



The Evolution of Financial Technology between Europe, the Middle East, and Africa: Investment Trends and the Impact of Economic Transformations (2019-2023)

Salah Guerrouf^{1*}

¹ Badji Mokhtar-annaba University (Algeria);

Salah.guerrouf@univ-annaba.dz

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Abstract:

This study aims to shed light on the evolution of financial technology (FinTech) in Europe, the Middle East, and Africa, and to analyze the economic, regulatory, and technological factors influencing this evolution, while exploring the main trends and the most dynamic sub-sectors within the industry. To this end, the descriptive-analytical approach is adopted.

The findings indicate that the development of FinTech across these regions is characterized by significant disparities between Europe and the Middle East and Africa. Europe has experienced a relative slowdown in investments, albeit with some large-scale deals, whereas the Middle East and Africa have recorded remarkable growth, particularly in the digital payments segment. Moreover, global economic transformations have had a pronounced impact on startup financing, highlighting the need for flexible strategies to ensure the sustainability of the sector and to strengthen its contribution to the development of financial systems.

Keywords: FinTech, Digital Payments, Venture Capital, Europe, Middle East and Africa, Economic Transformations.

JEL Classification Codes: G23, G20, O33.

***Corresponding author:** Salah Guerrouf

1. Introduction

Financial technology (FinTech) has become one of the most prominent manifestations of digital transformation in the contemporary financial sector, as it represents a direct outcome of the rapid advancement in information and communication technologies and the growing reliance on digital solutions in the delivery of financial services. This evolution has brought about fundamental changes in financial business models by improving service efficiency, expanding access, and reducing operational costs, thereby enhancing the competitiveness of financial institutions and meeting the needs of broader segments of users.

The impact of FinTech is no longer confined to traditional banking institutions; rather, it has extended to encompass an integrated financial ecosystem that includes innovative startups, digital platforms, and investors, all operating within a highly dynamic and continuously evolving environment. This expansion has led to the emergence of multiple sub-sectors within the FinTech domain, including digital payments, online lending, asset management, and digital insurance, making the sector one of the most attractive destinations for investment globally.

Amid this growing momentum, the FinTech industry faces a set of challenges related to macroeconomic transformations, regulatory changes, and cybersecurity and data protection requirements, which compel market participants to continuously adapt to an environment characterized by a high degree of uncertainty. Accordingly, there is an increasing need for in-depth academic studies that seek to understand the nature of FinTech development, its growth mechanisms, and the factors shaping its trajectory, thereby contributing to the academic debate and providing an analytical foundation for policymakers and researchers in this field.

Research Problem

In light of the accelerated digital transformations witnessed by the financial sector, FinTech has emerged as one of the key

manifestations of this shift, which necessitates the formulation of a scientific problem aimed at understanding the nature of this development, its determinants, and its implications. The continuous change in the technological, economic, and regulatory environment poses new challenges regarding the ability of FinTech to generate a genuine and sustainable transformation in the financial sector.

Accordingly, the central research question of this study is formulated as follows: **How has the evolution of FinTech in Europe, the Middle East, and Africa been influenced by global economic transformations, and what are the main characteristics and trends that distinguish this evolution across these regions?**

Sub-Questions

- What is FinTech and what are its main characteristics?
- What are the recent trends in FinTech investment?
- How does the trajectory of FinTech development differ between Europe, the Middle East, and Africa?
- Which sub-sectors are the most dynamic within the FinTech industry?
- How have global economic transformations affected the financing of FinTech companies?

Research Hypotheses

- FinTech represents an innovative sector characterized by digital solutions designed to enhance the efficiency of financial services and expand access to them.
- FinTech investments have experienced a slowdown in recent years after a period of rapid growth.
- The trajectory of FinTech development differs across these regions in terms of growth pace and ecosystem maturity.
- Digital payments constitute one of the most dynamic sub-sectors within the FinTech industry.
- Global economic transformations have contributed to a decline in FinTech company financing, particularly in large deals and venture capital.

Significance of the Study

The significance of this study lies in highlighting the dynamics of FinTech development, the divergence of its trajectory between Europe, the Middle East, and Africa, and the impact of global economic transformations on startup financing, thereby providing a knowledge base to support researchers and policymakers in enhancing the sustainability of this vital sector.

Objectives of the Study

- To define the concept and characteristics of FinTech and analyze the evolution of investments and large-scale deals in the sector.
- To compare the trajectory of FinTech development between Europe, the Middle East, and Africa, with a focus on the most dynamic sub-sectors.
- To assess the impact of global economic transformations on FinTech company financing and to identify the features of the current phase of growth or slowdown.
- To provide a deeper analytical interpretation of FinTech investment dynamics across regions by linking empirical data with global economic transformations, in order to generate meaningful insights that support decision-making and future academic research.
- To move beyond a descriptive approach by analyzing regional disparities in FinTech development, identifying the key drivers influencing growth, and highlighting the implications of these differences for future financial development.

2. The Concept of Financial Technology

2.1. Definition of Financial Technology

Numerous definitions have been proposed to delineate the concept of financial technology, given that it constitutes one of the main pillars of digital transformation. Accordingly, a distinction can be made between definitions put forward by economists and financial professionals, on the one hand, and those issued by international and national institutions, on the other.

