Alternative and Embedded Finance: Driving the Rise of FinTech Challengers

Introduction

To start with, **alternative and embedded finance** can be considered as an innovative new second wave of financial technologies that is able to deal with new living systems that have matured out of the compressed-cycle story of-digitization toward integrated, intelligent, platformed monetary interaction (Nicoletti 2021: pp. 91–105; Brynjolfsson & McAfee, 2017). **Alternative finance**, more generally defined as a varied set of nonstandard monetary paths, is also comprised of more creative sectors such as *peer-to-peer (P2P) loans*, *crowdfunding (CF)*, *buy now pay later (BNPL) plans*, and *robo-advisors*. These financial instruments are often transacted *beyond the traditional banking system*, providing a new approach for individuals and businesses to secure funding and engage with financial services (Lee & Shin, 2018; Arner, Barberis & Buckley, 2017).
Whereas, **embedded finance** is the seamless and integrated provision of *regulated financial services* such as *payments*, *lending*, *insurance,* or *investment solutions* by embedding them right into non-financial Digital Platforms, similar to all types of websites and mobile apps. Moreover, this novel method provides a smoother user experience, enabling clients to effortlessly reach financial products and services within the environment they are already used to, which significantly improves the efficiency of their financial operations.
Some parts of this integration depend on recent technologies such as application programming interfaces (APIs), cloud computing, and open banking standards like the PSD2 standard (European Commission 2020a; ESMA no date). These racking innovations are not only improving financial intermediation; they are fundamentally redistributing the financing risk map within, and re-drawing the competitive map of economic systems' basic domains.

These financial models are also powered by a plethora of tech enablers such as AI and ML, blockchain technology, better cloud infrastructure, and access to sophisticated real-time data analytics tools. These state-of-the-art technologies allow to hyper-personalizing financial services, greatly enhance functional efficiency, and lead to significant cost savings for both providers and consumers (Finextra, 2021; Panzarino & Hatami, 2020). Consumer expectations have scaled over the years, especially during the 2007–2009 financial crisis, which sparked an increasing need for solutions that are leaner and more accessible as well as being inclusive by nature (Nicoletti, 2021, pp. 231–273). Moreover, nascent regulations, including MiCA, PSD2, and the EU's digital finance strategy, are carefully crafted to stimulate innovation while protecting consumers and ensuring market integrity or stability (European Commission 2020b; Zetzsche et al., 2020).

Alternative and embedded finance are not just complements to the traditional banking landscape; they are disintermediating the complex financial ecosystem. The rise of **alternative and embedded finance** is bringing a radical change in intermediation, forcing the rethinking of traditional markets, opening up major opportunities for new entrants to explore sustainable business models within the global financial ecosystem, and, on the other hand, making a paradigm shift in third-party incumbents.

The Role of Alternative and Embedded Finance in FinTech Disruption

Alternative finance arose at the direct intersection of systemic marginalization, trust deficit, and lethargy that were starkly illuminated by the volatile events surrounding the financial crisis of 2008. By *matching borrowers directly with investors*, innovators like **Zopa** and **LendingClub** have successfully disrupted the peer-to-peer lending space and bypassed banks entirely. This model reduces transaction costs and accelerates the lending process while extending credit to different portions of the population, such as small- and medium-sized enterprises (SMEs) or individuals with limited or bad credit histories and sharing the credit risk among a large base of retail consumers/investors (Finextra, 2021; Lee & Shin, 2018). And equity-crowdfunding platforms such as **Kickstarter** and **Seedrs** exemplify the ways that alternative finance is creating new pathways to participation for the thousands of people around the globe in search of much-needed funds, seeking to mitigate their own risks as private investors.

Embedded finance is the more fundamental structural change in the environment: financial services have gone from the periphery of most business models to cementing themselves as essential building blocks of bigger digital ecosystems. APIs and open banking frameworks allow organizations to ***aggregate payments***, ***lending***, ***insurance***, or ***investments*** into *existing non-financial applications* (Nicoletti, 2021, pp. 105–138). For instance, **Stripe** enables payments and treasury functions without a banking license, and **Shopify** offers merchant credit based on transactional data and AI-based underwriting with approval taking minutes (Arner et al., 2017). These models effectively divorce the provision of infrastructure and the risk-bearing associated with banks, enabling rapid scaling for asset-light operators like fintech firms.

