



(RESEARCH ARTICLE)



How to Support Innovation While Keeping Finance Safe (Fintech in Morocco)

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Abstract

The financial technology sector is revolutionising the financial landscape through its diverse and innovative business approaches. By introducing groundbreaking solutions, this sector challenges established financial institutions while creating complementary systems that work alongside conventional frameworks.

As this sector grows at an unprecedented pace, regulatory bodies face the critical task of monitoring its development to safeguard against potential financial disruptions. The central challenge lies in finding the right equilibrium - fostering the sector's creative potential while implementing necessary safeguards to maintain system integrity, protect users, and ensure fair competition with traditional financial service providers.

This delicate balancing act presents policymakers with complex questions: How can regulatory frameworks simultaneously encourage financial innovation while maintaining prudent oversight? How can authorities support technological advancement without compromising financial security or creating uneven competitive landscapes?

This study examines different regulatory approaches for overseeing financial technology ventures, with particular attention to Morocco's evolving regulatory environment. The analysis explores how emerging economies are adapting their oversight mechanisms to accommodate these disruptive technologies while addressing associated risks.

Keywords: Financial technology; Regulatory technology; Innovation testing frameworks; Industry oversight; Market-transforming innovation

1. Introduction

Though the term "fintech" has only emerged in the past decade, its impact has been profound. By introducing groundbreaking digital financial services, fintech has transformed how billions of people manage money, access credit, and make payments. These innovations have particularly benefited underserved populations, offering efficient, low-cost alternatives to traditional banking.

Fintech companies deliver seamless digital experiences, reaching customers who were previously excluded from formal financial systems. By leveraging technology, they streamline processes, reduce costs, and create new opportunities for both consumers and businesses.

However, this rapid innovation presents a major challenge for regulators. They must strike a careful balance—encouraging fintech's growth while ensuring financial stability, protecting consumers, and maintaining fair competition with traditional banks. Too much regulation could stifle progress, while too little could expose the system to risks.

This study explores a central question:

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How can regulators develop flexible, forward-thinking policies to manage the risks of disruptive fintech business models without hindering innovation?

To answer this, we will:

- Define key concepts and frameworks in fintech governance.
- Explain our research methodology.
- Analyze the risks, challenges, and regulatory approaches to fintech.
- Evaluate Morocco's current regulatory strategies and their effectiveness.

By examining these aspects, we aim to provide insights into how regulators can foster innovation while safeguarding financial systems.

2. Conceptual Framework

2.1. Defining Fintech: What Does It Mean?

A clear and consistent definition of fintech emerges from the analysis of leading global institutions and financial experts. This definition rests on two complementary pillars that are fundamental to a complete understanding of the phenomenon.

The first pillar is financial innovation: the continuous development of novel products, services, and operational processes, all fundamentally powered by technological advancement. This encompasses everything from algorithmic trading to blockchain-based settlements.

The second, equally crucial pillar encompasses the organisations driving this change. This refers to the entities, often nimble startups but increasingly including established players, that are solely dedicated to creating and delivering these technology-driven financial solutions.

Consequently, fintech can be understood in two interconnected ways. It describes the overarching trend of leveraging technology to reimagine financial services, making them more efficient, accessible, and user-friendly. Simultaneously, it labels the sector comprised of businesses that specialise in providing these digital solutions. For instance, a mobile payment application that displaces the need for physical cash represents a fintech innovation. The company responsible for building, maintaining, and operating that application is, unequivocally, a fintech firm. This dual nature—encompassing both the technological tools and the agile entities that deploy them—is precisely what makes fintech such a powerful disruptive force within the traditional financial landscape.

Table 1 How Experts Define Fintech

Source	Definition
World Economic Forum (2022)	"Using technology to provide financial services to people and businesses."
Natarajan & Saal (2021)	"Technology that can change financial services by creating new business models, apps, processes, and products that benefit consumers."
H. Sarhan (2020)	"Two things: 1) tech-driven innovation in finance, and 2) the startups creating these new financial technologies."
IMF & World Bank (2018)	"Tech advances that could transform financial services through new business models." (Bali FinTech Agenda)
OECD (2018)	"Digital tech used in new ways for financial services - not just the tech itself, but also the digital business models and processes it enables."
Varga (2017)	"Mostly unregulated companies developing tech-based financial services that change how finance works."
International Organization of Securities Commissions (2016)	"Innovative business models and emerging tech that could change financial services."

European Central Bank (2017)	"Companies whose business depends on tech innovation to create/deliver financial products."
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2.2. Fintech Governance: Definition and Challenges

2.2.1. Definition of Fintech Governance

Fintech governance consists of "a set of processes and mechanisms designed to ensure proper management and conduct of fintech companies. This includes establishing rules and standards, creating governance structures, and implementing control and monitoring systems." (ECB, 2021 Guidelines on the governance of financial technology firms, Frankfurt am Main, Germany)

2.2.2. Regulators' Critical Role

Regulators have a very important job when it comes to fintech companies. They need to make sure these new companies play by the rules to keep everyone safe. This means checking that they protect their customers properly, have strong systems in place to stop criminals from laundering money, and use the best possible cybersecurity to keep people's data and money secure. Most importantly, regulators must ensure that the exciting new services fintechs offer don't accidentally cause problems for the entire financial system, it should be avoiding disrupting the financial system's operations (Branellec & Lee, 2019)

Key Governance Objectives

- All of this work is done with two main goals in mind.
- The first is financial stability—making sure the whole system is safe and reliable and doesn't crash.

