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This volume, titled **"Regulatory and Compliance Insights"**, focuses on the significant progress and ongoing challenges in the field of financial regulation and compliance. The articles are organized to cover key themes such as, capital markets, independence of financial supervision, digital transformation, and capacity building, reflecting the comprehensive approach needed to address the dynamic nature of financial markets.

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Digital Finance

1.1
Academic Article

The Changing Dynamics of Crypto Regulation

Prof. Christopher P. Buttigieg and Samantha Cuyle

Authors' Bios

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Abstract

This article studies the evolving international regulatory landscape for crypto-assets and highlights the necessity of harmonised and proportionate regulatory frameworks to foster innovation while ensuring market integrity, consumer protection, and financial stability. Efforts at both international and regional levels are examined, including comprehensive regulations like the EU's MiCA Regulation and regulatory initiatives in the US. The aim of the article is to briefly review the prudential and conduct regulatory developments at the international level, within the EU, and in the US, concerning crypto-asset regulation, and to highlight the importance of a harmonised and proportionate approach to ensure a stable and fair market environment while fostering innovation.

The Changing Dynamics of Crypto Regulation

Received (in revised form): 8th April 2025

Introduction

In November 2018, the Parliament of Malta enacted the Virtual Financial Assets Act[1] to regulate offerings of crypto-assets and the operations of crypto-asset service providers ('CASPs'). This legislation was augmented by regulations[2] and rules issued by the Malta Financial Services Authority ('MFSA')[3], which required the registration of whitepapers for crypto-asset offers and the authorisation and supervision of CASPs. At that time, there were no established international or regional standards harmonizing the regulation of this sector.[4]

1 'Virtual Financial Assets Act, Chapter 590 of the Laws of Malta' (Malta Legislation) https://legislation.mt/eli/cap/590/eng/pdf accessed 02.06.2024.

2 'Virtual Financial Assets Regulations, Legal Notice 357 of 2018 of the Laws of Malta as amended (Malta Legislation) https://legislation.mt/eli/sl/590.1/eng/pdf accessed 02.06.2024.

3 Malta Financial Services Authority, 'Virtual Financial Assets Rules' (Malta Financial Services Authority) https://www.mfsa.mt/our-work/virtual-financial-assets/rules/ accessed 02.06.2024.

4 Buttigieg, Christopher P. and Efthymiopoulos, Christos, The Regulation of Crypto-assets in Malta: The Virtual Financial Assets Act and Beyond (October 15, 2018, Law and Financial Markets Review, https://doi.org/10.1080/17521440.2018.1524687, Available at SSRN: https://ssrn.com/abstract=3747899

Today, the regulatory environment continues to significantly evolve. International standards have been established, and the European Union ('EU') has enacted the Markets in Crypto-Assets Regulation[5] ('MiCA'), which provides a harmonized framework for the regulation of crypto-assets. In the United States ('US'), federal regulatory enforcement actions have led to the creation of a preliminary framework for crypto regulation, which aims to divide regulatory responsibilities between the Securities and Exchange Commission ('SEC') and the Commodity Futures Trading Commission ('CFTC').[6] Nevertheless, political developments in the US are rapidly changing the regulatory outlook for crypto-assets in a jurisdiction which has previously regulated through enforcement.

The central argument of this article is that the evolving regulatory landscape for crypto-assets underscores the necessity of harmonised and proportionate regulatory frameworks to foster innovation while ensuring market integrity, consumer protection, and financial stability. Efforts at both international and regional levels, including comprehensive regulations like the EU's MiCA and coordinated guidelines from bodies such as the Financial Stability Board ('FSB') and the International Organization of Securities Commissions ('IOSCO'), illustrate a concerted move towards creating a cohesive and robust regulatory environment. In the US, the development of frameworks such as the 21st Century Act[7] ('FIT21') aim to provide clear regulatory guidance, enhance transparency, and delineate responsibilities between the SEC and CFTC, reflecting similar objectives.

Effective supervision by authorities like the European Banking Authority ('EBA') and the European Securities and Markets Authority ('ESMA') in the EU, and their counterparts in the US, is critical for promoting supervisory convergence and mitigating regulatory fragmentation especially considering the cross-border nature of the sector. These coordinated efforts are essential for the successful integration and sustainable development of the global crypto-asset market. The aim of this article is to briefly review the prudential and conduct regulatory developments at the international level, within the EU, and in the US concerning crypto-asset regulation, and highlighting the importance of a harmonised approach to ensure a stable and fair market environment. The article does not examine Anti-Money Laundering and Countering the Financing of Terrorism ('AML/CFT') developments, which will be the subject of a separate article.

The rest of the article is divided into three additional sections and a conclusion. The next section delves into international developments, focusing on the roles of the FSB and the IOSCO and their global regulatory frameworks and recommendations. The European Union section discusses the comprehensive approach of MiCA, the roles of ESMA and EBA, and their focus on supervisory convergence and preparation for new supervision tasks. The US section examines the regulatory landscape, highlighting the balance between federal and state regulations and introducing the proposed FIT21 framework and the possible direction which crypto policy in the US may take in the coming years. The article then compares the EU and US regulatory approaches, emphasizing the importance of international coordination. Finally, the conclusion recaps the need for harmonised and proportionate regulation, the importance of supervisory convergence, and provides a future outlook for the global crypto-asset market.

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5 Regulation (EU) 2023/1114 of the European Parliament and of the Council of 31 May 2023 on markets in crypto-assets and amending Regulations (EU) No 1093/2010 and (EU) No 1095/2010 and Directives 2013/36/EU and (EU) 2019/1937 (Text with EEA relevance).

6 H.R.4763 - Financial Innovation and Technology for the 21st Century Act, https://www.congress.gov/bill/118th-congress/house-bill/4763/text?s=1&r=1&q=%7B%22search%22%3A%5B%22Financial+Innovation+and+Technology+for+the+21st+Century+Act.%22%5D%7D accessed 26.08.2024.

7 Fn8

01

International Developments – Financial Stability and Securities Regulation

In July 2023, the FSB issued recommendations on crypto-assets and stablecoins, aiming to provide a robust framework for their regulation.[8] These recommendations focus on risk management, consumer protection, and financial stability. Similarly, the IOSCO has issued high-level recommendations[9], which align closely with those of the FSB.

The FSB's recommendations drew from the 2021 - 2022 market events in the field of crypto-assets and insights from FSB's public consultation. The FSB framework follows the principle of 'same activity, same risk, same regulation,' promoting consistent and comprehensive regulation of crypto-asset activities and stablecoins based on their risks.[10] This global framework aims to address the industry's inherent volatility and potential systemic spillovers into the broader financial system. The high-level recommendations ensure adequate safeguarding of client assets, address conflicts of interest, and enhance cross-border cooperation.[11]

In parallel, IOSCO developed eighteen policy recommendations designed to support regulatory consistency and address market integrity and investor protection concerns in its member jurisdictions.[12] These principles-based recommendations, which were adopted in November 2023, apply global securities market standards to CASPs, covering activities from offering and trading to settlement, surveillance, and custody. IOSCO's recommendations also emphasize enhanced regulatory cooperation to tackle cross-border challenges and prevent regulatory arbitrage.

The FSB and IOSCO monitor the implementation of their recommendations on an ongoing basis through mechanisms such as peer reviews. Additionally, the International Monetary Fund ('IMF') also collaborates with the FSB[13] and plays a pivotal role through its Financial Sector Assessment Program, which evaluates countries' adherence to international standards.[14] To this end, once can expect that any regional crypto-asset frameworks established going forward will embody these recommendations and standards, ensuring a degree of harmonisation in the regulatory frameworks for crypto-assets around the globe.

8 FSB, 'FSB finalises global regulatory framework for crypto-asset activities' (Financial Stability Board, July 2023) https://www.fsb.org/2023/07/fsb-finalises-global-regulatory-framework-for-crypto-asset-activities/ accessed 02.06.2024.

9 IOSCO, 'IOSCO Press Release – 16 November 2023' (International Organization of Securities Commissions - IOSCO/MR/25/ 2023) https://www.iosco.org/news/pdf/IOSCONEWS712.pdf accessed 02.06.2024.

10 fn9.

11 fn9.

12 IOSCO, 'Policy Recommendations for Crypto and Digital Asset Markets – Final Report' (International Organization of Securities Commissions) https://www.iosco.org/library/pubdocs/pdf/IOSCOPD747.pdf accessed 02.06.2024.

13 IMF-FSB 'Synthesis Paper: Policies for Crypto-Assets' 07.09.2023 https://www.fsb.org/2023/09/imf-fsb-synthesis-paper-policies-for-crypto-assets/ accessed 28.08.2024

14 International Monetary Fund, 'Financial Sector Assessment Program' (International Monetary Fund) https://www.imf.org/en/Publications/fssa accessed 02.06.2024.

02

European Union – Markets in Crypto-Assets Regulation (MiCA)

At the European level, MiCA serves as a robust legal framework designed to bring regulation to a market that has long been largely unregulated. It establishes uniform standards for issuers of crypto-assets not previously covered by other EU financial services legislation, as well as for providers offering services related to these crypto-assets. The framework addresses several key areas, including: transparency and disclosure obligations for the issuance, public offering, and trading of crypto-assets; the authorisation and supervision of crypto-asset service providers and issuers of asset-referenced tokens and stablecoins; and the organizational, operational, and governance requirements for issuers and service providers.[15] Furthermore, MiCA incorporates safeguards for crypto-asset holders and clients of service providers, while also implementing measures to combat insider trading, the unauthorised disclosure of confidential information, and market manipulation.[16] MiCA also ensures alignment with IOSCO and FSB frameworks while taking into account the sector's specific needs and the principle of proportionality to facilitate the growth and innovation of smaller and emerging entities within the EU. MiCA excludes services and offers which are carried out in a fully decentralised manner without any intermediary from its scope[17]. Such full decentralisation would imply that no single person or entity has control over a decentralised application.

The ESMA and the EBA play crucial roles in the effective implementation of MiCA. Both authorities are responsible for drafting level 2 regulations, which provide detailed technical standards and requirements necessary for the practical application of MiCA's principles.[18] This includes the development of regulatory technical standards and implementation technical standards, ensuring the regulation is comprehensive and operable. Specifically, the EBA oversees these functions with respect to the issuance of stablecoins, focusing on prudential supervision, consumer protection, and the establishment of AML/CFT frameworks.[19] Meanwhile, ESMA's responsibility extends to the remaining crypto market players, which include CASPs and issuers of other crypto-assets, ensuring their operations adhere to transparency, governance, and market integrity standards.[20] For this purpose ESMA has established the Digital Finance Standing Committee ('DFSC'), which facilitates coordination and convergence among National Competent Authorities ('NCAs'), aiming to develop consistent and comprehensive implementation of EU regulatory frameworks, including the MiCA. In this regard, several level 3 guidelines have been prepared by the DFSC and adopted by ESMA[21].

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15 European Parliamentary Research Service, 'Briefing – Markets in Crypto-Assets (MiCA)' (European Parliamentary Research Service) https://www.europarl.europa.eu/thinktank/en/document/EPRS_BRI(2022)739221 accessed 02.06.2024.

16 WatsonLaw, 'Market Abuse Prevention Under MICA' (WatsonLaw) https://watsonlaw.nl/en/mica-market-abuse-prevention-under-mica/ accessed 02.06.2024.

17 See Recital 22 of Regulation (EU) 2023/1114

18 ESMA, 'Markets in Crypto-assets Regulation (MiCA)' (European Securities and Markets Authority) https://www.esma.europa.eu/esmas-activities/digital-finance-and-innovation/markets-crypto-assets-regulation-mica accessed 02.06.2024.

19 EBA, 'Markets in Crypto-assets' (European Banking Authority) https://www.eba.europa.eu/legacy/markets-crypto-assets accessed 02.06.2024.

20 Fn17.

21 ESMA, 'Guidelines, Recommendations and Technical Standards' https://www.esma.europa.eu/publications-and-data/guidelines-recommendations-and-technical-standards accessed 08.04.2025

In parallel with the policy development, the EBA, will be the first supranational regulator of crypto-assets globally and is undertaking various actions to prepare for its supervisory tasks related to significant stablecoins, as well as other responsibilities.[22] The EBA is responsible for conducting assessments of stablecoins issued in the EU to determine if they meet the significance criteria outlined in Article 43(1) of MiCA. If a stablecoin is classified as 'significant', the EBA is tasked with executing the relevant supervisory duties under MiCA, which include establishing and chairing supervisory colleges for all significant stablecoins.

Both ESMA and EBA are pivotal in promoting supervisory convergence across EU member states, working to ensure that crypto-asset regulation and enforcement are consistent and harmonized throughout the Union.[23] This involves coordinating with national competent authorities to implement MiCA effectively, facilitating training, and sharing best practices to overcome discrepancies in regulatory enforcement. By doing so, they aim to mitigate fragmentation within the EU's regulatory landscape and foster a more cohesive environment for crypto-assets. Their roles also include monitoring market developments, identifying emerging risks, and advising the European Commission on necessary adjustments to the regulatory framework to address new challenges in this rapidly evolving sector. This coordinated effort helps create a unified and robust crypto-asset market within the EU, enhancing investor protection and promoting financial stability.

03

United States – FIT21

The US regulatory landscape is characterised by a blend of federal and state-level regulations[24], allowing states some flexibility to innovate. However, this has resulted in inconsistencies and regulatory uncertainty.

The SEC and the CFTC have been particularly active in enforcement, setting significant precedents through their actions. For example, in 2015, the CFTC declared Bitcoin as a commodity in one of its enforcement actions[25]. Federal courts have been instrumental in clarifying jurisdictional questions, product definitions, and the application of existing laws to digital assets. The CFTC's jurisdiction typically covers commodities and futures markets, while the SEC oversees securities, including certain digital assets that qualify as investment contracts under the Howey Test.

22 Fn18.

23 ESMA, 'Supervision and Convergence' (European Securities and Markets Authority) https://www.esma.europa.eu/esmas-activities/supervision-and-convergence accessed 02.06.2024.

24 See for example the New York State – Department of Financial Services – Virtual Currency Regulation - New York State Department of Financial Services, 'Virtual Currency Businesses' (New York State Department of Financial Services) https://www.dfs.ny.gov/virtual_currency_businesses accessed 02.06.2024..

25 See 'CFTC Orders Bitcoin Options Trading Platform Operator and its CEO to Cease Illegally Offering Bitcoin Options and to Cease Operating a Facility for Trading or Processing of Swaps without Registering' 17.09.2015 https://www.cftc.gov/PressRoom/PressReleases/7231-15 accessed 26.08.2024

Recent congressional efforts, such as the proposed "21st Century Act" ('FIT21'), aim to create a market structure framework that delineates regulatory jurisdiction over digital assets between the SEC and the CFTC. FIT21 seeks to protect consumers and enhance transparency and accountability among market participants. The jurisdictions of the CFTC and SEC are determined through the classification of digital assets as either digital commodities or restricted digital assets. [26] A digital asset would be considered a digital commodity if it is issued on a fully decentralised distributed ledger and the issuer or affiliated persons do not together own or control more than 20% of the tokens in issuance[27]. Digital commodities will fall within scope of the lighter framework which FIT21 proposes for such assets and be subject to oversight by the CFTC.

In terms of the FIT21 proposal, digital asset developers would be required to provide accurate and relevant disclosures about their projects' operation, ownership, and structure. Consumer-serving institutions, such as exchanges, brokers, and dealers, would need to provide appropriate disclosures to customers, segregate customer funds from their own, and mitigate conflicts of interest through registration, disclosure, and operational requirements.

The FIT21 Bill further proposed stringent regulatory measures to oversee cryptocurrency exchanges, ensuring they operate within the legal framework and adhere to new guidelines, including detailed reporting and compliance with AML/CFT laws. To further protect consumers, the bill proposed provisions for increased security measures and fraud prevention. The collapse of FTX[28], a major cryptocurrency exchange, played a significant role in prompting the introduction of the FIT21 Bill. The scandal highlighted significant gaps in the regulatory framework, revealing the need for more stringent regulations to prevent similar occurrences in the future. FIT21 aims to address these gaps, ensuring a more secure and transparent market environment for digital assets.

Additionally, FIT21 proposed a pathway for digital asset developers to raise funds and provides a clear process for determining SEC and CFTC jurisdiction over digital asset transactions. The framework also aims to protect institutions that serve digital asset customers by establishing clear jurisdictional boundaries between the SEC and CFTC and creating comprehensive registration regimes to facilitate lawful operations in the digital asset markets[29]. While this bill has passed the House of Representatives in May of this year, the change in US Administration in 2025 is likely to change the trajectory of this proposal.

The CFTC Global Markets Advisory Committee, an independent advisory body, has been influential in promoting regulatory consistency[30]. They have recently released a comprehensive digital asset taxonomy, vetted by international stakeholders, which aims to bridge gaps and promote international regulatory alignment. This taxonomy aligns with the broader goals of both the CFTC and SEC to foster innovation and ensure market integrity, providing a standardized framework for classifying digital assets, thereby reducing ambiguity and enhancing regulatory clarity.

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26 Congressional Research Service, 'An Overview of H.R 4763, Financial Innovation and Technology for the 21st Century Act' 17.05.2024 https://crsreports.congress.gov/product/pdf/IN/IN12223 accessed 28.08.2024

27 Fn7, see definition of 'Decentralized Network' and 'Digital Commodity'

28 Fu, S., Wang, Q., Yu, J., & Chen, S. 'FTX collapse: a Ponzi story'. In International Conference on Financial Cryptography and Data Security (pp. 208-215). Cham: Springer Nature Switzerland 05.12.2023

29 The House Financial Services Committee 'House Passes Financial Innovation and Technology for the 21st Century Act with Overwhelming Bipartisan Support' 22.05.2024 https://financialservices.house.gov/news/documentsingle.aspx?DocumentID=409277 accessed 26.08.2024

30 See CFTC Press Release 'CFTC's Global Markets Advisory Committee Advances 3 recommendations 07.03.2024 https://www.cftc.gov/PressRoom/PressReleases/8873-24 accessed 26.08.2024

The overlapping jurisdictions of the SEC and CFTC reflect their differing mandates and regulatory philosophies. The SEC, with its focus on investor protection and market integrity within securities markets, applies stringent rules to digital assets deemed securities. In contrast, the CFTC, with its oversight of commodities and derivatives, applies regulations aimed at ensuring market integrity and preventing systemic risks. These differences necessitate a clear and cooperative regulatory approach to effectively oversee the rapidly evolving digital assets space. The FIT21 framework aimed to embody such an approach, striving for a balanced oversight mechanism that enhances transparency and reduces conflicts of interest while providing a robust legal foundation for digital asset markets.

Although it might bring much needed regulatory clarity, the FIT21 Bill is opposed by some, noting that this regulatory framework may fall short of the intended objectives. The SEC in fact issued a statement opposing the introduction of the Bill for various reasons, including the fact that various assets which would be deemed as securities following application of the Howey Test, would instead be considered digital asset commodities under the new framework. Furthermore, the SEC noted that the self-classification system catered for by FIT21 runs the risk of the SEC being overwhelmed by a large volume of such declarations, and the Commission would not have sufficient resources to appropriately challenge such determination, creating consumer protection gaps[31]. The SEC in fact undertook significant enforcement action throughout 2024, by inter alia charging several crypto companies for unauthorised activity, including some of the largest incumbents in the industry such as Coinbase[32], Kraken[33] and Binance[34], further clarifying its position that it considers a large proportion of crypto-asset activities are considered akin to securities exchange activities.

Nevertheless, recent political developments in the US including the election of Donald Trump as the next President of the US have had significant effects on the growth of the crypto market and the price of legacy crypto-assets such as Bitcoin, with the crypto-asset sector seeing this development as a signal of an upcoming 'golden era' within the crypto industry[35]. The SEC has in fact established a crypto task force tasked with a public statement by a SEC Commissioner, further signalling a change in the SEC's stance towards crypto going forward[36]. The US administration also indicated its intention prioritise crypto policy in the US through the issuance of an Executive Order setting out the new administration's intentions to support the responsible growth and use of crypto-assets and blockchain technology[37]. It is therefore highly likely that the US will change its proposed policy stance on crypto in the coming years.

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31 SEC, 'Statement on the Financial Innovation and Technology for the 21st Century Act', 22.05.2024, https://www.sec.gov/newsroom/speeches-statements/gensler-21st-century-act-05222024 accessed 26.08.2024

32 SEC, 'SEC Charges Coinbase for Operating as an Unregistered Securities Exchange, Broker and Clearing Agency', 06.06.2023 https://www.sec.gov/newsroom/press-releases/2023-102 accessed 13.01.2025

33 SEC, 'SEC Charges Kraken for Operating as an Unregistered Securities Exchange, Broker and Clearing Agency', 20.11.2023 https://www.sec.gov/newsroom/press-releases/2023-237 accessed 13.01.2025

34 SEC, 'SEC Files 13 Charges Against Binance Entities and Founder Changpeng Zhao', 05.06.2023 https://www.sec.gov/newsroom/press-releases/2023-101 accessed 13.01.2025

35 Financial Times, 'Crypto industry dreams of a golden era under Tump', 02.01.2025, https://www.ft.com/content/af23fffc-e560-42eb-84a0-f25ca8d693c0 accessed 13.01.2025

36 'The Journey Begins', Statement by SEC Commission Hester M Peirce, 04.02.2025 https://www.sec.gov/newsroom/speeches-statements/peirce-journey-begins-020425 accessed 19.02.2025

37 US Whitehouse Executive Order, 'Strengthening American Leadership in Digital Financial Technology', 23.01.2025, https://www.whitehouse.gov/presidential-actions/2025/01/strengthening-american-leadership-in-digital-financial-technology/ accessed 27.01.2025

04

Challenges and Comparison between EU and US

The EU's MiCA, plays a crucial role in managing digital innovation across the region. The DFSC significantly aids ESMA in navigating issues related to crypto-assets and aims to ensure the consistent implementation of MiCA. However, there are challenges associated with this approach. The committee's level 3 guidance, which is vital for ensuring regulatory consistency, may unintentionally lead to over-regulation and increased bureaucracy. Although designed to protect investors and maintain market integrity, the heavy compliance burdens may stifle innovation, eventually hampering Europe's competitive stance in the global crypto ecosystem. This rigidity contrasts sharply with the more dynamic approach recently seen in the United States.

The ESMA, through its Supervisory Briefing on the Authorization of CASPs, provides essential guidance to NCAs.[38] This briefing uses a risk-based methodology that treats CASPs as high-risk entities due to their interactions with retail investors and their inherently cross-border operations. While this structured approach seeks to protect investors and support market stability, it may also amplify bureaucratic demands on stakeholders within the EU. This could deter innovation and create barriers to entry in a rapidly evolving market—highlighting a disconnect between Europe's political aspirations regarding competitiveness[39] and the pragmatic realities of regulatory implementation.

Conversely, the recent regulatory shift in the United States seeks to position the country as a leader in digital asset innovation, particularly under the policies introduced by former President Trump. The establishment of the President's Working Group on Digital Asset Markets[40] aims to foster a clearer regulatory environment and support for the crypto industry. Initiatives such as enhancing access to banking services for crypto companies and promoting U.S. dollar-backed stablecoins indicate a commitment to alleviating barriers previously impeding the sector's growth. The "Crypto 2.0" task force within the SEC[41] epitomizes a regulatory stance that, unlike earlier reactive approaches, is conducive to industry expansion. Furthermore, strategic appointments of pro-crypto figures and Congressional interest in measures like the FIT21 underscore a bipartisan commitment to regulatory clarity in the crypto arena.[42]

38 European Securities and Markets Authority, 'Supervisory Briefing on the Authorisation of CASPs under MiCA' (2024) https://www.esma.europa.eu/document/supervisory-briefing-authorisation-casps-under-mica accessed 08.04.2025.

39 European Parliament, 'Metsola to EUCO: Focus on Competitiveness, Security, Defence, and Social Equality' (2024) https://www.europarl.europa.eu/news/en/press-room/20240624IPR22302/metsola-to-euco-focus-on-competitiveness-security-defence-and-social-equality accessed 08.04.2025.

40 The White House, 'Strengthening American Leadership in Digital Financial Technology' (2025) https://www.whitehouse.gov/presidential-actions/2025/01/strengthening-american-leadership-in-digital-financial-technology/ accessed 08.04.2025.

41 U.S. Securities and Exchange Commission, 'Written Submission to the Crypto Task Force' (24 March 2025) https://www.sec.gov/about/crypto-task-force/written-submission/ctf-input-tupper-3-24-25 accessed 08.04.2025.

42 Jones Day, 'Regulating Digital Assets: FIT21 Seems to Fit the Bill' (February 2025) https://www.jonesday.com/en/insights/2025/02/regulating-digital-assets-fit21-seems-to-fit-the-bill accessed 08.04.2025.

The contrast with the EU's more bureaucratic structure, evidenced by complex guidelines such as those on reverse solicitation under MiCA, highlights a key difference.[43] These guidelines, while crucial for regulatory integrity, might restrict competitive dynamics and access to preferred services within the EU market, complicating the regulatory landscape further.

In conclusion, while the ESMA DFSC and Level 3 Guidance play vital roles in fostering regulatory convergence in the EU, there is an imperative need for recalibration towards reducing unnecessary regulatory complexity and fostering innovation. Meanwhile, the U.S. recent change in approach aligns regulatory frameworks with economic ambitions, fostering an environment conducive to growth and innovation. By adopting elements of the U.S. strategy, Europe could optimize its regulatory landscape, promoting both the growth and competitiveness of its digital finance sector in line with the rapid technological advancements occurring globally.

05

Conclusion

In journeying from 2018 to 2024, it has become clear that balanced and harmonized regulatory frameworks are essential for the dynamic crypto-asset sector. Harmonization helps prevent regulatory arbitrage, where businesses exploit jurisdictional differences to their advantage, potentially compromising financial stability. Europe's MiCA represents a significant move towards a unified regulatory environment. However, over-regulation must be avoided to prevent driving innovation outside the EU. The principle of proportionality must guide regulatory measures, ensuring that rules and ESMA guidelines are appropriately tailored to the risks and sizes of different entities, allowing smaller and emerging companies to thrive without undue burden.

In the United States, legislative initiatives such as the proposed FIT21 seek to offer clearer guidance by delineating responsibilities between the SEC and CFTC, signalling a shift towards a more coherent regulatory framework. While the prospects for the FIT21 proposal remain uncertain, the incoming U.S. administration is prioritizing crypto-friendly policies, indicating a departure from the regulation-by-enforcement paradigm. On a global scale, coordination among international bodies such as the FSB and IOSCO is crucial for maintaining consistent and effective regulations across jurisdictions. Upholding the principle of proportionality in regulations will ensure that the crypto market remains innovative and vibrant while safeguarding consumer protection, market integrity, and financial stability.

43 European Securities and Markets Authority, 'Guidelines on Reverse Solicitation under MiCA' (2025) https://www.esma.europa.eu/sites/default/files/2025-02/ESMA35-1872330276-2030_Guidelines_on_reverse_solicitation_under_MiCA.pdf accessed 08.04.2025.

