CHAPTER 20

Retail trading in the era of digital finance: Risks, opportunities, and the need for policy innovation

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The global financial landscape is undergoing a profound transformation. A recent World Economic Forum insight report on retail trading highlights the rapid growth of financial retail participation, fuelled by accelerated digital adoption, rising affluence, and the expanding influence of the G20 consumer base (World Economic Forum 2025). This new cohort of investors – diverse in age, geography, gender, and income – demonstrates an earlier and more pronounced engagement with capital markets, a readiness to integrate technology into their investment journeys, and an openness to a broader array of financial products. While the democratisation of access offers the potential to extend market participation to traditionally underserved populations, this expansion also carries significant risks and challenges.

For example, India's securities regulator, the Security Exchange Board of India (SEBI) has documented a severe disconnect between market access and financial literacy. A SEBI study revealed that a staggering nine out of ten individual traders lose money in this segment, with total annual losses skyrocketing from $4.7 billion to $12.2 billion by March 2024 (SEBI 2024). This demonstrates that while technology has granted access to complex products, the inherent risks of leveraged trading are not being adequately understood or managed by a new generation of traders.

Consider, for example, the expansion of so-called decentralised finance opportunities emerging within the blockchain ecosystems. These have exploded over the past few years, creating a myriad of asset digital types, and a completely new taxonomy has emerged. The new jargon lends itself to marketing narratives and serves the purpose of capturing the attention of financial consumers. Financial innovation is notoriously harmed by these dynamics. Biais et al. (2012) analyse the implications of moral hazard in the early phases of new product development. Uncertainty makes it difficult to monitor managers and ensure they exert the effort necessary to reduce default risk. Initial successes spur optimism and growth, but increasingly confident managers end up requesting large rents. If these become too high, investors give up on incentives giving rise to endogenous crises. Bolton et al. (2016) propose a model in which investors

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may choose to acquire costly information that identifies good assets and purchase these assets in opaque markets. They show that the equilibrium acquisition of information is generically inefficient. Informed investors don't just get access to the best assets, they also benefit from the cream-skimming activities of other informed dealers which helps them extract better terms from the asset sellers. Hence, uninformed investors access an asset pool that has been cream-skimmed by informed ones.

While the above considerations make a clear case for regulatory intervention, the current institutional landscape remains fragmented, marked by a patchwork of regional approaches and volatile institutional architectures influenced by political narratives. De facto, digital innovation brings with itself technology-driven deregulation, and finding the right balance between fostering innovation and protecting retail investors is difficult.

I contribute to the ongoing debate by proposing a new scheme to articulate the regulatory challenge. This framework draws inspiration from the so-called blockchain trilemma that emerges in the design of blockchain protocols.[2] This states that it is impossible to simultaneously achieve the following:

- **Security**: the system is resistant to attacks and ensures that transactions are valid and cannot be tampered with.
- **Scalability**: the system can handle a large number of transactions quickly and efficiently, even as more users join.
- **Decentralisation**: the system is not controlled by a single person or small group; instead, many participants (nodes) around the world help maintain it.

Different designs inevitably prioritise certain objectives over others, targeting a specific trade-off among these three goals. Similarly, regulation in digital financial markets must strike a balance between the following three, hard-to-reconcile, characteristics:

- **Protection of financial consumer rights**: ensuring transparency, fairness, and safeguards against fraud or abuse.
- **Large-scale participation**: enabling broad and efficient market access without compromising stability.
- **Inclusive stakeholder governance**: giving diverse participants a meaningful role in shaping market rules and oversight.

2 A blockchain protocol is the set of rules and procedures that defines how a blockchain network operates. It governs how transactions are validated, nodes reach consensus so that blocks are added, and participants interact securely and fairly.

In the traditional approach, *protection of financial consumer rights* is enforced by consumer protection laws, financial regulations (e.g. Markets in Financial Instruments Directive (MiFID) II in the EU; Dodd-Frank in the United States), codes of conduct from regulators or financial institutions, and international guidelines (e.g. OECD; World Bank "Good Practices"). They can be articulated as follows:

- **Right to information**: consumers must receive clear, accurate, and timely information about financial products, including fees, risks, and terms and contractual obligations.
- **Right to choose**: consumers should have access to a variety of financial products and providers, allowing them to compare and select the most suitable option without coercion or unfair bundling.
- **Right to financial education**: consumers have a right to education and resources to help them make informed decisions and understand their rights and obligations.
- **Right to privacy**: consumers have the right to the protection of their financial data, which must not be shared or used without consent, except where legally required.
- **Right to redress**: consumers should have access to affordable and effective mechanisms to resolve disputes, such as ombudsman services, mediation, or legal remedies.

While these principles are not controversial, their enforcement is particularly difficult when financial services are offered through digital platforms. A clear example of regulation-heavy implementation is the European approach. MiFID rests on key pillars such as mandatory suitability and appropriateness tests, which product providers must perform before offering investments to different client categories. It also promotes fair competition across trading venues and enforces robust conduct standards for financial firms – all aimed at fostering efficient, integrated, and trustworthy markets. For instance, business models such as payment-for-order-flow arrangements are prohibited under this jurisdiction. The second pillar of EU consumer protection is the General Data Protection Regulation (GDPR), enacted in May 2018. This establishes a robust legal framework that gives individuals greater control over their personal data, while imposing strict obligations on organisations that collect, process, or store such data – both within and outside the EU. Many digital finance platforms rely on data collection for algorithmic analysis (e.g. for credit scoring or robo-investing). GDPR limits profiling and requires transparency and human oversight, especially when decisions have legal or significant effects on users.