The second is financial inclusion—using this new technology to help more people, especially those who are often left out, get access to useful and affordable financial services. In the end, it's all about balancing the need for exciting new ideas with the need to keep things secure and fair for everyone. (Philippon, 2017)

2.2.3. Main Governance Challenges

Financial System Stability

The rapid growth of fintech companies introduces important questions about financial system stability. Because these firms often operate with new models and technologies, they may disrupt financial system operations if not properly monitored. This is why regulators must ensure fintechs don't pose systemic risks to the financial system as a whole, safeguarding the economic environment that affects everyone. (Lee & Shin, 2017)

Consumer Protection

Another vital area of focus is consumer protection. Many fintechs offer complex financial products and services that everyday consumers may struggle to fully understand. Without proper oversight, people could make financial decisions without recognising the risks involved. Regulators must ensure these innovative products truly meet consumer needs and don't jeopardise their hard-earned savings.

Economic Protection

There's also the critical matter of economic protection. Fintechs frequently employ cutting-edge technologies that move money quickly and sometimes anonymously. These very features that make fintech convenient could unfortunately facilitate money laundering by bad actors (Goldstein et al., 2019). That's why regulators must ensure fintechs implement effective anti-money laundering measures as robust as those used by traditional banks.

Cybersecurity

Finally, we cannot overlook cybersecurity. As digital-native businesses, fintechs store and process enormous amounts of sensitive financial data, making them attractive targets for hackers. Strong digital defenses aren't optional—they're essential. Regulators must ensure robust cybersecurity measures are in place to protect this valuable information from breaches that could harm individuals and undermine trust in the financial system. (Eonnet & Manceron, 2018)

Regulatory Balancing Act:

Effectively overseeing this dynamic sector requires regulators to perform a delicate balancing act. The core challenge for supervisory authorities is to successfully address the inherent risks while nurturing the sector's potential. This means their approach must be dual-focused: actively supporting rather than stifling the creative momentum that drives innovation, while also vigilantly ensuring fair competition with traditional financial players. The ultimate aim is to cultivate a healthy marketplace where new entrants can challenge established norms and improve services for all customers, without creating an uneven playing field or compromising the overall stability of the financial system.

3. Methodological Framework

For this research, we conducted a comprehensive documentary study using systematic analysis methods. Our approach leveraged bibliographic management tools (primarily Zotero) to identify high-quality academic publications and institutional reports that have significantly contributed to scholarly discussions on Fintech governance, including both national and international perspectives.

3.1. Research Process

The study followed the five-stage methodology developed by Transfield et al. (2003):

- Planning Phase
- Established core research questions:
 - What are the key opportunities created by the Fintech industry?
 - What major challenges and risks does the industry face?
 - What regulatory approaches exist globally for Fintech?
 - What is Morocco's position regarding Fintech regulation?
- Developed specific inclusion/exclusion criteria to ensure methodological consistency in source selection.
- Research Phase
- Conducted systematic searches in leading finance and management journals using Boolean operators ("AND") to combine "fintech" with:
 - Governance
 - Regulation
 - Risks
 - Challenges
- Focused on peer-reviewed articles, editorials, and analytical reports meeting our selection criteria.

Table 2 Selection Criteria

Criteria	Characteristics
Inclusion	Published within last 10 years (post 01/01/2014) Contains "Fintech" and "governance" in title/abstract/keywords Contains "Fintech" and "challenges" in title/abstract/keywords Contains "Fintech" and "risks" in title/abstract/keywords Contains "Fintech" and "issues" in title/abstract/keywords
Exclusion	Published before 2014 Not in French or English Focuses on non-governance topic Addresses non-regulatory challenges Fails relevance criteria

3.2. Screening Phase

During the screening phase, we carefully sorted through all the research we had gathered. We applied a set of systematic filters to evaluate each source, focusing on a few key criteria. We only considered publications from the last decade, between 2014 and 2023, to ensure the information was current. We also limited our selection to works published in either French or English. Beyond these basics, we looked at the citation impact of each publication to gauge its influence

in the academic community. Finally, and most importantly, we assessed the relevance of each source to the specific regulatory aspects central to our study. This methodical process ensured that our final analysis was built on a foundation of timely, credible, and directly applicable research.

3.3. Extraction Phase

Following the initial screening, we moved into a more detailed phase of analysis. Our first task was to carefully read the full text of each selected publication, moving beyond just the abstracts to gain a deep understanding of their arguments and findings. As we read, we identified and categorized the key concepts that emerged across the different studies, creating a map of the most important ideas. This process involved looking for common themes, contrasting viewpoints, and unique insights. By organizing these concepts, we were able to start drawing theoretical connections between the various studies, seeing how one researcher's findings supported, challenged, or expanded upon another's. This meticulous, hands-on review of the materials was crucial for building a coherent and well-supported narrative for our own research, ensuring our conclusions were grounded in a comprehensive synthesis of the existing literature.