➤ **From the Perspective of Economists and Financial Professionals**

The Oxford Dictionary defines financial technology as computer programs and other technologies used to support or enable banking and financial services (Nicoletti, 2017).

FinTech is a broad term that refers to software, mobile applications, and other technologies developed to enhance and automate traditional forms of finance for both businesses and consumers. It may encompass everything from simple mobile payment applications to complex blockchain networks that support encrypted transactions (Columbia Engineering).

➤ **From the Perspective of International and National Institutions**

The Financial Stability Board (FSB) defines financial technology as: “technology-enabled innovation in financial services that can result in new business models, applications, processes, or products with a material effect on financial markets and institutions and on the provision of financial services” (FSB, 2017; Andresen, 2017).

According to the Bali FinTech Agenda report, financial technology is defined as: “advances in technology that have the potential to transform the provision of financial services, thereby stimulating the development of new business models, applications, processes, and products” (IMF, 2018).

2.2. Characteristics of Financial Technology

Financial technology is characterized by a set of core attributes that distinguish it from traditional financial systems and demonstrate its capacity to transform financial services, expand access, and provide innovative solutions that respond to changing market needs. The most important characteristics shaping the development and impact of FinTech in the financial sector include the following: (Cole, 2023)

- **Faster processing of complex transactions:** FinTech enables the rapid processing of complex financial transactions and the accurate

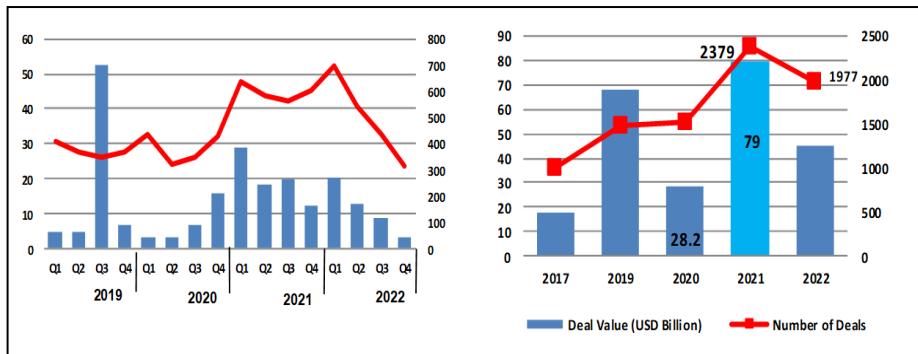
- settlement of accounts, which contributes to enhancing the overall quality of services in the sector.
- **Enhanced financial inclusion:** Technology allows individuals and firms to access useful and affordable financial products and services that meet their needs in terms of transactions, payments, savings, credit, and insurance, delivered in a responsible and sustainable manner.
 - **Lower service costs:** In many cases, FinTech companies do not require a physical presence in the areas they serve, leading to lower service costs for customers and reduced processing time for transactions such as loan applications (Bhatt, 2020).
 - **Advanced financial analytics:** FinTech provides sophisticated financial analytics by leveraging large volumes of data, enabling institutions to redesign their products to better match customers' needs and preferences that were often overlooked by traditional financial institutions.
 - **Knowledge transfer and increased transparency:** FinTech firms facilitate the transfer of accumulated knowledge and expertise to new investors, promote efficient use of capital and resources, and support the management of intellectual property and assets. They also enhance transparency, which contributes to improving organizational culture.
 - **Strengthening financial capability:** FinTech simplifies money management and not only builds the future of financial tools but also promotes financial education and literacy. Improving financial literacy helps individuals reduce debt, understand budgeting and saving, and recognize the importance of investing for the future.
 - **Job creation and economic growth:** Most FinTech firms continuously expand and therefore require an increasing workforce to support their growth. Employment opportunities in these firms provide stability and sustainable career paths. Moreover, interaction with experts in finance and technology enhances individuals' experience, professional skills, and acquisition of new competencies (Coku, 2023; Fintechly, 2022).

- **Opportunities for global expansion:** FinTech products face limited barriers to entry into international markets, which means that most FinTech institutions aim to expand globally by addressing geographical and financial constraints in order to foster a more interconnected world (Coku, 2023).

3. The Growth Trajectory of Financial Technology in European, Middle Eastern, and African Markets

The prevailing state of uncertainty in global markets has continued to weigh on investors, driven by rising inflation, higher interest rates, geopolitical tensions, and the declining valuation of the technology sector. As a result, investments in financial technology across Europe, the Middle East, and Africa (EMEA) declined sharply from USD 79 billion in 2021 to USD 44.9 billion in 2022, as illustrated in the following figure.

