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Regulated Activities on Public Blockchains

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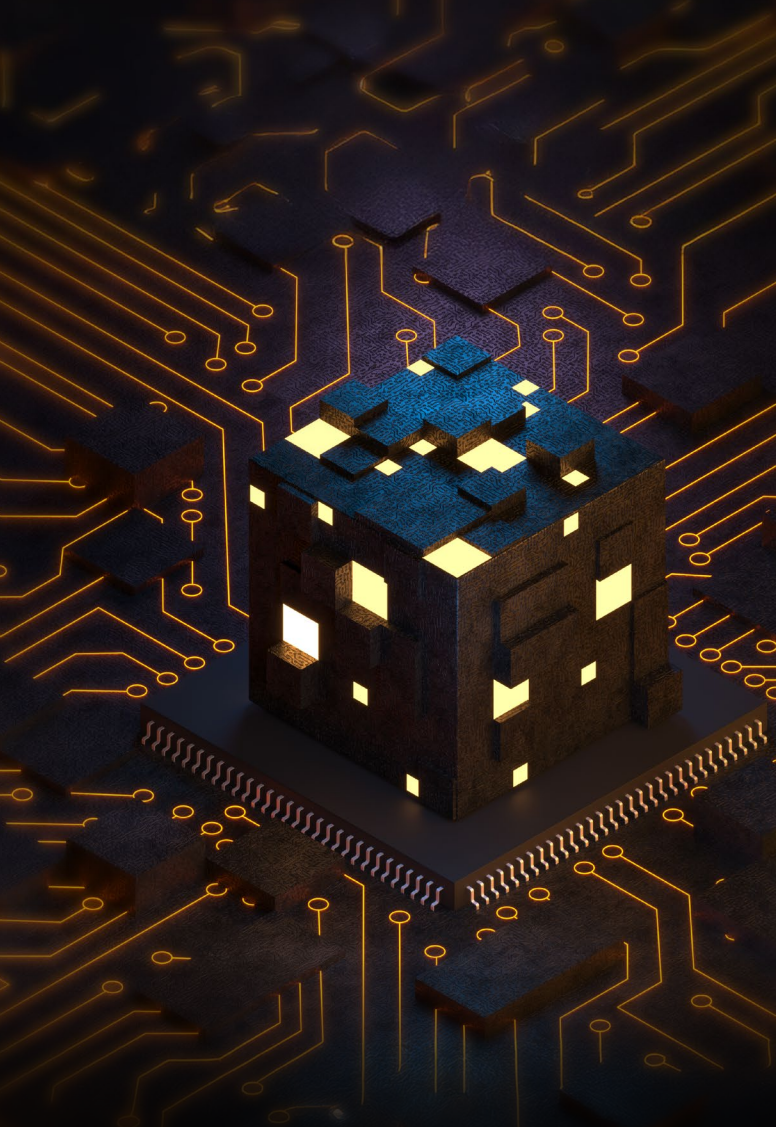
Executive Summary

This report summarises the results of the roundtable on regulated activities on public blockchains held at Point Zero Forum 2025 in Zurich. Speakers included national and international representatives from the public and the private sector such as authorities, administration, industry and academia. The roundtable was hosted by the Swiss Financial Market Supervisory Authority FINMA, and moderated by Nina Reiser, Professor at the University of St. Gallen (HSG) and affiliated with the Center for Financial Services Innovation at the HSG (FSI-HSG). The roundtable addressed potential use cases for regulated activities on public permissionless blockchains, the risks involved and how these risks can be mitigated, including by policymakers, international and industry standard setters, as well as regulators.



Potential use cases

Three potential use cases were identified on the application of public blockchains to regulated activities. The most promising use cases are linked to a multitude of actors working on one ledger and enabling a golden source of data. Examples for use cases included cross-border payments, the (trading and) settlement of tokenized assets, as well as the creation of liquidity pools, allowing for an efficient allocation of assets.

Risks

Several newly identified risks arising from the use of public infrastructure were discussed. Emphasis was placed on operational risks, legal risks, risks to the financial system as well as governance considerations and appropriate mitigation measures.

Regulation

In view of the identified risks, regulatory challenges regarding the coverage of blockchains as a recent technological innovation, as well as current approaches in regulation, were addressed before shifting attention to practical perspectives on regulatory efforts. In view of the mentioned challenges and risks, international (industry) standards and harmonisation efforts were identified as being highly promising and important.