4. Synthesis Phase

Analyzed 12 scientific articles and 8 institutional reports to identify:

- Key Fintech opportunities
- Major industry challenges
- Various governance models
- Regulatory approaches

This rigorous methodology ensured comprehensive coverage of contemporary Fintech governance issues while maintaining focus on regulatory aspects and the specific context of Morocco.³ Results and Discussion

4.1. The Opportunities of Fintech

Fintech represents a dynamic and rapidly evolving sector with numerous diverse opportunities. As noted by Hubert De Vauplane (2015), this industry holds significant potential to transform financial services by making them more accessible, efficient, and innovative.

Thomas Philippon (2017) emphasises that fintech innovations can:

- Disrupt existing industry structures
- Blur traditional sector boundaries
- Enable strategic disintermediation
- Revolutionise how companies create and deliver financial products
- Create new entrepreneurial pathways
- Democratise access to financial services

Building on these observations, Branellec and Lee (2019) identify several key opportunities:

4.1.1. Financial Inclusión

- Fintech solutions can expand access to financial services for underserved populations, including:
 - Low-income individuals
 - Rural communities
 - People with disabilities

By reducing costs through digital solutions, fintech makes financial services more affordable. Current data reveals:

- 80% of adults globally remain underbanked or unbanked (*BCG & QED Investors, 2023*)
- In Africa (home to 18% of world population), 57% lack bank accounts or digital wallets (*Lucidity Insights, 2023*)

Improved Efficiency

A significant advantage offered by fintech is the dramatic improvement in efficiency across financial services. This is made possible by leveraging emerging technologies that streamline operations that were once slow and manual. For instance, artificial intelligence and machine learning can automate routine tasks (automation of manual processes(AI/ML)), freeing up human effort for more complex work. These smart systems also enhance decision-making by quickly analyzing vast amounts of data to uncover insights. Furthermore, technologies like blockchain contribute to substantial risk reduction by creating transparent and tamper-proof records of transactions. Ultimately, these applications work together to create financial processes that are not only faster and cheaper, but also more reliable and secure for everyone involved(blockchain applications).

Innovative Products

One of the most exciting outcomes of the fintech movement is its power to create entirely new kinds of financial tools that change how we interact with money. We're no longer limited to traditional banking products; instead, we have a growing range of options designed for modern life. Think about mobile payment solutions, which let you make purchases or send money instantly using just your phone—no cash or cards needed. Then there are crowdfunding platforms, where big ideas can get support directly from communities instead of relying solely on banks or investors. For those looking to grow their savings, robo-advisors offer smart, automated guidance that's both affordable and accessible. And of course, cryptocurrency systems have opened up conversations about new forms of digital value and decentralized finance. These aren't just small upgrades—they're transformative products that make financial services more flexible, inclusive, and suited to today's digital world.

Cash Reduction

A major shift driven by fintech is the move away from physical cash toward digital alternatives, and this transition brings some clear and meaningful benefits. For starters, handling digital transactions tends to be far **cheaper** than managing physical money—businesses save on printing, transporting, and securing cash, and these savings often get passed on to customers. There's also a strong security advantage; digital payments leave a verifiable trail and reduce the risks tied to theft or loss that come with carrying cash. Perhaps most importantly, this shift supports greater transparency, since electronic records make it easier to track spending, prevent fraud, and ensure accountability. Together, these advantages aren't just about convenience—they help build a financial environment that is safer, more efficient, and open to more people.

Notably

- 44% of adults still rely on cash for major transactions
- 89% own smartphones (BCG & QED Investors, 2023)

Investment Facilitation

Fintech has truly opened up new doors for everyday people who want to invest or need funding to start a business. In the past, getting a project off the ground often meant knocking on the doors of banks or convincing a small group of wealthy investors. Now, **crowdfunding** platforms allow entrepreneurs to present their ideas directly to the public, gathering small contributions from a large number of supporters who believe in their vision. On the other side of the equation, managing investments no longer requires hiring expensive financial advisors. Thanks to **robo-advisors**, individuals can now get automated, algorithm-driven guidance to help them build and manage a diversified portfolio suited to their goals and risk tolerance, often at a fraction of the traditional cost. This isn't just a minor upgrade—it's a fundamental shift that makes building wealth and funding innovation more accessible to far more people.

This analysis demonstrates fintech's transformative potential across multiple financial service dimensions, particularly in addressing accessibility gaps and modernizing traditional systems. The sector's growth continues to create value while presenting new regulatory considerations discussed in subsequent sections.