Fig.1. Total FinTech Investment Activity in Europe, the Middle East, and Africa



Source: Prepared by the authors based on: (KPMG, 2023, pp. 38-40; KPMG, 2021, p. 43)

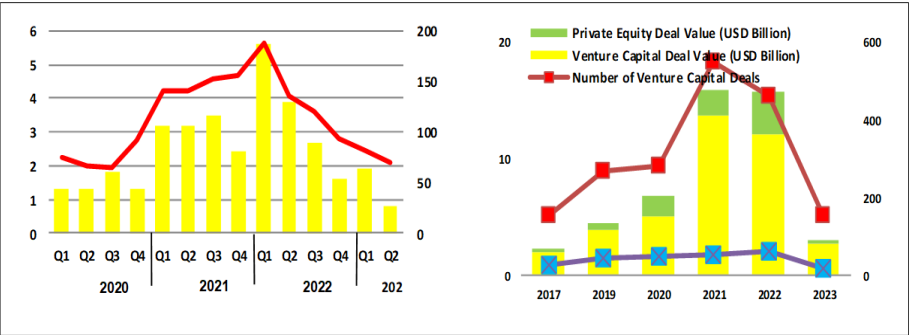
As shown in the figure above, FinTech investments in Europe, the Middle East, and Africa declined significantly on a year-on-year basis, falling from USD 79 billion across 3,792 deals in 2021 to USD 44.9 billion across 1,977 deals in 2022, with each quarter recording lower investment values than the preceding one. It is also evident that deal activity in the first half of 2022 was considerably stronger than in the second half of the same year. Investments in the first half of the year amounted to USD 32.8 billion, including six deals exceeding

USD 1 billion, notably the acquisition of Italy-based SIA for USD 3.9 billion, the acquisition of Sweden-based Tink for USD 2.1 billion, and the acquisition of UK-based Interactive Investor for USD 1.8 billion.

By contrast, the second half of 2022 recorded investments totaling USD 12 billion, with the largest individual deals all valued at below USD 1 billion. These included the acquisition of the UK-based investment management platform Nucleus Financial Group for USD 839 million, an USD 800 million venture capital raise by the Sweden-based buy-now-pay-later (BNPL) firm Klarna, and the acquisition of the UK-based payments company International Game Technology for USD 700 million (KPMG, 2023).

This decline can be interpreted in light of tightening global financial conditions, including rising interest rates and reduced liquidity in venture capital markets. Additionally, increased uncertainty and risk aversion among investors have led to a shift toward more selective investment strategies, particularly affecting large-scale FinTech deals.

Fig.2. Venture Capital and Private Equity Activity of FinTech Companies in Europe, the Middle East, and Africa



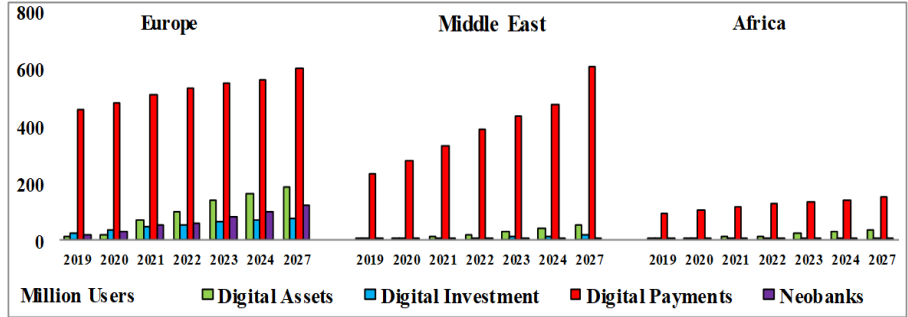
Source: Prepared by the authors based on: on: (KPMG, 2023, pp. 38-41; KPMG, 2023, pp. 37-40)

The year 2021 was a record year for venture capital (VC) investments in FinTech companies across Europe, the Middle East, and Africa (EMEA), with the FinTech sector raising a total of USD 13.7 billion across 548 deals. This amount exceeded the total VC investments in 2022, which amounted to approximately USD 12.1

billion across 461 deals. VC investment values remained relatively high during the first half of 2022; however, the year experienced a sharp decline trend, particularly in Q1, where VC deals totaled USD 5.6 billion across 188 transactions—the highest value in the region compared to Q1 2021, which amounted to approximately USD 3.2 billion.

It is noteworthy that each quarter in 2022 recorded a decrease in VC investments compared to the previous quarter, and the first half of 2023 was no exception, recording the lowest decline. Meanwhile, private equity (PE) deal activity in the FinTech sector has been volatile since early 2019, with the largest number of deals recorded in 2022 at 58 transactions. In the first half of 2023, only 14 PE deals were completed across the region, fewer than those executed in the corresponding period of the previous year.

Fig.3. Number of FinTech Users in Europe, the Middle East, and Africa by Sector



Source: Prepared by the authors based on: (Statista Research Department, 2023; Statista , 2023; Statista , 2023)

Based on the figure above, it is observed that as of 2022, there were approximately 747.94 million FinTech users in Europe, with the digital payments sector accounting for the largest share at around 550.5 million users. By 2027, the number of FinTech users in Europe is expected to exceed 990 million, followed by the digital assets sector, which also experienced significant growth in the European market, with a 37.77% increase in 2022.