1 Introduction

On 7 May 2025, national and international representatives from the public and the private sector such as authorities, administration, industry and academia shared their perspectives on regulated activities on public blockchains at the Point Zero Forum 2025 in Zurich. The roundtable was hosted by the Swiss Financial Market Supervisory Authority FINMA and moderated by Nina Reiser, Professor at the University of St. Gallen (HSG) and affiliated with the Center for Financial Services Innovation at the HSG (FSI-HSG).

The contributions of the experts provided valuable insights into potential use cases for regulated activities on public permissionless blockchains to enhance traditional financial services, the risks involved, and how these risks can be mitigated by regulation.

2 Potential Use Cases

In the initial phase of the discussion, experts discussed the potential use cases for regulated activities on public permissionless blockchains. They emphasised three specific use cases: cross border payments, the trading and settlement of tokenized assets and liquidity pools.

2.1 Cross Border Payments

The participants addressed current frictions in cross border payments, caused by the absence of a golden source of data amongst the parties along the value chain in the sense of a single, authoritative, and trusted set of data accessible to all market participants[1]. The root cause of delays and discrepancies in cross border payments lies in the fact that banks work within their individual databases and reconcile messages they receive against these databases. In this context, public blockchains offer a compelling value proposition by enabling robust and transparent data sharing along the value chain. The overarching objective should be to engineer a golden source of data that all transaction parties can equally access to reduce these frictions[2].

The value of data sharing itself, as well as the possibilities that arise from feeding transactions with said data, were emphasised. In general, public blockchains create a mature infrastructure for peer-to-peer real-time data sharing[3]. This could encompass anything from account validation – a real-time and cross border use case that can eliminate account failure – to enriching market transactions with diverse sources of market data. Beyond that, the participants considered the possibility of receiving data from diverse sources and aggregate in accuracy or test public indexes against private information to be a considerable advantage of public permissionless blockchains.

Furthermore, it was pointed out that public blockchains allow for composability of processes in the sense that smart contract-based financial protocols and assets can be reused within other protocols[4]. Along the same lines, transparency of data amongst payment parties, but also of onsite payments as well as market infrastructure and market transactions were mentioned to be opportunities going forward[5]. Nevertheless, when talking about composability and atomicity – in the sense of inseparability of transaction steps[6] – one should be reminded that true atomicity implies a common database. In this context, governance becomes crucial, as will be shown in section 3.4. Hence, the participants concordantly recommend leveraging the creation of connected infrastructure to enable a golden source of data and to realise the above-mentioned opportunities.

2.2 (Trading and) Settlement of Tokenized Assets

The discussion then turned to trading and settlement of tokenized assets, which the speakers identified as a promising use case for regulated activities on public permissionless blockchains[7].

On the trading side, the experts referred to the example of a Distributed Ledger Technology (DLT)-trading facility in Switzerland that settles assets on a public blockchain while cash settlement is not on the blockchain but is integrated directly into the Swiss National Bank's central bank money system and triggering fiat payments between banks. Along the same lines, potential advantages of on-chain cash settlement were highlighted. It was noted that Swiss trading participants – such as banks and other regulated financial institutions – are not apt to handle on-chain cash yet. Trading facilities currently use existing legacy systems, which fit their blockchain infrastructure and manage to integrate the blockchain world with traditional financial systems.

[1] See Guardian Fixed Industry Group, Guardian Fixed Income Framework (GFIF), 2024, https://www.mas.gov.sg/-/media/mas-media-library/development/fintech/guardian/guardian-fixed-income-framework.pdf, p. 9.

[2] See Guardian Fixed Industry Group, Guardian Fixed Income Framework (GFIF), 2024, https://www.mas.gov.sg/-/media/mas-media-library/development/fintech/guardian/guardian-fixed-income-framework.pdf, p. 18.

[3] See Guardian Fixed Industry Group, Guardian Fixed Income Framework (GFIF), 2024, https://www.mas.gov.sg/-/media/mas-media-library/development/fintech/guardian/guardian-fixed-income-framework.pdf, p. 26.

[4] See Fabian Schär, Enhancing Financial Services with Permissionless Blockchains, 2024, https://op.europa.eu/en/publication-detail/-/publication/cab54e8e-ad3b-11ef-acb1-01aa75ed71a1/language-en, p. 13.

[5] See Guardian Fixed Industry Group, Guardian Fixed Income Framework (GFIF), 2024, https://www.mas.gov.sg/-/media/mas-media-library/development/fintech/guardian/guardian-fixed-income-framework.pdf, p. 26.

