GALATASARAY UNIVERSITY INSTITUTE OF SOCIAL SCIENCES
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PLATFORM STRATEGIES IN FINANCIAL SERVICES: A THEORETICAL APPROACH TO "BANKING AS A PLATFORM"

MASTER'S THESIS

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List of Abbreviations

AML	Anti-Money Laundering
API	Application Programming Interface
B2C	Business-to-Consumer
BaaP	Banking-as-a-Platform
BaaS	Banking-as-a-Service
BNPL	Buy Now, Pay Later
C/VC	Corporate/Venture Capital
CBRT	Central Bank of Republic of Türkiye
IT	Information Technology
KYC	Know-Your-Customer
P2P	Peer-to-Peer
PFM	Personal Finance Management
PSD/2	Payment Services Directive
SME	Small and Medium Enterprises
TPP	Third Party Provider

Résumé

Cette thèse vise à explorer les implications stratégiques de l'adoption d'un modèle d'affaires de plateforme dans les services financiers, en se concentrant sur la concurrence entre les banques traditionnelles et les entreprises fintech dans le cadre du Banking-as-a-Platform (BaaP). Dans un paysage en évolution rapide, cette recherche met en lumière comment le positionnement stratégique des banques traditionnelles en tant que propriétaires de plateformes influence la concurrence, affectant à la fois la dynamique du marché et le comportement des consommateurs. Étant donné que nous sommes encore aux premiers stades de l'adoption de plateformes dans les services financiers, avec des exemples industriels limités, ce domaine a reçu peu d'attention de la part des chercheurs.

Cette thèse fournit une analyse complète de la digitalisation et de son impact sur les services financiers, les moteurs des modèles d'affaires de plateforme, les options stratégiques disponibles pour les acteurs traditionnels. De plus, cette recherche est unique dans la littérature en termes d'approche de modélisation théorique pour analyser la concurrence de plateforme dans les services financiers. Dans ce contexte, les connaissances qualitatifs et quantitatifs de cette étude contribuent à une compréhension plus large des modèles de plateforme. En plus des contributions à la littérature, cette étude offre des connaissances inestimables pour les praticiens de l'industrie et les décideurs politiques naviguant dans le paysage dynamique des services financiers.

Dans cette étude, le modèle de concurrence de plateforme théorique développé par Hagiu, Jullien et Wright (2020) a été élaboré et adapté pour refléter l'hétérogénéité des consommateurs et la concurrence dans l'industrie des services financiers. Premièrement, nous avons identifié les composants du modèle fondamental, reflétant les caractéristiques spécifiques des banques traditionnelles, des fintechs et des consommateurs ainsi que la dynamique du marché existante. Deuxièmement, nous avons introduit un nouveau groupe de consommateurs, couramment observé sur le marché, distingué par des préférences pour l'utilisation simultanée de plusieurs produits et services financiers sur une seule plateforme. Ensuite, nous avons examiné la concurrence de plateforme entre une banque (entreprise multiproduits) et une fintech (fournisseur de produit spécialisé) en termes de préférences des consommateurs, de part de marché et de stratégies de tarification, à la fois en l'absence de plateforme (sans hébergement) et sur une plateforme (avec hébergement). Enfin, nous avons introduit une autre fintech en tant

que nouveau joueur qui fournit également le produit spécialisé similaire. Nous avons appliqué le même processus pour analyser le comportement des acteurs.

Le modèle démontre que pour une banque traditionnelle, construire une plateforme et héberger une fintech concurrente directe qui fournit un produit supérieur ne se traduit pas nécessairement par la perte de toute part de marché pour ce produit. Selon la taille des groupes de consommateurs et leurs préférences, héberger une fintech concurrente directe sur la plateforme peut bénéficier à la banque traditionnelle en extrayant un surplus plus élevé des consommateurs qui apprécient l'accès à plusieurs produits et l'expérience d'achat tout-en-un. D'autre part, héberger une fintech supplémentaire qui fournit un produit similaire sur la plateforme intensifie la concurrence non seulement parmi les fintechs mais aussi avec le propriétaire de la plateforme. Cela conduit à une pression sur les prix, ce qui profite le plus aux consommateurs. Dans ce cas, la banque traditionnelle risque de perdre une partie de sa part de marché, tandis que l'autre joueur fintech doit réduire son prix pour rester compétitif.

Étant donné la nature complexe des services financiers et le paysage numérique en évolution rapide, plusieurs facteurs supplémentaires déterminent la décision stratégique de construire une plateforme. Ces facteurs incluent, mais ne sont pas limités à, des modèles de monétisation alternatifs, des mécanismes de transfert de coûts et de revenus, des capacités de filtrage et de surveillance, et la structure des coûts des acteurs, qui sont des domaines critiques pour de futures recherches.

Mots-clés: Digitalisation, plateformes, banques, fintechs, Banking-as-a-Platform (BaaP), services financiers, concurrence de plateforme, modèle théorique

Abstract

This thesis aims to explore the strategic implications of adopting a platform business model in financial services, focusing on the competition between traditional banks and fintech companies within the Banking-as-a-Platform (BaaP) framework. In a rapidly evolving landscape, this research highlights how the strategic positioning of traditional banks as platform owners influences competition, impacting both market dynamics and consumer behavior. Given that we are still in the early stages of platform adoption in financial services, with limited industry examples, this area has received limited attention from scholars.

This thesis provides a comprehensive analysis of digitalization and its impact on financial services, the drivers of platform business models, the strategic options available for traditional players. Additionally, this research is unique in the literature in terms of its theoretical modeling approach to analyze platform competition in financial services. In this context, this study's qualitative and quantitative insights contribute to the broader understanding of platform models in the field of economics. In addition to contributions to the literature, this study provides invaluable insights for industry practitioners and policymakers navigating the changing landscape of financial services.

In this study, the theoretical platform competition model developed by Hagiu, Jullien, and Wright (2020) has been augmented and tailored to reflect the dynamics of the financial services industry. First, we identified the components of the foundational model, reflecting the specific characteristics of traditional banks, fintechs, and consumers as well as the existing market dynamics. Second, we introduced a new consumer group, commonly observed in the market, distinguished by preferences for the simultaneous use of multiple financial products and services on a single platform. Then, we examined the platform competition between a bank (multiproduct firm) and a fintech (specialized product provider) in terms of consumer preferences, market share, and pricing strategies, both in the absence of a platform (without hosting) and on a platform (with hosting). Finally, we introduced another fintech as a new player that also provides the similar specialized product. We applied the same process to analyze the behavior of the players.

The model demonstrates that for a traditional bank, building a platform and hosting a direct competitor fintech that provides a superior product does not necessarily result in the loss of all market share for that product. Depending on the size of consumer groups and their preferences, hosting a direct competitor fin-

tech on the platform can benefit the traditional bank by extracting a higher surplus from consumers who value accessing multiple products and the convenience of a one-stop-shop experience. On the other hand, hosting an additional fintech that provides a similar product on the platform intensifies competition not only among fintechs but also with the platform owner. This leads to pressure on prices, which benefits consumers the most. In this case, the traditional bank faces losing some of its market share, while the other fintech player needs to reduce its price to remain competitive.

Given the complex nature of financial services and the rapidly evolving digital landscape, several additional factors determine the strategic decision to build a platform. These factors include, but are not limited to, alternative monetization models, cost and revenue transfer mechanisms, screening and monitoring abilities, and the cost structure of players, which are critical areas for further research.

Keywords: Digitalization, platforms, banks, fintechs, Banking-as-a-Platform (BaaP), financial services, platform competition, theoretical model

Özet

Bu tez, finansal hizmetlerde platform iş modelinin benimsenmesinin stratejik etkilerini araştırmayı amaçlamaktadır, özellikle geleneksel bankalar ile fintech şirketleri arasındaki rekabete, "Banking-as-a-Platform" (BaaP) çerçevesi içinde odaklanmaktadır. Hızla gelişen finansal hizmetler dünyasında, bu araştırma geleneksel bankaların platform sahipleri olarak stratejik konumlarının rekabeti, piyasa dinamiklerini ve tüketici davranışlarını nasıl etkilediğini anlamayı amaçlamaktadır. Finansal hizmetlerde platform iş modelinin halen erken aşamalarda olması ve sınırlı piyasa örneği olmasının da etkisiyle, bu konu akademik dünyada sınırlı dikkat çekmiştir.

Bu tez, finansal hizmetler sektörü üzerinde dijitalleşmenin etkisini, platform iş modellerinin itici güçlerini, geleneksel piyasa oyuncuları (bankalar) için mevcut stratejik seçenekleri kapsamlı bir şekilde analiz etmektedir. Ek olarak, bu araştırma, teorik modelleme yaklaşımı ile finansal hizmetlerde platform rekabetini analiz etmesi açısından literatürde farklılaşan bir örnek olarak öne çıkmaktadır. Bu bağlamda, bu çalışma nitel ve nicel içgörüleri ile ekonomi alanındaki platform rekabeti çalışmalarına katkıda bulunmaktadır. Literatüre katkılarının yanı sıra, bu çalışma değişen finansal hizmetler sektöründe çalışan profesyoneller ve politika yapıcıları için değerli içgörüler sunmaktadır.

Bu çalışmada, Hagiu, Jullien ve Wright (2020) tarafından geliştirilen teorik platform rekabet modeli, finansal hizmetler sektörünün dinamiklerini yansıtacak şekilde genişletilmiş ve özelleştirilmiştir. İlk olarak, geleneksel bankaların, fintech'lerin ve tüketicilerin yanı sıra mevcut piyasa dinamiklerini yansıtan temel modelin bileşenlerini tanımladık. İkinci olarak, piyasada yaygın olarak gözlemlenen ve birden fazla finansal ürün ve hizmetin yanı sıra tek bir platform üzerinden eş zamanlı kullanımı değerlendiren yeni bir tüketici grubu tanıttık. Daha sonra, bir banka (çok ürünlü firma) ile bir fintech (özel ürün sağlayıcı) arasındaki platform rekabetini, platformun olmaması (barındırmadan) ve platform üzerinde (barındırma ile) durumlarında tüketici tercihleri, pazar payı ve fiyatlandırma stratejileri açısından inceledik. Son olarak, benzer özel bir ürün sağlayan başka bir fintech'i, yeni bir oyuncu olarak tanıttık. Oyuncuların davranışını analiz etmek için aynı süreci uyguladık.

Model, geleneksel bir bankanın bir platform oluşturmasının ve üstün bir ürün sunan doğrudan rakip bir fintech'i kendi platformuna almasının, her zaman pazar payı kaybı anlamına gelmediğini göstermektedir. Tüketici gruplarının büyüklü-

ğüne ve tercihlerine bağlı olarak, platformda doğrudan rakip bir fintech'i barındırmak, bankanın birden fazla ürüne erişimi ve tek durak alışveriş deneyimini önemseyen tüketicilerden daha yüksek bir kazanç elde etmesini olanak sağlayabilir. Diğer yandan, platformda benzer bir ürün sunan birden fazla fintech'in bulunması, sadece fintech'ler arasında değil aynı zamanda platform sahibi ile de rekabeti arttırır. Bu durum fiyatlarda aşayı yönlü baskı oluşturarak tüketiciler lehine fayda sağlar. Bu durumda, geleneksel banka pazar payının bir kısmını kaybetme riskiyle karşı karşıya kalırken, fintech'ler rekabetçi kalmak için fiyatını düşürmek zorunda kalır.

Finansal hizmetlerin karmaşık doğası ve süreklilik halinde devam eden dijitalleşme göz önüne alındığında, finansal hizmetler sektörü oyuncuları için platform iş modeli kararını etkileyen çok sayıda faktör bulunmaktadır. Bu çalışmada değinilmeyen ancak kritik olabilecek bu faktörlerden bazıları; gelir paylaşım modelleri, maliyet ve gelir transfer mekanizmaları, oyuncularının birbirlerini izleme yetenekleri ve oyuncuların maliyet yapısı olarak sıralanabilir. Gelecek dönemde bu konularda yapılacak çalışmalar, finansal hizmetlerde platform stratejilerini daha kapsamlı bir şekilde anlamamıza olanak sağlayacaktır.

Anahtar kelimeler: Dijitalleşme, platformlar, bankalar, fintech'ler, BaaP, finansal hizmetler, platform rekabeti, teorik model

1 INTRODUCTION

Since the late 20th century, we have been witnessing a significant transformation in social and economic life due to advancements in computer hardware, software, and the internet. This transformation accelerated at the start of the 21st century with rapid technological developments that kicked off the "Digital Revolution". Schwab (2016) characterizes the digital revolution not just as the connection of devices or networks, but as a radical shift in the way we engage, interact, and conduct business. The pace of the digital revolution is unparalleled by any previous social and economic breakthroughs. Scholars from various disciplines have studied this transformation and its impacts, which have been widely recognized by practitioners across numerous industries due to its unprecedented and rapid pace in nearly every aspect of social and economic life. The literature offers several terms to describe this ongoing transformation such as digital disruption, digital convergence, and digitalization (Reis et al., 2020).

Digital transformation has elevated the "Digital Economy" as a critical catalyst for worldwide economic growth, promoting business growth and innovation through the adoption of internet and digital technologies (Purnomo et al., 2022). The digital economy, fueled by an increasing number of digital goods and services, transformed nearly every aspect of our lives. The most well-known providers of digital goods and services include, but are not limited to, Instagram, Amazon, Uber, Netflix, YouTube, Google, Spotify, and others. The field of digital economics studies how these emerging digital goods and services are reshaping economic dynamics and challenging traditional economic approaches (Adner, Puranam, and F. Zhu, 2019). While focusing on digital goods and services, digital economics covers various facets of the digital economy, such as networks, platforms, information, data, internet, and sharing (Øverby and Audestad, 2018).

This rapid digital transformation has fostered the development of the platform economy and changed business models across various industries. Well-known digital platforms such as Alibaba and Amazon have fundamentally disrupted and reshaped business models, enabling innovative ways to create value and enhance customer experiences. Additionally, digital platforms have significantly impacted the global labor market by introducing new forms of work and the emergence of the gig economy. Moreover, platforms play a crucial role in promoting inclusion by reducing barriers for individuals and businesses to engage in economic activities and access markets online (Fu, Avenyo, and Ghauri, 2021).

The financial services industry has also undergone digital transformation and market disruption. Traditional players, mainly banks, have gradually adapted to this digital shift by providing online channels, such as mobile apps, for various financial products and services (Alt, Beck, and Smits, 2018). Meanwhile, this rapid transformation and technological progres have given rise to new players, fintechs, which offer an end-to-end, frictionless digital customer experience by leveraging technology and data. Fintechs have become particularly popular among younger customers over the last decade, attracting almost USD500 billion in funding. A recent study estimates that there are approximately 32,000 fintechs worldwide, offering a range of innovative financial solutions to customers (Boston Consulting Group, 2023b). Despite variations in competition and levels of progress across different countries, Türkiye follows a similar path in the digital transformation of its financial services and the development of its fintech ecosystem. Additionally, bigtech companies such as Amazon and Google have emerged as a new group of competitors in financial services, focusing on in-platform digital financial solutions like digital payment services and lending. Bigtechs pose significant threats to traditional players in the financial services industry, mainly due to their large customer bases and rich data sets from daily non-financial transactions (Bank for International Settlements (BIS), 2019).

Another transformative force in the industry, alongside digitalization, has been driven by open banking. This concept, first introduced in the UK in 2015, has spread globally, fostering competition and reshaping data ownership among parties (The Open Data Institute and Fingleton, 2019). While the most common application of open banking is account aggregation, which allows customers to consolidate all bank accounts on

a single platform, there are several evolving use-cases worldwide, such as personal finance management applications (Babina, Buchak, and Gornall, 2022). Open banking offers customers several benefits, including enhanced access to financial services, improved product and service quality, and increased convenience (Mckinsey and Company, 2021). However, it poses a significant strategic threat to traditional banks by diminishing their unique control over customer data (Basdekis et al., 2022). On the other hand, open banking regulations and APIs provide new opportunities for banks to create value-added services and revenue streams by leveraging their large customer base, financial services expertise, and banking licenses (World Bank, 2022; Deloitte, 2021).

In the rapidly evolving landscape, expanding presence through ecosystems and leveraging platform business models emerge as effective strategies for banks to stay competitive (Padoan, 2023). In this platform game, banks can adopt various roles within the ecosystem, such as being an "orchestrator", a "contributor", or both (Boston Consulting Group, 2023a). These strategic choices have led to two new concepts in financial services: "Banking-as-a-Platform" (BaaP) and "Banking-as-a-Service" (BaaS). In the BaaP model, banks serve as platform orchestrators, while in the BaaS model, they act as contributors, providing products and services to an ecosystem or platform. For instance, in the UK, Starling Bank's "marketplace" offers a variety of financial products from different fintechs, including wealth management, mortgages, and insurance, effectively positioning itself as an orchestrator and platform builder. On the other hand, Berlin-based Solaris Bank adopts the BaaS model by offering banking infrastructure and services to third parties for the development of their financial product offerings. Although use-cases of the platform business model in financial services are still emerging, new examples are rapidly increasing as regulators force banks to be more open and as they transform their technology infrastructure to support platform-based strategies.