1.2
Professional Insight

A Regulatory Blueprint for Tokenisation: the Bermuda Paradigm

Christos Efthymiopoulos and Alessandro Spellanzon

Authors' Bios

Christos Efthymiopoulos is an Assistant Director within the Financial Technology ('FinTech') Department at the Bermuda Monetary Authority ('BMA'). Christos is responsible for regulation, licensing, and supervision of the FinTech sector, particularly digital asset businesses and issuers. He is directly involved in developing, implementing, and administering the legislative and regulatory frameworks under the Digital Asset Business Act 2018 ('DABA')[1] and the Digital Asset Issuance Act 2020 ('DAIA').[2] He is a legal professional with more than twelve years of experience in the financial services industry, focusing on FinTech for the past nine years, including five years at the BMA. Prior to joining the BMA, Christos worked at the Malta Financial Services Authority ('MFSA'), where he was heavily involved in developing and implementing Malta's legislative and regulatory Virtual Financial Assets ('VFA') framework. He was, *inter alia*, responsible for regulating, licensing and supervising VFA Agents, VFA Issuers and VFA Service Providers. During his tenure, Christos represented the MFSA at various European fora, including the European Banking Authority's taskforce on crypto assets.

Alessandro Spellanzon is a FinTech specialist at the BMA, where he licenses and supervises a variety of firms, evaluates business-impacting requests, and ensures compliance with regulatory norms. He is instrumental in driving the strategic development initiatives in the arena of digital payments and investments, crucial for spurring sector growth and efficiency. Prior to the BMA, Alessandro held significant roles at prominent firms such as National Australia Bank, KPMG, Barclays, and Checkout.com, advising on prudential regulatory measures, capital management, and conducting industry analysis and research on banking regulations.

1 Digital Asset Business Act 2018 (as amended).

2 Digital Asset Issuance Act 2020 (as amended).

Abstract

This article delves into diverse tokenisation types and their affiliated pros and cons. Leveraging their hands-on experience within the BMA's FinTech department, the authors suggest Bermuda's digital asset framework as a potential regulatory model for asset tokenisation. Despite numerous benefits, tokenisation also brings forth several hurdles and challenges, including regulatory and legal issues, interoperability deficiencies, and the lack of a well-rounded ecosystem. While tokenisation is not without challenges, its prospective benefits hold considerable promise for transforming existing trading mechanisms. These include augmenting efficiency via automation, enhancing liquidity, expediting transactions, and fostering financial inclusivity. Collectively, Bermuda's comprehensive approach to governing asset tokenisation could serve as a potent blueprint for other regulatory authorities globally. However, the authors underscore the necessity for global legislative and regulatory harmonization, given the inherently cross-border characteristic of tokenisation and potential systemic risks that may emerge in the future.

A Regulatory Blueprint for Tokenisation: the Bermuda Paradigm

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Introduction

This article presents a comprehensive examination of asset tokenisation, a paradigm-shifting approach within blockchain-based digital asset representation. Section 1 sets the scope of the article and elaborates on two primary types of tokenisation – off-chain and on-chain – using specific examples like 'tokenised bonds' versus 'bond tokens' to highlight pivotal distinctions. Section 2 then delves into the attributes, benefits and challenges associated with tokenisation, while also highlighting consequential impacts on financial stability. Section 3 subsequently employs Bermuda's digital asset framework as a proposed regulatory blueprint for asset tokenisation, offering valuable learnings for regulatory bodies venturing into the pertinent dynamic domain. The insights and perspectives presented in this article benefit from the authors' direct experience and active involvement in the authorization and supervision of digital asset entities within the BMA's FinTech department.

01

Asset tokenisation overview

This section explores asset tokenisation, which represents an innovative paradigm in the context of digital asset representation via blockchain technology. This process involves the creation of a digital token on a blockchain, typically (but not exclusively) representing a Real-World Asset ('RWA'), whether tangible or intangible, such as securities. Tokenisation leverages the inherent benefits of blockchain – including transparency, security, and immutability – within the sphere of conventional finance and asset ownership.

Whereas several forms of asset tokenisation are present in the markets, this article will focus on the following two avenues: off-chain (or digital twins)[3] and on-chain (or native tokens, excluding crypto assets).[4] Off-chain tokenisation involves the representation of external, RWAs on the blockchain, wherein the actual asset remains outside the blockchain, but its digital token on the blockchain serves as a symbol of ownership or rights to the physical asset. Conversely, on-chain tokenisation pertains to the issuance of traditional asset classes directly and solely in tokenized form, with their entire life cycle (from creation to settlement and redemption), preserved within the blockchain network. To elucidate, the focus of this article does not extend to crypto assets that are inherent to public blockchains, such as Bitcoin and Ether, as well as Central Bank Digital Currencies. These topics remain beyond the article's established scope.

To gain clearer insight into these two venues, one can consider the examples of 'tokenized bonds' versus 'bond tokens'. Tokenised bonds signify traditional bonds digitized on a blockchain, each token embodying a bond unit and its corresponding rights and obligations. This manoeuvre can streamline trading, liquidity, settlement, and accessibility while reducing costs. Conversely, bond tokens are blockchain-native instruments resembling bonds, representing tradeable debt. Though formatted like traditional bonds, they are not linked to/backed by a real-world bond and exist solely on blockchain, governed by a smart contract. The distinction lies in their nature and blockchain issuance. Tokenised bonds mirror real-world financial assets, whereas bond tokens are inherently digital financial instruments housed predominantly on the blockchain.

Asset tokenisation activities have evolved in recent years, both in terms of volume and complexity. Whereas there is a plethora of asset tokenisation projects globally, some of the most widespread ones include the following:

- Digitalization of bonds aiming to leverage blockchain technology to ensure verifiable ownership and facilitate seamless transactions of digital bonds via small scale digital bond tokenisation pilots which aim at testing issuances, payments, and settlements at different volume levels;[5]

- Stablecoin issuers with reserve assets being tokens of RWAs combining the advantages of stablecoins as a means of payment with the yield offered by a digital representation of RWAs;[6]

3 OECD, *The Tokenisation of Assets and Potential Implications for Financial Markets*, (OECD Publishing 2020), Paris.

4 *Idem*

5 Cointelegraph Research, *$3 billion projected investment into tokenized US Treasury bills by the end of 2024* (2024).

6 Marketsable.com, *Stablecoins Settled $10 Trillion in Annual Transactions, Real-World Asset (RWA) Tokenisation report* (2023).

- Tokenisation of commodities (e.g., gold, diamonds) with the aim of issuing a commodity-backed token and offer the same to its customers. Each token distributed represents tokenized commodity, a digital certificate stored on the blockchain.

Recent developments also demonstrate the move towards utilizing tokenized shares of money-market funds as collateral in trading books.[7] Another noteworthy recent use case for tokenisation is its deployment to address congestion issues in blockchain systems, focusing on designing a transaction inclusion policy that incentivizes predictable fees specifically with a system called Blockchain Space Tokenisation[8], which involves tokenizing the capacity for blockchain transactions, allowing users to pay ahead to make regular transactions over a specific time period.

02

Asset Tokenisation: attributes and considerations

This section aims to provide an overview of the various attributes, benefits, and key challenges of asset tokenisation. It further emphasizes the relevance of financial stability considerations, elucidating potential risks linked to the impact of tokenisation on traditional financial systems, operational risks, market integrity, and potential for increased risk contagion.

I. Attributes, benefits, and challenges

Foremost among the defining attributes of tokenisation is fractional ownership. This mechanism facilitates the division of high-value assets into smaller, affordable units or 'tokens', broadening the investor base and arguably democratizing asset investment. Linked closely to this is liquidity enhancement, where breakdown of assets into tokens enhances liquidity of traditionally illiquid assets like art and real estate, fostering more robust market dynamics and financial versatility.

Another critical advantage is the augmented accessibility and inclusivity enabled by tokenisation. Opening investment avenues to a vast, global audience, it surpasses geographical limitations and promotes financial inclusion through facilitating fractional ownership across an extensive span of asset classes. Consequently, tokenisation of assets could potentially extend access to global high-performing capital markets to investors across diverse geographies. This is further bolstered by transaction efficiency afforded by blockchain technology, streamlining complex procedures into seamless and cost-effective transactions that minimize dependency on traditional intermediaries; this further results in significant cost reductions (e.g., decreased underwriting fees and lower interest rates).

7 Bloomberg, *Use of BlackRock Tokens as Collateral Moves Closer to Mainstream* (2 October 2024). Retrieved from Bloomberg website.

8 A. Kiayias, *Blockchain Space Tokenization* (2024), [City of Publication: Publisher] (Replace "City of Publication" and "Publisher" with the actual information, respectively).

Imbued within blockchain technology are the vital traits of transparency and immutability. Add to this mix the technology's programmability through smart contracts, and it creates a system that can automatically trigger actions based on predetermined conditions. It becomes a platform for advanced financial products and programmable money. This sophisticated blockchain infrastructure results in improved settlement efficiency, fostering near instantaneous and round-the-clock atomic settlements. A prime example is the prospective application of liquidity pools or Automated Market Makers for trading tokenized assets.[9][10] Such technologies, falling under the umbrella of 'Decentralised Finance', are currently under examination for integration into traditional financial markets in a regulatory compliant manner, as evidenced by pilot programmes such as the Bank for International Settlements ("BIS") Hub Project Marianna.[11]

Recent research on tokenisation has further highlighted significant benefits in terms of pricing, margin, efficiency, and liquidity.[12] With the increasing prevalence of tokenisation, it has begun to impact repo activity and securities lending practices, considering the requirement to pre-fund positions in tokenized transactions. This rise in tokenisation has catalyzed the facilitation of enhanced mobility, eased unwinding of collateral, and simplified mobilization across security pools. Collectively, these functionalities position tokenisation as a potentially transformative player in the investment arena – one that could thoroughly reshape the financial sector, boost financial inclusivity, and revolutionize the processes of asset ownership and trading.[13]

While asset tokenisation carries a range of benefits, it also presents its share of challenges. For instance, the lion's share of tokenized transactions is predominantly part of experimental pilots or tests run by both the private and public sectors such as proofs-of-concept or sandbox simulations. Live projects spearheaded by private institutions are relatively few and are commonly tailored to serve their incumbent clientele. These projects often lack interoperability, resulting in a fragmented operation which, to date, has hindered their progress towards achieving a substantial scale. Inhibiting the mass adoption and growth of tokenisation are factors such as a lack of standardization and a well-rounded ecosystem. From a regulatory perspective, the environment poses a major hurdle, with varying regulations across different jurisdictions leading to inconsistency and potentially impeding widespread adoption. The lack of standardization in tokenizing and trading digital assets forms another significant obstacle, obstructing interoperability across diverse platforms. Legally, intricate issues related to the transfer of ownership rights for tokenized tangible assets further compound these challenges.

Furthermore, the need to upgrade existing digital asset and financial market infrastructures, including exchanges, custodians, and payment systems, to support tokenized assets is another notable concern. Security, always paramount in the realm of digital assets, presents its own set of challenges, with the need to safeguard against cyber threats including hacking and theft. The risk of 'trash tokens,' tokens representing worthless or non-existent assets, could also threaten market integrity. Privacy issues, arising from the transparent and traceable nature of blockchain transactions, also pose a concern.

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9 OECD, *Why decentralised finance (DeFi) matters and policy implications* (OECD Publishing 2022) Paris.

10 OECD, *Institutionalisation of crypto-assets and DeFi–TradFi interconnectedness* (OECD Publishing 2022) Paris.

11 BIS Innovation Hub, *Project Mariana: Cross-border exchange of wholesale CBDCs using automated market makers* (2023).

12 Hong Kong Monetary Authority, *An Assessment of the Benefits of Tokenisation* (2023).

13 OECD, *The Tokenisation of Assets and Potential Implications for Financial Markets*, (OECD Publishing 2020) Paris.

II. Financial stability considerations

Further to the above, and whereas asset tokenisation is not currently considered to pose a material risk to financial stability,[14] this may change in the future, especially in view of the ever-increasing institutional adoption. Therefore, considerations around financial stability also hold significant relevance in the domain of asset tokenisation, given its potential to impact traditional financial systems, operational risk aspects, market integrity, investor protection measures, and risk contagion across global financial markets.

The key longer-term impacts on financial stability due to tokenisation primarily revolve around the interactions it establishes between the traditional financial system and the digital asset ecosystem through tokenisation redemption procedures. To illustrate, an extensive and rapid liquidation of tokenized assets could potentially ripple through traditional financial markets. Distortions in crypto market prices could incentivize participants to buy the token, redeem it for its underlying asset, and subsequently sell that asset. As such, tokenisation could act as a channel for transmitting volatility from crypto markets to the markets for the underlying assets of the tokens.

The transmission of instability could be further amplified by certain peculiarities that apply to venues where tokenized assets trade but are not applicable to venues where their underlying assets are traded, and vice versa. Crypto exchanges permit continuous, round-the-clock trading, whereas most underlying asset markets operate only during standard business hours. This discrepancy in operating hours could have unforeseen consequences during stressed market conditions. For instance, a tokenized asset issuer offering redemption options could encounter a rapid liquidation event over the weekend. Given the off-chain possession of the underlying asset, redemptions could not be swiftly fulfilled as traditional markets would be closed. This inability to meet redemptions could prolong the rapid sell-off, substantially diminishing the asset's value. If a financial institution with significant holdings of the tokenized asset was involved, this situation could also endanger its solvency.

Additionally, if such an institution required liquidity boosts from conventional money markets, obtaining this funding would not be feasible during the weekend. Consequently, an extensive liquidation event could quickly depreciate the market value of the related institutions and the issuer's assets, jeopardizing their borrowing capabilities and, ultimately, their financial stability.

Finally, drawing parallels with the securitization role during the global financial crisis, tokenisation could potentially mask riskier or illiquid underlying assets as secure and liquid, possibly propelling greater leverage and risk assumption. An abrupt disentanglement of these positions could subsequently trigger systemic financial disturbances.

14 FSB, *The Financial Stability Implications of Tokenisation* (2024).

03

Asset tokenisation Regulatory blueprint and the Bermuda paradigm

As cited in other sections of this article, asset tokenisation is garnering attention from international bodies such as the Organization for Economic Cooperation and Development ("OECD"),[15][16][17][18] the International Organization of Securities Commissions ("IOSCO"),[19] the BIS,[20] the Financial Stability Board ("FSB")[21] and the International Swaps and Derivatives Association.[22]

In this section, we provide a succinct comparison of principles-based and rules-based regulatory approaches appropriate for asset tokenisation. Through an exploration of each approach's unique traits, benefits, and pitfalls, the discussion highlights the potential merits of an integrative model that merges their key attributes, arguing its suitability for fostering innovation. As a case in point, this discourse cites Bermuda's digital asset legal and regulatory framework as an effective example of such a hybrid approach and a fit-for-purpose regulatory blueprint, as pertains to asset tokenisation.

I. Principles-based versus rules-based regulation

Principles-based regulation, or outcome-focused regulation, anchors itself on a set of fundamental principles that must be adhered to. The inherent flexibility of this approach is a distinguishing feature, with principles broadly defined and less prescriptive, allowing organizations to decide the most effective ways to meet the desired outcomes within their specific contexts. However, the elastic nature of these principles does not merely facilitate flexible compliance, they also enable adaptability over time in response to evolving circumstances and the development of new business models or technologies. This approach focuses on the spirit of the law rather than its letter.

On the other end of the regulatory spectrum, we have rules-based regulation. This more prescriptive approach details specific rules firms must meticulously comply with. The detailed guidance provides assured specificity, clarifying what actions are allowed and what are not, thereby reducing ambiguity. This specificity, in turn, simplifies the tasks of monitoring compliance and enforcing regulations, as the parameters of compliance are precisely defined. Moreover, the detailed nature of these rules ensures that there is a high level of consistency in complying

15 OECD, *Regulatory Approaches to the Tokenisation of Assets* (OECD Publishing 2021) Paris.

16 OECD, *The Tokenisation of Assets and Potential Implications for Financial Markets* (OECD Publishing 2020) Paris.

17 OECD, *Why decentralised finance (DeFi) matters and policy implications* (OECD Publishing 2022) Paris.

18 OECD, *Institutionalisation of crypto-assets and DeFi–TradFi interconnectedness* (OECD Publishing 2022) Paris.

19 IOSCO, *Update to IOSCO 2023-24 Work programme, March 2024 – March 2025 Workplan* (2024) <https://www.iosco.org/library/pubdocs/pdf/IOSCOPD764.pdf>.

20 Joint report by the Bank for International Settlements (BIS) and Committee on Payments and Market Infrastructures (CPMI), Report to the G20 (2024). *Tokenisation in the context of money and other assets: concepts and implications for central banks.*

21 FSB, *The Financial Stability Implications of Tokenisation* (2024).

22 International Swaps and Derivatives Association, Inc., *Guidance for memorandum of law examining the validity and enforceability of collateral arrangements using the ISDA model provisions for tokenized collateral* (2024).

across different firms as the rules are uniform for all parties involved. Additionally, these clearly outlined rules offer a protective layer to firms by establishing clarity around requirements, lessening the risk of unintentional breaches. While both approaches have demonstrable merits, the choice between rules-based and principles-based regulation typically hinges on the specific context, the nature of the industry being regulated, and the regulatory philosophy embraced by the jurisdiction.

It may be reasonably argued that choosing principles-based regulation for the ever-evolving realm of blockchain technology and asset tokenisation emerges as a more suitable choice over rules-based regulation for various compelling reasons. Predominantly, the highly innovative and rapidly evolving nature of this sector calls for a flexible and adaptable regulatory framework. Principles-based regulations can keep up with the pace of change, navigating the exponential growth and development without necessitating frequent adjustments to the rules. This regulatory agility actually stimulates further responsible innovation by permitting relevant stakeholders to experiment and evolve within defined parameters of secure operations, rather than being encumbered by potentially restrictive rulebooks. The OECD's recent policy paper further highlights certain challenges stemming from prescriptive regulations,[23] particularly as pertains to enforceability.

Crucially, a principles-based approach can also bring meaningful effectiveness in tackling the challenge of designing rules for a technology that is largely borderless. Instead of specific rules that can be restricted by jurisdictional issues, broad-based principles can provide a universal regulatory blueprint, thereby promoting a more globally coherent response to regulating this international technology.

Notwithstanding the aforesaid, while a principles-based regulatory approach for tokenisation facilitates flexibility and adaptability, it is not without potential drawbacks. Its most significant pitfall arguably lies in the risk of legal and regulatory uncertainty. Given their inherently broad and non-prescriptive nature, principles can sometimes lack the specificity required to provide clear guidance on exactly what compliance looks like, leading to varying interpretations. In the face of unclear regulatory guidelines, the Damoclean sword of regulation can instil a sense of caution in market participants. This apprehension could inadvertently stifle innovation, as entities may adopt a more risk-averse stance to preemptively avoid non-compliance, thereby contradicting the original intent of promoting progress within the sector. Therefore, while a principles-based approach provides a strong foundation, it is essential to pair it with more granular guidance or examples of acceptable practices. Offering this combination can strike a balance between flexibility and specificity, ensuring both clear interpretation and room for innovation. By providing sufficient clarity on regulatory expectations, market participants can confidently innovate, secure in the knowledge that they are operating within agreed boundaries.

Bermuda's digital asset legal and regulatory framework (which encapsulates *inter alia* tokenisation) successfully marries the principles-based and rules-based approaches described above. By merging broad principles, which allow flexibility and adaptability, with specific rules that offer clear guidance for compliance, it creates an efficient, hybrid model. This blend fosters a conducive environment for innovation while also providing robust regulatory safeguards.

23 OECD , 'Tokenisation of assets and distributed ledger technologies in financial markets: Potential impediments to market development and policy implications' (OECD Business and Finance Policy Papers No 75, OECD Publishing 2025) Paris.

II. Bermuda's asset tokenisation landscape

Having determined that principles-based regulation presents a potentially optimal approach for asset tokenisation, this part will focus on the main elements that should be taken into consideration by international agencies in the promulgation of a fit-for-purpose regulatory mosaic. We shall explore the diverse elements that define Bermuda's regulatory model for tokenisation, offering it as a potential blueprint for other authorities in their pursuit to create robust frameworks catered to their unique market environments. Whereas most illustrative examples set out below pertain to off-chain asset tokenisation models, it is reiterated that similar considerations could apply *mutatis mutandis* to on-chain asset tokenisation models.

Bermuda's digital asset framework, comprising the DABA and the DAIA,[24] offers a comprehensive regulatory landscape covering various asset tokenisation models. DABA regulates digital asset operators, including token issuers among others, who engage in digital asset-related activities as part of their business. On the other hand, DAIA operates as a disclosure-oriented regime, primarily concerned with projects aimed at raising capital. For instance, where a Special Purpose Vehicle ('SPV') is utilized by an issuer/sponsor for tokenisation (for bankruptcy remoteness purposes), both regimes might come into play, albeit for different reasons. DABA would pertain to the issuer/sponsor that engages in the process of tokenisation as part of its business operations, governing the pertinent rules and regulatory standards. Simultaneously, DAIA could be applicable to the SPV if it is independent from the sponsor and the tokenisation is conducted for capital-raising purposes. Thus, Bermuda's dual-pronged digital asset framework can offer sufficient regulatory cover for a wide range of tokenisation configurations, promoting a secure and compliant environment for this innovative approach to asset management and investment.

As referenced in the previous section of this article, Bermuda's framework follows a hybrid approach, effectively synthesizing the principles-based and rules-based approaches outlined above. This framework is structured around four primary assessment pillars: prudential, conduct, cyber risk, Anti-Money Laundering ('AML') and Anti-Terrorist Financing ('ATF'). In the paragraphs to follow, these assessment pillars are examined in the context of asset tokenisation's idiosyncratic risks. All the forthcoming considerations/requirements should be understood and interpreted through the prism of proportionality, a guiding principle engrained within Bermuda's regulatory framework and evidenced *inter alia* via the tiered licensing regime available thereunder.

As pertains to the **prudential** pillar, numerous factors are taken into consideration. Firstly, the legal structuring of a tokenisation project plays a vital role in regulatory assessment, as it informs the legal obligations and responsibilities of all parties involved and has a direct implication on ownership rights, investor protection and risk mitigation. Whereas Bermuda's digital asset framework is legal-vehicle-agnostic, tokenisation projects must employ bankruptcy remote structures for the RWAs; however, depending on the legal vehicle to be opted for, different considerations may be applicable. For example, in case of a segregated account company,[25] whereby each cell constitutes a separate patrimony but is devoid of a separate legal personality, regulatory focus pivots towards the contractual arrangements in place (which designate the beneficiary cell), alongside appropriate accounting and reconciliation processes. Where a trust arrangement is deployed, the regulatory attention should be centred *inter alia* on the type of trust, the powers and duties assigned to the trustee, the governing law that frames the trust's

24 Digital Asset Issuance Act 2020.

25 Segregated Accounts Companies Act 2000 (as amended).

operation and management as well as the identification of beneficiaries, their associated rights, and safeguards in case of events like bankruptcy of the token issuer.

Governance also plays a pivotal role in asset tokenisation for two main reasons. Firstly, it ensures effective oversight of diverse stakeholders engaged in the process, from brokers and SPVs to trustees and vaults (in commodity tokenisation), thereby upholding operational integrity and regulatory compliance. Secondly, governance is crucial to managing potential conflicts of interest, particularly when affiliated parties are involved. It enforces measures to identify, disclose and manage such conflicts, safeguarding fair practices and the interests of all stakeholders.

Another fundamental aspect for assessment under this pillar is risk management, especially in view of the spectrum of risks inherent in this sector, ranging from market and liquidity to counterparty and legal/regulatory risks. One example of the relevance of a robust risk management framework in asset tokenisation is interoperability; as the tokenisation ecosystem consists of a multitude of diverse platforms, each with its own operational parameters, consensus mechanisms, and token standards, the need for interoperability becomes crucial (e.g., the ability to transfer a token representing an art piece from Ethereum to Polkadot or Solana can increase the token's liquidity and market reach). A token issuer's risk management function should therefore consider each blockchain's unique features and security measures prior to conducting cross-chain offerings, including the integrity/security of the selected blockchain, consensus mechanisms, gas fees, potential network congestion and cross-chain governance.

An additional evaluation cornerstone under the first assessment pillar is consolidated supervision, particularly due to the diverse stakeholders engaged in the asset tokenisation process (which vary depending on the tokenisation business model). One illustrative example is the tokenisation of gold, where intermediaries, such as storage facilities or vaults, ensure secure custody of the physical gold corresponding to the tokenized assets, while refineries certify the quality and quantity of the gold. If any of these intermediaries fails to perform its role correctly, it can disrupt the entire tokenisation process, leading to incongruencies between the physical and digital representation of the asset. It is therefore crucial to ensure that a regulator's oversight extends to these key intermediaries, by means of either statutory or contractual powers (e.g., by incorporating relevant provisions into service level or intercompany agreements, these parties could be contractually bound to comply with any regulatory requirements).

Whereas the aforementioned considerations form essential elements of the first assessment pillar, it is reiterated that they should not be construed as an exhaustive list. There is a plethora of other prudential considerations that demand attention, including revenue modelling, secondary market trading, market-making arrangements and the investment mandate or policy for RWAs.

Conduct considerations are also intrinsic to Bermuda's asset tokenisation framework, with their primary role being to foster transparency and investor protection. Essential in this regard is the obligation for clear disclosures delineating the terms of the tokenized project, including comprehensive details about the rights and obligations of token holders (e.g., legal title, yield accruals/distributions, priority of claims in case of bankruptcy etc.), the mechanisms for minting and redemption as well details of the key third parties involved (e.g., regulated status, locations etc.). These conduct considerations thus not only underpin the overall integrity of the tokenisation ecosystem but also complement the prudential considerations described in the previous paragraphs.

Another critical assessment pillar in the context of tokenisation is the aspect of **cyber risk**. Given the digital and decentralized nature of tokenized assets, they are inherently susceptible to a spectrum of cyber threats.

Referencing again the example of interoperability, and while it is paramount for functionality and user experience, it also opens up potential avenues for cyber threats, underscoring the need for rigorous cybersecurity defences. Similarly, the use of oracles introduces another point of vulnerability, as any security breach therein could lead to manipulated data being fed to the smart contract, possibly leading to faulty executions. Furthermore, smart contracts themselves could be subject to exploits if not properly audited and secured. Therefore, a comprehensive assessment of cyber risks and the implementation of robust cyber-security measures is a *sine qua non* under Bermuda's framework.[26]

Bermuda's regulatory framework would of course be incomplete without appropriate **AML/ATF** requirements embedded therein. Although they are fundamentally prescriptive, they retain a technology-agnostic stance. This inherent duality is pivotal, particularly within the purview of tokenisation, a sector marked by rapid and diverse technological advancements. The technology-agnostic perspective of Bermuda's AML/ATF[27] regulation can arguably accommodate tokenisation platforms that incorporate built-in compliance within their token standards, such as ERC-3643.[28]

Lastly, of particular note is the support of Bermuda's digital asset framework by a flexible and technology neutral corporate legal regime. More specifically, under Bermuda's Companies Act,[29] there are no explicit restrictions, as pertaining to the dematerialization of securities (e.g., mandatory requirement to be held by a central securities depository). This becomes particularly relevant and useful for both off-chain tokenisation projects, where RWAs being tokenized are securities (bonds, shares etc.), as well as on-chain tokenisation models. Hence, this integration creates a holistic and conducive environment for token issuers.

26 Digital Asset Business Operational Cyber Risk Management Code of Practice (2024); Digital Asset Business Custody Code of Practice (2024).

27 Comprising *inter alia* the Proceeds of Crime Anti-Money Laundering and Anti-Terrorist Financing Regulations 2008; General Guidance Notes for AML/ATF Regulated Entities; Annex VIII Sector-Specific Guidance Notes for Digital Asset Business.