4.2. Risks Associated with Fintech Development

While fintech innovations create significant opportunities, they also introduce distinct risks that vary according to different business models. As Branellec and Lee (2019) demonstrate, these emerging technologies may potentially:

- Amplify systemic financial risks
- Compromise operational security
- Facilitate illicit financial activities
- Increase market pro-cyclicality

The same researchers identify five primary risk categories requiring regulatory attention:

- Credit Default Risk
- Particularly relevant for peer-to-peer lending platforms where borrowers may fail to repay obligations
- Liquidity Risk
- Arising when fintechs fund long-term assets with short-term liabilities, creating maturity mismatches
- Cybersecurity Vulnerabilities
- Digital-native operations face heightened exposure to data breaches and hacking attempts
- Money Laundering Channel
- Anonymity features in some fintech products could enable financial crimes
- Predatory Speculation
- Algorithmic trading tools may amplify market volatility during stress periods

Each risk category presents unique challenges for regulators attempting to balance innovation promotion with financial system stability. The following sections analyze these risks in greater depth, examining their operational manifestations and potential mitigation strategies.

4.2.1. Default Risk in Crowdfunding Platforms

Crowdfunding has emerged as an alternative financing mechanism that enables individuals to invest directly in projects or ventures. However, this model carries inherent default (credit) risks stemming from information asymmetry between project creators and fund providers.

Characteristics of Crowdfunding Risk:

- Investors typically have limited access to comprehensive project information
- Platform structures often lack robust vetting mechanisms
- Three distinct risk patterns frequently emerge:
 - Adverse Selection
 - Lower-quality projects tend to be more visible as they aggressively market themselves to secure funding
 - High-quality ventures may be crowded out by less viable but more heavily promoted alternatives
 - Moral Hazard
 - Funded projects may take excessive risks knowing investors bear the loss burden
 - Creators might divert funds or alter project scope after securing financing
 - Free Rider Problem
 - Investors may blindly follow crowd decisions without proper due diligence
 - Herd mentality can lead to irrational funding choices and bubble effects

Regulatory Recommendations

To mitigate these risks while supporting platform growth, policymakers should focus on:

- Implementing standardised project evaluation criteria
- Enhancing transparency requirements for campaign disclosures
- Developing insurance or guarantee mechanisms for investors
- Establishing clear accountability frameworks for project creators

This balanced approach aims to protect participants while maintaining crowdfunding's innovative potential as a financing alternative. The solution lies in creating guardrails that reduce information gaps without imposing excessive burdens that could stifle this emerging market segment.

4.2.2. Liquidity Risk in Fintech Lending

One of the most critical vulnerabilities in fintech lending operations involves liquidity risk - particularly when platforms finance illiquid assets (like long-term loans) with liquid liabilities (such as investor deposits or short-term funding).

This maturity mismatch creates systemic vulnerability that could lead to insolvency during market downturns, potentially causing significant losses for both investors and borrowers.

Characteristics of Fintech Liquidity Risk:

- Structural Vulnerability
- Occurs when loan assets cannot be quickly converted to cash to meet withdrawal demands
- Becomes acute during financial stress when funding sources evaporate
- Historical Precedent
- The 2008 subprime crisis demonstrated how such mismatches (through securitisation chains) can trigger systemic failures
- Fintech models may recreate similar risks through innovative but untested structures
- Contagion Potential
- Platform insolvency could spread losses across:
 - Retail investors
 - Borrowers mid-loan
 - Linked financial institutions

Regulatory Safeguards

To mitigate these dangers while preserving fintech innovation, regulators should consider:

Measure	Purpose	Implementation example
Liquidity coverage ratios	Ensure sufficient liquid assets to cover short term obligations	Require X% of assets in cash/ government securities
Stress testing	Verify resilience under adverse conditions	Quarterly simulations of funding crisis
Investor lock-ups	Reduce withdrawal volatility	Minimum 30 day notice for large redemptions
Disclosure requirements	Enhance transparency	Regular reporting of asset- liability maturity profiles

This balanced approach would help maintain fintech's disruptive potential while preventing the types of liquidity crunches that have historically destabilised financial systems. The challenge lies in setting requirements stringent enough to ensure stability without forcing fintechs into traditional banking models that would negate their innovative advantages.

4.2.3. Cybersecurity Risk in Fintech

The Growing Threat Landscape

Digital financial services face escalating cybersecurity challenges that threaten both market stability and consumer protection. Fintech companies prove particularly vulnerable to these risks due to several structural factors:

- Inherent Vulnerabilities
 - Internet-dependent business models create multiple attack surfaces
 - Limited financial resources for robust security infrastructure
 - Smaller organisational size with less specialised IT security teams
 - Limited institutional experience in threat mitigation
- Comparative Weakness
- Traditional banks maintain security systems ranked among the world's most protected (second only to aviation systems), while most fintechs lack equivalent:
 - Dedicated security operations centers
 - Enterprise-grade protection systems
 - Incident response capabilities

Table 3 Emerging Risk Amplifier

Risk factor	Impact example
System interdependence	Single breach can cascade across connected platforms
NFC payment tech	Mobile transactions often have weaker encryption than desktop systems
Cloud vulnerabilities	Shared infrastructure creates new attack vectors
Social engineering	Sophisticated phishing target both customers and employees

