and the emergence of startups in the digital finance space, given its focus on fintech innovations. Availing the MiCA regulation will even stimulate it more by legally framing the use of cryptocurrencies and digital assets, hence further establishing the EU as a leading force in driving economic growth through fintech.<sup>92</sup>

#### *3.10.2. United Arab Emirates: Driving Economic Growth Through Digital Banking*

The digital banking transformation of the UAE has been very instrumental to the economic resilience of the nation. The rapid adoption of AI-driven banking services and blockchain technologies has not only increased operational efficiency but has also enhanced the customer experience, hence the increase in foreign investments and the positioning of the UAE as a global fintech hub.<sup>93</sup>

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<sup>91</sup> European Banking Authority (EBA). *Guidelines on Stress Testing and Risk Management for EU Banks* (2016).

<sup>92</sup> *Markets in Crypto-Assets Regulation (MiCA) and its Impact on Digital Finance* (2023).

<sup>93</sup> Mohammad Bayzid et al. *Overview of Financial Institutions in the United Arab Emirates* (2021).

The UAE banking sector is still set to continue growing more in the digital space, with increased fully digital banks like Liv., for example. In addition, regulatory sandboxes in DIFC and ADGM have inspired fintech startups to develop innovative solutions that add value to the general economic competitiveness of the UAE.

### *3.10.3. Kazakhstan: Economic Growth Through Blockchain and Fintech*

The legislations of Kazakhstan that supported blockchain and cryptocurrency mining have given a significant boost to its economy, especially via foreign investments in Bitcoin mining. The country emerging as the second most substantial hub for mining Bitcoins with 13.22% of the global hash rate attracted international mining companies to diversify Kazakhstan's economy and reduce its overdependence on hydrocarbons.<sup>94</sup>

Development of the digital tenge as CBDC will have a prolonged positive consequence on the economy by enhancing the efficiency of Kazakhstan's payment systems and financial inclusions. The digital tenge will contribute to smooth cross-border payments and lower transaction costs, placing Kazakhstan as the frontrunner in regional CBDC adoption. In return, such modernization of the financial system will further improve economic efficiency and open more avenues for trade and investment.

Kazakhstan does not limit its approach to blockchain technology based on cryptocurrency mining only. Kazakhstan welcomes blockchain-based solutions in the use of smart contracts and digital payments within the development of fintech startups. The blockchain laboratory and regulatory sandbox of AIFC promote such growth by enabling domestic and international companies to develop innovative solutions that contribute to the economic diversification of Kazakhstan. All these initiatives contribute to the growth of digital banking; therefore, new business opportunities open, and online financial services can expand.<sup>95</sup>

Furthermore, the introduction of blockchain technology within Kazakhstan's green finance strategy, through green bond issuance and carbon credit trading, would help in facilitating the transition of the country toward a sustainable economy. Similarly, through the use of blockchain to lead in driving innovative solutions to increase transparency and

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<sup>94</sup> Kazakhstan's Green Finance Centre. *Kazakhstan's Blockchain Revolution: Challenges and Opportunities* (2023).

<sup>95</sup> Gaukhar Kodasheva et al. *Actual Problems of Development of the Banking Sector in the Economy of Kazakhstan* (2017).

efficiency in green finance, Kazakhstan is better positioned to attract investment in environmentally viable projects and spur long-term economic growth.<sup>96</sup>

