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Public Discourse on Retail Payments and the Case of CBDC

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Public discourse on retail payments and the case of CBDC

26 March 2026

U. Bindseil[1]

The retail payment industry is significant, affects every citizen and is a very precondition for a modern society based on the division of labor. It is characterized by two-sidedness, strong network effects, high fixed costs, high concentration and high profitability of successful firms, layering, path dependencies and stability of inferior equilibria. Alternative retail payment architectures may have potentially relatively similar social welfare performances, but vastly different implications on different industry stakeholders. The specificities of the retail payment industry accentuate the incentives to influence public opinion and lawmakers, including through "alternative" narratives. The public discourse on retail payment architecture will be confusing for several reasons: (i) technical complexity of retail payment architectures for non-experts; (ii) expertise concentrated with those having vested interests and who will thus always provide biased explanations and opinion; (iii) significant financial fire power of successful incumbent firms to promote their narratives; (iv) incentives to promote projects "out of the money" with exaggerated arguments, while truly promising projects may be kept secret for long; (v) long deployment times and uncertainty on ultimate implementation and use. We discuss the various perspectives of key retail payment industry stakeholders. For each, we identify their main interest, key preferred and feared narratives. We discuss in more depth specific issues relating to the current discourse around retail CBDC. We draw lessons from a public policy perspective.

Key words: *Monetary architecture, means of payment, network industries, public discourse, vested interests, central bank money*

JEL codes: E42; E58, G21, G23, G28, L11,

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1. Introduction

Narratives can be powerful and long lasting, even if they might not be correct. For example, there is a multitude of spiritual beliefs which seem partially incompatible with each other, but these have coexisted for centuries or millennials. When it comes to economic activity, and its implications on income and wealth distribution, the potential disparities between beliefs and a possible objective reality incentivizes efforts of firms to control the public and legislators' opinions through communication campaigns, for the sake of supporting societal outcomes which are favorable from their perspective. In this paper we investigate the narratives promoted by various stakeholders in the retail payments industry. The specificities of the retail payment industry accentuate the incentives to invest into controlling the public opinion: two-sidedness, strong network effects, high fixed costs, high concentration and high profitability of successful firms, layering, path dependencies and potential stability of inferior equilibria. Fundamentally different alternative retail payment architectures may have potentially relatively similar social welfare performances, but vastly different implications on different industry stakeholders. Moreover, we argue that the public discourse on retail payments will be confusing for several reasons: (i) technical complexity of retail payment architectures for non-experts; (ii) expertise concentrated with those working in the retail payment industry and having vested interests and who will thus provide only tactically biased explanations and opinion and dependence of regulators on technical expertise; (iii) successful incumbent firms have significant financial fire power to promote their narratives and to influence legislators; (iv) projects "out of the money" are promoted with exaggerated arguments, while truly promising projects may be kept secret for long; (v) long deployment paths of new architectures which create uncertainty on ultimate outcomes in view of relevance of implementation detail, regulatory change and user preferences.

This paper develops the incentives of retail payment stakeholders to promote alternative public narratives distinguishing key stakeholder groups, notably card schemes and other retail payment instrument providers; mobile wallet providers and BigTechs; other firms providing specific components to retail payments (acquirers, payment system providers, network service providers, etc.); banks; merchants; consumers; idealistic citizen groups; crypto asset holders and industry; legislators and central banks. For each of these we aim at identifying, as far as relevant, their main interest, key preferred and feared narratives. Section 2 briefly reviews the literature on how public narratives on industries matter for societal outcomes in general, what forms the influencing on public opinion typically takes, and what public policy issues this may raise. Section 3 recalls the specificities of the retail payments industry which shape incentives of various parties to influence the public opinion and the actions of the public sector. We explain why public debate on retail payments tends to be confusing, driven by epistemic opacity, epistemic capture, persuasion asymmetries of incumbents, promotional signaling distortions, and distributional antagonism across stakeholders. Sections 4 to 6 each discuss the perspective of one group of stakeholders: section 4 covers the supply side (card firms and other payment instrument providers and the firms in the related ecosystem), section 5 the user side (consumers and merchants; we also include here the crypto community and idealist citizens), and section 6 the public sector. We discuss key economic (or idealist) interests and concerns, promoted narratives, and feared hostile narratives. Section 7 develops the specific topic of pro- and con narratives in the field of CBDC, which has been, next to DeFi, for the last years the most fundamental and controversial debate in the field of retail payment architecture. Section 8 draws conclusion.

2. Industry Influence on public opinion and legislation

If a market has the potential to reach very distinct equilibria, each characterized by different (vertical and horizontal) structures and resulting in varied distributions of supply and rents among firms, and the pathway to an equilibrium is also shaped by beliefs and expectations, then influencing perceptions becomes a crucial element of long-term corporate strategy. Especially during periods of rapid technological and societal transformation, when bifurcations may arise and new market trajectories are established, organizations must influence public opinion and expectations through targeted strategic communications to retain or improve their position.

Public perceptions are influenced by industry players through **strategic communication**, which includes **public relations (PR)** and advertising. Communication should be *strategic* in the sense that it should be embedded in a long-term comprehensive firm strategy and consider not only the plans and strategies of the other industry players, but also the future evolution of technology, consumer preferences and regulation (including the reactions of the latter to our firm's plans). Outreach activities include, beyond traditional advertisement and social media campaigns, community events, public speaking, engaging influencers, targeted advertising, hosting webinars and focus groups, or sponsoring advocacy campaigns. The theory of public opinion and public relations originates from the 1920s. Lippmann (1922) noted that individuals do not perceive reality directly but rely on simplified images and stereotypes. Because the actual world is vast and complex, people would not be able to comprehend it through personal experience alone. Public opinion would often be *constructed* rather than informed by objective reality and democratic societies would depend heavily on experts, institutions and media to manage knowledge. Decision-making and society are manipulable if these processes of shaping the public opinion are not carefully organized. Edward Bernays, founding a PR advisory company in 1919, and author of numerous books starting with "Crystallizing Public Opinion" in 1923, further developed the theory and practice of the field. Bernays (1923, 61-62) considers that

> *"Public opinion is a term describing an ill-defined, mercurial and changeable group of individual judgments. … The mental equipment of the average individual consists of a mass of judgments on most of the subjects which touch his daily physical or mental life. These judgments are the tools of his daily being and yet they are his judgments, not on a basis of research and logical deduction, but for the most part dogmatic expressions accepted on the authority of his parents, his teachers, his church, and of his social, his economic and other leaders."*

Goffman (1974) defines **frames** as schemata of interpretation enabling individuals to "perceive, identify, and label" events and developments, to render them meaningful and such as to organize experience and guide action (Benford and Snow, 2000). Van Hulst et al (6, 2024) links "framing" to the issue that most events, developments or ideas "can be understood in different ways, according to different frames, highlighting specific aspects and leaving out others. In this sense, frames are never neutral and can be powerful, they can influence public opinion and policymaking". Mendelsohn et al (2024) focus on framing in social media and note that these enable "activists to directly communicate with the public and provides a space for movement leaders, participants, bystanders, and opponents to collectively construct and contest narratives." Terminology also provides framing, and for example in the field of "digital" currencies and payments, biased and misleading vocabulary has been deliberately promoted by industry players and has unfortunately also been confirmed in public sector use (Bindseil, Coste, Pantelopoulos, 2023; Milne, 2023). Payment initiatives of large companies are often framed in terms of being launched to reach social objectives, such as in the case of Meta's Libra, which in its second While Paper of 2020, was framed as collective endeavor with social objectives (Libra, 2020, 4):

"As we embark on this journey together, we think it is important to share our beliefs to align the community and network we intend to spark around this initiative: We believe that many more people should have access to financial services. We believe that people have an inherent right to control the fruit of their legal labor. We believe that global, open, instant, and low-cost payment networks create immense economic opportunities and more commerce across the world. … We believe that we all have a responsibility to help advance financial inclusion, support ethical actors, and continuously uphold the integrity of the payment system."

Central banks and regulators however rejected such framing and instead framed Libra as an "extremely concerning" attempt of Meta and a "cartel" to build unprecedented power over payment rails (to be ultimately abused for the benefit of shareholders) and undermine monetary sovereignty (Mersch, 2019).

Related but not identical to framing are "**narratives**". Van Hulst et al (9, 2024) explain that "through the specific way in which stories represent what has happened, they 'emplot' the past". Narratives and storytelling would "help attribute blame, victimhood, and other things to the characters who play a role in them, just as they select and highlight some events and acts as relevant to the plot, while others are not mentioned." **Persuasion** is understood as attempt to change other persons' attitudes, beliefs, emotions and ultimately actions. People are believed to process persuasive messaging analytically and emotionally. **Lobbying** is the practice of attempting to influence decisions made by governments, especially legislation and public policy.

Firms have at least four reasons to influence public perceptions of themselves and their products through strategic communication activities. First, firms want to influence consumers and/or client firms to perceive the firm's products favorably, thereby increasing product demand. Second, firms need to influence choices of competing firms and producers of complementary products, to shape these parties' investment decisions, particularly by deterring direct competitors from investing and encouraging producers of complementary products to develop and supply such products. Third, influencing public opinion is an indirect channel to support desired public-sector decision-making and legislation. Public authorities generally prefer their decisions to align with majority public opinion. Fourth, firms influence public decision-makers directly (through lobbyism), seeking to convince them to adopt decisions or legislation favorable to the firm, including in cases where such decisions go beyond the immediate preferences reflected in public opinion.

Activities to influence public opinion and legislation are not necessarily socially optimal and raise ethical questions. Strategic communication can be ethically justifiable and welfare-improving: there is a need to raise awareness of customers about current and future products of a firm. Communication with truthful and verifiable content can reduce information asymmetries and thereby support market efficiency. Communication can also be credible thanks to reputation mechanisms (e.g. Milgrom and Roberts, 1986; Ottaviani and Sorensen, 2006; Mailath and Samuelson, 2001). At the same time, influencing public opinion for the pursuit of firm objectives also raises ethical and social welfare questions. Terms like "propaganda" or "manipulation" emphasize negative connotations and the fact that strategic communication is often deliberately "bypassing or subverting rational deliberation" (Dowding and Oprea, 2024, 688). Key ethical problems of strategic communications include the following four (see e.g. Bowen, 2021, for a comprehensive treatment of the ethics of PR activities). *First*, industry PR is not guided primarily by truthfulness, but instead, in a competitive world, must prioritize the egoistic interest of the firm which includes bending the truth when helpful. Westfall (2022, 3) notes that the rule more than the exception is that "PR is a line of work meant to operate behind the scenes, influencing public opinion in the client's favor without the public catching on" (p. 3). Aristotle (Nicomachean Ethics) considers truthfulness a moral virtue: Truthfulness relates to the cardinal virtue of Justice, which is about giving others what is due to them. *Second*, assuming that there is an objective reality, influencing public opinion for the sake of a firm's

interest may well mean to push public opinion away from objective truth. Pushing public opinion away from objective truth means making society more confused and thereby generally more vulnerable to self-destructive dynamics. *Third*, efforts to influence public opinion often resemble a zero- (or negative) sum game. Firms frequently seek to capture market share from competitors, and moreover resources are devoted by incumbents to limit competition through regulation. From a societal perspective, such expenditures are wasteful (e.g. Bagwell, 2007). *Fourth*, incumbents sometimes influence public and legislators' opinions to support legislation which raises hurdles to market entry and preserve the oligopolistic nature of markets and therefore pricing power of incumbents, at the expense of consumers.

Popular books have documented unethical strategic communication activities of industries and how their success is facilitated. Herman and Chomsky (1988) propose a "propaganda model" explaining how media, shaped by ownership, advertising, and political/economic ties, systematically filter news so that official narratives support elite interests. Oreskes and Conway (2010) documents how industry-linked actors framed debates on tobacco, climate change, etc., to create misleading public narratives that protect economic interests. Social media have generally facilitated manipulative and non-transparent strategic communication activities. For example, "astroturfing" is a technique of "fake grassroots activism", which "involves corporations or political parties using hired agents to create the impression that a view they wish to promote has widespread public support" (Chan, 2024).