In the context of the platform business model in financial services, it's crucial for banks to carefully assess and apply the platform strategy that best aligns with their strengths and market position, while also catering to the changing needs and preferences of their customers. Given that the market, use-cases, and regulations are still evolving, providing a comprehensive overview of the long-term impact of these strategies on banks, non-banks, and customers is challenging without further observation.

Nonetheless, it is evident that platform strategies hold the potential to transform the financial services industry.

Given the emerging nature of platform strategies, banking as a platform (BaaP) business model and the challenges it presents, some critical questions arise: What are the possible outcomes of the platform business model for banks that they host competing fintechs providing substitute and/or similar products? What are the potential trade-offs for banks? Is this model sustainable in the long-term and can it foster a win-win scenario for all players? How does this business model influence consumer choices and their access to financial products? What is its overall impact on the market? Does it contribute to increasing or decreasing the total market value?

This study aims to explore the strategic decision of building a platform and hosting rivals in the financial services industry. It specifically examines the potential trade-offs for banks, fintechs, and consumers within platform competition. To achieve this, a theoretical model is utilized to analyze the dynamics and outcomes of platform formation. Although this model may not capture all factors and complexities of the real-world financial services industry, it highlights key elements and offers a framework to assess the potential effects of platform competition on banks, fintechs, and customer preferences.

The literature in economics, focusing on bank-fintech competition using a theoretical model approach, is growing, but remains limited and is largely concentrated on credit market competition. He, Huang, and Zhou (2023) examined the impact of open banking on credit market competition, focusing on traditional banks and challenger fintechs. They found that open banking can benefit fintechs and high-quality consumers; however, it may decrease overall competition and be disadvantageous for some consumers as well. On the other hand, Parlour, Rajan, and H. Zhu (2022) investigated fintech competition in the payment vertical and its effects on the lending market. Verdier (2020) analyzed the competitive dynamics between banks and digital payment service providers, focusing on their liquidity management abilities and its impact on competition. Chu and Wei (2023) explored how fintech lending affects market competition, revealing that it may lead to adverse selection for banks and decrease social welfare.

Biancini and Verdier (2023) focused on the effects of competition between banks and digital lending platforms on the credit market.

To the best of our knowledge, this study is the first to specifically examine platform strategies within the context of bank-fintech competition using a theoretical model. We investigate the potential implications of the platform business model on the competitive dynamics between banks and fintechs, as well as on consumer preferences. This study focuses on the platform business model from the perspective of banks, assuming the bank as the platform owner and specialized fintechs as the platform participants that directly compete with the bank for specific products.

In this study, we present a comprehensive conceptual framework to illustrate the ongoing digital transformation and the evolving landscape of the financial services industry. Section 2 reviews how digitalization has permanently changed our lives and the dynamics of the economy, emphasizing its significance in the field of economics. Section 3 delves into the business model of digital platforms, which have proliferated across various industries, including financial services. Section 4 focuses on digitalization in the financial services and the emergence of new players, fintechs. This section also offers insights into the Turkish Fintech ecosystem, focusing on recent market developments in terms of funding, regulation, and the competition between fintechs and banks. Section 5 outlines the drivers of the platform business model in financial services, highlighting the transformative potential of open banking regulations. Additionally, it analyzes the changing competitive landscape, strengths, and weaknesses of existing and potential players in financial services, along with possible strategic choices for banks to stay competitive in the context of the platform business model. Section 6 introduces the theoretical model presented by Hagiu, Jullien, and Wright (2020) and its main proposition. This study extends this model with the inclusion of a new consumer group and an additional specialist firm by adapting it to the financial services industry. The strategic choices of players are analyzed in scenarios with and without hosting, that is, in the absence of a platform and in case of a platform. Then we evaluate the main results in the context of bank-fintech competition, specifically focusing on the banking-as-a-platform (BaaP) strategy. Finally, we present our concluding remarks.

2 DIGITALIZATION AND DIGITAL ECONOMICS

Digitalization, as defined by Ritter and Pedersen (2020), refers to the integration of digital technologies in various social and business areas. This transformative process significantly restructures or introduces new methods in business operations, cultural development, and customer interactions. The advent of digitalization has led to profound changes in the way we interact, work, and live, impacting various industries and sectors. It has facilitated unprecedented levels of connectivity and access to information, transforming traditional practices in communication, commerce, and resource management. Additionally, digitalization has enabled companies to automate many routine and manual tasks, leading to operational efficiency and opening new possibilities for innovation across different fields (Parviainen et al., 2022).

The digital economy has become a critical issue due to its substantial impact on social and economic life. As the digital economy grows and transforms, its definition also changes over time. Information and communication technologies, such as software and IT, are fundamental to the digital economy, generating economic output through a business model focused on digital goods and/or services (Bukht and Heeks, 2017). The digital economy has changed the dynamics in the economy not only by providing direct value to consumers but also by increasing market efficiency, reducing information asymmetries, and enhancing social welfare. The digital economy has allowed consumers access to a variety of valuable goods and services for free, such as email services and digital maps. These offerings have created a significant amount of value with zero marginal cost (Spence, 2021). The rise of e-commerce, digital finance, and remote working are tangible examples of digitalization's profound effects on the economy. Moreover, development of digital economy challenges traditional economic models and theories, as the digital economy often operates on principles that differ from the traditional market dynamics, such as the marginal cost of production approaching zero in digital goods and network effects in digital platforms (Hungerland et al., 2015).

Digital economics, as a field of study, focuses on understanding and analyzing changes brought about by digitalization in economy. It covers various subfields such as

production, marketing, consumer behavior, digital finance, and the economics of information technology. Digital economics investigates how digital technologies influence economic models, market structures, and consumer behavior. It also explores the implications of digital transformation on global trade, productivity, and the distribution of wealth. Scholars in the field of digital economics aim to explore the distinctive characteristics of the digital economy. These include the significance of data as a crucial economic resource and the influence of digital platforms in establishing new marketplaces and changing the dynamics of competition (Afonasova et al., 2019; Chung and Van Duy, 2023; Özbay and Yılmaz Genç, 2023).

As explored by Goldfarb and Tucker (2021), digital technology has revolutionized five key cost areas: search, replication, transportation, tracking, and verification cost. This shift challenges traditional economic models, prompting a reevaluation of standard economic theories and practices. The essence of digital economics lies in discerning what becomes more feasible when information is digitized, and how this digitization reshapes cost structures, thereby influencing economic choices and actions (Goldfarb and Tucker, 2021). Digitalization has also contributed the sharp rise in connectivity between economic agents and generates a vast amount of data, which is highly valuable as inputs into the economic decision-making process. From email to messaging, social media to e-commerce, connectivity has increased remarkably with digitalization. While digitalization redefines economic interactions, it also opens new horizons for innovation, efficiency, and value creation in the digital age. Digitalization has significantly impacted the economy, leading the new types of economic activities such as digital platforms (Adner, Puranam, and F. Zhu, 2019).

3 DIGITAL PLATFORMS

In the context of economics and business, platforms, specifically online marketplaces have gained significant attention in recent years. Digitalization enables people to access products and services via digital platforms more easily than ever before. Dig-

ital platforms orchestrate different types of interactions between users with leveraging network effect. Digital platforms have had a profound impact on daily life, transforming the way people shop, communicate, and access information with minimal friction throughout the customer journey (Gawer, 2021). The rise of the platform economy is considered one of the iconic events of the digital revolution, changing production, lifestyles, and even thought processes (Xue, Tian, and Zhao, 2020). Traditional business models have been disrupted and/or transformed by the emergence of digital platforms, which provide a new way for businesses to connect with consumers and create value. These digital multi-party systems are positioning themselves to generate and seize value in the digital economy (Gawer, 2021). Despite their relatively short histories, almost all well-known bigtech companies such as Amazon, Alibaba, Google and Facebook are currently operating as a platform business (Constantinides, Henfridsson, and G. Parker, 2018). They have become an integral part of the modern economy, revolutionizing industries such as retail and transportation. Additionally, COVID-19 pandemic has also contributed the adaption of these digital business models by large groups of consumers, and it has changed the consumer behaviors radically (Vilhena and Navas, 2023).

The term "platform" is employed in multiple contexts and has diverse definitions. In general, platform refers to instruments that enable communication and interaction between different entities, such as firms or individuals, within a specific ecosystem. According to Evans (2011), two-sided platforms provide goods and/or services to two different group of customers, who are interdependent in some way and utilize the platform as a facilitator of transaction between them. Digital platforms are characterized by their ability to create value not within the traditional firm boundaries but through an ecosystem of autonomous agents (Hein et al., 2019).

Platforms do not have to have direct economic interaction purposes between users. Social media platforms serve as prime examples of this type of platform. They offer various affordances, such as creating flexibility, facilitating matchmaking, extending reach, managing transactions, building trust, and supporting collectivity. These platforms have also revolutionized how resources, work, and services are accessed and provided, improving global connectivity and efficiency (Sutherland and Jarrahi, 2018).

Gawer (2021) argues that digital platforms are not only benefiting from the developments in technological infrastructure but also taking advantage of consumers behaviors and habits, by leveraging data that consumers generate daily basis. In that sense, collection of data is at the center of business models of digital platforms, which enables them to develop new products and services. Combining wide range of data of individuals and/or businesses have enabled companies to gain a lot of different insights regarding their customers, including their financial health to consumption preferences. Moreover, it also brings new business opportunities for those companies (Adner, Puranam, and F. Zhu, 2019). Even though digital platforms show differences in terms of their customer and business focus, in essence they have quite similar economic and business characteristics while creating and capturing value within their ecosystems. Economies of scale and scope, and network effects stand out as key characteristics (Gawer, 2021). Moreover, several scholars (Rochet and Tirole, 2003; Armstrong, 2006; G. G. Parker and Van Alstyne, 2014) discussed the opportunity of creating social surpluses with platforms if some necessary conditions are true.

In the continuously changing environment of the digital economy, recognizing the different types of platforms is essential. Broadly categorized into two-sided and multi-sided platforms (Hagiu and Wright, 2015), these digital infrastructures play a pivotal role in modern economics. Two-sided platforms connect two distinct user groups – typically buyers and sellers – and facilitate interactions and transactions between them (Rochet and Tirole, 2003). Evans, Schmalensee, et al. (2011) highlights the defining characteristic of two-sided platforms as the mutual dependency between the two parties; these platforms need to simultaneously serve the needs of two distinct groups of customers. Platforms solve coordination problems in market exchanges by creating multi-sided markets and leveraging network effects. This intermediary logic has transformed various sectors, including software, media, and transaction systems (Langley and Leyshon, 2017). Multi-sided platforms like social media networks (Evans and Schmalensee, 2016) and e-commerce platforms such as Amazon and Trendyol serve as more complex ecosystems, linking several distinct user groups, each with its unique role and interaction pattern. These platforms such as Amazon and Trendyol act as orchestrators that enable firms (sellers) and consumers (buyers) to facilitate the exchange of products, services, and technologies, creating a network effect that enhances their

value for users (Bonina et al., 2021). These platforms often offer a variety of functions and services, such as product listings, search and recommendation algorithms, secure payment systems, customer feedback, and logistics and delivery services. They act as intermediaries, connecting sellers with potential buyers and creating a marketplace where transactions can take place. They create value by increasing market efficiency, expanding consumer choices, reducing transaction and search costs, and enabling both sides to access a wide range of choice sets (G. Parker and Van Alstyne, 2005). Moreover, these digital platforms leverage data analytics and artificial intelligence to personalize product recommendations and improve the experience for users (Hagiu and Wright, 2015). Digital platforms have revolutionized the way business is conducted by eliminating geographical barriers and allowing businesses to reach even a global customer base. Unlike regional entrepreneurial ecosystems, global platform-based ecosystems, encompassing millions of users and agents (Ács et al., 2021). Amazon, as one of the best and most well-known example, demonstrates this, with millions of merchants and buyers from around the world using it as a platform to sell and purchase a wide range of products.

Digital platforms offer significant opportunities for entrepreneurial SMEs, allowing them to improve performance by leveraging platform capabilities and network potential. This capability positively influences SMEs' performance indirectly through network capability (Cenamor, Parida, and Wincent, 2019; Salleh, Rohde, and Green, 2016). Within Türkiye's local context, two prominent e-commerce platforms, Trendyol and Hepsiburada, have been enabling thousands of SMEs and corporates across Türkiye to connect with millions of customers, providing a convenient and efficient marketplace for buying and selling goods.

Digital platforms encompass a diverse array of services, such as retail, transportation, and hospitality. The rise of service platforms is not confined to a single domain; rather, it spans across various industries, transforming traditional business and operational models. They facilitate the connection and service provision between service providers and service users. These platforms, such as Uber and Airbnb, offer a convenient and user-friendly interface for individuals to access various services on demand (Spulber, 2018). Furthermore, platforms such as Airbnb and Uber exemplify how digital platforms can leverage economies of scale and scope, creating network effects (Hein

et al., 2019). Another example Booking.com orchestrates the booking of accommodations for travelers, offering a wide range of options from hotels to vacation rentals. Booking.com also provides a wide range of services related to traveling such as rent-a-car, museum tours and tickets. Simply, it is more than a simple accommodation-focused hotel booking website/app, positioning as a travel platform that includes almost every service that travelers need throughout their experience. Airbnb is another famous example of service platform category, enabling people to offer their homes or extra rooms to travelers seeking accommodations. They revolutionized accommodation and traveling by creating a platform that allows people to find unique and affordable accommodations all over the world. Beyond these sectors, food delivery may be the earliest version of digital platforms. Almost in every country, there are food delivery service platforms such as DoorDash and Ubereats in the USA and Yemeksepeti in Türkiye, connecting consumers with a wide range of restaurant options. Food delivery platforms have also created a new business model which is dark kitchens. These are delivery-only kitchens that operate solely to fulfill orders from food delivery platforms, bypassing the need for a physical restaurant space. It is another example that shows how digital platforms have become enablers of new business models and have transformed various industries. The education sector too has embraced platforms such as Coursera and Udemy, breaking geographical constraints and bringing global classroom experiences to learners' fingertips.

As digital platform examples across industries can be proliferated, digital finance platforms can be one of the most interesting breeds of digital platforms. Digital finance platform is a broad term that includes a variety of product and service offerings that provide financial services such as banking and payment solutions, investment platforms, peer-to-peer lending platforms, crowdfunding, and marketplaces for financial products. In the market, these platforms are present in various legal and organizational structures and can broadly be classified into three categories: banks, non-banks, and those built by mutual associations (Zetzsche et al., 2020). Digital finance platforms have not only changed the way consumers manage their daily finances, but also transformed other sectors such as retail and service delivery by enabling them to offer additional services (Ekpo et al., 2022). These platforms are not merely transactional; they are equipped with powerful algorithms for data analysis and risk assessment, providing insights and

enhancing decision-making for both users and providers (Zunzunegui, 2022). The integration of technologies such as blockchain and AI in digital finance promises even greater efficiencies and paving the way for more innovative financial products and services (Ozili, 2023b). Before delving into digital finance platforms, it is important to understand digitalization in financial services and how it has transformed the traditional banking and the landscape.

4 DIGITALIZATION IN FINANCIAL SERVICES

Historically, the relationship between financial services and technology has evolved alongside technological advancements. Retail banks traditionally relied on a strong network of branches, introducing ATMs in the 1970s, call centers in the 1980s, Internet banking in the 1990s, and mobile banking in the 2000s. (Skinner, 2014). The internet's emergence in the late 1990s catalyzed developments in online banking, marking a new era in the sector. The creation of the first online-only bank, Security First Network Bank, in 1995 and Wells Fargo's introduction of online banking platforms were seminal events in this transition. By the early 2000s, major U.S. banks had acquired millions of online customers, leading to a global trend in developing online banking applications (Omarini, 2015).

The banking industry has witnessed a significant shift with the advent of digital financial services, particularly when mobile technology became prominent in the early 2000s. The prevalence of smartphones has played a key role in advancing mobile banking, offering customers the convenience of managing finances directly from their devices (Shaikh et al., 2023). This shift not only enhanced customer accessibility and convenience (Alt, Beck, and Smits, 2018) but also spurred a wave of innovation within the financial sector. Especially, banks developed and introduced several mobile features such as deposit checks, instant money transfers, investment features, which fundamentally changed consumer banking behavior. Additionally, the integration of big data and analytics has enabled banks to offer personalized services and recommendations,

tailoring their offerings to individual customer needs (Arner, Barberis, and Buckley, 2015). Automated customer service tools, such as chatbots, have become increasingly common, providing efficient and round-the-clock assistance (Bohnert, Fritzsche, and Gregor, 2018). Furthermore, advancements in cybersecurity measures, including biometric authentication and multi-factor authentication, have significantly enhanced the security of online banking platforms (Gomber et al., 2018).

An important aspect of digital transformation in financial services has been the implementation of digital KYC (know-your-customer) and onboarding processes. These digital processes have streamlined customer verification, reducing the time and paperwork associated with account openings (Gomber et al., 2018). Digital onboarding allows banks to process customer information rapidly and securely, adhering to regulatory compliance while enhancing the customer experience. This technological shift has been vital in enabling financial institutions to efficiently manage compliance requirements and simultaneously deliver a seamless customer onboarding experience.

This era of digitalization has also witnessed a transformation in traditional bank branches, which now incorporate digital kiosks/ATMs and interactive service points, blending physical and digital banking experiences. The regulatory landscape has evolved, with new frameworks such as the PSD2 in the European Union, mandating open banking and fostering a more competitive environment (Arner, Barberis, and Buckley, 2015). The rise of digital payment systems and e-wallets, part of this digital transformation, has streamlined transactions, making them more convenient for customers.