Compared to other regions, growth in the digital payments sector in the Middle East and Africa was particularly strong and

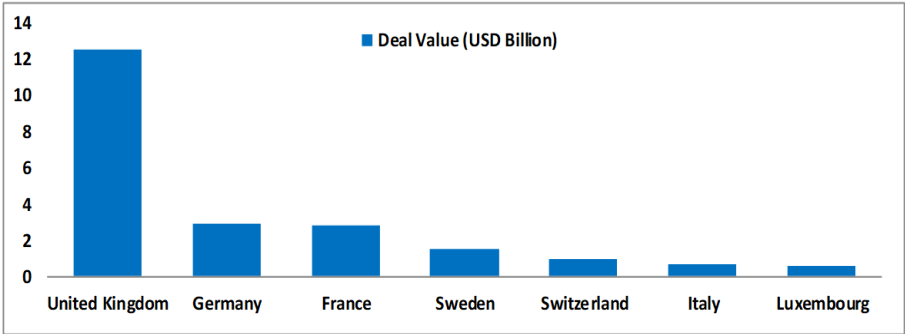
notable. Despite the sharp decline in global FinTech market dynamics during 2022, many local FinTech companies continue to expand their presence within the region and beyond.

This contrast reflects structural differences between mature and emerging markets. While Europe is experiencing a phase of consolidation after a decade of rapid expansion, the Middle East and Africa are still in a growth phase driven by financial inclusion needs, digital transformation policies, and lower market saturation.

4. FinTech in Europe

The deteriorating macroeconomic environment in Europe and globally has significantly affected FinTech companies, leading to lower valuations and more challenging access to funding. Nevertheless, European FinTech continues to gain strength and importance for both customers and the broader economy.

Fig.4. Leading European Countries by FinTech Investment Deal Value in 2022



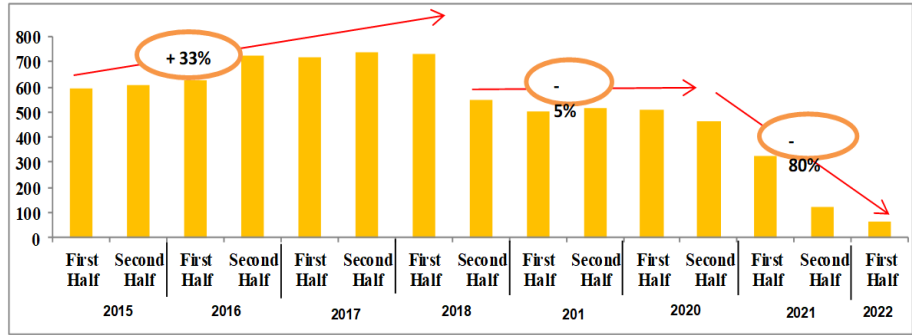
Source: Prepared by the authors based on: (Statista Research Department, 2023)

Based on the figure above, the United Kingdom accounted for the highest FinTech investment value in Europe in 2022, reaching USD 12.5 billion. This investment value was approximately four times higher than that of Germany, which ranked second with USD 2.9 billion in FinTech investments in 2022. It is noteworthy that the largest single FinTech investment deal occurred in Italy, yet the United Kingdom remained the main player in terms of the highest number of

deals, making it a key market that accounted for nearly half of all European deal value in 2022 (Statista Research Department, 2023).

After a decade of growth, the European FinTech ecosystem has entered a period of slowdown, reflected in a decline in the number of newly established FinTech companies, reduced funding activity, and a decrease in exit transactions.

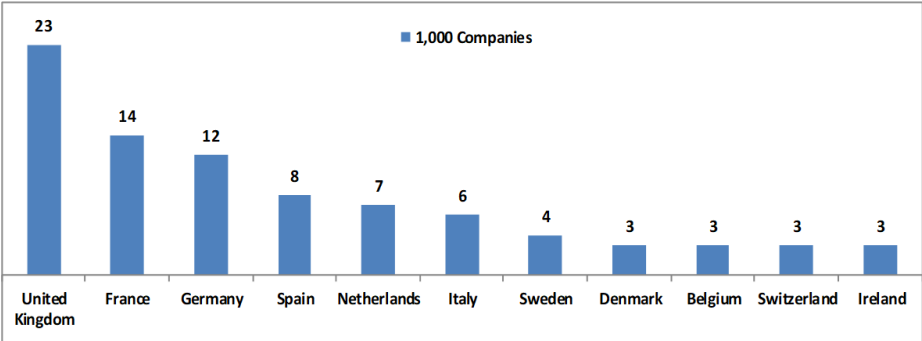
Fig.5. Number of European FinTech Companies Established Annually



Source: Prepared by the authors based on: (Finch Capital, 2022, p. 6)

Based on the figure, the establishment of new businesses in the FinTech sector peaked in 2018, with over 700 new FinTech companies founded in the first half of the year. However, since then, the number of newly established FinTech companies has been declining, dropping in 2020 by 80%, from more than 400 new FinTech companies in the second half of 2020 to fewer than 100 companies in the first half of 2022.