Market-oriented and conservative economists (labelled as representatives of "Public Choice Theory") highlight the risk that regulations can be influenced by vested interest groups seeking personal gains rather than serving society's overall welfare. The modern state is ultimately operated by politicians and bureaucrats who may, to varying degrees, act opportunistically, pursue their own interests, yield to lobbying pressures, or simply make mistakes. In democracies, political actors must secure re-election and therefore behave strategically in building majorities among voters who may themselves be partially misinformed through social media or biased news sources. These dynamics are the focus of public choice theory, as developed by authors such as Anthony Downs (1957) and Buchanan and Tullock (1962). Downs (1957, 138) highlights the strategic nature of politics and the difficulty of identifying the genuine motivations of politicians due to the opacity of political competition. Government action reflects expectations about voter reactions as well as the strategies adopted by political opponents. Downs argues that pragmatic transactional relationships between politicians and economically powerful actors are difficult to avoid. Because governments operate under conditions of imperfect knowledge and face resource constraints in persuading voters, they will exchange policy favors for political support or resources such as campaign contributions, media influence, or organizational assistance (Downs, 1957, 141). Similarly, Buchanan and Tullock (1962) argue that rent-seeking by organized interest groups systematically shapes political and legislative processes and may often undermine social welfare. In the presence of pressure-group activity and its measurable impact on legislative outcomes, the assumption that legislators pursue the public interest independently of private economic interests becomes increasingly difficult to sustain. Public choice theorists therefore emphasize that government action is inherently imperfect. Organized interest groups may obtain special privileges, such as protection from competition, subsidies, or tax advantages, while the associated costs are dispersed across the wider public. Olson (1965) explains the distortions in regulation relative to what would maximise social welfare through collective action problems. Small and concentrated groups (including well-organised industries or powerful large companies) have strong incentives to organize and influence political decisions, whereas large and diffuse groups, such as consumers or citizens, often lack comparable incentives and therefore remain politically underorganized. As a result, public narratives and policy outcomes may diverge from the broader public interest. Stigler's (1972) theory of economic regulation also emphasizes that regulation is frequently used to improve the economic position of specific groups, industries or firms. Small, organized

groups can successfully demand regulatory measures that serve their interests. Regulation can be understood as outcome of a political market characterized by a supply and demand for regulation.

3. The case of the retail payment industry

3.1 Economic characteristic of retail payment markets

Money and payments are subject to strong network effects and are therefore subject to market failure issues, defined as deviations of market outcomes from what would appear to be a possible social optimum. For this and for other reasons, money and payments are not only heavily regulated but also characterized by strong interactions between public and private provision. Because regulation and public production play significant roles, private industry has strong incentives to influence legislation and public policy, sometimes in ways that may benefit, but sometimes undermine, broader societal outcomes. Why are retail payments not left largely unregulated, as Friedrich A. Hayek (1976) envisioned for money more generally? First, retail payments perform a fundamental societal function. Beyond enabling a modern economy based on the division of labor, they also relate to public policy objectives such as privacy and inclusiveness. Second, money and payments are characterized by strong network effects, economies of scale, and elements of natural monopoly. Consequently, purely private and unregulated provision is unlikely to produce a competitive equilibrium but instead tends toward market concentration, abusive practices of dominant firms, path dependency, and potentially inferior stable equilibria (e.g., McAndrews 1997). For this reason, public intervention through legislation ideally establishes standards (e.g., the unit of account), safeguards market contestability, constrains abusive pricing, coordinates transitions toward superior industry outcomes ("catalyst role"), and provides public means of payment. Third, money and retail payment instruments such as bank sight deposits are associated with systemic financial stability risks, which historically have justified a central role for central bank money and strict regulation of private money issuers.

Since the 1970s, economists have studied the economics of network industries, initially focusing on telecommunications, but later also on card payment solutions. Such markets face "chicken-and-egg" problems and path dependence, implying they do not necessarily converge to optimal equilibria. As Rohlfs (1974) explains, the value of communications service increases with the number of users, creating consumption externalities and potentially multiple equilibria depending on initial conditions and adjustment processes. Arthur (1989) highlights how increasing returns can lead technologies that gain an early advantage, sometimes through chance, to dominate the market, even when they are not objectively superior. Such outcomes are difficult to reverse and depend strongly on historical developments, i.e. are path dependent. Similar dynamics appear in other network industries, including the internet (Miller 2017), widely used software packages such as Microsoft Word, and mobile operating systems or social media platforms. Even before the rise of BigTech companies, Frank and Cook (1995) argue that modern markets often concentrate success among a small number of top performers, affecting income distribution and social welfare. In the field of payments, an extensive economic literature on network effects and regulatory implications has developed after the year 2000 in the context of card schemes (e.g. Emch and Thompson, 2005; Klein et al 2006; Evand and Schmalensee, 2007; Rysman, 2009).

Standards and interoperability are amongst the policy instruments for maintaining competition in such markets. Standardization allows network benefits to be preserved while enabling competition among interoperable solutions, both horizontally and vertically within the industry. At the same time, standards

themselves can reinforce path dependence. Farrell and Saloner (1985) show that there is no guarantee that the most efficient standard will be adopted or that users will shift to a superior standard once it exists. When several standards compete, firms naturally seek adoption of their own standard or one requiring minimal adjustment. Incumbent firms in network industries may therefore resist standardization or regulatory mandates that would facilitate market entry and competition, often arguing that standards could inhibit innovation. Public policy interventions imposing standards can be welfare improving. Central banks typically play a key role in leading the transitions to messaging standards in payments, such as in the case of the transition to the new ISO20022 standard (see e.g. Cross-border payments interoperability and extension taskforce, 2025).[2]

Some markets – including retail payments - are further complicated by the **interaction of network effects with standardization, vertical integration, and layered market structures.** Payment systems and instruments typically involve multiple layers and a mix of horizontally and vertically integrated entities. In such settings, the relationship between market structure, compatibility, and standardization remains theoretically unresolved. Nicholas Economides (1996) notes that key questions remain open for such markets (i.e. unmodelled by economist), including the equilibrium degree of vertical integration, the level of compatibility across firms, and the formation of standards coalitions. More fundamentally, it is still difficult to predict the structural "break points" that determine how complementary components in modular network industries will ultimately be organized.

The industrial organization literature, which looks at the **boundaries of the firm, vertical and horizontal integration, and the make-or-buy decision** (as initiated by R. Coase and O. E. Williamson, see e.g. Joskow, 2012), insists on the importance of specific investments. Relationship-specific investments are certainly large for most players within a payment ecosystem. The payments industry is also characterized by long investment cycles, often gradual adoption of solutions, and therefore strong advantages for those players who can engage in long term strategies, including creating dependences of others on their products and assets. The players with deep pockets and long-term strategies will ultimately achieve market share, power and high profitability (like the international card schemes, or BigTechs having entered the field of mobile wallets).

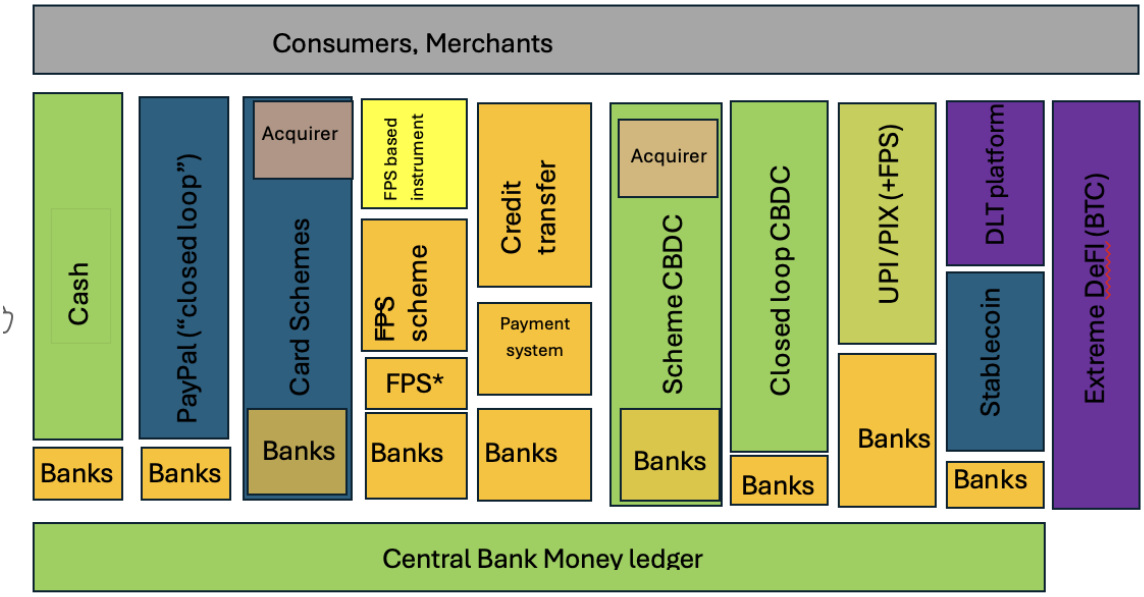
Figure 1 **illustrates the modularity and the horizontal and vertical structure of retail payments.** The figure simplifies reality in the sense that some fields are relatively competitive groups of players (like the commercial banks) while others (closed loop[3] solutions) are single firms without interoperability (however typically an interface with commercial bank money). Green stands for public sector components, orange for bank-controlled elements, and blue for non-bank providers. The yellow-colored retail payment instruments based on fast payment systems (FPS) can be controlled either by banks (MB Way, BIZUM, EPI, swish) or by the public sector (UPI, PIX). Schemes like the international card schemes integrate banks and acquirers, while other solutions interact with banks in a more distant way. The size of the bank boxes on top of the central bank money ledger offered by the central bank aim at illustrating the relative role of

[2] In the payment industry, network effects are also reported to have led to lack of incentives for investments amongst banks. If as an incumbent bank, I know that a new service will only be successful if my bank competitors invest together with me, then I am less likely to invest in adapting to consumer demand because I cannot obtain a competitive advantage from my investment. To the contrary, successful joint move of all banks to a better technology can help my fellow competitors more than me. Girocard in Germany not adapting to e-commerce payments may be an excellent example (leaving ultimately this field to PayPal). Such co-ordination failures support the case for a public sector entity like a central bank to play a catalyst role.

[3] The BIS in its payment glossary defines "closed loop" payment instruments as "Payment system that provides services directly to both payers and payees". They settle transfers in an internal ledger. The definition in the G7 Working Group on Stablecoins ("Investigating the impact of global stablecoins", October 2019) is similar: closed-loop systems "do not interact with or depend on existing payments infrastructure. In these systems, payments are processed, cleared and settled by the platform provider independently of any other system".

banks in the respective solution. For example, for cash and for closed loop solutions, banks are not much more than the gate to up- and offload funds to the respective payment instrument. In scheme solutions (card schemes, or digital euro), the role of banks gores further as they are an important party within the scheme. The figure is also simplistic in terms of neither displaying adequately a variety of service providers who provide payment services on the side of merchants (presented below in some cases as “acquirers”), nor on the side of the consumer interface (mobile wallet providers like Apple Pay), nor network service providers (like SWIFT).

Figure 1: Modularity and competition in the retail payments industry (* FPS = fast payment system)



On the positive side, powerful incumbent companies are motivated by strong profits and financial strength to emphasize safety and reliability in their offerings, steering clear of a "race to the bottom". The focus on avoiding bad publicity and in preserving the status quo incentivizes them to manage risk more effectively than in highly competitive industries, where increased competition and innovation can increase the likelihood of failures with negative externalities and financial instability, as described by Minsky (1992). In so far, the oligopolistic nature of network industries and the rents derived from market power has also some specific benefits for the stability and safety of payments.

3.2 Regulation and public provision of retail payments

To address the various public policy issues in retail payments, regulation of the industry is intense and strongly determines business opportunities and profitability in the industry. For example, the EU Commission’s retail payment strategy (EU Commission, 2020) clearly emphasises the need for competitiveness of payments markets (“The Commission’s objective is that of a highly competitive payments market, …where all market participants are able to compete on fair and equal terms to offer innovative and state-of-the-art payment solutions”, p.4). The Payment Systems Directive (PSD) defines the concepts and types of payment services providers, sets securities standards (two factor authentication) and imposes open banking. Open banking is a regulatory measure that deeply affects business models and opportunities of banks and non-bank services providers, mainly for the benefit of the latter. The SEPA

Regulation and the Instant Payment Regulation impose standards and constraints on fees on banks with regards to (instant) credit transfers, for the benefit of citizens and non-financial firms. The EU E-Money Directive establishes a harmonized legal framework for the issuance of electronic money. The EU Interchange Fee Regulation caps interchange fees for card-based payments to reduce costs for merchants and consumers. It limits interchange fees to 0.2% for consumer debit cards and 0.3% for consumer credit cards. The regulation aims at improved market efficiency and a competitive and integrated EU payments market. For specific other regulatory interventions, it sometimes seems less clear that they are ultimately in the interests of consumers. For example, the surcharging prohibition in Article 62(4) of PSD2 prohibits charges on consumer debit and credit cards and requires that "the payee does not request charges for the use of those payment instruments for which interchange fees are regulated". While possibly aiming at protecting consumers from direct surcharges, it has been argued that it could also appear as tool to reduce transparency and competition[4]. All these regulations obviously influence business models and profitability of the industry, illustrating the high stakes of influencing regulation.