28 <https://www.erc3643.org/>

29 Companies Act 1981 (as amended).

04

Conclusion

In conclusion, this article presents an analysis of asset tokenisation and Bermuda's comprehensive approach thereto, which is argued to be well-positioned to serve as a blueprint for jurisdictions worldwide. It is acknowledged that the considerations highlighted in this article are not to be construed as an exhaustive list, as there are numerous other factors that should be taken into consideration in the promulgation of a fit-for-purpose framework (e.g., legal ownership of RWAs; the legal status of smart contracts; recognition of digital assets as property under private law; limits with regards to settlement finality when using DLTs; data protection; conflict of laws etc.)[303132]. However, in light of the inherently cross-border dynamics of tokenisation and its potential to introduce systemic risk in the future, the need for legislative and regulatory harmonisation cannot be overstated.

30 OECD, *Regulatory Approaches to the Tokenisation of Assets* (OECD Publishing 2021) Paris.

31 Joint report by the Bank for International Settlements (BIS) and Committee on Payments and Market Infrastructures (CPMI), *Report to the G20, Tokenisation in the context of money and other assets: concepts and implications for central banks* (2024).

32 International Swaps and Derivatives Association, Inc., *Guidance for memorandum of law examining the validity and enforceability of collateral arrangements using the ISDA model provisions for tokenized collateral* (2024).

1.3
Professional Insight

Financial Literacy in the Age of Artificial Intelligence

Aleksandra Dimitrova, Benjamin Ellul

Authors' Bios

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Abstract

The Age of Artificial Intelligence (AI) has brought radical changes to the financial sector, influencing how consumers manage their funds, make purchase decisions and maximise the use of the available technology. This paper offers insight on the significance of having a society with a strong base in financial literacy and education in order to maintain pace with evolving technology. From AI tools and blockchain technology, to different workplace realities and generational gaps, this paper sheds light on the risks of being second best in today's financial world. The central argument revolves around the notion that regulators and employers must tighten the knowledge gap between different generations in order to effectively protect consumers. Essentially, the AI revolution will only be successful, if investment is not merely done in technology, but also in people.

Financial Literacy in the Age of Artificial Intelligence

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Introduction: From Industrial to Intelligent

As humanity moved through distinct eras of Industrial Revolutions, economies shifted from farming and handmade goods to industries and machine production[1]. These types of shifts fundamentally transformed our societies, creating new methods of how we work, communicate, and make decisions. Today, we stand at the midst of another imminent radical shift, which can only be described as the Age of Artificial Intelligence (AI). Machines are not merely performing tasks faster and at times better than humans, but are learning, adapting, and influencing us on how we interact with the world around us.

This paper examines how AI is reshaping the financial sector, influencing both employability and consumer protection, and argues that education is essential for sustaining human adaptability in this evolving industrial revolution. As technology continues to evolve, learning and skills development both at the workplace and at a scholarly level will be paramount to equip consumers and employees with the tools that allow them to contribute and thrive in the Age of Artificial Intelligence.

However, this new age also introduces a human-centric approach, addressing global challenges with a focus on sustainability and resilience. This modern industrial revolution aims to align technological innovation with societal priorities, fostering a sustainable and inclusive digital future.[2] The rapid integration of AI into financial services exemplifies this shift. Institutions like the Commonwealth Bank of Australia have effectively adopted AI to enhance operations and customer interactions, signaling a broader, accelerated transformation within the financial sector.[3] As we move forward, understanding and addressing the implication of this ongoing revolution, will be crucial for sustainable and inclusive growth. This is only achievable by continuously dedicating ample resources towards education with the aim of closing the digital literacy gap.

1 Industrial Revolution | Definition, History, Dates, Summary, & Facts | Britannica

2 Business Processes in the Artificial Transformation of Industry 5.0; Viktorija BABICA Faculty of Economics and Management, Riga Technical University Riga, LV-1048, Latvia; Deniss SCEULOVS Faculty of Economics and Management, Riga Technical University Riga, LV-1048, Latvia ; Proceedings of the 15th International Multi-Conference on Complexity, Informatics and Cybernetics (IMCIC 2024) ZA195KP.pdf (iiis.org)

3 Commonwealth Bank launches new AI data-led insights, as Australian small-to-medium businesses turn to new technology to drive growth

01

Financial Literacy and Consumer Education

For consumers to benefit from the ongoing digital transformation, specifically in financial services, they must first understand the technology they are interacting with. European Supervisory Authorities (ESAs) as well as the vast majority of National Competent Authorities (NCAs) sustained their emphasis on consumer education, featuring it in their annual supervisory priorities multiple years in a row. The digital transformation that the financial services sector had to undergo in the last couple of years critically emphasized the need to have a well-informed and educated pool of consumers who are aware of the risks they will encounter when investing their funds or when interacting with the latest financial applications. A higher level of education amongst consumers and investors further enhances regulators' educational campaigns and investor protection guidelines, given that such outreach would be more effective.

However, while the availability of digital platforms and products expands, educational institutions are struggling to maintain pace with the current and evolving technological landscape. Despite these concerns the educational curriculum remains largely unchanged, with financial literacy not commonly taught, even at the university level, and if it is taught, it often lacks practical applications. The inclusion of such curricula in schools and workplaces can have a far-reaching effect. This has a direct influence on one's financial capabilities, which leads to greater productivity and reduced stress.

However, we can observe a generational divide taking place, particularly in how different consumers interact with financial technological products. Financial literacy, which is directly proportionate to consumer education, is an essential skill in today's environment, however, it remains strikingly low, even in jurisdictions with well-developed financial systems. The younger generations are born into continuous change, digital transformation, and the age of the internet. While this brings a number of benefits and opportunities it also simultaneously introduces new challenges, uncertainties, and risks. Given these ever-increasing complexities of financial products, individuals of all demographics must acquire a solid understanding to make informed decisions which will impact their future. While older generations are still highly dependent on traditional methods, which may at times be outdated, young individuals often rely on self-directed research, financial influencers, and online articles for financial decision-making.[4] However even though the younger generations are immersed in the ongoing digital transformation and have access to innovative tools, their lack of formal financial education can leave them ill-prepared to make sound financial decisions.

There is an increase in engagement with digital banking, cryptocurrency investments, and the use of AI in academic and professional settings representing a shift in financial behavior. Digital payment technologies, such as mobile and contactless payments, offer convenience and efficiency, but the same increased convenience can also lead to adverse habits such as overspending. Such habits can result in financial mismanagement, and difficulties in maintaining savings buffers. However, targeted education, focusing on the appropriate and safe use of such products, despite their inherent risks, can offer opportunities that improve financial inclusion and independence.

4 Lusardi A, Messy F-A. The importance of financial literacy and its impact on financial wellbeing. *Journal of Financial Literacy and Wellbeing*. 2023;1(1):1-11. doi:10.1017/flw.2023.8 | The importance of financial literacy and its impact on financial wellbeing | Journal of Financial Literacy and Wellbeing | Cambridge Core

The generational shift is already evident at the workplace, which indicates that rapid intervention through educational initiatives is required. While the financial literacy throughout all demographics is concerning, recent polls show that in the workplace, 88% of Generation Z (Gen Z) employees are adopting innovative tools such as AI and specifically ChatGPT, to complete tasks more efficiently and overcoming "tasks paralysis".[5] Research indicates that Gen Z's comprehension of AI has more than doubled over the past year, surpassing that of Millennials, Generation X, and Baby Boomers.[6]

These numbers indicate that a new reality is settling into the workplace, driven by the younger generations' enhanced technological capabilities, triggering what is known as reverse mentoring. This rapid adoption of AI is reshaping the workplace dynamics, leading to reverse mentoring scenarios where the younger employees guide the more experienced colleagues in technological use. This raises the question of how to upskill those not raised amid this transformative industrial revolution.[7] In the financial sector, where risk aversion is prominent, this obstacle is even more acute. When implementing such systems, it's crucial to consider the substantial portion of the workforce needing training on both the benefits and risks of these technologies. Effective and efficient utilization of these systems requires comprehensive education before deployment.[8] Addressing these challenges proactively will help bridge the digital divide and ensure that all generations can adapt to and thrive in the ever-evolving technological sector, where new concepts are being introduced year after year.

02

Adapting to the Digital Transformation through Education and Training

As the digital economy evolves, the concepts of the agentic economy and blockchain have recently gained significant ground, reshaping how complex financial decisions are made. As autonomous AI agents are able to perform decision-making on behalf of their human counterparts, they have become an essential part of the financial services sector. Stock trading and financial advice are two critical tasks that are being effectively influenced by AI agents who surpass human capability in terms of processing large amounts of data and deriving an efficient way of interpreting it[9].

The autonomy of these AI agents is enabled by blockchain, cryptocurrencies, and smart contracts, allowing transactions to take place in a decentralized and reliable manner. Blockchain technology's programmability allows AI agents to interact with each other, which eliminates the need for intermediaries when performing cross-border transactions and delivering fund management analysis[10]. The use of cryptocurrencies further refines this system

5 Shocking 88% of Gen Z uses AI to do their jobs for them: poll

6 Bridging The Generational Gap: Maximizing Productivity In The Modern Workforce | Wellable

7 Are Older Workers Ready for an AI Takeover at Work? | Oxford Institute of Population Ageing

8 https://www.ibm.com/think/insights/ai-upskilling

9 "How Agentic AI Will Transform Financial Services" (World Economic Forum, November 27, 2024) <https://www.weforum.org/stories/2024/12/agentic-ai-financial-services-autonomy-efficiency-and-inclusion/>.

10 Tomer Niv, "AI Agents Economy: Why Crypto May Hold the Key to Fund Management" Forbes (November 8, 2024) <https://www.

by enabling these AI agents to make payments to each other independently from the traditional banking system. For instance, AI agents are able to use smart contracts to exclude human presence from generating investment strategies and executing trading. This minimizes operational costs and in turn boosts efficiency given the fast decision-making conducted by AI[11].

Despite the substantial advancements in this space, the generational knowledge gap is still persistent. Financial services regulators are tasked with the critical responsibility of bridging the knowledge gap between the different demographics present in this sector. The fact that the younger generation are more equipped to understand AI agents and utilize blockchain technologies, introduces the greater probability that older generations are excluded from the benefits of newer technologies. This leaves less financially literate people to be more susceptible to fraudulent activity, and without the ability to maximize their investment opportunities.

Before promoting awareness on regulatory frameworks, regulators must educate consumers on the intricacies of the actual financial products that the regulations are built around. Living in an age of unlimited information, consequential understanding of it, remains inconsistent. There has never been another time in history where people across the globe had the luxury of unlimited information at their fingertips, yet many are still struggling to understand fundamental concepts such as the nature of taxation, how to read the fine print when embarking on an investment decision or if the latest crypto trend being pushed by finfluencers is legitimate or a scam.

Misinformation driven by the abundance of information has become the norm for everyday consumers. Scammers and fraudsters have elevated their game in influencing consumers, by investing in heavy marketing such as celebrity endorsements and legitimate-looking long-term investment deals, while regulators are finding themselves in a never-ending “arms-race” against them.

In order to make regulatory frameworks effective, closing the existing education gap is the only way to achieve long-term success. Once regulators and consumers enhance their knowledge of financial products, emphasis can be placed on the regulatory frameworks themselves. Consumers will then have the ability to better interpret regulatory frameworks to fully understand their scope and remit.

Continuous and effective education does not impact solely the consumer, it is crucial for institutions as well. As AI and digital systems become integral to financial services, both industry participants and regulators must prioritize workforce education. Investing in comprehensive training programs to ensure that employees and regulatory staff possess the skills necessary to navigate and supervise the complexities of a technologically advanced financial ecosystem.

The future of financial services, and all sectors in the economy, will be shaped not just by the technology we invent, but by the people we empower to use it responsibly. Education and comprehensive literacy will become the foundation of progress in a world where the industrial revolution is constant. The institutions that will thrive are those who invest not only in innovation but also in inclusion, ensuring that no consumer or employee is left behind in the Age of Artificial Intelligence.

forbes.com/sites/tomerniv/2024/11/07/ai-agents-economy-why-crypto-may-hold-the-key-to-fund-management/#:~:text=As%20the%20potential%20of%20autonomous,limitations%20of%20traditional%20finance%20systems.>.

11 Ben Lilly, “The Agentic Economy Goes Permissionless” (Brownstone Research, November 7, 2024) <https://www.brownstoneresearch.com/bleeding-edge/the-agentic-economy-goes-permissionless/>.

1.4
Academic Article

Artificial Intelligence and Market Abuse Regulation

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Summary

Artificial Intelligence and Market Abuse Regulation

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Foreword

The purpose of this contribution is to analyse how developments in the field of artificial intelligence ('AI'), and the debate on its implications, including in the legal sphere, affect the regime established by the EU Market Abuse Regulation ('MAR') ([1]). The topic shall be explored by considering the two main areas of the MAR: on the one hand, inside information and the related disclosure regime; on the other hand, conducts qualifying as market manipulation.

1 Regulation (EU) No 596/2014 of the European Parliament and of the Council of 16 April 2014 on market abuse (Market Abuse Regulation) and repealing Directive 2003/6/EC of the European Parliament and of the Council and Commission Directives 2003/124/EC, 2003/125/EC and 2004/72/EC, in OJ 173, 12.6.2014.

01

AI and the management of inside information

The analysis regarding the first aspect of the interrelation between AI and MAR is centred on the transparency regime thereunder, essentially consisting of the obligation for issuers to disclose to the public, as soon as possible, any inside information directly concerning them (Article 17 MAR) ([2]).

It consists of a regime that, as noted in a previous contribution, has significant repercussions on the internal structure and organisation of the issuer ([3]). The importance of analysing AI systems, and the functions they can perform in this context, becomes clear when one considers that the obligation to disclose inside information entails the proper management of data and information for entities subject to MAR. Since, in fact, issuers must disclose inside information 'as soon as possible', and given that disclosure cannot be delayed unless the specific (and rather restrictive) requirements for delay apply, the issuer must be able to identify inside information in due time, and thus to disclose it in an equally timely manner.

The identification and proper handling of information are, indeed, at the heart of the disclosure regime. Complying with the MAR disclosure obligations is not, however, trivial and can be quite challenging, particularly where the size and structure of the issuer and/or of the group to which it pertains is more significant.

In addition, when considering the complexity of the notion of inside information, one must also take into account the fact that most of the events generating such information are neither instantaneous nor static, but are, on the contrary, the result of prolonged and multi-stage processes: inside information, in this sense, often has a dynamic dimension. Although a possible simplification of the MAR regime is being discussed as to whether the current obligation to disclose information should be maintained in the intermediate stages of prolonged processes ([4]), even if such changes were to be adopted, this would not, in any case, affect the issuer's duty to identify potential inside information directly concerning it beforehand, and to carry out the subsequent steps ultimately leading to disclosure. The problem would therefore continue to exist, and it is essential that the issuer has adequate systems and procedures in place, both at individual and group level, to ensure the prompt identification and ongoing monitoring of potential inside information.

This assertion remains valid even if the MAR does not explicitly foresee an actual obligation for the issuer in this respect. In fact, while MAR establishes, in Article 17, an obligation to disclose information to the public 'as soon as possible', it does not contain a provision expressly requiring the issuer to have in place adequate internal organisational arrangements for such purposes.

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2 Article 17 provides, *inter alia*, that "1. An issuer shall inform the public as soon as possible of inside information which directly concerns that issuer [...]".

3 F. Annunziata, '*Madamina, Il Catalogo È Questo...': the Duty to Disclose Inside Information and the Proper Organization of the Company: The Market Abuse Regulation ('MAR') and Italian Company Law*. Bocconi Legal Studies Research Paper Series, available at: https://ssrn.com/abstract=3621359, 2020.

4 Proposal for a Regulation of the European Parliament and of the Council amending Regulations (EU) 2017/1129, (EU) No 596/2014 and (EU) No 600/2014 to make public capital markets in the Union more attractive to companies and to facilitate access to capital for small and medium-sized enterprises, Brussels, 7.12.2022 COM (2022) 762 final 2022/0411 (COD).

In this sense, since Article 17 requires information to be disclosed 'as soon as possible', the way the issuer is structured and organised to achieve this result is left to the reasonable assessment of its management bodies, whose efforts are only measured by the results actually obtained: that is, that the disclosure of inside information is duly carried out pursuant to the terms of the Regulation.

The approach followed by MAR, in this sense, could ultimately be regarded as the result of a good balance between the costs and benefits of regulation. In theory, one could also accept the idea that as long as the disclosure is carried out in a proper and timely manner, the precise means by which the issuer achieves this result is essentially irrelevant: the disclosure obligation is, in fact, formulated in general terms, constituting the only standard under which it is reasonable to assess the diligence of the issuer and its management bodies. Whether or not the issuer is adequately structured thus remains an internal matter, which the law should not directly address as long as the result required by the standard (i.e., disclosure 'as soon as possible') is achieved.

This position is, however, exposed to a number of potential objections. In fact, even if the MAR regime is silent on the point, the obligation to implement adequate internal arrangements seems to be, in any case, implicit in the system: the silence of the Regulation is, therefore, somewhat deafening.

Such an assertion can be supported by considering the significant number of *soft law* measures that, even if not formally binding, have been adopted by the supervisory authorities of many Member States with regard to the qualification and treatment of inside information. Among the most relevant documents to be considered in this respect are those issued by the competent authorities of Italy, Germany, France, the Netherlands and (still usefully) the United Kingdom. In most of them, although not in all, and not always with the same degree of detail, the obligation of the issuer to be adequately organised in order to comply with disclosure rules is clearly stated, or inferable from the content of the guidelines.

In particular, in November 2017, Consob published a comprehensive guide on the identification, management and disclosure of inside information ([5]). In the document, while making it clear that the guide, as a *soft law* measure, is not suitable to supplement, nor to complete, the rules in force, it serves as an interpretative guidance and as a reference for the approach adopted by Consob in relation to its own supervisory activities. Among other aspects, the guide focuses precisely on the adequacy of the issuer's organisation for the purpose of identifying, managing, and disclosing inside information. It emphasises the need for the issuer to adopt 'adequate' systems, and devotes an entire, lengthy section to describing what should be considered an example or standard of an adequate internal arrangement. The guide also identifies the various phases into which an adequate management of inside information should be divided: the process begins with the implementation of adequate organisational structures, so that the issuer is adequately prepared with the tools to monitor the entire process; as an initial procedure, the issuer shall identify the so-called 'material information' ([6]) , which is information that may, at least potentially, be classified as 'inside information' in a later moment; the guide, in this respect, establishes the criteria for identifying the moment when certain material information becomes inside information; and, finally, the guide addresses the need to publish the information 'as soon as possible' or, alternatively, to apply the delay regime, in

5 The official text of the mentioned guidelines is available at: https://www.consob.it/documents/1912911/1987745/LG_Gest_Inf_Priv_20171013.pdf/d435449f-845c-f26f-a6e3-7a8f20e99c0f.

6 The notion of 'material information' has no equivalent in the MAR, and is used by the guide to refer to any information that could possibly evolve into actual inside information, meeting all the requirements defined in Article 7 of the MAR.

which case observing the appropriate measures foreseen by the Regulation. Of particular relevance are the long paragraphs of the guide devoted to the process of identifying and monitoring inside information: a process that, according to the document, should start at a very early stage, when the information is still preliminary, not formally meeting the objective requirements of true inside information.

Other important measures, for the purpose of analysing the impact that the soft law instruments under discussion have on the organisational structures of issuers, concern the special forms of corporate liability found in certain national laws. In Italy, for example, Legislative Decree No. 231/2001 (hereinafter, 'the Decree')([7]) provides for a special form of liability of natural persons, in the event of offences committed by persons acting on behalf of the company, such as representatives, managers, directors, subordinates and persons who perform - even *de facto* - management or control functions ([8]). Moreover, according to the Decree, the liability of the legal entity is excluded if it can be proved that the management body adopted and implemented, before the offence was committed, a so-called 'organisation and management model' aimed at preventing the practice of the offences set out in the Decree ([9]). Since violations of the rules on market abuse fall within the scope of the Decree, this is a highly relevant matter to be taken into consideration in the analysis herein.

The uncertainty in the EU Market Abuse Regulation as to whether there is a clear obligation, on the part of the issuer, to adopt adequate organisational structures to handle inside information also emerges from the work of the European Securities and Markets Authority ('ESMA'). In the consultation conducted at the end of 2019 on a potential reform of the market abuse regime, ESMA suggested, among other topics, amending the regulation in order to include a specific provision requiring the issuer to be properly organised and to have adequate systems in place in order to identify inside information and to comply with the disclosure obligation ([10]).

During the consultation phase, most respondents observed that it is not necessary to include in the MAR an explicit requirement to establish adequate systems and controls for the identification, handling, and disclosure of inside information. They argued that such systems and controls are in any case already implicitly required, as they are necessary to enable issuers to classify information and identify when it becomes inside information: in other words, the obligation exists, even if it is not clearly spelled out ([11]) . Accepting such arguments, ESMA ultimately concluded that there is no need to supplement Article 17 MAR to specify the existence of a duty of adequate organisation ([12]) .

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7 Legislative Decree No. 231 of 8 June 2001 on administrative liability dependent on criminal offences.

8 ([8]) The sanctions specifically provided for by the Decree include: pecuniary sanctions; disqualification from exercising the activity (temporary or permanent, in the case of particularly significant or repeated violations); temporary revocation or suspension of licences, permits or authorisations related to the violation; prohibition from contracting with the Public Administration; prohibition from advertising goods and services; prohibition from financial facilitations, subsidies and contributions; mandatory confiscation of the price or profit deriving from the illegal conduct; publication of the judgment.

9 The compliance programmes provided for in the Decree are also relevant for the purposes of liability arising from violations of the disclosure regime established by Article 17 MAR.

10 See ESMA, Consultation Paper: MAR Review Report (ESMA70-156-1459), 3 October 2019, para. 118.

11 In the final paper (pars. 234-235 s.), ESMA also noted that: "*As indicated in the CP [Consultation Paper], based on its size, sector of activity and specific features, each issuer should tailor the relevant controls to its business and structure. Especially when considering delaying the disclosure, it is fundamental to have robust processes to handle and manage the inside information and to thoroughly assess the presence of the conditions enabling such delay. In other words, ESMA believes that issuers that do not have in place effective arrangements, systems, procedures, or other types of controls for the identification, handling and disclosure of inside information are highly likely to breach their obligation to disclose inside information as soon as possible. In this respect, the low number of notifications of delayed disclosure cases may be an indication that there is a need for issuers to invest in appropriate procedures, systems, and controls in order to comply with Article 17(1) and 17(4) of MAR.*

12 ESMA, MAR Review Report (ESMA70-156-23), 23 September 2020, para. 209 s.

These observations lend themselves to two considerations. Firstly, even if it were not deemed necessary to include an explicit reference in the text of the Regulation to the need for the issuer to equip itself with adequate structures, such a duty exists, as it constitutes a prerequisite for the proper fulfilment of the *disclosure* obligation. With reference to Italy, moreover, this duty may be traced back to the rules laid down in Article 2086 of the Civil Code, even though similar provisions, especially ones with such a level of granularity, cannot always be found in other Member States. The fact that the MAR is silent on this specific matter, therefore, sounds somewhat as hypocrisy, in addition to reflecting a broader, and well-known, problem represented by the insufficient coordination between the MAR and company law ([13]) .

Moreover, the silence of the MAR ultimately makes it impossible to enforce any failure to comply with the alleged duty of proper organisation, which does not clearly result in violations of the *disclosure* regime, such as, for example, delays in disclosure, omissions, incorrect disclosure, etc. In other words, defects in the adoption of controls and procedures are not relevant if they do not *also* constitute a breach of the issuer's disclosure obligations. However, the lack of adequate arrangements should in *itself* be considered a breach of MAR, similarly to what is found in the context of EU financial legislation as a whole with respect to all types of intermediaries and service providers (ranging from credit institutions, investment firms, asset managers, payment service providers and – more recently – crypto-asset service providers), where, instead, legislation consistently identifies and establishes a specific duty for the supervised entity to be adequately structured and organised.

The rationale behind this long-standing approach in EU financial legislation is, of course, the prevention and appropriate management of the risks related to the activities of a supervised entity. There is no reason why the same rationale should not apply to issuers that use capital markets for financing purposes and which, as such, are subject to the provisions of MAR. The argument that issuers are not financial intermediaries, and therefore do not pose a problem of client-consumer protection, to be linked to precise organisational obligations in the provision of services, misses the point: when an entity turns to the capital market, even as an entity that raises resources on a widespread basis, or accesses trading venues, it is obliged to safeguard against the risks arising from its very presence on markets. The lack of adequate arrangements for the management of inside information raises a possible risk of lack of transparency for the market, which should be appropriately mitigated. Therefore, the inclusion of an explicit provision in the Regulation to such extent would also provide legal certainty, improve the level of harmonisation between Member States and enhance the effectiveness of the MAR in this specific matter.

A final observation that can be made with regard to the ESMA Report is the clear recognition of the complexities underlying the process of identifying and managing inside information. It is precisely in this area that AI systems could prove useful. ESMA, together with national supervisory authorities, could therefore consider explicitly supporting and endorsing the use of AI for such purposes, including through experimentation, *sandboxes* and similar tools aimed at developing new styles of regulation and supervision ([14]).

13 K.J. Hopt, *Insiderrecht - Grundlagen Internationale Entwicklung, öknomischer Hintergrund, offene Fragen*, in L. Klöhn - S. Mock (eds.), *Festschrift 25 Jahre WpHG: Entwicklung und Perspektiven des deutschen und europäischen Wertpapierhandelsrechts*, Berlin, 2019, emphasising the need to improve coordination between MAR and other areas of law, including (especially) company law.

14 See, from a broad perspective, D.W. Arner - R.P. Buckley - D.A. Zetzsche, *FinTech and the Four Horsemen of the Apocalypse: Building Financial Ecosystems for Resilience, Innovation and Sustainable Development,* 39 Bank. & Fin. L. Rev. 5, 2022.

02

Functions and limits in the use of algorithms

The foregoing considerations seem to support the view that AI can be a useful tool to: (i) support the process of early identification, from its inception, of facts, events, or circumstances that may produce inside information, and (ii) meet the disclosure requirements of Article 17 MAR ([15]) .

As to the first aspect, in the dynamic dimension of corporate life, AI can certainly support the management body in the process that starts with the identification of potential, or actual, inside information, as well as in the disclosure phase. It can also bring significant improvements to the information management process due to its inherent self-learning capability. AI is also able to support the (always complex) analysis of the possible price impact of a given piece of information: the AI tool could be able to perform a comparative analysis, of a historical type, on similar cases, also including information external to the issuer, comparisons with market peers, etc. In this way, the application would be able to draw indications on the possible expected impact of the disclosure of certain information. In addition, AI can support the process of proper *ex-post* tracking of the flow of a given piece of information, which could prove useful in case of internal investigations or for other purposes.

The use of AI can also serve to solve problems that arise in the context of decisions left to the discretion of corporate executives. As discussed in the literature considering the current limitations of transparency and disclosure regimes, both in the US and Europe, the activity of collecting and managing information places significant burdens on companies ([16]). The use of AI can help support this process, thus leading to greater efficiency.

In this sense, in the increasingly complex environments in which issuers operate, the use of AI systems should be encouraged so as to support an efficient and timely process for the identification and management of inside information under the MAR.