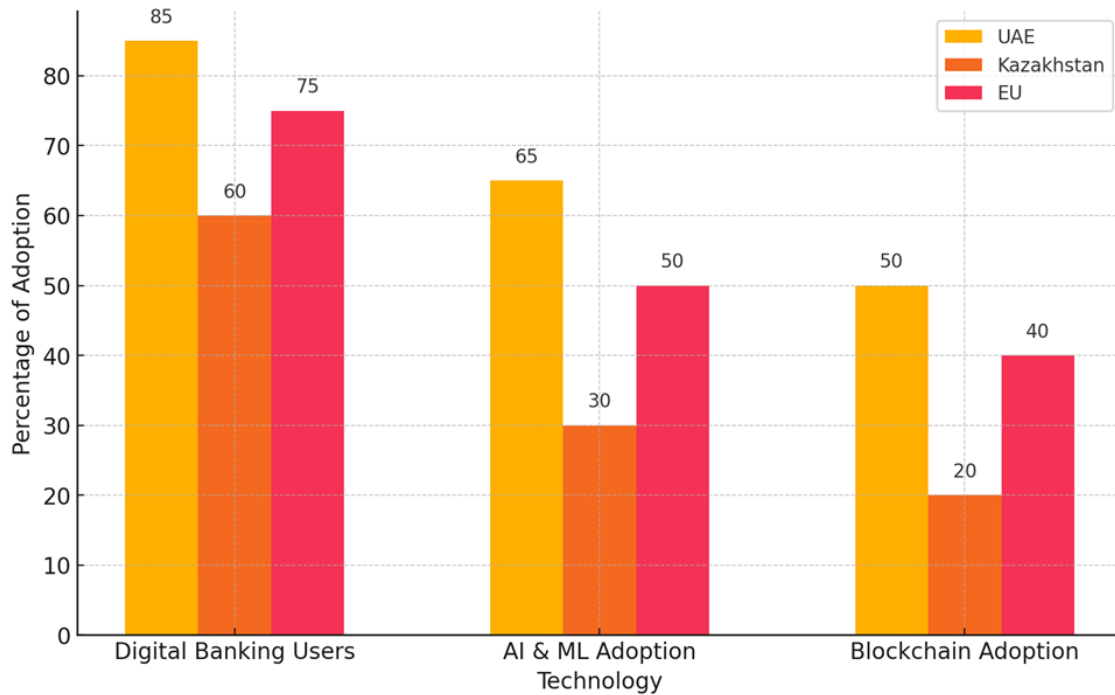


Figure 6: Technological innovations in banking by regions

Here is a bar chart that illustrates the adoption of technological innovations in banking across the UAE, Kazakhstan, and the EU:

- **Digital Banking Users:** High adoption in the UAE (85%) and EU (75%), with Kazakhstan showing a moderate level (60%).
- **AI & ML Adoption:** UAE leads with 65%, followed by the EU at 50%, and Kazakhstan at 30%.
- **Blockchain Adoption:** UAE has the highest adoption rate (50%), EU follows (40%), and Kazakhstan is at 20%.

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<sup>96</sup> Kazakhstan Green Bond Initiative: *Achievements and Prospects* (2022).

## **Chapter 4. Discussion: Engaging with the Findings**

The comparative analysis of banking regulations in the European Union (EU), the United Arab Emirates (UAE), and Kazakhstan offers valuable insights into how these regions govern their banking sectors. Shaped by historical, economic, and cultural contexts, each framework demonstrates unique strengths and challenges. This analysis not only highlights the success stories of each region but also uncovers opportunities for cross-regional learning and the adoption of best practices.

### **4.1. The EU's Regulatory Framework: Opportunities for Improvement**

The EU drew up a centralized regulatory framework with the CRD IV, backed by the Capital Requirements Regulation. It has given way to a healthy financial atmosphere which may help prevent economic shocks. Such rigid compliance and risk management requirements place an unfair burden on small banks, which may not be as well-placed as bigger banks on many counts. These remarkably inflated costs of compliance thus act as inhibitors to innovation for such smaller entities, which find it difficult to cope with such high demands of such a highly regulated environment.

#### *4.1.1. Strategy for the EU*

The EU might seek to emulate some of the strategies pursued in Kazakhstan's AIFC. Kazakhstan has attracted international investment, partly because of the regulatory flexibility afforded by such special zones as AIFC. Likewise, the EU could create "regulatory sandboxes" or special zones in which smaller institutions would be tacked with more flexible compliance rules. This would give the small banks an opportunity to innovate and grow without being choked on by a regulation developed for the large ones, therefore making the banking environment more competitive across the EU.

One other important lesson lies in Kazakhstan's flexible attitude toward the adoption of international standards. While striking a proper balance between innovation and regulation, Kazakhstan has been able to bring in global norms but integrate them with the local realities in place. Similar customization could well be tried by the EU in its regulatory frameworks to strike a better fit for smaller banks and fintech. As the fintech sector keeps expanding, it is already high time for more agile regulatory frameworks-one that encourages innovation at the same time as ensuring financial stability and consumer protection.