Pricing regulation and anti-trust measures are crucial public interventions in network industries. Rysman (2009, 137-141) notes that abusive price setting is not per se an antitrust violation: "Two-sided markets typically have network effects and as such are likely to tip toward a single dominant platform. …these markets are of interest to antitrust authorities… Although inefficient pricing is the hallmark of the economic criticism of monopoly power, inefficient pricing is not an antitrust violation by itself. Monopolization and vertical contracting cases typically hinge on whether a firm has excluded competitors from the market in a way that did not benefit consumers or reduce costs…." Pricing regulation is however possible outside antitrust rules, as illustrated by the EU interchange fee regulation, but is done only exceptionally and only covers few out of many cases in which pricing power is exploited. In the field of anti-trust, the EU Commission opened an investigation in June 2020 against Apple which would have restricted access to the iPhone's NFC technology to Apple Pay. In May 2022, the Commission had issued a so-called Statement of Objections, preliminarily concluding that Apple abused its dominant position. Apple entered discussions with the Commission in 2023 and offered commitments to address the concerns which were then made legally binding for ten years by the Commission (press release and decision document C/2024/1027).

A positive perception of new payment instruments by public authorities is also vital because obtaining licenses is a lengthy, essential process. Delays can be costly for providers, as competitors may gain ground. Central banks and similar bodies have some discretion and often take time to grant licenses, especially in evolving fields with vague criteria. For instance, the ESCB's mandate "to promote the smooth operation of payment systems" is intentionally broad and provides some discretion to central banks.

Public sector offers of systems or instruments in retail payments are also impacting on profit opportunities of the industry. The ECB decided to offer its own instant retail payment system, TIPS, as of 2018. The Fed followed this example a few years later with FedNow. In other jurisdictions (UK, Japan, etc.), central banks decided to leave the provision of instant payment systems to the private sector. Other central banks like the Banco Central do Brazil have decided to go further and with PIX has not only offered an instant payment system, but also a payment scheme and instrument, and has imposed it on banks with a rather low compensation (based on a merchant fee which is significantly lower than the one of international card schemes). Of course, decisions of central banks to offer services are also often highly beneficial for the industry, like the offering of an RTGS system that is the very basis for allowing banks and

[4] The European Court of Auditors considered that the EU's surcharge ban was implemented without sufficient empirical evidence and reduced price transparency regarding payment costs. The report suggests that permitting controlled surcharging could foster greater competition (European Court of Auditors (2025), Digital payments in the EU – Progress towards making them safer, faster, and less expensive, despite remaining gaps)

infrastructures to settle in an orderly, safe and efficient way (and the ECB's TIPS served the instant payments related industry to achieve pan-European interoperability, etc.). The different decisions of central banks across the world with regards to their engagement in retail instant payments systems, schemes and instruments shows again how public decision-making affects industry business opportunities in this field, and how important thus it is for the industry to influence public opinion and beliefs of public sector decision makers to take one or the other decision.

The offering or not of central bank retail digital currencies is even more relevant for the electronic private retail payment industry, and again the heterogenous approaches across countries (e.g. the ECB planning to issue CBDC before the end of the decade, while the Fed being prohibited to even work on it) illustrate the impact that industry persuasion and public opinion can have (see section 7).

3.3 Why the public discourse in retail payments is so confusing

Because payment industries are characterized by strong network effects and layering, and thus intense regulation, multiple possible architectures and path dependencies, firms have strong incentives to engage in persuasive activities towards the public and legislators, which, as was argued in section 2, will not necessarily be truthful. Moreover, the public discourse on retail payments will be confusing for several specific additional reasons.

Strategic game characteristics of PR activity. As argued in section 3.1, product design and investment in the payment industry is a strategic game where the players with long term strategies and deep pockets can create dependencies of their myopic counterparts. Influencing public opinion and public sector measures in retail payments is also not a simple one-player optimization problem for each firm or group. Instead, to be most effective, it must consider PR activities of the rest of the industry, i.e. is also a strategic game. For every regulatory parameter, implications on the various stakeholders are complex and interdependent with other parameters, and all parties will deploy their PR activities also with assumptions on the others' PR activities, on the techniques they use, the arguments and narratives they promote etc. Also, for this reason, PR activities will often be undertaken in an untransparent way, making it more difficult for competitors and other potential opponents (e.g. activists, litigants, sensationalist media, legisators) to react effectively.

Opacity of retail payments and exceptional correlation between expertise and vested interest. Retail payments are technically complex with multiple layers and various shades of complementarity and competition. Industry players prefer to keep opacity and private knowledge for strategic reasons. Only few ultimately understand the economic, business and IT architecture and processes in retail payments. There is moreover a strong correlation – if not identity - between those who know and understand the industry and those who have vested interests. Information asymmetry is maintained over time since knowledge is shared by the insiders only in a biased and selective manner, not to objectively inform the public, but to strategically influence outcomes in their favor. Public sector officials in central banks and legislative bodies with responsibilities for retail payments typically have expertise in the field but can never have a similarly broad and deep expertise on retail payments as the private sector. Central banks have developed deep expertise on payment systems they develop and run themselves, but less so on the front-end solutions that serve users in retail payments. At the same time, the quality of regulation and of central bank products will depend on a good understanding of a broad range of technical and business industry issues, and therefore public sector officials are dependent on the input provided by the industry.

Deep pockets of dominant firms to influence public opinion and legislation. In a network industry, dominant players tend to be highly profitable and have high market capitalization. They have the means and strong reasons to engage in PR activities for the sake of maintaining consumer demand, a positive attitude of the public in general, and ultimately of legislators.

Reversed persuasive incentives. The decision to publicly promote new retail payment solutions depends heavily on their maturity and credibility. Established firms prioritize stability and minimal disruption, typically highlighting incremental improvements rather than engaging in public debate. In contrast, new entrants often loudly promote their innovations to generate interest and achieve necessary network effects, usually relying on bold messaging and social media due to limited resources. Highly credible projects, from incumbents or others, are often kept discreet until launch to avoid imitation or pre-emptive opposition, with marketing ramped up only near deployment. Thus, in retail payments, more credible products are often advertised less aggressively than less credible ones, contributing further to a distorted public discourse.

Equilibrium and welfare indeterminacy under path-dependent technological uncertainty. Future paths in a network industry may be totally different in terms of how providers share the market and what profitability they achieve, while being possibly relatively close in terms of overall expected social welfare implications, also because of the significant uncertainty how future solutions will in practice be deployed and used. Competing stakeholders have strong incentives to spend resources on influencing public opinion and public decision makers in one or the other direction, and these resources will most of the time be disproportionate to the expected difference in social welfare implications of the options, illustrating again the problem of misalignment between private incentives and social welfare. Market structure, performance and rent distribution amongst industry players emerge along deployment paths which last many years or decades. Therefore, uncertainty within architectures may predominate expected social welfare levels across different architectures. This also makes it difficult for the public opinion and for legislators to develop a clear preference towards one obviously superior single architecture.

4. The retail payment industry - supply side

4.1 Card schemes and other retail payment instruments providers

Private electronic payment instruments - in comparison to cash - have become predominant in most retail markets today, with a trend continuing in that direction in most areas, meaning generally that the market power of dominant firms improves further.

Currently, three principal categories of retail payment instruments coexist: cards (including debit, credit, and pre-paid options such as Visa, Mastercard, American Express, and Union Pay), so called “closed-loop solutions” (e.g., WeChat Pay and AliPay in China; PayPal), and instant payment based instruments (bank account-to-account platforms such as UPI in India, PIX in Brazil, and Bizum/Swish/iDeal/Wero in Europe). Cards and instant payment solutions typically depend on provider ecosystems unified by operational schemes, whereas closed-loop solutions seek to deliver integrated offerings relying minimally on external firms beyond merchants (they are interfaced with bank accounts only to allow users up- and offload funds). Payment instruments may be offered by *publicly traded* specialist firms (Visa, Mastercard, PayPal), embedded within larger conglomerates (WeChat Pay under Tencent Group), or collectively owned by banking/payment consortia (Union Pay, JCB, EPI, Bizum). Central banks can also be the scheme manager (PIX in Brazil), or alternative public/private sector arrangements (UPI). Certain institutions have attained dominant or oligopolistic market positions (notably the major international card schemes from the US and

China, but also WeChat Pay, and AliPay in China), while many others maintain relatively modest market shares. Visa and Mastercard are among the most valuable financial infrastructure companies globally, with market capitalizations in early 2025 of around USD 630 billion and USD 490 billion respectively. American Express—which combines network, issuing, and acquiring functions—had a valuation of approximately USD 250 billion. The global card networks remain particularly influential because of their near-universal acceptance in international commerce and e-commerce, while digital wallets and instant payment schemes have expanded rapidly in domestic markets and offer also person-to-person payments. The scale achieved by the largest networks illustrates the resulting concentration: billions of cards circulate on the networks operated by Visa, Mastercard, and Union Pay, while digital wallets such as PayPal or Alipay report hundreds of millions of active users.

Nearly all retail payment instrument providing companies generate revenue through merchant fees. These fees can reach up to 5%, such as with American Express or for low-value card payments. International cards and PayPal typically charge around 1-2%, while domestic debit card payments have fees often below 1%. Merchants also need to consider additional expenses, including hardware, acquirer fees, fixed charges, and online risk surcharges, which can be significant. Some publicly mandated payment methods (like UPI) are free for merchants and users. Instruments that enable peer-to-peer (P2P) payments (most cards don't, but many other options do) usually do no charge such services.

Given these structural characteristics and their market dominance and profitability, **incumbent payment instrument providers** have incentives to shape public narratives in the following direction:

- **Efficiency and value added of their offer for users**. Firms argue that their networks provide consumers and merchants with convenient, secure, and globally interoperable payment solutions. Card networks in particular highlight the costs associated with maintaining highly resilient infrastructure capable of processing thousands of transactions per second while protecting users against fraud and operational failures. Services such as dispute resolution, chargebacks, and fraud monitoring and fraud protection guarantees are presented as evidence that merchant fees are justified by the quality, reliability and costs of the services provided.
- **Innovation and investment**: Payment networks stress that continuous technological development, including tokenization, contactless payments, mobile wallets, and fraud-detection systems, requires substantial private investment. Regulatory interventions that limit fee revenues are therefore portrayed as potentially undermining incentives to innovate and maintain secure infrastructure.
- **Broader societal objectives:** Payment instrument providers emphasize commitments to financial inclusion, sustainability, and the fight against illicit activity. By associating private payment infrastructures with widely shared policy goals, firms seek to reinforce their legitimacy as key components of national and global infrastructure.

At the same time, dominant payment instrument providers face narratives that threaten their economic interests:

- **Abuse of market power by dominant providers**: Because payment networks exhibit strong network effects and high barriers to entry, market concentration allows dominant firms to extract rents from merchants and ultimately consumers. This has led to regulatory interventions such as the EU interchange fee regulation and to ongoing debates about the appropriate level of merchant fees in digital payments, which may always regain fresh momentum, supporting ultimately new regulatory intervention, publicly controlled solutions (like UPI or Pix) or CBDC. Small and new players would of course tend to support this perspective.
- **Undermining of economic sovereignty and geopolitical risk**. Outside the United States, policymakers and commentators have increasingly questioned whether heavy reliance on American-headquartered

payment networks may expose domestic economies to strategic vulnerabilities. Concerns include the potential extraterritorial application of U.S. sanctions and access to payment data.

- **New technology allows for better solutions and card technology would be outdated**. The emergence of CDBC and publicly orchestrated instant payment systems such as UPI and Pix can be framed as better solutions in a world that no longer requires any credit function in payments because instantaneity of settlement is now possible. UPI and Pix have provided concrete examples of alternative payment architectures characterized by low fees and broad accessibility. These systems have reduced the market share of traditional card payments in the respective countries and lowered the average cost of retail payments. For critics of dominant private networks, they demonstrate that public sector coordination leveraging new technology can promote competition and reduce costs without compromising functionality or security.

The reality is nuanced and probably somewhere in the middle, and narratives and framing therefore matter to push the public opinion and legislators more towards one or the other direction. On one side, the combination of network effects, switching costs, and economies of scale makes concentration in payment markets structurally likely and efficient. The global success of major card schemes and digital payment platforms reflects genuine value creation. The universal acceptance of international card networks remains essential for cross-border commerce and travel, while the profitability of leading firms has enabled substantial investment in cybersecurity, fraud prevention, and infrastructure resilience. But on the other side dominant firms have a natural tendency to abuse their market power and imposing high fees, aim at non-transparent pricing schemes and influence legislator to protect the status quo and thus their market power. Public interventions, such as through fee regulation or publicly sponsored schemes like UPI and PIX, have demonstrated that societal outcomes can be improved if the market dominance of few providers is contained (e.g. Banco Central de Brazil, 2025).

