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Financial Innovation for Impact

Competition in Digital Financial Services

Regulatory Strategies and Pathways for Emerging Markets and Developing Economies

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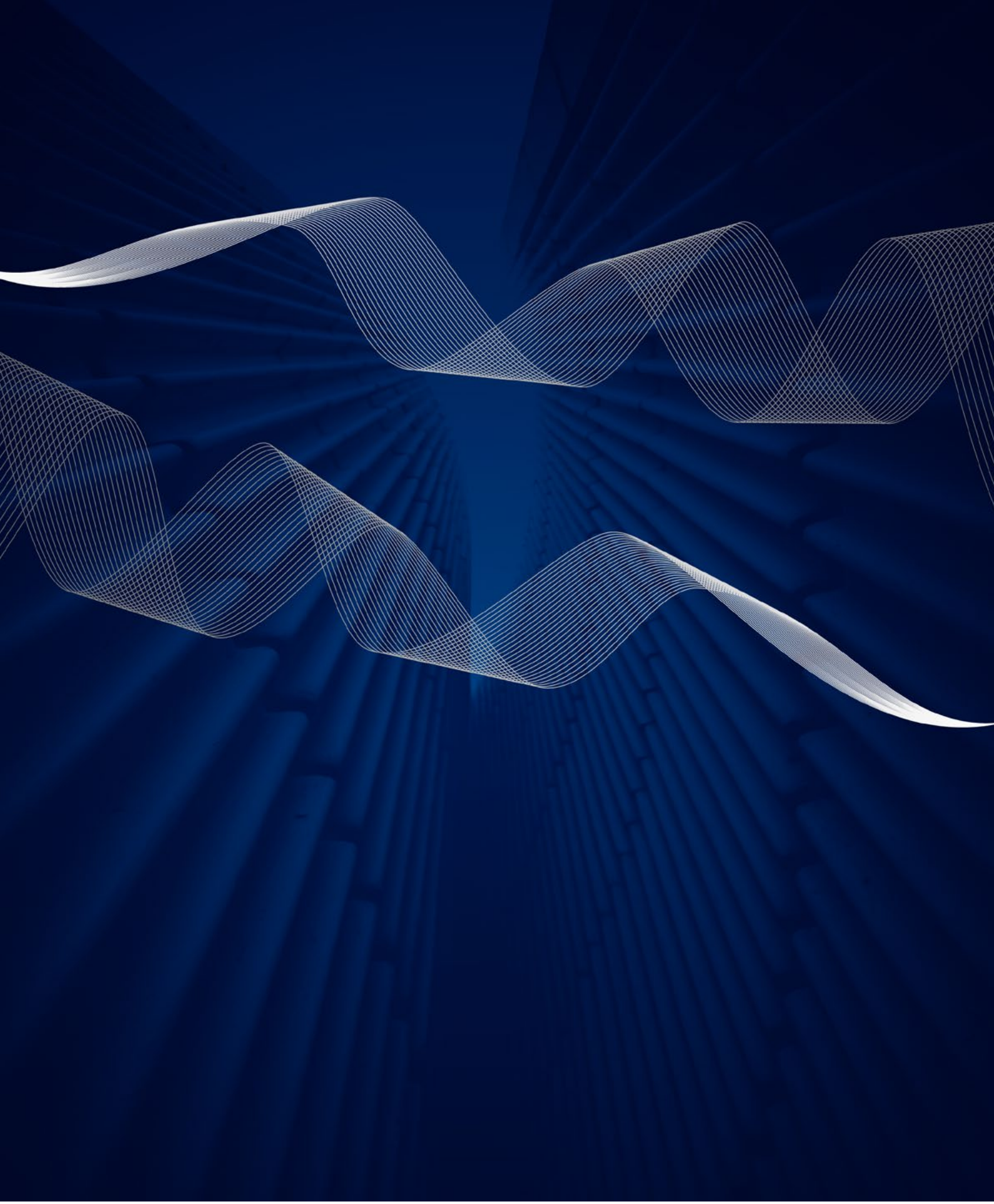

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Foreword

Effective competition in Digital Financial Services (DFS) can reduce the market power of incumbents, driving prices down, quality up, and raising the variety of services. Similarly, competition in DFS can also drive more effective private capital mobilization, with benefits for growth and the wider economy. However, DFS markets in many Emerging Markets and Developing Economies (EMDEs) remain concentrated. Incumbent financial institutions and mobile network operators often benefit from preferential access to critical infrastructure, data, and regulatory advantages, while new entrants face structural, strategic and demand-side barriers that limit their ability to scale. This constrains the competitive pressure they exert on incumbents, dampens financial innovation, and can hinder the mobilisation of domestic savings, private capital formation, and inclusive growth.

At the same time, many public and financial authorities have access to a wide range of policy and regulatory tools, but these are not always designed or sequenced with an explicit competition lens, nor are their impacts on financial inclusion and capital formation systematically assessed.

This report, developed by the Cambridge Centre for Alternative Finance (CCAF) at the University of Cambridge Judge Business School, and Financial Innovation for Impact (Fii) with the support of the UK Foreign, Commonwealth & Development Office (FCDO), responds to this gap. Building on the existing capacity-building programme on competition in DFS, the study considers how policy and regulatory tools can be leveraged to promote competition in digital financial services (DFS) in EMDEs, and in particular their relation to capital formation.

The report advances the literature and policy practice in three main ways. First, it proposes a conceptual framework to help public and financial authorities prioritise competition-enhancing interventions based on their jurisdictional market and regulatory context, policy objectives, and the intended scope of action. Secondly, it systematically maps these tools to supply- and demand-side competition barriers, providing public and financial authorities with practical approaches for developing tailored strategies for enhancing competition in DFS. Thirdly, it examines how more effective competition in DFS can contribute to strengthening private capital formation in EMDEs, highlighting how well-developed, pro-competition, policy and regulation can help overcome low savings mobilisation, inefficient financial intermediation, and capital misallocation.

The analysis is grounded in comparative case studies across countries in Sub-Saharan Africa and the Asia-Pacific region, highlighting that policy and regulatory tools, often introduced to achieve objectives beyond competition, can nonetheless shape competition dynamics for good.

We hope the insights and analysis presented here will support public and financial authorities in designing and sequencing interventions that foster effective competition in DFS, while also contributing to a deeper academic understanding of the role of policymaking and regulation in shaping digital financial markets.

Finally, we extend our gratitude to Keith Barnes and the UK Foreign, Commonwealth and Development Office (FCDO) for their support, and to the many participants in the capacity building online course whose perspectives and insights helped ensure this report was both relevant and insightful.

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We would like to extend our gratitude to Mike Green for designing the report, and Katherine Selby, Clare Bannister, and Charles Goldsmith for press and communications support.

Executive Summary

This report, with the support of the UK Foreign, Commonwealth and Development Office (FCDO), builds on and enhances the competition in digital financial services programme at the Cambridge Centre for Alternative Finance (CCAF) and Financial Innovation for Impact (Fii). This programme aims to support public and financial authorities in strengthening their knowledge, efficiency, and impact in designing and implementing competition-enabling initiatives.[1]

The report considers how policy and regulatory tools can be leveraged to promote competition in digital financial services (DFS) in emerging market and developing economies (EMDEs) and in particular their relation to capital formation. The study focuses on four interlinked areas.

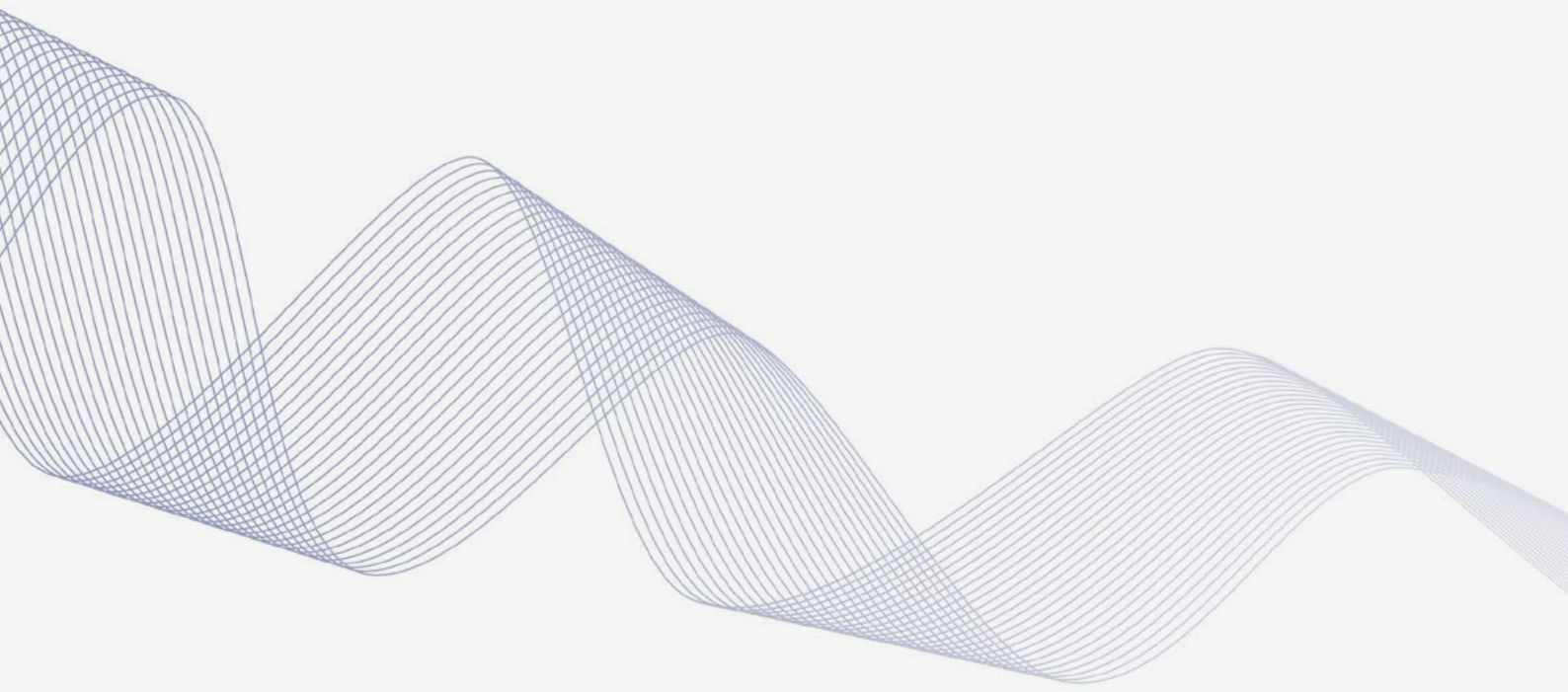
It first proposes a conceptual framework to help public and financial authorities prioritise competition-enhancing interventions based on their jurisdictional market and regulatory context, policy objectives, and the intended scope of action.

Building on this conceptual framework, the report maps these tools to supply- and demand-side competition barriers, offering practical guidance to regulators on how to prioritise interventions based on the most prominent competition constraints in their respective jurisdictional context.

Barriers to private capital formation are then examined, and related to specific competition challenges and tools, equipping regulators and policymakers with a stronger conceptual foundation for designing interventions that can support greater capital formation through more competitive DFS markets.

A comparative case study analysis is then undertaken, to assess the impact of selected competition-enhancing regulatory initiatives on DFS markets across countries in Sub-Saharan Africa (SSA) and the Asia-Pacific (APAC) region. This comparative approach helps mitigate the limitations of single-jurisdiction case studies, where isolating the impact of an initiative from other influencing factors is often challenging.

Finally, the report synthesises key lessons for developing strategies to support competition in DFS markets, recognizing that public and financial authorities do not always have an explicit competition mandate.



The key findings of the report include:

Tiered Conceptual Framework

Promoting competition in DFS requires a sequenced policy and regulatory approach, beginning with interventions that establish trust and market foundations and evolving towards tools that support entry, scaling, and effective competition in mature markets.

A competitive DFS market exists within a broader economic, financial, technological, and institutional ecosystem. Research and practical experience suggest that financial sector development depends on the interaction of multiple policy and regulatory frameworks or tools. In their absence, a competitive DFS market is unlikely to emerge or be sustained.

Generally, these tools can be divided into four main categories or tiers. Tier 1 addresses the foundational legal, regulatory, and digital infrastructure necessary for well-functioning competition in DFS markets. Tier 2 focuses on reducing barriers to entry and improving contestability, enabling diverse and innovative actors to participate.

Tier 3 turns to the conditions needed for new entrants to scale effectively. Tier 4 addresses the more complex, dynamic competition challenges that typically arise in mature DFS ecosystems, including data and platform power, cross-border activity, and advanced demand-side frictions.

The tiers are not rigid stages but a guideline. Most jurisdictions will identify relevant tools that cut across multiple tiers, and the framework is designed to be applied with due considerations to market development and authorities' capacity to design and implement them effectively. Critically, the policy cycle of ex ante assessment, active supervision, and ex post evaluation creates the conditions for authorities to assess what works in their specific jurisdictional context, and progress toward more advanced tools over time.

Mapping Policy and Regulatory Tools to Barriers to competition in DFS

Competition-promoting interventions are most effective when they are targeted at the specific supply- and demand-side barriers that constrain competition in a given market.

DFS markets face a wide range of barriers to entry and expansion across both supply and demand sides. Supply-side barriers include structural barriers and strategic conduct, while demand-side barriers relate to engagement, information, comparison, and switching frictions, as well as network effects. Policy and regulatory choices play a critical role in shaping both the presence and size of these barriers.

For each barrier type, there is a set of potential policy and regulatory tools that can be leveraged to prevent, reduce, or mitigate it. While some tools may be used interchangeably, barriers often manifest in different ways, requiring more tailored responses.

Accordingly, public and financial authorities will benefit from identifying the most prominent barriers, and how they manifest in practice, in order to determine the most relevant interventions.

Moreover, the barrier-tool mapping demonstrates that the same tool can often help address multiple barrier types. Where certain tools emerge as relevant across multiple barriers identified in a given jurisdiction, this may suggest that they warrant priority over measures that target only a single barrier.

Taken together, the analysis suggests that targeted competition-focused policy and regulatory interventions require a deeper understanding of market conditions and the most salient barriers. This can help improve the effectiveness of interventions while reducing the need for broader and more resource-intensive reforms aimed at addressing gaps across the tiered framework.

Strengthening Private Capital Formation through DFS Competition Tools

By enhancing savings mobilisation, financial intermediation, and capital allocation, policy and regulatory tools that support competition in DFS can help strengthen private capital formation in EMDEs.

By expanding participation, reducing costs, and improving information flows, competition-enhancing interventions can increase the volume of formal savings, improve the efficiency with which those savings are intermediated, and support a more productive allocation of capital.

However, the relationship between competition and capital formation is not unambiguously positive. Its effects depend on initial market conditions, institutional quality, and the calibration of regulatory frameworks. In settings where incumbency reflects significant entry barriers and inefficiencies, greater competition can unlock substantial gains.

At the same time, intensified competition may reduce margins and increase uncertainty for investors, potentially dampening incentives for long-term capital commitments – particularly where 'moats' or stable revenue expectations are important for investment decisions.

Moreover, as highlighted by the competition–stability hypothesis, excessive or poorly regulated competition may weaken incentives for prudent risk management, particularly in credit markets. This introduces a potential trade-off between competition and financial stability, with implications for the sustainability of capital formation. Emphasis is therefore placed on ensuring that competition-enhancing reforms are accompanied by robust Tier 1 safeguards, including prudential regulation and supervision.

Impact of DFS Competition-Enhancing Regulatory Interventions – Case Studies

The comparative case studies across the SSA and the APAC region suggest that policy and regulatory tools, often introduced to achieve objectives beyond competition, can nonetheless shape competition dynamics.

Their impact, however, depends on careful calibration, appropriate sequencing, and a strong underpinning within the broader institutional framework.

In Kenya, proportionate licensing for non-bank digital lenders, complemented by conduct requirements and supported by credit information infrastructure, helped lower entry barriers while addressing harmful market practices, potentially contributing to more efficient credit intermediation. Nigeria's experience, by contrast, illustrates the limitations of fragmented and delayed interventions, where the new licensing framework was introduced without sufficiently strong foundational frameworks or supporting credit information infrastructure.

A similar pattern emerges in the comparison between Malaysia and Vietnam. Malaysia's early and mandatory interoperability framework, characterised by an encompassing design and effective enforcement, reduced market fragmentation and lowered switching costs, with the potential to enable broader data sharing across providers and support more dynamic competition in digital payments, as well as capital formation. By contrast, Vietnam's later and largely voluntary approach to interoperability has struggled to overcome entrenched fragmentation and siloed systems, limiting its potential positive impact on competition and capital formation.

Building Strategies for Competition in DFS

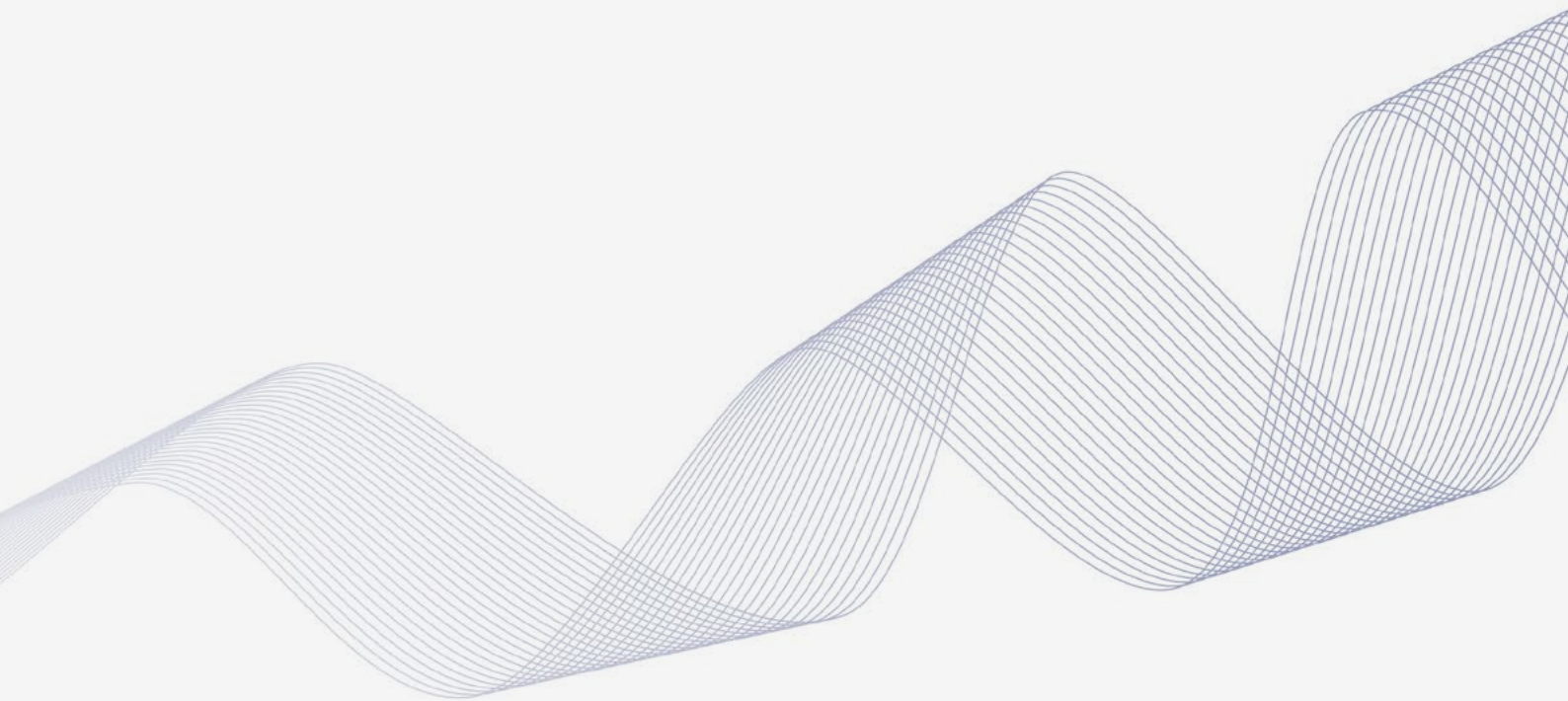
Authorities have two principal avenues for promoting competition in DFS: incorporating competition considerations into existing policy and regulatory processes, and implementing interventions explicitly aimed at strengthening competition.

Strategies for enhancing competition in digital financial services may be grounded in explicit competition objectives, although these remain relatively rare, or, more commonly, in broader policy and regulatory objectives to which stronger competition in DFS is expected to contribute.

There are two broad approaches that public and financial authorities can employ, irrespective of their formal objectives. The first approach focuses on embedding a competition lens into policymaking and regulation, primarily through tools such as Regulatory Impact Assessment (RIA). This approach seeks to ensure that new and existing policy and regulatory frameworks, typically introduced to achieve other objectives, do not inadvertently restrict competition and, where possible, actively support it.

The second approach centres on competition-focused interventions, which are designed explicitly to enable greater competition in DFS markets. Here, the tiered framework serves as a reference point for identifying gaps in the policy and regulatory landscape underpinning competitive DFS markets. Mapping existing frameworks against a range of tools, spanning foundational measures that support the functioning of the financial system and build trust, measures that facilitate entry and support the scaling of new market participants, and more advanced market-shaping interventions, allows authorities to identify areas where policy action is most likely to have a positive impact.

For a more targeted response, analysis based on the tiered framework should be complemented by a more comprehensive assessment of market conditions and prevailing supply- and demand-side barriers.



Part I.

Introduction

Competition Via DFS, Competition in DFS, Competitive DFS Markets: Why It Matters

Why support competition in DFS, and competitive DFS markets more broadly? The question is worth asking directly, because competition is rarely a primary objective or mandate for central banks and financial regulators. Their core objectives – which typically include monetary and financial stability, market integrity and functioning, and consumer/investor protection – typically sit alongside broader developmental goals. These goals might include growth, sustainable development, financial sector development, financial inclusion, innovation, and/or capital formation.

While explicit competition objectives or mandates remain the exception,[2] competition matters for DFS in ways that cut across regulatory mandates. Understanding why requires stepping back from any single authority's brief.

Competition Via DFS, Competition in DFS, and Competitive DFS Markets

Three related but distinct framings are used throughout this report. *Competition via DFS* refers to the entry of new digital providers as competitive pressure on incumbent banks and other financial institutions. *Competition in DFS* refers to rivalry among DFS providers themselves. *Competitive DFS markets* refers to the structural conditions – such as open access, interoperability and contestability – under which both forms of competition can operate. The distinctions matter, because the policy levers that promote one are not always the same as those that promote the others, which will be considered throughout this report.

To see why competition in and via DFS matters, the question has to be framed at the level of broader public policy.

Why Governments Care: Development, Markets, and Finance

Governments seek to improve the lives of their citizens – through growth, innovation, and social well-being. The UN Sustainable Development Goals offer one useful framing of this agenda.[3] How best to achieve it remains contested,[4] but a workable consensus holds that market economies – properly scaffolded and managed – have so far proved the most successful approach.

Markets generally function best with competition, though not always. Natural monopolies and public goods, including critical infrastructure, are recurring exceptions and will feature throughout this report. Competition policy supports market functioning, but it is one instrument within a wider agenda of growth, innovation, and sustainable development.

Markets and innovation also require finance. Without it, economies struggle to grow. But finance is not an unalloyed good: it generates positive externalities for innovation and development, and negative externalities in the form of periodic crises. Finance appears to be inherently unstable, requiring significant scaffolding to amplify its benefits while containing its harms – which is what financial regulation exists to do.

This is where competition becomes double-edged. Banking, insurance, and capital markets all benefit from scale and scope economies, and concentrated systems are often more stable, though typically at a cost in efficiency and innovation. Monetary competition raises particularly difficult questions of its own. Across financial regulation, ease of entry and exit must be weighed against micro- and macro-prudential concerns.

Why DFS is the Focus

These tensions converge on access to finance. Savings and investment fund economic activity which, alongside protection against emergencies and retirement, sit at the heart of what is now framed as financial inclusion and financial health. Once basic access is achieved, attention turns to the use and quality of services – and competition is central to both.[5]

Much of the progress on financial inclusion to date has come through DFS, frequently driven by new entrants competing with incumbents that had underserved lower-income individuals and micro, small and medium sized enterprises (MSMEs). As access milestones are met across many EMDEs, the next phase of progress – towards usage, quality, financial health, and broader growth, innovation and sustainable development – depends on how well DFS markets function as competitive markets.

Competition via DFS, competition in DFS, and competitive DFS markets are therefore best understood as instruments serving these broader developmental objectives. They align with several specific regulatory mandates – in finance, competition, data, and telecommunications – and occasionally conflict with them. Mapping that alignment, and those conflicts, and presenting the framework to support their development and functioning is the task of this report.

Advantages of Enhancing Competition in DFS

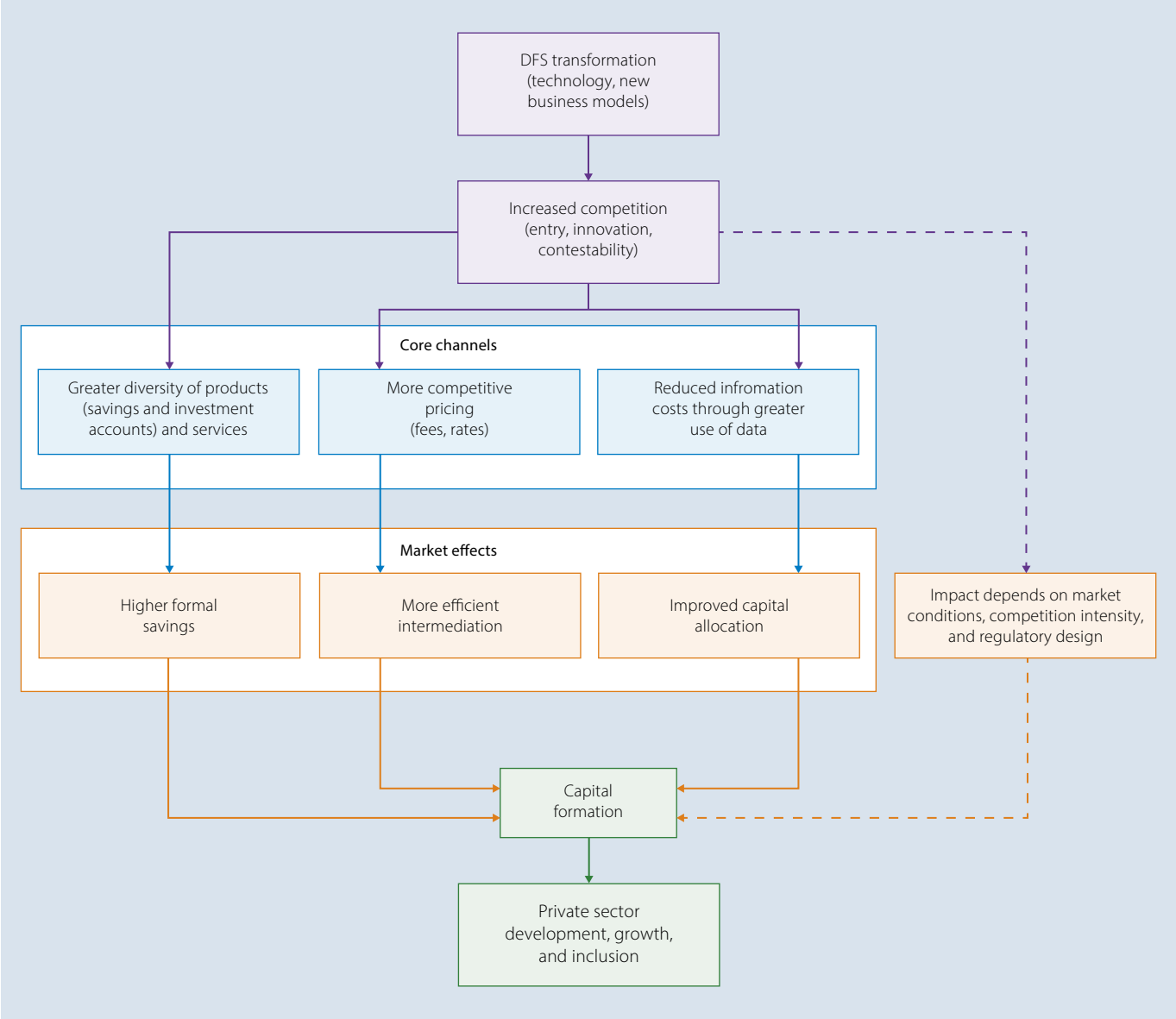
DFS are undergoing a fundamental transformation, driven by new technologies and innovative business models. This creates a unique opportunity to enhance competition in the digital financial sector, which can bring about a number of consumer and wider societal benefits.

Effective competition in and vis DFS can enhance consumer welfare by lowering prices, expanding choice and improving the quality and variety of financial services available to them. It can also help advance financial inclusion by ensuring that low-income and underserved populations in EMDEs have better access to affordable, relevant, and responsible financial solutions.[6]

Furthermore, competitive DFS markets can play a catalytic role in mobilising private capital by creating a more efficient and inclusive financial ecosystem. Capital formation is a central development objective in emerging market and developing economies (EMDEs), often undermined by insufficient domestic savings, inefficient financial intermediation, and limited access to credit and risk capital for MSMEs – challenges that are frequently shaped by underlying market structure.

Figure 1 below illustrates the different channels through which digital financial services can impact on capital formation and, in turn, private sector development, growth and inclusion.

Figure 1: Channels Linking DFS Competition with Capital Formation and Other Outcomes



Source: Authors

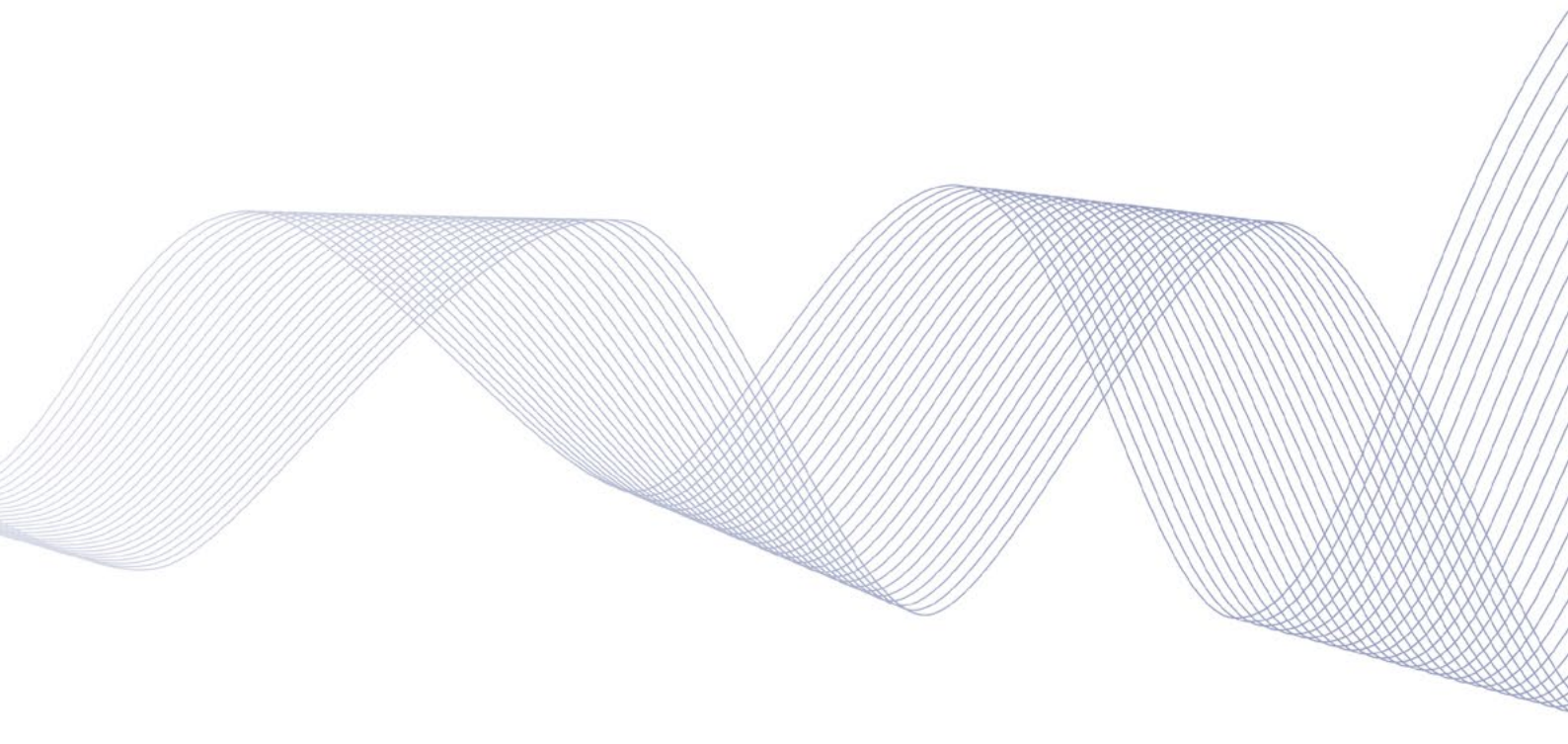
Regulatory and policy environments designed to reduce barriers to entry and ensure fair access to critical infrastructure of DFS (e.g., payment rails, data, agent networks) enable a more diverse set of financial services providers, such as fintechs, non-bank financial institutions, and overseas providers to enter and scale. This diversity of providers can create more choice and better returns on digital savings accounts, mobile wallets, and micro-investment platforms encouraging households to shift from cash holdings to formal savings. Increased attractiveness of savings in turn boosts the domestic resource base available for investment. Such a regulatory and policy environment can also reduce perceived risks for investors, thereby improving the investment climate and driving significant international capital flows.

Competitive DFS markets, comprising mobile money operators, digital lenders, neo-banks can channel savings into productive investment more efficiently than monopolistic, oligopolistic or underdeveloped markets. Competitive pressure can also incentivise DFS providers to reduce intermediation costs and to find innovative ways to reduce information asymmetries between capital seekers and capital providers (e.g., through alternative credit scoring and creditworthiness assessments), making investments in working capital, equipment, and expansion more profitable.

Competition among DFS providers increases the diversity and availability of financing instruments – such as peer-to-peer lending and asset-based finance – offering new channels for MSMEs to access credit and risk capital. MSMEs are key drivers of entrepreneurship and innovation, with far-reaching spillover effects across the broader economy.

A competition-promoting environment for DFS can further create investable opportunities for both domestic and international capital providers interested in driving the growth of the financial sector. For example, venture capital and private equity firms are more likely to invest in DFS providers operating in jurisdictions where pro-competition regulation supports scalability and interoperability[7] Similarly, domestic institutional investors, such as pension funds and insurance companies, are more inclined to allocate capital to DFS providers when market structures are contestable.

Despite these numerous advantages of competition in DFS, in many markets, incumbent financial institutions and mobile network operators (MNOs) continue to dominate, often benefiting from preferential access to critical infrastructure, data, or regulatory advantages. Meanwhile, new entrants – particularly those leveraging digital technologies – can face structural, strategic and demand side barriers that limit their ability to scale and compete. There is therefore an increasing role for public and financial authorities to play in enhancing competition to capture some of these benefits.



The Role of Public and Financial Authorities in Influencing Competition in DFS

DFS lie at the intersection of the mandates of diverse public and financial authorities, while no single authority holds a sufficiently broad mandate to comprehensively shape competition dynamics. These include competition authorities, central banks, financial sector regulators, telecommunications authorities, data protection authorities, and government ministries responsible for financial sector development, as well as authorities overseeing digital markets more broadly.