Notwithstanding the above, the question now arises as to whether AI may also intervene in the phase leading not only to the identification, but also to the *disclosure* of inside information to the public, in particular the phase relating to the decision to disclose or to delay the disclosure. In its current wording, the MAR contains no specific provisions on *how* this decision is to be made or *who* is responsible for it. Moreover, the different corporate structures and approaches adopted under national law ultimately lead to different solutions across Member States, starting with the role and involvement of the management body - organised differently according to variegated corporate forms - or of a delegated body within the board of directors, or outside it, etc.

However, in our view, there is a clear dividing line between the use of AI to identify and manage inside information and the use of AI to *directly* carry out the disclosure obligation. While on the first point it could be argued that the use of AI tools brings considerable potential advantages, it should also be considered that AI cannot entirely replace human intervention. It is, in fact, almost intuitive to observe that, as AI systems evolve and develop, they

15 For the benefits that AI can offer in relation to general business information, see M. Siebecker, *Making Corporations More Humane through Artificial Intelligence*, 45 J. Corp. L. 95, 2019.

16 In critical terms, J.S. Nelson, "*'Don't Ask, Don't Tell' Corporate Crime*", available at https://ssrn.com/abstract=2979728, 2017.

could soon also be tasked with *directly discharging* the obligation to publish inside information, in a fully automated process: starting, for instance, with the identification by algorithms of potential inside information within the issuer's sphere of activity, tracking its evolution, assessing its *price-sensitivity*, and up to the moment of disclosure. Based on the current state of technological evolution, it is not difficult to imagine, in the not-too-distant future, an AI application covering the entire process, and going so far as to directly prepare releases for disclosure, and then sending them to the dissemination system, as required by MAR ([17]) . From such a perspective, the use of Chat GPT could already be a viable option.

It should also be noted that, over time, the technical provisions governing the disclosure of inside information under the MAR regime have increasingly relied on electronic means of disclosure: this legislative development is, of course, perfectly in line with the possible use of AI systems to manage, on an automated basis, not only the identification, but also the actual disclosure of inside information.

However, the automation of the entire process leading to disclosure is, at present, a questionable development to say the least. Even if technology were to effectively support this development in the future (a scenario that is easy to imagine even today), its consequences are, at present, unpredictable and potentially capable of undermining the effectiveness and enforcement of MAR.

The problem lies in the principles governing liability(ies) resulting from omissions, failures, or inadequate performance of the duty to disclose information in a correct and timely manner.

Although MAR, and the related Market Abuse Directive (so called 'MAD 2') ([18]), require Member States to introduce and adopt administrative and criminal sanctions in the event of violations of their provisions, the texts are silent on aspects concerning the civil liability of the issuer or its management body *vis-à-vis* shareholders, investors, or the market in general.

If the issuer's management body were to adopt AI systems for the identification and possible disclosure of inside information, in the event of malfunctioning, whether intentional or unintentional, of the system, resulting in non-compliance with the disclosure regime, the consequences in terms of liability, damages, and compensation would have to be dealt with solely on the basis of national law.

Considering liability matters, as a rule, in most legal systems, the liability of the issuer for non-compliance with disclosure regimes usually derives from the common principles of corporate law, tort law, or may be explicitly established by law itself ([19]). Considering liability in the primary market, directors and managers are mostly subject to prospectus liability, including under the provisions of the EU Regulation. However, in some jurisdictions, liability is limited only to those who are actually involved in the drafting of the prospectus: this is the case, for example,

17 See Commission Implementing Regulation (EU) 2016/1055 of 29 June 2016 laying down implementing technical standards as regards technical means for adequate public disclosure of inside information and for delaying public disclosure of inside information in accordance with Regulation (EU) No 596/2014 of the European Parliament and of the Council.

18 Directive 2014/57/EU of the European Parliament and of the Council of 16 April 2014 on criminal sanctions for market abuse (OJ L 173, 12.6.2014, p. 179–189).

19 For a comprehensive overview, see D. Busch - G. Ferrarini - J. Franx (eds.), *Prospectus Regulation and Prospectus Liability*, Oxford, 2020, and the chapters on national systems therein; D. Busch, *The influence of the EU prospectus rules on private law*, 16 Cap. Mkt. L. J. 3, 2021.

in Germany, the Netherlands ([20]) and Italy (where liability applies to persons responsible for even parts of the prospectus); however, German law extends liability to controlling shareholders. In some jurisdictions, moreover, the liability of corporate bodies is not clearly provided for - this seems to be the case, for example, in Finland ([21]).

As regards disclosure obligations not related to primary market transactions, some legal systems provide for concurrent liability of the issuer and its officers, including members of the management body. An analysis of the different techniques used to achieve this can be found in recent contributions: while some jurisdictions make explicit reference to directors or managers ([22]), other systems merely apply general civil law ([23]).

A key issue, when considering the disclosure regime under market abuse rules, is to clarify which rules apply to the acquisition of inside information by an employee or corporate officer in relation to the issuer itself, especially concerning the liability of the legal entity, possibly in addition to that of the natural person: this is a point where legal systems diverge and reach different solutions, which depend mainly on how the liability of the entity in relation to the acts, torts, and omissions of its agents is treated.

The issue can be observed from different perspectives. The first suggests approaching it from the perspective of liability associated with the classic '*black box*' dilemma, typical of AI systems, which has also been addressed by recent legislative initiatives on AI in the European context ([24]). In this regard, liability issues should be examined by considering, firstly, the process leading to the selection and choice of a given AI system and the diligence employed in this context. Secondly, the analysis should focus on how the management body controls and supervises the

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20 M. Gelter, *Issuer Liability: Ownership Structure and the Circularity Debate,* in M. Petrin – C. Witting (eds.), *Research Handbook on Corporate Liability,* Cheltenham-Northampton, 2022.

21 I.H.V. Pönkå, *Finland: Protecting Minority Investors and Compensating their Losses,* in P.-H. Conac - M. Gelter, (eds.), *Global Securities Litigation and Enforcement*, Cambridge (UK), 2019.

22 M. Gelter, *Issuer Liability: Ownership Structure and the Circularity Debate, cit.*, who cites Prado, *Brazil: The Protection of Minority Investors and Compensation for Their Losses*; for Brazil, S. Rousseau, *Canada: The Protection of Minority Investors and the Compensation of Their Losses*, for Canada; P.H. Conac, *France: The Compensation of Investors' Losses for Misrepresentation on Financial Markets,* for France; G. Ferrarini – P. Giudici, *Italy: The Protection of Minority Investors and the Compensation of Their Losses,* for Italy; K.-H. Chun, *South Korea: Protection of Minority Investors in Capital Markets*, for South Korea; L. Lennarts – J. Roest, *Netherlands: Protection of Investors and the Compensation of their Losses,* for the Netherlands; Y. Guseva, *Russia: Russian Capital Markets and Shareholder Litigation: Quo Vadis?,* for Russia; M. Naharro, *Spain: Minority Investors' Protection in Spain: Civil Liability Remedies under Securities Law,* for Spain; F.I. Kayali, *Turkey: The Protection of Minority Investors and the Compensation of Their Losses in Turkish Capital Markets*, for Turkey, all in P.-H. Conac - M. Gelter, cit. See also the contributions, cited by the same author, by P.T. Domingues, *Portugal: The Legal Framework of the Portuguese Capital Market,* in P.-H. Conac - M. Gelter, cit., for Portugal; A. Nariman – M. Suleiman, *Malaysia: Protection of Minority Investors in the Capital Market - Public Enforcement and Shareholders' Litigation*, in P.-H. Conac - M. Gelter, cit., for Malaysia; U. Varottil, *India: The Efficacy of India's Legal System as a Tool for Investor Protection,* in P.-H. Conac - M. Gelter, cit., for India; M. Vasiljević – J. Lepetic – J. Vaslijević, *Serbia: The Protection of Minority Investors and the Compensation of their Losses*, in P.-H. Conac - M. Gelter, cit., for Serbia; R.H. Huang, *China: Private Securities Litigation: Law and Practice*, in P.-H. Conac - M. Gelter, cit., for China.

23 M. Gelter, *Issuer Liability: Ownership Structure and the Circularity Debate, cit.,* citing M. Gelter – M. Pucher, *Austria: Securities Litigation and Enforcement,* in P.-H. Conac - M. Gelter, cit., for Austria, I.H.V. Pönkå, *Finland: Protecting Minority Investors and Compensating their Losses, cit.,* for Finland; D.A. Verse, *Germany: Liability for Incorrect Capital Market Information*, in P.-H. Conac - M. Gelter, cit., for Germany, R. Bahar – X.E. Karametexas – J. Tawil, *Disclosure Duties: How does Swiss Law protect minority shareholders?,* in L. Heckendorn Urscheler (ed.), *Rapports suisses présentés au XIXe Congrès international de droit inclusi: Vienne, du 20 juillet au 26 juillet*, Geneva 2014., for Switzerland; W.-R. Tseng, *Taiwan: Investor Protection in Taiwan's Capital Market,* in P.-H. Conac - M. Gelter, cit., for Taiwan; E. Mastromanolis, *Greece: Public Enforcement and Civil Litigation in the Greek Paradigm of Minority Investor Protection,* in P.-H. Conac - M. Gelter, cit., for Greece.

24 See Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 laying down harmonised rules on artificial intelligence and amending Regulations (EC) No 300/2008, (EU) No 167/2013, (EU) No 168/2013, (EU) 2018/858, (EU) 2018/1139 and (EU) 2019/2144 and Directives 2014/90/EU, (EU) 2016/797 and (EU) 2020/1828 (Artificial Intelligence Act) OJ L, 2024/1689, 12.7.2024.

operation of AI applications, thereby adopting appropriate standards of care. Liability could thus be implied in an unsatisfactory selection process of a particular system or in the lack of control and supervision over its operation.

While this approach is undoubtedly useful, it must nevertheless be observed that, once inside information exists, its disclosure is mandatory: there is, therefore, a specific and clearly identifiable result that must be achieved and that the issuer's internal rules must ensure. This means that non-compliance with the disclosure regime - whether resulting, as the case may be, in a situation of non-disclosure, a late disclosure, or, even, in an incorrect or incomplete disclosure - would constitute a breach of Article 17 MAR, i.e., of a mandatory legislative provision, deriving directly from EU law and directly applicable in national legal systems. As such, the violation could also be a source of liability for the issuer, not only from an administrative point of view, but also for damages towards third parties.

However, the solution to this problem requires addressing the sensitive issue of deciding which rules govern the liability of the issuer *as a legal entity*.

As in many other areas of EU financial legislation ([25]), the MAR is silent on civil liability issues, while addressing administrative and criminal ones. It is precisely in this context that national laws may diverge even considerably. Indeed, it is not necessarily the case that the rules on the imputation of liability lead to the issuer being directly liable for failures to disclose inside information, in respect of information which, although present within the company (or group) organisation, was not *actually* known to the directors personally. In Germany, for example, the issue is controversial to say the least, being debated in the context of the theory of the so-called 'attribution of knowledge' doctrine (*Wissenzurechnung)*, on which there is a large, and controversial, literature ([26]). In general, where an algorithm, operating in an increasingly autonomous way, generates *outputs* that result in violations of the transparency discipline, issues typical of the civil liability system, such as the foreseeability of the damage, the causal link, and fault, take on problematic aspects, many of which are similar to those discussed in the debate on the so-called *Corptech* ([27]).

The examination of these issues, also and above all from a comparative perspective, would require a space that is completely incompatible with the limits of the present contribution. The current analysis will therefore be limited to identifying the problem, this being sufficient to rule out - and subject to a necessary in-depth examination of the subject - that algorithms can be entrusted not only with the phase of identification and management of inside information, but also with its *disclosure* to the public, automatically and without any human intervention.

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25 T. Tridimas, *Financial regulation and civil liability: an EU law perspective*, in O.O. Cherednychenko - M. Andenas (eds.), *Financial Regulation and Civil Liability in European Law*, Cheltenham-Northampton, 2020.

26 *Ex multis*, G. Wagner, *Wissenszurechnung: Rechtsvergleichende und rechtsökonomische Grundlagen*, 181 Zeitschrift Für Das Gesamte Handels - Und Wirtschaftsrecht (ZHR) 203, 2017.

27 G. Sandrelli, *Algoritmi a support delle decisioni degli amministratori e responsabilità*, in V. Donativi (ed.), *Trattato delle società,* Milan, 2022. For further details, F. Annunziata, *Artificial Intelligence and Market Abuse Legislation. A European Perspective,* Cheltenham-Northampton, 2023.

03

The use of augmented intelligence systems

The above issues can also be linked to the current debate on so-called augmented intelligence.

Augmented intelligence is regarded as a particular application of AI technologies or as an alternative to them ([28]). The two concepts are related but not coincidental. A substantial difference between augmented intelligence and AI lies in the fact that, whereas the latter generally serves to assist humans by automating processes with the aim of imitating and replacing them to the greatest possible extent, the former is based on more or less complex paradigms of collaboration between man and machine ([29]). More precisely, augmented intelligence, like AI, is functional for processing large amounts of data to extract patterns and identify new meaningful information, but, in this case, human intervention is encouraged and required rather than replaced ([30]).

Augmented intelligence is often referred to in the literature as a useful tool for implementing automated decision-making processes in business organisations ([31]). Instead of replacing human action, the best option would be to promote a long-term, mutually reinforcing human-AI symbiosis. However, the implementation of AI requires companies to develop sufficient expertise in AI systems and technology architecture ([32]). At the same time, when the human-interacting algorithm is proactively involved in the decision-making process, the use of augmented intelligence can have direct repercussions on the allocation of decision-making authority within the enterprise in relation to a given task.

The foregoing analysis, although based on a very new and still evolving phenomenon - and on a literature that is also developing -, seems to support the conclusion reached herein in relation to the limits within which algorithms could be effectively used to support issuers' compliance with the disclosure regime under Article 17 MAR. Such use of algorithms should, on the one hand, be openly stimulated and supported, but, on the other hand, it should be based on different scales/models of intelligence that are not (only) 'artificial', but rather 'augmented', in order to ensure compatibility between technological developments and the rules that, in practically all legal systems of the EU Member States, apply in relation to the liability of the issuer and its management body for the breach of duties to disclose inside information to the market. This applies, in particular, to the final stage of the identification and management of inside information by the issuer, leading to the decision to disclose it or, possibly, to delay its disclosure.

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28 At the same time, forms of *Inverse Reinforcement Learning*, in which algorithms 'learn' from humans, are also developing. For an application in the field of trading venues, see S.Y. Yang – M.E. Paddrik – R.L. Hayes – A. Todd – A.A. Kirilenko – P. Beling – W. Scherer, *Behavior Based Learning in Identifying High Frequency Trading Strategies,* 2012 IEEE Conf. Computational Intel. Fin. Eng'g & Econ. 1, 2012.

29 *The future of augmented intelligence (*22 March 2022), available at: https://www.sbs.ox.ac.uk/oxford-answers/future-augmented-intelligence; *What is augmented intelligence? (*22 March 2018), available at: https://www.mediaupdate.co.za/media/143606/what-is-augmented-intelligence; *What is augmented intelligence?,* available at: https://www.domo.com/glossary/what-is-augmented-intelligence.

30 M.N.O. Sadiku – S.M. Musa (eds.), *A Primer on Multiple Intelligences*, Berlin, 2021, according to whom the goal of augmented intelligence is not to replace human activities, but rather to elevate existing human capabilities. AI is often designed to mimic human intelligence, whereas augmented intelligence enhances human intelligence and makes it work faster and more efficiently.

31 M.H. Jarrahi, *Artificial intelligence and the future of work: Human-AI symbiosis in organisational decision making,* 61 Bus. Horiz. 577, 2018; M.N.O. Sadiku – S.M. Musa (eds.), *A Primer on Multiple Intelligences*, cit.

32 M.H. Jarrahi, *Artificial intelligence and the future of work: Human-AI symbiosis in organisational decision making,* cit.

04

Some reflections on the notion of inside information in the light of the development of AI systems

Developments in AI stimulate various reflections on its ability to influence, in the new, increasingly technological market environment, the way in which the *disclosure* regime under the MAR and, ultimately, the notion of inside information itself should be viewed. The structure underpinning the rules on the *disclosure* of inside information is based, for example, on the duty of the issuer to proceed with disclosure in relation to information directly concerning it. It is the issuer who, in this conception, is, so to speak, at the centre of the system, and is charged with making available to the public any information that may be significant for maintaining the information efficiency of the markets. The assumption is that the disclosure of such information by the issuer itself promotes the transparency and efficiency of the markets, leading to market prices reflecting the issuer's fundamental values or, at least, tending towards that goal.

However, technological developments are leading to a progressive and growing influence on investor behaviour of information that is disseminated on the market independently of the issuer and processed as such in investment decisions. In this respect, developments in digital platforms, social networks, blogs, etc. (hereinafter referred to as 'media') offer a very different landscape from the one that existed at the origin of the current EU disclosure and transparency regime more than 40 years ago ([33]).

From a traditional perspective, *traders* who base their decisions primarily on the information available in the Media must be considered 'noise *traders*', if not 'irrational' investors. This approach, however, is increasingly being challenged in the face of the expansion of the Media and, in particular, the way *algo-traders* interact with them ([34]) . Most of the information that is disseminated, and actually used, by 'algorithmic' investors is no longer, in fact, the product of disclosure by the issuer ([35]). For instance, the use of media information typically lends itself to so-called 'Trading on News' (*Momentum Trading*): algorithms and high-frequency trading ("HFT") systems exploit the effect that news and macroeconomic data can have on the price trend of financial instruments. Such algorithms thus exploit their ability to quickly draw operational indications from the continuous flow of information from media of all kinds, and turn them into trading orders, which are then quickly sent to trading venues ([36]).

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33 G. Balp - G. Strampelli, *Preserving Capital Markets Efficiency in the High-Frequency Trading Era*, U. ILL. J. L. Tech. & Pol'y 349, 2018.

34 T. Foucault – J. Hombert – I. Rosu, *News Trading and Speed. HEC Research Paper Series 975* (29 May 2013), available at https://www.eief.it/files/2013/06/thierry-foucault.pdf. , who argue that when an investor has quick access to news, his or her trades become much more sensitive to such news, representing a larger fraction of the trading volume, and in turn affecting short-term price forecasts.

35 I. Rosu, *Fast and Slow Informed Trading,* 43 J. FIN. MKT. 1, 2019. According to P. Bilinski, *The Content of Tweets and the Usefulness of YouTube and Instagram in Corporate Communication*, 31 Eur. Acct. Rev. 1, 2022. Investors react more meaningfully to a company's communications on Twitter when (i) they include financial information, (ii) they mention the CEO or CFO, (iii) they include a visual element, and (iv) the posts are written in a moderate tone. Earnings announcement tweets are particularly effective when the retail ownership portion is substantial.

36 For examples of information processed by HFT see, in particular, J.A. Brogaard, *High Frequency Trading, Information and Profits,* UK Government Office for Science, Foresight, Driver Review (*DR 102011)* (15 March 2011), available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/289021/11-1241-dr10-high-frequency-trading-information-and-profits.pdf. and A. Puorro, *High Frequency Trading: An Overview,* Bank of Italy Occasional Paper No. 198 (27 September 2013), available at https://www.bancaditalia.it/pubblicazioni/qef/2013-0198/index.html.

Quite intuitively, the way such information is 'used' by algorithmic traders (see *below*) has important repercussions on market dynamics. It cannot be ruled out that algorithms, in the context of HFT, operate and process data with a fundamental analysis approach: if this were the case, algorithms would fit perfectly into the traditional framework of how markets work, including, of course, efficient capital markets hypothesis ('ECMH') theories. However, as noted in a recent study, this would not be an ideal situation, as the algorithms would first have to process the available data on the fundamental value of an instrument and wait for the price to follow the direction of the value([37]).

On the contrary, algorithmic traders, and in particular high-frequency traders, mostly operate by taking advantage of market movements, even irrational ones, as long as they have an impact on elements that can be exploited for profit, such as price, quantity, volatility, etc. Market consensus, investor behaviour and expectations thus become extremely important factors, along with spontaneous coordination between the market players themselves. Algorithmic traders are also able to act much faster than traditional investors, thus achieving what has been called a 'structural insider advantage': at the time of trading, such a 'structural insider' possesses information that is not yet fully public, not because it has not been disclosed, but because it takes time for it to be incorporated into prices([38]).

In such circumstances, communication spreads across the market in ways that do not correspond to the centralised issuer-based model, but rather in horizontal and complex patterns that wind through different types of communities and media, ultimately reverberating on investors' decisions ([39]). This phenomenon also fosters new, albeit questionable, forms of *herd-like behaviour* or predatory trading, widely observed in the well-known, and probably somewhat overstated, Gamestop and Reddit cases ([40]), which, however, are only the tip of the iceberg.

In today's environment, the relevance of information disseminated through the web, social networks, and platforms has become increasingly significant ([41]), and algorithms have acquired the ability to capture and process this information in a very short period of time. This is, in fact, the primary source of their 'data'.

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37 M. Arrigoni, *Informazioni privilegiate e funzionamento dei mercati finanziari,* Milan, 2022. According to K.S. Haeberle - M. Todd Henderson, *Making a market for corporate disclosure*, 35 Yale J. Reg. 383, 2018. On the other hand, a market for corporate information should be developed, where anyone can buy access to information from companies before it is published, provided they are willing and able to pay the market price for it - an intriguing, if erratic, proposal.

38 M. Arrigoni, *Informazioni privilegiate e funzionamento dei mercati finanziari,* cit.

39 J. Mitts, *A Legal Perspective on Technology and the Capital Markets: Social Media, Short Activism and the Algorithmic Revolution,* Columbia Law and Economics Working Paper No. 615 (Oct. 28, 2019), available at https://ssrn.com/abstract=3447235.

40 *Ex multis*, S.S. Guan, *Meme Investors and Retail Risk,* 63 B.C. L. Rev. 2051, 2022; C. Jones – A. Reed – W. Waller, *When Brokerages Restrict Retail Investors, Does the Game Stop?,* Columbia Business School Research Paper (18 November 2021), available at https://ssrn.com/abstract=3804446; T. Hasso – D. Müller – M. Pelster – S. Warkulat, *Who Participated in the GameStop Frenzy? Evidence from Brokerage Accounts,* 45 Fin. Res. Letters 102140 (2022); S.A. Gramitto Ricci – C.M. Sautter, *Corporate Governance Gaming: The Collective Power of Retail Investors,* 22 Nev. L. J. 51, 2021; F. Allen – M. Haas – E. Nowak – M. Pirovano – A. Tengulov, *Squeezing Shorts Through Social Media Platforms,* Swiss Finance Institute Research Paper No. 21-31 (10 April 2021), available at: https://feeds.usi.ch/documents/attachment/2671/squeezing-shorts-through-social-news-platforms.pdf.; P. Lucantoni, L'*"high frequency trading" nel prisma della vigilanza algoritmica del mercato*, in *Analisi giur. econ.,* 2019, 297 ff.; E.C. Massoc – M. Lubda, *Social Media, Polarisation and Democracy: A Multi-Methods Analysis of Polarised Users' Interactions on Reddit's r/WallStreetBets,* SAFE Working Paper No. *337,* (January 2022), available at https://www.econstor.eu/bitstream/10419/249309/1/178654959X.pdf.

41 R.J. Schiller, *Narrative Economics: How Stories Go Viral and Drive Major Economic Events*, Princeton, 2020, demonstrating how managers use social media feedback instead of other sources of information to guide their investment decisions; A. Sajnovits, *The Market Abuse Regulation and the Residual Role of National Law,* EBI (European Banking Institute) Working Paper Series No. 137/2023 (18 March 2023), available at https://ssrn.com/abstract=4392675.

This phenomenon can also be understood as a case of competition between different types or levels of information capable of influencing the decisions of investors, including, above all, algorithmic traders: on the one hand, those disclosed by the issuer under the traditional *disclosure* regime and, on the other, those disseminated irrespective of or independently of the issuer, through the complex, fast-paced and highly interconnected world of the Media ([42]). While the former should be considered of higher quality and endowed with a greater capacity to support market efficiency, the latter nevertheless retains a significant impact and weight, which tends to overshadow the former.

The ability of the former type of information to 'trump' the latter is, to say the least, a challenging outcome to achieve. This is also the reason why, according to some, there is a need to develop possible regulatory strategies to limit the negative effects of HFT on market allocative efficiency (see *below*): this should be done by reducing the speed advantage of HFTs or by incentivising informed traders to enter markets where they face high costs to compete with HFTs ([43]). However, this approach would lead to measures that hinder technological evolution and create undue competitive advantages related to different technologies in the market.

An alternative would be to increase the amount of information that issuers would have to disseminate to the market. The prices formed in an information-efficient market are considered by traditional economic theory to be accurate. This assumption, which forms the backbone of the ECMH, is generally regarded as valid, even taking into account the so-called 'efficiency paradox': if prices do not correspond exactly to the fundamental value of a financial instrument, they still represent the best available estimate considering the concrete efficiency conditions of the markets ([44]). This, however, does not take into account the significance of *noise traders* and their irrational behaviour. In the current context, and considering the enormous impact of the Media, their relevance cannot be overlooked and, in any case, the possibility of remedying them by increasing the frequency and quantity of information disclosed by the issuer remains remote.

Most probably, the statement that "*in a world with continuous disclosure of material information the expected impact of noise traders on the market price is lower than in a world without such disclosure*" ([45]) is no longer (always) true.

The answers that the MAR provides to counter information inefficiencies focus on the role of the issuer, seen as the only reliable and fundamental source of information of the market: the only one, in other words, that matters, and this regardless of the concrete rules that would apply, i.e., a continuous disclosure system, such as the one contained in MAR, or rules linking *disclosure* to specific events, such as those found in the US system.

42 A. Gross-Klussmann - N. Hautsch, *When Machines Read the News: Using Automated Text Analytics to Quantify High Frequency News-Implied Market Reaction,* 18 J. Empirical Fin. 321, 2011.

43 V. Van Kervel, *Competition for Order Flow with Fast and Slow Traders,* 28 Rev. Fin. St. 2094, 2015; G. Balp - G. Strampelli, *Preserving Capital Markets Efficiency in the High-Frequency Trading Era*, cit.

44 For a discussion on the subject, M. Arrigoni, *Informazioni privilegiate e funzionamento dei mercati finanziari,* cit.

45 L. Klöhn, *Inside information without an incentive to trade? What's at stake in 'Lafonta v AMF'*, 10 Common Mkt. L. J. 162, 2015.

While one of the reasons why the *disclosure* regime was introduced in MAR is the need to reduce the impact of *noise trading*, given the growing impact of technology and media, there is little justification for increasing the volume of information that issuers are required to disclose to the market. Rather, a simplification of the current regime seems preferable, aimed at preserving the quality of the information disclosed by the issuer, reducing its quantity but enhancing its ability to contribute to information efficiency ([46]).

The trend towards such simplification now seems to be on the agenda of the EU legislator. In its late 2022 proposal for regulatory action on various aspects of EU capital markets law, the Commission anticipated a possible change to the current disclosure regime set out in Article 17 MAR, eliminating the need to disclose inside information in the intermediate stages of protracted trials ([47]). The Commission questions the positive impact of the current scope of *ad hoc* disclosure on market efficiency: while not denying the obvious assertion that disclosure is critical to making well-informed investment decisions, the proposal argues that disclosure at a very early stage could mislead investors and trigger investment decisions that could be sub-optimal (e.g., divesting shares too early or not divesting them early enough), resulting in higher opportunity costs for investors. These problems would be particularly evident in protracted processes ([48]). The proposal is also justified by the need to reduce compliance costs, considering the potential benefits of the current regime. The amendment of Article 17 MAR would, however, not affect the notion of inside information, which would remain unchanged for the purposes, in particular, of the insider trading ban ([49]).