The continues integration of technology in the financial services industry paves the way for fintech firms to emerge, leveraging the technology to develop innovative and customer-centered financial solutions.

4.1 Rise of Fintech in the World

Financial technology, often referred to as FinTech, has emerged in the financial services sector, utilizing technology to improve financial activities (Schueffel, 2017). This rapidly evolving sector encompasses digital payment systems, crowdfunding platforms, robo-advisors, blockchain technologies, and more, marking a significant tran-

sition from traditional to technologically sophisticated financial practices (Arner, Barberis, and Buckley, 2015; Gomber et al., 2018). The rise of FinTech has significantly transformed the financial landscape, merging technological innovations with financial services and operations. Driven by a plethora of emerging technologies, Fintech is not only creating new business models but also reshaping financial markets and service delivery, impacting financial market dynamics, regulatory landscapes, and consumer engagement in financial activities (Li and Zhang, 2021).

In today's world, fintechs play various roles in the lives of individuals and businesses. The historic growth and transformation of the fintech sector is evident in its investment and valuation trends. According to Boston Consulting Group (2023b) research, there are roughly 32,000 fintechs globally and over the last decade, they have attracted more than USD500 billion in funding. Fintechs have become a major portion of global venture capital outlays, drawing substantial capital from a variety of investors. Notably, cryptocurrencies accounted for a significant part of this funding, particularly in recent years (Boston Consulting Group, 2023b). This rapid growth and the significant investments reflect the sector's dynamic evolution and its expanding impact on the global financial landscape. As of 2022, fintechs have started to experience a sharp downward trend in valuations and fundings. The total amount of fintech funding has declined from USD92 billion to USD55 billion, which is approximately 40% less than the previous year (Mckinsey and Company, 2023). The public market correction, which is mainly driven by tightening monetary policies of central banks and increasing interest rates, reflected on private market fundings as well (KPMG, 2023).

There are several underlying factors on the demand and supply side, which contribute to the rise of fintech companies. While technological developments contributed to the supply side, changes in customer expectations on demand side triggered the transformation (OECD, 2020). The technological advancement has democratized financial services, allowing a broader range of consumers to access banking, investment, and lending services that were previously difficult to reach (Arner, Barberis, and Buckley, 2015). However, the most crucial factors on demand side can be considered as the frictions in customer experience provided by traditional banks, incumbents. In the last decade, most of the incumbents in financial services industry were providing poor customer experience in their journey from customer onboarding to delivery of products

and services. Moreover, outdated technological infrastructure, complex and paperwork heavy processes have contributed to a growing dissatisfaction among customers. Stulz (2022) stated that even though traditional banks have the ability of imitate fintechs considering their large customer base and wide range of products, they have disadvantage of old IT systems which offer limited room for a quick innovation. Furthermore, increasing penetration of smartphones and internet connectivity has created a fertile ground for the growth of fintech, allowing customers to access financial services anytime, anywhere, and reducing the dependency on physical bank branches. One of the most important promises of fintech companies is to offer alternative solutions to these challenges and frictions on customer side, providing seamless and user-friendly experiences by leveraging technology.

Fintechs are targeting different segments of financial services value chain including payments, lending, insurance, investments. The fintech journey began in the early 2000s, initially centered around payment innovations. Since then, payment fintechs have accounted for almost 25% of total funding. Stripe and Block from USA, Alipay from China, Wise from UK, PayTM from India are some of the examples from different geographies of the world which have highest valuation and market share in their region (Boston Consulting Group, 2023b). Besides B2C retail segment, B2B focused financial solutions target SMEs (Small-Medium-Enterprises) and companies, offering digital lending, trade financing, alternative payment solutions, etc. They leverage cutting-edge digital technologies to provide an improved and cost-effective banking experience, with a specific focus on serving small and medium-sized enterprises (SMEs) that traditional banks often underserved (World Bank, 2022). Beaumont, Tang, and Vansteenberghe (2022), highlight that fintechs in lending also help to ease financial constraints faced by small innovative firms, particularly those with limited collateral. Currently, fintech companies are offering services across the world in a wide range of customer and product segments including lending, wealth management, insurance, etc. Moreover, fintechs are not only targeting final customers but also financial services companies, offering services in regulations, compliance, and risk management. Fintechs focused on operations and infrastructure have reached USD11.6 billion value in terms of funding globally, which offer services in core banking technologies, regulation technologies, open banking, etc. (Mckinsey and Company, 2023).

Another important milestone in digital financial services has started with digital banks. At the beginning of 2010s, digital banks -neobanks-, which provides end-to-end digital customer journey, emerged as a prominent group among fintechs. Although some industry experts categorize digital banks as a separate group from fintechs, simply they are fintechs having digital banking license (Stulz, 2022). They offer a broad array of banking services, moving beyond limited offerings like payments or personal financial management. These services are delivered via innovative, cost-effective digital platforms. In different regions, these entities are known by various names, including challenger banks, virtual banks, digital banks, online banks, and internet-only banks. These banks stand out with their end-to-end digital customer experience from onboarding to daily transactions, which do not have any physical branches, unlike traditional banks. The last decade witnessed almost 400 licensed digital bank (Mckinsey and Company, 2022a). Licensed digital banks Starling, Revolut, N26, Monzo are some well-known digital banks that have gained popularity for their fully digital and user-friendly customer journey. At the beginning of their journey, digital banks have attracted younger generations who are digital savvy and preferred personalized, easy-to-use, and fast services. Changes in demographic dynamics and decline in customer satisfaction of traditional banks also play a role in adoption of fintech products from digital banks among younger generation (The Economist, 2019). Compared to traditional banking experience, fully digital and hassle-free customer experience has been one of the key value proposition for young customer groups. According to the famous study, conducted with Millennials (Gen Y) regarding their financial habits and preferences, pointed out a stunning result that 71% of millennials would rather go to the dentist than listening to what banks are saying (Time, 2014). Obviously, young generation customers were not pleasant with incumbent's offerings, and they are the early adaptors of digital financial services which have a great contribution in rise of digital banks.

Fintechs have also contributed to financial inclusion by providing services to unbanked or underbanked populations, thus bridging gaps in traditional banking systems (Gomber et al., 2018; Ozili, 2022). This has led to tapping into the unbanked and/or underserved population and extend the financial inclusion for a wider range of individuals and businesses. Especially in APAC region, fintechs have gained signifi-

cant momentum mainly driven by high level of unbanked population. High population countries such as China, India and Malaysia also have active fintech markets providing several digital financial solutions to customers. Global findex data and emerging fintech indicators show positive correlation between fintechs and financial inclusion (Heng and Tok, 2022). Financial inclusion extends beyond the simple use of smartphones for transactions via mobile money accounts. It's important to recognize that achieving complete financial inclusion requires a comprehensive, ongoing approach. This approach should include not only mobile technologies but also tackle broader issues related to infrastructure, user experience, and educational factors (Mastercard, 2023).

Fintechs have revolutionized financial services, making them more accessible, efficient, and user-friendly. Consumers benefit from lower transaction costs, improved service speed, and enhanced user experiences, signifying a transformative impact on personal finance management and business operations (Li and Zhang, 2021). Besides supply and demand factors discussed above, fintechs have gained this momentum through their way of doing business. They embrace customer driven product approach, enabling them to capture right product-market fit and quickly pivot their business models. Additionally, unlike incumbents, they do not have a strong regulation mindset, which makes them less fearful and more courageous in making mistakes (Stulz, 2022).

Open banking, as a relatively new concept in the fintech world, has initially developed in the UK in 2015 with the purpose of increasing competition in banking by leveraging data. Open banking represents a significant shift in digital financial services, emphasizing customer empowerment and innovation. It enables customers to safely share their financial data with third-party providers via APIs (Application Programming Interfaces), facilitating the development of new financial products and services (The Open Data Institute and Fingleton, 2019). This movement towards a more open financial ecosystem is driven by regulatory changes, such as the EU's PSD2, which aim to increase competition and transparency in the banking industry. Open banking's approach is transforming the traditional, closed banking systems into more customer-centric, data-driven platforms (Briones De Araluze and Cassinello Plaza, 2022). The emergence of open banking has led to the development of innovative concepts such as Banking as a Platform (BaaP) and Banking as a Service (BaaS). BaaP refers to the

framework where banks integrate third-party services into their own offerings both financial and non-financial services, creating a platform-like ecosystem that extends beyond traditional banking services. On the other hand, BaaS involves banks providing their banking services to non-bank businesses through APIs. This model allows even non-financial companies to offer banking services, thereby democratizing financial services, and fostering innovation in the sector (Westermeier, 2020; Briones De Araluze and Cassinello Plaza, 2022).

4.2 Turkish Fintech Ecosystem

Even though Türkiye has a vibrant fintech landscape, it is still evolving and adapting to the global trends in financial technologies. Türkiye has a similar pathway with global peers in terms of development of fintech ecosystem, however, shows some differences in terms of timing and intensity of competition in the market. In parallel to developments in digital financial services across the world, Turkish banks have recognized the importance of digitalization and started to transform themselves quickly. Since the early beginning of 2010s, incumbent banking players in Turkish market have managed to offer various digital financial services starting with web-based online banking to mobile banking. The development of fintech ecosystem has started in parallel to these digital transformation processes in Turkish banking sector. With its strong foundations, the banking sector in Turkey is taking a pivotal role in developing the country's financial technology landscape (Kaymak, 2019).

Similar to the global cases, fintechs in Türkiye have targeted the payments vertical first, filling gaps in payments with innovative online payment solutions such as virtual POS (Yazici, 2019). In 2012, Türkiye has made mandatory to use of new generation payment devices, which has triggered many start-ups to develop solution in this field. As of 2015, electronic money license, which is currently under the supervision of CBRT, has been introduced that enables fintech companies to facilitate payments and transfers of customers. As of 2022, there are 74 fintechs that have this license, which allows them to provide different range of products and services in payments (CBFO - Presidency of Republic of Türkiye Finance Office, 2023a).

Figure 4.1: Turkish Fintech Ecosystem, Number of Fintechs by Verticals

Source: Startups Watch, 2023.

According to the startup database, Startups Watch, as of November 2023, there are 798 fintech companies have been established in Türkiye, and 672 of them are considered as alive. Between 2017-2022, on average 76 fintech companies have established in different verticals focusing on areas such as payments, financing, insurance, etc. Currently, these fintech companies operate in 12 different verticals in financial services industry. As shown in Figure 4.1, payments vertical is the most targeted area for fintechs, it accounts approximately 32% of the total number of fintech companies. Blockchain and banking technologies follow as second and the third most targeted verticals for fintechs, with approximately 13% of shares each in the total number of fintechs.

Besides supply and demand drivers initiating fintech movement, the development of fintech ecosystem is highly depended on support in terms investment, regulatory environment, and alliances with players in the financial services industry, mainly banks.

4.2.1 Investments in Turkish Fintech Market

In 2012, the total amount of investment to fintech companies was about USD4.6 million (Deloitte, 2023). From 2018 to November 2023, as shown in Figure 4.2, the fintech sector in Türkiye received approximately USD 218 million in total funding across 162 deals (Startups Watch, 2023). Parallel to the declining funding and deal

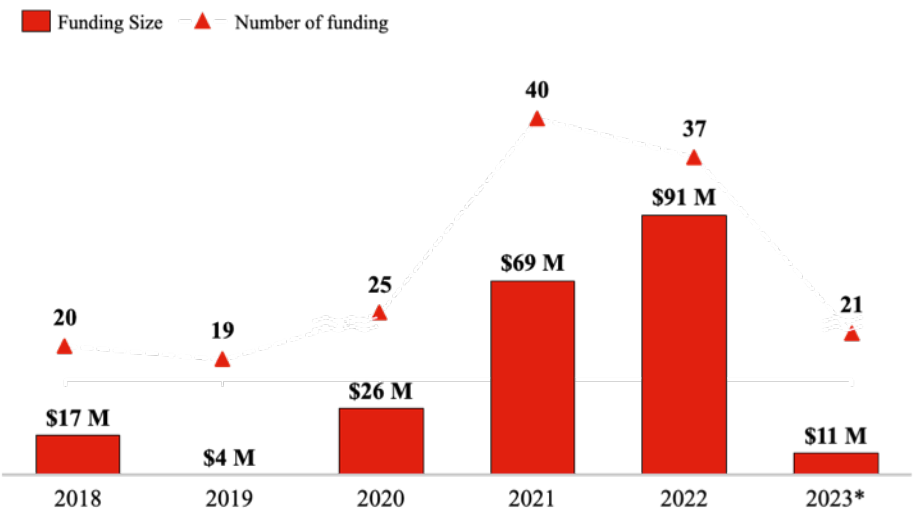

Figure 4.2: Total amount and number of fundings by years (2018-2023)

Source: Startup Watch, 2023.

* As of November 2023.

activity in the world (Mckinsey and Company, 2023), Turkish fintech market show the similar downward trend in funding activities, which is mainly driven by tightening monetary policies and increasing interest rates across the world. Despite the declining funding trend across the world in 2023, fintechs in Türkiye continue to attract a variety of investors, both local and international, at nearly every stage, from seed funding to growth. Besides angel investors, venture capital firms (VCs) and corporate venture capital (CVCs) emerge as the primary investors in the Turkish fintech market. (Yazici, 2019).

4.2.2 Overview of Regulation Framework in Turkey

The financial services industry is heavily regulated, necessitating that most activities within this sector have appropriate licensing. Additionally, complying with these regulations requires robust technological infrastructure and skilled human resources. The development of the fintech market is heavily influenced by the regulatory framework. This framework aims to balance the mitigation of risks for consumers and the market with the promotion of innovation within the fintech ecosystem (Bromberg, Godwin, and Ramsay, 2017). Worldwide, regulatory authorities adopt diverse approaches to the supervision of fintech companies, as outlined by Parma Bains and Wu (2023). These varying strategies reflect the unique challenges and opportunities presented by the fintech sector. In Türkiye, there are several responsible authorities which regulate

and supervise different types of fintech activities (CBFO - Presidency of Republic of Türkiye Finance Office, 2023b). These regulatory bodies are as follows:

- Central Bank of Republic of Türkiye (CBRT),
- Banking Regulation and Supervision Agency (BRSA),
- Capital Markets Board of Türkiye (CMB),
- Insurance and Private Pension Regulation and Supervision Agency (SEEDK),
- Republic of Türkiye Ministry of Treasury and Finance
- Republic of Türkiye Ministry of Trade.

Given the multitude and diversity of regulatory and supervisory bodies, it is evident that collaboration and a holistic sectoral approach are essential for fostering an efficient fintech market. Each authority bears responsibility for various aspects of the sector's activities, as briefly outlined in Table 4.1 (CBFO - Presidency of Republic of Türkiye Finance Office, 2023b).

Furthermore, as regulation is key in the fintech market to protect consumers and the stability of the market, it is also key for the development of some fintech business models. The UK's fintech market serves as a notable example, illustrating how regulation can promote the growth of the fintech ecosystem. Open banking regulation in the UK, which mainly provides control to consumers and business over their data, forces competition in banking sector and encourages the emergence of new players (The Open Data Institute and Fingleton, 2019). In recent years, Turkish authorities have taken several actions and developed frameworks to foster the fintech environment as well. Electronic Money Regulation, Digital Banking Regulation, TPPs (Third Party Providers) and API (Application Programming Interface) principles have been introduced in Türkiye within 2022 (CBRT - The Central Bank of Republic of Türkiye, 2022). Moreover, Türkiye's Medium-Term Program (2024-2026) announced as of September 2023, provides insights at macro level regarding policies to improve fintech ecosystem. It indicates that Turkish regulators are planning to pursue an active and supportive regulatory environment to promote innovation and competition within the fintech industry.

Regulatory Bodies	Regulation and Licensing Focus
CBRT	Payment System
	Electronic Money Institution
	Payment Institution
BRSA	Digital Banking
	Banking as a Service
	Financing Institution
CMT	Equity-Based Crowdfunding
	Debt-Based Crowdfunding
	Intermediary Institution
CMT	Equity-Based Crowdfunding
	Debt-Based Crowdfunding
	Intermediary Institution (Securities)
SEDDK	Insurance and Reinsurance Broker
	Online Insurance Agency
Ministry of Treasury and Finance	New Generation Payment Terminal Institution
	Operating Institution

Table 4.1: Turkish Regulatory and Supervisory Bodies by Fintech Verticals
Source: CBFO, 2023.

4.2.3 Banking Alliances in Financial Services Industry

Even though competition is intensifying in the financial services industry with the increasing number of new entrants, the development of the financial services ecosystem requires two-sided collaborations and partnerships. There are several arguments and a growing body of literature addresses competition between incumbents and new entrants, namely fintechs. Some researchers highlight that through partnerships with fintechs, traditional financial institutions can improve efficiency in some processes, gain access to new customer segments, and expand product and service range (Petralia et al., 2019). Moreover, studies show that traditional players, incumbents, are in partnership with fintechs in areas such as KYC, underwriting, and credit scoring (Feyen et al., 2021). The majority of banks have embraced the reality of this technological shift and emergence of new players in the financial services industry, and the fact that part-

nership is key for success. Almost every established bank has initiated hackathons and innovation programs to find innovative solutions. Moreover, investing and/or launching a brand new fintech are common among banks (Özcan and Zachariadis, 2021).