Competition law has spread across EMDE jurisdictions over recent decades[8] but competition authorities typically focus on policing abuse rather than actively promoting competitive markets, and their remit rarely extends into financial regulation, even when provided with a competition advocacy mandate. The result is a long-standing tension between financial and competition authorities[9] most visible in merger reviews, where the two sets of authorities can apply quite different standards.

Telecommunications and data authorities add further layers of complexity: delivery of DFS services critically depends on the access and use of telecommunication channels, while the increasing reliance on data raises questions around data privacy and cybersecurity, and appropriate oversight.

While this constellation of public and financial authorities have access to a range of policy and regulatory tools that can be used to promote competition, these are not always applied with a competition lens in mind. This is partly due to limited awareness of the potential effects that increased competition in DFS can have on innovation, private capital formation, and economic growth. Moreover, most authorities do not have an explicit competition mandate, and there is limited knowledge on how specific tools can address particular barriers and how to prioritise their adoption in local market contexts.

These topics and issues remain relatively underexplored in the existing literature – both in terms of conceptual clarity and empirical evidence on which regulatory tools have a meaningful impact on competition in DFS and, in turn, support capital accumulation and private sector development. Historically, the law and finance literature has focused on a relatively narrow set of instruments for promoting competition and financial development,[10] though the body of scholarly work examining these issues has expanded significantly over the past decade in parallel to the development of DFS.[11]

Moreover, authorities must remain mindful of potential trade-offs that may arise between competition and other policy and regulatory objectives, particularly financial stability. For example, intensified competitive pressure can compress margins and erode franchise values, potentially weakening incentives for prudent risk management.[12] In response, both incumbents and new entrants may expand into riskier market segments, relax screening standards, or adopt aggressive, volume-driven growth strategies-particularly in digitally enabled credit markets where scale can be achieved rapidly. While enhanced competition in DFS can therefore deliver significant gains, it may also introduce risks if not managed carefully.

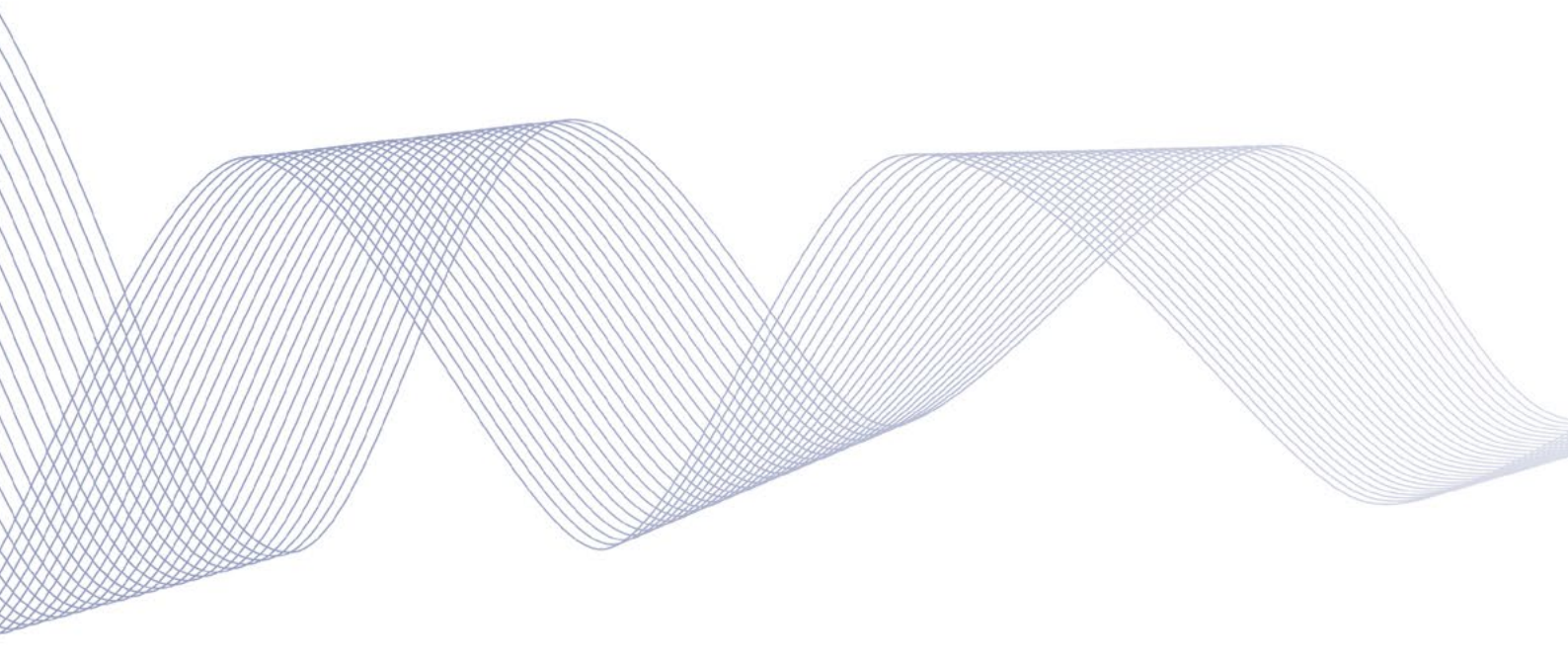
Thus, this report aims to address these gaps by considering how policy and regulatory tools can be leveraged to enable competition in DFS in emerging market and developing economies (EMDEs) and in particular their relation to capital formation. It provides public and financial authorities with guidance on how to develop strategies for promoting competition in DFS, recognising their distinct mandates and the need for close cross-agency collaboration.

Report Outline

This report responds to identified gaps through a five-pillar structure. First, it provides a conceptual framework for assessing the relevance, and potential impact, of various policy and regulatory tools to promote competition in DFS. The framework introduces a new taxonomy of competition tools divided into four tiers that broadly correspond to different levels of market and institutional and regulatory development of DFS ecosystems. Second, it maps competition-enabling tools from the tier framework to key competition barriers in DFS, and offers practical guidance to regulators on how to prioritise their adoption based on contextual needs. Third, it identifies the most relevant barriers to capital formation in EMDEs, and explores how competition-enhancing tools from the tier framework can be leveraged to alleviate them.

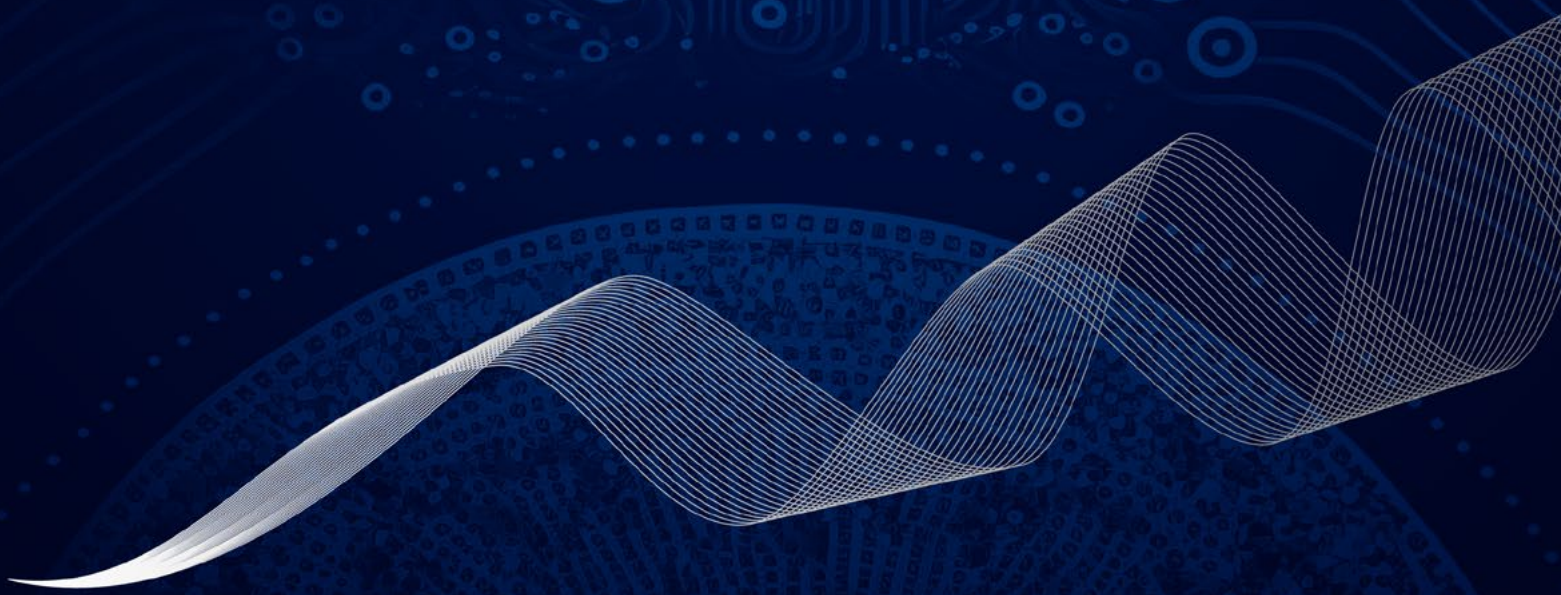
Fourth, the report provides empirical insights into the effectiveness and regulatory design of selected competition tools, drawing on two case studies conducted across four countries: Kenya and Nigeria in Sub-Saharan Africa, followed by Malysia and Vietnam in Asia Pacific. This analysis aims to strengthen the emerging evidence base on how financial regulation – when shaped through a competition lens – can enhance market dynamics and support private capital mobilisation goals, as well as other developmental goals such as growth, sustainable development, innovation, or financial sector development.

Fifth, the report draws on this analysis to support public and financial authorities in developing strategies aimed at enhancing competition in DFS across EMDEs worldwide. These include approaches through which authorities seek to minimise competition-distortive effects while pursuing other regulatory objectives, as well as more proactive competition-focused initiatives designed to address specific competition issues through targeted ex ante policy and regulatory tools. Keeping in mind the fragmented mandates of the public and financial authorities able to influence competition in DFS, the report emphasises the need for cross-agency collaboration when such strategies are developed and implemented.



Part II.

A Tiered Conceptual Framework for Developing Competitive Digital Financial Services Markets



In pursuing the development and evolution of competitive DFS markets, and the broader policy and regulatory objectives to which they contribute, there are a number of strategies and tools public and financial authorities can consider.

This chapter introduces a conceptual framework for understanding how different policies and regulations can be leveraged to support competition in DFS, providing a foundation for developing a jurisdiction-specific strategy. The starting point in any given case is an in-depth assessment of the specific circumstances, and technological and institutional environment, in a given economy.

In developing this conceptual framework, the authors draw on a range of case studies and experiences from economies around the world. The framework summarises lessons learned across jurisdictions, both developed and EMDEs, spanning diverse geographies as well as technological and institutional contexts.

The framework builds on extensive research conducted by CCAF and the authors over an extended period, complemented by insights from the broader institutional economics and law and finance literature, and more recent engagements with public and financial authorities through the recently launched programme on competition in digital financial services, delivered jointly by CCAF and Fii.

Conceptually, competitive (financial services) markets do not emerge or develop without institutional support, a theme reflected in the work of North (1990), Acemoglu et al. (2005), Beckert (2009), and others.[13] Extensive law and finance literature, including the works of Arner (2007), Arner et al. (2015), Beck et al. (2003), and La Porta et al. (1998; 2000), further demonstrates that policy and regulatory frameworks, and their various components, play a critical role in shaping financial market outcomes.[14]

Accordingly, the starting premise in developing this conceptual framework is that a competitive DFS market exists within a broader economic, financial, technological, and institutional ecosystem. Research and practical experience suggest that financial sector development depends on the interaction of multiple components. In their absence, a competitive DFS market is unlikely to emerge or be sustained.

Generally, these components can be divided into four main categories or tiers: (1) Foundational infrastructure and policy and regulatory frameworks; (2) Tools to support entry; (3) Tools to support scaling; and (4) Advanced market shaping tools.

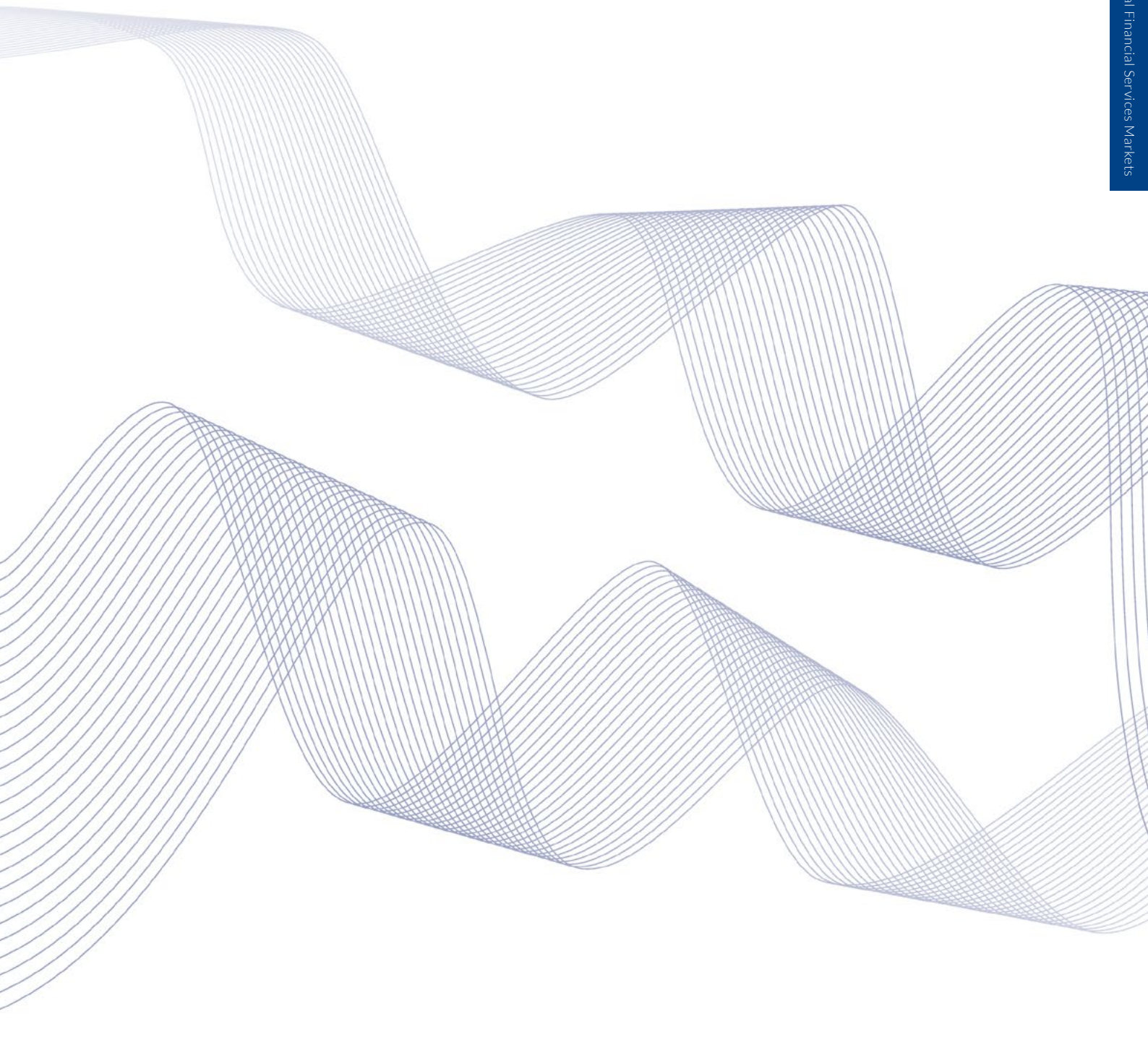
The tiered framework provides a conceptual starting point for developing strategies to promote competition in DFS and for selecting specific tools. Where a jurisdiction's policy and regulatory framework exhibits notable gaps that broadly correspond to a given tier, the tools associated with that tier are likely to be the most appropriate.

In practice, however, most jurisdictions are likely to identify gaps or inadequacies across multiple tiers. Capacity is rarely uniform across different authorities, and a jurisdiction may demonstrate strong policymaking, regulatory, or enforcement capabilities in some areas while remaining constrained in others. Similarly, levels of development may vary across different segments of the DFS market. The framework should therefore be applied with judgement, as an orienting guide rather than an attempt to rigidly fit any jurisdiction within a single tier.

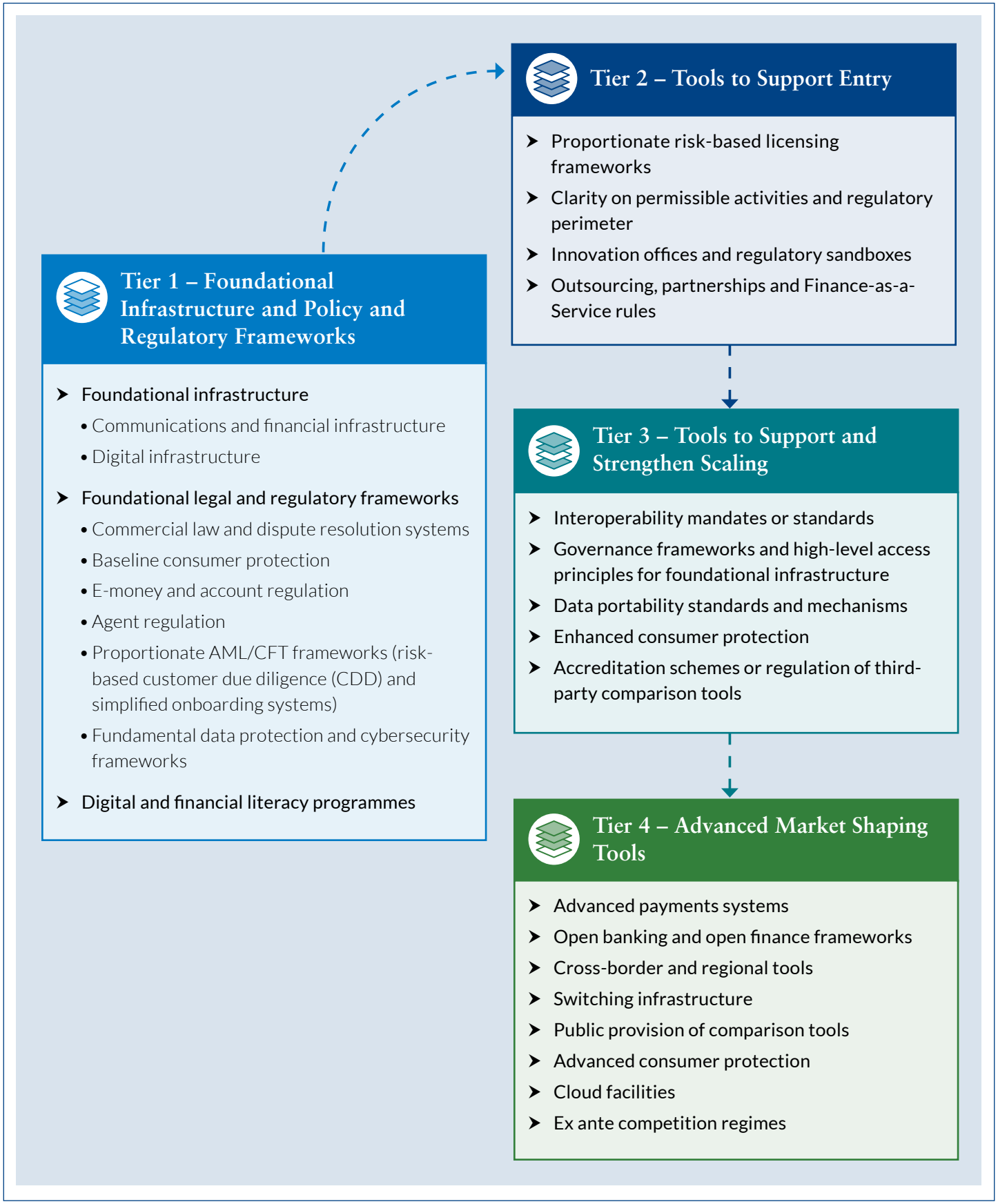
Importantly, these tiers are not ceilings. Developing a strategy for competitive digital financial services markets (which is the focus of chapter 6), requires embedding processes for ex ante tool selection, active supervision, ex post evaluation, and revision in light of the evidence.

The ex ante stage involves selecting the most appropriate tool given the gaps identified in the tiered framework and the prevailing competition barriers, with due consideration to other relevant policy and regulatory objectives. Active supervision then provides the ongoing intelligence needed to monitor compliance and assess whether market conditions are shifting in ways that affect the tool's continued relevance. Ex post evaluation draws on that evidence to assess whether the tool achieved its objectives, at what cost, and whether a different approach would have done better. Where the evidence supports it, tools can be adjusted, escalated, or replaced.

As public and financial authorities build experience in implementing and enforcing interventions, as staff develop technical expertise, and as markets mature and more data becomes available, tools that were previously out of reach or premature become more viable. This creates the conditions for progressing through the tiers over time.



Overview of the Tiered Conceptual Framework for Competitive DFS Markets



Tier 1 – Foundational Infrastructure and Policy and Regulatory Frameworks

This foundational tier comprises key infrastructure, legal and regulatory frameworks, and digital and financial literacy programmes that underpin the well-functioning of digital financial services markets, while also building basic trust and legal certainty for both providers and customers, thereby enabling their effective participation. This, in turn, represents a key prerequisite for the development of competitive markets.

The Tier 1 framework includes a diverse set of tools that often exhibit public goods characteristics, or generate positive externalities. As a result, market participants may lack sufficient incentives to provide them independently or may do so at suboptimal levels. These tools create the conditions for DFS markets to emerge and function effectively, which is a prerequisite for effective competition to take place. The tools in this tier include:

- **Foundational infrastructure**
  - Communications and financial infrastructure
  - Digital infrastructure
- **Foundational legal and regulatory frameworks**
  - Commercial law and dispute resolution systems
  - Baseline competition law
  - Baseline Consumer Protection
  - E-money and account regulation
  - Agent regulation
  - Proportionate Anti-Money Laundering (AML) / Countering the Financing of Terrorism (CFT) frameworks
  - Fundamental data protection and cybersecurity frameworks
- **Digital and financial literacy programmes**

Foundational Infrastructure

DFS markets rest on a layer of core communications, financial, and digital infrastructure. Together, these infrastructures enable the functioning of the financial system and support market participation.

Communications and Financial Infrastructure

Well-developed communications infrastructure, including mobile network infrastructure and protocols such as Unstructured Supplementary Service Data (USSD), is crucial for DFS services. This infrastructure provides critical access channels in markets where smartphone penetration remains limited and data costs are high, while also enabling the transmission and authentication of transactions.

Traditional financial infrastructure (or financial market infrastructure (FMI)) is core to financial sector development strategies. It typically includes payments and settlement infrastructure, securities market infrastructure, government debt market infrastructure, and legal and regulatory frameworks that underpin their effective operation and governance.

For payments and settlement infrastructure (e.g. real-time gross settlement systems (RTGS), automated clearing houses (ACH), retail payment switches), the central bank is essential, providing the bedrock of the financial system by ensuring that money moving between institutions is ultimately settled safely and reliably.

Complementing the infrastructural role of central banks are financial safety net mechanisms. This includes deposit insurance, which protects customers if a provider fails, alongside frameworks for crisis management, financial institution resolution, and orderly exit. Experience with financial crises around the world has underscored the importance of these mechanisms for maintaining stability and public confidence when things go wrong. Moreover, orderly exit also plays an important role in capital allocation and the broader processes of market renewal, with a clear relationship between the ability to exit and the conditions that support healthy market entry and competition. Without these foundations in place, even well-designed DFS markets remain fragile, vulnerable to shocks that can quickly erode user trust and participation.

Furthermore, credit registries and credit bureaus form part of the foundational information infrastructure of any financial system. At their most basic, these institutions collect and centralise credit information and make it available to lenders for the purpose of assessing borrower risk. Without this shared infrastructure, each lender must rely solely on its own customer data, creating significant information asymmetries that favour established institutions and raise the cost and risk of extending credit, particularly to first-time or thin-file borrowers. A basic credit registry – whether publicly operated, as is common in many EMDEs, or privately run – is therefore a prerequisite for the functioning of credit markets.

Similarly, securities market infrastructure, including securities exchanges, central securities depositories, and custodial arrangements, are important for digitally enabled capital market activities, as well as alternative capital-raising models such as equity crowdfunding.

Digital Infrastructure

Digital infrastructure may include different components that, individually or in combination, support digital and financial inclusion. Digital and financial inclusion are central to competition in DFS, which depends on consumers' ability to participate in these markets. Their participation is crucial for generating demand for DFS services. In markets where exclusion affects large segments of the population, incumbents can remain profitable by serving only the easiest-to-reach consumers, while challengers struggle to reach the critical mass, namely the minimum user base required for a viable DFS business model, needed to scale.

Conversely, greater competition in DFS can also promote financial inclusion, with newly included users benefiting from a competitive range of products and services that support their needs, which in turn can further contribute to sustainable development.

It is possible to distinguish between first-generation digital infrastructure strategies and emerging second-generation digital infrastructure strategies. Together, these complement the traditional financial infrastructure development strategies discussed in the previous section. Second-generation digital infrastructures are covered under Tier 4.

First Generation Digital Infrastructure Strategies

First generation strategies generally echo the strategy and approach embodied in the India Stack strategy:[15]

Digital identity. As highlighted by De Soto (2000),[16] one of the greatest challenges for development in EMDEs is lack of access to finance. Lack of access to finance is often directly related to barriers to people accessing the formal economy and formal financial systems. Central to these barriers is a lack of formal identification, necessary to access many governmental and financial processes and services. As a result, over the past fifteen years, a wide range of jurisdictions around the world have pursued initiatives to support the formalisation of identification, particularly digital ID. India – with its Aadhaar system launched in 2009, and its subsequent provision of digital IDs to over a billion people – has been the leading and transformational example of the potential of digital ID to transform lives, governance, and finance.

The ability to use digital ID is central to its value. The Digital ID Network (Digital ID) is a foundational infrastructure layer that enables users to prove identity and link credentials across services.[17]

This includes:

- **Electronic authentication**: authentication mechanisms (e.g., strong credentials, multi-factor authentication, biometrics, cryptographic methods) that enable secure access to accounts and services and reduce fraud risks.
- **Electronic KYC (e-KYC)**: remote verification processes that allow regulated providers to onboard customers efficiently, especially where proportionate onboarding approaches are permitted.
- **Entity and data registries**: baseline registries (for individuals and/or businesses) that support verification, due diligence, and market integrity by making trusted attributes available for legitimate checks.

While there has been tremendous progress on access to formal government ID globally, there are very often still significant barriers to their use for financial services. Enabling use of formal digital ID systems is central to supporting competition in DFS. The components of digital ID reduce the unit costs of onboarding and servicing customers and widen the pool of customers that providers can reach safely – supporting entry and rivalry, particularly for lower-income and remote users.

Electronic payment systems. Today, this often means fast or instant payment systems. They provide the digital rails through which individuals and businesses can transfer and receive money electronically in a rapid, reliable, and low-cost manner. As a result, they can encourage the participation of previously underserved populations in formal financial systems. These may be operated by private providers – for instance in the examples of Alipay or mPesa – or by government systems or public private partnerships, as in the case of Brazil's Pix and India's Universal Payments Interface (UPI). In the latter case, these systems are often a direct reaction to walled garden strategies from private sector providers, which seek to foreclose access of new providers, or to lack of commercial interest from traditional banks. Frameworks governing access to, and interoperability of, payment rails are covered under Tier 3.

Government to person transfers. G2P transfers are often central to drive usage of DFS by large portions of the population. Once usage is increased, new business opportunities open for providers, bringing the potential for competition in DFS.

These three elements of digital infrastructure work most effectively in tandem, with the first two jointly supporting customer access to financial services, while simultaneously reducing the customer acquisition costs for (new) DFS providers. This is central to enabling entry and product and service competition. The third element encourages usage, which further supports financial inclusion and therefore enables competition in a commercially viable manner.

First generation strategies also interact with traditional FMIs, which are generally core to financial sector development strategies, as discussed above. Integration of first-generation digital infrastructure with traditional FMIs is an important avenue to support competition particularly in investment products and services, as well as business transactions and fundraising.

Foundational Legal and Regulatory Frameworks

Foundational legal and regulatory frameworks support competition in DFS by building basic trust and legal certainty for both DFS providers and consumers. Strengthening consumer confidence in DFS is particularly important for services provided by non-banks.

Commercial Law and Dispute Resolution Systems

Economics has long recognised that market-based systems require mechanisms to enforce contracts and settle commercial disputes. Without these institutional foundations, property rights are not mobilisable, impeding financing and broader development. While this may sound straightforward, in practice, fundamental institutional foundations continue to be a major challenge across many EMDEs.

Baseline Consumer Protection

Baseline consumer protection is fundamental to both financial market functioning and to quality of financial products in a given market. Consumer protection, in turn, underpins effective competition through reducing the ability of providers to compete through the erosion of less salient consumer protection safeguards.

Consumer protection is often achieved through a combination of disclosure requirements, conduct requirements, and enforcement mechanisms. Baseline consumer protection can include:

- General "fair, clear and not misleading" communication rules
- Basic disclosure obligations (existence of fees, terms, risks)
- Complaint handling and redress mechanisms (access to dispute resolution, ombudsman)
- Cooling off periods

E-Money and Account Regulation

In many EMDEs, mobile money has emerged as an alternative to traditional payment systems – a very successful example of the role DFS can play in enhancing competition and financial inclusion.[18] While in some cases these systems have developed outside of the traditional regulatory framework for finance, experience is now sufficient to identify and implement good practice regulatory frameworks for market entry, consumer protection and data protection and cybersecurity, including in relation to agents.

E-money and basic account regulation provides clear legal foundations for non-bank issuers and basic transaction accounts or wallets. A predictable, proportionate framework encourages new entrants such as mobile money providers, while ensuring that users can rely on their funds being safe and accessible.

At the same time, in some jurisdictions (for example Kenya), mobile money has – via network effects and economies of scope and scale – developed into a concentrated industry, with evidence of dominance and even monopoly behaviour in some cases. As a result, regulatory approaches across finance – including for systemically important institutions – becomes relevant as does traditional competition approaches to monopoly behaviour, including pricing reviews and potentially even requirements for separation of certain activities (as in the case of Ant in China) or even potentially the breakup of firms.

Agent Regulation

Agent regulation sets minimum requirements for entities acting as intermediaries between DFS providers and customers, such as mobile money agents or banking correspondents, that enable physical onboarding, cash-in and cash-out transactions and customer support. Well-designed agent rules support outreach and convenience, particularly in rural and low-income areas, without sacrificing the necessary safeguards regarding customer onboarding and transaction handling. Agent regulation can therefore encourage participation on both the supply and demand sides of the market.

From a competition perspective, several considerations arise in the design of agent regulation. Rules governing which entities may legally appoint agents, and under what conditions, would ideally not disadvantage particular categories of DFS providers. In addition, agent regulations would ideally avoid imposing disproportionate approval, compliance, or monitoring burdens on DFS providers, as such requirements may discourage the entry and expansion of smaller market participants.

Agent regulation could also encourage, or at least not deter, the shared use of agents across multiple providers. This includes avoiding rules that require provider-specific devices, applications, or accounts, as well as carefully calibrating rules governing aggregator or super-agent models. Finally, restrictions on agent exclusivity can help prevent incumbents from foreclosing rivals' access to agents, although exclusivity arrangements may also be addressed through competition law enforcement.

Proportionate AML/CFT frameworks

Central to financial inclusion and competition in DFS is reducing the burden on both providers and users when opening an account. AML/CFT/CPF frameworks can impose significant costs and compliance risks on financial services providers and may constitute major barriers to financial inclusion, as well as to the entry of new firms, products, and business models.

Customer onboarding is increasingly being enabled by new entrants, such as mobile wallet and mobile money providers, which rely on digital ID systems and simplified AML/CFT/CPF procedures.[19] The FATF has recently changed its guidance (which is effectively mandatory and globally enforced across all jurisdictions) to require requirements to be proportionate and risk based.[20] As a result, jurisdictions around the world are reviewing and making changes to existing frameworks, including through the development of e-KYC systems. Central to proportionate risk-based Customer Due Diligence (CDD) are Simplified Due Diligence (SDD) systems and requirements for low-risk customers, activities, and products, with higher requirements for higher risk customers, activities and products.

These simplifications reflect a deliberate regulatory calibration but they carry tradeoffs. If not properly supervised and enforced, lighter-touch frameworks can create vulnerabilities to financial crime, increase consumer protection risks, and complicate the integrity of the broader financial system, particularly as providers scale. Managing these trade-offs requires public and financial authorities to adjust requirements, as well as supervisory and enforcement practices, as markets mature.

Data Protection and Cybersecurity Frameworks

In DFS, where large volumes of sensitive financial and identity data are processed, data protection and cybersecurity frameworks are fundamental to trust, much like consumer protection regimes. If consumers fear that their data may be misused or stolen, they are less likely to adopt and use digital services, creating engagement barriers to competition. It should be noted that data protection and cybersecurity regimes can be regarded as competition-promoting only when they do not impose disproportionate upfront investment requirements or ongoing compliance burdens on smaller providers, or provide significant scale and scope advantages to incumbent providers.

Baseline Competition Law

In addition to other elements, the existence of competition law and its effective enforcement, typically by an independent competition authority, is foundational to market functioning. It is often regarded as the principal framework for preserving competition across sectors, beyond digital financial services. Unlike the other frameworks discussed earlier, which focus on creating ex ante conditions for effective competition in DFS markets, competition law primarily operates ex post by sanctioning or deterring anti-competitive behaviour. It does so through rules that prohibit anti-competitive agreements (e.g. collusive conduct among market participants), abuses of dominant positions, and by enabling competent authorities to block or remedy anti-competitive mergers across the economy.

In DFS markets, baseline competition law operates alongside sector-specific financial regulation, providing a backstop where firm conduct or structural developments risk distorting competition but may not be explicitly addressed by financial regulatory frameworks. As will be discussed in greater detail in the next chapter, DFS markets can be particularly fertile ground for exclusionary behaviour. This might include refusal to deal, discriminatory access conditions, self-preferencing, bundling and tying, exclusive agreements, and loyalty-inducing practices. Moreover, competition law is especially important in light of the increasing platformisation of financial services, where bigtech firms and mobile network operators may have incentives to leverage market power from adjacent markets into DFS.