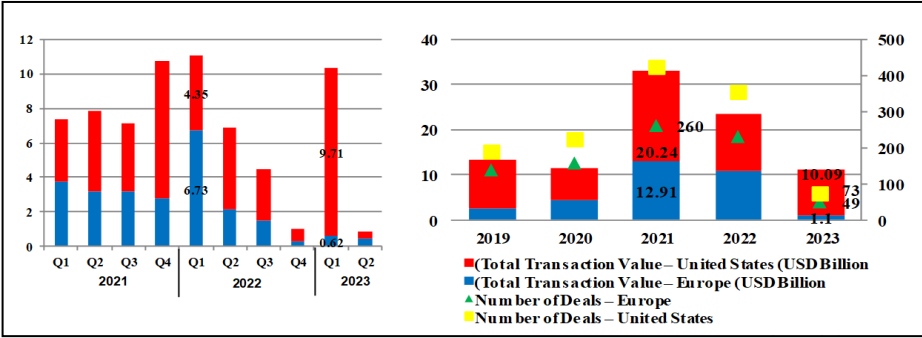
Fig.6. Number of Emerging FinTech Companies in Europe by Region in 2021



Source: Prepared by the authors based on: (Finch Capital, 2022, p. 6)

Over the past years, more than 100,000 startups have been established in Europe, with the United Kingdom, as the most active country in the region, accounting for 23,000 FinTech companies, followed by France with 14,000 and Germany with 12,000 companies.

Fig.7. Global Venture Capital- and Private Equity-Backed Investments in FinTech and the Payments Industry in the United States and Europe



Source: Prepared by the authors based on: on: (Karl Angelo Vidal, 2023)

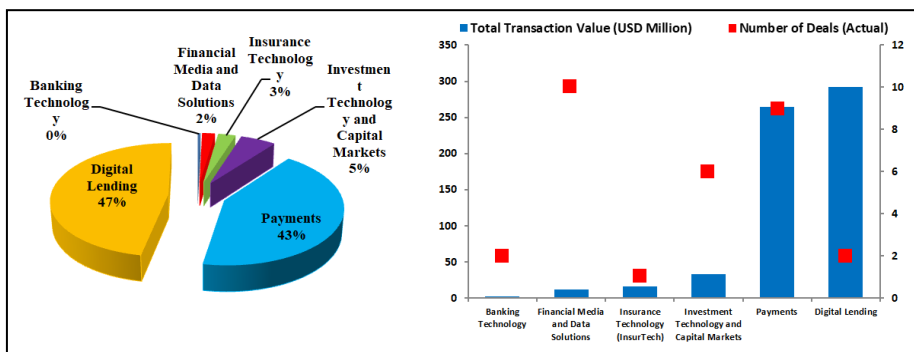
It is evident that 2021 was a record year for FinTech funding, with 260 deals executed in Europe totaling USD 12.91 billion. By comparison, in 2022, this figure slightly exceeded USD 10 billion, indicating a contraction. This decline is attributed to a reduction in large-scale funding rounds for FinTech companies. It is also clear that this downward trend in European FinTech funding aligns with global funding trends, as U.S. FinTech companies raised USD 20.24 billion globally in 2021, which decreased to approximately USD 12.71 billion in 2022.

The figure further shows that private equity, venture capital, and payments investments in European FinTech companies fell sharply in the first half of 2023. In contrast, USD 10.09 billion was invested in U.S. companies during the same period. Specifically, total private equity and payments investments in European FinTech companies amounted to USD 1.10 billion, across 49 deals, while the United States recorded 73 deals over the same timeframe.

European FinTech companies attracted only USD 621.3 million in the first quarter of 2023, over ten times less than the USD 6.73 billion recorded during the same period in 2022. By contrast, U.S. private equity investment in FinTech expanded from USD 4.35 billion to USD 9.71 billion year-on-year.

In the first half of 2022, Europe witnessed several large deals in cryptocurrency and blockchain, including significant venture capital raises by Blockchain.com (UK, USD 490 million), and neobanking and investment applications incorporating cryptocurrencies, such as Trade Republic (Germany, USD 1.1 billion) and Lunar (Denmark, USD 314 million). However, following the collapse of Terra (Luna), investment sharply declined. The market was also affected by the bankruptcy of FTX, which increased demand for cryptocurrency regulation, including the need for enhanced oversight of crypto assets in European markets. These developments have contributed to further caution in investments within this sector (10 p. 37).

Fig.8. Global FinTech Investments by Sub-Sector in Europe in 2023



Source: Prepared by the authors based on: (Karl Angelo Vidal, 2023)

Considering the sub-sectors illustrated in the figure above, digital lending companies received the largest share of capital from private equity investors in the first quarter of 2023, raising USD 292.3 million, representing 47% of the total transaction value. Companies in the payments industry ranked second, accounting for 43% of total value with USD 264.3 million. The financial media and data solutions

sub-sector recorded the highest number of deals during this quarter, with 10 transactions. The largest deals in Q1 included a USD 200 million investment in the travel commerce platform Travelport Worldwide Ltd by Siris Capital Group LLC and Elliott Management Corp, and a USD 200 million investment in the marine leasing platform Neptune Maritime Leasing Ltd by Costamare Inc and Latsco Family Office SA (Karl Angelo Vidal, 2023).