Despite the relatively low level of collaboration between fintechs and traditional banks in Türkiye, such partnership examples are increasing within the ecosystem. Additionally, banks in Türkiye contribute to the development of fintech ecosystem with alternative investment methods such as making direct and/or through CVC investments, and developing accelerator programs and incubation centers (Yazici, 2019).

Top Turkish banks in Türkiye support fintech ecosystem with programs such as Boost The Future -Akbank, Workup- İş Bankası, FRWRD -Yapı ve Kredi Bankası, ONB Beyond- QNB Finansbank. Moreover, they have become shareholder of some of these fintechs with direct investment and/or via CVCs. In 2022, İş Bankası invested in SME focused trade financing fintech -Figopara. Similarly, Denizbank and QNB Finansbank invested in self directed trading fintech - Midas (Startups Watch, 2023).

Another strategic play of incumbents in the Turkish market is to create their own brand-new fintechs or acquire existing ones. Akbank has launched Tosla in 2019, which is targeting the young generation retail customers with core banking services (Akbank T.A.Ş., 2023). Enpara is another fintech example developed by an incumbent bank, QNB Finansbank. As of 2023, Bankacılık Düzenleme ve Denetleme Kurulu (BDDK) (2023) (BRSA) has granted digital banking license to Enpara.com which enables it to function as a separate fully digital bank (Bankacılık Düzenleme ve Denetleme Kurulu (BDDK), 2023). Moreover, another one of the top private banks -İş Bankası- acquired Moka Payment Technologies in 2021, which provides payment solutions to businesses (Webrazzi, 2021).

5 PLATFORMS IN FINANCIAL SERVICES

5.1 Digital Financial Services Playground

As discussed in the previous chapter on digital platforms, these platforms have become an essential part of both individuals' and businesses' daily lives in various ways. Digitalization and technological advancements have fostered the evolution of digital platforms and marketplaces across the world, including in the financial services industry. The concept of "platform" has been widely used by business professionals and scholars in different fields of studies across to world, with a variety of meanings and interpretations (Poell, Nieborg, and Van Dijck, 2019). In this study "platform" is considered as multi-sided market that connects different group of customers and facilitates secure financial and non-financial transactions between them.

Before analyzing the financial services-focused digital platforms, it is crucial to understand how and why big tech companies, broadly termed "platforms" such as Amazon, Google, and Apple, have expanded into financial services. Big techs are not fintechs, which generally focus on providing specific financial products and/or services via technology (FSB - Financial Stability Board, 2019). In that sense, banks face distinct challenges from BigTech's expansion into the financial sector, which is significantly different from those presented by FinTech companies. Typically, fintech firms target a particular financial services vertical such as payments. FinTech firm focusing on payments aims to capture a portion of the market share from banks, usually in a specific area of the payments market. In contrast, BigTech companies possess the capability to compete with banks across a wide array of product lines, rather than focusing on specific market niches (Stulz, 2022). These big tech platforms are providers of a wide range of digital products and services to a large customer base. There are several global cases that show big tech firms starting to mark their presence in financial services. Besides U.S tech giants, AliBaba's Ant Group and Tencent's Webank (Wechat) in China offer a wide range of financial services to customers, including payments, lending, and insurance. Moreover, Mercado Libre from Mexico, Kakao Bank from South Korea are similar big tech cases which provide financial services (Doerr

et al., 2023). Big tech companies are leveraging their large customer base and networks in financial services. Global cases shows that big techs have started to offer relatively cheap and digital payment solutions to its customers such as Apple Pay, Google Pay, AliPay (Bank for International Settlements (BIS), 2019).

Besides gaining additional revenue streams, big tech companies are positioning financial products as a complementary as well, accelerator of their commercial activities. They offer innovative financial services such as sending money over social media platform and alternative payment solution i.e. buy now pay later (BNPL) at checkout (Doerr et al., 2023). Financial transaction data has a great value, which incurs a lot of important insights regarding consumer behaviors and personal details (Westermeier, 2020). In the near future, big tech companies offering financial services can have great competitive advantage against banks in terms of credit and insurance pricing. The possible arrangements in regulatory frameworks and some certain limitations in terms of financial products for big techs might stop this expansion in financial services area (Doerr et al., 2023).

Since 2000s, incumbents in financial services in most countries have started to add digital channels such as internet banking in their business model, which enabled customers to make some of their transactions online. This trend has been shifted to mobile channels with the increasing penetration of smartphones and advancements in technological infrastructure (Deloitte, 2021). In the last decade, the financial services industry has entered a new era of digitalization with the rise of fintech companies. These players have emerged as a result of changing customer behaviors, advancements in technology, and changes in the regulatory environment that foster competition in the sector. (Navaretti et al., 2023). Since financial services is a highly regulated industry, open banking regulation has been a milestone for the sector that has initiated a transformation from closed business model to an open platform. Open banking regulation, which was initially developed in the UK, has provided a legal framework for financial services players in sharing client's data to third parties via APIs (Briones De Araluze and Cassinello Plaza, 2022). Some regulatory actions regarding open banking can be observed in several countries however, the UK and European Union are in a leading position. Despite its simplicity in essence, open banking offers completely new and special financial ecosystem for all stakeholders. The financial services industry is tran-

sitioning towards an open platform model and becoming increasingly integrated into various ecosystems, such as retail and mobility (Deloitte, 2021).

In this era of open banking in financial services, banks are trying to exist in new ecosystems and competing with big techs, fintechs and other non-banks. Even it poses risks for banks, it also brings opportunities such as new revenue streams and customer base (Mckinsey and Company, 2022a). This transformation has started the discussion of a new business concepts for financial services industry such as Banking-as-a-Platform (BaaP) and Banking-as-a-Service (BaaS).

5.2 Openness of Financial Data - Open Banking and API

Open banking is a concept which was initially introduced in the UK in 2015, with the aim of increasing competition and innovation in the financial services industry. It is a regulatory framework that allows banks to share customer data securely, with their explicit consent, with third parties (The Open Data Institute and Fingleton, 2019). Similarly, in 2015, the EU introduced the revised Payment Service Directive (PSD2), aiming to expand the information-sharing framework, along with the rights and responsibilities of both payment service users and providers (PSPs). Through changing dynamics of data ownership and sharing rights, Open Banking and PSD2 regulations have centered their focus on the customer, with the intention of lowering entry barriers and fostering competition in the financial services (Özcan and Zachariadis, 2021). As of 2023, 7 million users in the UK are using open banking enabled applications, product and services (Open Banking Limited, 2023).

Regulators in several countries are working on developing standards and guidelines for open banking standards, influencing the evolution of open banking in distinct ways. Open banking is still in its initial phases and varies in terms of development and regulation across different regions (Rivero and Vives, 2023). According to latest market report (Konsentus, 2023), open banking is live in 16 countries around the World and 23 countries are expected to take actions in the future. Open banking development is highly regulatory driven within “OB live” countries as shown in Table 5.1, which means there is a clear indication of legislation. As Özcan and Zachariadis (2021) discuss that unlike common observation “market evolves first, regulation catch

up later", open banking is driven by regulation, rather than the market. On the other hand, there are several examples of hybrid driven markets in Asia. These countries exhibit the characteristics of strong collaboration between regulators and the market, but no formal regulation is available.

Regulary Driven	**Market Driven**	**Hybrid**
Australia	China	Hong Kong
Bahrain	Switzerland	India
Brazil		Japan
European Economic Area (EEA)		Russia
Israel		Singapore
Türkiye		South Korea
UK		
USA		

Table 5.1: Open Banking Legislation available countries by market driver force
Source: Konsentus, 2023.

As of 2022, Central Bank of Republic of Türkiye has launched the framework for open banking services in payments, and six major banks as account servicing payment service provider have started to offer these services with the consent of customers. Currently in Türkiye, authorized bank's customers can aggregate deposit accounts in a single bank account (CBRT - The Central Bank of Republic of Türkiye, 2022).

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5.2.1 Value of Data

As discussed above, while digitalization and consumer behaviors produce a massive amount of data, technological infrastructure has made it possible to collect, store, and analyze as well. The growing simplicity and advancement regarding data has turned it into a vital component in economic decision-making processes for all indus-

tries. There is growing literature that shows the importance and complementary effect of both financial and non-financial data in decision-making processes (Monteiro et al., 2022). Moreover, Goldfarb and Tucker (2021) discuss that the reduction of costs associated with data tracking has paved the way for personalized experiences and the formation of one-to-one markets. This trend has started discussions over long-standing economic frameworks with asymmetric information and differentiated products such as models of price differentiation, auction mechanisms, and advertising strategies.

Historically, banks have depended on examining customer financial data, deriving insights from payment transactions and accounting records. This includes the analysis of individuals' shopping habits and preferences (Boot et al., 2020). Westermeier (2020) stated that transactional data includes invaluable information which enables owners to gain insights regarding individuals' personal life and daily economic behaviors. In general transactional data, typically owned by traditional financial services players, offers detailed insights within a time frame regarding purchases, amounts, and payment methods, such as debit or credit card usage. Moreover, it is entirely possible to access data regarding income, such as salary, tax activities, medical spending, and financial transactions with political parties. Transactional data provides a competitive advantage to banks such as in pricing, marketing, and personalized financial products (Mckinsey and Company, 2021). The appetite of big tech companies to access financial systems is deeply tied to the rising value of transactional data. Even though there are regulatory limitations and challenges, such as licensing requirements, they are trying to embed financial solutions to their platforms to gain access to transactional data (Westermeier, 2020).

Digitalization and technology have also enabled the incorporation of various types of non-financial customer data. A group of researchers (Berg et al., 2019) discuss that non-financial data is growing with the internet and increasing use of digital services by consumers. They simply call it "digital footprints" left by consumers and even a website can track this kind of valuable data, such as the type of device being used (iOS or Android), and the search engine through which users arrive at the web site. Moreover, they suggest that even this kind of simple digital footprints, which do not require sophisticated technologies for collection and analysis, can be valuable in loan decision process and default prediction as a proxy for income. Big Tech companies, which offer

a wide range of services and accumulate massive amounts of non-financial data, have the power to leverage and unveil insights to assess the credibility of customers and offer various financial services such as lending (Parma Bains and Wu, 2023).

This escalating significance of data in the economy has sparked a lively debate regarding the control of data produced from private financial activities: whether it should be managed by banks or its customers (Babina, Buchak, and Gornall, 2022). Open banking embraces the view that the customer is the owner the financial data, who has the right to share it with third parties.

5.2.2 Potential Benefits for Consumers

Consumers emerge as the primary beneficiaries of the shift towards open banking, a transition that promises manifold advantages in their financial services experience (World Bank, 2022). According to a discussion paper by (Mckinsey and Company, 2021), these benefits can be categorized into three sub-groups: enhanced accessibility to financial services, increased convenience, and improved quality of products and services.

The predominant application of open banking is account aggregation, enabling customers to manage several financial products via a single platform. Typically, an individual might have several financial accounts across different banks and fintech firms, such as deposit accounts, multiple credit cards, mortgages, etc. Rather than tracking each bank separately, consolidating all this information on a single platform can be more convenient. This consolidation offers benefits for customer budgeting, personal financial planning, and the development of innovative applications (Babina, Buchak, and Gornall, 2022). Another application involves personal finance managers (PFMs), which is expanding upon account aggregation services, analyze users' financial activities to provide insights into their spending patterns. PFMs often offer budgeting advice and help customers find better deals. For example, they may identify small daily expenses that accumulate over time or alert users to recurring subscription payments that may no longer be cost-effective. PFMs enhance customer engagement and facilitate switching among service providers, evolving into financial service marketplaces beyond mere account aggregation (The Open Data Institute and Fingleton, 2019).

Similarly, businesses also exhibit diverse account needs for various purposes, including working capital financing, payroll management, payments, etc. Managing these accounts across multiple banks typically requires multiple steps and approvals. Thus, particularly for large businesses, dedicated finance departments and personnel are essential to manage these interactions with financial institutions efficiently (Kassab, Laplante, and Voas, 2022). In this context, account aggregation through open banking offers promises of efficient operation and financial management for businesses as well.

Furthermore, SMEs represent a significant group that is globally underserved, often struggling with limited access to finance and a lack of financial management expertise. Digital financial management solutions enable SMEs to automate many tasks traditionally managed by accounting and finance departments. This automation includes issuing invoices, monitoring payments, and projecting cash flows. Open banking APIs can also be utilized for the purpose of effectively track and manage the finances of SMEs (World Bank, 2022). The UK's The Open Data Institute and Fingleton (2019) has also shared some use-cases which some of them are in live, and some of them in testing and design. Besides the live use cases above, additional use cases can be in the areas as follow: consumer lending, debt advice, SME lending, identity verification etc.

Additionally, there is an expanding body of literature in economics focus on understanding and quantifying the impact of data sharing on customers. Nam (2022) discusses the effects of data sharing on credit decision-making and interest rates using a dataset from a prominent German Fintech Lender. While it is a common belief that data sharing reduces information asymmetry and adverse selection between parties, it may also lead to price discrimination. This occurs as lenders exploit consumer surplus by leveraging detailed information about individual preferences. For example, lenders can use transactional data to gauge price sensitivity and offer varying interest rates to borrowers with similar credit risk profiles (Nam, 2022). Conversely, Philippon (2019) discovered that alternative data sources might reduce non-statistical discrimination, thereby benefiting minorities who were previously disadvantaged by negative stereotypes. Parlour, Rajan, and H. Zhu (2022) note that while payment services data can bring trade-offs among different consumer segments, the unbanked may benefit in terms of increased credit availability. However, data sharing could adversely affect consumers who already use banking services actively. He, Huang, and Zhou (2023)

also emphasize that simply making data sharing optional for customers may not be sufficient to ensure consumer welfare.

5.2.3 Opportunities and Challenges for Traditional Players

Traditional banks are facing several challenges and opportunities. For traditional banks, staying competitive with emerging players requires to deal with various challenges including adapting themselves to the new game in the market. Since customer financial data possession represents a significant strategic advantage for banks, sharing this data with third parties introduces strategic threats. This data sharing -with explicit consent of customers- with third parties enable emerging players to develop innovative applications and services. These include convenient payment methods, improved visibility into financial transactions, personalized services, as well as marketing and cross-selling opportunities (Bank for International Settlements (BIS), 2019). Open banking holds the potential to benefit new firms offering tailored and unbundled services, such as payment and lending (Navaretti et al., 2023). Traditional banks, or incumbents, might face significant market share and profit margin losses if fintechs successfully leverage innovation and data to deliver services that are cheaper and more efficient, thereby meeting customer demands (Omarini, 2018). Additionally, the most common application of open banking, account aggregation significantly increases consumers' visibility over their accounts and transactions, enabling a holistic view of their financial situation. This enhanced visibility, coupled with the ease of switching between accounts and financial service providers, could lead to higher customer turnover and put pressure on the profit margins of traditional banks (Mckinsey and Company, 2021). Basdekis et al. (2022) argue that one of the primary threats to banks is their limited ability to control and oversee interactions between customers and other financial service providers.

Conversely, open banking also presents opportunities for traditional banks to develop new, value-added services for customers and business models, creating pathways for additional revenue streams by leveraging the increased data flow from customers (World Bank, 2022). For instance, the monetization of APIs represents a significant opportunity for traditional banks to uncover and leverage the potential of services and products enabled by these APIs. Traditional banks could charge fees to fintech compa-

nies for access to premium APIs, such as those used for KYC (Know Your Customer), AML (Anti-Money Laundering), etc. (Deloitte, 2021).

Since traditional banking in most countries was historically a closed system, their infrastructure is not fully compatible with the open banking model. This incompatibility necessitates significant investment and transformation to meet the security and privacy standards for data sharing. If banks fail to provide an appropriate infrastructure to facilitate this process, they may face cybersecurity risks and potential breaches of customer data, resulting in loss of trust and reputation on customer side (Bank for International Settlements (BIS), 2019). Establishing an open data ecosystem requires technologically sophisticated infrastructure. Its effectiveness depends on several critical factors such as the robustness of digital payment infrastructure, the comprehensive implementation of digital identification frameworks for individuals and firms, and the general level of information technology adoption (Mckinsey and Company, 2021).

Data sharing could also offer economic advantages to both traditional banks and fintechs. In particular, traditional banks have the opportunity to cut costs by simplifying and automating operations that currently rely on multiple separate data sources. The quality of data obtained through APIs is generally higher than that from some existing data sources of banks, many of which are highly manual. Furthermore, banks can use this newly acquired customer data to enhance fraud detection activities, which can save a substantial amount of money (Boston Consulting Group, 2023b).

5.3 Platform Strategies for Banks

5.3.1 Competition in the Market

Reflecting on the above discussion, the competitive advantages for the main players in the financial services industry are evaluated in Table 5.2. These advantages include having a large customer base, access to both financial and non-financial data, expertise in financial services, agility, and licensing. Banks and big tech companies share similar competitive advantages in terms of their customer base, with both facilitating an enormous number of transactions through their digital channels daily. As Stulz (2022) discusses, banks possess competitive advantages such as an established large customer base and a wide range of product and service offerings, which set them

apart from fintechs. The unique position of banks in having access to financial services data stands out as a competitive edge over the newly emerged players in the financial services market. However, the increasing openness of data in the market and the unbundled, specific financial products and services offered by big techs and fintechs are challenging this unique advantage. On the other hand, big tech companies possess a large amount of non-financial data, which places them in a strategically powerful position. However, they often have limited expertise in financial services, dedicated human resources, and a regulatory mindset.