[6] See Fabian Schär, Enhancing Financial Services with Permissionless Blockchains, 2024, https://op.europa.eu/en/publication-detail/-/publication/cab54e8e-ad3b-11ef-acb1-01aa75ed71a1/language-en, p. 14.

[7] For further information hereto see Guardian Fixed Industry Group, Guardian Fixed Income Framework (GFIF), 2024, https://www.mas.gov.sg/-/media/mas-media-library/development/fintech/guardian/guardian-fixed-income-framework.pdf, p. 21 et seqq.

On the asset side, the speakers identified a considerable potential for public blockchains to be used as settlement layer. This was attributed to the existing ecosystems of tokenized assets that can directly be used, while tapping into an existing universe of tokenized assets already having been issued on the public blockchains. Going further, the speakers established that the existing ecosystem of infrastructure is of even greater importance. According to the experts, over 40 banks in Switzerland use a cryptocurrency infrastructure, which allows them to tap into existing public blockchains. Hence, in their view, compliant deployment of regulated financial infrastructures on public blockchains is feasible. This requires a clear separation between the infrastructure layer – the public blockchain, which does not itself require regulation – and the smart contract layer, where regulated activities such as asset issuance and settlement logic can be appropriately governed. Accordingly, this setup allows to keep up high regulatory standards and leverage the potential of public blockchains.

2.3 Liquidity Pools

Thirdly, it was highlighted that the notion of programmatically tying payments to a successful closure of asset movement will be vital for moving capital markets forward in the future. This notion already plays a role in the restructuring of common debt securities and commercial papers on private blockchains in bilateral exchanges. Beyond that, it could offer many more opportunities in larger networks, for example regarding publicly listed securities, or rethinking how liquidity is made available in capital markets. Liquidity pools show great efficiency in matching parties that want to give or receive capital regarding pricing and data transparency[8]. While the potential is clear, speakers stressed the importance of robust governance frameworks to ensure the responsible operation of liquidity pools in regulated environments.

[8] For further information hereto see Guardian Fixed Industry Group, Guardian Fixed Income Framework (GFIF), 2024, https://www.mas.gov.sg/-/media/mas-media-library/development/fintech/guardian/guardian-fixed-income-framework.pdf, p. 32 et seqq.

3 Risks

The second part of the discussion focused on risks associated with public blockchains. While many risks mirror those in traditional finance such as market, counterparty, privacy, transaction sequencing, and scalability risks, some risks present new challenges in this context.

The participants focussed on the latter, addressing operational risks, legal risks, risks to the integrity of the financial system, and governance risks[9]. While public blockchains generally bear the same risks as traditional markets, some risks – mainly operational and integrity risks – come in a different shape and raise other questions. In accordance with this, the focus was set on the latter.

3.1 Operational Risks

The roundtable first addressed operational risks. Undeniably, when a regulated institution relies on settlement infrastructure they neither own nor control, the question of what can be done if the underlying infrastructure ceases to work arises. In this context, it is necessary to consider whether all data required to determine ownership within the business could be lost, how regulated institutions can safeguard against such data loss, and whether contingency should be established. Subsequently, it must be asked whether there is a possibility to resume the regulated operation in another way if the blockchain collapses.

The experts explored ways to mitigate operational risks, highlighting industry standards and open-source software as key enablers, particularly the importance of standards in ensuring smart contracts and software which can be transferred across blockchain networks.

On the use of public blockchains, views differed. Some argued that operational risks justify starting with private permissioned blockchains, as they offer structures familiar to traditional market infrastructures. Others noted that public blockchain foundations and developer communities are responding by building more enterprise-grade, regulation-ready solutions. These efforts aim to gradually support compliant adoption of public blockchains as their resilience and suitability for regulated use cases improve.

Other participants argued in another direction, emphasising that the trend should not go towards centralisation. Rather, the ledger should remain technologically neutral and application agnostic, and should not be designed to fit a specific application. These participants argued that the requirements for regulated activities should be implemented either (1) as a layer two with a separate blockchain that logs into the base layer, or (2) on a smart contract level, but the dynamic should not shift towards having a general-purpose blockchain that is only suitable for one specific use case. Instead, the trend should evolve towards a new kind of security, not handed out by one trusted person, but rather enabled by the number of participants in the blockchain and the amount of usage.