4.2. Mobile wallet providers, BigTechs, Fintechs, other service providers

The ecosystem of firms engaged in retail payments extends far beyond the operators of payment instruments themselves. Modern payment solutions rely on a variety of parties that facilitate the initiation, processing, routing, settlement, and management of transactions. This ecosystem includes mobile wallet providers, merchant acquirers, non-bank payment service providers, providers of payment systems ("automated clearing houses") and a broad array of technology firms supplying network infrastructure, hardware, cloud computing, and cybersecurity services. Recognizing this diversity, central banks and regulators have increasingly adopted broad oversight frameworks encompassing not only traditional payment systems. The ECB, for example, has incorporated a wide range of actors into its oversight framework for "Payment Instruments, Schemes and Arrangements" (PISA), covering not only card schemes but also e-money instruments such as PayPal, account-to-account payment schemes such as SEPA, and mobile wallet providers such as Apple Pay and Google Pay (European Central Bank 2022).

Among these actors, **mobile wallet providers** have arguably generated the most visible transformation of the retail payments landscape in recent years. Digital wallets embedded in smartphones allow consumers to store payment credentials, authenticate transactions through biometric security features, and conduct payments both in physical stores and online. In many cases, these wallets do not operate independent payment infrastructures but rather overlay existing card networks and banking systems. The scale of the technology platforms involved has enabled rapid adoption. The most prominent example is Apple Pay, launched in 2014 and integrated into the iPhone global ecosystem. The worldwide number of iPhone users is estimated to roughly 1.5 billion, and industry analysts estimate that half of these users have activated the mobile wallet function, allowing Apple Pay to acquire a substantial share of card transactions in several

advanced economies within a relatively short period of time. According to industry estimates cited by Matt (2025), Apple may receive a share of interchange revenues around 0.15 percent per transaction in the United States and somewhat lower internationally, in return for enabling payments through its hardware. Although Apple does not disclose the exact revenues generated by its wallet service, analysts estimate that related profit annually are several billions USD.

While mobile wallets interact directly with consumers, **merchant acquirers** do so with merchants, and constitute another crucial component of the retail payments ecosystem. Acquirers enable merchants to accept electronic payments by onboarding merchants to the relevant IT systems, managing contractual relationships, transmitting transaction data between merchants and payment schemes, guaranteeing settlement of funds, and handling operational tasks such as fraud monitoring and chargeback management. The sector includes both large multinational firms and smaller regional ones. Companies such as Adyen, Stripe, Fiserv, FIS (through its Worldpay subsidiary), Block, Worldline, Nexi have built extensive merchant networks combining payment processing, point-of-sale technologies, and data analytics services. The collapse of Wirecard in 2020 unexpectedly highlighted the regulatory and governance challenges associated with this part of the payment ecosystem.

Beyond these categories, the ecosystem of non-bank payment service providers also includes **specialized firms focused on cross-border money transfers and digital financial services**. Companies such as Wise and Revolut offer international remittances, multi-currency accounts, and digital banking features to millions of users globally. While some of these firms have ultimately acquired banking licenses, many continue to operate primarily under e-money or payment institution frameworks.

Mobile wallet providers emphasize the following in their public communication:

- They would be **technical enablers rather than payment services providers**. They merely provide a secure interface allowing consumers to access existing payment instruments, typically bank-issued cards, through mobile devices. The innovation layer they provide enhance user convenience without fundamentally altering the underlying payment ecosystem, implying that they should not be treated as regulated payment service providers subject to the same supervisory and pricing constraints as banks or payment networks.
- Their **technological innovation greatly serve consumer convenience:** biometric authentication, secure hardware components, and tokenization technologies reduce fraud risks while at the same time simplifying the payment experience.

Hostile narratives that could threaten the strategic position of mobile wallet providers include:

- That **mobile wallet providers should themselves be classified as payment service providers,** particularly when they exercise significant control over access to mobile device functionality such as near-field communication (NFC) interfaces.
- The **extraordinary market power of large technology platforms** may enable them to extract rents from financial institutions and merchants while remaining subject to relatively limited financial regulation. The fees associated with wallet services should be made transparent. More public debate on fees and on the high profitability of wallet providers could lead to further scrutiny and anti-trust or regulator action.
- **Economic sovereignty and technological dependence:** Because several dominant mobile wallet providers originate from large US technology companies, policymakers in other jurisdictions have occasionally expressed concern that heavy reliance on these firms creates strategic vulnerabilities, including dependence on foreign technology infrastructure and potential concentration of payment data in global technology ecosystems.

Merchant acquirers and payment processors successfully maintain a lower public profile. When needed, acquirers tend to present themselves as competitive technical infrastructure providers whose role is to improve the efficiency and reliability of electronic payments for merchants. They avoid suggesting that the acquiring industry is excessively concentrated or capable of exercising market power through opaque pricing structures, or any other narratives that lead to the conclusion that oversight and regulation of these firms needs to be intensified.

Finally, **smaller fintech firms and non-bank payment service providers** often frame themselves as challengers to entrenched incumbents and the role of their technological innovation in reducing costs, increasing competition, and improving user experience relative to traditional service providers. Firms such as Wise or Revolut highlight lower fees, transparency, digital-first design, and customer-centric business models as evidence that fintech innovation benefits consumers and small businesses. These (and similar smaller) firms may worry about narratives emphasizing the fragility of fintech business models, their dependence on incumbent financial infrastructures, or the possibility that lighter regulatory frameworks may support regulatory arbitrage for their benefit rather than genuine efficiency gains.

4.3. Banks

Commercial banks occupy a central yet often-contested position within modern financial systems. Historically, banks have been subject to persistent criticism in public discourse, ranging from early religious prohibitions on interest, to modern critiques of financial capitalism. In many intellectual traditions, banks have been portrayed as institutions capable of extracting rents, concentrating wealth, and endangering financial stability through excessive risk-taking. These critiques intensify in the aftermath of financial crises, when banks are often accused of privatizing gains while socializing losses through taxpayer-funded rescues. Reform proposals range from calls for stronger prudential regulation to more radical changes such as prohibiting commercial banks to issue money. Admati and Hellwig (2013), for example, have argued for significantly higher capital requirements to mitigate systemic risk, while others have explored alternatives to privately created money and suggested transferring key banking functions to public institutions such as state banks or central banks (Visser and McIntosh 1998; Mehrsa 2015; Huber 2018). In the specific domain of retail payments, banks have attracted less direct scrutiny than other actors. Payment systems and giro banking were traditionally viewed as technical infrastructures embedded within the broader banking system. In recent discussions on retail payment innovations, banks have not been portrayed as primary beneficiaries of market power, but rather as institutions that risk losing strategic control.

Indeed, banks increasingly perceive themselves as incumbents under pressure from multiple directions. They face competition from fintech companies, mobile wallet providers, non-bank payment service providers, and, more recently, crypto-asset initiatives. At the same time, they operate under extensive regulatory frameworks designed to protect financial stability and consumers. From the perspective of many banking institutions, this combination of intense regulation and rising competition creates an uneven playing field in which new entrants benefit from lighter regulatory obligations. The emergence of retail CBDC projects have added to the perceived pressure on banks, who thus have been very vocal that retail CBDC will lead to deposit outflows, undermining their ability to fund lending and increasing financial instability during periods of stress. Banks rarely acknowledge that CBDCs are a reaction to a lesser use of (paper) central bank money and a higher use of commercial bank money but have framed CBDC as an active attack from central banks to grab market share (both in terms of means of payment and store of value) at their expense (see also section 7).

Against this background, banks promote several storylines intended to reinforce their legitimacy and protect their position within the evolving payments ecosystem:

- **Banks have a broader societal role as providers of credit and financial intermediation**. Banks would perform a socially valuable function by channeling savings into productive investment and financing households, businesses, and public infrastructure. Payment services are portrayed not as isolated activities but as components of a broader banking relationship that supports the functioning of the real economy. Banks insinuate positive societal externalities associated with their activities, which can justify regulatory interventions that protect their business models (for example the prohibition of remuneration of stablecoins).
- **Banks would be among the most heavily regulated institutions in modern economies and such regulation would come with a heavy, and often unfair cost burden.** Society would benefit from bank deregulation and banks would deserve some protection from less regulated competitors. Banks emphasize the "same activity, same risk, same regulation" principle and point at the lesser regulation of various non-bank competitors. This targets fintech firms and technology platforms that provide payment services while operating under regulatory regimes perceived as less stringent than those applied to banks.
- Banks portray themselves as **trusted custodians of financial assets and sensitive customer data** and emphasize their role in **maintaining resilient payment infrastructures**. Payment systems must operate continuously and securely, often processing enormous transaction volumes with minimal tolerance for operational failure. Their experience in managing risk and complying with regulatory standards would equip them to deliver essential societal functions reliably. Thew would be essential partners for policymakers seeking to balance innovation with systemic stability.

Banks face the following negative counter-narratives that, if adopted by the public or by lawmakers, may undermine their political and economic standing.

- **Banks would benefit from implicit public guarantees and taxpayer support while generating substantial private profits.** Banks would represent a privileged, powerful and potentially destabilizing sector. Banking executives remunerate themselves disproportionally and pursue short-term profits at the expense of long-term stability, with negative externalities for society. Renewed momentum in such debates may incentivize politicians to act to curtail the power and profitability of banks.
- **Banks would be technologically outdated and inefficient,** slow, expensive, and maybe even obsolete relative to newer market entrants like FinTech or DeFi companies. If accepted by consumers and policymakers, such narratives might provide additional reasons for promoting competition by new entrants (granting non-bank payment services providers access to payment systems and central bank RTGS accounts[5]; open banking[6]; endorsing a role for stablecoins, etc.). If consumers increasingly

[5] See for example the letter from the European FinTech Association to the EU Commission of 15 January 2023 "Joint industry letter on amending the Settlement Finality Directive (SFD)". EU Legislators lifted the ban of non-bank PSPs to access payment systems in March 2024 via an amendment of the Settlement Finality Directive via the new Instant Payment Regulation (EU Regulation 2024/886; see in particular Recital 15). See also the BIS report "Improving access to payment systems for cross-border payments: best practices for
self-assessments, May 2022 https://www.bis.org/cpmi/publ/d202.pdf.

[6] Zetzsche et al (2020). Banks are particularly worried about BigTechs entering payment services. As FSB (2019) notes: "BigTech firms often already have established networks and a very large customer base. Because of their size, BigTech firm are usually well capitalised and do not face the same constraints accessing external funding as FinTech firms. Secondly, technology companies may be able to use proprietary customer data from their non-financial-service operations, providing a competitive advantage in the provision of financial services. Third, BigTech firms may have ready access to the forefront technologies to process big data, including cloud computing, artificial intelligence and machine learning. Thus, they may enjoy some competitive advantages over financial services firms."

believe into the superiority of FinTechs and digital platforms and increasingly rely on those, banks risk becoming commoditized backend utilities that provide regulated infrastructure while customer relationships and data are controlled by more profitable non-banks.

5. Merchants and consumers

5.1. Merchants

Merchants constitute a key stakeholder group in retail payments also because they bear a large share of the direct costs of electronic payments. While consumers often perceive payments as free, merchants pay a range of fees to accept electronic payments, including merchant service charges, interchange fees, scheme fees, and fees charged by acquirers and payment service providers (Evans and Schmalensee 2005). Merchants have supported the following narratives in the field of retail payments:

- **Society would benefit from fairness, cost discipline, transparency and competitive neutrality in payment infrastructures**. Payments are not a value-adding service but a basic operational necessity for commerce. Accepting payments is analogous to maintaining electricity or telecommunications services: it is an indispensable component of running a business which should operate at minimal cost and minimal visibility. By portraying payments as commoditized infrastructure rather than as a differentiated service, merchants implicitly argue that payment providers should not be able to extract significant rents from the payment function itself. Payment providers appear as actors benefiting from asymmetries of information, while merchants would be advocates of transparent and understandable pricing structures. Calls for clearer fee structures and regulatory oversight are framed not as attempts to restrict innovation but as efforts to ensure fairness in a market characterized by strong network effects and limited negotiating power for individual merchants.
- **Choice and neutrality are essential in payment acceptance**. Retailers should retain the freedom to influence which payment instruments customers use, particularly when some instruments impose significantly higher acceptance costs than others. The ability to steer customers toward preferred payment methods, through discounts, surcharges, or other incentives restores a degree of balance in two-sided markets where consumers typically select the payment instrument while merchants bear much of the cost. No single category of actor, whether international card schemes, mobile wallet providers, or technology platforms, should possess gatekeeper power over access to customers. In public discourse, merchants therefore emphasize the importance of maintaining a diverse and competitive ecosystem of payment providers.

Narratives feared by merchants include the following.