Competitive Advantages	**Banks**	**Big Techs**	**Fintechs**
Large Customer Base Traffic and transaction obtained by digital channels	✓	✓	✗
Financial Services Data Current and historic data from financial transaction across the financial system	✓	✗→ ✓	✗→ ✓
Non-Financial Services Data Customers' non-financial transaction through digital platforms such as e-commerce	✗	✓	✗
Financial Services Know-How Financial services expertise and capabilities such as human resources	✓	✗	✓
Agility and Time to Go to Market Ability to react and respond quickly to changes in the market	✗	✓	✓
License Collecting deposit and issuing loan requires certain type of licences	✓	✗	✗→✓

✓ Strong ✗ Weak

Table 5.2: Competitive advantages in financial services industry

Furthermore, the ability to rapidly adapt and maintain agility is crucial for staying competitive in the market, especially during periods of continuous change (Murinde, Rizopoulos, and Zachariadis, 2022). In this context, big techs and fintechs, often being

younger companies with a startup mindset, are typically able to pivot their business models quickly (Stulz, 2022). Generally, banks are less agile compared to big techs and fintechs. As discussed in various sections of this study, the financial services industry in most countries is driven by regulation, presenting barriers to entry such as licensing and high capital requirements. These measures primarily aim to ensure the stability of the financial services market and protect consumers. Parma Bains, Sugimoto, and Wilson (2022) highlight that assessing the risk of market concentration associated with big tech companies is crucial in the long run, due to their potential to become dominant market players and distort competition. Additionally, (Özcan and Zachariadis, 2021) note the risk of monopolistic or oligopolistic market structures in the financial services industry if regulations favor big tech platforms. Despite these challenges, banks still hold a competitive advantage over big techs and specialized fintechs in terms of possessing the necessary licenses to offer a wide array of products and services. However, regulatory authorities worldwide are introducing new frameworks and licenses, such as payment and digital banking licenses.

5.3.2 Strategic Choices for Banks

Banks have several strategic options to adapt to the evolving competitive landscape in financial services. Omarini (2018) indicates that numerous researchers (Cortet, Rijks, and Nijland, 2016), consultants, and practitioners have identified similar strategies that traditional banks can employ. These options include:

(i) Complying with regulations and meeting the minimum requirements mandated by law,

(ii) Competing to retain customers on their platforms and utilizing the newly available customer data to improve existing processes,

(iii) Expanding beyond basic banking services to become a one-stop-shop for fulfilling customers' financial needs, and collaborating with others,

(iv) Transforming into new business models that address customer needs not only in financial services but also in various stages of the customer journey within the broader beyond-banking landscape.

The first two options, (i) and (ii), require a relatively low level of transformation for banks, acting as defensive measures to maintain the current state without a comprehensive strategy to capitalize on open banking initiatives. Conversely, options (iii) and (iv) are more aggressive strategies that enable traditional banks to maintain competitiveness in the long term. Padoan (2023) suggests that for traditional banks to ensure their long-term competitiveness and sustainability, embracing business models focused on open banking is essential. Implementing these strategies necessitates substantial investment and transformation efforts from banks, as previously discussed. Similarly, KPMG (2022) report identifies three broad strategic options for traditional banks: complying with open banking at the minimum standards set by regulations, leveraging open banking to enhance their platforms as financial service providers, and becoming the *orchestrator* of a digital platform ecosystem. Furthermore, KPMG (2022) notes that the transition to a platform-based approach is particularly challenging for traditional banks, primarily due to the need for digital technology transformation.

Additionally, these options can be viewed as progressive stages that traditional banks need to undergo to evolve into an *ecosystem* where platform business models capitalize on open banking. Padoan (2023) emphasizes that one of the most effective strategies for traditional banks is to build a network of partners, creating an ecosystem that offers a broad range of products and services to various customer segments and facilitates relationships among them. Within such an ecosystem, traditional banks empower customers to access specialized products and services through the bank's platform.

Open banking offers a significant opportunity for traditional banks to transform their business models by sharing customer data via APIs. The concept of *Banking-as-a-Platform* refers to a strategic approach in which banks embrace a platform strategy, positioning themselves as financial intermediaries that connect customers with third parties (Zachariadis and Özcan, 2017). Furthermore, open banking has given rise to another new business concept, *Banking-as-a-Service*. This model allows banks to provide their banking services and infrastructure to third parties as a service, taking advantage of their status as licensed banking institutions (World Bank, 2022). From another perspective (Boston Consulting Group, 2023b), banks can play two main roles in the ecosystem world to leverage open banking: orchestrator and contributor. As an

orchestrator, banks act as rule makers and managers of the ecosystem, facilitating relations between parties, controlling access, and distributing profits. Alternatively, as a *contributor*, banks can provide banking products and services within the ecosystems established by others. Additionally, banks have the option to adopt a *hybrid strategy*, playing both orchestrator and contributor roles in these ecosystems. According to research by the Boston Consulting Group (2023b), which studied 79 banks active in ecosystems, 25% have embraced the orchestrator role, 32% have positioned themselves as contributors, and the remaining 43% have adopted a hybrid approach, engaging as both orchestrator and contributor in ecosystems.

5.3.2.1 Banking-as-a-Platform (BaaP) and Beyond Banking

In a platform business model, banks act either as **an orchestrator or a network**, gathering ecosystem members on a platform and aligning providers with users. This concept shows similarities to the core business model of traditional banking, which involves collecting deposits and issuing loans (Murinde, Rizopoulos, and Zachariadis, 2022). In this model, a bank's platform allows fintechs and others to collaborate via APIs and jointly innovate (Mastercard, 2022). The ecosystem orchestrator manages the platform, facilitating smooth interactions and transactions between various buyers and sellers. This role involves providing a seamless and secure experience for all participants, negotiating agreements with partners, collaborating with developers, and maximizing customer value. It is highly desirable because it enables the monetization of customer relationships while also increasing customer satisfaction and attracting new customers (EY, 2020).

Digital banks, often referred to as "challenger" or "neobanks", have introduced platforms to their customers, similar to those of Amazon or the Apple App Store (Özcan and Zachariadis, 2021). The Starling Bank, a prominent digital bank in the UK, defines its platform as a "marketplace" that enables customers to access a diverse range of financial products to help manage their money. This marketplace features a variety of third-party providers specializing in different areas such as insurance, mortgages, and wealth management. For instance, Starling customers can easily purchase life insurance from Anorak, an insurance-focused fintech in the UK. The Starling Bank connects customers with these various third-party providers through its app, the Star-

ling platform. Furthermore, Starling Bank provides a wide array of products and services tailored for businesses through its "Business Marketplace". This marketplace includes not only financial service providers but also non-financial service providers offering services in accounting, HR, legal, and more. As the orchestrator of this "marketplace", Starling provides additional benefits to both sides of the platform. It attracts third-party providers with its growing customer base, streamlined onboarding services for KYC (Know-Your-Customer) and AML (Anti-Money Laundering), and easy integration through simple APIs. Starling Bank customers, including both individuals and firms, can access a diverse array of products and services from trusted third-party providers in one convenient location, eliminating the need for separate onboarding and integration processes (The Starling Bank, 2023). Similarly, Revolut, a digital bank – neobank- in the UK, offers a business marketplace for SMEs and freelancers. This marketplace features a range of third-party providers specializing in various products and services, such as accounting, financial management tools, and payment solutions (Revolut, 2023).

On the other hand, some large financial institutions are incorporating non-financial products and services into their financial service offerings similar to digital banks. For example, DBS Bank in Singapore has created a marketplace that acts as a hub or "platform" for customers to access a variety of services beyond traditional banking, such as real estate, travel, healthcare, and education (Deloitte, 2023). Similarly, HSBC in Hong Kong has adopted the platform model with an ecosystem called "BusinessGo", targeting SMEs. This platform, "Business Go", provides a comprehensive experience for SMEs in three main categories: knowledge, connections, and tools. HSBC aims to deepen customer relationships through its Knowledge Hub and Support Network, and offers third-party service integration, categorized as "Tools" (Boston Consulting Group, 2023b).

Furthermore, a new type of platform business model has emerged in financial services known as a "financial marketplace", which aggregates various financial products from different providers in one place. This model offers multiple financial services and products in one place and is distinct from the marketplaces developed by Starling or Revolut mentioned above. While fintechs are known for better customer experiences and innovative products, they often have a limited range of products, typically focusing

on specific areas like savings and payments. Consequently, some fintechs have created the first B2C (business-to-customer) platforms. These platforms allow customers to access a variety of products from both fintechs and traditional banks through digital platforms (Özcan and Zachariadis, 2021). Acting as aggregators, these platforms enable customers to compare and apply for a range of financial products, including loans, credit cards, and insurance, from a multitude of financial institutions. Examples of such "financial marketplaces" include NerdWallet in the USA, smava in Germany, GoCompare in the UK, and HangiKredi in Türkiye. Moreover, similar marketplace formations exist for businesses, especially SMEs, offering various financial solutions such as working capital loans and invoice financing. For example, Figopara in Türkiye connects SMEs with financiers, predominantly traditional banks, on a digital platform. This enables SMEs to access invoice financing offers from partner banks and other financial institutions. According to the OECD (2022) report on marketplace and fintech lending, traditional banks participate in marketplace lending through various strategies. These include acquiring marketplace lending platforms, building partnerships with them, and providing funding through platforms or fintechs. In 2021, a consortium comprising four Volksbanken, Atruvia, and DZ Bank acquired FinCompare, a Berlin-based financial marketplace for SMEs (IEG Investment Banking, 2021). Additionally, Citibank developed "Bridge", a platform that connects SMEs to a network of more than 75 lenders in the USA (Citigroup Inc., 2023).

5.3.2.2 Banking-as-a-Service (BaaS) and Embedded Finance

Banking-as-a-Service (BaaS) is a "white-label" business model that allows banks to offer "banking solutions" to non-banks via APIs (Resano, 2021). These APIs facilitate the connection between fintechs' and/or other non-bank user interfaces and the banks' products and services, forming the cornerstone of a successful BaaS partnership model (Hodges, 2023). BaaS paves the way for non-financial institutions to offer banking solutions to their customers without requiring a banking license (Boston Consulting Group, 2023b). In the BaaS model, banks provide products and technological infrastructure at the back-end, while the front-end customer interface is managed by a fintech or non-financial institution partner. Mckinsey and Company (2022a) outlines two business models for banks within the BaaS framework: In the BaaS utility provider model, banks develop white-label products and infrastructure services, such as issuing

a credit card for a retailer, for non-financial institutions. On the other hand, in the "BaaS balance sheet provider" model, banks and non-financial institutions collaborate to offer balance sheet products that require a license, such as loans.

Although BaaS increases competition for traditional banks, it also offers several opportunities, such as access to new customer bases and revenue streams. Banks can generate additional revenue through fees for banking services, and access new customers via BaaS partners, leveraging their balance sheets with lending products to increase market share. Moreover, acting as a cost-reduction driver, BaaS can benefit banks. As the non-financial institution manages customer interactions, banks can decrease marketing costs for customer acquisition and retention. Furthermore, some studies indicate that BaaS providers benefit from low funding costs through non-interest-bearing deposits, especially from prepaid cards (S&P Global Market Intelligence and Mason, 2023). Leading traditional banks worldwide, such as Goldman Sachs and BBVA, are embracing the BaaS model by partnering with non-financial institutions (Boston Consulting Group, 2023b). Meanwhile, digital banks focusing on the BaaS model, like Solaris Bank in Germany, are becoming key players. Solaris Bank, identifying itself as a technology company with a full German banking license as well as digital asset custody and e-money licenses, offers products and services to non-financial institutions in four main categories: digital banking, payments, lending, and identification. For instance, Vivid Money—a prominent German fintech with a mobile app for managing personal finance and investment—partners with Solarisbank for current account and debit card services. While Solarisbank provides the necessary infrastructure for financial services, Vivid Money focuses on product development, marketing, and other value-added customer-centric solutions (Solaris Group, 2023).

Although early BaaS collaborations involved banks and fintechs, new forms of partnership are emerging with non-financial institutions from sectors like e-commerce and mobility, which benefit from "embedded finance" (Mastercard, 2022) which is a concept within BaaS and is often used interchangeably with BaaS. However, they refer to different business models (Akcok, 2023). Embedded finance involves providing specific financial services to non-financial institutions, enabling them to integrate financial services into their offerings.

The initial use-cases of the embedded finance business model began with payments. Despite expansion into many new verticals, payments still represent the largest revenue share in embedded finance (EY, 2020). E-commerce players, big tech companies, and other large non-financial institutions are adding payment layers to their platforms to offer seamless customer journeys without leaving their platforms. A notable example of this is Uber, where drivers can open a bank account within the app and receive payments directly (Ozili, 2023a).

Although BaaS and embedded finance may seem similar in terms of providing financial services through APIs to non-financial institutions, their focus differs. While BaaS primarily focuses on back-end processing and infrastructure, embedded finance also concentrates on the customer-facing front-end, in addition to the infrastructure. The BaaS model primarily focuses on partnerships with fintechs, aiming to enhance the financial services experience for customers and compete with traditional banks in specific verticals. In contrast, embedded finance targets non-financial institutions, focusing on providing innovative financial products and services within their platforms. This includes offering one-click alternative payment methods to customers at checkout (Fintech Global, 2023). Buy Now, Pay Later (BNPL) is a notable example of embedded finance, allowing consumers to make installment payments for their online shopping. While BNPL bears similarities to traditional credit card services in some countries, e.g. Türkiye, its integration into e-commerce platforms and the provision of installment options to non-card holders is novel. The most common use cases of embedded finance are found in retail and e-commerce, where financial institutions offer solutions in payments, lending, and cards (Bain and Company Inc., 2022). Mckinsey and Company (2022a) categorizes embedded finance products and solutions into four categories: deposits, payments, issuing cards, and lending. Although traditional banks are strong providers in the embedded finance space due to their wide range of products and services, fintechs are also making their mark and seeking a larger share in the market (Mastercard, 2022). As an example of a non-bank competing in the embedded finance space, Shopify, a Canadian online shopping platform, provides payment solutions to the social media platform TikTok (Ozili, 2022). Another case is Türkiye's Hepsipay, a fintech subsidiary of Hepsiburada Global Inc., which has launched BNPL services leveraging past shopping data of customers (Hepsiburada, 2022).

As detailed above, platform strategies are becoming increasingly crucial for traditional banks to compete in the evolving financial services landscape. Several factors have permanently transformed the industry: shifts in customer expectations toward seamless digital experiences, technological advancements, and regulatory frameworks for open banking and APIs. These changes have given rise to new competitors, including fintechs and big tech companies. In response, traditional banks are recognizing the need to embrace platform strategies to adapt and stay competitive. However, implementing such strategies requires a modern and modular technological infrastructure, presenting one of the biggest challenges for many traditional banks worldwide.

6 THE MODEL

This study explores the adoption of the platform business model within the financial services sector, using a theoretical framework based on various assumptions that will be discussed subsequently. As highlighted in earlier sections, the platform model significantly impacts a range of sectors, from daily grocery shopping to transportation and financial services. Platforms have become essential components of both everyday life and the broader economy. In fact, researchers from various disciplines have investigated the dynamics of "platformization" and its multifaceted effects on firms, consumers, competition, and more. Moreover, business professionals across different industries increasingly recognize the platform strategy as a crucial element for maintaining market competitiveness.

Specifically, in financial services, platform strategies have started to discuss in the last decade, and it is still an evolving business model attracts financial services players across the world. Traditional financial institutions began to adapt, initially offering selected products and services through digital channels such as websites and mobile apps. This trend soon shifted towards to a more comprehensive digital experience for almost all products and services. Additionally, the financial services industry has witnessed the emergence of new digital players, fintechs, which have positioned them-

selves as disruptors of traditional business models by offering digital experiences in specific verticals of financial services. Currently, the industry is facing with additional challenges not only posed by fintechs and big tech companies, but also regulations, each influencing the evolution of platform strategies in the financial sector.

Although various digital platforms, such as beyond-banking platforms and financial marketplaces, are emerging in the financial services industry, providing a definitive outlook for the industry's future in terms of platform development remains challenging. Several factors are shaping platform strategies in the financial services industry, including technological infrastructure, regulatory frameworks, and the competitive landscape. Moreover, these factors differ significantly across countries. It can be said that the financial services industry is still in the early stages of adopting the platform business model, and there is a considerable journey ahead. Consequently, this study aims to offer insights into the potential trade-offs faced by banks in building a platform and competing with fintechs. To do this, we utilize a theoretical model that is augmented by considering some key dynamics of the financial services industry.