Some speakers cautioned against viewing centralisation as a solution to operational risks, noting that centralised systems also carry resilience vulnerabilities. Instead, they advocated for harnessing the strengths of decentralisation to enhance resilience. While fully public blockchains may not yet meet the needs of regulated institutions, semi-public networks – with diverse, approved validators and no single point of control - can offer a comparable level of trust to traditional financial market infrastructures.

The participants called for a balanced view of both opportunities and risks. They noted the emergence of institutional-grade Layer 1 blockchains as a potential middle ground – provided these networks maintain composability and do not overly silo use cases. A key concern was avoiding the separation of assets from their associated payments, which would reduce efficiency.

The discussion also highlighted existing business continuity measures for blockchain-related failures. Regulated entities are already required to assess which blockchains they may operate on, as part of broader continuity planning. The participants underscored the need for internationally coordinated industry standards to guide these practices.

[9] For further information hereto see Guardian Fixed Industry Group, Guardian Fixed Income Framework (GFIF), 2024, https://www.mas.gov.sg/-/media/mas-media-library/development/fintech/guardian/guardian-fixed-income-framework.pdf, p. 50 et seqq.

3.2 Legal Risks

Secondly, it was pointed out that cross-border transactions can involve several jurisdictions, under which technical terms are interpreted differently, harbouring the danger of conflicts of law between jurisdictions. In this regard, an international set of documentation, which defines and sets out all existing interpretations, was considered adequate to mitigate interpretation risks. The downside of this measure appeared to be its complexity, since the elaboration of such a set of documentation would involve a certain degree of global harmonisation of diverging considerations. Beyond that, the experts addressed the potential risk regarding the enforceability of smart contracts. Indeed, enforceability necessitated an agreement, which has not yet been reached.

3.3 Risks to the Integrity of the Financial System

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3.4 Governance Considerations

Finally, the yet unanswered question of who exercises control of public, permissionless blockchains and how disputes within such systems should be addressed was raised. This question is directly linked to governance challenges that are inherent to public permissionless blockchains, which must be addressed. Since most blockchains were meant for more general purposes than to support financial transactions, the use for financial services necessitates layering in controls to address risks.

A significant feature of public permissionless blockchains is the absence of a gatekeeper with decision-making power. Rather, it allows anyone to participate in consensus calls, which can be used to mitigate governance risks. One can write proposals on how to extend the ledger based on requirements for regulated activities and jump on the call to make sure this makes its way into the next implementation[10]. Nevertheless, the possibility of concentration of power within influential people remains a risk factor and shows that public permissionless blockchains do not necessarily lead to true decentralisation of control.

The fundamental issue raised in this regard is the ongoing debate about the level at which the permissioning mechanism should be implemented. The participants outlined three potential levels at which permissioning could occur: (1) the ledger level, (2) the token level, and (3) a higher level of abstraction, such as a smart contract or a wallet. They agreed that it does not appear to be expedient to have restrictions on the base layer itself[11]. Despite the efficiency that implementation of permissioning on an asset level would imply, the question must be raised whether it was worthwhile to sacrifice the benefit of widely accessible public blockchains for the benefit of regulation. The experts concluded that this solution should only be considered if there were no other mitigating measures to be implemented, which they argued was not the case. Rather they advocated for the implementation of permissioning mechanisms on smart contract level.

3.5 Appraisal

The experts proposed a neutral stance to these risks. They highlighted that there are technical solutions for many challenges and that the preferred approach should not necessarily be the instauration of a central authority. Indeed, this could lead to centralisation risks and severe drawbacks in terms of competition theory, allowing a monopoly rent extraction, and more importantly, introducing a political risk globally.

[10] C.f. for example Consensys, Ethereum, evolved: PECTRA, 2025, https://consensys.io/ethereum-pectra-upgrade (last accessed 21 May 2025).

[11] See Fabian Schär, Enhancing Financial Services with Permissionless Blockchains, 2024, https://op.europa.eu/en/publication-detail/-/publication/cab54e8e-ad3b-11ef-acb1-01aa75ed71a1/language-en, p. 34.

4 Regulation

In the final round of discussion, emphasis was put on the regulation. The speakers addressed the questions, whether more and, if so, which regulation is needed, and which type of regulation is best suited to address risks on public permissionless blockchains.

The participants identified existing regulatory challenges and discussed current approaches in regulating activities on public permissionless blockchains before sharing insights into practical perspectives and pointing out needs going forward. There was a consensus that the underlying goal of regulation should be to provide certainty for innovators, regardless of an implementation within existing regulation or a conception of new guidance.