- Merchants dislike **the portraying of payment services as highly sophisticated technological products that inherently justify high fees**. If payment providers succeed in framing the excellence of their services in terms of innovation, security, and consumer convenience, the costs associated with payment acceptance will appear less controversial and excessive fee structures will be legitimized.
- Merchants are critical towards the idea **that payment acceptance represents a voluntary commercial choice rather than a necessity for participating in modern commerce.** In practice, once a payment instrument becomes widely adopted by consumers, merchants often feel compelled to accept it to avoid losing sales. Structural asymmetries in two-sided payment markets would be easily overlooked. Merchants are also wary of narratives normalizing a situation in which a limited number of firms exercise substantial market power over payment acceptance conditions (Rochet and Tirole, 2011).

- Finally, merchants are attentive to **narratives that frame regulatory intervention in payment markets as harmful to innovation**. Payment providers often argue that price regulation or competition policy could discourage investment in new payment technologies. Merchant organizations fear that such narratives could limit the willingness of policymakers to address market power or fee transparency in payment systems.

5.2. Consumers

Consumers represent the largest and ultimately decisive user group in retail payment systems from a public policy perspective. Consumption is a major element of people's life and satisfaction (for the good or bad) and a society built on the division of labor fundamentally depends on retail payments. Ultimately, consumers (people) pay for the cost of retail payments, even if merchants are the ones directly charged through fees. In the perspective of politicians and legislators, consumers correspond to voters and their opinions are therefore essential. While individual consumers rarely participate directly in policy debates about payment infrastructures, their preferences, trust, and adoption behavior determine which payment instruments succeed in the marketplace. Consumer associations and advocacy organizations articulate consumer concerns in public debates and influence policymakers. These organizations frame payment systems (like merchants) not as technical financial services but as part of the basic infrastructure of modern economic participation. As digital payments increasingly replace cash in many economies, issues such as competition and consumer choice, affordability, privacy, consumer protection, and inclusion have become central themes in consumer advocacy (OECD 2020; BIS 2023). Narratives promoted by consumers associations include:

- **Payments constitute a basic service necessary for participation in everyday economic life**. Access to safe and affordable payment methods should be widely available to all citizens, regardless of income level, digital literacy, or geographic location. Policymakers must ensure that payment systems remain accessible to vulnerable populations and do not create barriers for individuals without advanced digital skills or access to sophisticated technology.
- **Consumers need protection and transparency**: payment service providers must provide understandable contractual terms and effective mechanisms for resolving disputes. Even when consumers do not pay explicit transaction fees, payment costs are indirectly embedded in retail prices or financial service fees. Privacy and data minimization are important: as payment systems become increasingly digitalized, transactions generate large volumes of data concerning individuals' consumption patterns, locations, and financial behavior. Such data should not be treated as a commercial asset for payment providers or technology companies. Consumers would be unsophisticated, innocent victims when confronted with fraud and therefore deserve always deserve compensation as the industry would have the duty to shield them from any fraud scenario.
- Consumers should have the **choice of payment methods** - cash, cards, or digital solutions - based on their needs. Keeping multiple options helps prevent reliance on a single provider or technology, which is crucial as cash use declines in some regions. Access to cash must be supported by regulation since cash is unique in terms of inclusiveness, privacy and system resilience. Cash and CBDC (i.e. central bank money) protect consumers from abuse of market power by private firms.

Narratives Feared by Consumers and Consumer Associations include the following points:

- **Consumer associations reject the idea that electronic payments are fundamentally free for users**, as this portrayal suggests consumers have no grounds for complaint. Because many payment instruments

involve no visible fee at the point of use, providers may misleadingly frame them as costless conveniences.

- **Consumer associations also dislike normalizing or presenting as necessary the extensive data collection within digital payment ecosystems**. Payment providers and technology firms often emphasize the benefits of data-driven services, such as personalized offers or enhanced fraud detection. Consumer associations warn that this framing legitimize large-scale profiling and monetization of payment data, turning everyday transactions into sources of commercial surveillance.
- **Consumer advocates dislike the portraying of a fully cashless economy as an inevitable and desirable outcome of technological progress**. While acknowledging the convenience of digital payments, they emphasize the material drawbacks of a disappearance of cash (and central bank money in general) in retail payments (see above).

5.3 Idealistic citizen groups

Beyond organized consumer associations, several citizen groups, often motivated by broader normative concerns, also seek to shape public debates about retail payment systems. These groups do not necessarily represent formal economic stakeholders in the payment ecosystem but rather mobilize narratives that reflect wider political values such as personal freedom, national sovereignty, social justice, or technological transformation. In many cases, these narratives influence public opinion and ultimately legislative debates about retail payments. The term "idealist" is used here in a broad sense, as some of these narratives also reflect concrete financial interests of citizens, including those who prefer less transparent payment instruments for the sake of e.g. facilitating tax evasion. Moreover, idealistic citizen groups might be sponsored or even fabricated by interested industry parties. If a certain argument against an undesired, competing retail payment instrument seems to originate from a broad group of alerted citizens, it will have a much higher impact on politicians and legislators than if it is openly promoted by an industry representative who is perceived as pursuing his companies' financial interests. Both traditional and social media might facilitate the exaggeration or faking of a strong civil advocacy movement as part of an industry PR campaign (Chan, 2024).

Libertarian's central concern is the protection of individual autonomy against the state. Cash and decentralized payment mechanisms would serve as safeguards against excessive surveillance and state control. The increasing traceability of digital payments is portrayed as a potential threat to fundamental freedoms, particularly if payment data can be monitored by governments. Proposals for central bank digital currencies (CBDCs) or platform-based payment ecosystems are seen as steps toward programmable or censorable money. In public discourse, these groups frequently employ concepts such as privacy, censorship resistance, and self-sovereignty to highlight the perceived risks of highly centralized digital payment infrastructures.

Digital-rights activists focus more generally on privacy, data governance, and digital autonomy. In debates about retail payments, these groups emphasize that payment transactions generate sensitive behavioral data that reveals everything about individuals' lives. The aggregation of payment data by financial institutions, technology platforms, or governments would pose significant risks to personal privacy. Digital-rights advocates frequently promote principles such as privacy by design, data minimization, and user control over financial information. Retail payments should be designed in ways that limit the collection and reuse of personal data, preventing payment infrastructures from becoming tools for large-scale behavioral profiling. Preserving the role of cash is considered essential. This group's left-wing fraction favors CBDC over private payment systems due to greater distrust of corporations than the state in terms of data misuse, whereas right-wing or libertarian members (see above) have opposite preferences.

Progressive or center-left advocacy groups emphasize fairness, inclusion, and consumer protection within payment systems. Retail payments are seen as essential economic services that should remain accessible and affordable for all citizens. These groups highlight the social consequences of high payment fees, opaque pricing structures, or exclusionary financial technologies. Dominant payment platforms and financial institutions are portrayed as actors that must be subject to regulatory oversight to prevent abuses of market power. Consumers and small businesses would need to be protected against excessive concentration to ensure broad access to payment services. CBDC is being supported, and criticism from the industry is dismissed as an effort to preserve market dominance and space for oligopolistic pricing.

Left-wing or anti-capitalist views go one step further and frame retail payments within wider criticisms of the financial industry. Payment infrastructures are portrayed as public goods that should not be organized for profit. Private payment providers are criticized for extracting rents from basic economic transactions and for concentrating financial power. Public, cooperative, or non-profit payment infrastructures should instead prevail, since essential societal services should be governed in the public interest rather than by shareholder-driven institutions. A general concern is the expansion of corporate control over every day economic activity.

5.4 The crypto perspective on retail payments

A recent prominent narrative has emerged from **technology-utopian or crypto-native communities**, which approach retail payments through the ideas of decentralized finance (DeFi). This group argues that distributed ledger technologies and cryptographic protocols enable new forms of financial organization that can radically reduce reliance on public and traditional private payment services and that can boost efficiency, inclusion and the prevalence of rules, enshrined not in law, but in computer code and therefore resistant to "censorship" (Nakamoto, 2008, Buterin, 2013). Programmability and omni-asset ability of blockchain platforms would allow for unprecedented possibilities in payment and settlement, both for retail and for wholesale purposes. Nakamoto (2008) claims that Bitcoin would solve fundamental retail payment challenges in e-commerce, but for example Bindseil and Schaaf (2024) argue that "Nakamoto's understanding of retail payments was inaccurate" and that his invention would not address any of the problems encountered in in e-commerce payments. Bindseil and Schaaf (2024) also highlight that with the growing Bitcoin market capitalization, the focus has increasingly shifted to Bitcoin as a speculative investment asset promising continued high capital gains. Promoters of this investment vision no longer put effort relating Bitcoin to (retail) payment functions which would justify its valuation, but generally portray it as abstract store of value that will benefit from ever increasing prices since it would be "scarce", while central bank money would constantly be abused through "money printing" and therefore be inflationary. While most economist remain convinced that the fair value of Bitcoin is zero and that something that does not really exist cannot be "scarce", the current market capitalization of Bitcoin remains in the order of magnitude of 2 trillion USD, and Bitcoin-advocates argue that prices will go up further. Such an ambiguous situation creates strong incentives for the current Bitcoin owner community to put huge effort into generating narratives and persuade potential investors to start investing into Bitcoin. An interesting recent episode on how Bitcoin continues to be promoted was the spreading of the new energy narrative of Bitcoin at end 2025 via BigTech superstars. Within a few days, both Elon Musk and Jensen Huang tried to articulate the incomprehensible argument that Bitcoin would make sense as currency as it would be energy. First, Elon Musk stated on 30 November in an interview with Nikhil Kamath on the People by WTF podcast (Episode 16[7]) that (own transcript):

[7] https://www.youtube.com/watch?v=Rni7Fz7208c

> *"There are still some fundamental currencies if you will, that are physics based. So energy is, energy is the real, is the true currency. This is why I said Bitcoin is based on energy. You can't legislate energy, you can't just, you know, pass a law and say you have a lot of energy. It is very difficult to generate energy, especially to harness energy in a useful way to do useful work, so I think that probably, probably we won't have money and probably we will just have energy. You know, power generation as the de facto currency."*

Similarly, Jensen Huang, stated in a panel discussion on 6 December 2025[8]:

> *"Essentially what Bitcoin is doing is taking excess energy, storing it into a new form – it is called currency – and you take that currency and take it wherever you like. And so you took energy from one place and now you transport it everywhere."*

The crypto industry, which earns significant parts of its income from speculative crypto trading, also supports positive Bitcoin narratives to keep alive this speculative trading, and thus related fee income. One way to support also a positive framing of Bitcoin in the public opinion is to generally promote the idea that blockchain technology, i.e. the technology on which also Bitcoin relies, is a fundamental game changer. It is therefore likely that Bitcoin holders and crypto-exchanges "cross-subsidize" the generation of positive narratives on blockchain as technological revolution.

Recently, stablecoins have been pictured as another revolutionary new payment instruments also relying on blockchain. While the asset class itself is mostly rather conventional (narrow balance sheet money issuance backed by highly liquid assets) and should not raise as fundamental doubts as Bitcoin, its ultimate contribution to retail payments will depend on the extent to which retail payments will migrate to blockchains. Overall, innovative, "unified" private payment and settlement platforms (BIS, 2025) and public blockchains (Bindseil and Malekan, 2025) appear promising in terms of new infrastructures for payment and settlement, in particular benefitting from omni-asset ability and programmability, despite several remaining challenges.

The narratives feared by the crypto-community in the field of retail payment can be summarized as follows:

- **The Bitcoin network would be inefficient and far too expensive for retail payments,** making it more of a technology gadget than a practical payment system. Bitcoin has a significant negative impact on the climate and proof-of-work should be prohibited. As non-existing asset, and once acknowledging that it has no particular value as payment system, its fair valuation is zero and this fair valuation will ultimately prevail.
- **More generally, DeFi would encounter fundamental limitations**, essentially because of the "blockchain trilemma" acknowledged by Buterin (2017). Accordingly, there is a fundamental trade-off between decentralization, security, and scalability in blockchain design, and no public blockchain can simultaneously maximize all three dimensions, implying unavoidable compromises in throughput, safety, or decentralization of governance. Therefore, the suitability of blockchain technology for retail payments would be doubtful, and ultimately traditional governance and ledger architecture likely remains superior for most use cases.
- **The expectation of profitable, large scale stablecoin circulation as outlined in Citi (2025) would remain mainly on "Cryptomercantilism"** (Klooster, Martino, and Monnet, 2025), i.e. global dollarization, the facilitation of capital flight, reallocation of seignorage income, and the undermining of monetary sovereignty. The apparent higher efficiency of stablecoins in cross border payments

[8] https://www.mexc.co/en-IN/news/263456

would be related largely to regulatory arbitrage. Traditional firms would face high compliance costs and legal risks while reliance on public blockchain would allow escaping from regulatory burdens and undermine the effectiveness of the fight against illicit payments. The large-scale illicit use of stablecoins in international cross border payments was confirmed recently by Chainalysis (2026).

Beyond chasing away potential new investors from Bitcoin, the ultimate fear of the crypto-community in terms of consequence from negative narratives is strong regulation, including up to a full ban of crypto-products for retail payment and investment purposes (like applied in China).