For the purposes of this analysis, a number of conclusions can be drawn from this debate. In particular, the growing divergence between the information made available to the market by the issuer, on the one hand, and by the media, on the other, together with the development of increasingly fast and sophisticated algo-trading techniques, showing how significant the role of technology is in this field. AI has a far-reaching impact on markets, and not only in terms of the microstructure and functioning of trading platforms (see *below*), such as to challenge some well-known and deep-rooted traditional beliefs, thus showing how profound the relationship between regulation and technological evolution is.

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46 M. Arrigoni, *Informazioni privilegiate e funzionamento dei mercati finanziari,* cit.

47 See Regulation (EU) 2024/2809 of the European Parliament and of the Council of 23 October 2024 amending Regulations (EU) 2017/1129, (EU) No 596/2014 and (EU) No 600/2014 to make public capital markets in the Union more attractive for companies and to facilitate access to capital for small and medium-sized enterprises (OJ L, 2024/2809, 14.11.2024), Article 2(6)(a): "(6) Article 17 is amended as follows: (a) in paragraph 1, the first subparagraph is replaced by the following: '1. An issuer shall inform the public as soon as possible of inside information which directly concerns that issuer. That requirement shall not apply to inside information related to intermediate steps in a protracted process as referred to in Article 7(2) and (3) where those steps are connected with bringing about or resulting in particular circumstances or a particular event. In a protracted process, only the final circumstances or final event shall be required to be disclosed, as soon as possible after they have occurred.'".

48 R. Veil – M. Wiesner – M. Reichert, *Ad Hoc Disclosure under the EU Listing Act*, 68 Aktiengesellschaft (AG) 57, 2023, argue that the Commission did not provide any further justification for this claim, neither in the Proposal nor in the Impact Assessment. However, in our opinion, reality already makes the Commission's claim quite clear.

49 M. Arrigoni, *Informazioni privilegiate e funzionamento dei mercati finanziari, cit.* In critical terms, see R. Veil – M. Wiesner – M. Reichert, *Ad Hoc Disclosure under the EU Listing Act*, cit., especially in the first paragraphs, although reaching a more moderate conclusion.

05

AI and market manipulation

The relevance of algorithms in relation to market manipulation issues is the second aspect to consider when assessing the interaction between AI and MAR. In this regard, the analysis fundamentally revolves around the use of algorithms in the context of trading activities, thus placing itself at the crossroads between the provisions on market manipulation contained in the MAR and those on algorithmic and high-frequency trading formulated in the context of the Markets in Financial Instruments Directive ('MiFID II') ([50]).

The starting point of the analysis is the regime applicable to algorithmic and high-frequency trading currently in force under MiFID II.

In Europe, the discussion on algorithmic trading and HFT far anticipated most of the trends and debate that are now developing at a more horizontal level, including those that led to the approval of the EU Artificial Intelligence Regulation: algorithmic issues in fact affected trading platforms much earlier than other sectors, and the responses provided by legislators in this context proved to be precursors to the developments now being observed in other areas ([51]).

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50 Directive 2014/65/EU of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments and amending Directive 2002/92/EC and Directive 2011/61/EU (OJ L 173, 12.6.2014, p. 349–496).

51 Among the vast literature on high-frequency trading at least A. Sussman – L. Tabb – R. Iati, *US Equity High-Frequency Trading: Strategies, Sizing and Market Structure,* TAAB Group Report (2 September 2009), available at: https://research.tabbgroup.com/report/v07-023-us-equity-high-frequency-trading-strategies-sizing-and-market-structure; F.J. Fabozzi – S.M. Focardi - C. Jonas, *High Frequency Trading: Methodologies and Market Impact,* 19 Rev. Future Mkt. 7, 2010; R.D. Smith, *Is High Frequency Trading Inducing Changes in Market Microstructure and Dynamics* (June 2010), available at: https://ssrn.com/abstract=1632077; P. Gomber – B. Arndt – M. Lutat – T. Uhle, *High Frequency Trading,* Deutsche Börse Group (March 2011), available at: https: https://www.deutsche-boerse.com/resource/blob/69642/6bbb6205e6651101288c2a0bfc668c45/data/high-frequency-trading_en.pdf.; V. Caivano, *The Impact of High-Frequency Trading on Volatility. Evidence from the Italian Market,* CONSOB Quaderni di finanza no. 80 (March 2015), available at: https://www.consob.it/o/PubblicazioniPortlet/DownloadFile?filename=/documenti/quaderni/qdf80.pdf.; R.S. Karmel, *IOSCO's Response to the Financial Crisis*, 37 J. Corp. L. 849, 2012; C. Lattemann – P. Loos – J. Gomolka – H.-P. Burghof – A. Breuer – P. Gomber – M. Krogmann – J. Nagel – R. Riess – R. Riordan – R. Zajonz, *High Frequency Trading - Costs and Benefits in Securities Trading and its Necessity of Regulations*, 4 Bus. & Info. Sys. Eng. 93, 2012; M. Baron – J.A. Brogaard – B. Hagströmer – A. Kirilenko, *Risk and Return in High Frequency Trading*, 54 J. Fin. & Quant. Analysis 993, 2019; O. Linton – M. O'hara – J.-P. Zigrand, *Economic impact assessments on MiFID II policy measures related to computer trading in financial markets*, Foresight, Government Office for Science, Working Paper (31 August 2012), available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/289075/12-1088-economic-impact-mifid-2-measures-computer-trading.pdf.; S. Patterson, *Dark Pools, The Rise of A.I. Trading Machines and the Looming Threat to Wall Street*, New York, 2012; M. Prewitt, *High-Frequency Trading: Should Regulators Do More?*, 19 Mich. Telecomm. & Tech. L. Rev. 131, 2012; J. Tse – X. Lin – D. Vincent, *High Frequency Trading - Measurement, Detection and Response. Credit Suisse AES Analysis* (2012), available at: https://docplayer.net/77225061-High-frequency-trading-measurement-detection-and-response-market-commentary-6-december-2012.html; A. Cartea – J. Penalva, *Where is The Value in High Frequency Trading?,* 2 Q'ly J. Fin. 1250014, 2012; A. Doyle – B. Thomas, *A cure for all ills?, The Commission's Proposals Must Strike a Difficult Balance between Regulatory Control and Efficient Market Functioning*, 30 Int'l Fin. L. Rev. 60, 2012; D. Easley – M.M. Lopez De Prado – M. O'hara, *Flow Toxicity and Liquidity in a High Frequency World,* 25 Rev. Fin. Stud. 1457, 2012; D. Easley – M.M. Lopez De Prado – M. O'hara, *The volume clock: Insights into the high frequency paradigm,* 39 J. Portfolio Mgmt. 19, 2012; D. Easley – M.M. Lopez De Prado – M. O'hara (eds.), *High-Frequency Trading: New Realities for Traders, Markets and Regulators*, London, 2013; B. Hagströmer – L. Nordén, *The Diversity of High Frequency Traders,* 16 J. Fin. Mkt. 741, 2013; T. Hendershott – R. Riordan, *Algorithmic Trading and the Market for Liquidity*, 48 J. Fin. & Quantitative Analysis 1001, 2013; E. Jaskulla, *Das deutsche Hochfrequenzhandelsgesetz-eine Herausforderung für Handelsteilnehmer, Börsen und Multilateral Handelssysteme (MTF)*, 13 Zeitschrift Für Bank- Und Kapitalmarktrecht (BKR) 221, 2013; A.A. Kirilenko – A.W. Lo, *Moore's Law vs. Murphy's Law: Algorithmic trading and its discontents,* 27 J. Econ. Perspectives 51, 2013; J. Kobbach, *Regulierung des algorithmischen Handels durch das neue Hochfrequenzhandelsgesetz: Praktische Auswirkungen und offene rechtliche Fragen*, 13 Zeitschrift Für Bank- Und Kapitalmarktrecht (BKR) 233 (2013); K. Malinova – A. Park – R. Riordan, *Do Retail Traders Suffer from High Frequency Traders?* (Jan. 11, 2018), available at: https://ssrn.com/abstract=2183806; A.J. Menkveld, *High Frequency Trading and the New Market Makers,* 16 J. Fin. Mkt. 712, 2013; H.A. Bell, H. Searles, *An Analysis of Global HFT Regulation-Motivations, Market Failures, and Alternative Outcomes. Mercatus Center*, George Mason University, Working Paper No. 14-11 (24 April 2014), available at: https://ssrn.com/abstract=2689321; A.P. Chaboud – B. Chiquoine – E. Hjalmarsson – C. Vega, *Rise of the Machines: Algorithmic Trading*

The rise of AI-driven trading and HFT is clearly visible ([52]), and statistics show that the volume/size of HFT orders on EU and US markets is indeed significant. In its 2021 Report ([53]), ESMA collected a huge amount of data from EU regulated markets and MTFs. In total, 52 trading venues from 24 EU Member States provided quarterly aggregated data for derivatives in 2018 and 2019. Although more up-to-date data are not available at the moment, it is expected that the figures, which were already staggering at the time, may increase further.

Not all markets, however, share the same features, and in fact bond markets show different trends. Until mid-2019, bond trading was not significantly influenced by algorithmic trading, but this changed at a later stage, with rapid growth in the third quarter of 2019, when algorithmic trading accounted for around 80 per cent of trading volume. In contrast, HFT for bonds remains marginal.

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52 FSB (Financial Stability Board), *Artificial intelligence and machine learning in financial services - Market developments and financial stability implications* (1 November 2017), available at: https://www.fsb.org/wp-content/uploads/P011117.pdf.

53 ESMA, *MiFID II/MiFIR review report on Algorithmic Trading. ESMA70-156-4572* (28 September 2021), available at: https://www.esma.europa.eu/sites/default/files/library/esma70-156-4572_mifid_ii_final_report_on_algorithmic_trading.pdf.

For derivatives, the ratio of algorithmic to non-algorithmic trading remained stable until the second quarter of 2019; after this period, algorithmic trading other than HFT started to increase. By contrast, the impact of HFT on derivatives markets is marginal.

These developments are supported by multiple innovations that make high-level computing power increasingly accessible, thus lowering the barriers to entry for operators ([54]). The availability of an increasing amount of data, including alternative data ([55]), also acts as a multiplier for the development and adoption of these technologies.

On trading markets, algorithms are used for several purposes. A first case refers to the ***pre-trade* and *trade generation*** phases, where algorithms can be used, for example, to analyse market conditions and identify investment opportunities, to be supplemented with additional human intervention or to be directly transformed into algorithmic trading decisions, including HFT.

A second significant area where AI is used in trading relates to the **execution** phase. When executing an order, a broker tries to minimise the costs of its impact on the market. Some brokers and large *buy-side* investors, such as pension funds and *hedge funds*, have developed AI models to optimally split and execute large orders across different venues and trading hours, so as to minimise their impact on the market and, consequently, transaction costs. In its 2023 Report, ESMA points out that one of the main challenges these models face is the scarcity of data on meta-orders (i.e., large orders that are split into smaller units for optimal execution), which only the executing entity possesses ([56]). This leads brokers to develop models that are trained on a restricted set of information and whose usability is therefore rather limited.

The application of AI is also experimented with in the ***post-trade* phase**, both by central securities depositories and brokers, to predict the probability that a trade will not be settled given the resources allocated to it, to optimally distribute these resources (i.e., liquidity) ([57]).

Despite the experience gained with the so-called *Flash Crash* ([58]), the empirical evidence on the potential risks and benefits of algorithmic trading is still controversial ([59]). Academic and even more practical studies come to different, even contradictory conclusions, particularly when it comes to assessing the risks and benefits of

54 D. Cliff – D. Brown – P. Treleaven, *Technology Trends in the Financial Market: A 2020 Vision. UK Government Office for Science* (September 2011), available at: https://research-information.bris.ac.uk/en/publications/technology-trends-in-the-financial-markets-a-2020-vision.

55 These are new unconventional data that provide complementary and correlated information to the so-called traditional or common data, for a better analysis and a different point of view. For further references see A. Denev – S. Amen, *The Book of Alternative Data: A Guide for Investors, Traders, and Risk Managers,* Hoboken, 2020.

56 ESMA, *TRV Risk Analysis Artificial intelligence in EU securities markets. ESMA50-164-6247* (1 February 2023), available at: https://www.esma.europa.eu/sites/default/files/library/ESMA50-164-6247-AI_in_securities_markets.pdf.

57 Id.

58 D. Easley – M. Lopez de Prado – M. O'Hara, *The Microstructure of the 'Flash Crash': Flow Toxicity, Liquidity Crashes, and the Probability of Informed Trading,* cit.; F. Partnoy, *The Abraham L. Pomerantz Lecture: Don't Blink: Snap Decisions and Securities Regulation*, 77 Brook. L. Rev. 15, 2011; R.S. Karmel, *IOSCO's Response to the Financial Crisis*, 37 J. Corp. L. 849, 2012; O. Cosme Jr., *Regulating High-Frequency Trading: The Case for Individual Criminal Liability*, 109 J. Crim. L. & Criminology 365, 2019. Flash crashes have also lent themselves to grand narratives, such as the well-known and popular one by M.M. Lewis, *Flash Boys: A Wall Street Revolt*, cit.

59 Some contributions explore the technical characteristics of the types of *memory networks* used in HFT: P. Ganesh – P. Rakheja, *VLSTM: Very Long Short-Term Memory Networks for High-Frequency Trading* (22 October 2020), available at: https://arxiv.org/abs/1809.01506.

HFT ([60]). This divergence of opinion is also due to the fact that most studies do not usually distinguish between different HFT strategies ([61]) and that different risk factors (such as the impact HFT can have on market liquidity and volatility) depend on and are conditioned by specific market conditions (e.g., whether markets are in normal trading conditions or under stress) or a sometimes very narrow scope of analysis ([62]).

Although it is the responsibility of regulators to identify risks ([63]) and threats of new phenomena in order to define appropriate regulatory measures, it is not surprising that HFT remains a contentious area in financial market regulation and that companies that primarily engage in HFT have been described as 'protean in nature' ([64]): an elusive target for regulators, supervisors, and traders themselves, with ambiguous effects on markets ([65]).

Regardless of the position taken in the debate on the virtues and flaws of algorithmic and high-frequency trading, there is no doubt that the use of algorithms in the context of trading activities raises complex issues in terms of risks to market participants and the stability of global markets. The problem, therefore, ultimately lies in how to properly identify and manage these risks ([66]), taking into account the constant and rapid technological evolution of markets and the need, in any case, not to place obstacles in the way of innovation.

At the heart of the complex and articulated provisions contained in MiFID II and aimed at the macro-issue of algorithmic trading is the need to ensure strong safeguards - starting with the market participants themselves - on the proper functioning and operation of algorithmic trading, to better govern the associated risks. This is not surprising: in a regulatory context (that of investment services and activities, as contemplated by MiFID I and MiFID II) in which procedures, systems, internal controls, and risk management profiles are already extensively regulated, algorithmic trading brings with it additional and specific safeguards, justified by the particular form of risks it raises. In this regard, the *flash crashes* that occurred in the run-up to the drafting of MiFID II clearly showed EU regulators how the use of algorithmic techniques requires particular caution.

60 V. Caivano, *The Impact of High-Frequency Trading on Volatility. Evidence from the Italian Market. CONSOB Quaderni di finanza no. 80* (March 2015), available at: https://www.consob.it/o/PubblicazioniPortlet/DownloadFile?filename=/documenti/quaderni/qdf80.pdf., who highlights the differences in the approaches used by researchers in this field.

61 B. Hagströmer – L. Nordén, *The Diversity of High Frequency Traders,* 16 J. Fin. Mkt. 741, 2013; M.P. Lerch, *Algorithmic Trading and High-Frequency Trading*, in R. Veil (ed.), *European Capital Markets Law*, cit.

62 AFM (2023).

63 The most recent overview is contained in AFM (2023), which is particularly interesting because it is the result of specific analyses conducted directly in the field.

64 M. Chlistalla, *High Frequency Trading, Better than its reputation? Deutsche Bank Research* (7 February 2011), available at: https://www.palmislandtraders.com/econ136/hft_dbank.pdf.; M.P. Lerch, *Algorithmic Trading and High-Frequency Trading*, in R. Veil (ed.), *European Capital Markets Law*, cit.

65 T. Foucault - A. Roell - P. Sandas, *Market Making with Costly Monitoring: An Analysis of the SOES Controversy,* 16 Rev. Fin. St. 345, 2003; A. Gerig, *High-Frequency Trading Synchronises Prices in Financial Markets,* available at: https://ssrn.com/abstract=2173247, 2015; M. Hilbert - D. Darmon, *How Complexity and Uncertainty Grew with Algorithmic Trading*, 22 Entropy 499, 2020, who discuss how algorithmic trading increases complexity and uncertainty. Discussing HFT-related profitability, M.J. Kearns – A. Kulesza – Y. Nevmyvaka, *Empirical Limitations on High Frequency Trading Profitability*, 5 J. Trading 50, 2010.

66 ([66]) Including ethical ones. See G. Spindler, *Control of Algorithms in Financial Markets: The Example of High-Frequency Trading* in M. Ebers – S. Navas (eds.), *Algorithms and the Law,* Cambridge (UK), 2020.

MiFID II comprehensively and specifically addresses the issue of algorithmic trading, introducing a kind of special regime in the broader regulatory framework applicable to the provision of investment services and trading venues. The approach adopted by MiFID II towards the regulation of algorithmic trading and HFT is thus a significant example of how *specifically* technological developments can induce certain legislative choices. The EU rules in this area thus openly defy the principle of technology neutrality: they are specifically tailored to address the impact of the technologies considered here, both on investment firms and trading venues.

MiFID II looks at algorithmic trading issues from two different but converging perspectives: that of the trader using algorithms and that of trading venues accepting or allowing algorithmic trading. More broadly, it aims to design a comprehensive and exhaustive system of rules, combining the two perspectives in a coherent approach.

In a nutshell, with regard to the rules applicable to investment firms ([67]) engaging in algorithmic trading, the relevant provisions focus on:

(i) organisational requirements;

(ii) transparency requirements;

(iii) additional special requirements that investment firms must meet in order to engage in algorithmic trading.

Again, in a nutshell, the MiFID II rules on algorithmic trading and HFT are also aimed at trading venues that allow the use of algorithmic trading systems, in particular high-frequency trading systems, on their platforms. Trading venues (whether in the form of regulated markets (RMs), multilateral trading facilities (MTFs) or organised trading facilities (OTFs) must be adequately structured and equipped with suitable controls to deal with the risks associated with the use of algorithms. They must also have systems and mechanisms capable of supporting very high trading volumes, which are the basis of HFT systems.

06

Specific considerations on algorithmic and high-frequency trading

Obviously, algorithmic, and high-frequency trading stand out among the different mechanisms by which market manipulation may occur. Although this statement seems quite intuitive, it is nevertheless important to note that the MAR itself (unlike the previous directive) clearly mentions algorithmic trading when considering the various possible means by which manipulation can occur ([68]).

67 D. Busch, *MiFID II: Regulating High Frequency Trading, Other Forms of Algorithmic Trading and Direct Electronic Market Access*, 10 L. & Fin. Mkt. Rev. 72, 2016; J. Lee, *Access to Finance for Artificial Intelligence Regulation in the Financial Services Industry*, 21 Eur. Bus. Org. L. Rev. 731, 2020.

68 D. Leis, *High Frequency Trading; Market Manipulation and Systemic Risks From an EU Perspective* (29 February 2012), available at: https://ssrn.com/abstract=2108344.

This focus on algorithmic trading is already visible in Recital 38 of the MAR, which expressly refers to the need to counteract abusive strategies that can be implemented through algorithmic and high-frequency trading. With reference to the body of the Regulation, on the other hand, Article 12(2), in identifying the conduct that could constitute market manipulation, also contemplates the placing of orders on a trading venue, including any cancellation or modification thereof, by any available means of trading, *including through electronic means, such as algorithmic and high-frequency trading strategies*, which manifest the anomaly indices identified by the same provision.

Although, of course, algorithmic trading or HFT do not, *per se*, amount to market manipulation, recent literature observes how certain algorithmic trading strategies are particularly suited to realising forms of 'AI-style market manipulation' ([69]), especially when traced back to so-called '*aggressive*' HFT strategies ([70]). Abuse techniques such as *spoofing*, *order layering*, *pump and dump*, *marking the close,* etc., are also easily realised through the use of algorithms that operate at high speed, capable of impacting the market very quickly ([71]).

Two recent, and highly relevant, texts offer what is, at present, a very comprehensive treatment of the issues surrounding the liability arising from the use of algorithmic trading techniques such as to integrate the extremes of market manipulation([72]).

Basically, *three* case studies can be derived from these contributions, which differ in how human intervention influences or impacts the functioning of the algorithms.

Each case has its specificities: the first two seem to be sufficiently covered - in terms of enforcement and/or liability - by the current provisions contained in MAR and MiFID II. The third, on the other hand, which is more related to future developments of automated and self-learning algorithms, seems to be very complex, and such as to raise new and difficult questions.

The first case is the failure of an algorithm, which was not intentionally distorted or poorly constructed, but was negligently designed ([73]). This situation is far from being purely theoretical, as it mirrors what has happened in most flash crashes, including the one that triggered the wave of legislation on algorithmic trading and HFT in the context of MiFID II: reference is made to the 2012 crash, triggered, in the US markets, by Knight Capital. As has been abundantly reconstructed, Knight Capital's automated trading system, due to flaws in its configuration, went out of control, causing an uncontrolled flow of orders that hit the markets hard, generating dramatic effects on the prices of several securities and, as a result, considerable damage ([74]).

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69 T.J. Putnins, An Overview of Market Manipulation, in C. Alexander - D. Cumming (eds.), *Corruption and Fraud in Financial Markets: Malpractice, Misconduct and Manipulation,* New York, 2020; A. Azzutti, *AI-trading and the Limits of EU Law Enforcement in Deterring Market Manipulation*, 45 Comput. L. & Sec. Rev. 105690, 2022.

70 M.M. López De Prado, *Advances in Financial Machine Learning*, New Jersey, 2018.

71 For a detailed description, F. Annunziata, *Artificial Intelligence and Market Abuse Legislation. A European Perspective,* Cheltenham-Northampton, 2023.

72 A. Azzutti- W.-G. Ringe – H.S. Stiehl *Machine Learning, Market Manipulation and Collusion on Capital Markets: Why the "Black Box" Matters,* 43 U. PENN. J. INT'L L. 79, 2022; A. Azzutti- W.-G. Ringe – H.S. Stiehl, *The Regulation of AI Trading from an AI Life Cycle Perspective,* European Banking Institute Working Paper Series 2022 - no. 130 (27 October 2022), available at https://ssrn.com/abstract=4260423.

73 F. Consulich, *Il nastro di möbius, intelligenza artificiale e imputazione penale nelle nuove forme di abuso del mercato,* in *Banca borsa,* 2018, I, 196 ff.

74 Damages have been estimated around 440 million USD. See N. Popper, Knight Capital Says Trading Glitch Cost It $440 Million, NY Times, August 2012, available at: https://archive.nytimes.com/dealbook.nytimes.com/2012/08/02/knight-capital-says-trading-

Considering the approach of MiFID II, the issues raised in the context of these types of incidents are exactly those that the legislation aims to address: prevention of operational failures, *ex-ante* and *ex-post* controls and verification, resilience of systems, and issues related to the adoption of more robust and long-term approaches to the governance of data and algorithms ([75]). Since MiFID II can be read as a direct response to these cases, and since the approach adopted by MiFID II has proven to be robust over time, the conclusion that can be reached is that the current legislation is generally well equipped to react to such situations, by distributing responsibilities, imposing sanctions, and ensuring appropriate prevention measures([76]).

A second case study can be traced to situations in which an entity *intentionally* develops and/or uses AI systems to engage in practices that cause market manipulation ([77]). A variant of this scenario is where an algorithm, originally designed correctly, is subsequently used, or altered, to manipulate the market: the consequences, however, are no different. Such cases, as well, are already covered by the rules on market manipulation conducts and can lead to liability regimes that are also cumulative, at administrative, criminal, and civil level. They are also conducts that are fully covered by the MAR and its prohibitions and sanctions.

The last case is the most challenging. This is the hypothesis where autonomous trading agents operate independently of human intervention or intent and develop their own strategy, resulting in manipulation of the market ([78]) and disrupting its normal operating conditions ([79]).

The current rules regulating market abuse and related liabilities appear mostly insufficient to address this situation ([80]). The main reason for this is related to the so-called black box dilemma, which, moreover, presents itself along general lines not dissimilar to those already observed with regard to the regime of *disclosure of* inside information by issuers. In the case under discussion, as algorithms become more and more sophisticated, it becomes increasingly difficult to identify and understand the causes of a malfunction, and even to understand how the algorithm arrived at a particular decision[81].

The discussion on these points is influenced by the fact that legal systems may generally require proof, based on documented evidence, of the manipulator's intent to cause harm, in order to impose criminal, administrative or

mishap-cost-it-440-million/.

75 L. Dupont – O. Fliche – S. Yang, *Governance of Artificial Intelligence in Finance. ACPR - Banque de France Discussion document* (June 2020), available at: https://acpr.banque-france.fr/sites/default/files/medias/documents/20200612_ai_governance_finance.pdf.

76 Y. Yadav, *How Algorithmic Trading Undermines Efficiency in Capital Markets,* 68 Vand. L. Rev. 1607, 2015; Y. Yadav, *Oversight Failure in Securities Markets*, 104 Cornell L. Rev. 1799, 2020.

77 V. Mavroudis, *Market Manipulation as a Security Problem: Attacks and Defenses. EuroSec '19: Proceedings of the 12th European Workshop on Systems Security* (2019), available at: https://doi.org/10.1145/3301417.3312493, 2019.

78 E. Martínez-Miranda – P. McBurney – M.J.W. Howard, *Learning Unfair Trading: A Market Manipulation Analysis from the Reinforcement Learning Perspective,* in B.S.J. Costa - I. Skrjanc - E. Lughofer, (eds.), *2016 IEEE Conference on Evolving and Adaptive Intelligent Systems (EAIS)*, Natal, 2016; T. Mizuta, *Can an AI perform market manipulation at its own discretion? - A genetic algorithm learns in an artificial market simulation*, 2020 IEEE Symposium Series on Computational Intelligence (SCCI), available at: https://ieeexplore.ieee.org/document/9308349, 2020; M. Shearer – G.V. Rauterberg – M.P. Wellman, *Learning to Manipulate a Financial Benchmark,* University of Michigan Law & Econ. Research Paper No. 22-038 (14 September 2022), available at: https://ssrn.com/abstract=4219227.

79 A. Azzutti- W.-G. Ringe – H.S. Stiehl, *The Regulation of AI Trading from an AI Life Cycle Perspective,* cit.; E. Leung – H. Lohre – D. Mischlich – Y. Shea – M. Stroh, *The Promises and Pitfalls of Machine Learning for Predicting Stock Returns*, 3 J. Fin. Data Sci. 21, 2021.

80 On criminal liability, with reference to the Italian system, see F. Consulich, *Il nastro di möbius, intelligenza artificiale e imputazione penale nelle nuove forme di abuso del mercato*, cit.

81 Y. Bathaee, *The Artificial Intelligence Black Box and the Failure of Intent and Causation*, 31 Harv. J. L. & Tech. 889, 2018.

even civil liability. In addition, liability is attributed to natural or legal persons (e.g., investment firms) for acts or omissions committed by a natural person (e.g., employees) and is not applicable *per se* to a computer code.