Potential Consequences

Successful attacks may lead to:

- Theft of sensitive personal/business data (credentials, contacts, financial records)
- Unauthorised transaction processing
- Irreparable reputation damage
- Loss of consumer trust in digital finance

Recommended Mitigation Strategies

For Regulators:

- Establish mandatory cybersecurity baselines for all payment service providers
- Require independent third-party security audits
- Create information-sharing platforms for threat intelligence

For Fintechs:

- Implement end-to-end encryption for all transactions
- Adopt biometric authentication for high-risk operations
- Conduct regular penetration testing
- Develop comprehensive incident response plans

This evolving threat landscape requires continuous adaptation as cybercriminals increasingly target financial innovation channels. The solution lies in building security into fintech DNA rather than treating it as an afterthought.

4.2.4. Money Laundering and Traceability Risks in Fintech

Emerging Vulnerabilities in Digital Finance

Fintech innovations create new channels that bad actors may exploit for illicit financial activities. Two sectors present particularly acute challenges:

- Crowdfunding Platforms=
 - Enable anonymous funding flows
 - Lack traditional banking oversight mechanisms
 - Can disguise fund origins through micro-contributions
- Cryptocurrency System
 - Provide pseudo-anonymous transaction networks
 - Permit cross-border transfers without conventional controls
 - Enable rapid conversion between currencies/assets

Regulatory Adaptation Requirements

Financial watchdogs must modernise frameworks to address:

Table 4 Adapting Regulatory Frameworks to Address Fintech Vulnerabilities

Traditional system	Fintech challenge	Regulatory response needed
Bank based KYC	Digital identity verification	Biometric authentication standards
Transaction monitoring	Crypto mixing services	Blockchain analytics tools
Geographic controls	Borderless platforms	International corporation protocols

Recommended Safeguards

- For Crowdfunding:
 - Implement tiered investor verification based on contribution size
 - Require platform-level suspicious activity monitoring
 - Establish clear fund source documentation rules
- For Cryptocurrency:
 - Mandate exchange-level KYC for all transactions
 - Develop standardized blockchain forensic tools
 - Create cross-jurisdictional reporting requirements

This evolving threat matrix requires regulators to balance innovation facilitation with necessary controls. The solution lies in developing "smart regulation" that embeds compliance into fintech operations without stifling their disruptive potential. Periodic regulatory sandboxes can help test new approaches before full-scale implementation.

4.2.5. The Risks of Algorithmic Trading and Predatory Speculation

The digital transformation of financial markets has introduced sophisticated algorithmic trading systems that execute thousands of orders at unprecedented speeds. While these systems enhance market liquidity under normal conditions, they simultaneously amplify speculative trading activities and introduce new systemic risks.

The fundamental concern lies in the procyclical nature of algorithmic trading. These automated systems tend to reinforce and exaggerate existing market trends, creating dangerous feedback loops. During periods of market uncertainty, this effect becomes particularly pronounced, as algorithms can transform minor fluctuations into extreme volatility. The very systems designed to provide liquidity may abruptly withdraw it when most needed, potentially triggering cascading market disruptions.

This phenomenon manifests in several concerning ways. Under stable conditions, algorithmic trading tightens bid-ask spreads and improves market efficiency. However, during stress events, the same systems can generate extreme price gaps and contribute to flash crash scenarios. The liquidity that appears abundant in calm markets often proves illusory when volatility spikes, as algorithms simultaneously shift to risk-off positions.

Regulators face the complex challenge of mitigating these risks without stifling beneficial market innovation. Effective solutions require a multi-pronged approach. First, market safeguards like circuit breakers and algorithmic kill switches can provide critical pauses during extreme volatility. Second, transparency measures including strategy disclosures and order-to-trade ratio limits help maintain market fairness. Finally, robust monitoring systems must track algorithmic activity in real-time, supported by international coordination to address cross-border trading flows.

The path forward demands regulatory frameworks that evolve alongside trading technology, preserving market efficiency while containing the dangerous amplification effects of automated trading systems. This balance is essential for maintaining stable, trustworthy financial markets in an increasingly algorithmic trading environment.

4.3. Governance of Fintech

The public authorities in charge of Fintech governance face a major challenge:

- Balancing customer protection, Fintech development and innovation,
- And fair treatment relative to traditional players in the financial sector (Gurvan Branellec, Ji-Yong Lee, 2019).

This is compounded by:

- The diversity and complexity of areas covered by Fintech, making it difficult to establish a single regulatory framework
- The high technological intensity and constant renewal, requiring regulators to be more agile

Regulatory bodies must also work closely with Fintechs and other financial sector players, particularly Regtech, to develop a regulatory framework that promotes innovation while protecting consumers and ensuring financial system stability (Co-regulation).

An analysis of different Fintech governance models reveals 3 types of governance based on their focus:

- Prudential governance
- Governance of Fintech activities and their underlying technologies
- Consumer relations governance

The authorities must maintain this balance by:

- Not stifling innovation but rather stimulating and framing it
- Ensuring fairness with traditional players

This structured approach allows for comprehensive oversight while adapting to Fintech's evolving nature.