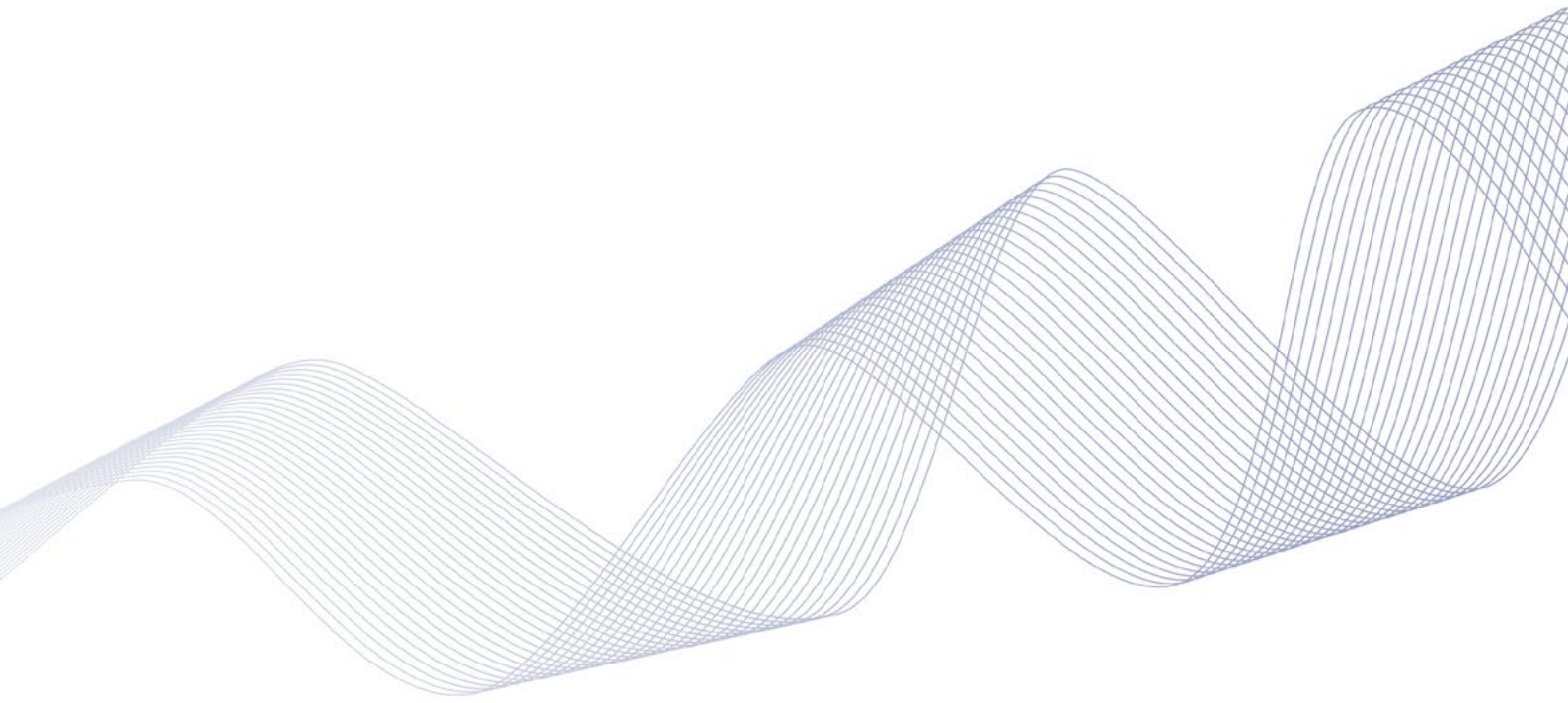
Digital and Financial Literacy Programmes

Digital and financial inclusion are central to competition in DFS. When consumers are unable to participate in the market, demand for DFS services is reduced, limiting the scaling prospects of new entrants and thereby weakening competition.

Moreover, consumers must be able to actively assess available alternatives. If consumers are unable to compare services or switch providers, this reduces the active customer base and weakens the competitive discipline that incumbent firms would otherwise face.

A lack of digital and financial literacy among large parts of the population can exacerbate these engagement barriers to competition. When consumers struggle to get online, register a SIM, complete required KYC checks, or navigate digital interfaces such as mobile banking or mobile money apps, they are effectively shut out of the market. Similarly, limited understanding of financial concepts prevents them from making informed choices, which is essential for competitive pressure to materialise.

Public and financial authorities have a role to play in influencing how strongly consumers attend to, or engage with, digital financial services. Both digital and financial literacy programmes – targeted at specific population segments such as rural populations or women, depending on where gaps are most pronounced – can support more inclusive and, in turn, more competitive DFS markets.



Tier 2 – Tools to Support Entry

In addition to market functioning and the trust of market participants that enables effective participation, market outcomes depend on the competitive pressure that new and innovative entrants exert on incumbent banks and other financial institutions. This was referred to earlier as "competition via DFS".

Tier 2 builds on the foundations of Tier 1 to reduce barriers to entry, enabling diverse, innovative actors (especially non-banks and fintechs) to participate in DFS markets and thereby improving market contestability. In addition, Tier 2 includes tools that support authorities' learning and experimentation, further enabling innovation-supportive policymaking and regulation.

Relevant tools include:

- Proportionate risk-based licensing frameworks
- Clarity on permissible activities and regulatory perimeter
- Innovation offices and regulatory sandboxes
- Outsourcing, partnerships and Finance-as-a-Service rules

In considering tools that encourage market entry, it is very important to implement a proportional risk-based, graduated, regulatory and supervisory approach to firms, business models and products.

Proportionate Risk-Based Licensing Frameworks

Central to this strategy is the implementation of an **appropriate spectrum of financial services licences**, designed both to cover major activities and sectors (payments, deposits, credit, insurance, investment) but also to cater for other entrants, often with simpler requirements proportional to the risks involved. Examples include microfinance, digital banks, payment services providers, payment initiation service providers, crowdfunding, crypto-assets and other fintech licences, credit information systems, data controllers, etc.

From the standpoint of public and financial authorities, it is important, as part of the review of the existing landscape, to identify where existing licensing systems – for example for banks – unduly restrict entry of new firms, particularly of those with simpler business models that focus only on the subset of activities performed by traditional licensees. Moreover, when introducing new licence categories, it is necessary to appropriately balance competition considerations against the risks arising from new products and activities, particularly for unsophisticated customers, and to introduce appropriate safeguards.

Clarity on Permissible Activities and Regulatory Perimeter

A core function of financial regulation is the definition of the regulatory perimeter. What sorts of firms and activities fall within the scope of financial regulation? And which do not? This also has a central role from the standpoint of competition, as financial regulation involves restriction of market entry, on the basis of solid policy rationales. Clarity on what activities fall within existing licences, and when new authorisation, is needed **reduces legal uncertainty for innovators**.

In addition, it is important to consider the relationship between financial services firms and technology companies, platforms and infrastructure. This might include cloud and data centre providers, while artificial intelligence (AI) and blockchain systems and services are also becoming increasingly relevant.

Traditionally, these technology companies, platforms and infrastructure would have been captured in the context of outsourcing rules and third-party risk frameworks. However, with increased concentration and dominance emerging with respect to key technologies, jurisdictions may reconsider this approach – both from the standpoint of potential risks to individual institutions, but also more broadly from the systemic, national security, and ecosystem development contexts.

Furthermore, as technology and telecommunications companies increasingly offer financial services, the delineation of the remit and powers of different authorities in relation to authorisation and supervision becomes an important consideration, both from the perspective of competition and with respect to other policy and regulatory objectives.

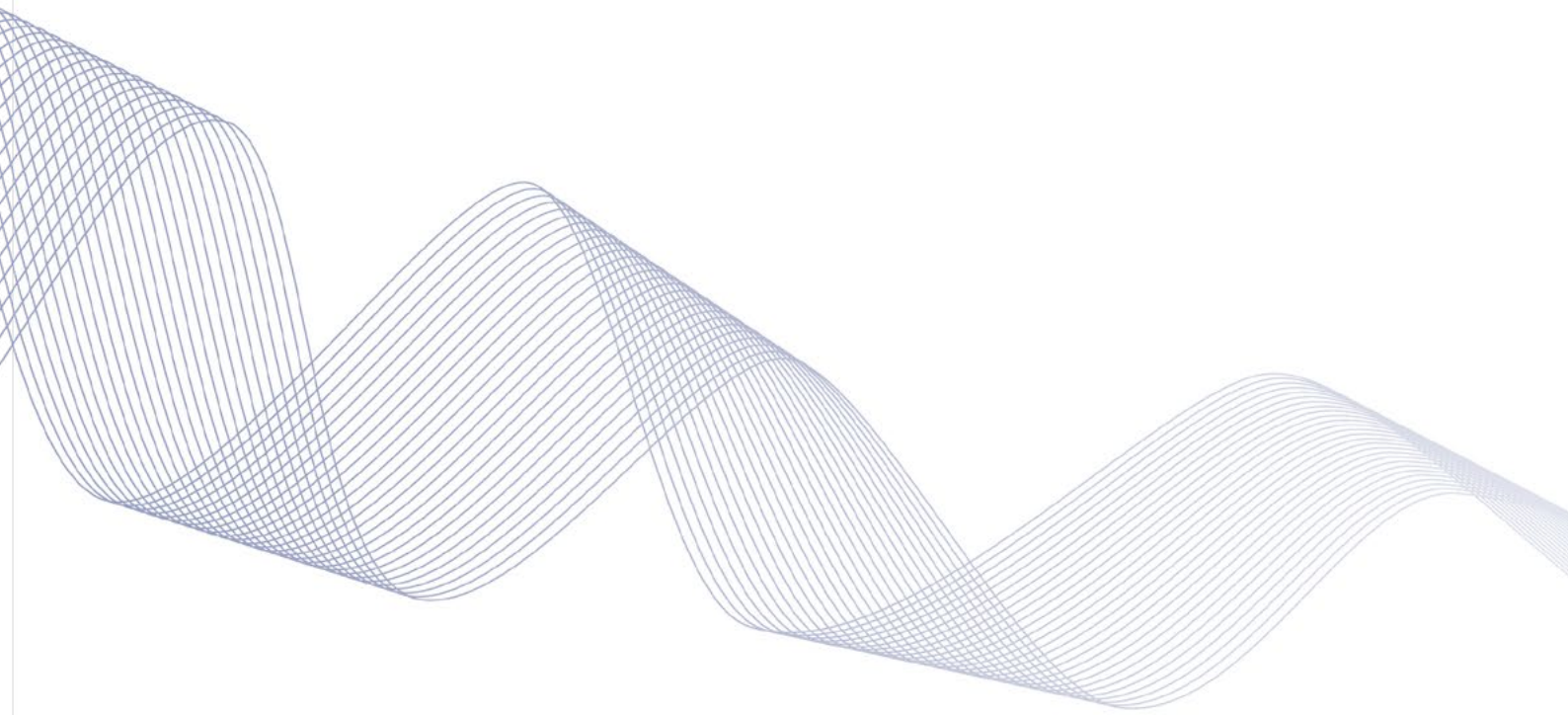
Innovation Offices and Regulatory Sandboxes

Related to the strategy of creating a proportional risk-based graduated regulatory and supervisory approach to new firms, business models and products, is enabling authorities' learning and experimentation. This can be achieved through creating a regulatory sandbox, which can be used for new and emerging business models which do not fall into existing frameworks. The sandbox provides an opportunity for both the authorities and the firm to gain a greater understanding of regulatory considerations, opportunities and risks, providing a framework to develop an appropriate proportional risk-based graduate framework as necessary. Innovation hubs can feed into this process, through engaging with, and providing regulatory clarification to, financial services providers that seek to offer innovative products and services.[21]

There are also other test and learn strategies. For instance, those involving existing financial institutions such as banks, insurance companies and investment firms, working with regulators to co-develop new technologies alongside appropriate regulatory and supervisory approaches.

Outsourcing, Partnerships and Finance-as-a-Service Rules

Outsourcing, partnerships and Finance-as-a-Service frameworks enable new or smaller providers to "rent" key capabilities – such as core banking systems, compliance functions, and access to payment schemes or cloud facilitities – from licensed institutions and specialised technology providers. Clear rules in this area set out how responsibilities and risks are allocated between the licensed entity and its partners, including governance, data protection, operational resilience and conduct obligations. When well-designed, these frameworks lower structural competition barriers by allowing firms to focus on product design and customer experience, while relying on established institutions for regulated infrastructure and compliance.



Tier 3 – Tools Support and Strengthen Scaling

For new players to compete on an equal footing with incumbents, they must be able to reach sufficient scale. Their ability to scale depends on access to key infrastructures and distribution channels on fair terms, as well as on their capacity to expand their customer base. The latter is shaped by the extent to which they can overcome fragmentation, including limited interoperability across closed-loop systems, and by customers' incentives to switch effectively between providers. Tier 3 tools comprise frameworks, strategies, and systems that support these scaling mechanisms, and includes:

- Interoperability mandates or standards
- Governance frameworks and high-level access principles for foundational infrastructure
- Data portability standards and mechanisms
- Enhanced consumer protection
- Accreditation schemes or regulation of third party comparison tools

Interoperability Mandates or Standards

Interoperability is the ability of systems and applications operated by different firms or organisations to communicate and function together seamlessly. With the increasing modularity of the financial services value chain and the pervasive use of technology across it, the ability of systems to interconnect has become a precondition for ecosystem development and effective competition.

In its narrow sense, a lack of interoperability reflects a coordination failure: providers do not converge to common technical or operational standards, resulting in closed-loop systems. When systems are not integrated, customers are more likely to choose a platform or provider with the largest number of users or merchants, preventing other providers from reaching the necessary scale. This, in turn, reinforces the dominance of incumbent providers.

Interoperability mandates or standards aim to ensure that core retail payment systems, such as mobile wallets, account-to-account transfers and Quick Response (QR) schemes, can interact with each other. Authorities may require or incentivise providers to allow transactions across networks, to adopt common QR formats, or to connect to central switches. Interoperability issues arising across different layers of the ecosystem are discussed in more detail in Part III of the report.

By requiring common standards, interoperability can lower integration costs for providers and switching or multihoming costs for users and merchants, thereby enabling new rivals to expand their effective reach.

Interoperability requirements may be supported by, or integrated into, the development of digital infrastructures as well, with fast payment systems and data infrastructures emerging as important examples of such infrastructures.

Governance Frameworks and High-Level Access Principles for Foundational Infrastructure

As discussed earlier, reliable foundational infrastructures – including communications, financial, and digital infrastructure – support competition by enabling the effective functioning of the financial system and building trust on both the supply and demand sides of the market. However, for new entrants to compete effectively with incumbents, it is equally important that they are able to access these infrastructures on equal or comparable terms.

Credit information infrastructure is a notable example. As DFS markets develop, credit information infrastructure takes on a more active role in supporting competition and scaling. At this stage, the relevant question is no longer whether a credit registry exists (as was the case in Tier 1) but whether all providers – including new digital entrants can access it on fair and equal terms, and whether the data it holds is sufficiently rich and current to support innovative lending models.[22]

This means that foundational infrastructures also require appropriate governance frameworks or access rules, not least because they may be a monopoly, albeit a natural monopoly, themselves. As a result, care needs to be taken in governance design so that digital infrastructures do not themselves prevent effective competition but rather serve to enable it.

Governance frameworks for foundational infrastructure (e.g., USSD channels, payment rails, credit information systems) define how these systems are owned, managed and overseen, and how decisions about access, functionality and pricing are made over time. They typically address decision-making rights and voting, representation of different stakeholder groups (including non-banks), transparency of rules and fees, and formal processes for rule changes, dispute resolution and incident management.

In some cases, incumbents may also have strong incentives to keep new providers at a disadvantage, for example by applying opaque access criteria, discriminatory pricing, or burdensome technical integration requirements.

This has been a particularly common issue in relation to access to the USSD communications channel in markets where MNOs are the primary mobile payments providers, and therefore have the ability to constrain rivals' access to this channel.

In such cases, policymakers face a choice between ex ante access rules (e.g., mandated non-discriminatory access for eligible non-banks, with published criteria and timelines) and relying on ex post competition enforcement, where the competition authority must establish an abuse (for example under refusal-to-deal/essential facilities or discriminatory conduct theories). Early-stage principles can lay the groundwork, but where the infrastructure is a bottleneck input and incentives to exclude are strong, clearer ex ante rules can avoid slow, case-by-case enforcement and provide predictability for entry.

Data Portability Standards and Mechanisms

Data portability standards give consumers the right to access and transfer their financial data away from an incumbent provider, in standardised and interoperable formats. In DFS, incumbents may benefit from deep proprietary data sets that challengers cannot easily replicate, and foundational portability rights help address this by reducing the lock-in that makes switching costly and scaling difficult for newer entrants.

Enhanced Consumer Protection

While the foundational consumer protection measures discussed in Tier 1 help establish basic trust, enhanced consumer safeguards may be introduced to reduce information and comparison barriers that often prevent consumers from making active and informed choices among DFS products and providers. This is discussed in greater detail in Part III of the report.

Enhanced consumer protection measures may be specific to financial services, or even to digital financial services, and may include requirements relating to standardised key facts documents and timely disclosures, neutral choice architecture, and requirements for fair ranking and presentation of products. By ensuring that product information is comparable, and that ordering does not entrench incumbent providers, these standards may help prevent established players from retaining customers through complexity and inertia, rather than through competing on product quality.

Accreditation Schemes or Regulation of Third-Party Comparison Tools

Accreditation schemes and regulation of third-party comparison tools can play a meaningful role in strengthening competition by ensuring consumers have access to reliable, unbiased information when making purchasing decisions. Without oversight, market driven comparison platforms risk favouring paying partners, skewing rankings, or presenting incomplete market coverage.

The UK Competition and Market Authority's (CMA's) Digital Comparison Tools Market Study[23] highlighted precisely these concerns, finding that while such tools have significant potential to drive competition, commercial incentives can undermine their impartiality. By introducing accreditation frameworks or regulatory standards, authorities can require these tools to meet criteria around transparency, impartiality, and comprehensiveness, ensuring smaller or newer market entrants are not systematically disadvantaged.

Tier 4 – Advanced Market-Shaping Tools

With the success of first-generation digital infrastructure strategies has also come the lesson that they are not panaceas. Importantly, successful first-generation digital infrastructure strategies raise both risks and challenges, which are increasingly the focus of an emerging set of second-generation digital infrastructure strategies.

Digital and financial inclusion have been successful in bringing over 2.5 billion people across the world into the financial system, mainly via digital technologies since 2010. This is central to enabling both demand and supply via DFS and thus underpinning competition. However, digital and financial inclusion also enables misbehaviour and underscores the centrality of consumer protection regulation, supervision and infrastructure to the evolution of beneficial competition in DFS.

Against this background, first generation digital infrastructure strategies also are underpinning second generation digital infrastructure strategies, which are increasingly important to supporting competition in DFS. The Tier 4 tools often form part of, or draw on, second-generation digital infrastructure strategies.

The most significant example is in the context of data: the combination of digital identity and fast payments creates vast amounts of data which can be used to underpin new products, services, business models and firms. The challenge is avoiding the walled garden problem which can emerge as a result of network effects: how to enable access to data more broadly to power competition rather than as a mechanism to support dominance? This is an important component of ecosystem tools, discussed further below.

Tier 4 builds on the rationale of the previous three tiers by addressing more complex competition issues that are often embedded within broader digital ecosystem dynamics and become increasingly prominent in more mature DFS markets. These include issues relating to data and platform concentration, the cross-border activities of DFS providers, and more subtle customer switching frictions.

Some of the competition issues addressed through Tier 4 tools are not exclusive to mature DFS markets. However, the tools themselves are often more demanding for public and financial authorities to design and implement in terms of institutional capacity, technical expertise, resources, and cross-agency coordination. Moreover, some of these tools are not yet widely adopted even in advanced economies, or remain at an early stage of implementation. As a result, questions relating to their desirability, sequencing, and design become especially important in the context of EMDEs.

Central components of Tier 4 include:

- Advanced payments systems
- Open banking and open finance frameworks
- Cross-border and regional tools
- Switching infrastructure
- Public provision of comparison tools
- Advanced consumer protection
- Cloud facilities
- Ex ante competition regimes

Advanced Payment Systems

Platform-based instant payment systems (with a notable example being Pix in Brazil), and potentially Central Bank Digital Currencies CBDCs, can function as advanced market-shaping tools when designed to mandate interoperability, provide open and non-discriminatory access to diverse DFS providers, and separate core infrastructure from user-facing services. This unbundling of the payment stack lowers entry barriers and prevents incumbents from controlling both the rails and the customer interface, allowing banks and non-banks to compete on more equal terms.

These tools seek to tackle dynamic competition concerns and shape market conduct in more developed DFS ecosystems, often requiring cross-institutional coordination. Data is a key emerging area, which crosses regulatory spaces. Cross-border activities are another.

Open Banking, Open Finance and Open Data

Data is central to DFS and thus data is emerging as a key area for consumer protection, national security, competition and competitiveness, with economies considering ways in which both to protect data as well as maximise its value and usefulness. Data infrastructures are thus moving beyond credit information bureaus and sharing requirements to payments and credit data, often linked via digital ID systems. These are increasingly joined by mandatory data protection, use and sharing requirements in payments (Open Banking), finance more broadly (Open Finance), and even non-financial categories of data (Open Data).

Open banking/open finance/open data frameworks build on data portability mandates covered in Tier 3, and give customers rights to access and share their financial and other data with third parties of their choosing, and often allow authorised third parties to initiate payments on their behalf. Standardised Application Programming Interfaces (APIs) and clear liability and security rules are central features. These frameworks aim to turn data into a shared input for competition, allowing new providers to offer comparison tools, personal finance management and tailored products without having to control the primary account relationship.

Cross-Border and Regional Tools

In an increasingly global digital financial services ecosystem, regional, bilateral and plurilateral approaches are becoming more important. These may be particularly important for smaller economies, where DFS providers often need to operate cross-borders to be able to reach the necessary scale. As a result, cross-border tools should be considered as part of wider competition-focused strategy development. Examples include arrangements for the interlinking of fast payment systems (such as Project Nexus developed by the BIS Innovation Hub in Singapore)[24] as well as passporting arrangements, which allow providers licensed in one country to offer their services in another country without the need to obtain a separate licence.

Public Provision of Comparison Tools

Where market-led comparison tools fail to provide sufficiently independent or comprehensive coverage, policymakers can govern or directly own comparison infrastructure that ensures all providers and products are included on consistent terms. Unlike commercially-operated tools, policymaker-backed platforms may not be subject to incentives to favour providers that pay for prominence. Furthermore, in DFS markets where pricing complexity and information asymmetry are common, reliable comparison infrastructure directly reduces the search costs that otherwise allow established providers to retain customers regardless of product quality.

Switching Infrastructure

Switching infrastructure encompasses mechanisms designed to reduce the friction and inertia that prevent consumers from moving between providers. This can operate at the individual level, through guaranteed or automated switching services. Examples include the UK's Current Account Switch Service,[25] which handles the technical complexity of a switch on the consumer's behalf. Alternatively, switching infrastructure may operate at a collective level, where intermediaries aggregate groups of consumers and negotiate or execute switches simultaneously. Both approaches recognise that requiring each individual to navigate the switching process independently creates structural barriers to competition. Collective models are particularly valuable for reaching less engaged or more vulnerable consumers who are unlikely to switch on their own initiative, while automated individual switching lowers the cost of action for those who are willing but face practical obstacles.

Authorities rarely operate this infrastructure directly. Instead, they typically mandate industry bodies to fund and build it, establish dedicated implementation entities, or enable third-party intermediaries – such as consumer organisations or commercial platforms – by removing regulatory barriers and setting accreditation standards. The choice of model carries its own design considerations, particularly where incumbents are required to build infrastructure that facilitates their own customers leaving.

Advanced Consumer Protection

While Tier 3 consumer protection tools primarily reduce information and comparison barriers to competition, Tier 4 tools address the active exploitation of behavioural biases[26] by dominant firms. Rules governing defaults, bans on dark patterns, and restrictions on manipulative interface design limit the ability of incumbents to manufacture consumer inertia and entrench market power.

Beyond prohibiting manipulative design, Tier 4 interventions may require providers to actively facilitate consumer engagement through prescribed choice architecture. Such measures can include automatic switching prompts, loyalty penalty notifications, or defaults that steer inactive consumers toward comparison, switching, or renewal processes, thereby strengthening competitive pressure.

Cloud Facilities

With the increasing provision of financial services through bigtech platforms, an important competition concern is the extent to which these firms may leverage market power from upstream digital infrastructure markets, particularly cloud computing, to foreclose rivals or raise the costs of downstream providers, including those operating in DFS markets. Where smaller providers are denied access, or granted access only on unfavourable terms, their ability to compete effectively may be significantly constrained.

In addition to ex post competition law enforcement and ex ante competition regimes, as discussed in the next section, some jurisdictions have explored the provision of public or sovereign cloud facilities as a policy.[27] Such initiatives may reduce the dependence of local providers on global technology platforms and potentially support a more level competitive playing field. However, they also raise important questions regarding whether public authorities can provide and maintain such infrastructure in an efficient and cost-effective manner relative to private-sector alternatives.

Ex Ante Competition Regimes

Ex ante competition regimes, such as the EU's Digital Markets Act[28] or the UK's digital markets regime,[29] impose forward-looking obligations on firms designated as having significant market power, rather than waiting for harm to be established through lengthy ex post competition law enforcement. In DFS, where network effects and data advantages can entrench dominant positions rapidly, ex ante rules can prevent foreclosure before it occurs. For example, by requiring access to key interfaces, prohibiting self-preferencing, or mandating interoperability. This proactive approach may be relevant in fast-moving digital markets where traditional competition enforcement may be too slow to prevent durable harm to competitive dynamics. However, the effects of these regimes have yet to be fully assessed, and their adoption and design in EMDE contexts may require careful consideration.

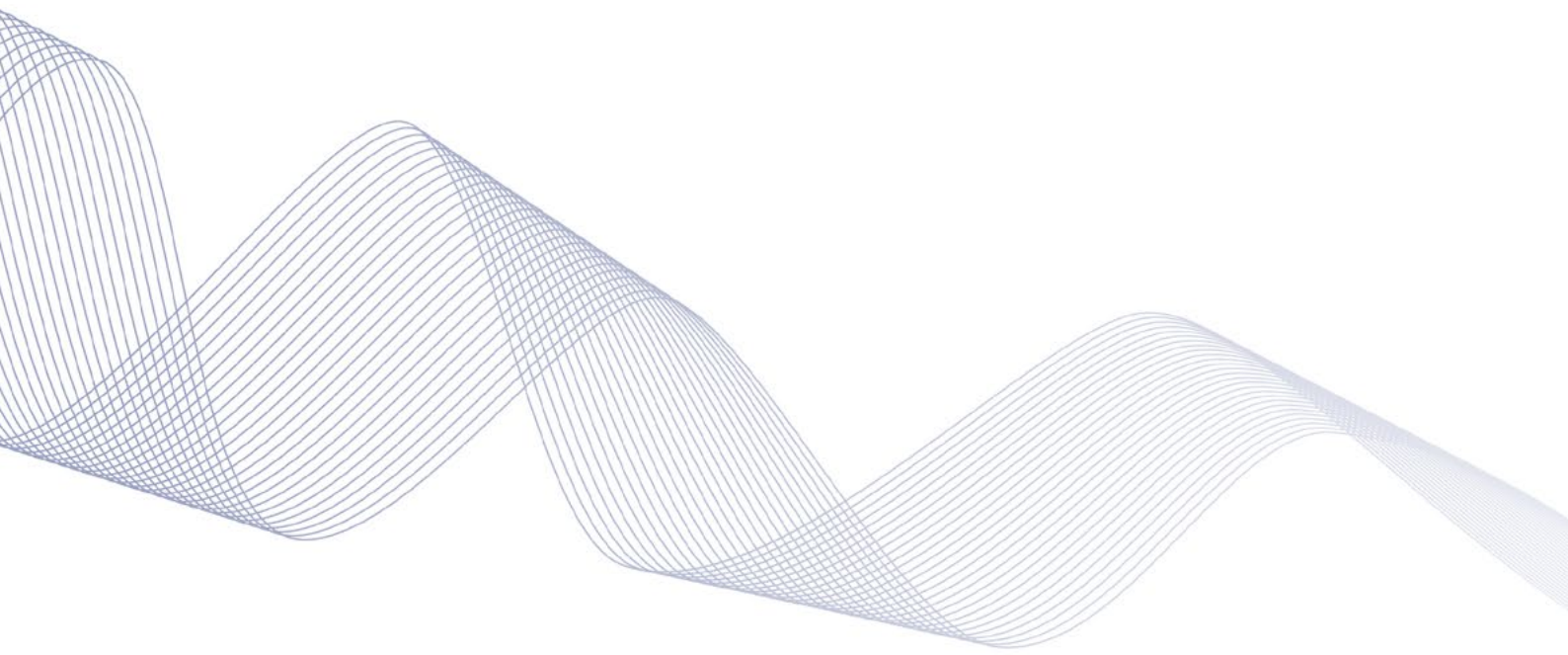
Summary

This chapter has set out a conceptual framework for developing competitive digital financial services markets in support of broader developmental objectives, such as growth, innovation, financial inclusion, capital formation and sustainable development. It begins from the recognition that competitive DFS markets do not always emerge spontaneously: they require a deliberately designed institutional, policy and regulatory architecture, calibrated to each economy's specific circumstances and capacity.

In pursuing this, public and financial authorities have access to a wide range of tools and strategies that can be deployed to support dynamic competition within DFS markets. This chapter sets out a conceptual framework for selecting and sequencing them.

The framework organises the relevant tools into four tiers. Tier 1 addresses the foundational legal, regulatory, and digital infrastructure necessary for well-functioning competition in DFS markets. Tier 2 focuses on reducing barriers to entry and improving contestability, enabling diverse and innovative actors to participate. Tier 3 turns to the conditions needed for new entrants to scale effectively. Tier 4 addresses the more complex, dynamic competition challenges that typically arise in mature DFS ecosystems, including data and platform power, cross-border activity, and advanced demand-side frictions.

The tiers are not rigid stages but a guideline. Most jurisdictions will identify relevant tools that cut across multiple tiers, and the framework is designed to be applied with due considerations to market development and authorities' capacity to design and implement them effectively. Critically, the policy cycle of ex ante assessment, active supervision, and ex post evaluation creates the conditions for authorities to assess what works in their specific jurisdictional context, and progress toward more advanced tools over time. Part VI of this report provides further guidance on how the tiered framework can be used to inform competition-focused policy and regulatory interventions.



Part III.

Mapping Policy and Regulatory Tools to Supply- and Demand-Side Competition Barriers in DFS

The previous chapter highlighted that competitive DFS markets develop only within a broader set of policy, regulatory, and institutional frameworks and infrastructures. Taken together, they underpin the effective functioning of the financial system, foster trust among market participants, enhance market contestability and scalability, and shape market dynamics in more advanced regulatory and market contexts.

The policy and regulatory tools comprising the tiered framework developed in the previous chapter can also be analysed in relation to the specific competition barriers they may help eliminate or mitigate. This perspective shifts the focus to the functional role of individual tools in addressing particular competition constraints.

As discussed earlier, the level of competition in DFS markets depends both on the intensity of rivalry among existing providers and on the ease with which new players – particularly smaller and more innovative firms – can enter, scale, and exert competitive pressure on incumbents. In other words, competition is shaped by the prevalence and severity of barriers to entry and expansion. These barriers vary across jurisdictions and market segments, and can be addressed through tools located at different tiers of the framework, ranging from foundational to more advanced interventions.

Against this backdrop, this chapter maps policy and regulatory tools to specific competition barriers. It begins by outlining key supply-side and demand-side barriers to competition in DFS markets. It then examines how the tools introduced in the tiered conceptual framework developed in the previous chapter can be deployed to eliminate or mitigate these barriers, across both the supply and demand sides.

Overview of Competition Barriers in DFS Markets

When a new DFS provider considers entering a market, it will project the costs of setting up operations, the expected user base, and the prices needed to break even and achieve sustainable profitability within a given period. Whether these projections make entry and expansion viable depends on the barriers they face.

Competition barriers are often viewed primarily through the lens of the costs of entry or expansion for new entrants – these are known as 'supply-side barriers'. In the DFS context, however, barriers arising from consumer behaviour – particularly their tendency to 'stick' with existing providers, even when new entrants offer more affordable or higher-quality services – are increasingly becoming viewed as important. These are known as 'demand-side barriers.[30] Supply-side barriers encompass both structural and behavioural/strategic barriers.

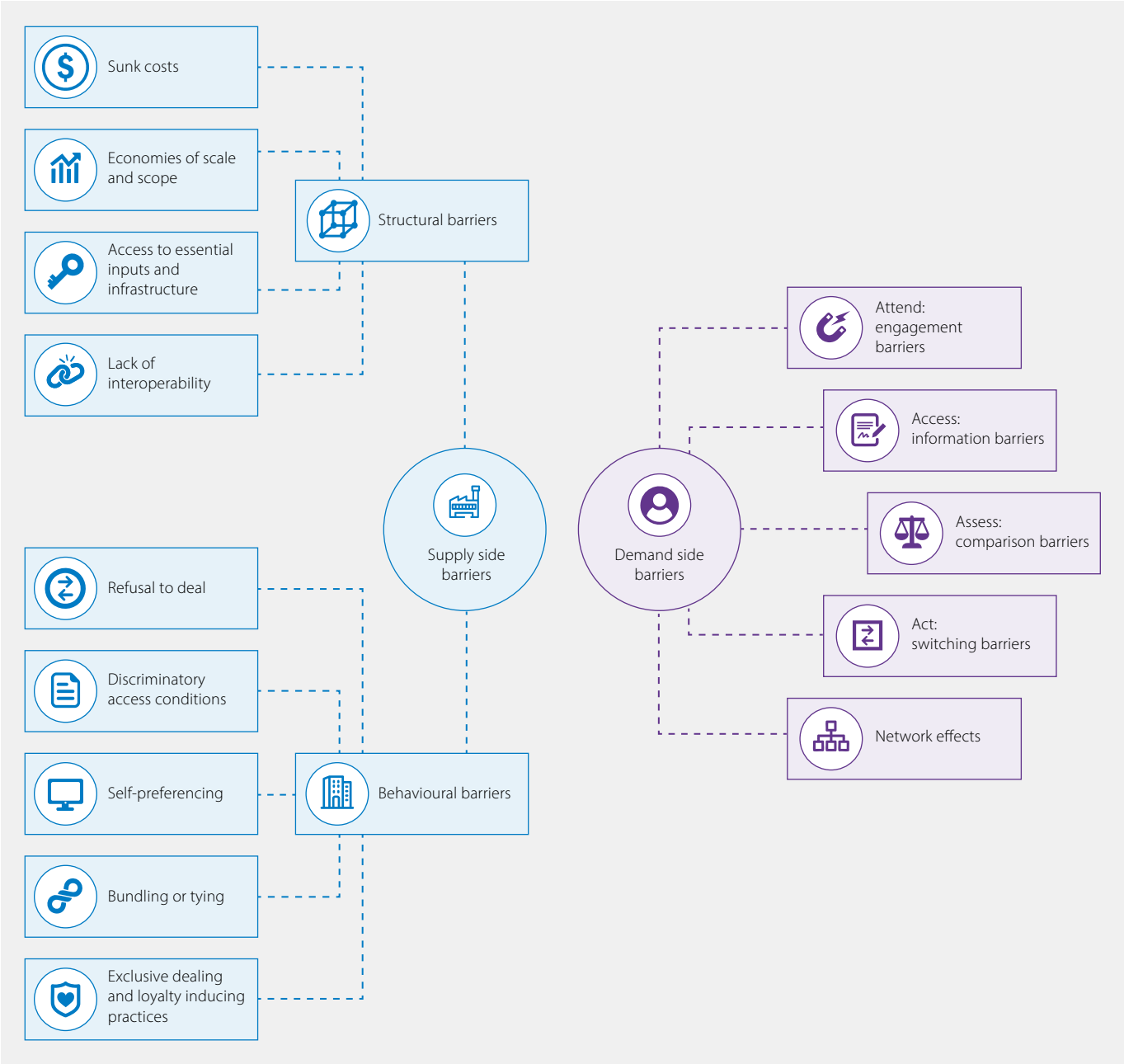
Structural barriers may arise as a result of the provider's cost structure, limited access to essential inputs or infrastructure, or the lack of technical integration among systems used to deliver DFS services (i.e., interoperability gaps). Structural barriers can not only impede entry, but also reinforce market concentration or weaken competition from new entrants.