Another consequence of Brexit is its impact on the banking sector in the EU. Most international financial institutions, whose headquarters were in London before the UK voted to leave the EU, moved to other financial capitals like Paris, Frankfurt, and Dublin. Although this opens new opportunities for the EU, it also introduces concerns about regulatory divergence between the EU and the UK. How the post-Brexit regulatory landscape will evolve, on passporting rights, capital markets, and cross-border banking services, will be important in the context of ensuring that the EU remains competitive globally.

#### *The UAE's Flexible Regulatory Environment: Strategies for Global Leadership*

The UAE has developed a flexible regulatory framework in terms of balancing conventional banking with Islamic banking, especially in free zones like Dubai International Financial Centre (DIFC) and Abu Dhabi Global Market (ADGM). Indeed, it is that flexibility that has created an international financial center in the UAE, particularly in emerging areas of fintech and digital banking. Yet, meanwhile, the overwhelming rates at which technology is developing, including AI and blockchain, demand adaptations in regulation. While highly agile, the UAE struggles with consistency in regulatory standard-setting across the different jurisdictions.

##### *4.1.2. Strategy for the UAE*

While largely successful, the flexible approach adopted by the UAE could benefit from some insight provided by structured and harmonized regulatory practices in the EU. First, standardization across its financial free zones would cut down on regulatory fragmentation, ensuring consistency while still maintaining flexibility to attract international participants. This would also avoid discrepancies between regulations in free zones, such as those in the DIFC or ADGM, and those at the federal level that might create an appearance of regulatory arbitrage.

Moreover, it could apply strict cybersecurity policies of the EU to make sure that its ever-growing digital banking sector is secure. While artificial intelligence, blockchain, and other technologies are gaining momentum, the nation of the UAE needs to consider how to keep its digital banking sector sufficiently cushioned against data breaches on consumer information. Emerging technology brings a qualitative leap in cybersecurity risks for both banks and consumers. The same standards for comprehensive, unified cybersecurity across all banking entities can be introduced in UAE, like the EU does

under GDPR. This is a workable balance that simultaneously preserves innovation yet captures the essence of keeping consumers safe.

#### *Kazakhstan's Emerging Regulatory System: Lessons from International Practices*

Kazakhstani regulatory environment significantly developed by harmonization with international standards, also by the adoption of the legal environment using the English common law. This has empowered the country to attract foreign investment into the country and Kazakhstan is thereby positioning itself as a regional financial hub. At the same time, however, it also remains challenging regarding the issues of enforcement of its regulations and transparency. Besides, high reliance on natural resources-hydrocarbons-in particular-makes the Kazakhstani financial system very vulnerable to external shocks and further complicates its regulatory environment.

##### *4.1.3. Strategy for Kazakhstan*

Kazakhstan can further enhance the development of its financial sector by borrowing elements from the proactive UAE approach to fintech and digital banking innovation. Allowing more investment in these areas would bring modernization to Kazakhstan's banking system and integrate it further with the global economy. To continue its development, developing regulatory frameworks that support technological advancement while protecting financial stability will be key for Kazakhstan.

Furthermore, Kazakhstan is one of a few countries that face special challenges in the context of the global transition away from hydrocarbons. As the world moves on to renewable energy sources and decreases its dependence on fossil fuels, so, too, will the Kazakhstani economy and, accordingly, its banking system. Such potential stranded assets of the oil and gas sector may heavily affect the loan portfolios of the banking sector due to its credit risk, which may, accordingly, provide quite high risks of financial instability. This means that Kazakhstan must accelerate the diversification of its economy through investment in green finance and renewable energy projects. In turn, the AIFC's Green Finance Centre would provide an excellent vehicle for funding ecologically viable projects through removing dependence on hydrocarbons.

This, in turn, allows Kazakhstan to adopt strict EU legislation on consumer protection. As the country further develops its digital banking infrastructure, the security and trust in such systems will be crucial for long-term success. Much stronger regulation in respect of consumer rights, data protection, and transparency would instill confidence in



Kazakhstan's financial system and appeal to international clients who value security in digital transactions.