All these are phenomenal innovations that only the machinery of artificial intelligence and machine learning can facilitate. By providing advanced credit scoring systems, powerful fraud detection systems, and complex investment algorithms, among others, these technologies have directly been a powerful enabler for financial inclusion and higher operational efficiency (Brynjolfsson & McAfee, 2017). Alternatively, **automated platforms** like **Betterment** have disrupted the portfolio management space through automation and implementation of low-cost exchange-traded funds (ETFs) as well as key behavioral finance principles to open the field to a wider consumer base (Nicoletti, 2021, pp. 231–273). As consumers move from spending fiat to buying cryptocurrency in their search for easy access to credit, transactions through ***Buy Now Pay Later (BNPL)*** providers like **Klarna** have crossed the ominous €100 billion threshold in 2023 in what could be a golden opportunity or a ticking bomb, one that is also vulnerable to the endemic threat of rate increases given a lack of adequate regulatory supervision, which as often precedes BI activities would just end up with increasing levels of over-indebtedness (BCG & EFMA, 2023).

Programmable payments, along with real-time remittances using **USDC stablecoins** and Circle's one-block protocol to dramatically reduce the average cost of cross-border transactions from over 7% down to less than 2% (World Bank, 2022), are a game-changing future made possible by **Blockchain-based platforms**. The on-demand, usage-based insurance enables applications such as **Uber** and **Grab** to provide coverage based on data from the user, which decentralizes risk-sharing and is delivered seamlessly and digitally (e.g., Insurtech or embedded insurance) (PwC, 2020).

Comparison Between Traditional and FinTech-Driven Approaches

In this case, the **traditional banks** are vertically integrated platforms taking deposits, balance-sheet lending, and offering payment services, all within one firm, subject to strict regulatory oversight. The rise of Basel III capital adequacy requirements as well as liquidity buffers, robust central bank supervision for large institutions, and established consumer trust in retail banks contribute to this resilience (Nicoletti, 2021). As deposits fund loans, conservative lending models are predicated on those deposits, and payments cross clearinghouses between different banks or across various card networks (Panzarino & Hatami, 2020).

Unlike their **challenger FinTech** counterparts, who successfully deploy modular platform architectures to separate underlying infrastructure from the risks within, they have wholly adopted cloud-native architecture along with advanced Application Programming Interfaces (APIs) and Artificial Intelligence (AI). And a textbook case of this is what **LendingClub** and **Upstart** are doing when they sensitize access to financial services, but with a great cost-saving mechanism through innovative means of alternative data use, and AI-assisted credit scoring (Accenture, 2022). In addition, payment service providers like **PayPal**, **Revolut,** and **Alipay** have enabled multi-currency accounts and are also meeting the growing demand for cryptocurrencies, particularly remittances or other financial transactions processing billions of transactions every month at operating costs that are much lower than those that would otherwise be required by traditional financial institutions (Capgemini, 2024).

On the other hand, **while conventional banks** offer *trust, compliance with regulations, and systemic significance* (Brynjolfsson & McAfee, 2017), *they lack speed and flexibility due to legacy architecture* as well as *compliance requirements*. The financial stability implications are mixed: diversity reduces dependence on systemically important banks, yet expansive networks may generate new systemic nodes that escape traditional supervision (Zetzsche et al., 2020), potentially personified by the attempted IPO of Ant Group, turned down for regulatory issues.

Simultaneously, the consequence of interconnectedness and competitive embedding on regulators is that banking institutions cooperate with Fintechs to realize embedded finance (Arner et al., 2017), wherein challengers acquire banking licenses. Laws, such as the Markets in Crypto-Assets (MiCA) and Payment Services Directive 2 (PSD2), along with a more all-encompassing EU Digital Finance Strategy, are there to ensure constant innovation commensurate with core principles of consumer protection, solid cybersecurity measures, and overall integrity of financial markets (European Commission 2020b; ESMA no date). The field of ethical implications and oversight of artificial intelligence (AI) or algorithmic decision-making is increasingly one where the touchpoints between innovations and regulatory domains emerge and overlap (FSB, 2022; Glossop, 2021).

In this finely nuanced landscape, a tapestry of operational risks, reputational risks, and regulatory risks invariably throb for these complex models. Banking legacy is facing a technological tsunami while its cumbersome and long customer onboarding processes keep potential clients away. On the other hand, Fintechs are agile and adaptive but not without their own set of issues; they face concentration risk, cybersecurity threats, and a dependency on complex partner ecosystems that can introduce weaknesses.

This hybrid model foresaw a future ecosystem, whereby traditional banks provided the stability of seasoned and well-capitalized balance sheets with time-tested regulatory

guidance, while on the other hand, FinTech firms introduced innovation in terms of efficient speed processes, data-driven methods for decision-making, as well as a customer experience tailored to meet the varying needs of consumers.