In addition, the discussion on the relevance of the subjective element in the case of market abuse is highly articulated in the different countries of the Union, in particular regarding market manipulation, also because it is necessary to distinguish conducts that can result in a criminal offence from conducts that are only relevant for administrative purposes.

In the context of the repealed MAD of 2003, no provision specifically addressed the subjective element of transactional manipulation. Currently, however, the MAR-MAD II provides an autonomous definition of market manipulation for criminal purposes: Article 5 of MAD II states that criminal liability for market manipulation is to be established by each Member State at least in serious cases and when the manipulation is committed *with intent*. Therefore, with regard to criminal sanctions, as it stands, EU law expressly requires the subjective element of intent.

However, Article 12 MAR - which defines market manipulation for the purposes of applying administrative sanctions - does not contain any explicit reference to subjective elements or to the intention to carry out the conduct. As far as administrative sanctions are concerned, therefore, the debate remains open as to whether the intent requirement is necessary, on which authors have taken divergent positions[82]. In any case, these remain matters for national law, and the practice observable in the various EU countries does not always follow the same standard ([83]). An important decision issued by the EFTA Court in 2020 seems to confirm that, for transaction-based market manipulation, the need to prove intent would not be necessary ([84]). The decision, however, is not very clear and, more importantly, it is uncertain whether it will be followed up significantly.

Similar problems arise in relation to civil liability. Most, if not all, of the authors discussing the various scenarios concerning the potential impact of AI on manipulative conduct highlight the difficulties encountered when trying to address liability issues in this context ([85]). These difficulties are far from being exclusively referable to the case of algorithmic trading and HFT, but rather concern almost all sectors that witness the development of AI systems and deal with liability issues associated with their use and, it bears repeating, are conceptually not very different from those already evoked in the context of the insider *disclosure* discipline.

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82 See N. Moloney, *EU Securities and Financial Markets Regulation*, Oxford, 2014 and S. Mock, *The concept of market manipulation*, in M. Ventoruzzo - S. Mock (eds.), *Market Abuse Regulation: Commentary and Annotated Guide*, Oxford, 2022. (2022). In favour of the subjective element requirement, among others, G. Ferrarini, *The European Market Abuse Directive*, 41 Common Mkt. L. Rev. 711, 2004; E. Avgouleas, *The Mechanics and Regulation of Market Abuse: A Legal and Economic Analysis*, Oxford, 2005; V.D. Tountopoulos, *Manipulation in Illiquid Markets - A Tale of Inefficiency?*, 14 Eur. Co. Fin. L. Rev. 468, 2017; C. Picciau, *Recenti spunti giurisprudenziali sulla frammentariazione di manipolazione del mercato*, in *Nuove Leggi Civ. Comm.*, 2020, 1286 ff. For the US system see, dated but still useful: D.R. Fischel – D.J. Ross, *Should the law prohibit 'manipulation' in financial markets?,* 105 Harv. L. Rev. 503, 1991, according to whom it would not be possible to provide an objective definition of market manipulation.

83 See, for example, Consob, in relation to the declaration of compliance with CESR guidelines: Communication No. DME/10039224 of 30-4-2010.

84 EFTA Court, February 2020, Case E-5/19, Criminal proceedings against F and GP. For comments on the case, see C. Picciau, *Recenti spunti giurisprudenziali sulla frammentariazione di manipolazione del mercato,* cit.

85 Y. Yadav, *Oversight Failure in Securities Markets*, cit.; A. Azzutti- W.-G. Ringe – H.S. Stiehl, *The Regulation of AI Trading from an AI Life Cycle Perspective,* cit.

07

Discussion on possible solutions.

The current academic and practical debate has witnessed a succession of different proposals on how to address the issues highlighted above, most of which, by the way, are far from being specifically related to the regulation of market abuse or even of financial markets, but more generally concern the use of AI per se. The debate is lively among scholars from different backgrounds and, more recently, also among regulators and supervisors. Amid the measures that are being suggested are:

a) Increased explainability (transparency) of algorithms. This is a real *evergreen*. Based on the assumption that algorithms make it difficult to address questions of accountability, a recurring, almost obsessive suggestion is that algorithms, and the decision-making process they embody and follow, should be made more intelligible and 'explainable' ([86]). However, as in most areas of research that could be called 'mainstream', what should be actually 'explainable' becomes often confusing, and at the same time, uncertain ([87]). More generally, "*explainability can relate to the notion of a given AI model being interpretable by and understandable to humans*" ([88]). Of course, explainability decreases as the complexity of the AI tool increases and, for this reason, *deep learning* systems, including *neural networks,* are generally considered to be poorly explainable.

However, explainability can be understood in other ways. In its 2023 report on AI, ESMA notes that a support vector machine (SVM) classifier could be considered interpretable and explainable. However, if one is primarily concerned with determining the importance of the different variables in the model, rather than the structure of the model itself, then the SVM is hardly interpretable and explainable ([89]). The conclusion is that explainability must be contextualised: different levels of explanation must be considered, and the appropriate level depends on the specific AI model and also on its purpose and function (whether, for instance, the analysis is necessary for the protection of third-party users or for compliance reasons, etc.) ([90]).

Finally, it is not certain that explainability - assuming it is actually feasible - can actually be a remedy for the problems considered in this paper, in connection with algorithmic trading. For instance, there is a widespread belief that meeting 'strong' explainability requirements creates a *trade-off* between the maximum level of accuracy of machine learning models and the possibility of explanation: in financial trading, this could lead to 'weaker' algorithms, increasing the risk of non-compliance with financial regulation.

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86 See, most recently, ESMA, *TRV Risk Analysis Artificial intelligence in EU securities markets. ESMA50-164-6247* (1 February 2023), available at: https://www.esma.europa.eu/sites/default/files/library/ESMA50-164-6247-AI_in_securities_markets.pdf., with particular reference to the asset management sector; R. Zuroff – N. Chapados, *Explaining Explainable AI*, in N. Remolina – A. Gurrea-Martinez, *Artificial Intelligence in Finance: Challenges, Opportunities and Regulatory Developments*, Cheltenham-Northampton, 2023. On the difference between explainability and intelligibility (or interpretability), L. Dupont – O. Fliche – S. Yang, *Governance of Artificial Intelligence in Finance. ACPR - Banque de France Discussion document,* cit.; C. Starkweather – I. Nelken, *Behind the Curtain: The Role of Explainable AI in Securities Markets*, Securities Regulation Daily (July 31, 2020), available at https://www.supercc.com/pdf/Behind-the-Curtain_07-31-2020.pdf.

87 ESMA, *TRV Risk Analysis Artificial intelligence in EU securities markets*, cit.

88 Id.

89 An SVM is a supervised learning model with associated learning algorithms that analyse data for classification and regression analysis.

90 L. Dupont – O. Fliche – S. Yang, *Governance of Artificial Intelligence in Finance. ACPR - Banque de France Discussion document,* cit.

b) The AI as a legally liable entity. Some provocative proposals envisage the introduction of rules assigning liability to the AI itself, reinforced/accompanied by *ad hoc* insurance coverage ([91]). These suggestions, however, are to be discarded, as most, if not all, legal systems currently do not grant legal status to algorithms, nor do they seem ready to do so in the near future ([92]). Some of the most reliable studies on AI also emphasise that an algorithm will never - at least in the current state of our knowledge - have the same kind of consciousness attributable to human beings or, alternatively, conclude that this evolution is not currently necessary ([93]).

c) Banning algorithmic trading. More extreme approaches suggest imposing a strict ban on algorithmic trading activities: however, these suggestions were clearly discarded several years ago, as the approach taken by various jurisdictions around the world, including of course the EU, clearly demonstrates. In fact, and apart from other reasons, a ban on algorithmic trading would hinder economic freedom, technological development, and conflict with the principles of neutrality and free competition in financial markets ([94]). Rediscovering the appeal of the ban on algorithmic trading and HFT therefore seems an attempt to bring a mummified corpse back to life.

d) New forms and criteria for liability. Considering the apparent similarity between AI for algo-trading and dangerous products, some advocate introducing forms of strict liability under civil law for damages caused by AI ([95]). However, even these proposals should be regarded with a high degree of scepticism, for reasons not very different from those discussed in connection with a possible ban on algorithmic trading: danger of hindering competition, restriction of economic freedom and conflict with the principle of technological neutrality of regulation. Also in this context, one imagines extensive revisions of the concept of liability itself, to be considered in terms of the effects of the unlawful conduct on the community ('socialisation of the damage') ([96]).

f) New governance arrangements for algorithmic trading. Some believe that the current regime introduced by MiFID II in relation to algorithmic trading and HFT is outdated: the main criticism (which does not seem to hold true, at least in its entirety) is its alleged failure to adequately track, understand and manage the governance of AI and autonomous algorithmic trading ([97]). Considering, more specifically, the approach adopted by MiFID II, the elements of dissatisfaction concern both the regime applicable to investment firms and trading venues. As far as investment firms are concerned, the alleged shortcomings are identified in the circumstance that MiFID II relies excessively on self-assessment mechanisms, left in the hands of algorithmic traders ([98]). As to trading venues,

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91 R. Michalski, How to Sue a Robot, 2018 *Utah L. Rev.* 1021 (2018); R. Abbott – A. Sarch, *Punishing Artificial Intelligence: Legal Fiction or Science Fiction*, 53 UC Davis L. Rev. 323, 2019; D. Powell, *Autonomous Systems as Legal Agents: Directly by the Recognition of Personhood or Indirectly by the Alchemy of Algorithmic Entities*, 18 Duke L. & Tech. Rev. 306, 2020. For further references, see CONSOB, *Quaderni giuridici. AI e abusi di mercato: le leggi della robotica si applicano alle operazioni finanziarie?,* (29 May 2023), available at: https://www.consob.it/documents/11973/201676/qg29.pdf/768199a2-e17c-ca8e-00a5-186da9a19f79?t=1685344502568.

92 J. Lightbourne, *Algorithms & Fiduciaries: Existing and Proposed Regulatory Approaches to Artificially Intelligent Financial Planners*, 67 Duke L. J. 651, 2017.

93 See S. Chesterman, *Artificial intelligence and the limits of legal personality*, 69 Int'l. & Compar. L. Q. 819, 2020.

94 European Commission, *White Paper on Artificial Intelligence European Approach to Excellence and Trust* (19 February 2020), available at: https://ec.europa.eu/info/sites/info/files/commission-white-paper-artificial-intelligence-feb2020_en.pdf; CONSOB, *Quaderni giuridici. AI e abusi di mercato: le leggi della robotica si applicano alle operazioni finanziarie?,* cit.

95 K.A. Chagal-Feferkorn, *Am I an Algorithm or a Product? When Products Liability Should Apply to Algorithmic Decision-Makers*, 30 Stan. L. & Pol'y Rev. 61, 2019. V. Chandola – A. Banerjee – V. Kumar, *Anomaly Detection: A Survey,* 41 ACM Co. Surveys 1, 2019.

96 CONSOB, *Quaderni giuridici. AI e abusi di mercato: le leggi della robotica si applicano alle operazioni finanziarie?,* cit.

97 P.G. Picht -G.T. Loderer, *Framing Algorithms: Competition Law and (Other) Regulatory Tools*, 42 World Competition 391, 2019.

98 A. Azzutti- W.-G. Ringe – H.S. Stiehl, *The Regulation of AI Trading from an AI Life Cycle Perspective,* cit.; R.P.Buckley – D.A. Zetzsche – D.W. Arner – B. Tang, *Artificial Intelligence in Finance: Putting the Human in the Loop*, 43 Sydney L. Rev. 43 2021. See also

MiFID II requires them to cooperate with investment firms to ensure that algorithmic trading complies with market conduct rules, for instance by providing simulation environments to test algorithmic strategies ([99]). Again, over-reliance on self-assessment is considered the weak point ([100]).

In light of the above, many suggest the introduction of new forms of interaction between public and private actors in the field of AI, including hybrid models ([101]).

Although these proposals go in the right direction, the fact remains that regulators should develop a thorough knowledge and sound conceptual framework to distinguish legitimate from illegal algorithmic trading ([102]). In addition, the limitations implicit in testing algorithms in a simulated environment when transferring their results to actual markets should be addressed ([103]).

To counterbalance these critical aspects, AI systems or components should be subject to different levels of pre-approval requirements (such as testing and certification) and other regulatory obligations (human control, revalidation, etc.). Reflecting the approach of the EU AI Regulation, extremely 'risky' AI applications (or components) could ultimately even be banned. For 'risk-free' or 'low-risk' AI trading instruments, on the other hand, the alternative might be to introduce an exemption regime. In general, stricter regulatory requirements should be applied proportionately to the increase of the risk levels posed by AI trading instruments ([104]).

g) Market surveillance embedded in the algorithm. Notwithstanding the critical issues and questions raised in the preceding paragraphs, there also seems to be another remedy that could be adopted to reduce the risk of AI-based trading disrupting markets, and that concerns the internal structure of the algorithm itself. The current regime on algorithmic trading and HFT is based on a series of *ex-ante* evaluations and continuous monitoring activities, aimed at verifying that algorithms operate properly and do not hinder or negatively impact the orderly functioning of markets. This approach, however, has its flaws: most *ex-ante* tests are conducted in a protected environment, which may be very different from real market conditions, and may therefore provide unreliable results. Continuous monitoring, on the other hand, examines market conditions as they develop, so to speak, in real time, or even *ex-post*. This can help minimise negative market conditions, but not necessarily prevent them.

P. Raschner, *Algorithms put to test: Control of algorithms in securities trading through mandatory market simulations? European Banking Institute Working Paper Series*, No. 87 (26 February 2021), available at: https://ssrn.com/abstract=3807935.

99 See Commission Delegated Regulation (EU) 2017/584 of 14 July 2016 supplementing Directive 2014/65/EU of the European Parliament and of the Council with regard to regulatory technical standards specifying organisational requirements for trading venues.

100 A. Azzutti, *The Algorithmic Future of EU Market Conduct Supervision: A Preliminary Check,* in L. Böffel – J. Schürger (eds.), *Digitalisation, Sustainability, and the Banking and Capital Markets Union: Thoughts on Current Issues of EU Financial Regulation,* Cham, 2023, who notes that the EU regulation of algorithmic trading follows a behaviourist approach, which is not suited to properly address the impact of new technologies.

101 Microsoft - Deutsche Bank – Linklaters - Standard Chartered - Visa, *From Principles to Practice: Use Cases for Implementing Responsible AI in Financial Services*, available at: https://aka.ms/fromprinciplestopractice, 2019; FINRA, *Artificial Intelligence (AI) in the Security Industry* (10 June 2020), available at: https://www.finra.org/sites/default/files/2020-06/ai-report-061020.pdf.; M. Kellerman, *Market structure and disempowering regulatory intermediaries: Insights from U.S. trade surveillance*, 15 Reg. & Governance 1350, 2021.

102 D.C. Donald, *Regulating Market Manipulation Through an Understanding of Price Creation*, 6 Nat'l Taiwan U. L. Rev. 55, 2011.

103 C. Brummer - Y. Yadav, *FinTech and the Innovation Trilemma*, 107 Geo. L. J. 235, 2019, presenting proposals for greater international cooperation and coordination.

104 A. Azzutti- W.-G. Ringe – H.S. Stiehl, *The Regulation of AI Trading from an AI Life Cycle Perspective,* cit.

An alternative solution that could be suggested consists in incorporating market manipulation prevention measures *within* the algorithm structure. The suggestion is thus to explicitly require firms that use algorithms and/or HFT to certify the inclusion of mechanisms aimed to prevent, on an *ex-ante* basis and embedded directly in the algorithm, the operation of said algorithm in the event that a risk of market manipulation can reasonably be assumed. This would be a preventive measure, perfectly in line with MiFID II's risk-based approach to algorithmic trading, which would operate at an early stage, different from those usually considered when examining the systems and applications that firms have in place in relation to ongoing and *ex-post* monitoring. As autonomous algorithms are expected to have an increasing ability in the future, based on ML and deep reinforcement learning (DRL), to learn and make decisions in anticipation of future scenarios, they should soon be able to predict whether a certain decision could have a negative impact on the market, thus preventing the algorithm from operating in that context: in short, an *ex-ante* blocking mechanism, which would be part of the 'intelligence' of the algorithm itself. This characteristic of the algorithm should be self-assessed by the algorithmic trader or, better, verified and certified by an expert or external body.

In this regard, one possible avenue could be to support this approach with *soft law* instruments aimed at both national supervisory authorities and market participants. Consequently, even the complex issue of 'algorithmic' liability would be better handled: observation of market movements and conditions would provide very strong evidence to support the conclusion that market manipulation has occurred, precisely because the algorithm has, in spite of everything, continued to operate.

The proposed approach has already been outlined, albeit briefly, in a recent contribution, which correctly points out its possible shortcomings ([105]). The first is that there may be technical barriers (to be identified) to its implementation: a point that, of course, needs further investigation. Assuming that there are no technical or legal barriers to the implementation of such a solution through programming codes, the second objection concerns the fact that it would be difficult to make autonomous, *self-learning* AI adapt dynamically to changing regulations and market dynamics in order to produce credible deterrence over time. Although this objection should not be entirely dismissed, regulatory evolution has always been, and will always be, a problem for regulators, and is far from being specific to the topic of market manipulation: on the contrary, market abuse provisions have not undergone any major or revolutionary changes in recent decades, and in particular, the rules against market manipulation have remained more or less the same. In the area of market manipulation, therefore, the regulatory development and the identification of new conducts, is not so pronounced.

105 M. Azzutti, *Informazioni privilegiate e funzionamento dei mercati finanziari,* Milan, 2022.

A third objection concerns the fact that regulatory prohibitions of market manipulation should also be based on objective and quantifiable definitions in order to be comprehensible to AI systems, and that unfortunately the current EU legal framework seems far from this, being rather characterised by a high degree of vagueness. The latter observation, however, does not take full account of the fact that, on the contrary, the rules against market abuse are firmly based on precise theories of the functioning of financial markets and, in particular, on the foundations of the ECMH, and that some of the most important cases of market abuse have been extensively identified, studied, and analysed over the past decades ([106]). Since these models are well known and fully represented in the economic and statistical literature ([107]), there is room for incorporating them into the functioning of algorithms: indeed, if this were not the case, it would be impossible to detect market manipulation phenomena and enforce the MAR even under a more traditional market surveillance approach.

08

Conclusions

The main findings of this study can be summarised as follows. Considering, firstly, the rules which, in the context of MAR, are applicable to inside information, and in particular the disclosure regime in Article 17 MAR, it was observed that:

(i) AI systems can play a key role in supporting the processes that, within issuers subject to the MAR provisions, lead to the identification and prompt disclosure of inside information: an issue that, until now, has not been particularly addressed. Thanks to their ability to handle large amounts of data and information and their self-learning potential, AI systems may represent a useful tool to support the issuer and its management body in the process leading, in the first place, to identify information that may potentially be or become inside information. AI systems could be useful, in particular, but not exclusively, for structurally large and complex issuers subject to *the* MAR *disclosure* rules, as well as in corporate groups, articulated in different levels and structures of subsidiaries, where inside information may be more difficult to identify and track, especially in the case of multi-stage processes, in a timely manner. In this sense, the use of AI systems can support and facilitate compliance with existing *disclosure* rules. The analysis concludes that the current regime should clearly support the introduction and development of AI systems in this particular area: in this regard, *soft law* can be a useful and not overly intrusive tool to support and promote these junctures. Another outcome of our research in this area is that, from a broader perspective, technological developments are also challenging the traditional approach to the identification of what is, or amounts to, 'inside information' as defined in Article 7 MAR: the paper has analysed the role of the media and tried to challenge the idea that the broadcaster is still to be considered (always) the fulcrum of the dissemination of information to the market.

106 S. Tiwari – H. Ramampiaro – H. Langseth, *Machine Learning in Financial Market Surveillance: A Survey*. 9 IEEE Access 159734, 2021.

107 Broadly, C. Alexander – D. Cumming (eds.), *Corruption and Fraud in Financial Markets: Malpractice, Misconduct and Manipulation,* New York, 2020.

(ii) The use of AI systems has a significant impact on the potential liability of the issuer and/or directors in relation to possible violations of the *disclosure regime*. A malfunctioning of the algorithm, resulting in delays, omissions or inappropriate disclosures of inside information could indeed constitute a breach of the MAR disclosure regime and raise liability issues for the issuer and, ultimately, its management body. This is a non-harmonised area of European law. The limits and implications of a possible full automation of the process leading not only to the identification but also to the disclosure of inside information to the market were discussed. It was concluded that, considering the current structure of MAR and its application under national law, AI systems, although useful to support the action of directors in identifying, monitoring, and disclosing inside information, cannot completely replace human action and intervention, particularly in the last stages of the process that actually leads to the disclosure of information. While EU legislators and supervisors should encourage the use of AI in order to ensure compliance with the disclosure regime, the MAR should prevent, or at least strongly discourage, the use of fully automated systems to manage the disclosure phase (or the delay, as the case may be), as this could raise unsolvable problems in the context of the different liability regimes currently established by the national laws of the Member States. Rather, market abuse legislation should clearly stipulate that: (a) issuers have an obligation to take appropriate organisational measures to identify and manage inside information and (b) issuers have an obligation to clearly identify the persons who are under an obligation to make disclosure of inside information, and their responsibilities.

(iii) Regarding the second strand of research, i.e., the relationship between AI and market manipulation, the main issue is related to algorithmic trading and HFT liability. Despite some criticism of the current MiFID II approach in relation to algorithmic trading, it was concluded that significant changes to the current regulatory framework are not necessary; however, there is room to suggest the introduction of a specific obligation on investment firms using algo-trading and HFT tools to include appropriate measures in their systems to ensure that the algorithms themselves are adequately structured to monitor, predict, and thus *anticipate* situations that may lead to market manipulation, by having specific operating blocks in place for this purpose, again from an *ex-ante* perspective.

In any case, such measures should take into account the complexity and structure of algorithms, which ultimately translates into their ability to manage and monitor different levels of risk and complexity. As suggested in recent contributions, the approach of the EU Artificial Intelligence Regulation - based on the differentiation of risk levels and risk factors in relation to AI - could also be considered as a reference for the relationship between AI and market manipulation risks.

1.5
Professional Insight

AI and the Future of Supervision: How Artificial Intelligence will impact Financial Supervisory Authorities

Nicholas Vasse, Sipke Hiemstra, Richard Gigax and Tranh Tran Trien

Authors' Bios

Nicolas Vasse With more than 20 years of experience in Financial Markets, Regulation and Innovation, Nicolas is today Director at IBM Promontory. His teams accompany large financial institutions solving complex strategic regulatory challenges: assessing impact and defining strategies to implement new regulations, balance innovation and risks, enhance programs for regulatory, compliance and conduct risk, and fight financial crime and fraud. Before joining IBM Promontory, Nicolas spent 11 years as Chief Operations Officer (COO) of the European Securities and Markets Authority (ESMA). He was part of the founding executive team of the European Securities and Markets Authority – in charge of Information Technology, Human Resources, Finance and Procurement, and Facility Management. As part of the Executive Committee of ESMA, he participated to the set up of all regulatory developments led by ESMA (MiFIR, EMIR, AIFMD & SFTR, etc…). In his position, Nicolas led the set up of all operational matters of the new Authority (including Security, Risk and Compliance), and its growth from 30 to 350 staff members. Prior to his experience at ESMA, Nicolas was the IT Director of the Committee of European Securities Regulators (CESR) where he set up the first paneuropean IT system exchanging all transactions executed in Europe across its 28 financial regulators.

Richard Gigax is a seasoned consultant with over six years of experience in Governance, Risk, and Compliance advisory-consulting for financial institutions, focusing on Technology Risk and Anti-Financial Crimes. His expertise spans AML Transaction Monitoring and CDD, AI Control Framework, DORA, and Risk Assessment, including Integrity Risk Analysis and SIRA. Starting as an AML Analyst at Promontory Risk Review, Richard honed his skills in monitoring alerts and cases, conducting CDD reviews, and training analysts. After two years as an AML Analyst, he transitioned to Promontory Financial Group, where he excelled in third-party assessments and strategic remediation program improvements. With proven project management and governance skills, Richard has provided comprehensive support to financial institutions, ensuring robust compliance with AML/CTF regulations and enhancing operational resilience. His experience in municipal bond finance further enriches his understanding of the financial environment.

Thanh Tran Tien is currently a Product Manager at Banque de France. He previously worked as a consultant at IBM Promontory, contributing to regulatory assessments and AI compliance analyses for major European banks. Thanh holds a Master's in Consulting and Management from CELSA – Sorbonne University, and has legal training from Paris 2 Panthéon-Assas. His expertise bridges regulatory strategy, financial law, and digital transformation in the banking sector.

Sipke Hiemstra. After having been responsible for the regulatory compliance of the financing company of IBM in France, Sipke Hiemstra is now consultant in banking regulations at IBM Promontory. He started his career in IT analytics (programming and data) and then continued in internal audit and internal controls.

Abstract

This article explores the impact of Artificial Intelligence (AI), especially Generative AI, on financial supervisory authorities. The evolution of AI — from traditional models to advanced Large Language Models (LLMs) — is likely to transform the regulatory and supervisory landscape by enhancing risk assessment, automating processes, and offering predictive insights. The European Union's AI Act, with its risk-based regulatory framework, will serve as a first legislative response to AI-related challenges in the financial sector and is likely to be complemented by sector specific hard and soft law in the coming years. While AI offers numerous opportunities for improving supervisory activities, such as detecting market abuses or money laundering, it also introduces risks, particularly due to the opacity of AI models, its probabilistic approach and inherent biases of the data used to train models. The article emphasizes the need for supervisory bodies to adopt AI strategically, ensuring compliance with new regulations while leveraging AI to bolster efficiency and effectiveness in overseeing financial institutions. As AI should become integral to financial supervision, regulators are urged to lead the change, establish AI hubs, and foster collaborations with the private sector to harness AI's potential while mitigating its risks.

AI and the Future of Supervision: How will Artificial Intelligence impact Financial Supervisory Authorities?

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Introduction

The rapid advancement of Artificial Intelligence (AI) has transformed numerous sectors, including finance. With the advent of Generative AI[1] and Large Language Models (LLMs)[2], the impact on financial supervisory authorities has become a critical area of focus. This article explores how AI, particularly Generative AI, is reshaping the landscape of financial supervision, the regulatory responses to these changes, and the future challenges and opportunities for supervisors.

1 Generative AI Definition: artificial intelligence technology that creates content — including text, images, video, and computer code — by identifying patterns in large quantities of training data, and then creating original material that has similar characteristics. *New York Times Artificial Intelligence Glossary* (New York Times, 27 March 2023) originally at <https://www.nytimes.com/article/ai-artificial-intelligence-glossary.html> archived at <https://web.archive.org/web/20230901183440/https://www.nytimes.com/article/ai-artificial-intelligence-glossary.html> accessed 8 October 2024.

2 Large Language Model Definition: a type of neural network that learns skills — including generating prose, conducting conversations, and writing computer code — by analyzing vast amounts of text from across the internet. The basic function is to predict the next word in a sequence, but these models have surprised experts by learning new abilities. *New York Times Artificial Intelligence Glossary* (n 1).

01

The (r)evolution of Artificial Intelligence

AI is not a novel concept. Since the emergence of large-scale computing in the 1950s and 1960s, both theoretical and practical research on AI has been extensively conducted[3]. Initially, AI was developed based on the concept of neural networks[4], which simulate brain function to solve problems that conventional algorithms cannot address.