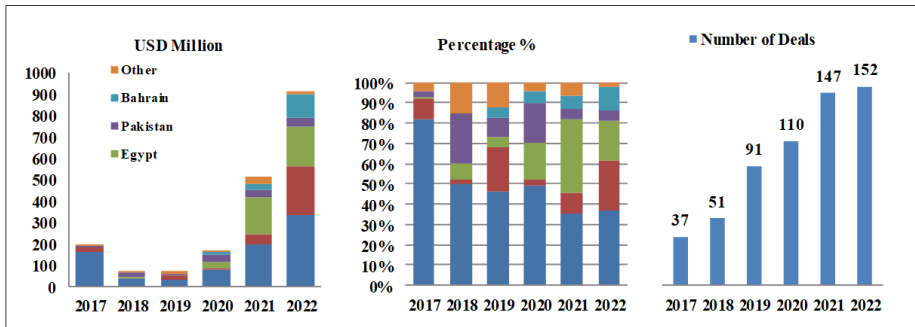
The InsurTech sector attracted strong investments in Europe starting from the second half of 2022, including a USD 400 million funding round by Germany-based Wefox and an USD 80 million investment in Vesttoo based in Israel. Although the insurance industry had lagged behind the banking sector in terms of digital transformation in the region over the past few years, it is now beginning to catch up.

Investor interest in RegTech (Regulatory Technology) grew significantly throughout 2022 and is expected to continue despite global macroeconomic challenges. This growth is driven by the continuously evolving regulatory environment, increasing complexity of compliance requirements, and the growing number of firms seeking RegTech solutions to improve the effectiveness and cost-efficiency of their compliance activities. As more FinTech companies in the region move up the value chain and into regulated activities, the demand for regulatory technology solutions designed to help them comply with regulatory requirements is likely to increase (KPMG, 2023, p. 36).

5. FinTech in the Middle East and Africa

In recent years, the FinTech sector in the Gulf Cooperation Council (GCC) countries and the Middle East and North Africa (MENA) region has experienced strong growth. Investor support increased significantly at an annual rate of approximately 36% from 2017 to 2022, and funding for FinTech startups in the region more than quadrupled, enabling these companies to expand operations and deliver advanced solutions to the market (Flototto, 2023), as illustrated in the following figure:

Fig.9. FinTech Investments in the Middle East, North Africa, and Pakistan in 2022 ⁽¹⁾



Source: Prepared by the authors based on: (Flototto, 2023)

The chart above shows that investor funding for FinTech startups in the Middle East, North Africa (MENA), and Pakistan more than quadrupled, increasing from approximately USD 200 million across 110 deals in 2020 to around USD 885 million across 152 deals in 2022. The most notable growth occurred in Saudi Arabia, Egypt, Bahrain, and the United Arab Emirates (UAE). With the rapid expansion of startups in these markets, they have strengthened their positions as key innovation hubs. In 2022, the UAE attracted 37% of total funding, followed by Saudi Arabia (25%), Egypt (20%), Bahrain (12%), and Pakistan (5%). Despite overall funding increases across the region, the UAE's share of total funding declined from roughly 80% in 2017 to around 35% in 2021; nevertheless, the UAE retained its position as a leading investor magnet through strong investment, infrastructure, and regulatory modernization.

Moreover, various founders in the MENA region operate across multiple markets to achieve geographic expansion, a strategy critical for achieving growth objectives and emulating the impact of FinTech leaders in India, the United States, China, and other major markets. This also reflects business resilience and sustainability. For example, the buy-now-pay-later (BNPL) provider Tabby currently serves over two million customers across Saudi Arabia, the UAE, and Kuwait.

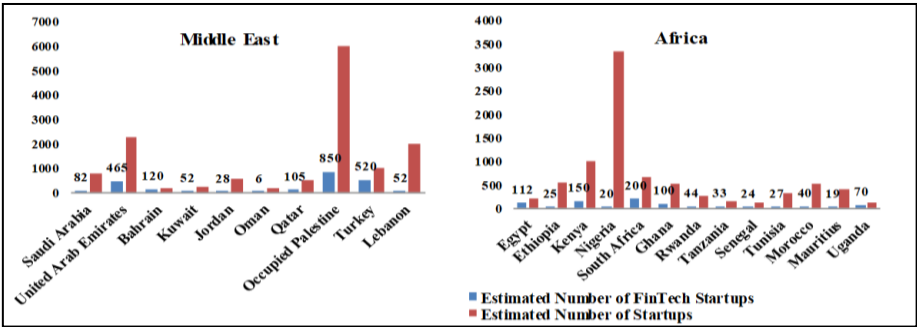
⁽¹⁾ **Other countries include:** Jordan, Tunisia, Algeria, Oman, Iraq, Qatar, Kuwait, Lebanon, Libya, Morocco, and Yemen.

Investors often face significant challenges when entering new sectors or adjacent markets, and startups adopt different strategies to adapt their offerings to local needs and expectations. For instance, YAP, a UAE-based digital banking platform, recently raised USD 41 million to support expansion into new markets, obtaining a license as an Electronic Money Institution in Pakistan and as a Payment Services Provider in Saudi Arabia (Flototto, 2023, pp. 2-3).

The year 2021 was a record year for the global FinTech industry, with investments reaching at least USD 300 billion, and total global venture funding amounting to USD 643 billion, representing 92% growth compared to USD 335 billion in 2020. Despite the challenges of 2022—including inflation, COVID-19 recovery, and the war in Ukraine—FinTech remained generally resilient, notwithstanding layoffs and more cautious venture capital funding.