It is fair to say that, among other factors, this regulatory approach is not fostering *large-scale participation* and poses strict limitation to digital economies of scale. In fact, these strict requirements are a well-known source of *increased compliance costs*. Platforms must invest in dedicated data protection officers and internal systems to

manage data requests. Failure to comply risks hefty fines. Not unexpectedly, retail trading in the European region is lagging, with recent survey-based evidence[3] showing that retail trading volume amounts to less than 10% of the total, with a significant lag with respect to to US, UK, Chinese, or Indian capital markets, where the fraction of retail trades generally exceeds 20-25%.

This regulation-heavy approach is also criticised for being distortionary. A common example is the effort to strengthen consumer protection by restricting retail investors' direct access to high-risk investments.[4] Such access is often seen as incompatible with broader concerns about the complexity of certain financial products that may expose consumers to unnecessary or unmanageable risks (Ghent et al. 2019). While portfolio-level risk diversification is undoubtedly desirable, the choice of an individual risk profile is ultimately a matter of personal preference. Limiting access to securities with high embedded leverage reduces the scope for risk-taking and has drawn strong criticisms from the advocates of the democratisation of markets.

Indeed, the most striking trend in modern retail trading is the explosive growth of derivatives, particularly options and futures. The global futures market has seen record-breaking volumes for six consecutive years, with 137 billion contracts traded in 2023, representing a 64% increase over 2022. This boom is attributed to the inherent features of these instruments, including the ability to leverage positions and implement event-driven strategies around news announcements and earnings reports. The 'Tesla complex' offers a well-known example of the structural changes brought to the capital market by the retail demand for options. Tesla's options market is uniquely large – often exceeding $200 billion in daily notional value and surpassing the rest of the S&P 500 single-stock options combined. This makes the stock highly responsive to derivatives flow rather than financial performance or other fundamentals. This implies that retail option positions have become mechanically influential in driving the stock's price through gamma hedging, where market makers are forced to buy shares in response to massive retail demand for short-dated call options. This dynamic creates powerful, self-reinforcing price surges largely disconnected from fundamentals, making Tesla behave more like a momentum-driven financial instrument than a traditional equity. As a result, Tesla has become 'too big to short', reshaped volatility signals across markets, and evolved into a highly reflexive, narrative-driven asset at the heart of a global options ecosystem.

The burden of ensuring informed participation and financial education at scale is increasingly shifting to the design of the platforms themselves (Arner et al. 2017). In this context, AI-powered tools – especially scalable robo-advisory systems – can play a pivotal role in operationalising the right to financial education and advice, which is central to modern consumer protection regimes. For traditional financial

3 Data source: Household Finance Consumption Network statistics
4 India's markets regulator is advocating 'structural reforms' for the country's derivatives market, following measures to limit retail participation

intermediaries, such investments may be not only strategic but existential, allowing them to remain competitive while contributing to a more inclusive and transparent digital finance ecosystem. By embedding personalised real-time guidance into user interfaces, robo-advisory technologies can reduce information asymmetries, mitigate behavioural biases, and promote more responsible risk-taking – key elements in aligning retail investor outcomes with public policy objectives (OECD 2023, Sironi 2016).

Paradoxically, while Europe is underperforming in traditional and derivative retail investment, it has emerged as a strong participant in crypto markets, showing that 'gamification' of digital financial investment and an increased risk appetite is a global trend among younger demographics. Segmentation between regulation-heavy compliant institutions and the 'Wild West' of crypto investing is clearly suboptimal, and regulators are rapidly expanding their action to crypto-assets. The Markets in Crypto-Assets Regulation (MiCAR), the EU's comprehensive legal framework for crypto-assets, was adopted in 2023 and has entered into force gradually starting mid-2024. These regulatory efforts have so far overlooked the critical challenge of ensuring that new investment opportunities are supported by *inclusive stakeholder governance* – the third pillar of the digital market trilemma.

While crypto-space narratives emphasise the role of blockchain and distributed ledger technologies as a way to decentralise and disintermediate control of financial resources, the emergent landscape has shown that those solutions that offer consumers greater control over their private data and contents are struggling. Their development is lagging relative to the centralised counterparts they are trying to replace. There is emerging consensus around the fact that it is difficult to undo the entrenched network effects of the leading centralised digital platforms. Pure algorithmic decentralisation may be overly expensive and, without legal enforcement, most of the decentralised platforms are actually controlled by a small number of agents, or even a single agent, that effectively act as intermediaries.[5]

In other words, the heterogeneity of organisational configurations enabled by the adoption of blockchain and distributed ledger technologies, particularly the emergence of decentralised autonomous organisations (DAOs), highlights the urgent need for a new regulatory framework capable of enforcing the core principles of governance.[6] Such a regulatory framework would ensure that crypto-asset issuers are governed according to core principles of transparency, accountability, and stakeholder alignment. To preserve market integrity and investor trust, the hybrid organisational forms emerging as token issuers – the capital demand side of the crypto-asset ecosystem – should meet governance standards comparable to those long applied to corporations accessing public markets.

5 There is a growing consensus on the limits of decentralization (e.g. Budish 2025, Bakos and Halaburda 2022, Cong et al. 2025).
6 For a related discussion about the regulation of decentralized organization, see also Tebaldi (2024).

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