AI is distinct from traditional Information Technology (IT) systems due to its probabilistic nature[5]. The core principle of AI lies in its ability to be trained on a specific dataset, often referred to as the training base. By leveraging this training base, AI generates the most probable responses based on the data it has assimilated.

A prominent example of AI in action is image recognition. While recognizing a face might seem trivial to a human, programming an algorithm to accomplish this task is complex. One must define the facial features and account for variations due to different angles and lighting conditions. However, when AI is trained on a large dataset of facial images, it can accurately identify faces without relying on a complex algorithm.

Over recent decades, what is now referred to as traditional AI[6] has been used to address specific challenges that conventional IT systems cannot resolve. Since the early 2010s, financial supervisory authorities have utilized AI in various capacities, particularly for transaction monitoring related to Anti-Money Laundering (AML) and Market Abuse.

02

The rise of Generative AI and its broader implications

The year 2023 marked the emergence of a new form of AI, known as Generative AI. This advancement stemmed from two pivotal developments:

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3 Wikipedia Article on Early AI Successes, 'History of Artificial Intelligence' — Early Successes (1956 – 1974)' *Wikipedia* <https://en.wikipedia.org/wiki/History_of_artificial_intelligence> accessed 8 October 2024.

4 Neural Network Definition: a mathematical system, modeled on the human brain, that learns skills by finding statistical patterns in data. It consists of layers of artificial neurons: the first layer receives the input data, and the last layer outputs the results. Even the experts who create neural networks do not always understand what happens in between. *New York Times Artificial Intelligence Glossary* (n 1).

5 *'What's the Difference Between AI and Regular Computing?'* (Royal Institution of Great Britain Blog, 12 December 2023) [Decision-Making section] <https://www.rigb.org/explore-science/explore/blog/whats-difference-between-ai-and-regular-computing> accessed 8 October 2024.

6 Traditional AI is a subset of artificial intelligence that focuses on performing preset tasks using predetermined algorithms and rules. These artificial intelligence applications are designed to excel in a single activity or a restricted set of tasks, such as playing chess, diagnosing diseases, or translating languages. This definition comes from '*What's the Difference between Traditional and Generative AI?*' (US Chamber of Commerce, 16 October 2023) <https://www.uschamber.com/co/run/technology/traditional-ai-vs-generative-ai> accessed 8 October 2024.

1. The Internet, which provided access to vast datasets for training, and

2. The enhanced processing power of modern computers and cloud computing, which enabled the handling of massive data by large neural networks requiring large processing capacities.

Unlike traditional AI, which is trained on a specific dataset to perform a designated task, Generative AI is trained on vast amounts of data available on the Internet, with the goal of generating content — such as producing text or engaging in human-like conversations. Generative AI differs significantly from its predecessors in that it can execute multiple tasks, support a variety of languages, and in some instances, outperform traditional AI models in specific tasks.

The transformative impact of Generative AI is not only attributable to the technological advancements themselves but also to the technology's immediate accessibility to the public. The release of ChatGPT by OpenAI, made available to anyone with an Internet connection, had an unprecedented media impact[7] and brought widespread awareness of these advancements. Unlike previous technologies, which typically remain in the hands of a select few for years before becoming mainstream, ChatGPT was different as it was immediately adopted by a global user base.

Along with ChatGPT, numerous foundational models or LLMs have been developed in recent years.[8] These models, trained on extensive datasets, have been designed to generate statistically probable outputs when prompted. A key innovation of Generative AI is its ability to produce content, including coherent conversations, which was not feasible with earlier AI systems.

Despite its capabilities, Generative AI remains a probabilistic technology, in contrast to the deterministic nature of traditional IT systems. This distinction implies that the outputs of Generative AI, being based on probabilities, are not always correct. Moreover, AI systems often function as "black boxes," with internal processes and decision-making mechanisms that remain opaque to both users and developers. Additionally, while AI systems can process large datasets to generate predictions and responses, they are inherently statistical and may produce biased or flawed outcomes, particularly if the training data contains inherent biases. This risk is heightened by the human-like presentation of AI-generated content, which may seem credible even when it is not.

The implications of these characteristics are profound, as they introduce new risks that differ from those associated with traditional technologies. Addressing these risks is crucial, especially given the rapid and widespread adoption of this technology.

As AI technology continues to evolve, financial supervisory authorities must now ensure that the risks associated with the deployment of AI within the entities they oversee are appropriately managed and controlled, thereby safeguarding the stability and integrity of financial markets.

7 '*How the media is covering ChatGPT*' - Columbia Journalism Review (cjr.org).

8 '*ChatGPT and the rise of large language models: the new AI-driven infodemic threat in public health*' - PMC (nih.gov).

03

Regulatory response: the European Union's AI legislation

On 12 July 2024, the European Union (EU) published its first comprehensive AI legislation in the Official Journal.[9] This landmark legislation seeks to standardize regulations governing the use of artificial intelligence across the EU. As the first major legislative effort of its kind, the AI Act does not only establish a harmonised framework for AI regulation within Europe but is also poised to influence the development of similar regulatory frameworks globally.[10]

The AI Act adopts a "risk-based approach" to AI regulation, imposing stricter requirements on AI systems depending on the potential risks they pose to society. Specifically, the greater the risk associated with an AI system, the more rigorous the regulatory measures. This approach mirrors the long-established practices of financial regulation and supervision, which have been applied in Europe for the last decades.

In the financial sector, high-risk AI systems include those used for assessing creditworthiness or credit scores, as well as those involved in risk assessment and pricing for life and health insurance.[11]

The legislation also promotes the creation of AI regulatory sandboxes.[12] offering an innovation-friendly legal framework that allows for the testing of new AI systems under real-world conditions.[13]

Parallel to the development of the EU-wide AI Act, national financial regulators across Europe have issued their own guidance, recommendations, and principles concerning AI-related systems. For example, France published a discussion paper on AI governance in June 2020,[14] and Germany issued principles for the use of algorithms in decision-making processes in June 2021.[15] Additionally, the European Commission launched a consultation in June 2024 on the application of AI in the financial sector.[16]

9 Regulation (EU) 2024/1689 of the European Parliament and of the Council <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:L_202401689> known as the AI Act.

10 '*The EU's new AI Act could have global impact*' (Chatham House – International Affairs Think Tank).

11 As outlined in Annex III of the AI Act.

12 AI regulatory sandbox: A controlled framework set up by a competent authority which offers providers or prospective providers of AI systems, the possibility to develop, train, validate and test, where appropriate in real-world conditions, an innovative AI system, pursuant to a sandbox plan for a limited time under regulatory supervision. Definition in point (55) of article 3 of the AI Act.

13 Considerations (25) and (139) of the AI Act.

14 <https://acpr.banque-france.fr/sites/default/files/medias/documents/20200612_gouvernance_evaluation_ia.pdf>.

15 <https://www.bafin.de/SharedDocs/Downloads/EN/Aufsichtsrecht/dl_Prinzipienpapier_BDAI_en.pdf>.

16 <https://finance.ec.europa.eu/regulation-and-supervision/consultations-0/targeted-consultation-artificial-intelligence-financial-sector_en>.

04

Impact on Financial Supervisory Authorities

As AI becomes increasingly entrenched in the financial sector, supervisory authorities are working to keep pace with its rapid evolution. The International Monetary Fund estimates that financial institutions will more than double their AI-related expenditures by 2027[17]. Simultaneously, the chair of the U.S. Securities and Exchange Commission has raised concerns that the financial stability risks posed by AI necessitate "new thinking on systemwide or macroprudential policy interventions."[18] This evolving landscape may result in a competitive "arms race" between supervisors and the entities they regulate. Given the intense scrutiny and substantial investments in AI by the financial industry, the next decade will likely be defined by how AI either hinders or empowers supervisory authorities.

Financial regulators and supervisors are impacted by AI in three primary areas:

1. Legislation and Guidelines: regulators may need to further develop European legislation and issue guidelines tailored to specific scenarios within the financial sector that the EU AI Act does not fully address. The ongoing consultations may result in new, more specialized soft or hard law, i.e., guidelines or regulations[19].

2. Financial Institutions Supervision: during inspections and oversight of financial institutions, supervisors must ensure that the integration of AI into business processes does not compromise compliance with existing financial regulations or introduce new, unmitigated risks. Additionally, supervisors must verify that institutions adhere to new regulations specifically related to AI usage. In this context, Model Risk Management is to become a particular area of focus as an AI model is ultimately a model used by the Bank and should be managed as any other model.

3. Supervisory Activities: AI can be leveraged in various supervisory activities, particularly in the development of risk-based approaches, such as selecting topics and institutions for focused scrutiny. AI can also assist in both on-site and off-site inspections by analyzing large volumes of documents and information efficiently.

17 <https://www.imf.org/en/Publications/fandd/issues/2023/12/AI-reverberations-across-finance-Kearns>.

18 <https://www.sec.gov/newsroom/speeches-statements/gensler-remarks-fsoc-121423>.

19 <https://finance.ec.europa.eu/news/commission-seeks-input-industry-use-artificial-intelligence-finance-2024-06-18_en>.

05

Case Studies and Current Applications

A key component of supervisors' daily responsibilities is the analysis of substantial amounts of information from the entities they oversee. AI tools have already demonstrated their ability to significantly reduce the time required for such analyses. Generative AI, trained on knowledge relevant to banking regulation, can assist supervisors by drafting documents, gathering data, and providing feedback. AI's capacity to quickly identify patterns of misconduct and report incidents has been recognized by institutions such as the European Central Bank (ECB), which has established a SupTech Hub to explore further applications of AI.[20] Recently, the ECB developed several AI-based applications and platforms, identifying more than 40 use cases and proofs-of-concept that demonstrate the potential of Generative AI.

Among the various use cases for financial supervisors, the following stand out:

1. Enhanced Risk Assessment and Monitoring: AI can greatly enhance how financial supervisory authorities assess and manage risks. By analyzing extensive datasets, AI can identify emerging risks and patterns that may be challenging for human supervisors to detect. Real-time monitoring of transactions by financial institutions, particularly in areas such as Market Abuse and AML, enable the early detection of anomalies and compliance breaches. Furthermore, AI-powered predictive analytics can help forecast potential crises, allowing for proactive supervisory measures.

2. Improved Efficiency and Automation: Generative AI can support routine tasks within regulatory and supervisory authorities, particularly in drafting and legislative activities, thereby improving overall efficiency. AI-driven document processing can accelerate data extraction and analysis, saving time and resources during on-site inspections.

Enhanced Data Analytics and Insights: advanced data visualisation tools, powered by AI, can reveal hidden patterns and correlations within complex datasets. AI-driven systems for fraud detection and prevention will further strengthen financial security. Additionally, natural language processing can extract valuable insights from unstructured data sources, such as news articles and social media, providing supplementary information for risk assessment.

Supervisory authorities across Europe are increasingly adopting AI technology, despite its nascent state. For instance, the French Prudential Supervision and Resolution Authority ACPR has developed LUCIA, a tool that analyzes banking transactions and compliance data.[21] The ECB employs Heimdall to automatically read and assess fit and proper questionnaires,[22] while GABI assists in generating and optimizing regression models on a large scale,[23] providing more comprehensive assessments. These examples represent only the beginning of AI's integration into supervisory practices.

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20 https://www.bankingsupervision.europa.eu/press/speeches/date/2022/html/ssm.sp220914~d0201e42a9.en.html.

21 The financial supervisor in the age of AI, Introductory speech by Denis Beau, First Deputy Governor of Banque de France at the seminar "Artificial intelligence: a game changer for financial supervision?" of the Association Europe Finances Régulations, June 5th, 2024 at https://acpr.banque-france.fr/sites/default/files/medias/documents/20240614_aefr_seminar_speech_dbeau.pdf (page 3).

22 https://www.bankingsupervision.europa.eu/press/publications/newsletter/2023/html/ssm.nl231115_2.en.html.

23 https://www.bankingsupervision.europa.eu/press/interviews/date/2024/html/ssm.in240226~c6f7fc9251.en.html.

06

The Future of Financial Supervision

Prospectively, there are two compelling reasons to believe that financial supervisors can benefit significantly from the adoption of Generative AI:

1. Textual Nature of Legislation and Supervision: much of supervisory work involves drafting, quality assurance, and text analysis, tasks at which Generative AI excels.

2. Risk Mitigation: Supervisors, with their expertise, are well-positioned to understand and mitigate the risks associated with Generative AI. Several aspects of regulatory writing, such as clarifying ambiguities, explicating implicit assumptions, and breaking down complex issues, are ideally suited for AI prompting.

Additionally, regulatory practice often involves asking the right questions and rephrasing them based on responses, a dynamic that parallels interactions with Generative AI. Moreover, regulators are trained to critically evaluate text, identify inconsistencies, and establish factual bases for assertions — skills that are invaluable in managing AI bias and hallucinations.

07

Coping with Uncertainty and Leading Change

Reflecting on the past two years, it is evident that predicting the trajectory of AI and its role in the financial sector in just a few years from now is an uncertain endeavour. The pace of technological evolution outstrips even the most resourceful innovation and technology offices, a trend that will undoubtedly continue. However, regulators must not remain passive observers, adapting reactively. Public institutions need to reorient their approach toward potential industry disruptors. At a minimum, they should anticipate and prepare for significant changes that could impact current business practices; at best, they should aim to lead these changes.

Currently, Generative AI predominantly employs LLMs trained on substantial amounts of data across multiple domains. These models, which are primarily focused on common text, can be readily adapted, and tailored to specific supervisory needs.

It is imperative that supervisory authorities and regulators now begin to structure their approach to the impending and significant changes brought about by AI. First and foremost, financial supervisory authorities should develop their own strategies for effectively adopting and leveraging AI.

Such strategy should encompass all elements discussed in this article, including consulting on, and adapting legislative frameworks, embedding AI into supervisory toolkits for financial entities, and transforming supervisory institutions into AI-powered entities that utilize AI effectively to conduct risk assessments and execute supervisory tasks and data analysis. This strategy should also emphasize collaboration between regulators and the private sector to foster AI innovation, alongside continuous learning, and adaptation to the evolving AI landscape.

Establishing dedicated AI Hubs must also become a priority for supervisors, along with efforts to attract new talent and leading experts in AI, ensuring that expertise is not concentrated solely within the private sector.

08

Conclusion

AI is going to reshape the landscape of financial supervision. The rise of Generative AI presents both opportunities and challenges for financial supervisory authorities. By embracing AI, supervisors can enhance their ability to manage risks, improve efficiency, and ensure the stability and integrity of financial markets. However, this requires a proactive and strategic approach to AI adoption, guided by robust regulatory frameworks and a commitment to continuous learning and adaptation.

Capital Markets

2.1
Academic Article

Capital Markets Union: What Will It Take to Be a Sucess

Prof. Pierre-Henri Conac

Author's Bio

Pierre-Henri Conac is Professor of Financial Markets Law at the University of Luxembourg. He is also Max Planck Fellow at the MPI Hamburg. He is the author of 'The regulation of securities markets by the French Commission des opérations de bourse (COB) and the US Securities and Exchange Commission (SEC)'. He has written numerous articles on corporate and securities law and co-edited several books. He has been involved in policy making in financial law, banking law and company law at EU and national level. He participates regularly at conferences and seminars on such topics in Europe and internationally. He is also the chair of the European Model Company Act (EMCA) Group. He is managing editor of the Revue des Sociétés (Dalloz) and co-chief managing editor of the European Company and Financial Law Review (De Gruyter).

Abstract

The Capital Markets Union (CMU) was launched in July 2014 by the European Commission as a project to harmonise the rules applicable to the financial sector. The CMU is a continuation of the De Larosière report of February 2009, which advocated “central regulation - local supervision” for the financial industry (banking, securities, insurance). This approach relied on the adoption of a Single Rule Book (SRB) to ensure that the same rules are applicable throughout the single market and to the creation of a European Securities and Markets Authority (ESMA). Critics have recently expressed the view that the SRB has not led to a sufficient flow of cross-border transactions. It is true that the current situation does not always ensure a completely harmonised SRB and supervisory convergence. However, centralisation of supervision, as advocated, will not, per se, make the CMU a success. It might not even be effective. Rather, incremental technical changes can achieve a much stronger single rulebook and supervisory level-playing field. Therefore, the goal of the new legislative action on the CMU should be to adopt targeted technical changes to increase cross-border activities.

Capital Markets Union – What will it take to be a success?

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Introduction

The Capital Markets Union (CMU) was launched in July 2014 by Jean-Claude Juncker, President of the European Commission, as a project to harmonise the rules applicable to the financial sector. The CMU was a continuation of the harmonisation effort sought by the European legislator after the great financial crisis of 2008. It was also designed to expand the size of the European financial market by increasing cross-border activity. Finally, the CMU was intended to encourage the United Kingdom (UK) to remain in the European Union (EU), ahead of the Brexit referendum. Specifically, the CMU was tailor-made to make it easier for the City of London to export its services to the rest of the EU.[1] Unfortunately, London was not the only city in the United Kingdom to vote. So, after Brexit, the CMU became a stand-alone EU project.

1 See Nicolas Véron, speaking about an 'An anti-Brexit Initiative' in Nicolas Véron, *Capital Markets Union: Ten Years Later, In-Depth Analysis, Requested by the ECON committee, European Parliament, Economic Governance and EMU scrutiny Unit (EGOV) Directorate-General for Internal Policies* (PE 747.839, March 2024) 8–9.

The CMU is a continuation of the De Larosière report of February 2009, which advocated "central regulation - local supervision" for the financial industry (banking, securities, insurance). This approached relied on the adoption of a Single Rule Book (SRB) to ensure that the same rules are applicable throughout the single market. The De Larosière report also called for the creation of a European Securities and Markets Authority (ESMA) which was set up in 2011. ESMA is an agency of the EU and essentially represents the authorities of the Member States, the National Competent Authorities (NCAs), because of the composition of its governing body. The Board of Supervisors includes, as voting members, the 27 NCAs and the Chair of ESMA. ESMA has been tasked with helping the European Commission to develop so-called "level 2" rules and to ensure a uniform interpretation and application of the SRB. This is achieved through "supervisory convergence" and is done by ESMA mostly by means of so-called "level 3" rules such as Orientations or Guidelines, as well as Statements, Positions etc.[2]

The current CMU (2014-2024) covers various topics, and its success is not the same across all areas. On the positive side, the SRB was completed in just a few years and is a huge regulatory success. However, harmonisation is sometimes partial as the content of the EU legislation does not cover all the aspects, or answers all possible questions, leaving room for interpretation. The passport for listed issuers and financial intermediaries is also effective in many fields. However, some financial actors complain that providing cross-border financial services is not always easy due to legal differences. On the negative side, some NCAs are accused of unfair competition by passporting financial products using a regulatory light touch approach. This accusation is targeted at a very limited number of NCAs so it should not be overstated.[3] Also, the level of enforcement and sanctions varies among jurisdictions although this could be explained by the different market structures and legal traditions.

Critics have recently expressed the view that the SRB has not led to a sufficient flow of cross-border transactions.[4] The single financial market is too small compared with the United States. Companies are also still too reliant on bank and debt financing compared to equity financing. This affects the competitiveness of the European economy. Therefore, the European Commission and the Council are seeking to relaunch the CMU.[5]

The current situation does not always ensure a completely harmonised single rulebook and supervisory convergence (I). However, centralisation of supervision, as advocated, will not, per se, make the CMU a success (II). It might not even be effective. Rather, incremental technical changes can already achieve a much stronger single rulebook and supervisory level-playing field (III). Therefore, the goal of the new legislative action on the CMU should be to adopt targeted technical changes to increase cross-border activities.

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2 Niamh Moloney, The Age of ESMA: Governing EU Financial Markets (reprint edition, Hart 2021); Pierre-Henri Conac and Niamh Moloney, 'EU Financial Market Governance and the Covid-19 Crisis: ESMA's Nimble, Responsive, and Speedy Response in Coordinating National Authorities through Soft-Law Instruments', (2020) 17 ECFR 363, 363–385.

3 ESMA, Recommendations to the Cyprus Securities and Exchange Commission on the supervision of cross-border activities of investment firms (ESMA42-110-3354, 10 March 2022).

4 Fabrice Demarigny, 'L'autonomie stratégique passe par l'Union des marchés de capitaux' (*Le Grand Continent*, 11 January 2024) <https://legrandcontinent.eu/fr/2024/01/11/lautonomie-strategie-par-lunion-des-marches-de-capitaux/>

5 Statement of the Eurogroup in inclusive format on the future of Capital Markets Union (11 March 2024) https://www.consilium.europa.eu/en/press/press-releases/2024/03/11/statement-of-the-eurogroup-in-inclusive-format-on-the-future-of-capitalmarkets-union/

01

The current situation does not always ensure a complete single rulebook and supervisory convergence

One of ESMA's missions is to achieve supervisory convergence. From the outset, this objective has been part of the tasks assigned to it by its founding Regulation 1095/2010 of 24 November 2010 ("ESMA Regulation").[6] It would contribute to the realization of the CMU. However, ESMA can hardly sanction the deviations of national supervisors, legitimate or less so (A). In addition, there is not a true SRB in all fields covered by EU legislation meaning that differences necessarily appear among Member States (B).

A. The limitations of ESMA tools

Firstly, national competent authorities do not wish, in principle, to disregard the Single Rule Book. They are responsible for applying European and national legislation. It is therefore not surprising that it is very difficult to find outright deviations or violations.

Secondly, ESMA has to identify differences. This is done mostly through peer reviews which are intensive and time consuming in terms of human resources. They provide mixed results as differences can stem from legitimate legal and supervisory traditions or simply a lack of adequate supervisory resources that an NCA cannot simply increase at will.

Thirdly, many cases result from the sometimes vague and unclear nature of European legislation which is the product of difficult compromises. As a result, good faith differences of interpretation among NCAs, again often stemming from different legal traditions or resulting from their expertise, are to be expected and can be perfectly legitimate. Therefore, most differences of interpretation are done in good faith.

If the differences of interpretation and in supervisory practice are less benign, it is difficult to overcome those difficulties if the NCA opposes. It is much easier to oppose in terms of supervisory practices rather than in case of interpretation of EU legislation.

For instance, ESMA is essentially powerless against an NCA which would provide too easily a passport to investment firms or financial products compared to other NCAs. It can issue recommendations under article 16 of the ESMA regulation but not much more.[7] Therefore, there is always a risk of unfair competition among national supervisors.

6 Regulation (EU) No 1095/2010 of the European Parliament and of the Council of 24 November 2010, establishing a European Supervisory Authority (European Securities and Markets Authority), amending Decision No 716/2009/EC and repealing Commission Decision 2009/77/EC [2010] OJ L331/84.

7 Cyprus SEC. ESMA (n 3).

ESMA can also use the procedure for breach of Union law.[8] However, if a breach is detected, it might be difficult to impose a sanction.[9] First, it is very rare for an authority not to comply with ESMA's interpretation during the investigation phase. The procedure is designed to avoid the need for a vote. No authority wants to be subjected to an official and public procedure for violating EU law. This explains why there are so few procedures because alignment occurs naturally. The effectiveness of the procedure is real and is mainly due to its dissuasive nature.[10]

In the event of a breach, it is still difficult, but not impossible, to obtain a conviction against the defaulting NCA. This is because the decision is taken by the Board of supervisors of ESMA. However, national authorities have a natural tendency not to want to punish each other, especially as they are called upon to cooperate. The absence of any condemnation of Danske Bank by the European Banking Authority (EBA) in 2019 is an illustration of this bias. ESMA's reform, which facilitates decision-making by the Board of Supervisors by reversing the majority, will not necessarily bring about a paradigm shift. This would probably require changing the composition of the Board by adding external members.

B. The incomplete single rulebook

The fact that the SRB and supervisory convergence is not achieved is also due to the limits of EU legislation itself which, although very precise, cannot address all questions.

For instance, there are differences among NCAs when it comes to imposing sanctions (enforcement). These differences reflect different national sensitivities that are difficult to harmonise since they are quasi-judicial decisions of national authorities.

Also, the single rulebook is not heavily balanced in all fields even when there is an EU legislation. For instance, article 17 of the Market Abuse Regulation (MAR) of 2014 on the duty to disclose inside information does not cover the question of whether an issuer can be liable if it did not know the information it is supposed to disclose. Should the issuer be supposed to know the information ("knowledge governance")? Also, Article 17 of MAR does not cover the question of when the issuer is supposed to know the inside information: senior management, intermediate management…. This case is being currently discussed in Germany in the context of the Dieselgate scandal of 2015 involving Volkswagen.[11] Therefore, EU legislation leaves room for interpretation by national Courts, unless a preliminary ruling is filed with the Court of Justice of the European Union (CJEU).[12]

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8 Guidelines and Recommendations, Regulation (EU) No 1095/2010 of the European Parliament and of the Council of 24 November 2010 establishing a European Supervisory Authority (European Securities and Markets Authority), amending Decision No 716/2009/EC and repealing Commission Decision 2009/77/EC [2010] OJ L331/84, art 16.

9 ESMA Regulation, Breach of Union law, art 17.

10 Pierre-Henri Conac, 'The Breach of Union law procedure and the European Supervisory Agencies (ESAs): an effective tool suffering from an expectation gap' in Gavin Barrett, Jean-Philippe Rageade, Diana Wallis and Heinz Weil (eds), *The Future of Legal Europe: Will We Trust in it? Liber Amicorum in Honour of Wolfgang Heusel* (Springer, 2021) 97, 97–116.

11 Jens Koch, 'Die Ad-hoc-Publizität: Veröffentlichungs- oder Wissensorganisationspflicht?' (2019) 64 AG 2019 273, 273–286; Jens Koch, 'Ad-Hoc-Pflicht: Knowledge statt Knowledge Governance, (2024) 69 AG 97, 97–111.

12 Mario Hössl-Neumann and Andreas Baumgartner, 'Dealing with Corporate Scandal under European Market Abuse Law: The Case of VW' 2018 Stanford – Vienna Transatlantic Technology Law Forum, European Union Law Working Papers No. 37/2018 <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3281009>

Another recent example is the interpretation of article 30 1. (b) of MAR on administrative sanctions and other administrative measures which provides for sanctions for "failure to cooperate or to comply with an investigation, with an inspection or with a request as referred to in Article 23(2)". The French Cour de cassation held that this offence of obstruction of an administrative investigation is objective in nature, and that there is no need to show that the person from whom the information was requested deliberately sought to obstruct an investigation.[13] The Court also held that the obstruction exists regardless of whether the hindrance arises from a request for information or documents submitted to a foreign authority in the context of international cooperation. The question of whether the offence of obstruction of an administrative investigation implies to establish bad faith has been decided in France only. Therefore, courts in other Member States could still decide otherwise.

These and other shortcomings led some Member States to argue for a centralised supervision by ESMA as a necessary condition for the success of the CMU.[14]

02

Centralisation of supervision will not intrinsically make the CMU a success

An attempt to centralise supervision, limited to certain prospectuses, was already made by the European Commission in 2017, with the support of France. This attempt failed despite the departure of the United Kingdom due to a coalition of liberal states. France has again called for full centralisation (A), but this is being contested and would not bring, per se, an increase in the size of the single financial market (B).

A. Calls for a centralization of supervision

Christine Lagarde, President of the European Central Bank (ECB), reopened the debate in 2023 by calling for centralisation of financial supervision.[15] Quoting the American poet Ralph Waldo Emerson and calling for a "Kantian moment", she argues that centralisation would be necessary to finance the green transition on the model of rail financing in the United States in the 19th century. The argument is surprising given that financial supervision was centralised in the United States within the Securities and Exchange Commission (SEC) in 1934, after the construction of the railway network.