In Sub-Saharan Africa, 2022 estimates indicated that FinTech contributed USD 150 billion to regional GDP, while in Israel, FinTech accounted for approximately 11% of the national GDP. In terms of value, the FinTech industry in Turkey is estimated at at least USD 15 billion, growing at roughly 15% annually. In the Arab world, the FinTech sector is estimated at USD 15 billion, including USD 2.5 billion in the UAE. The MENA region and Africa also recorded significant figures, with USD 2.6 billion in 2021 and USD 1.8 billion in Q1 2022 alone (The fintech times, 2023, pp. 34-35).

Fig.10. Estimated Number of FinTech Companies and Startups in the Middle East and Africa, 2022



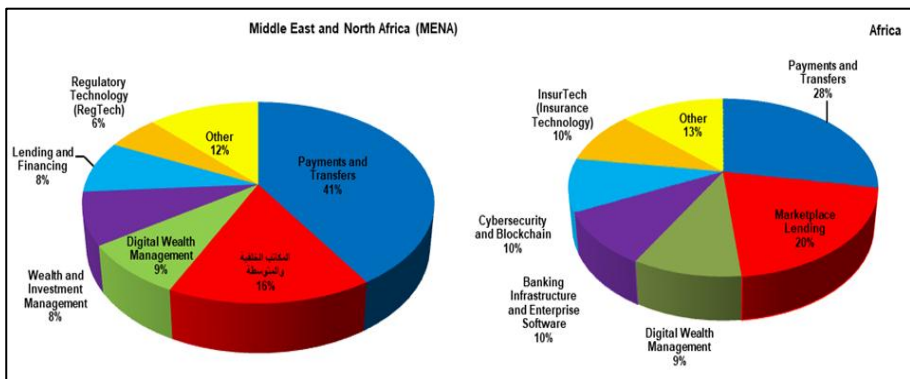
Source: Prepared by the authors based on: (The fintech times, 2023, pp. 34-35)

The total number of FinTech companies worldwide is estimated at no less than 26,000 (Cag, 2022), with approximately 3,000 companies located in the Middle East and Africa. Africa accounts for roughly 1,000 companies, while the top three countries in the Middle East host the majority of FinTech firms: the Occupied Palestinian Territories (OPT) with at least 850 companies, Turkey with 520, and the United Arab Emirates with 465. The number of companies is also growing in countries such as Bahrain and Saudi Arabia.

In Africa, approximately 70% of FinTech companies are concentrated in four major countries: Nigeria with 250 companies, South Africa with 200, Kenya with 150, followed by Egypt with 112. Other countries, such as Ghana and Uganda, are also experiencing increasing numbers. While the overall count appears large, it remains relatively modest compared to the United Kingdom, where London alone is estimated to host more than 3,000 FinTech companies (The global city, 2022, p. 11).

In the Middle East, excluding the Occupied Palestinian Territories (OPT) and Turkey, more than half of the region's FinTech companies are located in the United Arab Emirates, particularly in Dubai, according to the Dubai International Financial Centre (DIFC) (DIFC, 2023).

Fig.11. FinTech Investment in the Middle East and Africa by Major Sub-Sectors



Source: Prepared by the authors based on: (The fintech times, 2023, pp. 34-35)

According to the figure above, payments and payment technologies dominate the fintech ecosystem in the Middle East and North Africa (MENA) region as well as Africa. Although the region has witnessed the emergence of financial firms across various fintech sub-sectors, payments continue to serve as the primary driver of the fintech ecosystem. Similar to many countries worldwide, digital wallets—including mobile wallets—have become increasingly widespread in the region. Moreover, a study conducted among nearly 800 merchants in Australia, Brazil, Mexico, the United Arab Emirates, the United Kingdom, and the United States indicates that the UAE has the highest proportion of small and medium-sized enterprise (SME) consumers using digital wallets for online payments, exceeding 30%, compared with 18.2% in the United States (Pymnts, 2022).

6. Emerging Challenges and Future Perspectives in FinTech

6.1. Cybersecurity Risks and Data Protection : Despite the rapid expansion of financial technology across global markets, cybersecurity risks remain one of the most critical challenges affecting the sustainability of the sector. The increasing reliance on digital platforms exposes financial systems to cyberattacks, data breaches, and fraudulent activities, which may undermine user trust and financial stability. Ensuring robust data protection frameworks and secure digital infrastructures has therefore become a strategic priority for regulators and financial institutions alike (Erik Feyen, 2023, pp. 45-52; IMF, 2023, pp. 60-85).

These risks are further amplified by the rapid digitalization of financial services, which increases exposure to cyber threats and highlights the urgent need for robust regulatory frameworks and advanced security infrastructures, particularly in emerging markets.

6.2. Regulatory Fragmentation and Compliance Challenges : Another major challenge lies in regulatory fragmentation across regions, which poses significant barriers to the expansion of FinTech firms, particularly those aiming for cross-border operations. Variations in legal frameworks, licensing procedures, and compliance requirements may slow down innovation and limit market integration. This challenge is particularly evident when comparing Europe, which benefits from relatively harmonized regulatory frameworks, with the Middle East and Africa, where regulatory heterogeneity remains more

pronounced. Such disparities create additional compliance burdens for FinTech firms and may hinder their ability to scale efficiently across markets. Recent studies emphasize the need for harmonized regulatory approaches to foster a more inclusive and efficient global FinTech ecosystem (Douglas Arner, 2019, pp. 3-15; Dirk A Zetzsche, 2017, pp. 25-33).