6.1 Hagiu et al. (2020)'s Model

In this study, we extend the platform model developed by Hagiu, Jullien, and Wright (2020) which addresses a significant phenomenon in the market that has gained considerable momentum with the rise of digitalization. Specifically, Hagiu, Jullien, and Wright (2020) analyze the benefits of hosting to third-party rivals that offer partial and/or perfect substitute of products and services offered by the platform owner as well; highlight and provide real-life examples where companies have found several to host third party competitors by transforming themselves into a platform. The main findings of this model show that hosting a rival limits the multiproduct firm's ability to apply price discrimination across consumer groups, leading to reduce profit from some products. However, it also gives the multiproduct firm an opportunity to leverage elimination of shopping cost through the formation of a platform, potentially increasing the price of specific product. This strategic action, described as "turning substitute product to complementary product" is examined through a joint profit approach, adding cost-sharing and profit transfer mechanisms to the model, such as lump-sum transfer. Additionally, Hagiu, Jullien, and Wright (2020) introduced several extensions to the

model to analyze without hosting vs. with hosting scenarios under different conditions, including allowing the hosting firm to monitor rival transactions, charging transaction fees to the rival, etc. The primary findings of and extensions of the base model are detailed as follows.

To facilitate an accurate analysis, it's crucial to understand the main propositions of Hagiu, Jullien, and Wright (2020) in the scenarios of "without hosting" versus "hosting", where the multiproduct firm hosts the specialist single product firm in the platform. While the multiproduct offers two products A and B, the specialist provides a superior version of product B. Additionally, there are two consumer groups, type A and B according to their preferences towards offered products. Type B consumers gains additional value, Δ, when they consume superior version of product B. Hagiu, Jullien, and Wright (2020) found that without hosting there is a unique equilibrium where all consumers type A choose the multiproduct company, whereas type B consumers buy A and B from multiproduct company and with hosting, type B consumers choose to buy the superior version of product from the specialist single product firm since hosting eliminates shopping cost. Note that for the second result, Hagiu, Jullien, and Wright (2020) additionally argues that the equilibrium prices and profit functions vary according to size of customer group A.

6.2 Economic Environment

In this study, we try to capture the trade offs of platform strategies on bank-fintech competition by analyzing the strategic interactions between a traditional bank, a fintech firm and a heterogeneous consumer population. In this context, the traditional bank, T acts as the platform builder and hosts the specialized fintech firm, F. To gain more insightful understanding in the context of financial services, we have extended Hagiu, Jullien, and Wright (2020) by incorporating a new consumer type and multiple specialist firms into the platform. The equilibria and profits are examined in following sections, where the outcomes of without hosting and hosting scenarios are compared and analyzed in the context of financial services, specifically with the lens of Banking-as-a-Platform (BaaP) approach.

In this context, the components of Hagiu, Jullien, and Wright (2020) are thoroughly evaluated considering characteristics and dynamics of traditional banks and fintechs, as well as financial products and consumer preferences. Consequently, the model is thoughtfully extended to yield more profound insights into platform strategies within the financial services sector.

Firms: The model includes two main types of firms: a traditional bank and a fintech company. Mirroring real-world scenarios, traditional banks are depicted as multiproduct firms offering a broad spectrum of financial services, ranging from loan products to payment solutions. Fintech companies, in contrast, typically have a focused approach within the financial services landscape, exemplified by providing end-to-end digital and easy-to-integrate online payment solutions for small businesses. Thus, in this model, the multiproduct firm T represents a traditional bank, while the specialized firm F represents a fintech operating in a competitive vertical against the bank. In the extended version that we propose, one more competitor specialist fintech, F^2 is introduced.

Products and Services: In the model, there are two types of products: L and P. These products are neither perfect complements nor perfect substitutes for each other. In this model, only firm T (the traditional bank) provides product L, which can be considered as core financial products offered by banks, such as general-purpose loans. Typically, offering loan-based products necessitates a banking license, entailing substantial capital and compliance requirements. Hence, firm T holds a monopoly over product L. Although firm T offers product P, fintech –firm F– presents a superior or enhanced version of it. The variations of product P are denoted as P_T and P_F, offered by T and F, respectively. This dynamic is frequently observed in fintech firms that specialize in specific financial service verticals, such as online payment solutions. In that sense, the provider of the superior version of product P (P_F) is assumed to be provided by the fintech company. It is assumed that all consumers assign positive utility to both products L and P, expressed as $U_L > 0$ and $U_F > 0$.

Consumers: The consumer population demanding banking and financial products and services is normalized to λ, encompassing two main types of consumers: type L and type P. Unlike Hagiu, Jullien, and Wright (2020), type P is subdivided into two

distinct categories: type P_q and type P_d. Type P_q consumers are characterized by their preference for quality, deriving additional utility from consuming the superior version of product P, denoted as P_F. Conversely, Type P_d consumers are distinguished by their appreciation for product diversification and the convenience of a one-stop-shop experience.

The population of type L consumers is denoted by $\lambda_L > 0$, they only purchase one unit of product L and show no interest in product P. It is also assumed that λ_L is always large enough for T to want to sell to type L. Within the framework of financial services, this group show similarities with customers who are solely dependent on traditional banks for core loan products, largely due to the lack of alternative options. This consumer segment represents a foundational market for traditional banks, emphasizing the continued relevance of conventional financial products in an evolving digital financial services landscape. On the other hand, type P consumers value both products L and P, indicated by $\lambda_P > 0$ or $1-\lambda_L > 0$. As we have mentioned, type P consumers are divided into two subgroups: type P_q and type P_d. So, $\lambda_{P_q} = 1 - \lambda_L - \lambda_{P_d}$ and similarly, $\lambda_{P_d} = 1 - \lambda_L - \lambda_{P_q}$.

- **Quality preference**: Within the context of financial services, fintechs attract customers by offering specialized solutions that include end-to-end digital experiences, personalized services, and value-added offerings beyond their core services. This trend has accelerated with the increasing digital adaptation among the customers. Fintechs strategically address and mitigate the pain points in the products and customer experiences provided by traditional banks. For instance, numerous fintechs specializing in online payment solutions (e.g., online POS for small-sized merchants) differentiate themselves from banks by providing sector-specific and customized value-added services, such as integration support for e-commerce platforms. As a result, a portion of type P consumers, identified as type P_q, find additional value in the specialized product and service offerings from the fintech. These consumers obtain extra value ($\Delta \geq 0$) when they consume the superior version of product P, denoted as P_F. Thus, type P_q value P_F as $u_{P_F} = u_P + \Delta$.

- **Diversity preference**: Moreover, many individuals and firms typically use mul-

tiple financial products and services in real life. For some, the concurrent use of these products provides additional utility. Consider a small business owner selling on online marketplaces such as Trendyol and Amazon. This firm needs various financial products and services to sustain their business cycle, including working capital financing and online payment solutions. Generally, accessing these services through a single platform enhances the consumer's value, enabling efficient monitoring and management of finances. The integration of these services, such as instant loan offerings based on online sales cash flow, further benefits the customers. Consequently, the one-stop-shop experience in financial services offers additional value to a group of customers not only by reducing shopping costs but also by increasing efficiency and convenience for consumers. In this model, these consumers are categorized as type P_d, who appreciate the simultaneous access to products L and P and the convenience of a single platform. The traditional bank, referred to as firm T, possesses a considerable competitive advantage in this area by providing both products and catering to the one-stop-shop preferences of type P_d consumers. Type P_d consumers prefer diversification and get additional utility when consume both product L and P, denoted as γ. Furthermore, they get additional utility, γ', when accessing products L and P from a single platform and/or provider.

Shopping Environment: As Hagiu, Jullien, and Wright (2020) note, consumers face a shopping cost $\sigma > 0$, when they interact with each firm. Simply, they will have shopping cost σ, each time they go for shopping. This cost remains constant for each time, irrespective of the quantity or type of products they purchase. Digital platforms, particularly in financial services, have been successful in reducing these type of market inefficiencies such as search and transportation costs. Unlike purchasing everyday items like groceries or clothing, the shopping cost in financial services is notably higher due to the intricate nature of these services. For instance, a customer seeking a mortgage or personal loan must undergo a comprehensive onboarding process. This includes mandatory KYC protocols and underwriting procedures, which require submitting a substantial amount of personal and financial information to the financial institution. This process is valid for both banks and fintech companies even if KYC requirements may be lighter for fintechs due to their product offerings (i.e. P2P money

transfer). Thanks to digital onboarding regulations now in place in many jurisdictions, customers can complete these steps entirely online, a significant improvement over the traditional and paper-based processes. However, KYC remains as a "must have" but time-consuming step in securing services from both banks and fintechs.

An example of such a cost can be seen in the underwriting process, which is loan application process in case customer does not have pre-approved credit line. For some financial products, customers have to provide additional information such as proof of income, salary, employment details, etc. Banks and fintechs assess these information along with their own risk criteria and appetite, to determine eligibility for these products. Even though digitalization has made this process quicker and easy for customers, it is a still friction of using products from different providers. Traditional banks may have the advantage of extensive historical transaction data in decision making, but fintechs are keeping up them by leveraging accumulating data with advanced analytics and technology. These kinds of underwriting processes can be considered as of shopping cost as well, for customers in financial services.

Given this backdrop, the model's assumption that customers incur a shopping cost $\sigma > 0$ for each firm reflects one of the dynamics of current financial services landscape. Moreover, the assumption holds that customers can reduce this cost by transacting through a single platform. One of the practical examples can be the integration of loan and payment services on a digital platform, allowing customers to manage their finances more efficiently and reducing the need to provide information multiple times across different institutions. As discuss in detail above, open banking has paved the way for managing all finances in a platform and sharing customer data with third party providers with explicit customer consent.

We also suppose that the shopping cost is always less than the minimum utility consumers derive from products L and P. This relationship can be expressed as $\sigma < min\{u_L, u_P\}$ as it was similarly proposed in Hagiu, Jullien, and Wright (2020). Moreover, we suppose that the shopping cost, σ is greater than or equal to the additional utility, $\Delta \leq \sigma$, that consumers get when purchasing the superior version of product P (P_F) offered by the fintech, firm F. Given that the traditional bank, firm T, operates as a multi-product firm, the extra value provided by the fintech F is insufficient to off-

set the additional shopping cost, this assumption provides a competitive advantage to the traditional bank in scenarios where there is no platform, simply without hosting. In real-life scenarios, this can be observed despite consumers recognize the superior features of a fintech service, they choose to remain with their traditional bank due to the convenience and reduced complexity of managing all their financial needs under one roof. In that sense, the model captures the dynamics of customer behavior and decision-making in the context of financial services.

Platform Building: As discussed in the original model (Hagiu, Jullien, and Wright, 2020), building up a platform, simply hosting any third party, may require significant investment and costs depending on the size and complexity of the products and services. These costs can be considered as technology infrastructure, integration, maintenance, employees, etc. In this model all costs associated with the platform is denoted by $C > 0$. Even though costs may increase after some period with the increasing number of entrants or vice versa, it is assumed that C remains constant throughout the analysis. In the context of financial services, developing such platform strategies requires a high level of infrastructure investment in terms of technology. As discussed in detail on previous chapters, most of the traditional banks across the world show slow progress in this technological transformation process due to old IT legacy and high investment requirement. On the other hand, regulators around the world force traditional banks and foster competition with new regulations such as open banking and digital KYC.

In this model framework, multiproduct traditional bank T host specialized service provider fintech, single product firm F. It is possible to observe some sort of opposite cases in financial services landscape as well. (i.e. financial marketplaces). However, the primary focus of this study is to examine the potential impacts of BaaP strategies on banks, fintechs and consumers, using an assumption based theoretical model. This is why, the platform builder is assumed as the traditional bank, firm T. Fintech firm F joins as contributor to the platform. Accordingly, the traditional bank, firm T bears all costs, $C > 0$, associated with the platform[1].

[1]Hagiu, Jullien, and Wright (2020) also delve into the cost-transfer mechanisms through a fee structure between the multi-product firm and the single-product specialized firm. However, these mechanisms are not in the scope of this study.

6.3 Equilibrium with Heterogeneous Consumer Preferences in the Specialized Market

In this study, we have introduced more diverse preferences in the consumer population to enhance the granularity of consumer preferences. These consumers value diversity in their financial product consumption, distinct from consumers valuing quality. To clarify the trade-offs between hosting and non-hosting scenarios, the utility payoffs for each consumer group are calculated and compared.

6.3.1 Equilibrium Without Hosting

In this scenario, multiproduct firm T offers product L and P, and specialized firm F offers superior version of product P, P_F. We denote by ϕ_i, the price of product i. Since type L consumers are interested in only product L, if firm T charges $\phi_L \leq u_L - \sigma$, type L consumers will buy. However, type P consumers, both type P_q and type P_d have various alternatives to choose.

For type P_q, the utility obtained are as follows across alternatives:

- with only L, the utility is $u_L - \phi_L - \sigma$
- with only P, the utility is $u_P - \phi_P - \sigma$
- with only P_F, the utility is $u_P + \Delta - \phi_{P_F} - \sigma$
- with L and P, the utility is $u_L + u_P - \phi_L - \phi_P - \sigma$
- with L and P_F, the utility is $u_L + u_P + \Delta - \phi_L - \phi_{P_F} - 2\sigma$.

For type P_d, the utility obtained are as follows across alternatives:

- with only L, the utility is $u_L - \phi_L - \sigma$
- with only P, the utility is $u_P - \phi_P - \sigma$
- with only P_F, the utility is $u_P - \phi_{P_F} - \sigma$
- with L and P, the utility is $u_L + u_P + \gamma + \gamma' - \phi_L - \phi_P - \sigma$

- with L and P_F, the utility is $u_L + u_P + \gamma - \phi_L - \phi_{P_F} - 2\sigma$.

If $\phi_L \leq u_L - \sigma$, then P_q will prefer bundle (L, P) over consuming P alone. Regarding the preference for (L, P) over (L, P_F), if

$$\begin{aligned} u_L + u_P - \phi_L - \phi_P - \sigma &> u_L + u_P + \Delta - \phi_L - \phi_{P_F} - 2\sigma \\ \Delta - \phi_{P_F} - \sigma &< -\phi_P \\ \implies \phi_P - \phi_{P_F} &< \sigma - \Delta \end{aligned} \tag{1}$$

P_q will prefer to buy bundle of (L, P) from T, instead of bundle of L from T and P_F from F. In other words, if the difference of additional utility from quality and the cost of going to the specialized firm is less than the extra price of the specialized good, P_q types prefer (L, P) over (L, P_F). Thus, if firm T sets $\phi_P^* = \sigma - \Delta - \epsilon$ just below the utility gain to extract surplus from this type[2], then firm F will have no other alternative than to set its price to zero $\phi_{P_F}^* = 0$ and still would not have any demand. Another alternative is for T is to set $\phi_P^* = \sigma - \Delta$ to extract all the surplus, then if F will set its price to zero $\phi_{P_F}^* = 0$, F will have no profit but will share the payment market with T whose profit will drop.

Clearly, P_d prefers bundle of (L, P) over (L, P_F) because, specialized product does not provide additional utility and shopping from different firms has additional σ cost. Moreover, this group gains additional utility γ when they consume both products at the same time, another γ' when they consume those varieties from the same shop or platform. If the following condition is satisfied,

$$\begin{aligned} u_L + u_P + \gamma + \gamma' - \phi_L - \phi_P - \sigma &> u_L + u_P + \gamma - \phi_L - \phi_{P_F} - 2\sigma \\ \implies \gamma' - \phi_P &> -\phi_{P_F} - \sigma \\ \implies -\gamma' - \sigma &< \phi_{P_F} - \phi_P \end{aligned} \tag{2}$$

P_d prefers the bundle of (L, P) from T, instead of the bundle (L, P_F) from T and F. For F, setting a negative price is meaningless. Firm T can set a different price for its product P (i.e. $\gamma' + \sigma$). However $\sigma - \Delta - \epsilon$ necessary to acquire P_q segment is less than $\gamma' + \sigma$ necessary to acquire all the surplus of P_d segment. If T sets $\gamma' + \sigma$ then F_j will set $\sigma - \Delta$ and capture all segments. As a result, defining a new consumer group does not change the equilibrium as stated in Hagiu, Jullien, and Wright (2020).

[2]Note that $\sigma < min\{u_L, u_P\}$ and $\Delta \leq \sigma$ with $0 < \epsilon < \sigma - \Delta$.

Proposition 1 *Without hosting there is a unique equilibrium and prices are as follows:* $\phi_L^* = u_L - \sigma$, $\phi_P^* = \sigma - \Delta - \epsilon \approx \sigma - \Delta$ *and* $\phi_{P_F}^* = 0$. *All consumers type* L *choose* T, *and all consumers type* P *buy* L *and* P *from the multiproduct firm* T. *As a result, associated profits are* $\pi_T^* \approx u_L - \sigma + (1 - \lambda_L)(\sigma - \Delta)$ *and* $\pi_F^* = 0$.

6.3.2 Equilibrium With Hosting: Multiproduct T Host Specialist F

In this case, consumers can buy F's product from the platform without the burden of extra shopping cost. Broadly, firm T turns itself to a platform which enables consumers to make one-stop-shopping. While T being a platform incurs different types of fixed cost discussed above. All cost are denoted by $C > 0$.

For type L consumers, this development does not bring an additional value and/or deviation in their existing preferences, because this group is only interested in product L, that only firm T offers. This is why, if firm T charges $\phi_L \leq u_L - \sigma$, type L consumers will continue to buy the product. In this case, it will charge $\phi_L = u_L - \sigma$ to extract all the surplus and sell to all consumers on the platform. However, T has another option. Instead of selling its product to L segment, it increases its price to $\phi_L = u_L$ and aims the P segment, but then, L could not buy the product[3]. T will choose its strategy according to its profit in each case. Regarding type P consumers, both type P_q and type P_d have various alternatives to choose.