4.1 Regulatory Challenges and Current Approaches in Regulation

In essence, the speakers held that it remained difficult to imagine regulated transactions on a system that is completely permissionless. Nevertheless, this did not imply that the infrastructure layer cannot be public in the sense of openly accessible. Rather, it indicated that access to regulated services might need to be restricted, since regulated transactions necessitate specific compliance checks – whether on the asset layer or another point in the architecture. In this regard, the Swiss Financial Markets Supervisory Authority FINMA maintains a technology agnostic stance, and the selection of a particular technological solution should remain a choice of market participants[12].

The first regulatory challenge raised were the interdependencies within the broader legal framework. Particular attention was given to the conditions necessary for the valid transfer of a digital asset or the circumstances under which a digital asset qualifies as a custodial asset. The latter qualification was of great importance in the sense that it granted clarity on the question whether a crypto asset is bankruptcy remote. The speakers agreed that these questions should be addressed on an international level to provide clarity for practitioners.

It was emphasised that regulation should not drive practitioners into a technology choice in an early development stage, since this would stand in contradiction with the basic principles and purpose of DLT. Rather, the experts reported a greater need for flexibility when dealing with risks and suggest leaving priority to the market to provide solutions to mitigate risks on different layers before introducing further regulation of activities on public permissionless blockchains. In general, some speakers argued for a more forward-looking regulation that was tailored to blockchain technology and allowed the translation of a digital activity into words and grant early adopters certainty.

Additionally, it was reported that regulators increasingly shift away from a “same activity, same risks, same rules”-approach towards a “same regulatory outcome for the same activity”-approach. This revealed that the above identified risks need to be dealt with differently than the risks that regulators encountered so far. This internationally observed shift was perceived as a positive development, since activities cannot be treated similarly anymore, which in turn justified a regulatory focus on the outcome rather than on the activity itself.

Nevertheless, the experts indicated that this shift does not necessarily imply a change in regulatory approach. Legislations which traditionally follow a principle-based approach and technology agnostic approach that can deal with a broad variety of questions going forward, while legislations which commonly aim at a more detailed and specific regulation might need to adapt to this new approach. In essence, the participants generally advocated for a minimum-standard or principle-based approach, given the fact that technology driven, or technology specific regulation would already be outdated when entering into force.

[12] See Stefan Walter, Financial innovation and regulation in Switzerland, 2025, https://www.finma.ch/en/~/media/finma/dokumente/dokumentencenter/myfinma/finma-publikationen/referate-und-artikel/20250506-rede-wals-point-zero-forum.pdf?sc_lang=en&hash=E0697CF4D0BDE01B483F5492E6E6BA89, p. 1.

Beyond that, regarding international efforts, it was stated that reference implementations offer a possibility to enact Anti-Money Laundering (AML) and Counter-Terrorism Financing (CTF) controls, not on a token level, but at smart contract level. In this sense, making more reference implementations publicly available internationally could be an expedient regulatory approach while being more achievable than drafting a global standard.

4.2 A Practical Perspective on Regulation

From a practical standpoint, standards have proven effective in making decentralised systems viable for financial transactions[13]. There is growing demand for internationally accepted standards to support a global trading infrastructure among financial institutions.

Albeit, standards currently contain relatively simple regulations, and the practical application will require more detailed regulation in the long term. In this regard, the main question that remained to be answered was whether the focus of regulatory efforts would be on detailed standards which claim general applicability but demand compromises from all jurisdictions, or it would be on general and principle-based standards, which would be less detailed but more flexible. Both approaches demand a high level of international collaboration.

[13] For further information hereto see Guardian Fixed Industry Group, Guardian Fixed Income Framework (GFIF), 2024, https://www.mas.gov.sg/-/media/mas-media-library/development/fintech/guardian/guardian-fixed-income-framework.pdf, p. 42 et seqq.

5 Conclusion

The speakers highlighted three promising use cases for public blockchains in regulated finance, with a shared ledger emerging as a particularly valuable tool to improve payment systems and address persistent inefficiencies.

While blockchain introduces new and distinct risks compared to centralised systems, these can be managed through smart contract-level controls, thus preserving innovation while ensuring security.

Looking ahead, the experts called for a long-term, principle-based approach to regulation, prioritising privacy, governance, and internationally aligned standards to enable safe and scalable adoption.

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