6. Public sector

6.1 Politicians and legislators

For politicians and legislators, retail payment systems normally do not constitute a central electoral issue when compared with taxation, employment, or inflation. Sometimes, retail payments however attract more political interest when they intersect with broader concerns of the electorate, such as consumer protection, privacy, financial stability, or national economic sovereignty. For example, the digital euro has been vocally criticized by European right-wing parties, which becomes then a direct concern for the other parties in terms of possible impact on voting behavior. For example, the AfD (Alternative für Deutschland) 2025 election program ("Zeit für Deutschland") states that the AfD "opposes a digital euro issued by the ECB. It fears that - if designed to be programmable - it could lead to complete surveillance and control extending into private, even intimate areas of life." And the AfD parliamentary group in the German Bundestag stated in a petition[9] submitted on 2 December 2025 that it "firmly rejects the introduction of a digital euro. In its view, such a digital euro threatens privacy, financial stability and economic freedom."

Moreover, episodes involving payment outages, fraud scandals, controversial fee increases, or geopolitical tensions affecting international payment infrastructures can elevate payment issue onto the political agenda. In such circumstances, policymakers may face public pressure to intervene, particularly when citizens suffer losses. Politicians also sometimes emphasize narratives related to sovereignty, economic modernization and digital transformation. Retail payments are then framed as an important component of broader national strategies aimed at promoting digital innovation, improving economic efficiency, and strengthening competitiveness. Supporting modern payment technologies, such as instant payments or secure digital wallets, can be presented as part of a forward-looking economic policy agenda. At the same time, policymakers highlight the importance of maintaining resilient and inclusive payment systems, thereby linking technological progress with broader social objectives such as financial inclusion and accessibility.

Public Choice economists emphasize the limited capabilities of the public sector and its vulnerability to be influenced by interest groups to take regulatory measures which ultimately undermine social welfare. Regulation may be captured and used to protect special interests rather than to maximize social welfare. Banks, payment networks, technology firms, merchant associations, and consumer advocacy groups all seek to influence regulatory outcomes. Politicians typically respond to such pressures by framing legislative decisions within broader narratives of fairness, competition, and public benefit. Rather than

[9] Petition of 2 December 2025, "Bargeld ist gedruckte Freiheit – vorhaben der Europäischen Zentralbank für digitales Zentralbankgeld stoppen".

openly aligning themselves with stakeholder groups, policymakers emphasize the need to ensure a "level playing field" in which similar activities are subject to comparable regulatory standards. Politicians push back claims that they are controlled by large financial groups or overly involved in private market affairs. Allegations of regulatory capture[10], where policymakers are perceived as serving the interests of dominant industry actors, damage political credibility, particularly in sectors such as finance that are associated with lobbying influence and that are carefully watched by advocacy groups. Conversely, narratives portraying legislators as obstructing innovation through excessive regulation can also be damaging, particularly in environments that emphasize technological progress and economic competitiveness.

6.2 Central banks

Central banks' mandate typically include in one way or the other retail payments. First, central banks are universally tasked to issue banknotes. Second, they are often explicitly mandated to look after electronic payments, such as, in the case of the ECB, Article 127(2) TFEU (Treaty on the Functioning of the European Union) which tasks the ECB "to promote the smooth operation of payment systems", which is interpreted as including retail payments.

Central banks have for a long time benefitted from extra-ordinary privileges in terms of independence and power, also to shield them from pressure of politicians, the financial industry and more generally creditors and debtors exposed to changes of interest rates or inflation. At the same time, central banks have been criticized for centuries for a variety of reasons (e.g. Bindseil, 2021)**:** (i) Central banks excessively concentrate power; (ii) Central banks exceed their mandates; (iii) Central banks negatively affect the financial industry. Financial intermediaries have often feared displacement by central bank operational activities and have pushed back by arguing that the central bank must not compete with the private sector. In the context of digital euro, some have also criticized the ECB for having given in excessively to the lobbying of the banking industry ("sacrificing the digital euro on the altar of banking", Monnet and Niepelt, 2023); (iv) Central banks would be either insufficiently or excessively restrictive in their monetary policy; (v) Central banks support an unjust capitalist financial system. Some recent critics argue that crisis policies often favor wealthy investors, while others, such as H.-W. Sinn, argue that they shielded borrowers from necessary defaults. Low interest rates have also been accused of inflating asset prices for the benefit of the rich and encouraging speculation. (vi) Finally, central banks have been criticized for favoring particular regions or political groups. For example, during the sovereign debt crisis, critics have claimed that the ECB favored either northern (Varoufakis) or southern euro area countries (Sinn).

In view of these multiple critics, central banks have learned to be particularly aware of the needs to be prudent communicators and on avoiding vulnerabilities in the public discourse. Their critics would always look for weaknesses they can leverage to promote their own narratives. Critics also look for the central banks admitting mistakes, or for the central bank using an argument that can be turned against them, or for a time-inconsistency in the central bank's reasoning. While decisions may turn out to be

[10] An example for criticism of a politician for regulatory capture is the one by the German NGO "Finanzwende" of the EU Parliamentarian Markus Ferber, "Der bayerische Abgeordnete Markus Ferber - Der lange Arm der Finanzlobby ins Europaparlament", 08.07.2024, https://www.finanzwende.de/themen/finanzlobbyismus/lobby-recherchen/der-bayerische-abgeordnete-markus-ferber . Also the rapporteur in the EU parliament, F. Navarete has been criticized for "paroting" views of the "bank lobby" and that "since taking office in July 2024, 77 percent of Navarrete's meetings on the digital euro have been with the private payment service providers and banks, and he has had only one meeting with an NGO". https://euobserver.com/60216/the-european-parliament-rapporteur-is-wrong-about-the-digital-euro/

suboptimal ex post, even if they were perfectly justified ex ante: still the central bank (like other prominent firms or institutions) may be unable to make such complex arguments in a public discourse and may prefer for pragmatic reasons to deny any mistake for the sake of avoiding giving a leg up to critics.

Turning to retail payments, central banks have traditionally interacted with citizens in various ways. They have been (i) issuing and organizing the distribution of banknotes; (ii) providing the architecture / interbank payment systems, necessary for banks to offer their payment services to citizens (typically RTGS, but sometimes also retail oriented systems, such as the ECB's TIPS and the US Fed's FedNow); (iii) acting as catalyst in the retail payment industry, i.e. discussing with the industry and consumer associations with a view to co-ordinate outcomes that are beneficial for society (for example in the ECB's Euro Retail Payments Board, ERPB); (iv) recently, preparing for the issuance of CBDCs. Central banks' expertise and proximity to payments and markets support their role in contributing to a public sector policy strategy in retail payments. Members of central bank decision making bodies have often outlined their vision on retail payments in speeches which are used as tool of communicating and explaining policy stances (e.g. Coeuré, 2019; Waller, 2025, Cipollone, 2026). Central banks also publish retail payment strategies on their websites[11], or conduct public consultation on retail payment topics, including on topics of public interest such as accessibility of retail payments[12]. They are also engaged in surveying retail payment markets and costs (e.g. Schmiedel et al 2012, Junius et al, 2022; ECB, 2025). Their resources, independence, public policy mandate and expertise puts them ideally in a position to act as neutral party which can bring objectivity into the opaque debates on retail payments, and which can help steer societal choices. Some have criticized for example the ECB in this context in view of its strong commitment to CBDC, which would have undermined its neutrality and objectivity on retail payments (e.g. Seitz, 2024).

7. CBDC and the future retail monetary architecture

No other subject in retail payments has recently triggered similar public debate and communication campaigns from various sides as CBDC. Since around 2014, central banks have worked on electronic retail central bank money, while the private sector had started to shift away from paper to electronic retail payment instruments decades earlier. First academic publications on CBDC (and the use of this acronym) date from 2015. Indeed, in a world in which consumer habits and industry preferences seem to move retail payments rapidly in the direction of electronic payments only, the issuance or not of CBDC, and the way it will be issued, will determine the future co-existence (or not) of private and public means of retail payments. If central banks do not start issuing CBDC, they will (if one extrapolates current retail payment trends) exit retail payments over the coming decade; if they issue CBDC very aggressively, they may significantly reduce the role of private retail payment instruments. Anything in between seems possible as well (i.e. CBDC issuance with more or less ambition and success). A lot is therefore at stake for the private retail payments industry.

[11] Example: "The Eurosystem's retail payments strategy – priorities for 2024 and beyond", https://www.ecb.europa.eu/pub/pdf/other/ecb.eurosystemretailpaymentsstrategy~5a74eb9ac1.en.pdf

[12] https://www.ecb.europa.eu/paym/groups/erpb/shared/pdf/17th-ERPB-meeting/Retail_payments_accessibility.pdf

7.1 Justifying CBDC

The principal considerations for the preparation of CBDC issuance are summarised below. Central bankers, including Cipollone (2025) and Lane (2025), consistently articulate such points, while typically tryng to maintain a measured and non-contentious approach.

> ***Pro rCBDC narrative by central banks.*** *"CBDC is a natural evolution of central bank money, just following what everyone else has been doing: moving from paper into electronic. Technology should not determine monetary architecture, but economic functionality should, and the related arguments in favor of central bank money have not changed. People pay increasingly electronically and less with cash because the relative convenience of paying electronically has improved for years and habits change accordingly (and e-commerce only allows for electronic payments). It is unreasonable to suggest that the central bank should be limited to 17th-century technology (such as paper tokens) when providing services for citizens - those it most directly serves as a public institution, while the entire private payments industry did not hesitate for a moment to offer electronic services beyond paper instruments (checks, bills of exchange, promissory notes). Some in the payments industry may have in mind to overcome central bank competition in retail payment markets to increase market share, power, and profits. This motivation is against the public interest and social welfare, which benefits from competition and a continued public offer which can achieve network effects without ultimately abusing market power. In the European context, the problem of economic power of private providers is compounded by the fact that much of the retail payment ecosystem is controlled by large foreign corporations, creating strategic vulnerabilities and external dependencies in an area that is essential for economic sovereignty and everyday social functioning. Moreover, commercial bank money is defined by the issuer's commitment to convert its monetary liabilities into central bank money at sight, and this convertibility promise anchors the two-tier monetary system and achieves the singleness of money. Central banks in no way see CBDC as tool to get rid of cash. Cash is still an exclusive central bank product and the basis of central bank profitability and financial independence, and it is therefore credible that central banks pursue strategies to keep cash popular despite working on CBDC (also acknowledging the unique advantages of cash in the fields of inclusion, privacy and resilience). Central banks also do not want to crowd out the banking system or other private suppliers of payment services but simply want to preserve the current role of central bank money at the levels that have served societies well for the last decades and modernize their offer including societal objectives like inclusiveness, privacy, and contributing to the technical resilience of the digital economy."*

In short, policy objectives of CBDC can be classified in five categories: (i) low merchant fees benefitting from full economies of scale without abusing market power; (ii) anchor function (private money being defined by convertibility promise into central bank money) (iii) design features pursuing other public good and social objectives (e.g. inclusiveness, privacy); (iv) adding technical resilience through redundancy of the settlement and front layer; (v) preserving strategic autonomy and monetary sovereignty. CBDCs have been supported by two other distinct groups with arguments that central banks have only prudently referred to, if at all, as they are not at the core of the central banks' preference for CBDC, and as these arguments would lead to additional industry push back. First, some progressists have broadly followed the pro-CBDC central banks' logic, but with more ambition and a more explicit industry critical articulation that central banks try to avoid[13]. A second further CBDC narrative, which central banks have been even

[13] This may be summarized in a narrative as follows: "By providing universal access to state-backed digital money, CBDCs can strengthen financial stability, monetary sovereignty, enhance financial inclusion, and reduce reliance on bank money and private payment infrastructures whose incentives do not coincide with those of societies. A well-

more sceptic about, is the one of monetary macro-economists who see positive and negative remuneration of CBDC as enriching the monetary policy toolkit[14]. This argument is avoided by central banks as the idea of positively remunerated CBDC is strongly disliked by banks, while negative remuneration is particularly disliked by conservative or libertarian citizens who fear that this, combined with the discontinuation of banknotes, would open the gate for unlimited financial repression.