For type P_q, the utility obtained are as follows across alternatives:

- with only L, the utility is $u_L - \phi_L - \sigma$
- with only P, the utility is $u_P - \phi_P - \sigma$
- with only P_F, the utility is $u_P + \Delta - \phi_{P_F} - \sigma$
- with L and P, the utility is $u_L + u_P - \phi_L - \phi_P - \sigma$
- with L and P_F, the utility is $u_L + u_P + \Delta - \phi_L - \phi_{P_F} - \sigma$.

For type P_d, the utility obtained are as follows across alternatives:

[3] In our environment, the second strategy will mean that loan services will not be provided to a group of consumers demanding only this product. If loans are necessary for the functioning of the economy then an intervention through subsidies or price ceilings needs to be implemented.

- with only L, the utility is $u_L - \phi_L - \sigma$

- with only P, the utility is $u_P - \phi_P - \sigma$

- with only P_F, the utility is $u_P - \phi_{P_F} - \sigma$

- with L and P, the utility is $u_L + u_P + \gamma + \gamma' - \phi_L - \phi_P - \sigma$

- with L and P_F, the utility is $u_L + u_P + \gamma + \gamma' - \phi_L - \phi_{P_F} - \sigma$.

If $\phi_L \leq u_L - \sigma$, consuming bundle (L, P_F) will be at least as good as consuming only P_F for P_q. Therefore, instead of buying only his preferred good from the specialized firm F, after hosting, P_q will have access to other products and services. Then it is interesting to know whether P_q will prefer to buy the bundle (L, P) from T over (L, P_F), thus move to only T products. This happens if

$$\begin{aligned} u_L + u_P - \phi_L - \phi_P - \sigma &> u_L + u_P + \Delta - \phi_L - \phi_{P_F} - \sigma \\ \implies -\phi_P &> -\phi_{P_F} + \Delta \\ \implies \phi_P &< \phi_{P_F} - \Delta. \end{aligned} \tag{3}$$

Consequently, T should make up for the disutility of P_q segment from not consuming the specialized product and undercut F by Δ to gain P_q segment. In this case, if firm F sets $\phi_{P_F} = \Delta$ then T can only set $\phi_P = 0$, and get market share by dropping the price of P to zero and earn zero profit in P segment.

If both companies charge the same price for their payment product, the utility of P_d will be the same whether they choose P or P_F and (L, P) or (L, P_F). Since they will gain additional utility from consuming a variety of products, they will prefer bundle purchases over single product purchases. *If both companies charge different prices for their payment product*, P_d will buy the bundle (L, P) instead of (L, P_F) if the following condition is satisfied:

$$\begin{aligned} u_L + u_P + \gamma + \gamma' - \phi_L - \phi_P - \sigma &> u_L + u_P + \gamma + \gamma' - \phi_L - \phi_{P_F} - \sigma \\ \implies \phi_P &< \phi_{P_F}. \end{aligned} \tag{4}$$

As all payment products are perfect substitutes for P_d, P_d will buy the package (L, P) instead of (L, P_F) if it is cheaper. Then T will set ϕ_P as $\gamma + \gamma'$ to extract all surplus from P_d segment as long as $\gamma + \gamma' < \Delta$ instead of dropping the price

of P to zero to attract P_q segment. But F may compete for P_d segment as well. If $(\lambda_{P_d} + \lambda_{P_q})(\gamma + \gamma') < \lambda_{P_q}\Delta$, then the gain by undercutting to obtain all P consumers will not make up for the loss due to price reduction and F will only serve P_q and otherwise since T will undercut and set $\phi_P = 0$, it will not be worthwhile for F to compete for the diversity lovers and F will only serve P_q as well. On the other hand $\gamma+\gamma' > \Delta$, $\phi_{P_F} = \Delta$ can be attractive for these consumers and any reduction by T can be attractive as well. So T can can choose to undercut to a level it will not be attractive for F to compete. The following proposition summarizes the results:

Proposition 2 *With hosting, in L market, the equilibrium price is $\phi_L^* = u_L - \sigma$ if $\frac{\sigma}{u_L} > 1 - \lambda_L$ and otherwise $\phi_L^* = u_L$. When we denote the share of quality preferring consumers in the payment demand $\bar{\lambda} = \frac{\lambda_{P_q}}{\lambda_{P_d}+\lambda_{P_q}}$, the equilibrium P prices and resulting profits can be given as follows:*

i. If $\gamma+\gamma' < \Delta \implies \frac{\gamma+\gamma'}{\Delta} < 1$ and $\frac{\gamma+\gamma'}{\Delta} < \bar{\lambda}$, $\phi_P^* = \gamma+\gamma'$ and $\phi_{P_F}^* = \Delta-\epsilon \approx \Delta$. P market is provided by two firms and a variety of P products exists in the market. As a result, associated profits are $\pi_T^* = u_L-\sigma+\lambda_{P_d}(\gamma+\gamma')-C$ and $\pi_F^* = \lambda_{P_q}\Delta$ if $\frac{\sigma}{u_L} > 1-\lambda_L$ and otherwise $\phi_L^* = u_L$ and $\pi_T^* = (1-\lambda_L)u_L+\lambda_{P_d}(\gamma+\gamma')-C$.

ii. If $\gamma + \gamma' < \Delta \implies \frac{\gamma+\gamma'}{\Delta} < 1$ and $\frac{\gamma+\gamma'}{\Delta} > \bar{\lambda}$, $\phi_P^* = 0$ and $\phi_{P_F}^* = \Delta - \epsilon \approx \Delta$. P market is provided by two firms and a variety of P products exists in the market. As a result, associated profits are $\pi_T^* = u_L-\sigma-C$ and $\pi_F^* = \lambda_{P_q}\Delta$ if $\frac{\sigma}{u_L} > 1-\lambda_L$ and otherwise $\phi_L^* = u_L$ and $\pi_T^* = (1-\lambda_L)u_L - C$.

iii. $\gamma + \gamma' > \Delta \implies \frac{\gamma+\gamma'}{\Delta} > 1$ then $\frac{\gamma+\gamma'}{\Delta} > \bar{\lambda}$ and we have the same results as ii.

Note that first if λ_L is large enough, T's revenue heavily depends on sales of product L. Second, λ_{P_d} and λ_{P_q} are pivotal in determining how firms T and F set their prices in the payment market. If λ_{P_d} is large, T has more incentive to optimize ϕ_P to capture this segment. Then in case the gain of variety lovers from joining the platform is less than the utility of quality lovers from consuming their product from the platform and the profit from capturing all P market is less important than targeting the specialized segment, there is an equilibrium with two products served by different firms in the payment market with above normal profits. For T, a balance between appealing to λ_L and λ_{P_d} is crucial, while for F, maximizing appeal to λ_{P_q} is key. With hosting, T

can achieve more profit if a significant market share of variety-loving consumers exists. Proposition 2 shows that by creating a platform, T can offer a variety of products to a variety of consumers but not necessarily by foreclosing the market of specialized products and earning above normal profits in both markets.

6.4 Multiple Specialists: Introducing an Additional Specialist

This analysis has so far focused on platform strategies involving T and F and different types of consumer groups. However, in the real-life practical context of platforms, the goal often extends to engaging with multiple firms. This approach maximizes the network effect and positions the platform as a one-stop-shop choice for consumers. In alignment with this reality, the model is expanded to include an additional specialist firm, denoted as F_2 and let us refer to the initially described specialist as F_1. The scenario now involves three firms: T, F_1, and F_2. Both specialist firms, F_1, and F_2, offer similar products. Type P_q consumers, who attribute additional value to the superior product P_F, now encounter two distinct values, $\Delta_j \in \{\Delta_1, \Delta_2\}$. For simplicity and without loss of generality, it is assumed that Δ_1, representing the additional value of consuming P_F from F_1, is greater than Δ_2, the additional value of consuming P_F from F_2 ($\Delta_1 > \Delta_2$). We can imagine that just as in the case of a later entry in the market, there are learning or recognition advantages. Importantly, the inclusion of an additional specialist firm does not incrementally increase the platform cost (C) for Firm T.

6.4.1 Equilibrium Without Hosting

Without hosting and additional specialist firm F_2 along, consumer both type P_q and type P_d have various alternatives to choose.

For type P_q, the utility obtained are as follows across alternatives:

- with only L, the utility is $u_L - \phi_L - \sigma$
- with only P, the utility is $u_P - \phi_P - \sigma$
- with only P_F^j, the utility is $u_P + \Delta_j - \phi_{P_F}^j - \sigma$
- with L and P, the utility is $u_L + u_P - \phi_L - \phi_P - \sigma$

- with L and P_F^j, the utility is $u_L + u_P + \Delta_j - \phi_L - \phi_{P_F}^j - 2\sigma$.

For type P_d, the utility obtained are as follows across alternatives:

- with only L, the utility is $u_L - \phi_L - \sigma$

- with only P, the utility is $u_P - \phi_P - \sigma$

- with only P_F^j, the utility is $u_P + \Delta_j - \phi_{P_F}^j - \sigma$

- with L and P, the utility is $u_L + u_P + \gamma + \gamma' - \phi_L - \phi_P - \sigma$

- with L and P_F^j, the utility is $u_L + u_P + \gamma - \phi_L - \phi_{P_F}^j - 2\sigma$.

Same as in the above in scenarios, T will charge $\phi_L = u_L - \sigma$ to extract all the surplus from type L consumers. P_q will prefer to buy the bundle (L, P) from T over the single purchase of P and (L, P) over (L, P_F^j), thus move to only T products if

$$\begin{aligned} u_L + u_P - \phi_L - \phi_P - \sigma &> u_L + u_P + \Delta_j - \phi_L - \phi_{P_F}^j - 2\sigma \\ \implies -\phi_P &> -\phi_{P_F}^j + \Delta_j - \sigma \\ \implies \phi_P - \phi_{P_F}^j &< \sigma - \Delta_j. \end{aligned} \tag{5}$$

Since $\sigma > \Delta_1 > \Delta_2$, when T sets $\phi_P = \sigma - \Delta_2 - \epsilon$ just below the utility of all quality lovers to extract their surplus, then F_j will have no other alternative than to set its price to zero $\phi_{P_F}^{j*} = 0$ and still would not have any demand.

P_d prefers bundles over single items and prefers (L, P) over (L, P_F^j) if the following condition is satisfied,

$$\begin{aligned} u_L + u_P + \gamma + \gamma' - \phi_L - \phi_P - \sigma &> u_L + u_P + \gamma - \phi_L - \phi_{P_F}^j - 2\sigma \\ \implies \gamma' - \phi_P &> -\phi_{P_F}^j - \sigma \\ \implies -\gamma' - \sigma &< \phi_{P_F}^j - \phi_P. \end{aligned} \tag{6}$$

For F_j, setting a negative price is meaningless. Then, as diversity lovers are better of with the price set for quality lovers, T can attract all consumers. T cannot set $\gamma' + \sigma > \sigma - \Delta - \epsilon$ and capture P_d segment because for P_d all payment products are perfect substitutes and the competition from F_j will not allow this move.

Proposition 3 *Without hosting there is a unique equilibrium and prices are as follows:* $\phi_L^* = u_L - \sigma$, $\phi_P^* = \sigma - \Delta_2 - \epsilon \approx \sigma - \Delta_2$ *and* $\phi_{P_F}^{j*} = 0$. *All consumers type* L *choose* T, *and all consumers type* P *buy* L *and* P *from the multiproduct firm* T. *As a result, associated profits are* $\pi_T^* \approx u_L - \sigma + (1 - \lambda_L)(\sigma - \Delta_2)$ *and* $\pi_{P_F}^{j*} = 0$.

Without hosting, just as in Proposition 1, T set non-negative prices for product L and P and sell them to all types of consumers. **The second fintech firm increases competition in the payment market and benefits to multiproduct firm T, which can now charge a slightly higher price for the payment product.**

6.4.2 Equilibrium With Hosting: Multiproduct T Hosts All Specialists

In this case multiproduct firm T hosts all specialists in the market F_1 and F_2 in our model, which means consumers can buy firms F_j's product without the burden of extra shopping cost.

For type P_q, the utility obtained are as follows across alternatives:

- with only L, the utility is $u_L - \phi_L - \sigma$
- with only P, the utility is $u_P - \phi_P - \sigma$
- with only P_F^j, the utility is $u_P + \Delta_j - \phi_{P_F}^j - \sigma$
- with L and P, the utility is $u_L + u_P - \phi_L - \phi_P - \sigma$
- with L and P_F^j, the utility is $u_L + u_P + \Delta_j - \phi_L - \phi_{P_F}^j - \sigma$.

For type P_d, the utility obtained are as follows across alternatives:

- with only L, the utility is $u_L - \phi_L - \sigma$
- with only P, the utility is $u_P - \phi_P - \sigma$
- with only P_F^j, the utility is $u_P + \Delta_j - \phi_{P_F}^j - \sigma$
- with L and P, the utility is $u_L + u_P + \gamma + \gamma' - \phi_L - \phi_P - \sigma$
- with L and P_F^j, the utility is $u_L + u_P + \gamma + \gamma' - \phi_L - \phi_{P_F}^j - \sigma$.

For type L, hosting does not change their utilities and when T charges $\phi_L \leq u_L - \sigma$, these consumers buy as stated numerous times in the previous analysis and charging $\phi_L = u_L - \sigma$ to extract all the surplus and sell to all consumers on the platform may be one of the alternatives for T. T has the other option to aim only the P segment with a higher price $\phi_L = u_L$. T will choose its strategy according to its profit in each case.

Starting with the first case with L type consuming their products, we see that consuming bundle (L, P_F^j) has higher utility than consuming only P_F^j and consuming bundle (L, P) has higher utility than consuming only P for P_q. For identical prices, (L, P_F^1) provides higher utility as there is a vertical differentiation in this segment. If F^1 charges $\phi_{P_F}^1 = \Delta_1 - \Delta_2 - \epsilon$, then even when F^2 charges $\phi_{P_F}^2 = 0$, (L, P_F^1) will be preferred to (L, P_F^2). (L, P) will be preferred to (L, P_F^2) if

$$\phi_{P_F}^2 - \phi_P > \Delta_j \tag{7}$$

Consequently, T cannot set any positive price to offset additional utility Δ_j. Therefore, equilibrium price is $\phi_P = 0$.

If all companies on the platform charge the same price for their payment product, the utility of diversity lovers will be the same whether they choose (L, P) or (L, P_F^j) and it will be higher than the utility of single product purchases. *If both companies on the platform charge different prices for their payment product*, P_d will buy the bundle (L, P) instead of (L, P_F^j) if the following condition is satisfied:

$$\begin{aligned} u_L + u_P + \gamma + \gamma' - \phi_L - \phi_P - \sigma &> u_L + u_P + \gamma + \gamma' - \phi_L - \phi_{P_F}^j - \sigma \\ \implies \phi_P &< \phi_{P_F}^j. \end{aligned} \tag{8}$$

Both T and F_2 can offer their products to the diversity lovers. However, the profit will be zero.

Proposition 4 *With hosting, in L market, the equilibrium price is $\phi_L^* = u_L - \sigma$ if $\frac{\sigma}{u_L} > 1 - \lambda_L$ and otherwise $\phi_L^* = u_L$. The equilibrium prices in the payment market are $\phi_{P_F}^{1*} = \Delta_1 - \Delta_2 - \epsilon \approx \Delta_1 - \Delta_2$, $\phi_{P_F}^{2*} = 0$ and $\phi_P^* = 0$. P market is provided by three firms and a variety of P products exists in the market. As a result, associated profits are $\pi_T^* = u_L - \sigma - C$, $\pi_{P_F}^{1*} \approx \lambda_{P_q}(\Delta_1 - \Delta_2)$ and $\pi_{P_F}^{2*} = 0$ if $\frac{\sigma}{u_L} > 1 - \lambda_L$ and otherwise $\pi_L^* = (1 - \lambda_L)u_L - C$.*

If the platform hosts payments products of diverse quality then **quality lovers can benefit from the higher quality product at a lower price than without hosting. Diversity lovers on the other hand, can choose from the remaining payment products from T and the lower quality payment firm.**

6.4.3 Equilibrium With Hosting: Multiproduct T Hosts only Specialist F_j

In this case multiproduct firm T hosts only one of the specialist firm F_j, which means consumers can buy only firm F_j's product without the burden of extra shopping cost from the platform while F_k is provided through single purchases. We can think that T would like to promote a higher quality good attached to its products. While T still incurs the fixed cost associated with the transformation into a platform. For type L, above remarks prevail.

For type P_q, the utility obtained are as follows across alternatives:

- with only L, the utility is $u_L - \phi_L - \sigma$
- with only P, the utility is $u_P - \phi_P - \sigma$
- with only P_F^j, the utility is $u_P + \Delta_j - \phi_{P_F}^j - \sigma$
- with L and P, the utility is $u_L + u_P - \phi_L - \phi_P - \sigma$
- with L and P_F^j, the utility is $u_L + u_P + \Delta_j - \phi_L - \phi_{P_F}^j - \sigma$
- with L and P_F^k, the utility is $u_L + u_P + \Delta_k - \phi_L - \phi_{P_F}^k - 2\sigma$.