The solution lies in creating adaptive frameworks that protect stakeholders without hindering technological progress.

4.3.1. Prudential Governance

When a company wants to operate in regulated financial sectors (banking, insurance, or investment services), it must obtain authorisation or a license from regulatory authorities. (Authorisation from ACPR in France or banking licenses from OCC in the United States for example).

In exchange for these licenses, these institutions must comply with strict regulatory requirements such as prudential regulation (Basel III agreements) and compliance regulations.

Prudential regulation aims to ensure financial institutions maintain adequate capital relative to their risk exposure.

To ensure fairness with other financial market players, several jurisdictions, particularly France, have adopted proportional regulation.

This regulatory approach is based on:

- The startup's specific activities and associated risks
- Its level of risk exposure

while maintaining fair market competition conditions.

The same rules apply to all players, but with proportional implementation that considers:

- The company's maturity
- Its risk profile and nature
- Its regulatory status

Unlike traditional players that typically offer full financial services, each Fintech:

- Specialises in specific niches
- Qualifies for particular regulatory status
- Has prudential standards tailored accordingly

This framework ensures appropriate oversight while accounting for Fintechs' unique characteristics and supporting innovation in the financial sector.

4.3.2. Governance of Fintech Activities and Underlying Technologies

The diversity and complexity of sectors covered by Fintech make it challenging to adopt a single regulatory framework for all business models. Consequently, governance of Fintech activities has typically taken three forms:

- Application of Existing Regulations
 - Applying the same rules as traditional players (e.g., Insurtechs or digital banks)
- Adaptation of Current Regulations
 - Modifying existing rules to include specific provisions for emerging models
 - Example: Special licensing requirements for neo-banks
- Creation of New Regulations
 - Developing tailored frameworks for novel business models
 - Commonly seen for:
 - Crowdfunding platforms
 - Cryptocurrencies
 - Payment services
 - Flexible Regulatory Approach

Because the technology behind fintech is always changing, the rules that govern it can't be rigid or set in stone. A flexible approach to regulation is essential—it allows oversight to adapt and grow alongside the innovations it aims to guide, rather than constantly playing catch-up. This kind of adaptable legal framework makes it possible to apply graduated oversight, meaning the level of supervision can match the actual risk and scale of a company or product. It also gives regulators greater agility, allowing them to respond thoughtfully yet promptly to new technological developments without stifling creativity. In practice, this means creating an environment where safety and innovation can actually work together, rather than working against each other.

Table 5 Regulatory Examples

Jurisdiction	Approach	Example
European Union	Technology-specific rules	PSD2 (2018) for opening banking APIs
UK, Singapore, China	Proactive and book regulation	Controlled testing environments

4.4. Regulatory Sandboxes Explained

To help manage the rapid pace of financial innovation, regulators in some countries have introduced what are called regulatory sandboxes. These are essentially safe testing environments where fintech startups and other innovators can trial new products or services with real customers, but under close supervision. During this trial period, companies may receive temporary relief from certain regulations, which allows them to gather evidence, refine their models, and see if their idea truly works before launching fully.

The benefits of this approach are meaningful for all parties. For entrepreneurs, it lowers the cost and difficulty of testing bold ideas. For regulators, it provides firsthand insight into emerging technologies and business practices, helping them develop more informed and relevant rules. Most importantly, it fosters innovation in a way that still prioritizes consumer safety and overall financial stability, creating a learning loop between innovators and those who oversee the market.

(Tandeu de Marsac, 2018)

This balanced approach helps bridge the gap between technological advancement and appropriate oversight, fostering responsible innovation in financial services.

4.4.1. Consumer Relationship Governance

Definition and Importance

Consumer relationship governance encompasses the processes, policies, and procedures that ensure healthy, sustainable interactions between companies and their customers. While crucial for all businesses, it holds particular significance for fintech firms operating in an evolving regulatory landscape.

4.4.2. Data Protection Challenges

In our digital society, personal data is constantly collected through:

- Website registrations
- Payment transactions
- Online activities

While essential for business operations, this data processing risks violating privacy rights. The key challenge lies in balancing:

- Organisational needs for data
- Individual privacy rights

The EU's General Data Protection Regulation (GDPR) provides the framework for this balance in European territories.

4.4.3. Key Governance Priorities

Data Security

For any fintech company hoping to earn and keep the public's trust, a few governance priorities are absolutely essential. At the top of the list is data security. Given that these companies handle sensitive personal and financial information, they must implement robust protections. This isn't just a recommendation—it's a necessity. These protections include using end-to-end encryption to scramble data, requiring two-factor authentication to verify user identities, and conducting regular security audits to proactively find and fix any vulnerabilities before they can be exploited.

Financial Integrity

Alongside securing data, maintaining financial integrity is a cornerstone of responsible operation. This means adhering to strict compliance requirements designed to prevent fraud and illegal activity. Key among these are KYC, or Know Your Customer, procedures. This process goes beyond simple identity verification; it involves validating the source of a customer's funds and even assessing their financial literacy to ensure they understand the products they're using. These measures, combined with stringent anti-money laundering controls, form a critical defense for the integrity of the financial system.