In contrast, behavioural barriers arise from an incumbent's behaviour or strategic conduct that undermines rivals' ability to compete in the market. This can take several forms. Incumbent DFS providers may enjoy exclusive or privileged access to key inputs or infrastructure for historical, technical or regulatory reasons, placing potential entrants at a disadvantage. The individual DFS providers controlling these inputs often have both the incentive, and means, to restrict access to these key inputs or infrastructure to prospective (or existing) competitors, or to provide access on terms that weaken their ability to compete. In addition, incumbent providers might be able to undermine actual or potential competitors by constraining agents, merchants, distributors, or aggregators to contract exclusively with them. Furthermore, incumbent DFS providers might operate at scale in adjacent markets, enabling them to bundle or tie those offerings to other DFS or non-financial services.

Competition in DFS markets often depends on less salient factors that relate to consumer behaviour. Demand-side barriers arise from consumers' abilities to attend (engage with) the market, access information, assess the information they have, and – finally – be able to act on this information to provide a credible threat of switching. Demand side barriers also include network effects (where a product or service increases in value as the number of users increases) – a key feature of many DFS markets. Although primarily a demand side barrier, network effects also interact with supply-side barriers. When there are strong network effects in place markets tend to 'tip' towards a small number of dominant providers, which in turn exacerbates some of the supply side barriers.

Figure 2 below outlines a taxonomy of barriers to competition that will be used as the basis of as the basis of discussion for the rest of this section. The rest of this section maps policy and regulatory tools to each specific barrier type in turn.

Figure 2: Barriers to Competition in Digital Financial Services



Source: Authors; Demand-side barriers framework adapted from Fletcher (2021).[31]

Supply-Side Barriers

As highlighted earlier, supply-side competition barriers are factors that can render market entry unprofitable or limit the ability of smaller or newer firms to scale and compete effectively after entering the market. This subsection examines different types of supply-side barriers in DFS markets – including both structural and behavioural barriers and discusses the policy and regulatory tools that can be used to eliminate or mitigate them.

Structural Barriers

Structural barriers in the DFS context can be broadly grouped into several categories: sunk costs, economies of scale and scope, limited access to essential inputs or infrastructure, and lack of interoperability. Each of these categories, along with the policy and regulatory tools that can help address them, is examined in turn.

Sunk Costs

Sunk costs are one-time investments that cannot be recovered if the provider exits the market. This is because they are incurred at the point of entry and cannot be repurposed for other uses. When substantial, such investments may deter potential competitors, who may perceive the risk as too high and decide not to enter.

In the DFS context, the type and scale of sunk costs vary depending on the business model, as well as the type and scope of services offered. The emergence of financial technology has brought about the so-called 'unbundling' of financial services, enabling new DFS providers to concentrate on a subset of products or services traditionally offered by financial institutions, thereby significantly reducing up-front expenditures. Nonetheless, certain sunk costs remain and are common across different DFS verticals.

Some sunk costs arise because core systems or infrastructures necessary for the provision of DFS services are unavailable, difficult or inefficient for individual DFS providers to replicate. In some cases, these systems would be prohibitively costly for any individual market participant to build independently. This includes foundational legal and regulatory frameworks, such as commercial legal and dispute resolution systems, consumer protection and data protection. Public provision of these frameworks is therefore essential for the emergence and functioning of DFS markets.

Other infrastructures could in principle be developed by individual providers, but doing so would involve significant fixed investments and could lead to inefficient duplication across market participants. In these cases, public or jointly provided infrastructure can reduce the need for each provider to build parallel systems. As discussed in Part II, these include communication, financial, and digital infrastructure. Shared access to these infrastructures lowers entry costs for new providers and facilitates competition in downstream DFS markets.

Other sunk costs relate to trust building. A lack of reputation and brand recognition requires new DFS providers entering a market to invest heavily in awareness campaigns, branding, and other measures to persuade customers to adopt their services. This can give incumbents a significant cost advantage. Public and financial authorities can influence these costs by ensuring that minimum standards apply across the DFS industry. This might include through the adoption and enforcement of consumer protection frameworks, proportionate data protection and cybersecurity, and AML/CFT regimes. By establishing baseline levels of safety and reliability across the market, these measures reduce the need for individual providers to spend heavily on marketing simply to convince users that a new service is trustworthy. Furthermore, digital and financial literacy programmes may further educate consumers and reduce the investments new DFS providers need to incur themselves.

A third category of sunk costs relates to regulatory scoping and licensing. Innovation in DFS has introduced a range of new business models, many of which raise uncertainty about whether and how DFS providers fall within the scope of existing regulation,

and what their regulatory obligations should be. This may be the consequence of an 'entity-based' approach to regulation, which attaches regulatory frameworks to specific types of providers (e.g., banks, investment firms, fund managers, insurance). An activity-based regulatory approach recognises that different DFS activities may be 'unbundled' and carried out by multiple different types of providers.[32] An example of regulatory scoping and licensing resulting in high sunk costs would be an authority extending full banking regulation to providers offering limited services such as mobile wallets, payments, or peer-to-peer (P2P) lending.

For smaller DFS providers considering market entry, resolving this uncertainty about whether and how they might fall under existing regulations may require costly legal and consulting advice, which cannot be recovered if the firm does not proceed or later exits. Even when the regulatory perimeter is transparent, licensing frameworks can create disproportionate burdens for new entrants, especially when they perform only a subset of the activities of incumbent providers. Licensing fees, high capital or liquidity requirements may not only exclude potential competitors, but also force them to partner with incumbents[33,34] – a practice sometimes referred to as 'rent-a-charter'. When independent entry by non-bank DFS providers is not possible or viable, the competitive pressure they could otherwise exert on incumbents remains limited.

A range of policy and regulatory tools can directly mitigate these costs. These include, for instance, e-money licences and proportionate, risk-based licensing frameworks for an appropriate range of financial services. Further cost reductions can be achieved by providing greater clarity on permissible activities and the regulatory perimeter within these frameworks. Additional mechanisms that support both new entrants and regulatory learning include innovation offices and regulatory sandboxes, the latter being particularly important for aligning upfront regulatory requirements with innovative business models. For cross-border activities, passporting regimes can further reduce costs by eliminating the need for duplicative regulatory scoping and licensing.

Furthermore, compliance obligations may require significant operational set-up costs, even though many compliance costs take the form of ongoing operational expenditures. Establishing regulatory compliance systems often entails substantial upfront investments in technology and specialised personnel, many of which are sunk and cannot be recovered if a firm exits the market. These systems may include, for instance, those related to AML/CFT/CPF, KYC, data protection, cybersecurity, consumer protection (such as complaints handling), prudential and risk management, regulatory reporting, local employment and entity structure, and tax compliance.

The scope and scale of these costs are largely shaped by the design of regulatory frameworks. Disproportionate compliance requirements can deter the entry of potential competitors in DFS markets. For example, the absence of tiered, proportionate risk-based KYC rules can impose high regulatory burdens on providers that focus on low-risk, low-value transactions and products, particularly those serving financially excluded customers.[35] Going forward, this is an area where the implementation of FATF guidance (which requires jurisdictions to implement proportionate risk-based approaches) provide significant opportunities to lower some of the operational set-up costs and better balance multiple policy and regulatory objectives.[36]

Establishing agent networks, an important component of many DFS business models, particularly in EMDEs, can involve substantial upfront investment. Although digital financial services often rely on digital channels, physical access points may remain essential for activities such as customer onboarding, cash-in/cash-out transactions, and customer support in low-connectivity environments. Building such networks requires recruiting, training, and monitoring agents, establishing contractual arrangements, providing liquidity management tools, and installing equipment. Incumbents with large pre-existing branch or agent networks therefore enjoy a significant advantage, as new entrants must commit considerable resources upfront to

achieve comparable reach. Public and financial authorities can influence these costs through the proportionality of rules governing agent engagement, together with ensuring that regulatory requirements do.[37] In addition to regulatory compliance, operational set-up costs may also arise from broader IT infrastructure requirements. These can include, for instance, the design and maintenance of core banking or wallet platforms; integration with national payment systems and digital public infrastructure; the development of mobile applications and user interfaces; the establishment of APIs for third-party access; investments in cloud and server capacity; and the creation of fraud detection, data analytics, and business continuity systems.

The magnitude of both compliance-related, and other operational set-up costs also largely depends on the extent to which DFS providers are permitted to outsource certain functions to specialised third-party providers, rather than performing them in-house. Outsourcing or Finance-as-a-Service frameworks allow providers to rely on shared compliance and IT systems instead of building them independently, thereby reducing entry costs for new DFS providers. Finally, certain compliance or IT infrastructure, such as cloud facilities, can be partially provisioned by the public sector and made available to diverse providers under equal access rules. This can help reduce sunk cost investments while ensuring a level playing field.

Table 1: Overview of Competition Tools that Address Sunk Costs

How the barrier manifests	Competition tools
Infrastructure that is difficult to replicate	Foundational communication, financial and digital infrastructure Foundational legal and regulatory frameworks
High trust-building and customer acquisition costs	Consumer protection Proportionate data protection and cybersecurity AML/CFT frameworks Digital and financial literacy programmes
High licensing and regulatory scoping costs	E-money licences Proportionate, risk-based licensing frameworks for an appropriate range of financial services Clarity on permissible activities and regulatory perimeter Innovation offices and sandboxes Cross-border and regional tools
High compliance and operational set-up costs	Proportionate/ risk-based rules on AML/CFT, KYC, data protection, cybersecurity, consumer protection Proportionate rules on the use of agents Outsourcing, partnerships, and Finance-as-a-Service Cloud facilities

Source: Authors

Economies of Scale and Scope

Even where up-front investments are not prohibitive in themselves, new DFS entrants may struggle to compete if the average costs of providing services decline significantly with the number of customers (economies of scale) or with the breadth of services offered (economies of scope). In addition, larger and more diversified providers may benefit from richer datasets, which can further reinforce these advantages.

Economies of scale are often driven by fixed costs, many of which are sunk as discussed in the previous section (such as IT infrastructure, licensing, regulatory compliance systems, and agent networks).[38] Once these systems are in place, serving additional customers adds little incremental cost, allowing larger incumbents to achieve significantly lower unit costs than smaller entrants.

Similarly, in DFS, providers that combine payments, savings, credit, insurance, and other financial products on a common platform can share infrastructure, compliance systems, and distribution channels. A prime example is Nubank, the largest digital bank in Latin America, now operating in Brazil, Mexico, and Colombia. Nubank started with a no-fee credit card and later expanded to offer a digital account, personal loans, insurance, and investments – all within a single app.[39] Economies of scope can also arise when a firm operates financial and non-financial services on the same platform and can share costs across products. For instance, in Peru, Yape – a digital payment solution launched by the country's largest bank, Banco de Crédito del Perú (BCP) – has evolved beyond payments to offer microloans and consumer discounts across sectors such as restaurants, fast food, and fuel, positioning itself as the country's first potential "super-app".[40]

From a competition perspective, this also explains why the tools that reduce sunk costs discussed earlier, such as foundational infrastructure, proportionate licensing or outsourcing frameworks, can weaken these advantages by lowering the minimum efficient scale (or scope) at which providers can operate viably.

Furthermore, incumbents may also enjoy advantages when new providers face difficulties expanding their user base or distribution networks and therefore struggle to reach efficient scale. In such cases, incumbents can continue spreading their costs across growing networks of users, merchants, or agents, while entrants encounter regulatory, infrastructural, or operational constraints that limit their ability to expand.

Competition-enhancing tools that address these expansion constraints include proportionate rules governing the use of agents, risk-based CDD, interoperability mandates, and advanced payment systems, which allow providers to access larger user and distribution networks. For instance, proportionate agent frameworks allow new providers to gradually expand their retail channels, while risk-based CDD lowers onboarding frictions and enables faster customer acquisition among lower-risk customers. Interoperability mandates and platform-based instant payment systems primarily address barriers arising from network effects, which will be discussed later (also referred to as 'demand-side scale economies'). By enabling transactions across different platforms and providers, they reduce the competitive advantage associated with large proprietary networks. At the same time, these measures also relax expansion constraints faced by new entrants, allowing them to reach the minimum efficient scale more quickly.

Relatedly, data advantages combine both scale and scope effects. A larger customer base generates more transactions, and transaction data can be used to improve fraud detection, credit scoring, and customer targeting, thereby lowering costs and increasing efficiency (a scale effect). At the same time, a broader portfolio of products yields more diverse types of data (payments, lending, insurance, e-commerce), enabling richer analytics and product innovation (a scope effect).

For example, in Kenya, Safaricom partnered with an existing bank,- the Commercial Bank of Africa (CBA), – to offer a range of mobile banking services. CBA developed an algorithm that used rich customer data from Safaricom's mobile money transfers and payment records to assess creditworthiness and determine credit limits. Thanks to this partnership, CBA became the largest Kenyan bank in terms of the number of accounts.[41]

Tools that enable customers to share the data held by incumbents with competitors, as well as mandatory data sharing requirements (such as for credit information), can mitigate these data-driven scale and scope advantages, as well as information asymmetries, enhancing efficiency of financial intermediation.

Table 2: Overview of Competition Tools that Address Economies of Scale and Scope

How the barrier manifests	Competition tools
Incumbent scale and scope advantages driven by fixed (sunk) costs	Various tools addressed above under sunk costs (e.g. foundational infrastructures, proportionate licensing, outsourcing frameworks)
Barriers to expanding the user base and distribution networks	Proportionate rules on the use of agents Risk-based CDD Interoperability mandates Advanced payment systems
Data-related scale and scope advantages	Data portability Open banking / open finance frameworks Access rules for credit information infrastructure

Source: Authors

Access to Essential Inputs/ Infrastructure

The provision of DFS relies on upstream inputs and distribution channels that, in some markets, function as essential infrastructure. These inputs might include the necessary regulatory licence, access to payment rails, digital ID/KYC systems, credit bureau data, distribution networks, and more. Where access is denied, or offered to new entrants only on unfavourable terms, market entry or expansion may become prohibitively costly, thereby undermining competition and innovation.

Whether a particular input or channel might be considered "essential" is market- and time-specific, and depends on whether rivals can provide DFS services without it, and how difficult or costly it would be to develop a financially viable alternative. In almost all instances, some combination of public and financial authorities will hold considerable influence over the access, quality and pricing of these essential inputs and infrastructure.

It should be noted that the question of whether and how authorities should intervene in access to inputs provided or controlled by market providers, individually or jointly, is one of the longstanding debates at the intersection of economic regulation and competition law, often drawing on the essential facilities doctrine.[42] One of the key questions is whether access concerns should be addressed through ex post competition law enforcement – which generally requires establishing abuse of dominance by the provider controlling the relevant input or infrastructure (as discussed in detail in the section below that examines strategic barriers). Or alternatively, whether such conduct should instead be addressed proactively through ex ante policy and regulatory tools. Ex ante rules can help resolve access issues that are not always driven by an incumbent's intention to foreclose rivals.

The rest of this section categorises access-related barriers in DFS, and the associated ex ante policy and regulatory tools used to address them, according to the type of input, channel, or infrastructure involved. The overview does not discuss whether and how access issues should be balanced against relevant trade-offs, including the possibility of undermining investment incentives for providers, the risk of overregulation, the difficulty of determining what is truly essential, and practical implementation challenges – all of which should be assessed at the market and jurisdictional level.

First, access-related barriers arise when providers cannot obtain authorisation to operate independently. Without a suitable licence, a DFS provider cannot legally enter the market or must rely on incumbents. Access to a licence might also be limited by slow or burdensome licensing processes, which may not only delay but also discourage the entry of new providers altogether.

Examples of barriers in the context of licensing might include:

- **Non-bank entities are not permitted to obtain licences for financial activities**. As discussed in relation to sunk costs, limitations on the different types of DFS providers that are allowed to operate often stem from the entity-based approach to regulation. In some instances, certain types of entities have been effectively excluded from participating in the market. For example, in Nigeria, MNOs were long prevented from offering financial services.[43]
- **Licences for non-bank providers exist but constrain their ability to operate independently of incumbents**. In many jurisdictions, e-money issuers are required to safeguard customer funds in an escrow account with a bank or to enter other forms of partnership. Such requirements, some of which have since been amended, have been documented in South Africa, Peru, Uganda and Rwanda.[44] Banks may decline or delay partnerships for reasons ranging from legitimate risk concerns to strategically limiting the entry or growth of non-bank competitors.
- **Licensing frameworks may restrict expansion by DFS providers**. Even when DFS providers are able to obtain a licence, the conditions of the licence may form a barrier to expansion. For example, limits on transaction or mobile wallet sizes may constrain growth, investment, or profitability among DFS providers, affecting their ability to compete. Restrictions on e-money wallet sizes and a requirement to partner with banks are factors which have been attributed to the limited growth of DFS providers in Sri Lanka.[45]

Tools such as e-money licences, risk-based licensing frameworks for an appropriate range of financial institutions, regulatory sandboxes, and regional passporting can help address this barrier.

Second, access to payment systems and rails is the backbone of DFS. Historically, participation was largely bank-only, with the underlying utilities owned and governed either by the central bank (public schemes) or by bank consortia (industry switches). Ownership and governance shape the rules regarding eligibility, fees, and service levels, and therefore whether and how new entrants can effectively compete.

From a competition lens, the criteria for which providers are permitted to connect to payment rails, and the terms for this, are critically important. When non-bank DFS providers (e-money issuers, PSPs, and other licensed DFS providers) are barred from direct participation or membership, they may only be able access the payment rails through a sponsorship by a bank. In such instances, the key consideration is whether a bank can decide on a discretionary basis whether to provide indirect access to the rails to a new entrant, and set its own access terms (including quality of service and price), or whether statutory rules mandate access on objective, risk-proportionate, non-discriminatory terms. Indirect access to payment systems or rails can result in strong implications for competition and innovation, including:

- **Higher costs**: non-bank providers and other potential entrants may face higher fixed and variable costs, and potential exposure to unfavorable commercial terms or margin squeeze, all of which may be passed on to consumers.
- **Innovation bottleneck**: DFS providers may be constrained by the technical capabilities and risk appetite of their sponsor banks. If a bank is slow to upgrade APIs, fraud controls, or onboarding flows, the downstream provider cannot innovate or scale independently.
- **Issues with securing sponsorship**: Smaller or newer DFS providers may struggle to secure sponsorship from large banks who may prefer to collaborate with well-established players or may see certain DFS providers as direct competitors.
- **Strategic gatekeeping risk**: Banks can potentially prioritise their own products or partner-preferred DFS providers, influencing which innovations can reach the market and at what speed.

Public and financial authorities can employ various competition-promoting tools to mitigate these risks, including the establishment of clear governance frameworks and access principles for payment rails, which promote secure, transparent, and non-discretionary access conditions for new providers. Furthermore, platform-based instant payment systems (notable examples include Pix in Brazil), as well as CBDCs deployed as public payment infrastructure, may by design embed access conditions that support market contestability and innovation.

Third, access barriers may also arise in communication channels (SMS, USSD, and mobile data), particularly where these channels are essential for reaching users. In markets where MNOs are the primary mobile payments providers, other types of e-money issuers and payment service providers (PSPs) (including banks) may depend on MNO-controlled channels to deliver their services.

The most commonly cited example of this type of barrier is access to USSD – a mobile communication channel and protocol widely used for mobile payment transactions, which enables text-based interactions between a mobile phone and applications running on the network.[46] The use of USSD, alongside the related STK technology, is particularly prevalent in EMDEs, where large segments of the population still rely on feature phones or face network connectivity constraints that do not easily support mobile applications. As a result, there may be few effective substitutes for the USSD channel access in such markets.

It is important to note that restricted access to telecommunications channels may arise for several reasons. These include new entrants.[47] However, an MNO that also operates a mobile money scheme may have incentives to restrict or degrade rivals' USSD access, thereby weakening their ability to compete. Such behaviour would qualify as a behavioural or strategic barrier to competition, further discussed below.

As with access to payment rails, clear, transparent, and non-discriminatory rules governing access to mobile communication channels and associated technical standards is important to prevent exclusion from these critical inputs.

Fourth, access issues may also concern distribution networks, including agent networks, application stores, and e-commerce platforms. As noted earlier, agent networks have enabled DFS to reach large unbanked populations and significantly expanded the scale of these services. Beyond the high upfront costs associated with building agent networks, an important question is whether all types of DFS providers are able to use agents on comparable terms. Jurisdictions differ in terms of who may legally appoint agents, how burdensome the approval and monitoring regimes are, what services agents are permitted to perform, and whether new entrants can rely on aggregator or super-agent models.[48]

Uniform rules governing the use of agents across provider categories can help ensure that new entrants are able to reach customers on comparable terms. It is also important to note that barriers to competition may arise from a lack of agent interoperability and, even more significantly, from agent exclusivity arrangements, which are discussed in the sections that follow.

In addition to agent networks, payment service providers may depend on other distribution channels, including ATM networks, application ('app') stores or e-commerce platforms. These channels may be controlled by financial institutions, telecoms or bigtechs, which are themselves also increasingly active in the DFS sector. Access to such channels may be denied or offered on unfavourable terms, sometimes for reasons not necessarily linked to incumbents' intention to exclude rivals-for instance due to technical, security, or operational considerations. Exclusionary conduct will be discussed separately under behavioural barriers to competition.

Ex ante competition regulation, such as the EU's Digital Markets Act,[49] can introduce a set of obligations for designated gatekeeper platforms that directly affect access to key distribution channels for downstream firms, including DFS providers. These obligations include requirements to refrain from self-preferencing their own services, allow app developers to use alternative payment systems, provide fair and transparent conditions for business users, and grant access to certain hardware and software functionalities where relevant. In this way, such regulatory tools can help establish clear and non-discretionary access conditions to key distribution channels, while also limiting the scope for discriminatory conduct by dominant platforms, thereby supporting contestability in downstream markets, including DFS. However, as discussed earlier, the effects of ex ante competition regimes are yet to be fully assessed and therefore require careful consideration in relation to their adoption in EMDE contexts.

Fifth, access barriers can relate to data – including identity, credit, and customer (banking or financial) data – where these function as essential inputs.

KYC checks are fundamental to DFS, with their scope typically tailored to the products offered and the customer's risk profile. A core element is identity verification, which historically was only possible face-to-face, typically in branches using government-issued ID. In DFS, onboarding can occur remotely or in person via agents. Remote onboarding may rely on electronic ID via APIs, video KYC, biometric checks, verification against existing databases (including e-KYC platforms), or in some instances the reuse of SIM registration data. Remote onboarding practices vary significantly across jurisdictions.

Where robust electronic ID systems exist, access is typically restricted to licensed entities and subject to strict security and privacy requirements. If access standards are set too high in practice, or if only certain types of entities (such as banks) are permitted to connect, new entrants may face higher customer onboarding costs, constraining their ability to compete effectively. Similarly, the extent to which non-bank DFS providers can use e-KYC platforms to verify customer details against trusted sources can significantly affect competition dynamics.

In tiered (risk-based) KYC frameworks, the lowest tier may permit limited reuse of SIM registration data held by mobile network operators (MNOs) as one verification mechanism. Where MNOs also provide DFS, their rivals may lack equivalent consent-based API access to SIM databases and therefore face higher onboarding barriers.[50]

Similarly, credit bureau data have traditionally played an important role in assessing creditworthiness and deciding loan applications. While coverage varies by jurisdiction, such data typically include basic identification details, repayment histories, outstanding obligations, arrears, defaults, and, in some markets, public records (for example, court judgments or bankruptcies). Ownership and governance models of credit bureaus also differ. Some bureaus are publicly owned or operate as central bank subsidiaries, while others are industry utilities owned by banking associations or private consortia, or are privately owned firms.

Access has historically been limited to licensed institutions (primarily banks) and governed by strong reciprocity rules. In many markets, however, non-banks face restricted or costly access, raising onboarding and risk-pricing barriers. Alternative (non-traditional) data sources and proprietary scoring models are increasingly used by new DFS entrants. Where workable substitutes are weak or unavailable, access to credit bureau data functions as an essential input that shapes entry and competition. Conversely, where robust sources of alternative data exist, or where information contained in credit bureaus can be accessed through other channels, dependence on bureau access is correspondingly lower.

Lastly, access to customer banking or financial data has historically been central to relationship banking: institutions with visibility over customers' balances, payment histories, and spending patterns have been better positioned to assess creditworthiness. This data advantage as a potential competitive bottleneck is even more pronounced today, given the growing use of analytics for personalisation and risk management. Many new entrants offer services that require or assume access to incumbents' interfaces via APIs and/or to customer data. Examples include payment initiation services, account and service aggregation across multiple providers, and savings or investment products. Access to an incumbent's interface via APIs can therefore be essential for delivering these services. At the same time, banks and MNOs may have limited incentives to grant access to newcomers (who may be direct competitors), and legacy systems can make API development technically complex.

In terms of competition tools, governance frameworks and access regulation for digital ID, e-KYC, and credit information systems – together with open banking and open finance initiatives – can help prevent data from becoming an exclusive advantage of incumbents.

It is worth noting that some tools cut across different access barriers. Outsourcing, partnerships, and Finance-as-a-Service frameworks allow new providers to rely on existing licences, systems, or capabilities rather than building everything themselves.

Table 3: Overview of Competition Tools that Address Access to Essential Input or Infrastructure

How the barrier manifests	Competition tools
Licence	E-money licences Proportionate, risk-based licensing frameworks for an appropriate range of financial services Clarity on permissible activities and regulatory perimeter Innovation offices and sandboxes Cross-border and regional tools (e.g. passporting)
Payment rails	Governance frameworks and access regulation for foundational infrastructure – payment rails Advanced payment systems (platform-based instant payment systems and CBDCs as public payment infrastructure)
Communication channels	Governance frameworks and access regulation for foundational infrastructure – USSD, STK, and other mobile communication channels
Distribution networks (agent networks, application stores, e-commerce platforms)	Agent regulation (uniform rules on the use of agents across provider categories) Governance frameworks and access regulation for foundational infrastructure Ex ante competition regimes
Identity, credit, and customer data	Governance frameworks and access regulation for foundational infrastructure – digital ID, e-KYC utilities, credit information infrastructure Open banking / open finance frameworks
Cross-cutting different access barriers	Outsourcing, partnerships, and Finance-as-a-Service frameworks

Source: Authors

Lack of Interoperability

As discussed in Part III, interoperability refers to the ability of systems and applications operated by different firms or organisations to communicate and function seamlessly together. Failure of providers to converge on common technical or operational standards can result in closed-loop systems. Where systems are fragmented, customers are more likely to choose platforms or providers with the largest existing networks, thereby reinforcing the dominance of incumbent providers.

However, interoperability constraints may also arise due to the strategic behaviour of market participants aimed at maintaining or strengthening their market position, an issue explored further under behavioural or strategic barriers.

Interoperability challenges can arise at different levels of the ecosystem. Accordingly, policy and regulatory interventions often focus on establishing common standards to enable seamless interaction across key layers of the ecosystem, including:

- Retail payment system (rail) interoperability
- Quick Response (QR) code interoperability
- Interoperability of providers' APIs
- Agent interoperability

At the system level, payment system (rail) interoperability enables customers of one payment service provider to send money to customers of another payment service provider, regardless of where funds are held (bank accounts, e-money or mobile money wallets, debit or credit accounts).[51]

If payment schemes are not interoperable, customer funds can only be transferred between accounts within the same scheme. This significantly undermines competition among providers operating across different payment schemes. Without interoperability, customers of new entrants offering affordable and convenient payment solutions may be unable to conduct "off-network" transactions, reducing their incentives to adopt or remain with those providers.

Lack of payment system interoperability has been a particularly pronounced competition barrier in markets where MNOs dominated digital payments. MNOs typically built proprietary processing infrastructures and alternative e-money or mobile-money rails, avoiding reliance on traditional retail payment systems. Because different MNO rails were not interoperable, customers could not transact across providers, amplifying first-mover advantages for those with the largest customer bases.

System-wide interoperability solutions (including switch-based arrangements), platform-based instant payment systems with embedded interoperability features, and interoperable CBDC designs are among the tools that can help address these competition barriers.

At the merchant level, fragmented QR standards create frictions for both users and merchants, increasing the value of the dominant standard. When providers use incompatible QR codes for merchant payments, customers may need to use multiple apps or wallets to pay different merchants. This increases the utility of the most widely adopted QR code, which is often associated with the first mover. On the merchant side, such fragmentation – often reinforced by exclusive arrangements – weakens competitive pressure on acquirers and reduces incentives to lower fees, speed up settlement, or improve service quality.

Common QR frameworks can reduce these frictions and intensify competition. A prominent example is QRIS (Quick Response Code Indonesian Standard), introduced by Bank Indonesia in cooperation with industry participants. Under this framework, the same QR code works regardless of the payment instrument or funding source used, enabling greater interoperability and intensifying competition across providers.[52]

Interoperability issues can also arise at the provider level, typically in the absence of standardised APIs. As noted earlier, access to providers' interfaces (APIs) and customer-permissioned data enables new firms to offer innovative, competitive, and personalised services, often as overlays on existing networks or services. To reach scale, entrants need to integrate with multiple providers in a consistent and efficient manner, without negotiating bespoke bilateral agreements or building proprietary connectors for each counterparty. Where APIs are not interoperable – due to differences in specifications, security models, consent frameworks, or technical standards – entry and scaling can be deterred, even when access is formally available.

Common API standards can significantly reduce integration costs and support market entry and expansion. For instance, in India, the Unified Payments Interface (UPI) initiative provides interoperable APIs, enabling third-party developers to build services on top of its open platform. Users are therefore not restricted to a particular bank's mobile app or payment platform, allowing UPI to function as a convenient single payment interface without requiring customers to maintain multiple accounts across different providers.[53]

At the distribution level, lack of agent interoperability means a customer of one DFS provider cannot use another provider's agent to access that agent's services (onboarding, cash-in, cash-out).[54] Unlike agent exclusivity, where limits on multiple DFS providers using the same outlet are imposed through bilateral contracts, lack of interoperability stems from system-level or technical frictions, such as the need to use separate devices, apps, or accounts (floats).[55]

Agent regulation that avoids requirements for provider-specific devices, applications, or accounts can mitigate some of these issues. At the same time, agents may have limited commercial incentives to extend their services to additional DFS providers beyond what is required by regulation or technical standards.

Finally, interoperability constraints may also arise across borders. Regional or cross-border interoperability arrangements can extend competition beyond national markets and support the development of more integrated payment ecosystems. Overall, interoperability tools range from system-wide solutions to more targeted measures, depending on where fragmentation occurs within the ecosystem.

Table 4: Overview of Competition Tools that Address Lack of Interoperability

How the barrier manifests	Competition tools
Closed or non-interoperable payment systems	System-wide interoperability (switch-based or otherwise) Advanced payment systems (platform-based instant payment systems and CBDCs with interoperability features)
Fragmented merchant acceptance and QR standards	Common or standardised QR code frameworks
Non-interoperable provider interfaces and APIs	Interoperability of providers' APIs (payment initiation, customer-permissioned data access)
Lack of agent interoperability	Rules on the use of agents that avoid provider-specific devices, apps, or accounts
Limited interoperability across borders	Cross-border or regional payment interoperability arrangements

Source: Authors

Behavioural / Strategic Barriers

Barriers to entry and expansion that might arise as a result of an incumbent's behaviour or strategic conduct, which may amount to a breach of competition law. Whether such behaviour is to be treated as anticompetitive and subject to enforcement of competition authorities depends on a legal and institutional environment in a respective jurisdiction. Strategic conduct can take several forms.

Firstly, incumbent DFS providers may enjoy exclusive or privileged access to key inputs, infrastructure, or distribution channels for historical, technical or regulatory reasons, placing potential entrants at a disadvantage. Individual DFS providers controlling these inputs often have both the incentives and means to restrict access to prospective (or existing) competitors (refusal to deal), or to provide access on terms that weaken their ability to compete (discriminatory access conditions), or otherwise implicitly favour their own downstream services, undermining rivals' competition (self-preferencing).

Refusal to deal refers to a dominant firm unjustifiably denying competitors access to a product, service, or critical input they need to compete. This may be through outright refusal, or by granting access only on terms which are commercially or operationally unusable ('constructive refusal to deal'). In the DFS context, this often involves blocking or undermining access to key inputs or infrastructure, such as networks, communication channels, or interfaces.

Whether such behaviour might be considered anticompetitive depends on a number of factors, which may vary across jurisdictions. This might include whether access to the 'upstream' input is critical for effective competition; how difficult it is for rivals to replicate this infrastructure or find an alternative source of supply; whether refusal to deal is justified on credible security or privacy grounds; and whether the behaviour effectively limits competition in the market rather than merely undermining a position of a particular competitor.[56]

One of the most common examples of this strategic conduct in DFS markets is denying other providers access to USSD. For instance, in 2016, a Commercial Court in Uganda fined MTN, a mobile network operator active in the mobile money market, for refusal to provide its competitor EzeeMoney access to its USSD and phone line services. Because of MTNs' deliberate decision to cancel the contract for the provision of these services, EzeeMoney experienced a drop of 79% in the number of transactions.[57] The same practice has been recorded in markets such as Pakistan,[58] where MNOs provided access only to their partner banks, and alleged in other markets such as Senegal, Zimbabwe and Uganda.[59]

Discriminatory access conditions arise when an incumbent with significant market power provides access to a key input or infrastructure (USSD, customer data, or operating systems) on terms that place downstream rivals at a competitive disadvantage. This can include charging excessive prices for access, imposing technical requirements that make integration with the incumbent's systems unnecessarily costly or burdensome, or providing lower-quality access.[60] Charging rival DFS providers high prices for USSD access with the effect of undermining their competitive position has been documented in several markets, including Nigeria, Kenya and Bangladesh. Similarly, MNOs may provide access, but with poor or 'degraded' quality. This could take place through, for example, a large proportion of 'dropped' USSD sessions, resulting in low customer experience, and higher effective costs. It should be noted that USSD session failures can stem from a range of technical factors – not solely from strategic conduct.

Rather than explicitly refusing to supply its downstream rivals, a vertically integrated DFS provider with significant market power upstream may implicitly favour its own downstream services, undermining rivals' ability to compete. In practice, this preferential treatment often takes the form of seamless, on-platform integration of the provider's own offerings or default settings that steer users to those services. This behaviour is known as self-preferencing.

One prominent example is the European Commission's investigation into Apple's treatment of access to Near Field Communication (NFC) technology and related API functionality for rival mobile-payment providers (opened in 2020). In its 2022 preliminary assessment,[61] the Commission found that Apple's control of iOS effectively limited NFC access to Apple Pay, refusing comparable access to competing wallet developers. In 2024, Apple offered commitments-accepted by the Commission-to provide fair, non-discriminatory, and free-of-charge NFC access to eligible competitors under clear and objective criteria. A similar strategy has been used by Alibaba, which embedded Alipay as the default payment option within its e-commerce checkout.[62]

A more subtle form of self-preferencing may stem from a lack of interoperability. In many mobile money markets, dominant wallet providers have been accused of blocking or delaying account interoperability, which prevents users from sending money to other e-money or wallet providers.[63]

Secondly, incumbent DFS providers might operate at scale in adjacent markets, enabling them to bundle or tie those offerings to other DFS or non-financial services. Bundling and tying involve selling DFS products or services together to customers in a way that restricts entry or limits competition in a related market. These practices are a concern when a dominant incumbent uses its market power in one market to strengthen or protect its position in another market where it faces more competition. For instance, a bank with a large customer base can bundle or tie access to a current account or payments with insurance, credit, savings and other products.

More specifically, bundling entails selling two or more products as a package with clear benefits to the consumer if they are bought together (e.g. a discount on the product in the competitive market). Tying in turn involves conditioning the sale of a product in the market where the firm has market power, with the purchase of the product in the market where the incumbent faces significant competition. Bundling and tying can act as a competition barrier as rival DFS providers need to enter and expand in both markets simultaneously.