For type P_d, the utility obtained are as follows across alternatives:

- with only L, the utility is $u_L - \phi_L - \sigma$
- with only P, the utility is $u_P - \phi_P - \sigma$
- with only P_F^j, the utility is $u_P + \Delta_j - \phi_{P_F}^j - \sigma$
- with L and P, the utility is $u_L + u_P + \gamma + \gamma' - \phi_L - \phi_P - \sigma$
- with L and P_F^j, the utility is $u_L + u_P + \gamma + \gamma' - \phi_L - \phi_{P_F}^j - \sigma$

- with L and P_F^k, the utility is $u_L + u_P + \gamma - \phi_L - \phi_{P_F}^k - 2\sigma$.

6.4.3.1 Hosting the higher quality

This can be the case where T promotes the platform by attaching higher quality products. We see that consuming bundle (L, P_F^1) has higher utility than consuming only P_F^1 and consuming bundle (L, P) has higher utility than consuming only P for P_q. Remember that $\Delta_j \leq \sigma$, (L, P_F^1) will always be preferred to (L, P_F^2) and (L, P) will be preferred to (L, P_F^1) if

$$\phi_{P_F}^1 - \phi_P > \Delta_1 \tag{9}$$

Consequently, T cannot set any positive price to offset additional utility Δ_1. Therefore, prices can be $\phi_{P_F^1} = \Delta_1$, $\phi_P = 0$ regarding this segment. P_d will buy the package (L, P) instead of (L, P_F^1) on the platform if it is cheaper. A similar reasoning to Proposition 2 will apply for the determination of the payment product prices. P_d will buy the bundle (L, P_F^2) instead of (L, P_F^1) if the following condition is satisfied:

$$\begin{aligned} \gamma - \phi_{P_F}^2 - 2\sigma &> \gamma + \gamma' - \phi_{P_F}^1 - \sigma \\ \implies \phi_{P_F}^2 &< \phi_{P_F}^1 - \gamma' - \sigma. \end{aligned} \tag{10}$$

The company outside the platform can only set $\phi_{P_F}^2 = 0$ to make up for the loss due to multi-shopping but it would not be enough. The following proposition summarizes the results:

Proposition 5 *With hosting, in L market, the equilibrium price is $\phi_L^* = u_L - \sigma$, the equilibrium P prices and resulting profits can be given as follows:*

i. If $\gamma + \gamma' < \Delta_1 \implies \frac{\gamma+\gamma'}{\Delta_1} < 1$ and $\frac{\gamma+\gamma'}{\Delta_1} < \bar{\lambda}$, $\phi_P^* = \gamma + \gamma'$, $\phi_{P_F}^{1*} = \Delta_1 - \epsilon \approx \Delta_1$ and $\phi_{P_F}^{2*} = 0$. P market is provided by two firms and a variety of P products exists in the market. As a result, associated profits are $\pi_T^* = u_L - \sigma + \lambda_{P_d}(\gamma + \gamma') - C$, $\pi_{P_F}^{1*} = \lambda_{P_q}\Delta_1$ and $\pi_{P_F}^{2*} = 0$ if $\frac{\sigma}{u_L} > 1 - \lambda_L$ and otherwise $\phi_L^* = u_L$ and $\pi_T^* = (1 - \lambda_L)u_L + \lambda_{P_d}(\gamma + \gamma') - C$.

ii. If $\gamma + \gamma' < \Delta_1 \implies \frac{\gamma+\gamma'}{\Delta_1} < 1$ and $\frac{\gamma+\gamma'}{\Delta_1} > \bar{\lambda}$, $\phi_P^* = 0$, $\phi_{P_F}^{1*} = \Delta_1 - \epsilon \approx \Delta_1$ and $\phi_{P_F}^{2*} = 0$. P market is provided by two firms and a variety of P products exists in the market. As a result, associated profits are $\pi_T^* = u_L - \sigma - C$ and $\pi_F^* = \lambda_{P_q}\Delta_1$ if $\frac{\sigma}{u_L} > 1 - \lambda_L$ and otherwise $\phi_L^* = u_L$ and $\pi_T^* = (1 - \lambda_L)u_L - C$.

iii. $\gamma + \gamma' > \Delta_1 \implies \frac{\gamma+\gamma'}{\Delta_1} > 1$ *then* $\frac{\gamma+\gamma'}{\Delta_1} > \bar{\lambda}$ *and we have the same results as ii.*

If the platform hosts only the higher quality then the market will be foreclosed for the lower quality alternatives. **The impact can be a competition with higher quality alternatives in the market. However, the structure of the market will allow for only one firm to compete with the payment product of the platform host.**

6.4.3.2 Hosting the lower quality

This can be the case where T promotes instead of the platform, a payment product. It can be a newer product and of lower quality because of learning and recognition disadvantages. We see that consuming bundle (L, P_F^2) has higher utility than consuming only P_F^2 and consuming bundle (L, P) has higher utility than consuming only P for P_q. (L, P_F^2) will always be preferred to (L, P_F^1) and (L, P) will be preferred to (L, P_F^2) if

$$\phi^2_{P_F} - \phi_P > \Delta_2 \tag{11}$$

Consequently, T cannot set any positive price to offset additional utility Δ_2. Therefore, prices can be $\phi_{P_F^2} = \Delta_2$, $\phi_P = 0$. P_d will buy the package (L, P) instead of (L, P_F^1) on the platform if it is cheaper. P_d will buy the bundle (L, P_F^1) instead of (L, P_F^2) if the following condition is satisfied:

$$\begin{aligned} \gamma - \phi^1_{P_F} - 2\sigma &> \gamma + \gamma' - \phi^2_{P_F} - \sigma \\ \implies \phi^1_{P_F} &< \phi^2_{P_F} - \gamma' - \sigma. \end{aligned} \tag{12}$$

The company outside the platform can only set $\phi^1_{P_F} = 0$ to make up for the loss due to multi-shopping but it would not be enough. The following proposition summarizes the results:

Proposition 6 *With hosting, in L market, the equilibrium price is* $\phi^*_L = u_L - \sigma$*, the equilibrium P prices and resulting profits can be given as follows:*

i. If $\gamma + \gamma' < \Delta_2 \implies \frac{\gamma+\gamma'}{\Delta_2} < 1$ *and* $\frac{\gamma+\gamma'}{\Delta_1} < \bar{\lambda}$*,* $\phi^*_P = \gamma + \gamma'$*,* $\phi^{1*}_{P_F} = \Delta_2 - \epsilon \approx \Delta_2$ *and* $\phi^{2*}_{P_F} = 0$*. P market is provided by two firms and a variety of P products exists in the market. As a result, associated profits are* $\pi^*_T = u_L - \sigma + \lambda_{P_d}(\gamma + \gamma') - C$*,* $\pi^{2*}_{P_F} = \lambda_{P_q}\Delta_2$ *and* $\pi^{1*}_{P_F} = 0$ *if* $\frac{\sigma}{u_L} > 1 - \lambda_L$ *and otherwise* $\phi^*_L = u_L$ *and* $\pi^*_T = (1 - \lambda_L)u_L + \lambda_{P_d}(\gamma + \gamma') - C$*.*

ii. *If* $\gamma + \gamma' < \Delta_2 \implies \frac{\gamma+\gamma'}{\Delta_2} < 1$ *and* $\frac{\gamma+\gamma'}{\Delta_2} > \bar{\lambda}$, $\phi_P^* = 0$, $\phi_{P_F}^{2*} = \Delta_2 - \epsilon \approx \Delta_2$ *and* $\phi_{P_F}^{1*} = 0$. *P market is provided by two firms and a variety of P products exists in the market. As a result, associated profits are* $\pi_T^* = u_L - \sigma - C$ *and* $\pi_F^* = \lambda_{P_q}\Delta_2$ *if* $\frac{\sigma}{u_L} > 1 - \lambda_L$ *and otherwise* $\phi_L^* = u_L$ *and* $\pi_T^* = (1-\lambda_L)u_L - C$.

iii. $\gamma + \gamma' > \Delta_2 \implies \frac{\gamma+\gamma'}{\Delta_2} > 1$ *then* $\frac{\gamma+\gamma'}{\Delta_2} > \bar{\lambda}$ *and we have the same results as ii.*

If the platform hosts only the lower quality alternative then the market will be foreclosed for the higher quality alternatives. **The impact can be to compete to be included in the platform. This can create an incentive to demand a fee from the companies to be included in the platform and thus create another stream of revenue for the host to cover for the costs related to the creation of the platform. However, the structure of the market will allow for only one firm to compete with the payment product of the platform host. The potential race for the inclusion in the platform can result again in the creation of higher quality alternatives generating revenues.**

6.5 Findings and Analysis

In this theoretical framework, we considered two extensions to the study by Hagiu, Jullien, and Wright (2020) to elucidate the platform business model and the strategic interplay between market participants. We have created an economic model environment considering the existing competitive landscape in the financial services, especially competition between traditional banks and fintechs. The first extension is the incorporation of a new diversity loving consumer type who attribute additional value to the product diversity and one-stop-shop experience as well. The increased heterogeneity among consumer groups allows for more robust observations regarding the competitive dynamics and strategic decisions of the players involved. In the context of financial services, it is common to observe such consumers who value using more than one financial product at the same time and benefit significantly from one-stop-shopping not only for convenience but also for cost saving. The second extension introduces an additional specialist firm, which is intensifying competition amongst specialized firms and increasing consumer welfare. The expanded multiple specialist model allows us to create a more realistic environment for analyzing the platform business model in fi-

nancial services industry. Given the substantial technological investment required for a platform in the financial services industry, it appears more rational to design it to host multiple fintechs rather than one.

The original model by Hagiu, Jullien, and Wright (2020) presents a scenario where only one type of quality loving consumer exists, and shows that under the hosting scenario, these consumers shift to the specialist firm F because the platform removes shopping costs. By differentiating between consumers who favor quality and those who prefer variety, a new dynamic emerges. The introduction of a group that values a diverse bundle of products and the convenience of a one-stop shopping experience leads to a distinct outcome for the platform owner, T. In this expanded model, under the hosting scenario, T can capture market share for product P from the specialist firm F. It remains feasible in the hosting scenario for the platform owner T to sell product P to consumers Type P_d , diversity lover consumers. Furthermore, the model indicates that when hosting a rival on the platform, the size of the consumer groups plays a critical role in determining the pricing strategies of the platform owner. If the size of the Type P consumer group is sufficiently large, the platform owner may opt to charge this group a higher price to maximize profit.

Furthermore, adding an additional specialist firm to the model unsurprisingly reveals that competition intensifies among all involved parties. The provider of the highest quality product caters to consumers who prioritize quality. Meanwhile, competition between T and the new specialist firm drives prices down to zero, preventing either from achieving positive profit from selling product P. This scenario clearly benefits consumers the most, as they gain access to high-quality products at relatively low prices, along with the elimination of shopping costs. Furthermore, the model indicates that the platform owner's ability to admit only one of the specialist firms creates an entry barrier, effectively foreclosing the market to others. This grants the platform owner bargaining power to introduce alternative cost-sharing and new revenue-generating mechanisms, such as transaction fees, making the platform business model more profitable. While the impact of these mechanisms is not explored in this study, it is acknowledged that transaction fees and revenue sharing are common practices on digital platforms, such as e-commerce.

In this model, applying negative pricing strategies directly is not feasible; firms may only consider such strategies if they anticipate increased profits in subsequent periods. Yet, in the real world, platforms often engage in negative pricing indirectly through various incentives. For instance, e-commerce platforms like Amazon and Getir regularly offer incentives, such as campaigns targeted at specific consumer groups, which generate significant externalities for the platform. Previous chapters have discussed how, in multi-sided platforms, offering incentives can effectively reduce net costs for users, thereby encouraging greater participation. This supports the concept that an increase in the number of users on one side of the platform tends to attract more users to the other side, benefiting the entire platform ecosystem. However, in the context of this model, attracting consumers through negative pricing strategies does not generate externalities for the firms. Exploring such applications to a potential group of consumers by incorporating network externalities could offer intriguing insights. Additionally, this model assumes uniformity in the cost structures of firms.

7 CONCLUSION

This study examines how embracing platform business models changes the dynamics of competition in the financial services industry. Specifically, it explores the adoption of the platform business model and its implications for traditional banks, fintechs, and consumers within the context of the Banking-as-a-Platform (BaaP) business model. Through a comprehensive analysis of existing literature, market drivers, and use cases, a theoretical platform competition model developed by Hagiu, Jullien, and Wright (2020) has been utilized to analyze bank-fintech competition when a bank hosts fintech(s) on their platform. This theoretical model was adjusted and augmented to consider the key factors and dynamics in the financial services industry. Despite limitations in fully capturing the complexity of real-world financial services, the model provides valuable insights into the potential outcomes of bank-fintech competition within the platform business model framework.

The findings of this study highlight that while hosting competitor fintech on their platforms poses challenges for traditional banks, it also presents opportunities, especially considering customer expectations and the relatively high shopping costs in the financial services industry. The model reveals that customer preferences and the size of consumer groups play a crucial role in determining whether hosting a direct competitor on the platform is a preferable strategic choice. According to our results, the bank can host the fintech competitor if there is a large enough consumer group that values consuming both products, in our case loans and payment solutions, simultaneously from a single platform. This is particularly relevant if the utility that consumers derive from the core product is low and if the cost of building the platform and hosting is sufficiently low. In this scenario, the bank can extract a higher surplus from this group compared to the absence of a platform case. Thus, in platform competition, the types of consumers, their preferences over products, and the size of these groups should be carefully analyzed when deciding on the platform business model and its focus, i.e., retail or corporate focused.

Additionally, this study assumes that shopping cost significantly influences consumer behavior, which remains relatively high in the financial services compared to many other sectors. In this context, shopping cost encompasses not only the switch cost but also the underwriting cost, which continues to be substantial in the sector. However, digitalization and open banking hold the potential to rapidly reduce these costs, thereby lowering the barriers for consumers. As discussed in previous chapters, digital onboarding and open banking, facilitated by API technology in financial services, will make it easier for consumers to switch providers in the near future, as well as streamline the underwriting process. APIs will enable consumers to transfer their financial information to other financial players quickly. These developments suggest that while shopping costs currently pose a high barrier, they are likely to decrease over time. In this light, banks should not overly rely on providing value-add by eliminating shopping costs on platforms. Instead, they should consider this evolving landscape and focus on alternative value-add strategies to remain successful in the long run.

On the other hand, we analyzed the competition by adding another fintech provider of a similar product to our model to observe the competition and trade-offs for other players. The model suggests that if the traditional bank hosts more than one

fintech providing similar products, hosting intensifies competition among fintechs and the traditional bank for the market share of the payment product. In this scenario, consumers' total utility increases as they have a wider range of choices, and players compete to gain market share, leading to a reduction in the price of that product. From a joint profit perspective, consumers can benefit the most from increased competition and lower prices. However, in this case, the platform-owning bank cannot sell the competing product (payment solution) anymore, because fierce competition will push prices to zero. Therefore, hosting more than one similar product and/or service provider fintech should be carefully evaluated, considering the strategic purpose of building a platform. Moreover, hosting only one of the fintechs shows us that the market will be foreclosed the other one. In that sense, the bank can leverage this power by applying alternative revenue and cost sharing mechanisms. Depending on the strategic goals, the traditional bank may decide not to offer that product or service anymore that fintechs provide in the platform and aim to increase competition and consumer welfare for some strategic purposes. The platform owner may prefer to accumulate data from consumers and fintechs, and/or apply alternative mechanisms for surplus extraction on the platform from users, including fintechs and consumers.

Clearly, there are several additional factors in the decision to build a platform and host competitors for banks that this study does not fully capture, such as cost and revenue sharing mechanisms and the screening ability of the platform owner. As discussed by Hagiu, Jullien, and Wright (2020) in their article, mechanisms involving fixed and/or variable fee structures can be utilized to extract surplus in various ways. Moreover, monitoring competitors' transactions provides invaluable data for the platform owner regarding consumer choices and their price sensitivity. Particularly in the context of financial services, consumer data becomes a critical factor for making more accurate risk assessments. In this context, some traditional players may prioritize accumulating data on consumers and competitors through the platform, which can be more crucial than focusing solely on direct financial gains. The cost structure is another critical element in the financial services industry that we did not explore in depth to maintain simplicity and clarity. However, especially in lending products, the cost of funding plays a significant role in pricing, to which consumers are often sensitive.

Given the discussion, the dynamics of platform business models in the financial services sector involve a wide range of critical factors, suggesting several avenues for future research. These factors present opportunities for future research to gain a more comprehensive understanding. As a rapidly evolving landscape, further studies and industry use cases will contribute to gaining deeper insights into the competition and its effects on the players and the market.

To the best of our knowledge, this study is the first to analyze bank-fintech competition within the context of a platform using a theoretical model, specifically focusing on the Banking-as-a-Platform (BaaP) strategy. As discussed in several parts of this study, platform business models are proliferating and disrupting sectors, indicating that this business model will become more common in the financial services industry soon. Moreover, regulators worldwide are pushing traditional banks and supporting the fintech ecosystem with mandatory regulations, such as open banking. Additionally, in recent years, banks have heavily invested in their IT infrastructure to comply with regulations. In that sense, platform strategies stand as potential alternatives for banks to adapt and thrive in the rapidly evolving financial services landscape. As we navigate towards a more unified and customer-centric financial ecosystem, the strategic decisions banks make today will contribute significantly to the future of financial services industry and our relationship with finance.

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