Transparency and Fairness

Finally, none of this works without a steadfast commitment to transparency and fairness in all customer interactions. This means providing clear, easy-to-understand product disclosures with no hidden tricks, ensuring every customer is treated without bias, and offering accessible, straightforward paths for complaint resolution. When companies prioritise these principles—security, integrity, and fairness—they build a foundation of trust that allows innovation to thrive safely.

Regulatory Approaches

As Branellec and Yong (2019) outline, when it comes to overseeing the fintech sector, regulators have a toolkit of different approaches at their disposal. Rather than relying on a single method, they often choose from or blend several strategies to create effective oversight. Options include established systems like licensing, which sets a clear baseline for entry, and proportional regulation, which tailors rules to a company's size and risk. More innovative tools like regulatory sandboxes offer a safe space for testing new ideas, while flexible legal frameworks allow rules to adapt as technology evolves. Some authorities also promote co-regulation models, where they work directly with industry experts to develop practical standards. The goal is to build a tailored approach that both encourages safe innovation and protects everyone involved.

This governance framework ensures fintechs can innovate while maintaining consumer trust - the foundation of sustainable growth in digital financial services. The most effective regimes typically blend several approaches to address fintech's unique characteristics.

How Morocco Handles Fintech Oversight

Who's in Charge?

Morocco's fintech scene has two main watchdogs:

- The central bank (BAM : Bank Al-Maghreb) looks after digital payments and mobile banking
- The markets authority (AMMC: l'Autorité Marocaine des Marchés de Capitaux) handles investment-related innovations

They get help from other groups like:

- The telecom regulator (ANRT: l'agence nationale de réglementation et de la télécommunication)
- The insurance watchdog (ACAPS: l'autorité de contrôle des assurances et de la prévoyance sociale)
- Government financial agencies (CDG : la caisse de dépôt et de gestion and CCG : la caisse centrale de garantie)

What's Being Done?

BAM's Game Plan (2019-2023)

Morocco's central bank is working on:

- 1. Keeping Things Stable
 - Applying global banking rules (Basel standards)
 - Creating flexible regulations that match risk levels
 - Boosting defenses against cyber threats
- 2. Encouraging New Tech
 - Allowing non-banks to offer payment services
 - Preparing rules for cryptocurrencies
 - Planning test environments for startups

AMMC's Support System

The markets authority helps newcomers by:

- Running a special fintech help-desk on their website
- Providing clear rulebooks for different business types
- Offering video guides about regulations

Progress So Far

- Mobile money accounts grew to 8 million in 2022
- Payment companies can now offer services like banks do
- Fees for digital payments were capped to make them cheaper

Work Still Needed

- Too many people still use cash instead of digital options
- The testing program for startups isn't ready yet
- Traditional banks and fintechs need to cooperate better

What's Next ?

The strengthening of financial inclusion is one of the major pillars of Bank Al-Maghrib's (BAM) national strategy, a goal that remains dependent on the evolution of the regulatory framework. Consequently, Bank Al-Maghrib's adoption of Law 103-12 (related to credit institutions and similar entities) has allowed 'payment institutions' to offer payment solutions, breaking the monopoly of banks. These payment institutions now offer services similar to those of a traditional bank (money transfer, bank transfers, bill payments...).

After granting the first approvals to payment institutions, BAM also launched, with the ANRT (National Telecommunications Regulatory Agency) in 2018, mobile payments through M-Wallets to promote financial inclusion and reduce cash in circulation. As of 2022, the number of M-Wallets reached 8 million, compared to 6.3 million in 2021 (BAM Report, Characteristics of Scriptural Payment Methods, 2022). Furthermore, we note various measures adopted that work towards this goal, such as: reducing the interchange cost, which can now no longer exceed 0.5% of the transaction value, extending the offer of the CMI (Interbank Monetic Center) to integrate M-Wallets into their e-payment offering, and the launch of Apple Pay in Morocco by CIH and Crédit Agricole.

However, financial inclusion remains dependent on the promotion and consolidation of financial education. In this context, we note a strong commitment from the regulatory authorities, as evidenced by the creation by BAM in 2013 of the Moroccan Foundation for Financial Education, and the regular publication by BAM and the AMMC (Moroccan Capital Market Authority) of guides and video capsules that address the specifics of each business model, explaining its regulatory framework, advantages, and risks.

Furthermore, it is important to note that Morocco is one of the few countries on the continent deploying significant efforts to pass a law (No. 15-18, which came into force on 01/01/21) facilitating crowdfunding activity. BAM also published a standard application kit for licensing, as well as guides for contributors and project owners, in December 2023.

As for the insurance sector, InsurTech companies are not subject to a specific regulatory regime. Currently, two texts constitute the regulatory framework: one on electronic signatures and another on the remote presentation of insurance products (a circular from ACAPS: the Insurance and Social Supervision Authority). However, a circular published in July 2022, which amends Book 4 of the Insurance Code, serves to strengthen prudential rules and streamline administrative procedures, provided they align with international standards.