#### **4.2. Implications for Banks and Policymakers**

The regulatory frameworks in the EU, UAE, and Kazakhstan have a few implications for both banks and policymakers:

- EU: Policymakers should consider alleviating the regulatory burden by developing more flexible environments, such as sandboxes or special zones, for smaller institutions. Following Kazakhstan's model of trimmed regulations might create an environment for innovation and importantly allow small banks not to suffocate under costs related to compliance to invest in modern technologies.
- UAE: Harmonization of free zones will increase consistency in UAE banking sector, which will eventually provide competitiveness. In this perspective, the UAE should also be like the EU, following the path of maintaining harmonized regulations throughout the member states, which mostly ensures that operational efficiency is achieved without losing flexibility.
- Kazakhstani: Because it is growing into the global financial system further, the need for regulatory enforcement and transparency will also grow. The case of Kazakhstan can learn from both strict EU consumer protection standards and flexibility in embracing fintech advances in the UAE, which will be useful to build a more fitting regulatory framework for it to attract more foreign investment.

#### **4.3. Challenges and Areas for Improvement**

- EU: The excessive costs of compliance in the EU will stifle innovation, especially for the smaller institutions. Taking a cue from the Kazakhstan AIFC regulatory sandboxes, one could allow fintech and small banks to innovate in a carefully controlled and supervised space so that growth takes place without compromising regulatory oversight.
- UAE: The regulatory flexibility has indeed been one of the strong points of the UAE, but it faces challenges in keeping pace with the Stride of technological innovation. A more systemized approach to cybersecurity, à la the EU, would be conducive to balancing regulations with innovation integrity. Clear guidance on emerging technologies, such as artificial intelligence and blockchain, needs to be

brought into view to ensure consumer protection while digital banking continues its upward trajectory.

- **Kazakhstan:** Kazakhstan needs to continue its efforts in finding a proper balance between the adoption of international standards and the domestic market realities. Creating a more open and transparent regulatory environment and coupled with effective economic diversification, Kazakhstan will become a player relevant for conventional and Islamic banking markets globally.

#### **4.4. Alignment with Literature: Validation and Divergence**

The purpose of this research is in tune with available literature on banking regulation in which the latter is averred to play a particularly significant role in the stability of the financial system. In fact, literature favoring strong standards to avoid financial crises supports EU's harmonized regulations and tight oversight. Similarly, the dual banking system in the UAE and the policy of flexibility are supported by the idea of diversity in regulatory frameworks that can accommodate diverse financial practices.

Setting up the AIFC in Kazakhstan certainly challenges the most common narratives about developing economies. The success of the attempt at integrating international norms, taking into consideration local contexts, serves as proof that emerging markets could be of importance in shaping their own regulatory environments to contribute to the global financial landscape.

#### **4.5. Added Value and Contribution to Existing Theories**

This paper contributes to the existing knowledge that a uniform one-size-fits-all banking regulation is not feasible in every region. Every region should produce its own regulatory framework and apply the same in the peculiar economic, cultural, and historical contexts that define it. Moreover, this research flags flexibility, as with the COVID-19 pandemic, wherein regulatory flexibility was able to respond to the crisis with no sacrifice of stability.

In this context, the timely adoption of support measures by the UAE was quite a good lesson that could be used by Kazakhstan in further strengthening the resistance of its banking system. Adaptability will be key in any regulatory framework going forward because the global economy is increasingly becoming digital and interconnected.

#### **4.6. Practical Implications for Policymakers and Practitioners**

The findings remind policymakers of the importance of flexible regulatory mechanisms. Specialized financial zones in Kazakhstan provide a blueprint for other regions, such as the EU, on how to cut compliance burdens without sacrificing oversight. The UAE would do better by harmonizing its regulations across free zones; the EU might do a lot worse than adopting more flexible approaches for smaller institutions. It is further left to the policymakers within their particular regions to consider those needs that they perceive are peculiar to their respective banking sectors, while they keep their doors open towards international best practices which will be helpful in strengthening their frameworks.

This essentially means that research, especially one with a strong focus on compliance cultures and investment in regulatory technologies, will pay off. In such cases, a balance will have to be reached for banks to be able to compete effectively in the global market while meeting the increasing demands for compliance. The success of these banks in an increasingly complex regulatory environment will depend on the construction of robust internal compliance processes and investment in advanced technologies for regulatory reporting and risk management. In so doing, banks can stay agile and, on their toes, respond fully to the demands of the marketplace, while remaining in compliance with local and international regulatory standards.

#### **4.7. Real-World Applications and Limitations of the Research**

The real-world applications of the insights derived from this research will be many, particularly in regions keen on a balance between stability and innovation, with regulatory oversight. Policymakers and regulators can use the identified strategies in this analysis to build their own frameworks.