It should be noted that bundling and tying are not confined to combinations of financial services. Increasingly, they involve embedding financial services within non-financial activities. This includes e-commerce platforms, mobile operating systems, app stores, chat, food delivery, and ride-hailing services.[64] A prominent competition law case is the tying of payment processing with the use of an app store before the Competition Commission of India (CCI).[65] The CCI found that Google abused its dominant position by requiring app developers listing their apps on the Play Store to use Google's own billing and payment-processing system (the Google Play Billing System). In this instance, this was a requirement not only for paid app downloads but also for in-app purchases made after the apps had been downloaded from the Play Store.

The integration of financial with non-financial services has also been a prominent strategy by bigtechs, particularly in Asia, creating competition barriers for both new entrants and incumbent banks, which typically cannot replicate simultaneous expansion into these adjacent markets.[66]

Thirdly, incumbent DFS providers can exclude rivals by constraining their upstream suppliers or downstream agents, merchants, distributors or aggregators to contract exclusively with them. This often takes the form of exclusive-dealing clauses or loyalty-inducing arrangements, such as rebates or incentives conditional on not serving competitors.

One of the most prevalent examples is agent exclusivity – widely used in the early years of mobile money. This can create significant barriers to entry, preventing potential competitors from developing their own agent networks. In response, several jurisdictions prohibited agent exclusivity, either via competition enforcement – such as in Kenya[67] – or through mobile-money regulations – such as in Tanzania, Nigeria, and Ghana.[68] However, banning is not a universally applicable approach. Exclusive arrangements do not always amount to a competition barrier since the DFS provider may lack significant market power, or there may be sufficient alternative agents available to competitors, limiting exclusionary effects.

As noted above, competition law is the primary tool for addressing strategic behaviour in the context of digital financial services. Such conduct would typically be examined under rules on abuse of dominance, which prohibit a dominant firm from engaging in behaviour that distorts competition by excluding or disadvantaging rivals. In some instances, however, it may also be assessed under the rules on restrictive (vertical) agreements, which focus on whether contractual arrangements between firms restrict competition, even in the absence of dominance.

However, different ex ante rules can address specific types of strategic conduct, particularly where reliance on ex post enforcement alone may be slow or insufficient. Such rules may be horizontal in nature – for example, applying to platform "gatekeepers" under ex ante competition regimes, such as the EU's Digital Markets Act – or sector-specific, as in financial regulation.

For example, in cases of refusal to deal, discriminatory access, or self-preferencing, ex ante competition regimes may impose obligations on designated gatekeepers, including interoperability, non-discrimination, data access, and fair dealing requirements, thereby limiting their ability to engage in exclusionary conduct.

Similarly, financial sector-specific rules – including interoperability requirements, as well as governance frameworks and high-level access principles for critical infrastructure – can limit providers' ability to control who can connect, thereby reducing private gatekeeping. Furthermore, where access to data constitutes a competitive bottleneck, data portability, or open banking and open finance frameworks can directly enable competitors to access customer-permissioned data.

For tying and bundling, consumer protection rules (including pricing transparency, defaults and bans on dark patterns) can help by ensuring genuine choice and the ability to opt out, making it harder to lock users into unwanted combinations of services.

With respect to exclusive dealing, such as agent exclusivity, rules prohibiting exclusivity and mandatory access obligations can help prevent foreclosure by ensuring rivals can still reach customers. Together, these ex ante tools do not replace competition law, but complement it by narrowing the scope for harmful strategic conduct in the first place.

Table 5: Overview of Competition Tools that Address Behavioural/Strategic Barriers

How the barrier manifests	Competition tools
Refusal to deal, discriminatory access conditions, and self-preferencing	Competition law Ex ante competition regime Interoperability mandates / standards (payments, QR, APIs) Governance frameworks and high-level access principles for foundational infrastructure Data portability Open banking / open finance/ open data frameworks Advanced payment systems with open participation and neutral governance
Bundling and tying	Competition law Advanced consumer protection (defaults, and bans on dark patterns)
Exclusive agreements and loyalty-inducing practices	Competition law Agent and other non-exclusivity rules (e.g., via mobile money regulation)

Source: Authors

Demand-Side Barriers

In addition to supply-side barriers, competition dynamics in DFS markets directly depends on consumer behaviour, in particular their ability and willingness to choose a provider that offers better quality or more affordable services – demand-side barriers. These barriers can originate from consumers' abilities to attend (engage with) the market, access information, assess the information they have, and ultimately act on it by switching providers (the '4As' framework).[69] They may also stem from network effects whereby the value of a product or service increases with the number of users – a defining feature of many DFS markets.[70] The following sections examine different types of demand-side barriers and the policy and regulatory tools that can be used to address them.

Four A's: Engagement, Information, Comparison, and Switching Barriers

The '4As' framework (Attend, Access, Assess and Act), originally conceptualised by Amelia Fletcher, is a conceptual framework based on the premise that effective market competition depends on active consumers, whose credible threat of switching disciplines incumbents and incentivises the provision of competitive services.[71]

Attend: Engagement Barriers

A first consideration is whether consumers can 'attend' – in other words, whether consumers are actively present and making choices in DFS markets. Many consumers do not engage with DFS in the first place because they are effectively or actually excluded (unable to access or use services even if they exist), often due to limited access to essential infrastructure or as a result of high costs or barriers to access, whether formal or informal.

When consumers cannot access the internet, purchase a mobile phone, register a SIM, locate a reputable financial services provider, or complete required KYC checks, they are effectively shut out of the market.[72] They do not generate demand, compare alternatives, or switch providers, which shrinks the active customer base and reduces the competitive discipline that firms would otherwise face. In this way, financial inclusion is in fact central to attendance. In markets where exclusion affects large segments of the population, incumbents can remain profitable by serving only the easiest-to-reach consumers, and challengers struggle to reach the critical mass (the minimum user base required for a viable DFS business model) needed to enter or scale.

Common issues affecting access to essential infrastructure in DFS include:

- **Lack of ID or phone access**. In many countries, national ID systems are incomplete or difficult for some groups to access. Where national ID is required for SIM registration or KYC, those without documents (often women or people in rural areas) cannot register a phone or open an account. A study on India highlights how documentation gaps and limited access to devices prevent people from registering SIMs, completing e-KYC, or passing onboarding flows, blocking access at the first step.[73] AFI (2022) also notes that women in some regions face barriers to obtaining government-issued IDs.
- **Digital infrastructure issues**. In many regions, electricity and ICT infrastructure are unreliable. Frequent outages or limited mobile network coverage in rural areas make DFS difficult to use consistently. A review from Indonesia shows that uneven ICT coverage and high last-mile costs outside Java lead to patchy networks and transaction failures, reducing trust and making it harder for providers – and especially new entrants – to compete.[74]
- **Social norms and gender gaps**. Social norms shape access to technology. In a number of countries, women are less likely to own a mobile phone or have access to mobile internet. GSMA (2025) illustrates how this mobile gender gap manifests in Nigeria. This reduces the potential consumer base for DFS and limits providers' incentives to design services for diverse needs.[75]

In addition to access issues, consumers do not always meaningfully engage with decisions in DFS markets. This may be due to inattention, disinterest, or distrust in digital financial services, or simply if DFS consumers do not realise that there is an active choice to be made. This is particularly the case where defaults (pre-selected options that apply unless the user changes them) are involved.[76] For example, users may simply accept the default digital wallet on their phone or the pre-set payment option within an app, without realising they are making a choice at all.

Low financial or digital literacy can also impact on consumer engagement and adoption of DFS. Limited understanding of financial concepts or digital interfaces is a barrier in many areas.

Access: Information Barriers

In any market, informed consumers are essential for competition. When consumers cannot tell the difference between affordable, trustworthy, reliable services and exploitative ones, market trust erodes and competition weakens.

Digital financial services often feature significant information asymmetries.[77] Where this is the case, consumers tend to gravitate towards large, established providers with strong 'trusted' brands, even if these are not the best or most affordable options. This reliance on incumbents can exacerbate market power.

A key source of information asymmetry in DFS is when consumers are presented with hidden or incomplete costs. This often occurs where providers disclose only part of the total cost until the final stages of a transaction (sometimes called 'drip pricing'). For example, a mobile payment service may advertise low transaction fees but then add charges for withdrawals, or currency conversions when the user is about to finalise the transaction. This can mislead consumers into thinking they're getting a better deal than they are.

Price transparency is a particularly significant issue in the mobile money sector. When an Innovations for Poverty Action (IPA) study searched for prices across 16 countries in 2023, 6 of the 35 providers they looked at had no fees listed on their website.[78] Other providers created confusion by maintaining multiple, inconsistent price lists on their sites, often failing to remove outdated information when fees changed.

Assess: Comparison Barriers

Even when information is readily available, consumers may still struggle to assess it. Put differently, consumers may struggle to interpret this information, in order to make comparisons across various products, and determine those which best suit their preferences. In DFS markets, where products are often complex, it can be particularly hard for consumers to decide which product is best for a given need. These challenges are often more acute for vulnerable or marginalised consumers.[79]

Several factors contribute to comparison barriers. First, product complexity and information overload play a significant role. Many DFS products involve multiple pricing tiers or variable fees depending on transaction size, destination, channel, or uncertain future events. This makes it difficult for consumers to assess total costs and compare alternatives. These challenges are compounded when consumers face a large number of providers and pricing combinations presented in inconsistent ways. Cognitive overload may be particularly pronounced for individuals under financial stress,[80] making even accessible information difficult to process. In some cases, providers may deliberately increase complexity or reduce transparency to retain customers. For example, an IPA study on digital finance in Nigeria found that USSD fees were often inconsistent and higher than app-based fees, with over 30% of providers charging above the regulated limit – illustrating how pricing structures can obscure true costs.[81]

Second, a lack of standardisation and effective comparison tools limits consumers' ability to evaluate options. Providers may use different formats, terminology, or pricing metrics, preventing accurate like-for-like comparisons even where information is disclosed.

Third, behavioural biases further constrain effective decision-making. Even when information is sufficient, consumers do not always act in ways consistent with welfare-maximising choices. For instance, consumers may exhibit optimism bias-overestimating positive outcomes and underestimating risks – and therefore underweight contingent fees such as late payment charges.[82]

Choice architecture also plays a critical role.[83] Defaults, such as auto-renewals or pre-selected options, can discourage active comparison.[84] Framing effects further influence decisions: the presentation of prices (e.g. monthly vs annual), labels such as "most popular", or reference pricing (e.g. "was £X") can direct attention and shape perceived value.[85] Even small changes in wording, layout, or ranking can significantly affect consumer choices and make meaningful comparisons more difficult.

Information quality intermediaries, gateways, and related quality assurance mechanisms, can mitigate some of these barriers.

Act: Switching Barriers

Even when consumers can access and assess information, competition depends on their ability to act on it. If switching providers is difficult, inconvenient, or risky, consumers may remain with their current provider, allowing incumbents to sustain higher prices or lower quality. Importantly, effective competition does not require constant switching-only a credible threat of switching, which incentivises firms to improve their offers.

Switching costs in DFS markets can take several forms:

- **Loss of transaction history and reputation**: Many DFS providers rely on users' digital footprints-such as payment behaviour, account activity, or past borrowing-to assess creditworthiness. When consumers switch, this history often does not transfer. As a result, they may face lower limits, higher prices, delayed access to credit, or the loss of features such as saved payees or loyalty benefits. This creates data-driven lock-in, as consumers hesitate to switch if they must rebuild their profile from scratch, while new entrants struggle to compete without access to prior information.[86]
- **Lack of data portability**: Closely related is the difficulty of transferring data between providers. Even where data can be exported, it is often non-standardised, incomplete, or not machine-readable (eg. PDFs), limiting its usefulness for onboarding at a new provider.[87] Consumers may need to re-verify identity, recreate payment instructions, and re-qualify for services. Consent processes can also be slow or unclear. These frictions reduce the practical ability to switch and limit competitors' ability to offer tailored or competitively priced services.
- **Onboarding hurdles**: Switching often involves time-consuming identification checks, documentation, or in-person verification, particularly in low-resource environments. Consumers must also learn new interfaces and processes. These burdens can disproportionately affect vulnerable consumers, who may lack the time, confidence, or digital skills required to navigate onboarding, even where switching would be beneficial.[88]
- **Lock-in through bundling**: DFS providers frequently bundle services-such as payments, savings, and credit-within a single platform. While convenient, bundling can increase switching costs, as leaving one service may disrupt others. Consumers may lose integrated features (e.g. autopay or loyalty benefits), cross-product incentives, or the advantages derived from consolidated data.
- **Behavioural frictions**: Behavioural biases further reduce switching, even when better options exist. Status quo bias and inertia lead consumers to stick with familiar providers; loss aversion makes potential losses (e.g. access, convenience) more salient than gains; present bias discourages switching due to upfront effort relative to delayed benefits; and ambiguity aversion deters consumers when outcomes at a new provider are uncertain.[89] These frictions weaken competitive pressure by reducing consumers' willingness to act on available information.
- **Weak consumer trust in safeguards**: Limited trust in consumer protection, data privacy, and security frameworks can deter switching. Concerns about fraud, misuse of personal data, or unauthorised transactions may lead consumers to remain with established providers, particularly in contexts of low financial literacy.[90]

Policy and Regulatory Tools

Given the range of demand-side barriers, a variety of policy and regulatory tools can be deployed to address them. These barriers – and the tools targeting them – are closely interlinked and often sequential in nature. Overcoming engagement barriers enables consumers to access information about available options. Access, along with information quality, in turn, is a prerequisite for meaningful comparison. Taken together these steps support switching, provided that switching-related frictions are also addressed, and that there are in fact alternatives available.

At the engagement stage, policy and regulatory tools aim to lower the cost of entering the market, raise awareness of DFS services, and build basic trust. For instance, ensuring the availability of foundational infrastructure – including communication, financial and digital infrastructure – reduces access barriers and supports greater uptake of DFS.

Similarly, foundational legal and regulatory frameworks, such as baseline consumer protection, data protection and cybersecurity, strengthen trust and encourages participation. Proportionate AML frameworks, particularly rules on risk-based customer due diligence (CDD), effectively lower entry barriers for a large portion of population. Financial and digital literacy programmes further support engagement by improving awareness and understanding of available services.

At the access and assessment stages, policy and regulatory tools focus on reducing the costs of obtaining and interpreting information.

At the access stage, baseline consumer protection measures – such as requirements for clear, fair, and not misleading communication and basic disclosure obligations – ensure that consumers are provided with the essential information needed to make a choice. Enhanced consumer protection measures – such as simple key-facts documents, standardised disclosures, and timely disclosures (eg. renewal reminders) – further improve the salience and clarity of key information.

At the assessment stage, the emphasis shifts to enabling meaningful comparison. Information standardisation requirements, as noted above, support consumers in understanding core product features and enable like-for-like comparisons across providers. Rules on neutral choice architecture can further ensure that the presentation and ordering of options do not bias consumer decisions. In addition, accreditation schemes or regulation of comparison tools can enhance their reliability, while public comparison dashboards can further reduce search and evaluation costs. Finally, open banking and open finance frameworks enable consumer-permissioned data sharing, supporting more personalised and accurate comparisons across providers.

At the switching stage, policy and regulatory tools aim to reduce frictions that prevent consumers from acting on better options. These tools focus on lowering both practical and behavioural switching costs.

Simplified onboarding processes, such as streamlined digital ID verification and risk-based CDD, reduce the time and effort required to join a new provider. Data portability measures are equally important: by enabling the transfer of transaction history across providers, they reduce data-driven lock-in and support continuity of service.

Open banking and open finance frameworks play a central role by enabling consumer-permissioned data sharing, which facilitates more accurate comparisons and smoother switching journeys. In parallel, advanced consumer protection measures. such as rules governing defaults, bans on dark patterns, and restrictions on manipulative interface design, help preserve consumer optionality, thereby reducing behavioural frictions and mitigating bundling-related lock-in.

Finally, dedicated switching infrastructure can further enable faster and more reliable transitions between providers. Together, these tools help ensure that consumers can act on their preferences, allowing competition to function more effectively.

Table 6: Overview of Competition Tools that Address Demand-Side Barriers (Engagement, Information, Comparison, and Switching Barriers)

How the barrier manifests	Competition tools
Attend – Engagement barriers (initial access, awareness, trust)	Foundational infrastructure (communication, financial and digital infrastructure) Foundational legal and regulatory frameworks (e.g. baseline consumer protection, data protection and cybersecurity, proportionate AML (including risk-based CDD)) Digital and financial literacy programmes
Access – Information barriers (hidden or opaque costs)	Baseline consumer protection (e.g., fair, clear and not misleading communication rules, basic disclosure obligations) Enhanced consumer protection (simple key-facts documents, timely disclosures (e.g., renewal reminders))
Assess – Comparison barriers (complexity, lack of standardisation)	Enhanced consumer protection (e.g. simple key-facts documents, neutral choice architecture, requirements for fair ranking and presentation of products) Accreditation schemes or regulation of comparison tools
Act – Switching barriers (onboarding hurdles, loss of transaction history, bundling lock-in, behavioural frictions)	Digital infrastructure (digital ID) Proportionate AML frameworks (including risk-based CDD) Data portability Open banking / open finance/ open data frameworks Advanced consumer protection rules (rules on defaults, bans on dark patterns, and restrictions on manipulative interface design) Switching infrastructure

Source: Authors; Demand-side barriers framework adapted from Fletcher (2021).[91]

Network Effects

Network effects arise when the value of a product, service, or platform increases with the number of users participating in it. As a network grows, it becomes more useful and attractive, reinforcing further adoption. In digital financial services, two main types of network effects can be observed.[92]

Direct network effects occur when users benefit directly from the presence of other users on the same platform. For example, peer-to-peer payment systems (e.g., mobile money platforms) become more valuable as more individuals adopt them, as off-network transactions – particularly in the absence of interoperability -typically entail additional costs.

Indirect network effects arise in multi-sided markets, where platforms connect different user groups-such as consumers, merchants, and agents. The value for one group depends on the size and activity of the others. For instance, consumers benefit from digital payment methods that are widely accepted by merchants, while merchants prefer systems or apps used by a large customer base. Similarly, DFS providers with extensive agent networks are more attractive to users, while agents are incentivised to partner with providers that already have large user bases.

Network effects can generate significant efficiency gains by enabling rapid scaling, improving convenience, and supporting the development of integrated DFS ecosystems. However, they can also create substantial barriers to competition. Once a provider reaches a critical scale, markets may "tip" towards a dominant player, making it difficult for new entrants to attract users-even when offering better prices or services. In such settings, users may remain with a provider not because it is superior, but because it is widely used.

A well-documented example is the growth of M-Pesa in Kenya, where rapid expansion and a dense agent network made it the most convenient option for users, while simultaneously raising barriers for competing providers seeking to gain traction.[93]

The strength of network effects depends, in part, on the ease of multihoming.[94] Where multi-homing is easy-for example, when users can hold multiple digital wallets-network effects are less likely to entrench market power. Conversely, high multi-homing costs-such as repeated KYC requirements, fragmented data, duplicative fees, or complex user interfaces-can reinforce "winner-take-all" dynamics.

Policy and regulatory interventions can mitigate the exclusionary effects of network dynamics by reducing the extent to which scale advantages automatically accrue to incumbents.[95] These tools can be understood across different levels of the ecosystem – user, agent, and merchant.

At the user level, interoperability mandates and advanced payment systems, which are interoperable by design, enable seamless transactions across providers, reducing the need for users to join a single dominant network.

At the agent level, rules on agent non-exclusivity and shared technical standards allow agents to serve multiple providers, lowering entry barriers and enabling new entrants to access distribution networks without having to replicate them.

At the merchant level, common acceptance standards (e.g. interoperable QR codes) and limits on exclusive arrangements enable merchants to accept multiple providers with minimal friction, weakening feedback loops that favour dominant platforms.

Together, these measures reduce the self-reinforcing nature of network effects and help ensure that competition is driven by price, quality, and innovation, rather than network size alone.

Table 7: Overview of Competition Tools that Address Network Effects

How the barrier manifests	Competition tools
User network effects	System-wide interoperability (switch-based or otherwise) Interoperability of providers' API Advanced payment systems
Agent network effects	Agent non-exclusivity and multi-homing rules Common technical standards or shared agent devices/interfaces
Merchants network effects	Common merchant acceptance standards (e.g. interoperable QR) Limits on exclusive merchant arrangements

Source: Authors

Summary

This chapter examined how the policy and regulatory tools outlined in the tiered framework can be deployed in a more targeted manner to address specific competition barriers in DFS markets. It developed a taxonomy of key barriers in DFS markets, encompassing both supply-side and demand-side constraints.

Supply-side barriers relate to the costs of entry and expansion faced by DFS providers and encompass both structural and behavioural/strategic barriers. Structural barriers may arise from high sunk costs, economies of scale and scope, limited access to essential inputs or infrastructure, or a lack of technical integration among systems used to deliver DFS services (i.e. a lack of interoperability). By contrast, behavioural barriers arise from incumbent behaviour or strategic conduct that undermines rivals' ability to compete effectively in the market.

Demand-side barriers arise from consumer behaviour – particularly the tendency to remain with existing providers even when new entrants offer more affordable or higher-quality services. They encompass engagement, information, comparison, and switching frictions, as well as network effects.

The central argument of the chapter is that, for each barrier type, there is a set of potential policy and regulatory tools that can be leveraged to prevent, reduce, or mitigate it. While some tools may be used interchangeably, barriers often manifest in different ways, requiring more tailored responses. For example, high sunk costs may relate to investments in infrastructure, trust-building and customer acquisition, licensing and regulatory scoping, or compliance and operational set-up costs. Similarly, access barriers may concern different essential inputs or infrastructures, including licences, payment rails, communication channels, distribution networks, or data, or may sometimes be cross-cutting in nature. Network effects may also differ depending on the group whose behaviour they influence, such as users, merchants, or agents. Accordingly, public and financial authorities will benefit from identifying the most prominent barriers, and how they manifest in practice, in order to determine the most relevant interventions.

Moreover, the barrier-tool mapping demonstrates that the same tool can often help address multiple barrier types. Where certain tools emerge as relevant across multiple barriers identified in a given jurisdiction, this may suggest that they warrant priority over measures that target only a single barrier.

Taken together, the analysis suggests that targeted competition-focused policy and regulatory interventions require a deeper understanding of market conditions and the most salient barriers. This can help improve the effectiveness of interventions while reducing the need for broader and more resource-intensive reforms aimed at addressing gaps across the tiered framework developed in Part II. Part VI of the report further explores how the analytical framework developed in this chapter can be used by public and financial authorities seeking to develop strategies to promote competition in DFS.

Part IV.

Strengthening Private Capital Formation through DFS Competition Tools

The previous chapters examined barriers to competition in DFS and advanced a conceptual, tiered, framework as a basis for analysis and a more targeted approach to support DFS competition. This chapter takes the analysis a step further by considering how these competition barriers, and the associated policy and regulatory tools, affect private capital formation, particularly in EMDEs.

EMDEs face a set of persistent and interrelated barriers to private capital formation, including low domestic savings mobilisation, inefficient financial intermediation, and the misallocation of capital.

Low domestic savings mobilisation refers to a situation in which households and firms do not generate or channel sufficient savings into the formal financial system. This may reflect low incomes, limited access to financial services, or lack of trust. As a result, the pool of domestic capital available for lending and investment remains constrained.

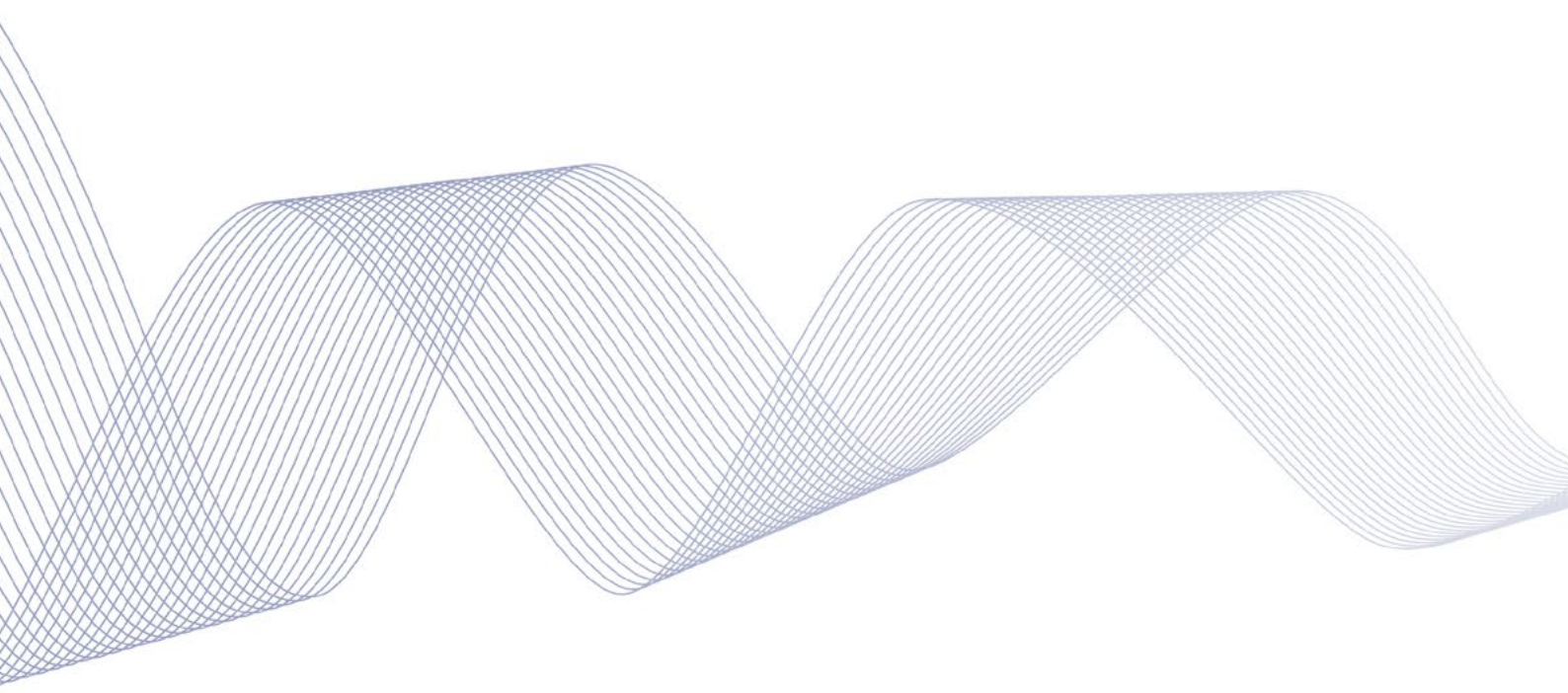
Inefficient financial intermediation describes a condition in which financial institutions and markets are unable to channel funds at optimal or efficient price resulting in idle funds or high financing costs.

Misallocation of capital occurs when financial resources are not directed to their most productive uses – namely, firms or projects with the highest potential returns. As a result, less productive firms may receive funding while more productive ones remain constrained.

These constraints are often underpinned by competition barriers in DFS markets, which limit participation on both the supply and the demand side of DFS, and reduce static and dynamic efficiency of DFS providers.

In this context, the ability of DFS to alleviate barriers to capital formation is conditioned on the strength of the competition and regulatory environment in which providers operate. This chapter examines conceptually how key barriers to private capital formation relate to underlying competition barriers in DFS markets, and how these can be addressed through a tiered set of policy and regulatory tools.

Consistent with the analytical framework outlined in this report, competition-enabling tools are conceptualised as a sequence of reinforcing interventions – ranging from foundational trust and infrastructure building, to entry facilitation, market scaling, and dynamic market-shaping. As the tools across these tiers are employed, the interventions establish credible pathways for strengthening the contribution of DFS to mobilising savings, improving intermediation efficiency, and enhancing capital allocation. The tiers are cumulative and iterative, reflecting the dynamic interaction between DFS development, market structure, and capital formation over time.



Foundational Frameworks (Tier 1)

Tier 1 tools – comprising foundational (communication, financial and digital) infrastructure, foundational legal and regulatory frameworks, and digital and financial literacy programmes – play a critical enabling role in strengthening private capital formation.

A central channel through which Tier 1 tools can support capital formation is by expanding and formalizing the pool of savings available for investment, particularly by lowering demand-side barriers – such as cost of participation, awareness and trust – for DFS users and encouraging their participation in formal financial services. On the supply side, these tools can help reduce customer acquisition costs for firms, enabling new business models and strategies.

For example, digital identity systems with e-KYC functionality can lower the cost and complexity of opening accounts, enabling individuals and small businesses to participate in the formal financial system. When combined with basic account and e-money regulations that allow non-bank providers to offer stored-value products, these measures can also create pathways for access to savings products.[96] As more households hold funds in formal accounts – rather than in cash or informal mechanisms – the aggregate pool of intermediable resources increases.

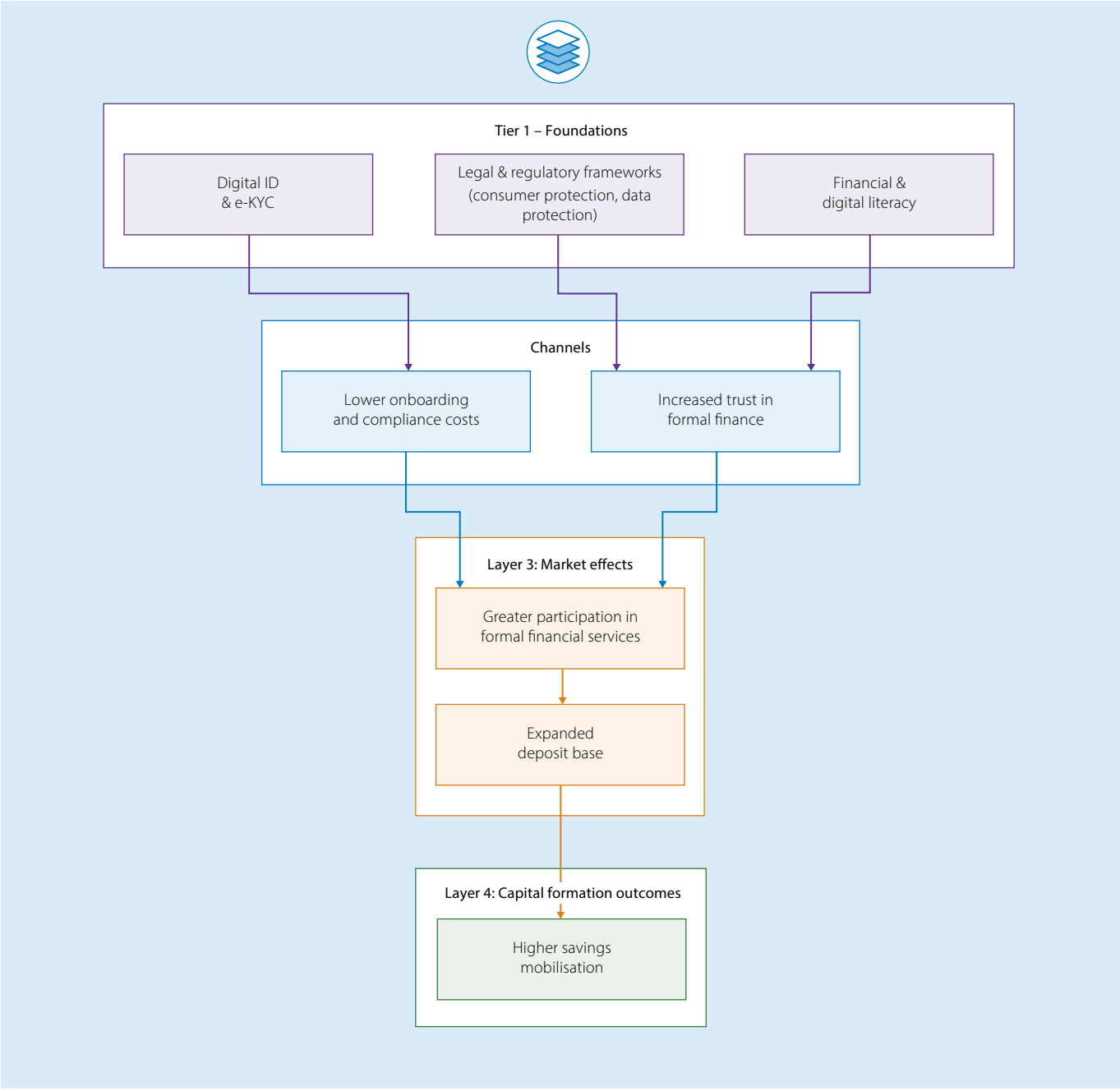
This bridging function is important for capital formation because it enables a transition from informal or semi-formal saving habits into fully intermediated finance – where funds are not only stored safely but also become part of the broader financial system, available for lending and investment. While mobile money wallets provide valuable security and convenience, they generally do not contribute directly to financial intermediation, as mobile money institutions are typically restricted from on-lending deposited funds. In contrast, when users move from standalone digital wallets to linked or integrated digital bank accounts, their savings become part of the formal deposit base that banks and other financial institutions can use to extend credit. For example, in Kenya, M-Shwari, a fully digital bank account operating over the rails of mobile money (called M-PESA), is credited with making the Commercial Bank of Africa a major player in the lending market.[97]

Similarly, establishing foundational legal and regulatory frameworks, including baseline consumer protection, robust data protection and cybersecurity regimes, strengthens trust and encourages the uptake of formal savings. Financial and digital literacy initiatives, further support savings mobilisation by improving awareness and understanding of available savings products reducing demand-side barriers.

Tier 1 tools can also enhance the efficiency with which these savings are channeled into investment. Digital ID-enabled onboarding and standardized e-KYC processes can streamline loan origination, reducing administrative overhead and compliance costs for credit providers. Of course, the transmission of these efficiency gains to consumers is a function of the competitive environment, which may further depend on other competition-enabling policy and regulatory tools.

Figure 3 illustrates a simplified layered pathway from foundational competition enablers (Tier 1) to higher savings mobilisation as the key capital formation outcome of Tier 1 tools' adoption.