This circular aims to:

- Promote inclusive insurance
- Expand the distribution perimeter of insurance operations to include payment institutions
- Encourage digitalization through communication via a digital platform

Long under the monopoly of banks, even currency issuance is now being impacted by this fintech movement, leading some central banks to explore the opportunity of issuing a digital currency. This would notably reduce the production and usage costs of traditional banknotes and minimize associated security risks.

In Morocco, despite warnings from the Ministry of Economy and Finance, BAM, and the AMMC about using this instrument as a means of payment—highlighted in a joint statement published in November 2017 that emphasized its main risks (lack of consumer protection, high price volatility, and the potential use of the technology for illicit purposes)—the possession of cryptocurrency has been steadily increasing. In 2022, the country ranked 20th globally out of 155 countries for virtual currency adoption, according to the "2023 Geography of Cryptocurrency Report" by U.S. blockchain specialist Chainalysis.

A recent analysis by the Moroccan Institute for Policy Analysis (MIPA) concludes that Morocco has adopted a wait-and-see attitude toward the rising trend of cryptocurrency, fearing loss of control over economic and monetary sovereignty. Morocco found itself compelled to shift from an approach of prohibition to one of regulation; a draft law on cryptocurrencies was already finalised and ready as of May 2023.

Like any startup, access to financing and compliance with regulatory requirements remain major obstacles. In this context, the Central Guarantee Fund (CCG) launched the Innov Invest Fund, which required a \$50 million loan from the World Bank. This project enables the government to support incubators and accelerators that receive funding for startups in their respective portfolios.

As for compliance and suitability requirements, and to support fintech startups in all regulatory matters, BAM launched the Fintech One Stop Shop, and the AMMC launched a specific Fintech portal on its website.

Moreover, to support digitalisation and guide the emergence of new entrants, BAM is implementing more agile regulation by launching an "Innovation Lab." Its mission is to foster the emergence of innovative ideas to improve the provision of financial services and accelerate financial inclusion. The CDG (Deposit and Management Fund) is also investing in this area and has created a "Fintech Center."

Beyond access to financing, the protection of privacy, particularly personal data, is one of the major challenges facing the regulator. In Morocco, personal digital data is protected by the National Commission for the Control of Personal Data Protection (CNDP). Established by Law No. 09-08 of February 18, 2009, it is responsible for ensuring that information is not used for illegal purposes. The law also stipulates that users must be informed about the collection of their data. They can also refuse to provide their information and have the right to know how it will be used.

Bank Al-Maghrib has issued a regulatory decision defining measures for the protection of mobile payment users. Institutions must implement appropriate security measures to protect the confidentiality and integrity of user data. They are also required to report any fraud related to "m-wallets" to Bank Al-Maghrib under the terms and conditions set forth. Issuing institutions must also submit any new "m-wallet" product to the central bank for review at least 15 days before its launch date, in accordance with established procedures.

5. Conclusion

Final Thoughts: Morocco's Fintech Journey

- Fintech's rapid growth demands equally innovative regulation—flexible enough to nurture new ideas while protecting consumers and markets.
- Morocco's Progress vs. Regional Peers
- While Morocco has made strides, it still trails African and Mediterranean leaders like Nigeria, Kenya, and Saudi Arabia in fintech development. Notably:
 - Only one Moroccan firm (payment specialist HPS) ranked in Forbes' 2023 MENA Fintech 50
 - This gap persists despite Morocco having strong digital infrastructure (high smartphone/internet penetration)

Growth Barriers

Several factors slow Morocco's fintech rise:

- **Bank resistance:** Traditional lenders view fintechs as threats rather than partners
- **Cash dependence:** Cultural preference for physical money limits digital adoption
- **Trust issues:** Public skepticism about digital finance tools
- **Informal economy:** Large cash-based sector bypasses formal financial channels

Pathways to Acceleration

To boost its fintech ecosystem, Morocco should prioritize:

- Open Banking Framework
 - Adopt EU-style data sharing rules (like PSD2)
 - Enable secure third-party access to banking APIs
- Regulatory Sandbox
 - Create a live testing environment for startups
 - Allow temporary rule exemptions for innovation trials
- Financial Education
 - Expand public awareness campaigns
 - Simplify explanations of digital finance risks/benefits
- Cost Reduction
 - Further lower digital transaction fees
 - Incentivise cashless payments

Looking Ahead

As BAM's 2019-2023 strategy concludes, the next phase should:

- Build on achieved milestones
- Address persistent bottlenecks through co-regulation (joint policymaking with industry)
- Strengthen bank-fintech collaboration

Morocco has all the ingredients for fintech success—digital readiness, regulatory willingness, and unmet financial needs. By tackling these strategic areas, it can transition from a fintech follower to a regional leader while maintaining financial stability.

The coming years will prove decisive in determining whether Morocco capitalises on its potential or remains stuck in regulatory catch-up mode.

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