7.2 Critic of CBDC

The critics of CBDC can be grouped broadly into two camps: (i) critical economists and industry advocates who claim that CBDC is not useful and that it unduly harms the private industry; and (ii) libertarians, crypto-representative and cash advocates that portray CBDC as monitoring and control tool of the state. The first counter-narrative has been formulated extensively for example by Waller (2021) and Bofinger (2023, 2024)[15], which we summarize as follows:

> **Dismissal of usefulness of CBDC issuance:** *"CBDC is fundamentally a solution in search of a problem, as efficient, low-cost digital payment instruments already exist and there is no compelling need for households to use electronic central-bank money for retail payments. The "anchor" argument is flawed for two reasons: (i) the anchoring also works via the wholesale central bank money layer, i.e. constraints of banks to hold central bank reserves; (ii) to make the anchor effective, one would need to allow for unlimited CBDC holdings, which however is not an option for financial stability reasons, as acknowledged by central banks. Project risks are high in view of high fixed costs and likely low user adoption, since there are limited incentives for consumers to use CBDC, raising the prospect of an expensive infrastructure that fails to achieve sufficient scale. Operating a comprehensive retail payment system can be argued to exceed the proper remit of a central bank and constitutes an unwarranted intervention into markets that are already served by private providers."*

The second counter-narrative, about CBDC in constraining civil liberties, is supported for example by such diverse critics as Moscow-exiled whistleblower Edward Snowden, Republican Governor Ron de Santis, and Fed Governor Neel Kashkari.[16]

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designed ambitious CBDC re-embeds money within democratic governance, ensuring that the monetary system serves citizens collectively rather than extracting rents and creating risks through private monopolies over payments and money creation, financial crises and tax-financed bail-outs."

[14] This view may be phrased as follows: "CBDC is an important monetary innovation because it broadens the set of instruments through which central banks can implement and transmit monetary policy. A remunerated CBDC would allow policy rates—whether positive, zero, or negative—to be applied directly to a widely accessible form of central bank money, thereby strengthening interest-rate pass-through to households and firms and reducing reliance on indirect transmission through commercial banks."

[15] "I remain skeptical that a Federal Reserve CBDC would solve any major problem confronting the U.S. payment system. There are also potential costs and risks associated with a CBDC, some of which I have alluded to already. I have noted my belief that government interventions into the economy should come only to address significant market failures. The competition of a Fed CBDC could disintermediate commercial banks and threaten a division of labor in the financial system that works well" (Waller, 2021). "The European Central Bank has embarked on an uncertain path with the digital euro project. It is pursuing a strategy that is unclear about what problems it is trying to solve and what specific goals it is trying to achieve. The ECB has not yet been able to diagnose a clear market failure that would justify such far-reaching government intervention." (Bofinger, 2023)

[16] "A CBDC is a perversion of cryptocurrency, or at least the founding principles and protocols of it — a cryptofascist currency, expressly designed to deny you the basic ownership of your money by installing the State at the center of every transaction." Edward Snowden on X on October 9, 2021. "The movement to establish a central bank digital

Reduction of civil liberties, risk of abuse of CBDC for spying and controlling citizens. *"Central bank digital currencies are not a neutral upgrade to existing payment systems, but a profound change of the monetary architecture that concentrates power and weakens privacy and individual autonomy. By centralizing transaction data and storing it within state-controlled infrastructures, CBDCs erodes financial privacy in ways that go far beyond current electronic payment systems, lowering the barriers to surveillance, monitoring, and intervention in everyday economic life. Moreover, the programmability of digital money is worrisome, as it enables conditions, restrictions, and exclusions to be imposed directly at the level of money itself, transforming currency into an instrument of societal enforcement rather than a general-purpose means of exchange. The gradual displacement of physical cash further removes one of the last practical limits on both private profit-oriented firms' and governmental reach, exposing individuals to financial censorship, coercion, or exclusion."*

The third critical narrative on CBDC is the one promoted by banks on financial stability risks of CBDCs:

> **Undermining financial stability and the bank-based supply of credit**. *"By allowing households and firms to hold risk-free central bank money electronically, CBDC reduces the demand for commercial bank deposits. Deposit outflows will deprive banks of a key and stable funding source. Because deposits finance a large share of bank lending, such disintermediation reduces banks' capacity to provide loans to households and firms. Banks then rely more on wholesale funding "or central bank liquidity), which is more costly and volatile, raising lending costs and tightening credit supply at the expense of economic growth and ultimately social welfare. In times of financial stress, a CBDC also facilitates rapid digital bank runs, as depositors can instantly move funds into central bank money, thereby amplifying systemic instability."*

Whether CBDCs are introduced, and how they are designed, will significantly shape the future structure of retail payment markets. Dominant private payment service providers believe that restricting or preventing the implementation of CBDC would help mitigate uncertainty and safeguard existing business models from potential disruption. Even if the principal aim of a CBDC is only to *maintain* the current position of central bank money in retail payments (as central banks argue), limiting its deployment would remain advantageous to the profitability of the retail payments sector and help reduce associated risks.

The fierce resistance from the established industries against retail CBDC has been successful in some jurisdictions. A prominent example is the US Executive Order 14178 on "Strengthening American Leadership in Digital Financial Technology" of 23 January 2025 which stated that:

> ***Section 5 – "Prohibition of Central Bank Digital Currencies.*** *"Except to the extent required by law, agencies are hereby prohibited from undertaking any action to establish, issue, or promote CBDCs within the jurisdiction of the United States or abroad… Except to the extent required by law, any ongoing plans or initiatives at any agency related to the creation of a CBDC within the jurisdiction of the United States shall be immediately terminated, and no further actions may be taken to develop or implement such plans or initiatives."*

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currency is an attempt to surveil & control the finances of Americans. It would violate privacy, limit consumer choice & undermine market competitiveness. …Biden Bureaucrats are working to further weaponize the financial sector through a Central Bank Digital Currency. What is a CBDC? Just another way of increasing surveillance and control of Americans." Tweet by Ron de Santis, 21 March 2023. "I can see why China would do it". "If they want to monitor every one of your transactions, you could do that with a central bank digital currency. You can't do that with Venmo… I get why China would be interested. Why would the American people be for that?" Neel Kashkari (President of the Federal Reserve Bank of Minneapolis). August 4, 2022, during an on-stage Q&A session at the 2022 Journal of Financial Regulation conference at Columbia University. See also Cato Institute (2023) and Big Brother Watch (2025)

In Europe, the battle of the payments industry against the digital euro is currently fought in particular in the European Parliament, in which the Rapporteur of the digital euro legislation submitted a draft report on the digital euro which has been interpreted as attempt to ensure that the digital euro will be a failure, or at least that it will appear redundant.[17] Two proposals by Navarete could appear particularly adverse to the digital euro. First, **his report proposes a calibration method for limits on digital euro holdings which will lead to very low limits** (maybe 100 euro per person) and which implies that the digital euro will be no store of value at all, but only a payment instrument on top of commercial bank money, which ultimately will lead to the conclusion that one can have the payment instrument directly in commercial bank money and save the costs of digital euro development.[18] Second, **his proposal prioritizes offline payments**, which have a limited business case and are unlikely to bring the necessary network effects, and the actual deployment of the online digital euro would only take place at some stage in the future and contingent of a failure of the European payment industry to have progressed on a pan European instant payment based instrument[19]. It has been speculated that banking lobbyists were among the actors advocating early and strongly for the inclusion of offline functionality, not primarily to enhance user value of the digital euro, but rather to steer the digital euro away from large, scalable, and commercially attractive use cases and toward a narrow niche. Other stakeholders (legislators and the ECB) embraced the offline narrative for different reasons, including its perceived consistency with the framing of the digital euro as a "new form of cash," as well as arguments related to privacy and operational resilience. The drawbacks of offline functionality were largely absent from the policy debate. These include the unfavorable cost-benefit ratio of offline payments, the additional complexity imposed on an already challenging project, the substantially higher security risks associated with electronic offline transactions—particularly if they are intended to be quasi-anonymous. It is noteworthy that different stakeholders with heterogeneous interests agree to omit

[17] EU Commission proposal in 2023. Proposal for a Regulation of the European Parliament and the Council on the establishment of the digital euro, COM/2023/369 final, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52023PC0369 . In November 2025, the EP Rapporteur Fernando Navarete submitted his Draft Report:
https://www.europarl.europa.eu/doceo/document/ECON-PR-778136_EN.pdf

[18] The amendments he proposes to the Commission proposal in this respect are: Amendment 152: "When assessing the impacts referred to in the first subparagraph, point (a), the European Central Bank shall assume, for every theoretical holding limit, a full take-up of the theoretical holding limits in a normalised overall market liquidity situation as compared with a situation in which the digital euro is not issued." Amendment 155-156: "The initial holding limits shall comply with the following criteria in the scenario of full take up by digital euro users in normalised overall market liquidity situation: … no individual credit institution in the euro area is expected to confront a retail sight deposits outflow greater than 5% compared to the situation without a digital euro".

[19] Amendment 13 of the Navarete proposal: "(8a) It is considered necessary that the establishment of the digital euro initially starts with the offline digital euro, since its use would strengthen the resilience of the payment system in extraordinary situations, reduce overdependence on payment solutions and technologies under the ultimate control of third countries or entities from third countries and preserve citizens' privacy concerns."; Amendment 14: "(8b) In order to ensure necessity, proportionality and market competitiveness, the establishment of the online digital euro should be contingent on the absence of a pan-European sovereign retail payment solution covering person-to-person, point-of- interaction and e-commerce use cases in the euro-area. The Commission should be entrusted with the task of assessing if a pan-European sovereign retail payment solution exists in the euro area and providing such an assessment in a report to the European Parliament and the Council within six months of the European Central Bank having notified the completion of the preparatory work to issue the offline digital euro." There has been speculation that EPI embraced the concept of interoperability of different European instant-payment based POI solutions and started to refer prominently to sovereignty in the context of the discussions in the EP to make the online digital euro contingent on the private industry not progressing. The related communication by EPI took place in June 2025: "June 23, 2025 - EuroPA and EPI launch collaboration to expand sovereign Pan-European payments. June 23rd, 2025 – The EuroPA alliance (European Payments Alliance) – represented by Bancomat, Bizum, MB WAY (SIBS), and Vipps MobilePay – and EPI Company (EPI) have announced their cooperation, now exploring solutions to rapidly address Europe's sovereignty challenge in payments, especially regarding cross-border transactions. This initiative aims at enabling European citizens to send and receive payments seamlessly across the continent, for the benefit of both consumers and merchants." https://epicompany.eu/media-insights/europa-and-epi-launch-collaboration-to-expand-sovereign-pan-european-payments

these matters from the public debate, i.e. are for some reasons aligned to support something that could appear doubtful in terms of ultimate net benefits for society, although for different reasons.

7.3 CBDC design options and alternatives

Although the arguments of central banks in favor of CBDC (narrative 1) are convincing, this does not preclude that there could be alternative payment architectures that may achieve some of the societal benefits of CBDC. Moreover, any architecture can be well- or badly specified and implemented, with significant uncertainty over the relevant time horizon in terms of public opinion, consumer adoption, interference by parties with vested interests, etc. What policy objectives can be achieved with alternative approaches and what might be the investment costs for the respective upgrading of retail payments? Consider the following alternatives, starting with an effective full CBDC implementation as benchmark.

Scenario 0: benchmark of a fully effective and well-designed CBDC. This theoretical benchmark would be the one designed by a wise and capable public sector (legislator and central bank) without any undue interference of the private sector. We assume it would be a conservative variant of a CBDC (i.e. conserving a strong role of central bank money in retail payments, but without crowding out the private sector) including a not overly constrained store of value function and a degree of technical independence (including possibly an offline digital euro) that would enhance overall retail payments resilience. By integrating the industry through a scheme, it would fully leverage on the capacity of the current private providers and insure competitiveness. We assume that this alternative would achieve 100% of the policy objectives associated with CBDC (preserve effective role for central bank money, thereby competition, low fees, sovereignty, autonomy, resilience, inclusiveness and adequate privacy). While the costs of such a CBDC are relatively high in view of the new infrastructure and scheme and the related needs of the private industry to invest, the costs seem moderate relative to the scale of use and the role of retail payments for modern society.

Scenario 1: "Navarete vision". This scenario foresees an ineffective CBDC not achieving network effects, although still with high investment costs. Focusing on the case of digital euro: While extensive preparatory work for an online digital euro would take place, it would not initially be issued. Only the offline digital euro would be made available, and we assume that by the time further evaluations occur, the European private sector, through initiatives like the European Payment Initiative (EPI) and interoperable national instant payment based instruments (MB Way, Bizum) would offer some European-governed retail payment solution which would be deemed sufficient so that it would be declared that an online digital euro is unnecessary. If a pan-European SCT-INST based payment instrument succeeds, it could compete with international card schemes, but as cash usage for retail payments drops further and such an instrument operates as a commercial enterprise, merchant fees would remain relatively elevated. As a result, overall competitiveness of retail payments would likely even decline compared to current levels. The offline digital euro would not gain enough scale to produce the network effects needed for success and there would thus not be an effective CBDC.