Figure 3: Mapping Tier 1 Tools to Capital Formation Outcomes



Source: Authors

Tools to Support Entry (Tier 2)

A primary channel through which Tier 2 tools support capital formation is by addressing the barriers to entry in the savings markets which suppress savings mobilisation. Proportionate licensing regimes and a clear regulatory perimeter enable a broader set of actors – including digital banks and other fintech firms – to offer savings and other financial products under appropriate oversight.[98]

Similarly, innovation offices and regulatory sandboxes support the development and validation of new business models, while outsourcing and partnership frameworks enable new entrants to mitigate some of the sunk costs that would otherwise deter entry. Such frameworks also enable collaboration between incumbents and innovators – for example, banks funding loans originated by fintech platforms with superior data or reach in specific sectors.[99]

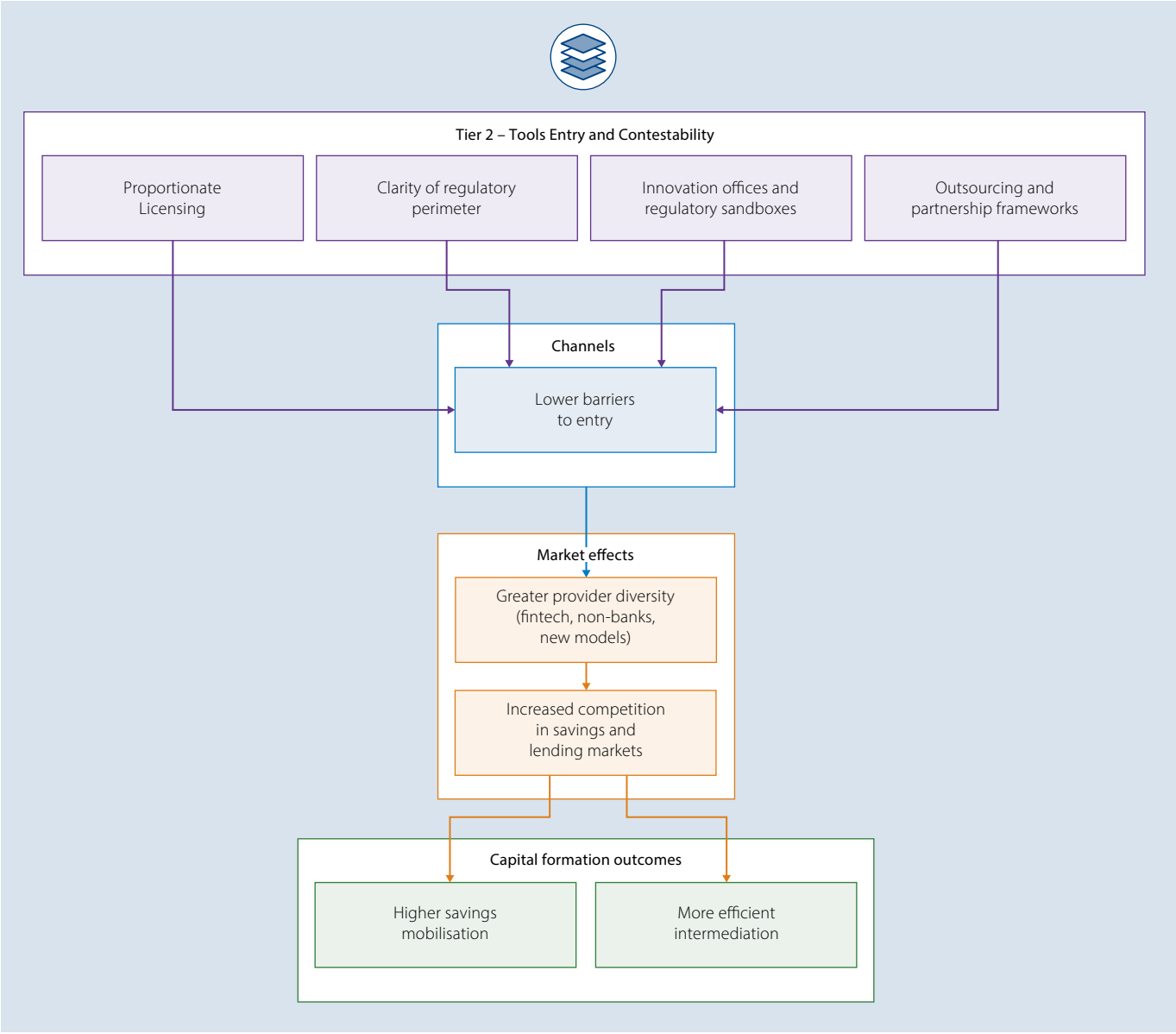
This increased contestability can drive the development of more accessible, user-friendly, and higher-return savings and investment options, such as via mobile wallets, microsavings applications, interest-bearing digital accounts, and low-cost investment instruments, thereby encouraging the uptake of formal savings. Moreover, many new financial firm types specialise in serving niche or previously underserved market segments, further contributing to savings and capital mobilisation.

Tier 2 tools also address limited contestability and market power in lending markets, which contribute to inefficient financial intermediation. Even in advanced economies, the cost of financial intermediation has remained persistently high over time.[100] Persistently high intermediation costs – often reflected in wide interest rate spreads, whereby banks pay low returns on deposits while charging high lending rates – can arise where incumbents face weak competitive pressure to improve efficiency or pass on cost savings.

These challenges are particularly acute in EMDEs, where banking systems are frequently concentrated and skewed toward established, urban clients, leaving smaller firms and rural populations underserved.[101] The scale of these gaps is significant. Across Bangladesh, Bhutan, Cambodia, Lao People's Democratic Republic, and Nepal, SMEs account for well over half of GDP but only around 10–20% of bank lending.[102] Banks often prefer to lend to established corporates or require heavy collateral, which most small businesses cannot provide. Proportionate regulatory frameworks enable the entry of specialized providers – such as microfinance institutions and fintech lenders – whose business models are better suited to these segments, often leveraging alternative credit scoring methods and data.

Figure 4 illustrates the layered pathway from entry and contestability measures (Tier 2) to capital formation outcomes.

Figure 4: Mapping Tier 2 Tools to Capital Formation Outcomes



Source: Authors

Tools to Support and Strengthen Scaling (Tier 3)

As DFS markets expand, Tier 3 tools focus on ensuring that growth translates into sustained and system-wide gains in capital formation. At this stage, the policy emphasis shifts from enabling entry to addressing competitors' expansion constraints – particularly market fragmentation, unequal access to infrastructure, switching costs and network effects – that can dampen competitive pressure. These tools are critical for enabling growth of new providers and reducing the extent to which scale advantages automatically accrue to incumbents. There are several channels through which the tools supporting scaling can, in turn, support capital formation.

A key contribution of Tier 3 tools to capital formation lies in deepening the mobilisation of savings by reducing switching costs and weakening network effects. Interoperability requirements and fair access to payment infrastructure can help ensure that customers can seamlessly move funds across institutions – whether between banks, mobile money providers, or fintech platforms – addressing structural barriers that can entrench incumbent providers and weaken competition for deposits.[103] A more competitive market for deposits can, in turn, lead to higher returns for savers, further supporting savings mobilisation. Moreover, the ease of movement increases confidence in holding funds within the formal system, as savers are not "locked in" to a single provider, thus reducing demand-side barriers.

Data portability reinforces this dynamic by allowing individuals to shift their savings to providers offering better returns or services. In parallel, enhanced consumer protection rules – including simple key-facts documents and standardised disclosures, choice architecture (neutral, pro-comparison design) and accreditation schemes for comparison tools enable savers to make informed decisions about where to place their funds. Together, these measures intensify competition for deposits and encourage providers to offer more attractive savings products, thereby increasing both the volume and effective mobilisation of capital.

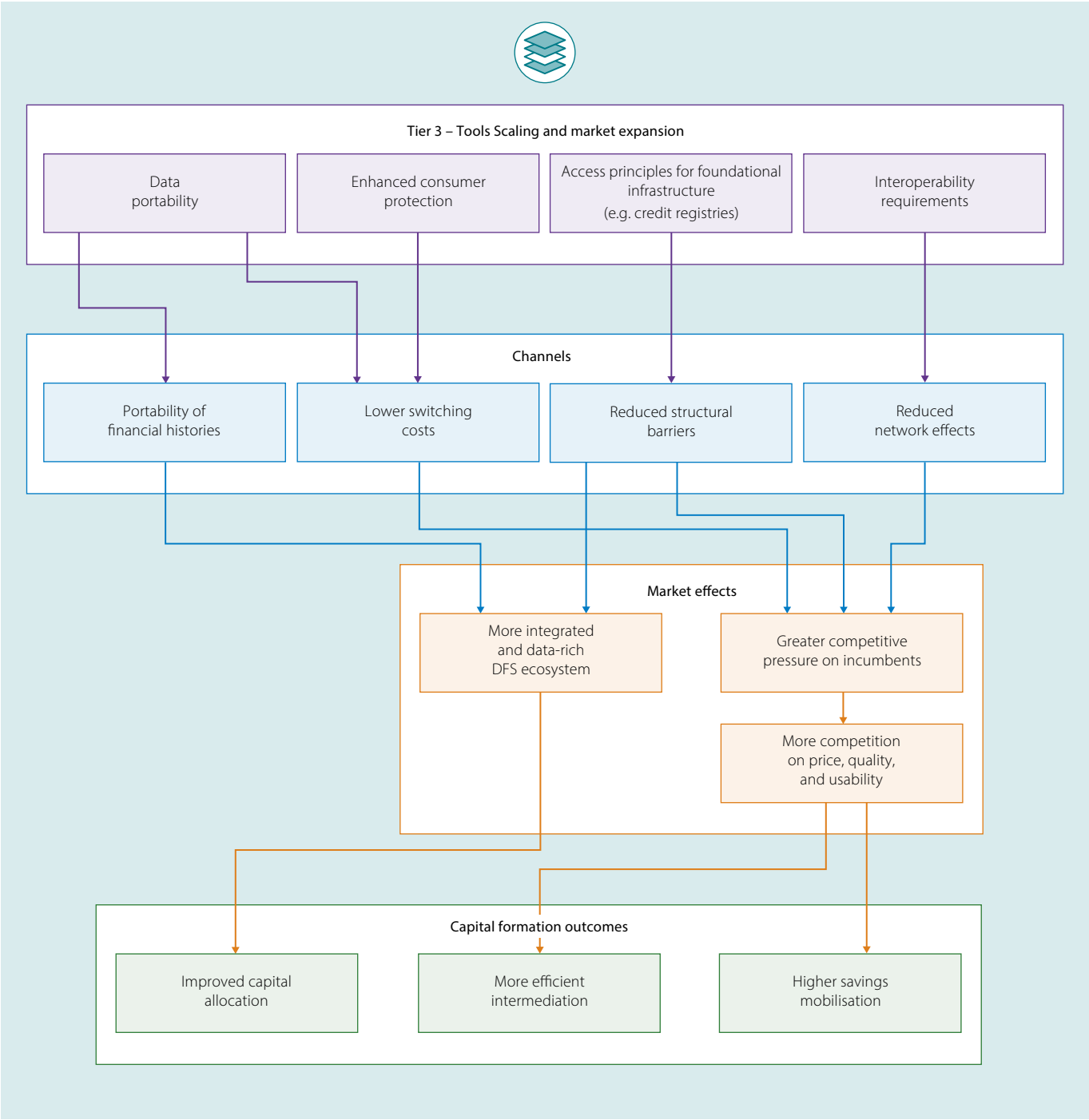
Tier 3 tools can also play a role in driving down intermediation costs. In particular, data portability and consumer protection tools mentioned above can help mitigate information, comparison, and switching barriers, in lending markets. Such frameworks can also enable both credit and investment based business models for capital allocation.

Fair and transparent rules on access to credit information systems ensure that all lenders can both contribute to and benefit from shared data. This can reduce new entrants' structural barriers to expansion and improve risk assessment across the market. As borrowers build track records with one provider, that information becomes portable and usable elsewhere, enabling them to access larger or more affordable financing over time. This is particularly important for small firms and emerging borrowers seeking to graduate from informal or niche lenders to mainstream sources of capital.

As more economic transactions go digital, they generate data trails – from mobile payment histories and e-commerce sales records to utility bill payments and mobile phone payment and usage patterns.[104] These digital footprints can be harnessed to better assess creditworthiness and direct loans to borrowers who lack traditional collateral or credit history.[105] A recent World Bank analysis emphasises that incorporating new alternative data from digital sources, along with advanced analytics (machine learning models) and interoperable APIs, is lowering the cost of lending and speeding up service delivery in credit markets. In other words, digital credit-reporting systems that pull in transactional data can make loan underwriting faster, cheaper, and more accurate, enabling the emergence of sustainable digital lending models, enhancing access to credit and capital formation.[106]

Figure 5 illustrates the layered pathway from scaling and market expansion tools (Tier 3) to capital formation outcomes.

Figure 5: Mapping Tier 3 Tools to Capital Formation Outcomes



Source: Authors

Advanced Market-Shaping Tools (Tier 4)

In mature DFS markets, Tier 4 tools can focus on sustaining high levels of competition, innovation, and openness over time. At this stage, the objective is to address advanced competition issues – particularly market concentration, data monopolization, and platform gatekeeping – that can distort the flow of capital even in otherwise well-developed DFS systems.

A key channel through which Tier 4 tools support capital formation is by maximising the returns and efficiency of savings through data-driven competition and innovation, while preventing dominant players from capturing customer relationships. Open banking and, more broadly, open finance and open data frameworks go beyond the basic data portability addressed in Tier 3. Rather than simply allowing individual customers to move their data, they mandate systemic data sharing across the ecosystem (subject to customer consent), reducing data concentration, preventing the emergence of data monopolies, and enabling entirely new business models. This can support the emergence of sophisticated financial tools – such as savings aggregators, automated investment platforms, and financial management applications – that help users optimise how and where they hold their funds. As a result, savings can be more actively managed and directed toward higher-yielding or more productive financial instruments, rather than remaining idle in low-return accounts.

At the same time, advanced, platform-based payment systems – built on real-time, API-enabled infrastructure – can reinforce confidence in digital financial services by ensuring that funds are instantly transferable and universally usable. Unlike the basic interoperability requirements of Tier 3, which focus on ensuring access to existing payment rails, Tier 4 payment infrastructure tools address the governance of next-generation infrastructure that dominant platforms may seek to control or condition access to in ways that disadvantage competitors.

Advanced consumer protection tools at this tier address a qualitatively different problem from the disclosure and comparison measures of Tier 3. Where Tier 3 tools reduce information and comparison barriers, Tier 4 tools address the active exploitation of behavioural biases by dominant providers: rules governing defaults, bans on dark patterns, and restrictions on manipulative design limit incumbents' ability to use market power to manufacture consumer inertia and customer lock-in. By reducing manipulation of consumer choice, these measures facilitate switching to higher-return savings alternatives and enhance the overall attractiveness of savings products.

Where dominant platforms (e.g., e-commerce) threaten to bundle services or exclude rivals' access to distribution channels, ex ante competition rules – such as requirements for non-discriminatory access fair dealing – can help preserve contestability in savings markets, thus contributing to mobilisation of capital.

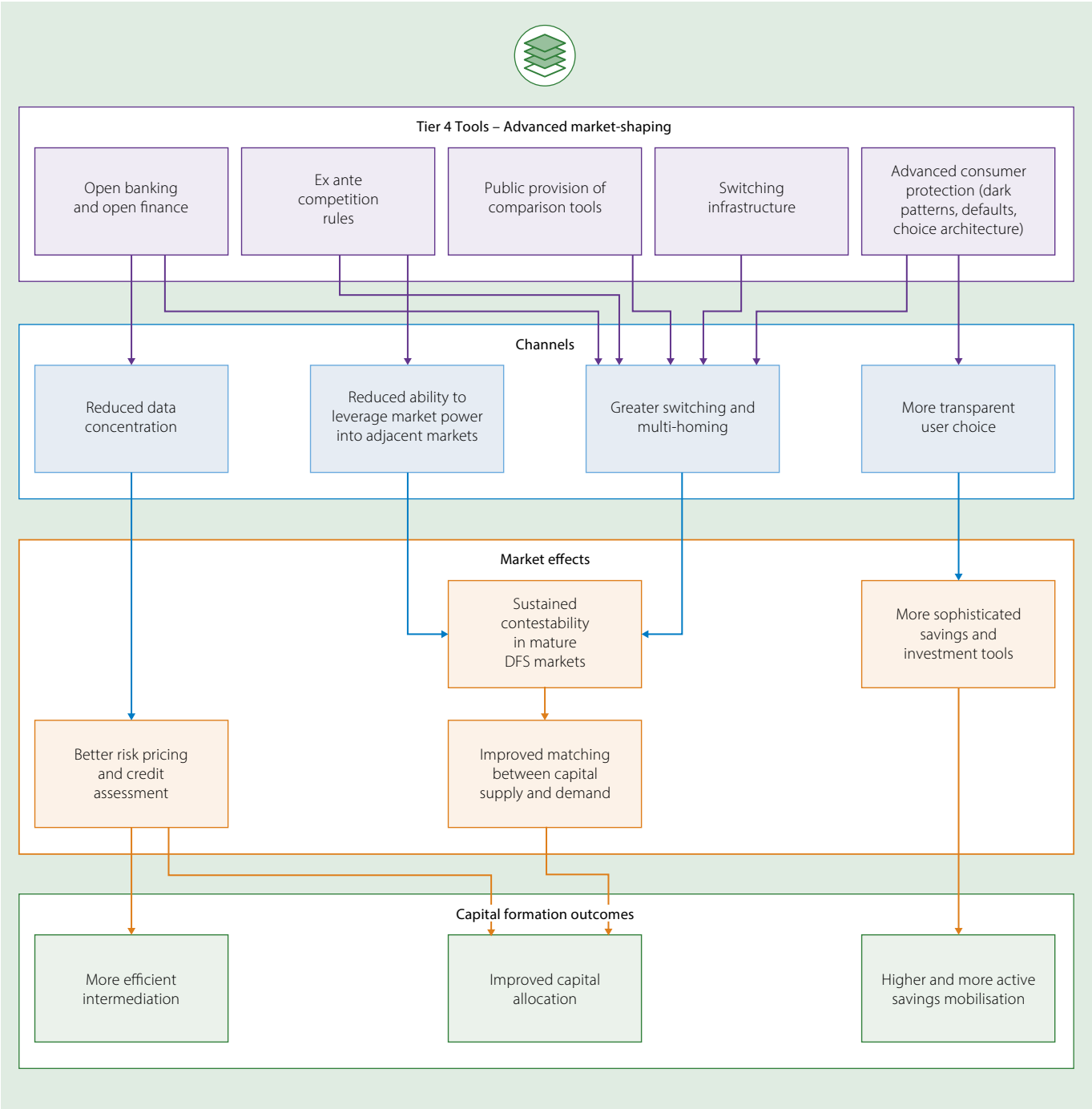
Tier 4 tools can also help further reduce the inefficiency of financial intermediation and improve capital allocation. Open banking and open finance ecosystems – distinct from the basic credit information access frameworks of Tier 3 – enable lenders and investors to evaluate opportunities using richer and more diverse datasets, improving the accuracy of risk pricing and expanding access to finance for high-potential but previously underserved borrowers, such as small enterprises or informal businesses. Digital platforms and marketplaces – such as crowdfunding portals, supply chain finance systems, and investment aggregators-can further improve matching between capital supply and demand by providing visibility into funding opportunities across sectors and geographies.

At the same time, proactive (ex ante) competition regimes can help address competition risks associated with platform dominance and ecosystem-based market power. As markets mature, dominant platforms – such as large financial institutions, mobile network operators, or 'super-apps' – may attempt to control key data, infrastructure, or

distribution channels in ways that allow them to leverage their market power from one core platform service into adjacent or downstream markets. Obligations such as requiring access to key interfaces, prohibiting self-preferencing, and mandating interoperability can reduce the ability of dominant firms to lock in users or exclude competitors. These measures can help ensure that competition in downstream or adjacent DFS markets is not distorted, thereby supporting more efficient capital intermediation and credit allocation.

Figure 6 illustrates the layered pathway from advanced market shaping tools (Tier 4) to capital formation outcomes.

Figure 6: Mapping Tier 4 Tools to Capital Formation Outcomes



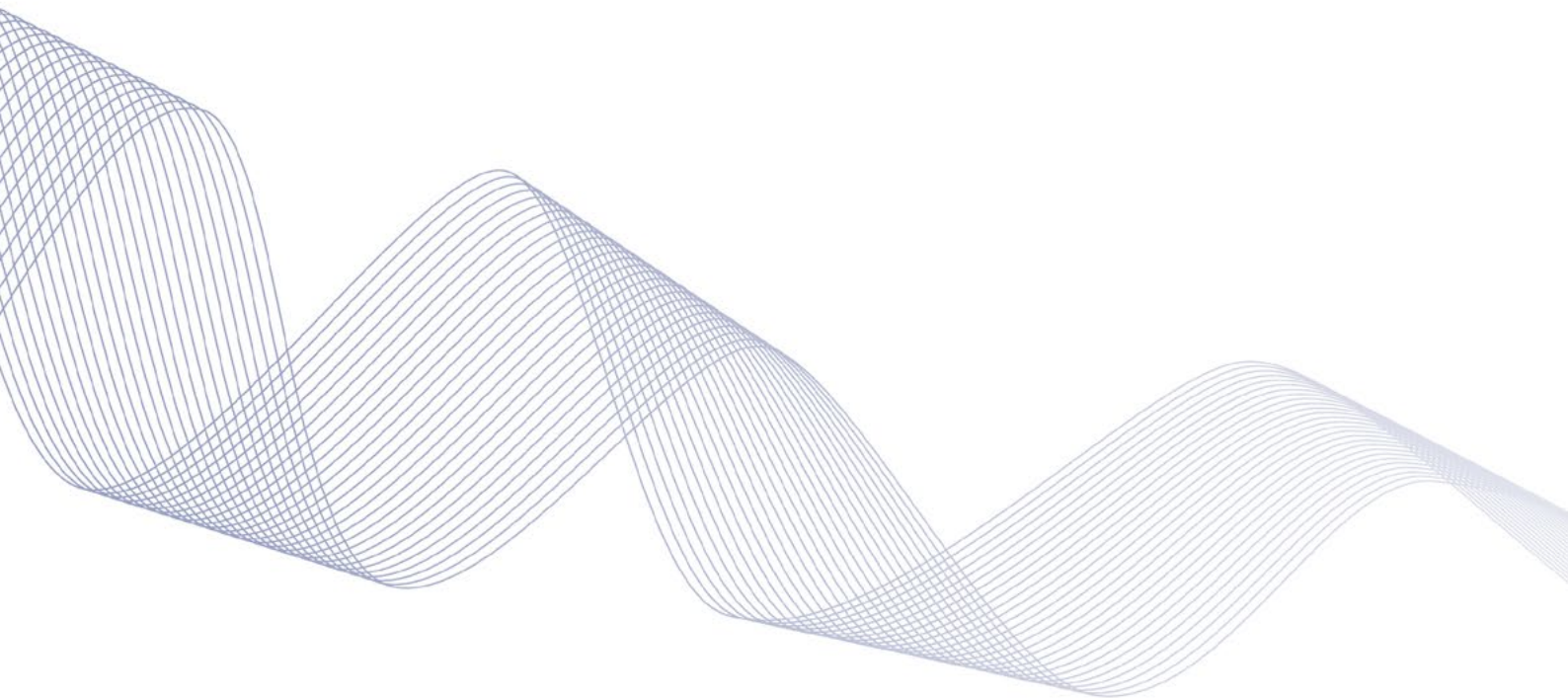
Source: Authors

The Competition-Stability Trade-Off in Capital Formation

The analysis has so far described a pathway of a positive impact of competition on capital formation. But a pathway of negative impact is also possible. In such a scenario, increased competition may generate adverse effects on capital formation. This type of impact reflects what is sometimes referred to in the literature as the competition–fragility hypothesis, which highlights how intensified competitive pressure – particularly when driven by Tier 2 tools that lower entry barriers and expand market participation – can compress margins and erode franchise values, thereby weakening incentives for prudent risk management.[107] In such contexts, providers may respond by increasing risk exposure, for example through higher deposit rates, narrower spreads, or more aggressive lending strategies that could over time lead to losses for depositors and investors.

This points to the critical role of Tier 1 tools – particularly prudential regulation and supervision – in mediating these dynamics. As noted by Carletti,[108] the adverse effects of competition on stability are not inevitable: well-calibrated regulatory frameworks can constrain excessive risk-taking, strengthen resilience, and align incentives across market participants.

For this reason, the interaction between tiers is central to policy design. While often classified as a Tier 1 prudential tool, licensing regimes also shape entry conditions and therefore have direct implications for competition. Calibrating such tools requires balancing their role in safeguarding stability with their effects on market contestability and, ultimately, capital formation.[109]



Summary

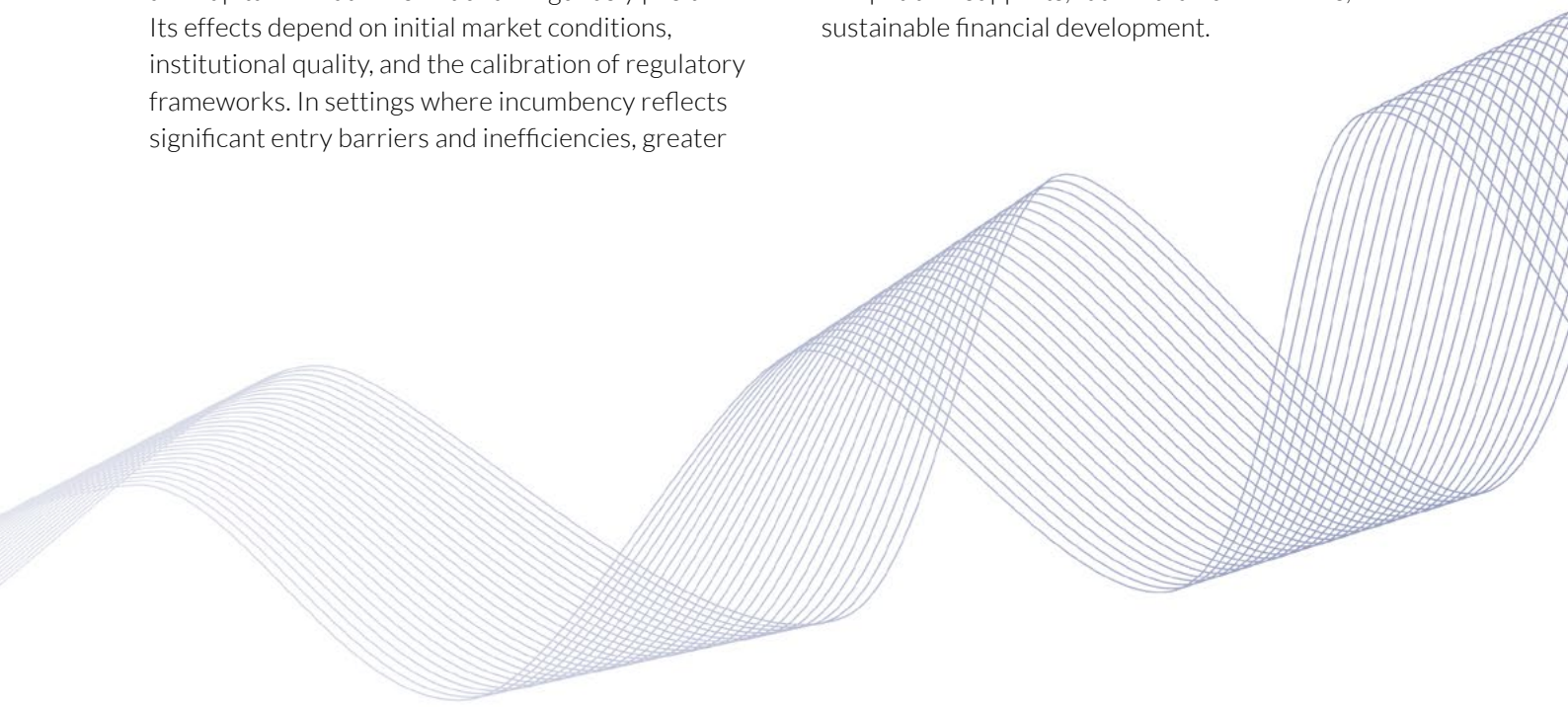
This chapter examined conceptually how competition in DFS, supported by a tiered set of policy and regulatory tools, can contribute to strengthening private capital formation in EMDEs. It focused on three persistent constraints – low savings mobilisation, inefficient financial intermediation, and capital misallocation – and analysed how these are shaped by underlying competition barriers in DFS markets.

The central contention of the framework is that competition can play an important enabling role in addressing these constraints. By expanding participation, reducing costs, and improving information flows, competition-enhancing interventions can increase the volume of formal savings, improve the efficiency with which those savings are intermediated, and support a more productive allocation of capital. The tiered framework highlights how different categories of tools – from foundational infrastructure and trust-building frameworks (Tier 1), to entry and contestability (Tier 2), scaling (Tier 3), and advanced market-shaping interventions (Tier 4) – interact cumulatively to strengthen these channels over time.

However, the relationship between competition and capital formation is not unambiguously positive. Its effects depend on initial market conditions, institutional quality, and the calibration of regulatory frameworks. In settings where incumbency reflects significant entry barriers and inefficiencies, greater competition can unlock substantial gains. At the same time, intensified competition may reduce margins and increase uncertainty for investors, potentially dampening incentives for long-term capital commitments – particularly where 'moats' or stable revenue expectations are important for investment decisions.

Moreover, as highlighted by the competition–stability hypothesis, excessive or poorly regulated competition may weaken incentives for prudent risk management, particularly in credit markets. This introduces a potential trade-off between competition and financial stability, with implications for the sustainability of capital formation. The chapter therefore emphasised that competition-enhancing reforms must be accompanied by robust Tier 1 safeguards, including prudential regulation and supervision.

Competition should therefore be viewed as part of a broader policy mix. Its contribution to capital formation is conditional, context-specific, and moderated by complementary institutions. The tiered framework provides a way of navigating these trade-offs, emphasising sequencing, calibration, and the interaction between tools to ensure that competition supports, rather than undermines, sustainable financial development.



Part V.

Impact of DFS Competition-Enhancing Regulatory Interventions – Case Studies

This chapter examines the potential impact of selected competition-enhancing regulatory interventions on DFS markets in Sub-Saharan Africa (SSA) and the Asia-Pacific (APAC) regions. More specifically, it explores how particular policy and regulatory tools can shape competition dynamics in DFS and whether, in turn, they can facilitate the mobilisation of capital from unproductive to more productive uses.

In Sub-Saharan Africa, the case study focuses on Kenya and Nigeria, drawing on their divergent regulatory approaches to digital credit. In Asia-Pacific, the analysis examines differing approaches to interoperability in Malaysia and Vietnam. In both instances, the case studies compare market outcomes across country pairs, highlighting the role of competition-enabling policy and regulatory tools in supporting market development and capital formation.

Both case studies follow a similar structure: after introducing the aim and rationale, each section outlines the market context and reasoning for case selection, analyses the divergent policy and regulatory trajectories in the selected countries, and assesses differences in DFS market development and capital formation outcomes.

Case study – Kenya / Nigeria

Aim and Rationale

This case study examines digital lending regulation – specifically licensing as a competition-enhancing intervention within the broader DFS ecosystem, using the example of divergent regulatory approaches adopted in Kenya and Nigeria in the early 2020s. This perspective departs from the traditional view of licensing as primarily a prudential safeguard. Instead, consistent with the framework outlined in this report, licensing – particularly in its proportionate form – is conceptualised as a market-shaping tool that affects both market structure and firm behaviour.

Proportionate licensing can reduce the sunk costs of entry, one of the most significant barriers to competition in financial services. That is, through aligning regulatory requirements with the risk profile and scale of firms, rather than imposing a uniform, high fixed-cost threshold. Its effectiveness, however, depends not only on formal rules but also on their implementation, including the timing, sequencing, and administrative capacity of regulators to process license applications in a predictable and timely manner. By lowering upfront and irreversible entry costs, proportionate licensing enables a broader range of firms to enter the market and compete, thereby attenuating the scale and scope advantages of incumbents, who are better positioned to absorb such costs across a larger customer base.

Beyond enabling entry, licensing also shapes the terms of competition by determining both *who* can participate in the market and *how* they are permitted to operate. In doing so, it can shift competitive dynamics away from "growth at any cost" models – often associated, in digital credit markets, with opaque pricing and aggressive collection practices – towards competition based on price, transparency, and service quality. Where effectively designed and implemented, such frameworks can enhance the efficiency of financial intermediation, support more effective allocation of capital, and foster the emergence of innovative business models that expand consumer choice and strengthen competitive pressure on incumbents.

Market Context and Case Selection

Kenya and Nigeria were selected as comparative cases because they illustrate a common regulatory challenge under different market conditions. In both countries, digital lending expanded rapidly before comprehensive regulatory frameworks were in place, creating risks around pricing, transparency, data use, and debt-collection practices. The comparison is therefore useful because the two countries faced similar policy concerns while differing in the depth and maturity of their digital financial ecosystems.

In Kenya, evidence of consumer risk was visible in household survey data before the introduction of digital lending regulations. The 2021 FinAccess survey reported exceptionally high default incidence for "loans from mobile banking" (50.9%) and "digital loans" (46.3%), far above default levels reported for bank and Savings And Credit Cooperatives (SACCO) loans.[110] The same survey also recorded a sharp increase between 2019 and 2021 in consumers reporting "unexpected or unclear charges," including for digital app loans, where the share rose from 32.2% to 45.3%.

In Nigeria, the evidence base is less systematic and relies more heavily on regulatory and enforcement records than on household survey data. However, sources point to a similar underlying problem. Reports by the Federal Competition and Consumer Protection Commission (FCCPC) documented widespread complaints against digital lenders, including harassment, unauthorised access to borrowers' personal contacts, and non-transparent or misleading loan terms.[111]

The two countries entered the regulatory period from different starting points. Kenya had a significantly more developed digital finance ecosystem before the introduction of digital-lending-specific regulation. In 2021, it recorded high levels of account ownership (90.1%), mobile money account penetration (79.2%), and use of digital payments (77.6%).[112] Nigeria's corresponding indicators were substantially lower: account ownership stood at 45.3%, mobile money account penetration at 32.8%, and use of digital payments at 33.7%.[113]

The contrast is also evident in patterns of credit intermediation. Kenya combined high overall borrowing, at 76.2% of adults, with a relatively high share of formal borrowing, at 39.7%.[114] Nigeria also showed substantial demand for credit, with 54.4% of adults reporting borrowing, but formal borrowing remained much lower, at 7.0%.[115] This suggests that, while both countries had active credit markets, Kenya's was more closely connected to formal and digital channels, whereas Nigeria's credit demand remained more weakly intermediated through formal providers.

These differences matter for the interpretation of market outcomes following the adoption of digital lending regulations. Although policy and regulatory approaches to digital lending in Kenya and Nigeria exhibited notable differences, as discussed in the next section, the effects of licensing frameworks are also shaped by the maturity of the digital finance ecosystem, the depth of formal credit intermediation, regulatory capacity, institutional coordination, and broader social and economic conditions.

Policy and Regulatory Approaches and Their Potential Market Impact

This section examines how Kenya and Nigeria have approached the regulation of digital lending, with a particular focus on licensing as a tool shaping market entry, conduct, and competitive dynamics. While both countries ultimately introduced frameworks to bring digital lenders within the regulatory perimeter, they differ significantly in the timing, sequencing, and institutional context of these interventions. These differences are important for understanding how licensing interacts with broader market conditions to influence patterns of entry, firm behaviour, and, ultimately, competition in digital credit markets.

Kenya

Kenya's licensing framework for stand-alone digital lenders was operationalised through the Central Bank of Kenya (CBK) under the Digital Credit Providers Regulations, 2022.[116] The framework establishes a distinct, activity-based licensing category for non-deposit-taking digital lenders, aligning regulatory requirements with the specific risk profile of these firms rather than subjecting them to full banking or microfinance regimes.[117] In doing so, it lowered upfront compliance costs and avoided imposing bank-level prudential requirements, thereby reducing sunk costs of entry while maintaining targeted oversight of key risk areas such as consumer protection.

A central competition-relevant feature of the Kenyan regime is that it combines entry control – through licensing and fit-and-proper screening – with conduct

rules that constrain harmful, welfare-reducing competitive strategies. The Regulations require digital credit providers to disclose both positive and negative credit information to licensed credit reference bureaus (subject to safeguards for small-value defaults and mandatory notice periods), strengthening the information environment for underwriting for all institutions.[118] In parallel, the framework prohibits harmful debt collection practices – including harassment, contact scraping, and the shaming of third parties – removing a key low-cost growth strategy that had previously distorted competitive dynamics.[119] Providers must also obtain prior regulatory approval before introducing new products or materially varying existing ones, which can limit harmful product churn, albeit with potential trade-offs in terms of speed to market.[120]

The development of the framework was also shaped by industry dynamics. Established digital lenders, through bodies such as the Digital Lenders Association of Kenya, supported the introduction of regulation in response to reputational risks posed by unregulated and abusive providers. In addition, the CBK's licensing push was inspired and supported by the work of the Competition Authority of Kenya, which, in 2021, conducted a Digital Credit Market Inquiry with the view to "increase transparency and comprehensiveness of product information and terms and conditions"; "increase consumer control over personal information to expand choice and competition"; and "inform the development of policies to ensure adequate consumer protection across regulated and unregulated lenders and equal protection of all Kenya consumers".[121]

The impact of the framework reflects not only its design but also its operationalisation. The CBK implemented a structured and sequenced licensing process, processing a large volume of applications and progressively bringing firms within the regulatory perimeter. By late 2025, the number of licensed digital credit providers had reached 195, with over 800 applications received since March 2022.[122] This scaling is consistent with a transition from a largely informal and opaque digital lending landscape to a regulated market characterised by visible entry, clearer conduct standards, and a credible public licensing signal. At the same time, the sheer volume of applications has placed significant demands on the CBK's supervisory and administrative capacity, reflected in the length of time required to process and determine applications.[123] This highlights how the effectiveness and speed of market formalisation are partly conditioned by regulatory resources and operational capacity.