Case Studies of Successful Alternative and Embedded Finance Models

Examples of how mobile financial solutions can make a big difference are numerous. Those users exceed 50 million just in the East African region, with their accounts meticulously constructed by **M-Pesa**, a pioneering platform. This incredible service processes 1.5 billion transactions per month, as per the data by the World Bank in 2022, which was supported by Nicoletti (2021). **M-Pesa's** brilliant agent-based distribution system virtually evades the brick-and-mortar limitations of conventional banking infrastructure, in turn legitimating orders of magnitude cheaper remittances, microloans, and other savings products to its soaring user base. Its broad adoption can be attributed to the regulatory support, strategic partnerships with Safaricom, and its intuitive user-friendly interfaces. As Demirgüç-Kunt et al. report, this has led to a spectacular increase in Kenya's financial inclusion from about 26% in 2006 to more than 75% in 2022. **M-Pesa's** phenomenal success is a testament to the way mobile-first platforms can scale rapidly in areas that have traditionally been underserved by traditional banking systems; however, this rapid expansion comes with its own operational risks and requires effective regulatory interaction.

The poster child in this digitalized financial world is the super-app **Alipay** with its myriad services (payments, lending, wealth management, insurance, credit scoring, etc.) highly interlinked. According to research by Zetzsche et al, and PwC, **Alipay** has handled an incredible $17 trillion in transactions from a total user base of 1.3 billion people in 2023 alone.

Then the other more genuine and prominent players in this area of emergence are **Revolut**, who is a complex and advanced cloud-based super-app combining multiple service verticals including payments, foreign exchange, cryptocurrency trading, buy now pay later (BNPL) tools, and integrated budgeting functions with his 25 million users worldwide. Simultaneously, **Klarna** improves the entire checkout journey of their retailers with their cutting-edge BNPL solution, successfully executing an astonishing €90 billion in e-commerce transactions over 2023 (KPMG, 2023). Also noteworthy, Betterment has become one of the leading robo-advisory firms that skillfully administers AUM (assets under management) right up to $35 billion in retail investors, providing them with much-needed access to AUM-sized portfolio services at extremely reduced costs (Morning star, 2023). These case studies are a testament to the fact that technological agility, seamless integration into an ecosystem, and consistent regulatory compliance are becoming increasingly recognized pillars required for achieving sustainable growth in FinTech and as a differentiator from the competition.

Conclusion

This realignment, steeped in data and technological advancement, has fueled a disruption of the alternative and embedded finance markets, transforming money into platforms that are reorganizing financial intermediation itself with every innovation as it moves from being limited to banking institutions to becoming omnipresent in people's lives. Finding out how technology-native models, be it M-Pesa, Alipay,

Revolut, Klarna, or Betterment, use APIs/cloud computing/AI to drive financial inclusion and reduce the marginal cost of transactions while offering hyper-personal services. Quantitative measures,1.5 billion monthly transactions on M-Pesa, $17 trillion in annual transfer value through Alipay, and Revolut's 25 million users, attest to the scale of these innovations, the worldwide financial activity they engender, and their eventual impact. If we take a mainstream banking institution like Wells Fargo and the nondescript brick-and-mortar branches that it has as representative, these emergent platforms are but the tip of the iceberg of how disintermediation and embedded financial services can help unbundle traditional banking activities even further and extend market access, both of which will shine a light on new value propositions to be had.

However, with the phenomenal growth of alternative and embedded finance also comes a tangle of in-depth complexities around regulation and operation. Such a rapid transformation of the financial landscape can also create a systemic dependence risk, increase cybersecurity, and undermine ethical debates over artificial intelligence's capacity to make important decisions or handle sensitive data. Regulatory initiatives such as the Revised Payment Services Directive (PSD2), the Markets in Crypto-Assets (MiCA) regulation, and the European Union's Digital Finance Strategy are vital to support the integrity of markets, several systems of payment, and consumer protection from harm and broader financial stability.

Hybrid is perhaps the most likely model for sustainable business going forward, bringing together the finesse of FinTech with a regulated balance sheet to support it. Embedded finance will continue to integrate with e-commerce platforms, social media ecosystems, and IoT, while solutions utilizing AI-powered credit scoring systems, robo-advisory services, and predictive analytics will provide customized financial experiences. Success will depend on good governance, alignment with compliance requirements, and the responsible use of AI.

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