6.3. Future Research Directions and Technological Innovations: From a research perspective, future studies should focus on analyzing the impact of emerging technologies such as artificial intelligence, blockchain, and central bank digital currencies (CBDCs) on the evolution of financial systems. These technologies are expected to reshape financial intermediation, enhance efficiency, and introduce new business models. Additionally, further empirical research is needed to assess the resilience of FinTech ecosystems in the face of global economic shocks and financial crises (BIS, 2022, pp. 101-110; OECD, 2023, pp. 60-68).

Future research should also prioritize comparative analyses of regulatory efficiency, the long-term resilience of FinTech ecosystems, and the implications of emerging technologies on financial stability across different regions.

7. Conclusion

This study reveals significant regional heterogeneity in the evolution of FinTech across Europe, the Middle East, and Africa. In Europe, the FinTech ecosystem is characterized by relative maturity, strong regulatory frameworks, and high investment volumes, despite the recent slowdown in funding and startup creation. In contrast, the Middle East demonstrates a rapidly growing ecosystem supported by government initiatives and increasing investor interest, while Africa stands out for its strong emphasis on financial inclusion and mobile-based payment solutions, particularly in underserved markets.

Building on these observations, the analysis demonstrates that FinTech development follows distinct regional trajectories shaped by differences in regulatory quality, investment capacity, and levels of digital infrastructure. While Europe reflects a mature and relatively saturated market with signs of stabilization, the Middle East and

Africa exhibit higher growth potential driven by structural demand for financial inclusion and ongoing digital transformation efforts.

The study also highlights that the most dynamic sub-sectors are digital payments and digital lending, which represent key growth engines within these markets. Technological innovation is shown not only to enhance the efficiency and quality of financial services but also to promote financial inclusion and deliver innovative solutions that respond to the growing and diverse needs of consumers. Accordingly, FinTech emerges as a vital driver in reshaping the financial sector by enabling institutions to improve operational efficiency, expand access to services, and support financial stability in the face of economic volatility.

These findings emphasize that FinTech development is not uniform, but rather conditioned by structural economic factors, regulatory environments, and technological readiness, which collectively determine the scale of opportunities and the exposure to potential risks across regions. Overall, this study contributes to the growing body of literature by providing a comparative and data-driven analysis of FinTech evolution, highlighting the importance of adopting region-specific strategies to ensure sustainable and inclusive financial innovation.

Key Findings

- Across the three regions, FinTech development reveals clear structural disparities, with Europe characterized by a mature ecosystem and high investment volumes, exceeding USD 79 billion in 2021, although affected by global economic uncertainties. The Middle East is experiencing rapid expansion driven by proactive government strategies and national digital transformation agendas, while Africa demonstrates strong growth in mobile-based financial services, particularly in countries such as Nigeria, Kenya, and South Africa, reflecting a regional focus on financial inclusion and technological leapfrogging.
- These structural differences make FinTech financing highly sensitive to global economic transformations, particularly large-

scale deals and venture capital flows, underscoring the need for strong adaptive capacity and effective risk management.

- Within these regional contexts, digital payments and digital lending emerge as the most dynamic and rapidly growing segments, while other areas such as InsurTech and regulatory technology (RegTech) are gradually gaining momentum, signalling diversification within the sector.
- Technological innovation consistently supports financial inclusion and broadens access to financial services, thereby contributing to economic and social development, especially in emerging markets where traditional banking infrastructure is limited.
- Finally, sustainable FinTech investment relies heavily on a flexible and stable regulatory environment, as well as the availability of venture capital and experienced investors, which together ensure long-term growth and the successful adoption of innovative financial solutions.

Recommendations

Based on the findings and conclusions of this study, the following region-specific and general recommendations are proposed:

Recommendations for Europe:

- Strengthening regulatory innovation by promoting RegTech solutions to enhance compliance efficiency and reduce operational costs.
- Supporting advanced FinTech ecosystems through increased investment in high-value segments such as digital assets, artificial intelligence, and sustainable finance.
- Enhancing risk management strategies to address the current slowdown in investment and improve resilience to macroeconomic fluctuations.

Recommendations for the Middle East:

- Promoting financial inclusion by expanding access to digital financial services, particularly in underserved populations.
- Strengthening digital infrastructure and regulatory frameworks to support the rapid growth of FinTech startups.

- Encouraging partnerships between traditional financial institutions and FinTech companies to accelerate innovation and market expansion.

Recommendations for Africa:

- Investing in mobile-based financial services as a key driver of financial inclusion and economic development.
- Developing digital and physical infrastructure to support the scalability of FinTech solutions.
- Facilitating access to funding for startups through venture capital and public-private partnerships.

General Recommendations:

- Enhancing cybersecurity frameworks and data protection mechanisms to ensure trust and stability in digital financial systems.
- Promoting international cooperation and regulatory harmonization to facilitate cross-border FinTech expansion.
- Encouraging continuous monitoring of global economic conditions and adopting flexible strategies to mitigate financial risks and ensure long-term sector resilience.

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