Market outcomes are visible in both usage and balance-sheet indicators. The 2024 FinAccess survey explicitly attributes a rise in microfinance usage from 1.7% (2021) to 8.8% (2024) to the regulation of digital credit providers.[124] On the supply side, CBK supervision reporting shows rapid growth in regulated digital credit intermediation: gross outstanding loans by digital credit providers rose 91% from KSh 28.9 billion (Dec. 2023) to KSh 55.2 billion (Dec. 2024), while the number of licensed Digital Credit Providers (DCPs) increased from 32 to 85 over the same period, alongside an increase in the number of loan accounts to 3.9 million by December 2024.[125]

By mid-2025, CBK also reports that licensed DCPs had granted 5.5 million loans valued at KSh 76.8 billion and that products included education, asset financing, and business loans.[126] However, these figures relate primarily to non-bank digital lenders and do not fully capture the scale of digital lending through bank–mobile money partnerships such as M-Shwari, KCB M-PESA, and Fuliza, which continue to dominate the market. This distinction is important when interpreting the extent to which licensing has reshaped the overall market structure.

Nigeria

Nigeria's digital lending trajectory is characterised by a more gradual and fragmented evolution toward formal licensing. Prior to the introduction of dedicated frameworks, oversight of digital lending was limited. The Central Bank of Nigeria (CBN) supervised licensed financial institutions but did not directly regulate many app-based lenders operating outside the formal system. At the same time, institutional coordination challenges between CBN and the Federal Competition & Consumer Protection Commission (FCCPC) limited the effectiveness of early interventions.

An important structural feature of the Nigerian DFS market was its reliance on platforms, in particular the Google Play Store. This introduces a critical structural condition for competition in DFS markets: the interaction between platform governance and formal regulatory frameworks. In the absence of an early, comprehensive licensing regime, platform operators effectively assumed a quasi-regulatory function, shaping market entry and participation through their own policies, approval processes, and enforcement mechanisms. As a result, entry conditions were not determined primarily by financial sector regulation, but by a hybrid system in which private platform rules acted as a first layer of market governance.

This had several important consequences. First, it enabled rapid and largely uncoordinated entry, as providers could reach large user bases without undergoing financial sector licensing or supervision. Second, competition became heavily driven by visibility and download optimisation strategies, rather than by price or service quality. Third, enforcement of conduct standards was fragmented and reactive, relying in part on platform-level interventions such as app removals. These interventions occurred outside a coherent regulatory framework and often only after significant consumer harm had materialised.[127]

Regulatory intervention initially took the form of reactive enforcement. A multi-agency task force was established in 2021, followed by the FCCPC's Interim Guidelines in 2022, which introduced registration requirements and linked compliance to platform-based enforcement through app delisting.[128] The enforcement pathway of this framework was closely tied to platform control: the Guidelines directed mobile app marketplaces or digital distribution platforms to delist lending applications operated in breach of the regulatory framework.[129]

A more consolidated ex ante regime emerged only in 2025. The FCCPC issued the Digital, Electronic, Online, or Non-Traditional Consumer Lending Guidelines (2025), explicitly framing its objectives as protecting consumers and ensuring "competitive and efficient markets", and anchoring these Guidelines in the broader digital consumer lending Regulations introduced in July 2025.[130] These Regulations permit entities registered under the 2022 guidelines to become "deemed licensees" under transitional arrangements with a defined expiry date (June 2026), after which continued operation requires a fresh approval (paras. 9-13).[131,132]

Nigeria's underdeveloped credit information infrastructure acted as a further constraint on the impact of DFS on capital formation. While a statutory framework for credit reporting exists, credit bureau coverage in Nigeria was very low (13.9% as of 2019).[133] Low coverage weakens the disciplining effect of borrower credit histories and can enable both overlending and multiple-borrowing, reducing the effectiveness of licensing in directing credit toward more sustainable, productivity-enhancing uses.

Civil society reporting and governance-focused research continue to document the persistence of harmful practices, including non-consensual contact scraping and public shaming, and frame the establishment of the task force and subsequent regulation as responses to these issues.[134,135]

Comparative Insights on Competition-Enhancing Interventions

The Kenya-Nigeria contrast is best understood through the lens of the tiers of competition-enhancing tools developed throughout this report.

In Kenya, licensing functioned as a Tier 2 (entry and formalisation) intervention, but it was embedded within a broader progression across tiers. The CBK's 2022 framework established a clear supervisory focal point for non-bank digital lenders and imposed conduct rules that removed the most harmful modes of competition (Tier 1). At the same time, earlier and parallel engagement by the Competition Authority of Kenya – along with relatively strong credit reporting systems – meant that elements of Tier 3 (access to information infrastructure supporting effective competition) were already in place. Licensing therefore operated as part of a reinforcing package, contributing to the formalisation and scaling of digital lenders.

Nigeria, by contrast, exhibits a more uneven and incomplete progression across tiers. While recent licensing and registration efforts correspond to Tier 2 interventions, they have followed a prolonged period in which Tier 1 conditions – particularly basic consumer protection – were weak, necessitating repeated enforcement actions. Moreover, Tier 3 foundations remained underdeveloped: limited credit bureau coverage and access issues constrain the ability of lenders to.[136]

In addition, both markets exhibit important forms of concentration, though at different levels. In Nigeria, platform dependence introduces Tier 4 challenges, with app stores acting as gatekeepers to market access. In Kenya, concentration is less about digital platforms and more about the dominance of bank–mobile money partnerships, particularly those linked to M-PESA. Stand-alone digital lenders operate within this ecosystem but do not materially affect competition dynamics. The distinction, therefore, is not the absence of concentration in Kenya, but the level at which it occurs and the extent to which new entrants can meaningfully compete within it.

Overall, the comparison suggests that licensing can contribute to stronger competitive outcomes when it is introduced early, implemented with sufficient capacity, and complemented by conduct enforcement and supporting infrastructure. However, its impact is moderated by broader structural conditions – including market maturity, institutional coordination, and existing concentration – which shape how competition evolves in practice.

Case study – Malaysia / Vietnam

Aim and Rationale

This case study investigates payment interoperability mandates as a competition-enhancing regulatory intervention, using the example of divergent regulatory choices in Malaysia and Vietnam. As discussed in earlier parts of the report, the increasing modularity of financial services value chains, combined with the pervasive role of digital technology across them, has made the ability of systems to interconnect a key precondition for the development of competitive digital financial ecosystems.

Part III of the report explained how interoperability can operate as a competition-enhancing tool by reducing both supply-side and demand-side barriers to competition.

The absence of interoperability may itself constitute a distinct barrier to effective competition. Where payment schemes are not interoperable, customer funds can typically be transferred only between accounts within the same scheme. This can materially weaken competition between providers operating across separate payment systems. New entrants may offer lower-cost or more convenient services, yet customers may hesitate to adopt them if they cannot make seamless "off-network" transactions with users or merchants on rival networks. In such circumstances, customers are more likely to gravitate towards the provider with the largest existing user or merchant base, thereby reinforcing incumbent advantages. In fragmented markets, closed-loop systems may therefore enable dominant providers to build and entrench "walled garden" ecosystems.

A lack of interoperability may also reinforce other competition barriers. First, it can strengthen incumbents' scale advantages where smaller or newer providers struggle to expand their user base sufficiently to reach efficient scale. Secondly, blocking or delaying interoperability may be used strategically, including as a form of self-preferencing by dominant wallet or payment providers. Thirdly, it can intensify network effects, as users derive greater value from joining the platform with the largest number of participants when cross-network transactions are costly or unavailable. This is particularly visible in peer-to-peer payment systems, including mobile money platforms.

A credible interoperability mandate can disrupt these dynamics and improve market contestability by enabling customers of different providers to transact seamlessly across networks. As discussed in Part II, such mandates may extend beyond retail payment rail interoperability to include Quick Response (QR) code interoperability and interoperability of providers' application programming interfaces (APIs). The latter may also facilitate competitors' access to relevant transaction data, which can in turn support more efficient financial intermediation and improved credit allocation.

Market Context and Case Selection

Malaysia and Vietnam were selected because they have similar pre-intervention starting points – both were characterised by fragmented, closed-loop e-wallet markets. However, they adopted fundamentally different regulatory approaches, generating different outcomes.

Both markets had significant digital payment potential at the point of intervention. In Malaysia, at the time of the 2018 DuitNow mandate, the population stood at 32.6 million with smartphone penetration of 78%.[137] In Vietnam at the time of the 2021 VietQR launch, internet penetration stood at 70.3% with approximately 61.3 million smartphone users.[138] Both markets have since grown substantially, with Malaysia's population reaching approximately 33 million and Vietnam's approximately 98 million, each with significantly higher digital adoption rates.[139]

In Malaysia, multiple banking and e-wallet platforms coexisted without interoperability, and real-time payment capability was limited, meaning that consumers and merchants were locked into whichever closed-loop system they had initially adopted.[140]

Vietnam's pre-intervention landscape presented a similar structural problem, though with a distinct dynamic. A predominantly cash-based economy was beginning to digitalise, but that transition was fragmenting around a small number of dominant providers (Momo, ZaloPay, and VNPay) whose platforms were not interoperable, and which together held approximately 90% of the e-wallet market by 2021.[141] In both cases, the risk was the same: that early market concentration would harden into durable incumbency, with network effects and closed systems raising barriers for new entrants and limiting consumer choice.[142]

Policy and Regulatory Approaches and Their Potential Market Impact

The two markets diverged in how and when regulators chose to intervene. Malaysia acted early, mandating interoperability for market participants rather than leaving it to emerge organically. Vietnam's approach was more cautious, intervening later and through a voluntary framework that relied on provider participation rather than regulatory compulsion. As the rest of this case study explores, these different approaches produced meaningfully different competitive trajectories.

Malaysia

Bank Negara Malaysia (BNM) operationalised the Interoperable Credit Transfer Framework (ICTF) in 2018, requiring all banks and major e-wallets to integrate within an 18-month compliance window,[143] The framework covered instant transfers, QR codes, payment requests, and open APIs, with fair access mandated for both banks and eligible non-bank e-money issuers. The inclusion of non-bank issuers ensured that the interoperability obligation extended beyond the incumbent banking sector, preventing a two-tier system in which traditional banks remained connected while newer digital players were excluded. The intervention was ex ante – BNM acted as the e-wallet market was emerging, before fragmentation solidified. The core rollout was concentrated into approximately two years (2018–2020) with strict timelines and credible enforcement, underpinned by BNM's institutional independence and operational oversight through PayNet.[144]

It is helpful to analyse market outcomes. The mandate produced rapid and broad adoption: DuitNow QR merchant registrations reached 1.1 million by end of 2021[145] and over 1.8 million merchant touchpoints by late 2023[146] including roadside hawker stalls and night market vendors.[147] The reach into informal retail is notable as it suggests that interoperability drove adoption not just among large merchants but into segments of the economy that had previously been largely cash-dependent. E-payment transactions

grew 19% in 2024 to 409 per capita – at least one e-payment per capita per day.[148]

The mandate levelled the competitive playing field: Touch 'n Go eWallet, Boost, and GrabPay were able to compete on an equal footing through shared infrastructure, reducing the network lock-in advantages that had previously favoured incumbents.[149]

The case of Malaysia further suggests that mandatory interoperability can have beneficial impact on capital formation. Three channels are worth noting.

Firstly, the scale of merchant adoption – over 1.8 million merchant touchpoints by late 2023[150] – has generated a substantial base of verifiable digital transaction records, reducing information asymmetry for lenders and supporting MSME credit assessment. This is a pathway explicitly targeted by BNM's Financial Inclusion Framework 2023–26[151] and PayNet's MSME Enablement programme.[152]

Second, the waiver of DuitNow QR fees for merchants, versus 0.25–0.5% on domestic card transactions, also directly reduces transaction costs and frees working capital for smaller businesses.[153]

Third, the increased volume of e-payment transactions (409 per capita in 2024)[154] has created a large population with verifiable transaction history, which the World Bank identifies as a prerequisite for formal credit access.[155]

Vietnam

The SBV launched VietQR in 2021 as a voluntary initiative through the National Payment Corporation of Vietnam (NAPAS). This was likely after fragmentation had already solidified.[156] The voluntary nature meant dominant incumbents faced no incentive to integrate, adoption remained patchy, and the initiative struggled to disrupt entrenched market concentration.[157]

It is again helpful to analyse market outcomes. Fragmentation persists across the market. The provider Momo retains an estimated 40% e-wallet market share, walled gardens remain strong, and cross-platform integration is limited.[158] Consumers continue to maintain multiple wallet apps for coverage, and the multiple QR code problem remains a major concern for banks and payment providers,[159] whilst switching infrastructure remains fragmented and API standardisation is still incomplete.[160]

It is worth noting that transaction volumes are growing – QR code payments rose 106.7% in volume and 84.8% in value in the first 11 months of 2024.[161] This growth is significant but should be read carefully: rising transaction volumes may reflect the broader digitalisation of the Vietnamese economy rather than evidence that the voluntary interoperability framework has succeeded. The market is expanding, but largely within the existing fragmented structure, rather than due to increasing competition.

Vietnam's fragmentation may also have constrained the efficient capital allocation. With transaction data remaining siloed within individual wallet ecosystems,[162] MSMEs lack the verifiable digital transaction trails that would support formal credit access. Moreover, dominant wallet providers with approximately 40% individual market share[163] are positioned as gatekeepers for credit provision rather than participants in a competitive credit market.

Comparative Insights on Competition-Enhancing Interventions

The Malaysia–Vietnam comparison provides a more nuanced view of interoperability mandates as a Tier 3 tool for enabling scalability.

Some of the benefits of interoperability standards discussed in Part II depend on the timing of intervention as well as the nature and scope of the rules.

Malaysia introduced interoperability standards early, while the e-wallet market was still emerging, before fragmentation had solidified. These rules were not only mandatory but also supported by credible enforcement. Moreover, interoperability was mandated at multiple levels, including instant transfers, QR codes, payment requests, and open APIs, bringing both incumbents and new digital providers within scope. This was followed by increased uptake of QR merchant registrations and e-payments, while creating a more level playing field for providers such as Touch 'n Go eWallet, Boost, and GrabPay. The expansion of QR-based and digital payments more broadly increased the pool of citizens

and MSMEs with verifiable transaction histories, with the potential to support formal credit access and, in turn, capital formation.

Interoperability in Vietnam, by contrast, illustrates a competition-enhancing intervention introduced once the market had already become highly fragmented. Its largely voluntary nature, combined with a more limited scope, has not effectively addressed system integration gaps.

The consequences of fragmentation have been more visible to consumers. Merchants displayed multiple QR codes for different wallet ecosystems – identified as a major concern by banks and payment providers themselves[164] – while the proliferation of over 40 payment apps created significant interoperability challenges.[165]

A further consequence of this fragmentation has been the siloing of transaction data within separate wallet ecosystems. As data generated on one platform was not accessible or portable across others, its potential utility for credit assessment or MSME formalisation remains largely unrealised – an indirect but significant cost of the failure to achieve meaningful interoperability.[166]

Overall, the comparison suggests that interoperability can contribute to stronger competitive outcomes when introduced early, implemented on a mandatory rather than voluntary basis, and designed with sufficient breadth in scope, both in terms of market participants included and the levels of interoperability achieved.

Summary

The comparative case studies suggest that policy and regulatory tools, often introduced to achieve objectives beyond competition, can nonetheless shape competition dynamics. Their impact, however, depends on careful calibration, appropriate sequencing, and a strong underpinning within the broader institutional framework.

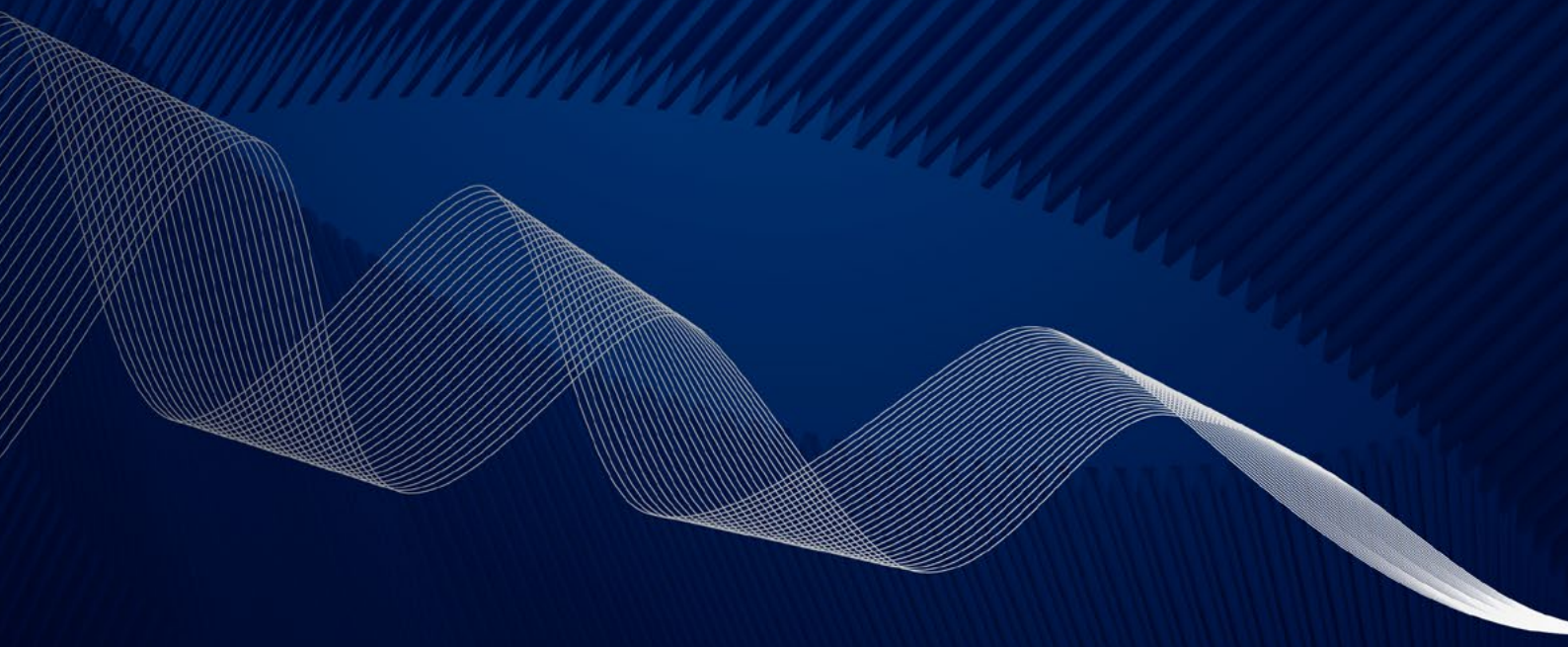
In Kenya, proportionate licensing for non-bank digital lenders, complemented by conduct requirements and supported by credit information infrastructure, helped lower entry barriers while addressing harmful market practices, potentially contributing to more efficient credit intermediation. Nigeria's experience, by contrast, illustrates the limitations of fragmented and delayed interventions, where the new licensing framework was introduced without sufficiently strong foundational frameworks or supporting credit information infrastructure.

A similar pattern emerges in the comparison between Malaysia and Vietnam. Malaysia's early and mandatory interoperability framework, characterised by an encompassing design and effective enforcement, reduced market fragmentation and lowered switching costs, with the potential to enable broader data sharing across providers and support more dynamic competition in digital payments, as well as capital formation. By contrast, Vietnam's later and largely voluntary approach to interoperability has struggled to overcome entrenched fragmentation and siloed systems, limiting its potential positive impact on competition and capital formation.

Nevertheless, the causal impact of timely and well-calibrated policy and regulatory interventions in these country pairs cannot be considered in isolation from other compounding factors, and depends in part on the similarity of market and regulatory conditions prior to intervention. This is particularly evident in the Kenya–Nigeria comparison. While the two countries adopted notably different approaches to digital lending, the observed outcomes are also shaped by differences in the maturity of their digital finance ecosystems, the depth of formal credit intermediation, regulatory capacity, institutional coordination, and broader social and economic conditions.

Part VI.

Building Strategies for Competition in DFS



The previous analysis has shown that public and financial authorities use a wide range of policy and regulatory tools that can influence competition dynamics in DFS markets, often with broader implications, including for capital formation. It is important to reiterate that many of these tools are typically introduced to advance other (sector-specific) regulatory objectives, such as financial stability, financial or market integrity, consumer protection, or financial inclusion, often with limited or no explicit consideration of their effects on competition.

At the same time, the analysis in the preceding chapters demonstrates that these same tools, when carefully calibrated, can be used strategically to shape competition outcomes in DFS markets. This highlights the importance of adopting a more deliberate and structured approach to how such tools are selected and applied.

Against this background, public and financial authorities can adopt two distinct approaches when designing strategies for promoting competition in DFS. The first approach involves embedding a competition lens into the development of policy and regulation. In practice, this entails systematically assessing the competition implications of proposed interventions, typically within regulatory impact assessments, and ensuring that they do not unduly distort market dynamics.

The second approach involves the deliberate use of policy and regulatory tools to address competition issues. Under this approach, authorities may deploy interventions with the explicit objective of enabling or strengthening competition. The analytical frameworks developed in Parts II and III of this report may provide a conceptual foundation for the effective implementation of this approach, as discussed further below.

The choice between these approaches is often shaped by institutional mandates. Authorities without an explicit competition objective, or those required only to 'have regard to competition', are more likely to adopt the first approach, focusing on minimising adverse effects on competition. By contrast, authorities with a clear competition mandate are more likely to adopt a more proactive stance, developing frameworks that support targeted interventions to address structural, strategic, or demand-side barriers.

It should also be noted that competition-related considerations, whether applied under either of these two approaches, may be grounded in a range of development objectives commonly reflected in EMDE policy and regulatory mandates, to which stronger competition is expected to contribute. These include, for instance, growth, sustainable development, innovation, financial inclusion, capital formation, and broader financial sector development.

Embedding a Competition Lens in Policymaking and Regulation

Public and financial authorities intervene in the financial system, including DFS markets, to advance a wide range of policy and regulatory objectives. While such interventions are designed to achieve legitimate valuable aims, they may generate both intended and unintended effects. Among the latter, the impact on competition is often overlooked.

For this reason, when a new policy or regulation is developed or introduced, authorities in many jurisdictions are required to undertake an analysis aimed at assessing its likely effects, commonly referred to as a Regulatory Impact Assessment (RIA). In essence, an RIA is a structured process that compares different policy options against a baseline (including a "do nothing/status quo" option). It typically involves:

- Clarifying the problem, the rationale for intervention, and the objectives;
- Identifying a set of feasible policy options (including non-regulatory or self-regulatory approaches where relevant, and "do nothing");
- Assessing expected impacts for different stakeholders, including costs and benefits, administrative and compliance burdens, and – where relevant – distributional effects and uncertainty; and
- Justifying why a particular option is preferred, including how it will be implemented/enforced and how it will be monitored and evaluated.[167]

An RIA can also include an explicit competition dimension. The competition component of an RIA typically comprises two main elements. The first assesses whether the proposed policy or regulation unduly restricts competition. The OECD, for example, provides a set of guiding questions (a checklist) to support this analysis – applicable beyond DFS – including whether the regulation:

- Limits the number of range of suppliers;
- Limits the ability of suppliers to compete;
- Reduces the incentive of suppliers to compete; or
- Limits the choices and information available to customers.[168]

Where any of these concerns arise, the second component of the RIA generally involves assessing viable alternatives, encouraging authorities to select the option that achieves the primary policy objective while minimising adverse effects on competition.

The Prudential Regulation Authority in the UK provides an example of embedding competition considerations early in the policymaking process through its secondary competition objective. Section 2H(1) of the Financial Services and Markets Act 2000 (FSMA)[169] states that, when advancing its primary objectives, the PRA must, so far as reasonably possible, act in a way that facilitates effective competition in the markets for services provided by PRA-authorised firms. This makes clear that competition is a secondary objective, subordinate to core objectives such as safety and soundness and insurance policy-holder protection, but nevertheless one that must be actively considered in regulatory design.

This specific type of (secondary) competition objective is uncommon. However, as discussed above, developmental objectives such as growth, sustainable development, innovation, capital formation, and financial sector development are common across EMDEs, and competition may therefore be viewed as a mechanism for advancing these broader policy goals. This may provide grounds for authorities to formally embed a competition lens into the policymaking process.

Even in jurisdictions where a RIA is not formally established or systematically applied, requirements to select the least interventionist or least competition-restrictive option may still arise. These often arise from, or are aligned with, higher-level policymaking principles such as proportionality, necessity, competitive neutrality, technology neutrality, and non-discrimination (or equal access).

Governed by these higher-level principles, authorities can undertake a less formal and resource-intensive preliminary analysis that can flag potential competition issues and prompt redesign before policies become embedded. These may include, for instance, competition screening questions or checklists, or stakeholder consultations.

Competition screening questions are simple sets of questions applied to any new law, regulation or policy proposal.[170] For example: Does this rule make it harder for new providers to enter? Does it limit interoperability? Does it grant exclusive rights or favourable treatment to certain firms? Do the regulations place a larger familiarisation burden on smaller firms? Even a short checklist used early in the drafting process can help identify competition concerns and suggest workable alternatives.

Similarly, stakeholder consultations involve structured engagement with incumbents, new entrants, consumer groups, industry associations and other public and financial authorities. Consultations can surface practical barriers that may not be obvious from a desk review, and can reveal how different actors expect to be affected by a proposal.

It should be noted that consultation with other public and financial authorities can also precede the public consultation stage. Early engagement on cross-agency coordination and cooperation may increase the capacity burden on the lead authority, but it is generally more effective in ensuring a well-calibrated design of the relevant policy or regulatory framework.

Introducing Competition-Focused Policy and Regulatory Interventions

In contrast to the approach outlined in the previous section, where competition is treated as a second-order consideration, public and financial authorities may adopt a more proactive stance by developing and implementing competition-focused policy and regulatory interventions.

The analysis underpinning such interventions may take the form of a market study, sectoral review, or the development of a dedicated competition policy for (digital) financial services. As discussed in earlier chapters, the relevant policy and regulatory tools often span the mandates of multiple public and financial authorities. Consequently, such analysis typically requires close inter-agency coordination, with competition authorities playing a central role in providing competition expertise, particularly at the market diagnostics stage.

The analytical frameworks developed in Parts II and III of this report may provide a conceptual foundation for the analysis required to design competition-focused policy and regulatory interventions. The tiered conceptual framework set out in Part II can serve as a useful reference point, enabling authorities to systematically identify potential gaps in the policies and regulations that underpin competitive DFS markets. The mapping in Part III can be used to more systematically consider which tools may be appropriate for a specific, identified competition barrier.

The following sections outline how the analytical frameworks developed in Parts II and III may be applied to support the design and implementation of competition-focused interventions.

The Tiered Conceptual Framework as a Reference Point

As discussed throughout the report, competitive DFS markets are underpinned by a broad set of institutions, policies, and regulations that together provide the necessary infrastructure for providers to operate, foster consumer trust to engage with DFS markets and switch providers, enable new entrants to enter and scale, and address more complex challenges linked to entrenched market structures and broader ecosystem dynamics.

This allows for a systematic approach to competition-focused policy and regulatory interventions – one that situates the choice or relevant tools within the broader institutional, policy and regulatory landscape. The tiered conceptual framework introduced in Part II provides the analytical foundations for understanding this broader context within which competition dynamics in DFS are shaped.

The framework can serve as an initial checklist for systematically identifying potential gaps in existing policy and regulatory tools. This, in turn, can help inform the sequencing of targeted interventions in response to identified competition barriers, as discussed in the next section.

Using the tiered framework to guide competition-focused policymaking and regulation can serve both ex ante, by enabling intervention ahead of anticipated competition issues, and ex post, by helping authorities understand why harm has emerged and prioritise reforms progressing from lower to higher tiers.

The first step in applying the tiered conceptual framework to tool selection is establishing which policy and regulatory frameworks are already in place and which are either missing or ill-suited for each of the four tiers.

This helps to narrow down the set of tools that can be deployed to support greater competition in DFS. It is often the case that authorities will identify relevant policy and regulatory frameworks spanning across lower level and higher-level tiers. For instance, authorities may consider introducing open banking frameworks to address data bottlenecks in DFS. However, such advanced, market-shaping tools are unlikely to be effective where foundational frameworks remain incomplete. This may be the case, for example, where data protection regimes are absent or insufficiently developed.

Using the tiers as a checklist also helps authorities analyse interlinkages between tools relevant to competition. For instance, where certain digital public infrastructures have been developed to support well-functioning markets (Tier 1), authorities should also consider the governance arrangements in place to ensure that new entrants can access them on equal terms with incumbents (Tier 3).

An assessment of gaps across the tiers can further help identify the public and financial authorities that 'hold the levers' to enable greater competition in DFS, as the relevant tools fall within their respective mandates.

Once the policy and regulatory landscape has been mapped against the tiers, authorities may either proceed with the selection and sequencing of viable tools or undertake a more comprehensive assessment of market conditions and prevailing barriers, as discussed in the next section.

Targeted Interventions in Response to Prevalent Competition Barriers

While the tiered framework provides a useful reference point for systematically identifying potential gaps in the policy and regulatory frameworks underpinning competitive DFS markets, it does not in itself offer insights into actual market dynamics, including market structure, firms' conduct, and consumer behaviour. Such insights are often essential for designing more targeted policy and regulatory interventions. By developing a clearer understanding of market conditions and identifying the most prevalent competition barriers across one or more DFS market segments, public and financial authorities are better placed to select the most effective tools, while conserving the resources that might otherwise be required for broader reforms based solely on the tiered framework.

To introduce interventions in response to specific competition barriers, which may arise on both the supply and demand sides, as discussed in Part III, a more elaborate analytical exercise is required, often demanding significant capacity and resources. This exercise will take the form of:

1. **Measuring Competition in DFS**: establish that competition is not present, ineffective or constrained
2. **Identifying Barriers to Competition**: understand the prevalent competition issues (barriers)
3. **Mapping Tools**: identify possible policy and regulatory tools that can address them
4. **Selecting Tools**: rank tools based on pre-established set of criteria and select the most adequate approach or approaches
5. **Continuous Evaluation**: monitor and evaluate on a continuous basis whether the selected tool(s) produce the desired effects.

The sections that follow will synthesise what each of these steps entails.

1. Measuring Competition in DFS

To make a case for competition-focused policy or a regulatory initiative, it is necessary to establish that the level of competition in one or more DFS markets is nonexistent, low or insufficient. This often requires moving beyond high-level assumptions about market structure and undertaking a more granular assessment of how firms compete, whether consumers switch when better or more affordable services become available, and how market outcomes compare with those expected in a well-functioning, competitive market.

Measuring competition in DFS is inherently complex. Traditional indicators, such as market concentration, entry and exit rates, or price levels, remain relevant but are often insufficient on their own. In addition, aspects of concentration and exit are often related to other regulatory objectives. As discussed earlier, DFS markets are typically characterised by strong network effects and data-driven business models, where competition may occur not only on price, but also on access to user networks, data, infrastructure, and broader digital ecosystems.

A robust assessment therefore requires combining multiple indicators that capture both the supply side of the market – those reflecting market structure and firms' behaviour – and the demand side – those that help understand how consumers experience the market. Before turning to these indicators, it is essential to define the relevant market, as the choice of product and geographic boundaries determines how competition is measured and how indicators should be interpreted.

Supply-side indicators characterise the behaviour and structure of providers, including market structure, market dynamics, and the conduct of DFS providers. A starting point are static structural measures, such as the number of providers, market shares, N-firm concentration ratios, and the Herfindahl–Hirschman Index (HHI), which provide an initial indication of how activity is distributed across the market. However, these indicators do not capture how firms compete or how markets evolve over time.

Dynamic structural measures further enrich the analysis by capturing how markets evolve over time. These include entry and exit rates, firm survival rates, and the persistence of market rankings. While these indicators can signal whether markets are open to new challengers, they must be interpreted with caution, as high entry and exit rates may reflect either strong competition or underlying instability, and may not capture the continued dominance of large incumbents. Moreover, in finance, entry and exit are often both highly restricted, making this less useful than in many other sectors/industries.

Finally, supply-side indicators also include measures of firm conduct, particularly pricing of services (e.g. transaction fees, commissions, or interest rates). While pricing is ultimately an equilibrium outcome shaped by both demand and supply conditions, observed price levels and their dispersion across providers or jurisdictions can nonetheless provide useful signals of competitive pressure and market power. However, in DFS markets, pricing indicators may be less informative in 'zero-price' environments, where services are offered free of charge and competition takes place along other dimensions. More advanced measures-such as the Lerner Index or the Panzar–Rosse H-statistic-can also provide insights into market power, although they are often data-intensive and less readily available.

Demand-side indicators help understand how consumers experience the market. These include adoption and usage rates, which can indicate whether services are broadly accessible and used, but do not, on their own, signal effective competition. For example, high adoption may reflect widespread use of a single dominant provider rather than the presence of meaningful alternatives.

Indicators such as multi-homing – whether consumers use more than one provider – and switching behaviour provide further insights into the extent to which users can exercise choice. Limited switching or low levels of multi-homing may point to frictions such as network effects, lack of interoperability, or other barriers that constrain consumer choice.

Consumer satisfaction is another important dimension. Persistent dissatisfaction combined with limited switching may signal weak competitive pressure, while high satisfaction may reflect effective competition. These indicators are typically derived from consumer surveys, which are essential for capturing granular insights into user behaviour, particularly in contexts where administrative data is limited. This is an important area, and one that is a major focus in the context of financial inclusion metrics – moving beyond simple measures of 'access' towards consumer choice and promoting financial health, all of which competitive DFS markets are linked to.

A particular analytical challenge in financial services is interpreting pricing outcomes across different consumer segments. Higher interest rates for certain groups may reflect efficient risk-based pricing, demand-side barriers to competition arising from limited financial literacy or other frictions, or a combination of both. Disentangling these factors is analytically difficult, yet important from a competition perspective. Where consumers struggle to compare products or switch providers, and therefore cannot make informed choices, competitive pressure is weakened, allowing providers to sustain prices above competitive levels even after accounting for underlying risk and costs.

Furthermore, measuring competition in DFS is data-intensive and resource intensive for public and financial authorities. It requires combining quantitative indicators with qualitative insights from market participants, consumer surveys, and stakeholder consultations. Rather than producing a single definitive metric, the objective of a robust assessment is to build a holistic understanding of competitive dynamics.

In the EMDE context, such comprehensive assessments may not always be feasible, and public and financial authorities may instead focus on a narrower segment of the DFS market or on a subset of more readily available indicators that can still provide a rough indication of whether competition is insufficient.

2. Identifying Barriers to Competition

Once it has been established that competition in one or more DFS markets is non existent, weak or insufficient, the next step is to diagnose the underlying causes-namely, barriers to entry and expansion. As discussed in detail in Part III of this report, such barriers may arise on the supply side, both structural (e.g. sunk costs, economies of scale and scope, access to essential infrastructure, and interoperability constraints) and behavioural or strategic (e.g. discriminatory access, exclusivity arrangements, self-preferencing), as well as on the demand side (e.g. limitations in consumers' ability to access, assess, or switch between services and network effects).