- For the EU, a more flexible regulatory model for smaller entities—a model inspired by Kazakhstan's AIFC—would offer a good starting point in promoting innovation without giving in on oversight. This will then make it possible for the EU to craft special regulatory settings that better fit smaller banks and their fintech startups, thus enabling innovation while keeping stringent oversight for larger ones that pose greater systemic risks.
- The UAE will benefit from a harmonization drive across its various financial free zones, which will create one big single regulatory framework while at the same time reducing any prospect of regulatory arbitrage. The UAE can choose to go the

way of the European Union and simplify its regulatory procedures without giving up on a flexible regime that makes it an attractive financial center; this way, all the institutions operating in the realm of finance would operate under one single banner of regulation, hence reducing complexity and increasing ease of operation.

- The lessened alignment of Kazakhstan with the international standards through AIFC is one step in the right direction, but there is so much more this country must do in the way of building regulatory enforcement and transparency. Kazakhstan can learn a thing or two from UAE's approach toward fintech innovation and strong consumer protectionist measures in the EU to help improve its banking sector. Further adoption of best practices in developed and emerging markets alike will allow Kazakhstan to develop a regulatory framework that can be globally competitive and relevant locally.

## **Chapter 5. Conclusion**

The comparative analysis of banking regulations across the EU, UAE, and Kazakhstan describes how each region accommodates its regulatory frameworks considering emerging challenges related to digitalization, fintech innovation, and sustainability. Each of the regulatory landscapes depicted represents a unique situation within its economic, historical, and cultural context, whereby three divergent strategies for the pursuit of financial stability, innovation, and long-term growth are realized. However, their means of incorporating advanced technologies and green finance show both global trends that they share and regional priorities.

### **5.1. Key Findings and Insights**

#### *5.1.1. European Union (EU)*

One of the most harmonized and centralized regulatory environments was developed by the EU, which had dedicated bodies like the European Central Bank and the European Banking Authority that ensure supervision would truly be strict. This stands out from the Capital Requirements Directive, CRD IV, and Capital Requirements Regulation, CRR. What stands out in the recent development of the EU's approach is in the FinTech and Digital Assets field. Whereas PSD2 opened the door to fintech, the MiCA will signal that the EU is leading the way in cryptocurrency regulation.

While the EU's regulatory innovations have supported fintech growth, challenges are still present due to the burdensome nature of compliance requirements for smaller institutions. This thus places the need for more flexible mechanisms within the regulatory framework, which can promote innovation at all levels with no compromise on financial stability. The EU's sustainability agenda is also gathering steam, with green finance and sustainability firmly inserted into its wider financial regulatory strategy.

#### *5.1.2. United Arab Emirates (UAE)*

The UAE has adopted a dual regulatory system. While conventional and Islamic banking fall under the auspices of the Central Bank, financial free zones like the Dubai International Financial Centre offer internationally aligned, more flexible regulatory regimes. More specifically, the UAE has emerged as one of the global leaders in the adoption of fintech and blockchain, especially in Dubai, where it has positioned itself as a blockchain hub.

Such regulatory flexibility has allowed the UAE to host rapid technological innovation in the fields of digital banking and fintech, but even more so, taking an active position on blockchain technology is placing the country in a leading role within financial innovation. Yet, not least of their challenges at present remains the harmonization of federal regulations and those of the free zones. For these to fall into place will be important in bringing about a uniform and competitive financial ecosystem that will support both innovation and financial stability. The increasing emphasis that the UAE places on issues related to sustainability, with particular use of green finance, underpins the ambition within the country to make its financial sector more international in tone and attuned to environmental needs.

### *5.1.3. Kazakhstan:*

Kazakhstan's law is very dynamic concerning the regulating framework, especially through the Astana International Financial Centre, which provides a regulatory environment based on English common law in efforts to become attractive for foreign investments, thus making serious promotion of Islamic finance. The National Bank of Kazakhstan holds the vital role in oversight over the financial system, though enforcement of regulations remains challenging.

As far as fintech and cryptocurrency mining are concerned, there has been identifiable progress in Kazakhstan. AIFC's fintech sandbox has nurtured innovation. With the performance of the country in Bitcoin mining and the development of the digital tenge—that is, the Central Bank Digital Currency-Kazakhstan's' growing orientation toward fintech has become more noticed. However, challenges also remain with the heavy reliance on hydrocarbons while trying to align the regulatory framework with sustainability trends worldwide. Yet, even at the same time, efforts by Kazakhstan in integrating blockchain in green finance remain promising—for example, through the AIFC Green Finance Centre—but there is still room for improvement if the full potential of sustainable finance is to be reached in this region.