Scenario 2: CBDC designed in a much less ambitious way, as cheaper "closed loop solution", without the idea of open and competitive CBDC ecosystem organized as scheme. CBDC could be offered as a relatively simple closed loop mobile app-based solution like PayPal. Transfer onto wallet from bank account would take via direct debit or back via SCT (INST), and funds could be transferred back via credit transfer into commercial bank accounts. Merchant mobile apps would also be provided by the central bank and payments would be based on QR codes. A limited number of private service providers will be selected through a tender process to assist customers with onboarding issues and inquiries. The solution would be designed initially for relatively small payments (say up to 500 USD) and with interest rate disincentives for high holdings (as proposed for example in Bindseil, 2020). Under this proposal, the payment industry

(banks, non-bank PSPs) would not have specific investment costs. Controversial discussions on the details of the scheme and on compensation could be avoided. This solution would come at lower costs than scenario 0. The retail payment industry may consider this version of CBDC, although somewhat less ambitious and only serving some use cases, to be as problematic as scenario 0 or worse because of the strong autonomy of such a CBDC and the absence of any role for the industry in the distribution of CBDC (except the few chosen service providers)[20].

Scenario 3: More ambitious and better regulation to contain total merchant fees and enhance transparency, competition and adequate incentives in retail payments[21]**.** Regulations would be thoroughly revisited to strengthen their supportive role for competition, instead of possibly reducing competitive pressures. The regulator would design a package capping total fees and imposing full fee transparency for every payment transaction. Current regulation of surcharging would be revised: surcharging would no longer be prohibited, but possibly even encouraged. Regulators should also revisit ancillary benefit practices of card usages and constrain those card perks.

Scenario 4 - PIX/UPI approach, i.e. imposing on all banks and merchants a low-cost commercial bank money-based scheme[22]**.** The scheme could include various public policy objectives (e.g. inclusiveness). Merchant fees could in principle be as low as the legislator would find reasonable (merchant fees in the case of PIX are in the order of magnitude of 0.2-0.3%, while UPI foresees no merchant fee). This approach could help prevent the alleged financial stability issues emphasized in banking narratives about CBDC. The "anchor" function of central bank money would only be at the wholesale level. The additional resilience achieved through CBDC (with its independent settlement infrastructure) would not be achieved. Again, the industry may not appreciate this solution because of the low or absent fee income available to compensate service providers, in particular if more expensive payment instruments are cannibalized.

We estimate the share of policy objectives reached by each of the options as follows. First, we assign to each of the five policy objectives mentioned above a certain weight. We keep this very simple and assign to the first objective (i. economic efficiency: low merchant fees benefitting from full economies of scale without abusing market power) a weight of 1/3 and to the four other objectives each a weight of 1/6 (ii. anchor function (private money being defined by convertibility promise into central bank money); iii. design features pursuing other public good and social objectives e.g. inclusiveness, privacy; iv. adding technical resilience through redundancy of the settlement and front layer; v. preserving strategic autonomy and monetary sovereignty). We assign to each pairing of approach and policy objective a score: 100% (green), 66% (light green), 33% (orange), 0 (red), as shown in figure 2. The last column provides overall policy scores of the solutions. Of course, one may want to use different weights for the policy objectives and score the options differently (and use more granular scores). The scores achieved will also depend on the exact details of the different scenarios.

[20] The idea of a less ambitious CBDC has been explored by Kiff and Ostrowski (2024), although they would seem to have in mind a temporary limited CBDC with an even more narrow scope of use cases, and as a step towards a more comprehensive CBDC.
[21] See e.g. Schuh et al (2010) and the literature referred to there, and European Court of Auditors (ECA, 2025). Schuh et all conclude that reducing card rewards would likely increase consumer welfare. The ECA notes that "non-disclosure agreements of card schemes, which prevent merchants, issuers and acquirers from sharing data on the charges linked to card payments". On surcharging the ECA recalls that for card payments, merchants are prohibited from imposing surcharges on consumer card transactions subject to interchange fee cap and on SEPA CT and SEPA direct debits and notes that "the reasons for introducing surcharge ban were not backed up by sufficient evidence. Generally, the COM would have insufficient data to monitor effectiveness of its interventions".
[22] Cornelli et al (2024), Diaz (2025), Banco Central de Brazil (2025)

Figure 2: scoring of four retail payment scenarios, with or without CBDC

	Low merchant fee	Anchor	Social design features	Technical resilience	Strategic autonomy	% of policy objectives
Weighting of	33.3%	16.7%	16.7%	16.7%	16.7%	100%
(0) Full scheme CBDC	100%	100%	100%	100%	100%	100%
(1) "Navarete proposal"	33%	0%	0%	0%	33%	16%
(2) Closed loop CBDC	66%	66%	66%	66%	66%	66%
(3) Stronger regulation	33%	0%	33%	33%	33%	27%
(4) UPI-PIX	100%	0%	33%	33%	66%	55%

The scenarios are abstractly illustrated in the "foggy mountains" of figure 3, which represents the degree of achievement of policy objectives in different scenarios, whereby the x and y axis are a stylized representation of the various parameters which determine the retail payments architecture and overall specification, and the z axis is the extent of policy achievements, benchmarked against a perfect CBDC implementation. While the figure transparently displays the peaks, we need to imagine the landscape to be foggy, i.e. wherever one is, one cannot see much beyond the own current position and the exact positions, shapes and height of the peaks are only estimates. In the real world, one needs to have technical and economic expertise and devote resources to estimate the topography of retail payments to come to meaningful long-term policy choices. The five peaks correspond to the scenarios 0-4 above.

Figure 3: Topography of welfare implications of retail payment scenarios, with or without CBDC

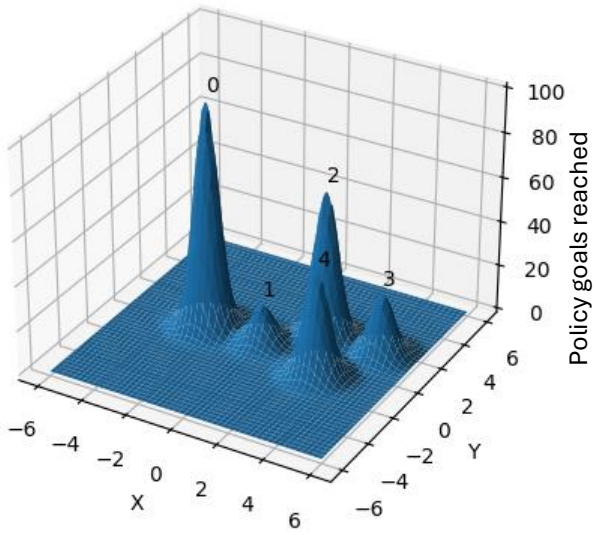


Figure 4 maps the scenarios into a cost-benefit chart, i.e. showing them as combinations of their achievement of policy options (x -axis) and total costs (y-axis), the latter not having been shown in figure 3. Proposal 1 is

clearly not on the efficient frontier, while the other scenarios might be, i.e they are not "dominated" by any other scenario offering both lower cost and more policy benefits. In the figure, they are shown to be all on an efficient frontier, but that can of course be debated. The cost estimates (and policy goal achievements) assumed in the figure are of course only intuitions and in any case the costs are overall moderate compared to the policy achievements. This is why the iso-welfare curves adjacent to the efficient frontier in the figure are steep, supporting the choice of a CBDC supporting full preservation of the role of central bank money.

Figure 4: Cost-benefit mapping of alternative scenarios to achieve policy objectives of CBDC

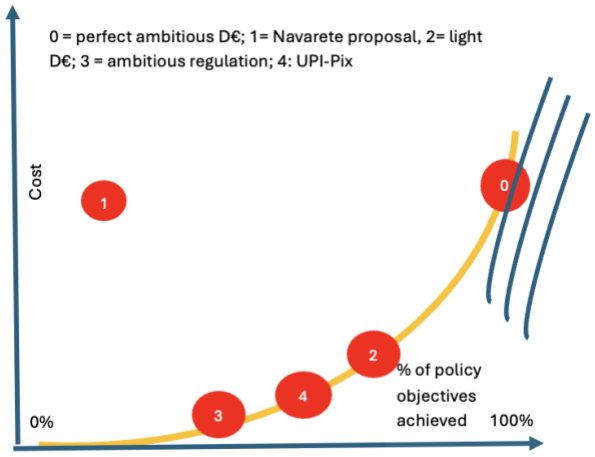
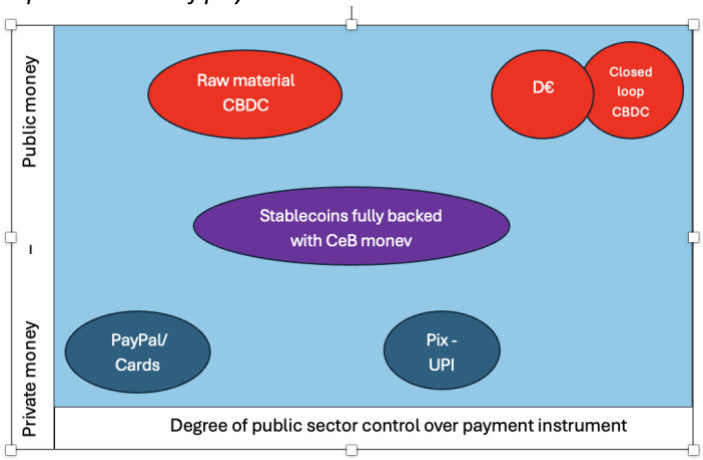


Figure 5 suggests a further complementary way to look at how the public sector intervenes into the architecture of retail payments through public services and regulation. It maps approaches into two dimensions, one being to what extent they rely on public (central bank) vs. private money, and one to what extent they rely on public control. Indeed, public control can be exercised through regulation in various ways and can achieve even higher degrees of public control than under a "laissez faire raw material CBDC" approach. For example, under a scheme like PIX and UPI, the merchant fee and the bank compensation can be fully specified through a regulation, and distribution and acceptance can be mandatory. At the same time, there could be a hands-off CBDC approach under which there would be very little control of fees and no mandatory distribution and acceptance.

Figure 5: Reliance on central bank money vs. degree of control by the public sector of payment instruments



8. Conclusions

This paper examines how competing narratives shape public debates and policy choices in the retail payments industry. Retail payments display strong network effects, high fixed costs, long-term path dependencies, and concentrated market structures, all of which create powerful incentives for stakeholders to influence public opinion and regulation. And indeed, retail payments is a heavily regulated field in which regulation has pervasive consequences for business opportunities and profitability of firms. At the same time, the public discourse on retail payments can't be expected to be candid and clear for several reasons which we explained in detail. Therefore, debates about payment systems, including those surrounding central bank digital currencies, are driven not by objective welfare considerations but inevitably by the strategic communication of interested parties. Different stakeholders' views on various key narratives on retail payments can be illustrated in a heat map, such as the one in Figure 6 which focuses only on few illustrative statements. Green means "fully agree with narrative", red means "strongly disagree with narrative", etc.

Figure 6: "Heat map" - examples of views of key retail payments stakeholders on selected narratives

Examples of narrative ⇒ Stakeholder:⇓	Successful firms abuse market power in retail payments	Fixed costs* of good retail payment products are large	Foreign providers will be misused in geopolitical conflicts	Banknotes are used for illicit payments	CBDC is dangerous (for financial stability, privacy and liberty)
Commercial Banks					
International card schemes					
FinTechs					
Crypto / Defi / Stablecoins					
Merchants					
Consumers					
Idealist: left					
Idealists: right/libertarian					
Central banks					

Regulators and central banks need to rely on private sector expertise and will therefore constantly face the challenge of distinguishing between legitimate arguments and important technical expertise shared by private sector stakeholders, and distorted narratives that primarily serve private interests, whereby the latter will predominate. While several alternative payment architectures may achieve broadly similar social outcomes, the quality of their implementation and the institutional framework surrounding them remain decisive. Effective policy design requires expertise to understand stakeholder incentives and to distinguish between valid and false industry arguments. The best and probably only assurance that public interests remain addressed in retail payments is the preservation of a balanced co-existence of public and private money, meaning, if consumer habits eventually imply a further decline in the use of cash, that central banks should persist in offering CBDC.

The current debates on CBDCs illustrate how competing narratives can influence policy discussions in retail payments. While the case for maintaining a role for public money in digital payments is conceptually strong, the net benefits of CBDC depend critically on design choices and successful deployment. If the industry is successful in influencing legislators to heavily constrain CBDC and make its design incoherent

or almost obsolete, then alternative approaches, such as improved regulation of private payment systems or publicly controlled instant-payment based solutions, may achieve at least a limited share of CBDC's policy objectives.

Legislators and central banks should have capacity for independent economic analysis and producing empirical evidence when evaluating retail payment policy options. Transparency about the economic structure of payment markets, particularly fees, market power, and incentives, should be strengthened to improve the quality of public debate. Public authorities need to communicate more actively and clearly about the objectives and trade-offs of payment policies, including initiatives such as CBDC or instant payment systems. Regulation and central bank owned solutions should remain focused on the public good character of money and core public objectives such as competition, efficiency, resilience, financial stability, and monetary sovereignty.

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