It is important to recognise that barriers to competition, to some degree, characterise all markets. This is particularly the case in finance, where both entry and exit are often highly constrained and business conduct and operations subject to extensive regulation and supervision. International regulatory standards, such as the Basel framework, add a further consideration. While primarily designed to establish minimum standards and prevent jurisdictions from engaging in 'race-to-the-bottom', they can simultaneously lower entry barriers for internationally active firms that benefit from compliance-related scope economies across jurisdictions. The key analytical task is therefore not to establish the mere existence of competition barriers, but to assess their relative significance and persistence.

A further critical distinction is between barriers that are shaped or reinforced by the prevailing policy and regulatory framework, and those that arise from underlying infrastructural, technological or market conditions. Where barriers arise from the latter, the case for intervention is more nuanced. Prescriptive rules risk becoming quickly outdated in fast-moving markets, potentially entrenching the very structures they sought to address.[171,172] More flexible regulatory approaches are therefore likely to be more effective. For example, principles-based frameworks that set desired outcomes rather than prescribe specific conduct, ex ante codes of conduct developed collaboratively with industry, or sandbox arrangements that allow regulatory learning to keep pace with market evolution.[173,174]

Moreover, the analysis should consider how barriers manifest across different DFS market segments (e.g. payments, digital lending, savings, insurance) and at different stages of market development. As discussed in Part II of the report, it is useful to distinguish between: (i) competition issues arising in underdeveloped markets characterised by gaps in foundational infrastructure and trust; (ii) barriers to entry faced by new providers; (iii) constraints on providers' ability to scale; and (iv) more complex challenges linked to entrenched market structures and broader ecosystem dynamics. Such an analysis can further support the selection of tools across different tiers, which broadly correspond to these different stages of development.

3. Mapping Tools

Once the most prominent competition barriers have been identified, the next step is to map the policy and regulatory tools that could be deployed to address them. Part III of the report provides a granular taxonomy of both supply- and demand-side barriers, including the different ways in which each type may manifest in the DFS context. Building on this, that chapter also identifies a broad set of policy and regulatory tools that could potentially mitigate or eliminate these barriers.

While the mapping exercise in this report is comprehensive, only a subset of tools will be relevant in any given jurisdiction in any given context. Public and financial authorities therefore need to identify those that are most pertinent – either because they are absent or because existing tools are inadequately calibrated.

This can be illustrated in the context of barriers related to high licensing and regulatory scoping costs (as a manifestation of sunk costs). A range of tools may be available, including the establishment of new licences such as for e-money and fintechs, proportionate and risk-based licensing frameworks, clear definitions of permissible activities and regulatory perimeters, innovation offices and regulatory sandboxes, and regional passporting arrangements.

However, their relevance will depend on the specific context. For example, a jurisdiction may already have an e-money licensing framework in place and issue licences efficiently, yet certain innovative business models may still not fit within existing categories. In such cases, other tools, such as regulatory sandboxes, may be more appropriate.

Accordingly, for each barrier identified as prominent, public and financial authorities should narrow down the set of viable tools and assess their expected impact, before proceeding to tool selection.

4. Selecting Tools

The challenge in selecting the appropriate tool arises because multiple competition barriers often co-exist, while several tools may be capable of addressing the same barrier. A set of guiding principles, based on better regulation frameworks, can support this selection process.[175]

Proportionality provides the overarching principle for doing so. The secondary criteria that follow are subordinate to that principle. They help select between tools that have already passed the proportionality threshold, rather than replace it.

Core Principle: Proportionality

Proportionality represents a foundational principle for selecting the right competition-enabling intervention: the appropriate tool is the one that most effectively addresses the identified competition barriers while imposing no greater burden than necessary and remaining consistent with other financial regulatory objectives.

This principle should be reflected in the intervention's scope and design, which must be justified by the scale of the barrier being addressed and the likelihood that the chosen tool will address it.

Proportionality is embedded across different international frameworks. The European Commission's Better Regulation Guidelines[176] make it explicit, requiring that any intervention be no more burdensome than necessary to achieve its objectives. This sequencing logic applies equally when choosing between competition tools: the least disruptive option should be tried first, with escalation justified only where evidence demonstrates the former would be insufficient. This is particularly important in EMDE contexts, where the costs of over-intervention, including chilling effects on nascent markets and diversion of scarce enforcement resources, can be especially significant.

Applying Proportionality: Three Practical Tests

When multiple tools could plausibly address a competition barrier, three questions operationalise the proportionality principle. A tool should be chosen only if it is suitable, necessary, and if its expected benefits outweigh the associated costs, including any reinforcing or adverse effects on other legitimate policy and regulatory objectives.

1. **Suitability – Will it work?** The preceding analysis identified one or more tools that could plausibly address identified competition barriers. Suitability, at this stage, asks the more practical question: will a given tool work in this specific context? A suitable tool is one that is capable of achieving the intended objective, not merely plausibly connected to it.[177] In practice, two threshold questions arise before that judgment can be made. Is there a clear legal basis for this tool? And does the authority have capacity to implement and supervise it? A tool the authority cannot deploy to the standard it requires will typically produce worse outcomes than a lighter one executed well. In lower-capacity contexts the gap between a tool's potential and its effects in practice tends to be wider.[178]

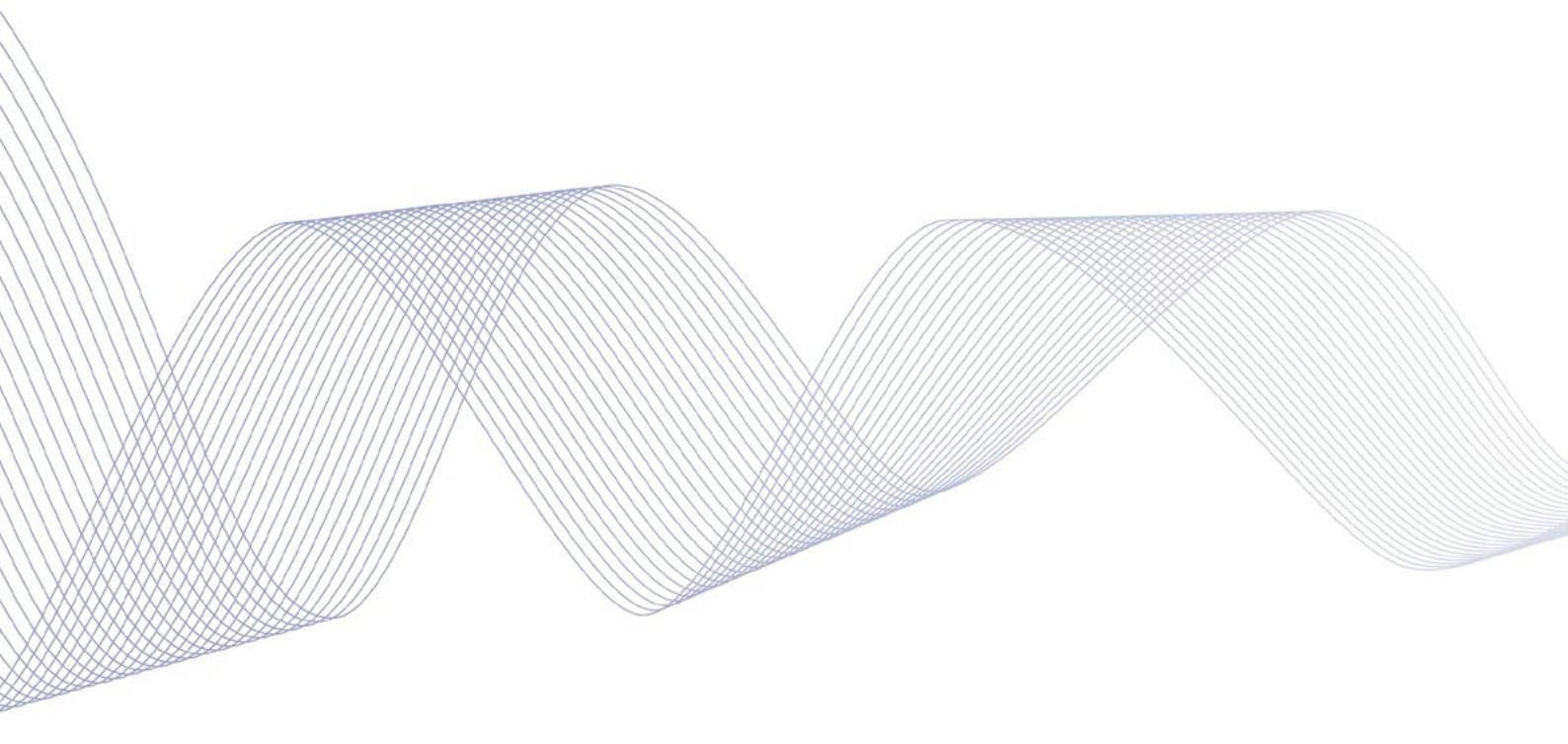
2. **Necessity**: Is there a less burdensome option that would be equally effective? Intervening further than necessary to address a harm imposes costs on firms, on markets, and on the authority itself, potentially without any corresponding benefit. The question is therefore whether a less restrictive alternative would achieve the same result in the specific case. In practice, 'equally effective'.[179] A staged approach is often the practical resolution – deploying the lighter tool first, with clear criteria established in advance for when escalation would be warranted, rather than attempting a definitive comparison before either has been tried.

3. **Do the expected benefits justify the costs, including both reinforcing and adverse effects on other legitimate policy or regulatory objectives?** Even if no less burdensome alternative exists, a tool may still be disproportionate if the burdens are excessive relative to the gains.

The benefits of an intervention may extend beyond its competition-enhancing effects, particularly where competition and other policy and regulatory objectives are complementary. For example, stronger consumer safeguards may both enhance consumer protection and encourage consumers to switch between providers. Similarly, financial literacy programmes may reduce demand-side barriers to competition while also supporting greater financial inclusion. As discussed above, in the EMDE context, particularly relevant are the potentially mutually reinforcing effects between competition and a range of developmental objectives, including growth, competitiveness, sustainable development, innovation, and capital formation.

Conversely, the relevant costs extend beyond direct enforcement expenditure. These costs can include the compliance burden imposed on DFS providers, the opportunity cost of authority resources, the risk of chilling legitimate business behaviour (including by discouraging investment in innovation and infrastructure), and in some cases, the political capital required to sustain an intervention against resistance. Importantly, they may also include adverse effects on other legitimate policy or regulatory objectives where these are in tension with competition. As discussed, greater competition may in some circumstances encourage firms to assume higher levels of risk, potentially contributing to financial instability. Similarly, new licensing categories may enhance market contestability, but if poorly calibrated, may also increase operational or prudential risks.

The rationale for such cost-benefit analysis is well established and recognised by a number of international organisations and standard-setting bodies.[180]



Secondary Criteria

Where multiple tools appear broadly proportionate, a more granular comparison across the following secondary criteria can help identify the most appropriate option. These criteria reflect considerations embedded in well-established regulatory and competition frameworks, and should be assessed together rather than treated as a ranked hierarchy.

Secondary Criteria	Key Question
Capacity to Implement	Can the authority deploy it effectively?
Multi-Barrier Impact	Does it address several barriers at once?
Speed to Impact	How quickly can it prevent or mitigate a competition barrier?
Implementation Complexity	Is the complexity commensurate with the harm arising from constrained competition?
Cross-Agency Cooperation	Does it require action across multiple public and regulatory authorities, and, if so, are appropriate cooperation mechanisms in place to support this?
Circumvention Risk	How easily can firms work around it?
Durability	Is it self-sustaining or will it require constant enforcement?
Reversibility	Can it be unwound if no longer appropriate?

Capacity to Implement

Even where tools are equally proportionate in principle, the one better matched to available resources will generally produce better outcomes. Tools that exceed an authority's analytical or enforcement capacity risk delivering partial or poorly monitored results that may be worse than a lighter intervention applied consistently. In lower-capacity contexts, this warrants particular weight: complex tools imported from advanced economy frameworks often require technical and institutional infrastructure that may not yet exist.[181]

Multi-Barrier Impact

Where a competition problem stems from several reinforcing barriers, a tool that addresses multiple issues simultaneously will generally be preferable to one that treats only one in isolation. Structural barriers often coexist so interventions targeting root causes rather than manifestations of individual barriers are likely to be more durable.[182,183]

Speed to Impact

Where harm is ongoing, or the window for effective intervention is short, faster tools could be preferred even where a more comprehensive approach might theoretically achieve more.[184] This is particularly relevant in fast-moving or nascent markets, where delayed intervention may allow harmful market structures to become entrenched before they can be addressed. Statutory timeframes vary significantly across policy and regulatory tools and should be factored into selection alongside substantive considerations.

Implementation Complexity

The operational demands of a tool should be proportionate to the severity of the harm. Where those demands exceed what is warranted, the tool may impose unnecessary burden on regulators and regulated parties alike without commensurate benefit. This is distinct from the capacity question above: a tool can be within an authority's capacity yet still be more complex than the problem requires.

Cross-Agency Cooperation

Closely linked to the capacity, complexity, and speed considerations outlined above is whether the effective implementation of the chosen tool requires action by multiple public and financial authorities. Where policy and regulatory responsibilities are fragmented, a key consideration is whether adequate cooperation mechanisms are in place to support effective implementation. Where such mechanisms are weak or absent, authorities should assess whether coordination gaps need to be addressed first, and what implications this may have for the feasibility of the intervention.

Circumvention Risk

A remedy that can easily be worked around may fail, regardless of its design. Remedies must be clear and unambiguous, with monitoring arrangements built in rather than added afterwards.[185]

Reversibility

Where uncertainty about outcomes is significant, preferring tools that can be varied or unwound without disproportionate cost reduces the risk of locking in a suboptimal intervention. Review provisions should be built in from the outset.

Tool Selection and Analytical Effort

It should be noted that the tool selection process described above, which involves ranking policy and regulatory interventions, should be calibrated to the level of analytical effort it requires.

Not every tool selection decision warrants a full options appraisal – the depth of analysis should be proportionate to the complexity of the competition problem, the scale of the intervention, and the degree of uncertainty involved. The OECD Regulatory Policy Recommendation[186] establishes this explicitly, advising that analytical effort should reflect the significance of likely impacts.

A light-touch assessment is likely to be sufficient where one or more of the conditions listed below apply:

- The problem is well-understood and straightforward
- There is a clear winner among the options being considered
- The proposed intervention is low-cost
- Strong precedent exists from comparable cases
- Analytical capacity is limited

A more in-depth analysis is warranted where one or more of the conditions listed below apply:

- Multiple options present genuine trade-offs
- The intervention is novel or untested
- The costs involved are substantial
- There is significant uncertainty about likely outcomes
- Large numbers of people or significant public resources are affected
- The decision is politically sensitive

In such cases, the full options appraisal process, including quantified cost-benefit analysis, consideration of distributional impacts, and a monitoring and evaluation plan – provides the recommended standard.[187]

The analytical standards referenced above were largely designed for high-capacity regulatory environments with well-established data infrastructure and enforcement mechanisms. In lower capacity contexts, the appropriate standard may need to be calibrated accordingly. Lighter-touch analytical approaches that preserve the core logic of proportionate, evidence-based tool selection without requiring the full apparatus of resource intensive appraisal systems are available, and may be better suited to most decisions in these contexts. In practice this means that light-touch analysis is likely to be the right starting point for most tool selection decisions in lower-capacity contexts, with in-depth analysis reserved for the highest-stakes interventions.

Proportionality Tool Selection

Stage 1: Primary Tests

Test	Key Question
1 Suitability	Will it work? Is there a clear legal basis? Does the authority have capacity to implement and supervise it?
2 Necessity	Is there a less burdensome option that would be equally effective?
3 Cost-benefit	Do the expected benefits justify the costs?

Gate: Multiple tools pass the primary tests?

No > Select the tool and proceed Yes > Apply Stage 2 secondary criteria

Stage 2: Secondary Criteria (compare tools that pass Stage 1)

Criterion	Key Question
Capacity to implement	Can the authority deploy it effectively?
Multi-barrier impact	Does it address several barriers at once?
Speed to impact	How quickly can it prevent or mitigate a competition barrier?
Cross-agency cooperation	Does it require action across multiple public and regulatory authorities, and if so, are appropriate cooperation mechanisms in place?
Circumvention risk	How easily can firms work around it?
Durability	Self-sustaining or needs constant enforcement?
Reversibility	Can it be unwound if no longer appropriate?
Assess together	Not as a ranked hierarchy.

5. Continuous Evaluation

Tool selection is primarily an ex ante exercise: the range of available interventions to address one or more competition barriers is ideally assessed before committing to a given policy or regulation, not after it's implementation has begun. Some national frameworks make this an explicit precondition for implementation, positioning options appraisal as the first step in a structured policy cycle before any subsequent decisions are taken.[188] This front-loading matters most where some options under consideration would be difficult or costly to reverse.

Tool selection should not, however, be treated as a one-off judgment. Interventions should be systematically evaluated against their intended outcomes, with evaluation mechanisms built in from the start rather than added retrospectively. The criteria used to select a tool ex ante can also serve as the right evaluative lens ex post: where a tool is underperforming against those same criteria, that is a strong signal that an alternative should be considered.

Summary

This chapter outlined two complementary approaches to developing strategies for enhancing competition in digital financial services. Such strategies may be grounded in explicit competition objectives, although these remain relatively rare, or, more commonly, in broader policy and regulatory objectives to which stronger competition in DFS is expected to contribute.

The first approach focuses on embedding a competition lens into policymaking and regulation, primarily through tools such as a Regulatory Impact Assessment (RIA). This approach seeks to ensure that new and existing policy and regulatory frameworks, typically introduced to achieve other objectives, do not inadvertently restrict competition and, where possible, actively support it. Where an RIA is not formalised or systematically applied, lighter-touch alternatives, such as competition screening questions or stakeholder consultations, may still help identify key competition constraints and prompt public and financial authorities to consider more competition-supportive policy or regulatory options.

The second approach centres on competition-focused interventions, which are designed explicitly to enable greater competition in DFS markets. Here, the tiered framework serves as a reference point for identifying gaps in the policy and regulatory landscape underpinning competitive DFS markets. Mapping existing frameworks against a range of tools, spanning foundational measures that support the functioning of the financial system and build trust, measures that facilitate entry and support the scaling of new market participants, and more advanced market-shaping interventions, allows authorities to identify areas where policy action is most likely to have a positive impact.

For a more targeted response, analysis based on the tiered framework should be complemented by a more comprehensive assessment of market conditions and prevailing supply- and demand-side barriers. While this approach is more demanding in terms of capacity and resources, it is also more likely to result in context-appropriate and impactful competition strategies in digital financial services markets.

When selecting and sequencing tools to address identified competition barriers, authorities should be guided primarily by the principle of proportionality. In practice, this can be operationalised through three tests: suitability, necessity, and a cost–benefit assessment, which takes into account both reinforcing and potentially adverse effects on other legitimate policy and regulatory objectives. The selection of tools should also be informed by a set of secondary criteria, enabling a more granular comparison and increasing the likelihood of introducing a well-calibrated policy or regulatory response. However, not every tool selection decision requires full options appraisal. The analytical effort should be proportionate to the complexity of the competition problem, the scale of the intervention, the degree of uncertainty involved, and capacity of competent authorities in EMDEs.

Part VII.

Conclusion

This report has examined how policy and regulatory frameworks can be designed to enable competition via DFS, competition in DFS, and competitive DFS and, in doing so, support more effective private capital formation in EMDEs. Across its core chapters, the analysis has shown that competition is not always ensured through market forces alone, but rather shaped, often decisively, by the institutional, policy and regulatory choices made by public and financial authorities. When these choices are well calibrated, they can unlock both broader participation in financial systems, more efficient financial intermediation and allocation of capital. When they are not, they risk entrenching market power, reinforcing financial exclusion, and limiting the developmental potential of DFS.

A central contribution of the report has been the development of a conceptual framework for categorising policy and regulatory tools aimed at enabling greater competition in DFS markets. By organising these tools into a tiered approach – ranging from foundational systems and protections, through entry and scaling mechanisms, to more advanced market-shaping interventions – the report highlights that competition is cumulative and path-dependent.

Foundational investments in digital infrastructure, legal certainty, regulatory systems, and consumer trust are essential preconditions for market development. However, these alone are insufficient. Enabling entry through proportionate licensing and clear regulatory perimeters broadens participation of new DFS providers, while scaling tools – such as interoperability, fair access to critical infrastructure, and data portability – are critical to ensuring that early gains from growth of DFS markets are not offset by the emergence of dominant players and entrenched market structures. More advanced interventions, including platform-based payment systems, open banking/open finance and ex ante competition regimes, further illustrate how policy and regulatory instruments can actively shape market dynamics in more developed and complex DFS ecosystems.

The report has also demonstrated that competition challenges in DFS arise from a complex interplay of supply-side and demand-side barriers. On the supply side, structural barriers such as sunk costs, economies of scale and scope, restricted access to essential infrastructure, and lack of interoperability on various levels, can limit entry and expansion. These are often compounded by strategic behaviour, including refusal to deal, discriminatory access, exclusivity arrangements, or tying and bundling, which can further entrench incumbents.

On the demand side, barriers related to engagement, access to information, ability to assess alternatives, and capacity to switch providers can weaken competitive pressure even in markets with multiple providers. Network effects, in particular, can amplify these dynamics by reinforcing market power of incumbents.

Importantly, the report has also examined how different policy and regulatory tools within the tiered framework can be deployed in a targeted manner to address specific barriers in DFS markets. It shows that these tools rarely map neatly onto individual barriers. Rather, a single barrier may be addressed through multiple instruments, while the same tool can be used to mitigate different types of barriers. Thus, the mapping of diverse tools to the specific barriers identified in a given DFS market can support public and financial authorities in selecting and calibrating the most appropriate interventions for their jurisdictional context.

Another important insight emerging from this analysis is that competition in DFS is closely linked to capital formation. By lowering entry barriers and enabling a more diverse set of providers, competition-enhancing tools can expand access to savings and investment products, particularly for underserved segments. Furthermore, by reducing information, comparison, and switching costs, these tools can incentivise providers to offer better returns to savers, thereby increasing savings mobilisation and improving the efficiency of financial intermediation. In the same way, by enabling access to shared data and strengthening credit assessment, they can improve the allocation of capital to more productive uses.

Conversely, weak competition – particularly when not supported by adequate policy and regulatory frameworks – can result in underdeveloped savings markets, high intermediation costs, and the misallocation of resources, ultimately constraining both financial inclusion and broader economic development in EMDEs. The comparative case studies further reinforce these findings. Competition-enhancing regulatory tools can meaningfully reshape DFS market dynamics when they are appropriately calibrated and sequenced.

In Kenya, proportionate licensing – combined with conduct rules and supported by credit information infrastructure – reduced entry barriers and curtailed harmful forms of competition, enabling a shift towards more efficient financial intermediation. In contrast, Nigeria's delayed and fragmented approach highlights the limits of isolated Tier 2 interventions in the absence of foundational Tier 1 and Tier 3 conditions. Similarly, the comparison between Malaysia and Vietnam shows that interoperability mandates can directly address the structural barrier of fragmented, closed-loop systems. Malaysia's early, mandatory approach reduced switching costs, weakened network-driven incumbency advantages, and supported the emergence of shared transaction data infrastructure, while Vietnam's voluntary framework struggled to overcome entrenched fragmentation and data silos.

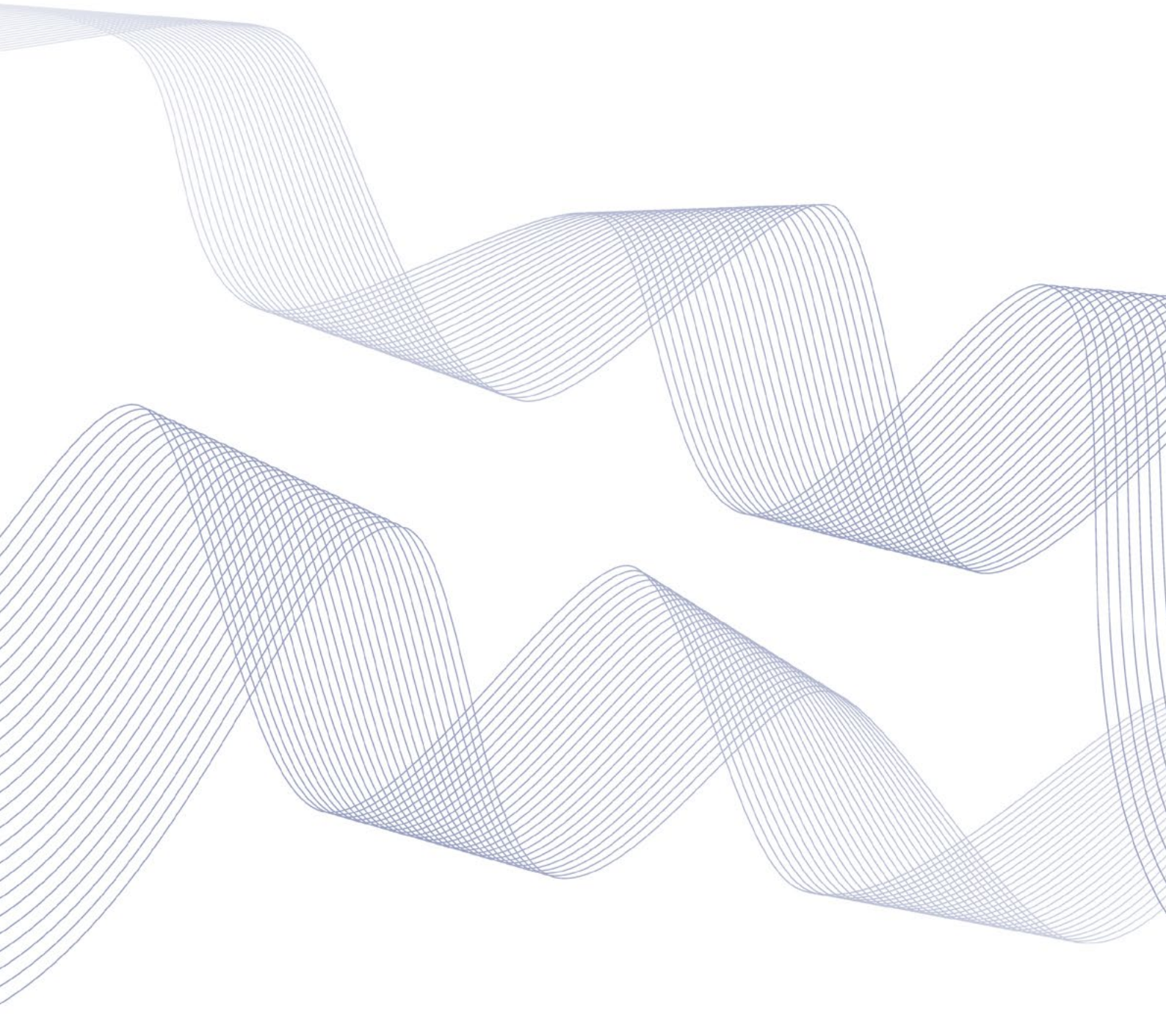
Finally, the report has outlined two complementary approaches to developing strategies for enabling competition in digital financial services. Such strategies may be grounded in explicit competition objectives, or, more commonly, in broader policy and regulatory objectives to which greater competition in DFS is expected to contribute. The first approach focuses on embedding a competition lens into policymaking and regulation, primarily through Regulatory Impact Assessment. It seeks to ensure that new policy and regulatory frameworks, typically introduced to achieve other objectives, do not inadvertently undermine competition. The second approach centres on competition-focused interventions. It involves using the tiered conceptual framework to identify gaps in the existing policy and regulatory landscape, followed by a more comprehensive assessment of market conditions and prevailing supply- and demand-side barriers, to support the effective selection and sequencing of targeted interventions.

Taken together, the findings of this report point to several broader implications. First, there is no one-size-fits-all approach to enabling competition in DFS. Policy and regulatory choices must be tailored to country-specific contexts, including levels of market and institutional development, institutional capacity, and existing infrastructure. Second, competition should be treated as a dynamic objective, requiring continuous monitoring and adjustment as markets evolve. Tools that are effective at early stages of development may need to be complemented or recalibrated as new barriers emerge. Accordingly, the systematic tracking of competition in DFS, the identification of the most salient barriers, and the selection of proportionate tools to address them need to be effectively embedded within policy and regulatory cycles.

Looking forward, the findings and practical recommendations in this report can in turn support:

- The growing evidence base on how policy and regulatory tools can be employed to drive both competition and financial inclusion outcomes;
- Policymakers and regulators in designing and sequencing competition-enhancing interventions tailored to their market context;
- Broader policy dialogue on the importance of competition for advancing other policy and regulatory goals, including innovation, consumer welfare, financial inclusion, capital mobilization, private sector development, competitiveness, and growth in EMDEs;
- Existing capacity-building efforts by the Cambridge Centre for Alternative Finance (CCAF), Financial Innovation for Impact (Fii) and other organisations active in promoting competition in DFS, through strengthening the underlying analytical framework and enriching the body of real-life insights, examples, and lessons learned from EMDEs.

This report also sets out a rich research agenda. The report has sought to develop an analytical approach to supporting the development of competitive DFS markets. This framework, however, merits testing. In particular, the core premise – that competition via DFS, competition in DFS and competitive DFS markets supports core developmental objectives – is a very fertile area for further research. While competition is seen as central to market economies, its actual operation in the context of specific sectors – in particular finance, where it must be balanced against other core objectives – is another. Further, the linkages between competition and capital formation provide the starting point for considering these issues in more detail in future. Looking forward, this report sets a starting point, through its conceptual, analytical and strategic framework and toolkit, to support public and financial authorities seeking to maximise the benefits of competitive digital financial services markets for capital formation.



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Abbreviations

ACH: Automated Clearing Houses

AE: Advanced economies

AFI: Alliance for Financial Inclusion

AI: Artificial intelligence

AML: Anti-Money Laundering

APAC: Asia-Pacific regional grouping

API: Application Programming Interface

ATM: Automated Teller Machine

BIS: Bank for International Settlements

BNM: Bank Negara Malaysia

CAK: Competition Authority of Kenya

CBDC: Central Bank Digital Currency

CBK: Central Bank of Kenya

CBN: Central Bank of Nigeria

CCAF: Cambridge Centre for Alternative Finance at the University of Cambridge, Judge Business School

CDD: Customer Due Diligence

CFT: Counter-financing of terrorism

CGAP: Consultative Group to Assist the Poor

CMA: Competition and Markets Authority

CPF: Counter-Proliferation Financing

DFS: Digital Financial Services

DMA: Digital Markets Act

e-KYC: Electronic Know Your Customer

EMDE: Emerging Markets and Developing Economies

EMI: Electronic Money Issuer

EU: European Union

FCA: Financial Conduct Authority, UK

FCCPC: Federal Competition & Consumer Protection Commission, Nigeria

Fii: Financial Innovation for Impact

FMI: Financial Market Infrastructure

FTE: Full-time employee

GPFI: Global Partnership for Financial Inclusion

ID: Identification

IMF: International Monetary Fund

IOSCO: International Organization of Securities Commissions

KYC: Know Your Customer

MNO: Mobile Network Operator

MSME: Micro, Small, and Medium Enterprises

NPS: National Payment System

OECD: Organisation for Economic Co-operation and Development

P2B: Person-to-Business

P2P: Person-to-Person

PCH: Payment Clearing House

PIX: The Brazilian Instant Payment Ecosystem

PSP: Payment Service Provider

QR: Quick Response

RTGS: Real-Time Gross Settlement Systems

SACCO: Savings and Credit Cooperative Organisation

SDD: Simplified Due Diligence

SSA: Sub-Saharan Africa

UPI: Universal Payments Interface, India

USD: United States dollars

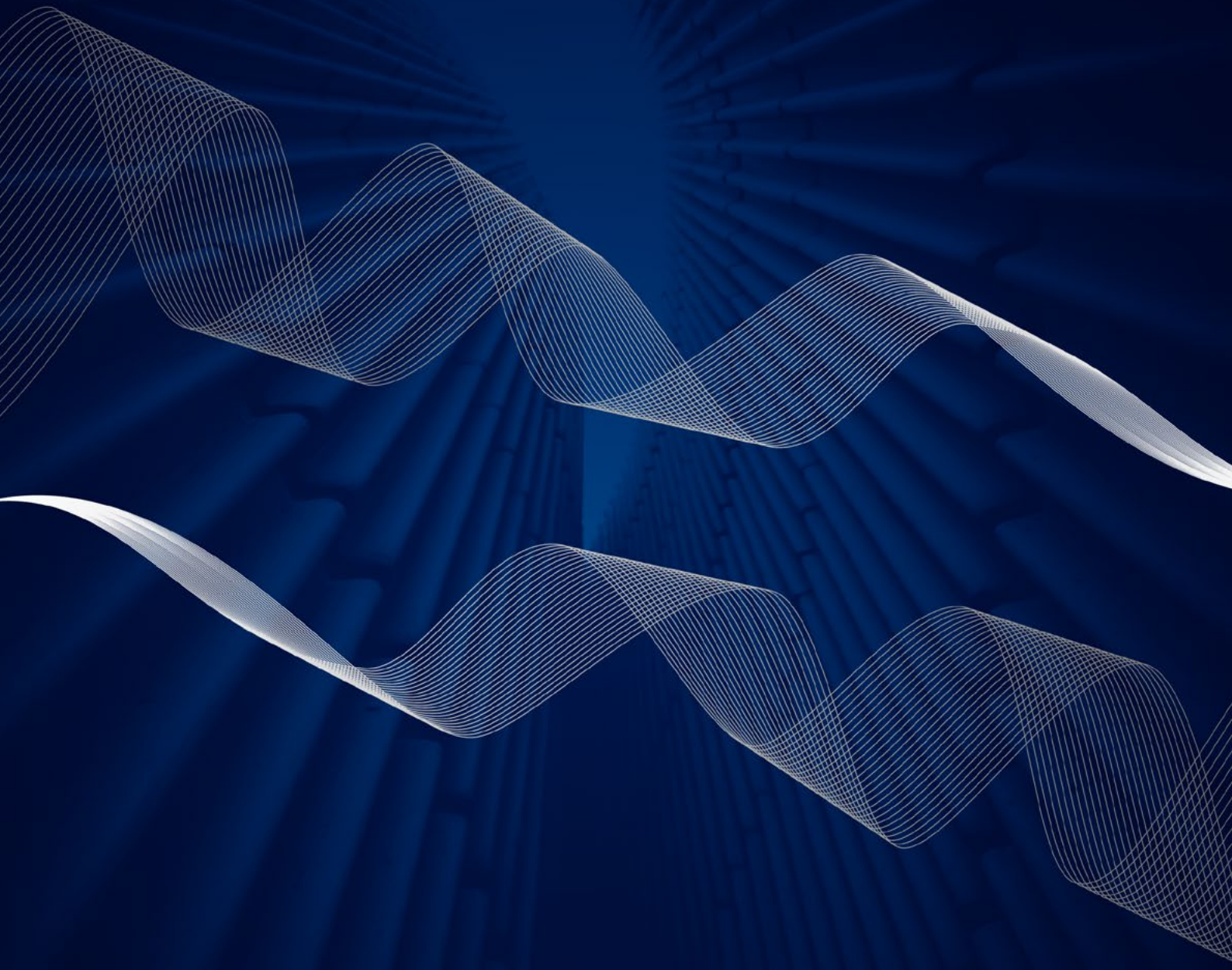
USSD: Unstructured Supplementary Service Data

WEF: World Economic Forum

Cambridge
Centre
for Alternative
Finance

UNIVERSITY OF CAMBRIDGE
Judge Business School

Financial Innovation for Impact



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