## **5.2. Significance of the Research**

The paper highlights how different regions adapt their banking regulations to respond to digitalization challenges, fintech innovation, and sustainability. Looking at the case of the EU, the UAE, and Kazakhstan, there is apparently no single effective way of regulating

banking; every region needs to devise its own regulatory strategies in tune with economic realities and developmental priorities.

The analysis underlines the trade-off between regulatory stringency and flexibility to allow innovation. In the case of the European Union, regulatory harmonization promoted fintech growth but there was an additional need for flexibility in this respect to accommodate smaller institutions. In the United Arab Emirates, flexibility given through its unique dual regulatory system allowed the rapid diffusion of both fintech and blockchain. Better regulatory harmonization is necessary to avoid fragmentation. AIFC might be a promising model of innovation in Kazakhstan yet is extremely limited by the potentiality for broader regulatory alignment with global standards due to possible hiccups in enforcement and reliance on hydrocarbons.

What this study underlines, even more, is the rising interest in green finance and sustainability from a worldwide perspective. Since sustainability is becoming part of the financial system in all three regions, regulations are increasingly expected to play a more leading role in encouraging environmentally friendly financial practices. With increasing global concerns on the environment, this is something that may be witnessed in further research in innovation on green finance.

### **5.3. Future Research and Policy Recommendations**

#### *5.3.1. Enhancing Regulatory Flexibility:*

What future studies should focus on is which path the EU regulatory framework is likely to go down in implementing more flexible mechanisms, such as regulatory sandboxes, in the overall process of nurturing innovation among smaller entities. The success that Kazakhstan has witnessed through its AIFC fintech-sandbox is very instructive in trying to achieve an appropriate balance between innovation and supervision within a controlled environment and therefore carries valuable lessons for how such regulatory experimentation could be supported.

#### *5.3.2. Digital Currencies and Regulatory Evolution:*

The development of Central Bank Digital Currencies (CBDCs), such as Kazakhstan's digital tenge, presents a significant area for future research. Understanding how CBDCs will shape banking regulations, especially in terms of financial inclusion, cross-border

payments, and monetary policy, will be critical for policymakers navigating this emerging financial landscape.

### *5.3.3. Cybersecurity and Digital Banking:*

As digital banking and fintech adoption continue to accelerate, stronger cybersecurity measures will be needed. Research should focus on how these countries can improve their cybersecurity frameworks as the use of digital assets becomes more mainstream. The UAE and Kazakhstan would benefit from implementing tough data protection laws that are similar to the General Data Protection Regulation (GDPR) to protect against increasing cyber threats.

### *5.3.4. Sustainable Finance and Green Bonds:*

The world is heading towards sustainability, and it is of essence that research is done to establish how the best banking regulations can facilitate green finance. Kazakhstan is highly reliant on hydrocarbons, and aligning the regulatory framework with the global move toward renewable energy financing is of utmost importance. This would provide valuable insights into future regulatory reform about how fintech and Islamic finance can be leveraged to achieve sustainable development through the deployment of green bonds and carbon credit trading.

## **5.4. Concluding Remarks**

This comparative analysis underlines the need for each region to find a trade-off between the stringency of regulations, flexibility, and innovation. The regulatory regime in the EU gives stability but loses on the grounds of high flexibility, which boosts innovation in all kinds of financial institutions. The regulatory environment in the UAE is promoting and pursuing technological advancement, and it should align the regulations between jurisdictions and try to avoid fragmentation. The Kazakhstan evolving regime, especially through the AIFC, generates bright prospects for innovation; however, facing challenges in enforcement and economic diversification.

For as long as there are changes in the global financial landscape, so, too, will regulatory challenges and opportunities for these regions. Understanding both the strengths and weaknesses of each region's take on regulation, policymakers and industry leaders will be better able to negotiate the various complexities that building resilient, innovative, and



sustainable financial systems throw their way. This increasing focus on digitalization, FinTech, and sustainability is a good indicator that any regulatory frameworks in the future must be agile and forward-looking to support not only innovation but also long-term financial stability.

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