13 Elliott Advisors (XPO Logistic Inc.; crossing of threshold through Swaps (cash settled derivatives) [2024] Cour de cassation, Chambre commerciale financière et économique, 4 avril 2024, Pourvoi n° 22-19.127.

14 Robert Ophèle, 'Vers une supervision unique pour les marchés financiers en Europe?', (2017) 42 JCP E 6.

15 Christine Lagarde, 'A Kantian Shift for the Capital Markets Union' (European Banking Congress, Frankfurt am Main, 17 November 2023) < https://www.ecb.europa.eu/press/key/date/2023/html/ecb.sp231117~88389f194b.en.html>.

Nicolas Véron also calls for centralised supervision although he notes that this should be only one element. The best way to revitalise the CMU would be to focus on integrating supervision through fundamental reform and strengthening the powers of the ESMA. He argues that if it is not possible to achieve more integrated supervision, it may be time to abandon the CMU project altogether.[16]

Other arguments have been put forward. For example, the passport for shares and investment funds would not work. Therefore, the single financial market is smaller than it should be otherwise. Retail investors tend to purchase shares of their national companies on their national market and international shares through UCITS while wholesale investors easily purchase shares and bond cross-border. The size of the market is not hampered by the fact that issuance is not passported but rather affected by investment preferences of retail and wholesale investors. Unsurprisingly, this argument has not been taken up in any official texts. Inversely, the argument that the passport works well has also been used to justify centralising supervision. Some also predict that the size of the single market would double if supervision were centralised. This would make it easier for companies to raise capital. This is, at best, a pascalian gamble. In addition, the centralization of supervision is rejected by many Member States.

B. Centralisation of supervision rejected in Europe

Centralising supervision in Europe faces political opposition and is not the best way to achieve the CMU.

Some Member States, like Italy, Belgium, and the Netherlands, are supporting France. Germany's position is crucial but ambiguous and historically hostile to centralised supervision. In addition, there is strong political opposition from Member States with major financial centres, such as Luxembourg, and also smaller Member States.[17] Among the arguments is a fear that France will take control of ESMA to the detriment of other financial centres.[18]

This does not mean that some centralization of critical infrastructures such as European Central Clearing Counterparties (CCPs) would not make sense because they are already centralized. However, this should be decided on a case-by-case basis. Centralising supervision would not make the CMU more effective. As the chairman of the Spanish stock exchange authority noted at the last Eurofi conference in February 2024, "Centralization of supervision towards ESMA, indeed, can have its benefits in some areas, but is largely irrelevant when attracting a multitude of companies to capital markets. Does anybody believe that SMEs would rush towards equity markets because their prospectuses or their financial reports would be approved or enforced by ESMA instead of their local supervisor?[19] The chairman of the Spanish stock exchange authority rightly believes that "The banking 'union' is not the right reference for the Capital Markets Union". This can be seen in banking where, for example, centralised supervision has not led to greater integration and the emergence of European champions. Here too, the national rules that the ECB must apply sometimes remain different and their application subject to national traditions that are difficult to harmonise.

16 Véron (n 1).

17 Paola Tamma, Henry Foy and Alice Hancock, 'Majority of EU States Object to Capital Markets Reform Push' *Financial Times* (April 18, 2024).

18 Diego Velazquez, 'Luxembourg Resisting EU Push for Financial Markets Union' *Luxembourg Times* (18 April 2024).

19 Rodrigo Buenaventura, 'Increasing Equity Financing' *The EUROFI Magazine* (February 2024) 224.

In fact, the financial markets are still national for retail investors, which implies national supervision, unlike in the United States where the financial markets were already essentially centralised in New York when the SEC was created.

Also, partial centralisation already exists in some fields. For example, Luxemburg and Ireland handle a large part of the cross-border marketing of investment funds. Sweden has developed a highly internationalised stock market without any centralised European supervision. The bond market does not need centralised supervision either, as it is easily accessible to professional investors in Europe and around the world.

Finally, centralising supervision would have the disadvantage of reducing competition between national supervisors. For instance, the possibility of passport prospectuses allows more efficient supervision by specialists and allows issuers to engage the most qualified entities. Therefore, slow and bureaucratic supervisors can be sidestepped. So, even when there is a level playing field, competition brings benefits in terms of dynamics and avoids the risk of national authorities becoming too bureaucratic. It thus contributes to the competitiveness and dynamism of the single market. Europe is a permanent laboratory of ideas and competition is a driver of positive change. For instance, Sweden developed an ecosystem and has developed financial markets which are large and cross-border in nature. Sweden also inspired the reform of the prospectus regime by the Listing Act. Centralisation of supervision at European level would mean the loss of this competitive spur with no way of getting back.

A more effective approach would be to proceed through incremental changes that would bring strong benefits in terms of harmonisation and supervisory convergence.

03

Incremental changes to achieve a stronger single rulebook and a supervisory level playing field

The CMU can be better achieved through increased harmonisation of European legislation and by strengthening the effectiveness of supervisory convergence.

The adjustment of rules through the single rulebook can be strengthened by increasing maximum harmonisation as much as possible. This has already been done in the field of prospectus and has yielded considerable results in terms of passporting.[20] Another improvement would also be to provide as much precision as possible in the EU legislation. This would go a long way to ensure adjustment of rules cross-border. In addition to strengthening the intensity of the harmonisation, other reforms could increase the effectiveness of supervisory convergence.

The effectiveness supervisory convergence could be strengthened through targeted measures. To limit the risks of abuse by NCAs, the EU legislator could provide ESMA with the right to remove the passport in case of abuse or give it to the host NCA. A joint 2021 position paper by the French *Autorité des Marchés Financiers* (AMF) and the Dutch *Autoriteit Financiële Markten* (AFM) have put forward interesting propositions.[21] For instance, they suggest strengthening the host NCA abilities under article 86 of MiFID 2. A reform would limit the timeframe within which home NCAs must act once solicited by the host NCA and allowing host NCAs to use temporary measures against firms which can be lifted once home NCAs take appropriate action. Also, currently, the presence of a branch office in a host Member State is key in determining the division of home/host responsibilities with respect to conduct supervision. Increased digitalisation makes this determinant outdated. Therefore, there is a need for a more effective division between home and host NCAs responsibilities with respect to conduct supervision, as well as more powers for host NCAs on matters of conduct.

Another improvement would be for the CJEU to repeal the "Meroni" doctrine which severely limits the powers of ESMA to adapt the single rule book fast enough both at Level 2 and at Level 3. The Meroni decision of the European Court of Justice limits the delegation of powers granted to agencies or authorities like ESMA, in so much as they cannot enjoy discretionary powers.[22] The validity of the Meroni doctrine was reaffirmed in 2014 by the European Court of Justice in the case of ESMA.[23] Although the Court ruled in favour of ESMA, the Meroni doctrine stands in the way of providing ESMA with full discretion. Therefore, unsurprisingly, ESMA has recently proposed some reforms, including revisiting the Meroni doctrine.[24]

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20 ESMA, *ESMA Market Report: EU Prospectuses 2023* (ESMA50-524821-3029, 21 December 2023).

21 AMF–AFM, Position paper: Strengthening Conduct Supervision in Cross-Border Retail Financial Services to Create a More Efficient EU Capital Market (22 December 2021) <https://www.amf-france.org/sites/institutionnel/files/private/2021-12/position-paper-cross-border-afm-amf.pdf>

22 Case 9/56 Meroni v High Authority [1957 and 1958] ECR 133.

23 Elizabeth Howell, 'The European Court of Justice: Selling Us Short?' (2014) 11 ECFR 454, 454–477.

24 ESMA, Building More Effective and Attractive Capital Markets in the EU, Position Paper 2024 < https://www.esma.europa.eu/sites/default/files/2024-05/ESMA24-450544452-2130_Position_paper_Building_more_effective_and_attractive_capital_markets_in_the_EU.pdf>.

04

Conclusion

The debate on the CMU has been much focused on the centralisation of supervision of financial markets which would be entrusted to ESMA. In its April 2024 report on the Single Market, Enrico Letta advocates a centralisation of supervision of the most integrated markets or significant market players to ESMA, particularly when supervision proves more effective at a supranational level, such as with equity markets or certain large systemic entities.[25] Another idea of the report is that the Commission would assess market integration for each Directive or Regulation moving forward. In such case, centralisation of supervision would be justified. Those proposals closely reflect some ideas advanced by Fabrice Demarigny.[26] However, such moves would not achieve supervisory convergence and result in an increase in size of the market in and of itself.

The difficulties with the CMU and the size of the single financial market are not just linked to realizing the single rulebook and supervisory convergence. They are of a more systemic nature and need manyfold measures in order toto improve the situation.

Some issues hampering the development of financial markets, and especially equity financing of European based companies in Europe, are being slowly fixed.

A major obstacle to listing in the last two decades has been the competition of private equity for financing the growth of companies. The policies of central banks in Europe and in the United States to have zero interest rate policy (ZIRP) or even negative interest rates policy (NIRP) has meant easy access to cheap and unlimited financing for private equity firms which can overpay compared to a listing on a stock exchange. However, this obstacle is being removed because of inflation which has led to a quick and strong increase in short term and long-term interest rates.

There are also legal and regulatory obstacles. For instance, the tax treatment of retail investors funding cross-border and subject to a withholding tax has been a major obstacle to direct cross border holding of shares. This issue has been recently fixed by the EU legislator although it will take some time for the EU legislation to be applied.

At the same time, some issues are still not fixed and are getting even worse. There is a regulatory overload for companies with the Corporate Sustainability Reporting Directive (CSRD) although it applies to both listed and large non-listed companies.

However, the elephant in the room is the lack of money. There is an urgent need in the European Union to have pension funds investing in shares, like in the United States. There is no point in changing supervision or developing the best rules if there is not enough money to finance. This idea has been promoted by Fabrice Demarigny and made its way into the Letta report. This is the way forward. If water flows, an ecosystem will appear and establish its legal framework. There is a need to send water and the garden will flourish.

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25 Enrico Letta, 'Much More Than a Market: Speed, Security, Solidarity', 17 April 2024 34 < https://www.consilium.europa.eu/media/ny3j24sm/much-more-than-a-market-report-by-enrico-letta.pdf >.

26 Fabrice Demarigny, 'Strategic autonomy requires Capital Markets Union' (Le Grand Continent, 11 January 2024).

2.2
Professional Insight

The Pursuit of Potency - Capital Markets in the EU

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Author's Bio

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Abstract

This paper critically examines the development of the European Union's (EU) Capital Markets Union (CMU) initiative, introduced in 2015 to create a more integrated and resilient capital market across EU member states. Despite the evolution of the free movement of capital in the EU over time, and substantial reform efforts aimed at reducing dependency on bank financing and encouraging a shift toward diversified funding and investment sources, it illustrates how EU capital markets remain underdeveloped, insufficient, and fragmented in comparison to the United States. In light of increasing social and economic challenges facing the EU, and the significant financing needs to address those challenges, the paper underlines how renewed political attention on the crucial role of capital markets must be backed up by decisive, transformative efforts under the rebranded Savings and Investments Union.

The Pursuit Of Potency - Capital Markets In The EU

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01

The functioning of capital markets

At their most basic level, capital markets are a place where investors and those seeking investment meet to trade and deal with each other. Yet, beneath lies a complex system of institutions, companies and intermediaries providing different services and functions to allow this market to operate efficiently. Each actor plays an important role in facilitating the flow of capital, managing the associated risks, ensuring transparency, accountability, and compliance with laws and regulations.

Most people need not concern themselves with the mechanics of capital markets insofar as that system is working effectively and soundly. Public trust is bestowed on the market, as well as financial regulators and supervisors, to ensure that the system functions with integrity and stability. In an optimal environment, companies will be able to tap different sources and types of investment for their business activities at competitive rates, while those providing that capital will be able to command good returns.

However, the healthy functioning of capital markets can be affected by a number of challenges and obstacles. Most notably, like any part of the economy, it is susceptible to the fortunes and misfortunes of economic cycles. The demand for, and availability of business finance is driven by the state of the economy and can be easily disrupted by volatility and shocks, for example the COVID-19 pandemic. Moreover, capital market efficiency can be affected by more structural and rudimentary issues such as the legal, regulatory, and supervisory environments, different cultural and political conventions, or fragmented market formations and practices.

For some time now, the European Union (EU) has contended with the reality that its capital markets are not optimal. This has primarily been due to structural and historical challenges that remain unresolved.[1] Admittedly, the complexity of integrating 27 different capital markets is a momentous task. It involves confronting different cultures and attitudes towards investing, in which varying levels of financial education across the EU can hinder an individual's ability to properly manage their future financial needs. It entails uniting capital markets of different sizes, specialisms, languages, and levels of development. It means dealing with competing interests within the broader financial sector, most notably the banking sector for which EU businesses and citizens have historically shown an overreliance on. Most importantly, in a world of competing priorities, it requires building political attention, momentum and consensus for policy changes that can make a difference.

Reflecting on these challenges and the state of EU capital markets today, this paper explores whether recent reforms might finally unlock the EU's capital market potential or if further transformative changes under the Savings and Investments Union are necessary to achieve a truly unified capital market.

02

Capital Markets Union: the origin story

The free flow of capital within the EU was enshrined as one of the four fundamental freedoms when the Treaty of Rome established the European Economic Community (EEC) in 1957.[2] However, at that time, significant national controls and barriers to capital movement remained, so the free movement of capital was not an immediate priority for the founding members[3]. Following the establishment of the Single Market in 1993,[4] the Maastricht Treaty (1992)[5] further advanced economic integration by paving the way for the creation of the Economic and Monetary Union (EMU), which formally began in 1999. This marked a significant milestone in achieving full free movement of capital, with the introduction of a single currency and a unified monetary policy, which helped to ensure exchange rate stability, facilitate cross-border transactions, and build deeper economic integration among participating member states.

1 European Court of Auditors, 'Special Report 25/2020: Capital Markets Union – Slow Start towards an Ambitious Goal' (Publications Office of the European Union, 2020).

2 Treaty establishing the European Economic Community (EEC) (25 March 1957) Official Journal of the European Communities, Preamble, Articles 1-248.

3 T Padoa-Schioppa, 'Capital Mobility: Why is the Treaty Not Implemented?', in *The Road to Monetary Union in Europe: The Emperor, the Kings, and the Genies* (Oxford University Press, 1993) 26 – 43.

4 Single European Act (17 February 1986). Official Journal of the European Communities, L 169, 29 June 1987, 1-28.

5 Treaty on European Union (Maastricht Treaty) (7 February 1992). Official Journal of the European Communities, C 191, 29 July 1992, 1-112.

Building on this major development, the EU turned its attention to advancing the single market for financial services. The Financial Services Action Plan of 1999 set out to build more harmonised, efficient, and competitive financial markets by implementing 42 specific measures at EU level.[6] However, as many of these measures were still being embedded, the Global Financial Crisis hit and shifted policymakers' efforts to new reforms that focused on addressing vulnerabilities that were exposed by the crisis and build a more stable and resilient financial system. Amongst these reforms, was the creation of the European Supervisory Authorities, of which the European Securities and Markets Authority (ESMA) was designated as the EU regulator for capital markets.

Post-crisis reforms naturally focused predominantly on the banking sector, from which the crisis originated. Though the crisis also exposed another crucial vulnerability within the European financial system. It illustrated an overdependence on banks by businesses and households in the EU, and with a lack of other diversified sources of financing and saving, this concentration of financial risks exacerbated the impact of the crisis. In response to this, the Capital Markets Union (CMU) initiative was born in 2015, which aimed to deepen, widen, and diversify opportunities for investment and financing in the EU.

03

Building a single market for capital

Since 2015, over 58 wide-ranging actions and measures have been instigated by the European Commission. They aimed to address issues across the full spectrum of financial markets – ranging from aligning supervisory practices to reducing regulatory burden on companies.

The first action plan was quite ambitious, introducing 33 measures that focused on core issues like access to finance for businesses, especially small and medium sized enterprises (SMEs), and broadening investment possibilities for investors.[7] Such new investment options included new pan-European investment fund products for venture capital and social entrepreneurship. It also created the pan-European pension product (PEPP), a long-term retirement savings solution for EU citizens.[8]

In 2017, following a comprehensive review of the state of play of the CMU, a further nine priority actions were added.[9] These actions responded to developments in the EU which put a renewed focus on both the green and digital transitions, and as such focused on promoting sustainable finance and technology-driven innovation.

6 European Commission, 'Financial Services Action Plan: Implementing the Framework for Financial Markets: Action Plan' COM (1999) 232 final (11 May 1999).

7 European Commission, 'Action Plan on Building a Capital Markets Union' COM (2015) 468 final (30 September 2015).

8 Regulation (EU) 2019/1238 of the European Parliament and of the Council of 20 June 2019 on a pan-European Personal Pension Product (PEPP) [2019] OJ L198/1.

9 European Commission, 'Communication on the Mid-Term Review of the Capital Markets Union Action Plan' COM (2017) 292 final (8 June 2017).

Most recently in 2020, a new CMU Action Plan was issued by the European Commission.[10] This new action plan doubled down on efforts to build deeper and more liquid capital markets at a time where political focus had been diverted to more pressing issues such as the economic recovery following the COVID-19 pandemic. 16 new actions therefore aimed to support this recovery while expanding on the objectives of the original action plan.

04

Are we there yet?

The development of capital markets involves a multitude of complex solutions and interrelated factors that can make it difficult to discern obvious instant results. Especially in a region like the EU, this cannot be viewed as a short-term project.

Of all the actions initiated since 2015, agreement amongst EU co-legislators has been reached on the majority of these measures and implementation is complete or underway. Of course, as the final outcomes are frequently less bold due to compromises made between the European Parliament and Council during the co-legislative process, the envisaged impact of these reforms may be unclear for some time. The implementation phase can also be lengthy and involve substantial work. For example, the crucial European Single Access Point, which aims to improve transparency and access to company information, will only become fully operational in 2027, once the system and detailed functionalities have been put in place.[11]

Furthermore, it is important to acknowledge that while most of the measures to date are necessary, they are not game changers in and of themselves. Alone, they are unlikely to shift market dynamics or the choices of investors and business. For example, a company is unlikely to choose to go public on an EU stock market simply because the listing process is somewhat simpler than other global markets. Nonetheless, each of these measures are important and incremental, as collectively they contribute to building a more conducive capital market ecosystem.

10 European Commission, 'A Capital Markets Union for People and Businesses – New Action Plan' COM (2020) 590 final, (24 September 2020).

11 Regulation (EU) 2023/2859 of the European Parliament and of the Council of 13 December 2023 establishing a European single access point providing centralised access to publicly available information of relevance to financial services, capital markets, and sustainability [2023] OJ L 289/1.

05

Still lagging behind

While years of regulatory reform at EU level have resulted in improvements, the reality is that the overall appeal and performance of EU capital markets remains much lower than hoped.

Loan and debt financing remains the preferential source of funding by EU corporates as other diversified equity funding options are less developed and accessible.[12] For innovative startups and scale-ups, venture capital can be a crucial source of financing as it pursues higher reward through higher risk. Yet, in the EU, the venture capital industry is 20 times smaller than that of the United States (U.S.)[13] and European startups get less than 60% of the venture capital funding than that of their U.S. peers.[14] This may inhibit the growth potential of these companies at crucial moments in their lifecycle and push them to seek funding elsewhere.

Europe's struggles are perhaps best demonstrated by its languishing stock markets. In terms of size, EU equity markets represent only 11% of the global equity market, while the U.S. equity market stands at 42.6% of the global market capitalisation of approximately €106 trillion, as of year-end 2023.[15] As a percentage of Gross Domestic Product (GDP), the EU's market capitalisation is also lower than that of Japan, China, and the UK.[16] The depth and liquidity of U.S. stock markets versus the EU, alongside other alluring factors, immediately attracts companies seeking better funding conditions or considering an initial public offering (IPO). Since 2010, 40 EU companies have launched IPOs in the U.S. (including several high-profile companies such as Ferrari, Spotify, BioNTech), compared to only one U.S. firm conducting an IPO in the EU.[17] U.S. markets have shown how companies listed there generally command higher valuations in comparison to their peers in Europe, across all industries.[18]

While the emergence of innovative companies depends on many factors outside of capital markets, a major component in retaining them in the EU is ultimately the demand for investment. Yet, the EU again lags considerably behind in attracting long-term capital from its institutional and retail investors. In 2023, the household saving rate in the EU was 13.2% and household financial assets amounted to over €37 trillion – illustrating that European citizens are good savers.[19] However, a significant proportion of those assets sat in cash and bank deposits, earning minimal interest at a time when the annual inflation rate in the EU averaged approximately 9.2% in 2022 and 6.4% in 2023.[20] The average EU adult holds approximately €42,000 in market-based investments, substantially less than

12 Association for Financial Markets in Europe (AFME), 'Capital Markets Union Key Performance Indicators 2024' (November 2024).

13 N Arnold, G Claveres and J Frie, 'Stepping Up Venture Capital to Finance Innovation in Europe' IMF Working Paper (WP/24/146).

14 European Investment Bank, 'From starting to scaling How to foster startup growth in Europe', (May 2020).

15 *Securities Industry and Financial Markets Association (SIFMA),* '2024 SIFMA Capital Markets Fact Book' (July 2024).

16 European Commission, 'Communication on Long-term Competitiveness' (16 March 2023).

17 Association for Financial Markets in Europe (AFME), 'Integration, Sustainability and Competitiveness' (November 2023).

18 Katie Martin and Nikou Asgari, 'Why Europe's stock markets are failing to challenge the US' Financial Times (25 April 2023).

19 Eurostat, 'Households - statistics on financial assets and liabilities and statistics on income, saving and investment'.

20 Eurostat HICP inflation rate data.

the €190,000 for Americans, €80,000 for the British and €50,000 for Japanese.[21] In addition, €300 billion of those EU savings are invested in overseas companies, primarily the U.S.[22] While it makes sense for EU citizens to diversify their investments by owning U.S. shares, which also have consistently provided better returns than other global markets, this remains a substantial opportunity cost for the EU.

The availability of basic and attractive investment products is crucial in mobilising those savings into capital markets, and for retail investors, indirectly investing through pension and investment funds is often the simplest and most cost-effective way. Yet only 12.9% of euro-area households own shares in investment funds, compared to 54.4% of U.S. households.[23] In the U.S., public pension schemes provide a more limited share of retirement income compared to many European countries. This has led to a stronger investment culture amongst U.S. citizens who must better prepare for retirement through private initiative, most notably through employer-sponsored, tax-incentivised 401(k) plans and Individual Retirement Accounts (IRAs). The EU's attempt at launching a similar pan-European pension product has so far flatlined, in particular due to the inability of Member States to agree on a harmonised tax treatment.[24] The taxation of investments for individuals is often a crucial factor influencing where people choose to allocate their savings. However, as tax policy remains a national competence rather than an EU-wide one, the role of tax incentives in mobilising investment has not been a key feature of the CMU discussions.

06

Turning the tide - what's next?

Over the course of 2024, CMU shot back into the limelight. Member States are becoming more acutely aware that the future financing needs of Europe cannot be met by public spending and bank financing alone.[25] Europe's green and digital transitions alone require a combined additional investment of €745 billion each year.[26] Geopolitical developments in recent years have also prompted officials to focus more on economic autonomy and competitiveness. In a landmark report on the future of EU competitiveness, former president of the European Central Bank and former Prime Minister of Italy, Mario Draghi, makes a stark case on the need to urgently rejuvenate the EU economy to strengthen its standing on the global stage.[27]

21 Association for Financial Markets in Europe (AFME), 'Capital Markets Union Key Performance Indicators 2024' (November 2024).

22 Enrico Letta Report, 'Much More than a Market' (17 April 2022).

23 Sources: Euro area household participation rates from ECB Household Finance and Consumption Survey 2021. US household participation rate from Investment Company Institute, 4Q23 data.

24 European Insurance and Occupational Pensions Authority (EIOPA), 'Staff Paper on the Future Pan-European Pension Product' (September 2024).

25 Eurogroup, 'Statement of the Eurogroup in Inclusive Format on the Future of Capital Markets Union' (Council of the European Union, 11 March 2024).

26 European Commission, 'Strategic Foresight Report' (July 2023).

27 Mario Draghi Report, 'The Future of EU Competitiveness' (September 2024).

Several notable reports, including from former Banque de France Governor Christian Noyer,[28] former Italian Prime Minister Enrico Letta,[29] and ESMA,[30] as well as many position papers from European industry, have begun to converge around a set of transformative ideas. They point to a two-pronged approach, where the European Commission should bring forward a number of EU-level reforms, while Member States should unify around progressing on a set of issues that are rather in their domain. At European level, the focus should be on some structural market reforms, such as revitalising the securitisation market, addressing barriers to the integration of trading and post-trading services, evaluating further EU-level supervision, and improving regulatory efficiency and agility.

While such EU-level structural reforms are fundamental, they will not transform EU capital markets. The elusive goal of the CMU initiative remains a wider and deeper capital base. This is where Member States must coalesce on the use of tax incentives to empower citizens to engage in capital market investments, while better educating people on managing their finances. The concept of an EU Investment Savings Account is gaining traction in this regard[31]. In tandem, Member States must cultivate more sustainable pension systems that foster occupational pensions and personal pension savings as a complement to the core, publicly managed pension schemes. Doing so has the potential to unlock substantial capital which could more productively support innovative businesses, leading to positive effects for households and the EU economy.

This shift in realisation, that capital markets are ultimately about investment and investors, is what has prompted the European Commission President Ursula Von der Leyen to rebrand CMU and Banking Union into an all-encompassing 'Savings and Investments Union' (SIU)[32]. The aim is to better resonate with EU citizens, to intertwine their long-term financial wellbeing and betterment with the strength of EU businesses and capital markets. A dynamic SIU can then be at the heart of the EU's competitiveness and growth ambitions – a catalyst to finance innovation, drive decarbonisation and reinforce security, as outlined in the EU's Competitiveness Compass[33]. In March 2025, an SIU Strategy launched by the European Commission provided a roadmap with policy measures that now gets this initiative underway.

Ultimately, striving for stronger capital markets in the EU will always be a perennial task, but the need for tangible progress is now more compelling.

28 Direction générale du Trésor, 'Developing European capital markets to finance the future' (25 April 2024).

29 Enrico Letta Report, 'Much More than a Market' (17 April 2022).

30 European Securities and Markets Authority (ESMA), 'Building More Effective and Attractive Capital Markets in the EU' (ESMA position paper, May 2024).

31 President of the European Commission, 'Mission Letter to Commissioner-designate for Financial Services and the Savings and Investments Union' (11 September 2023).

32 *European Commission*, 'Statement by President von der Leyen at the European Parliament' (18 July 2024)

33 *European Commission,* 'A Competitiveness Compass for the EU' (29 January 2025)

2.3
Professional Insight

Securities Regulation - Why Capital Markets Deserve Credit

Richard Metcalfe

Author's Bio

Richard Metcalfe, Head of Regulatory Affairs, World Federation of Exchanges (WFE). As Head of Regulatory Affairs for the WFE – the global trade association for CCPs and stock and derivatives exchanges – Mr Metcalfe drives policy and regulatory engagement on a range of topics, emphasising the unique role that 'market infrastructure' plays in furthering social welfare, by creating positive externalities and supporting stability while maintaining an impartial role relative to market participants. He has previously worked in policy roles at ISDA and the Investment Association and with BNY Mellon, having graduated from Oxford University (MA in languages). He also spent some years as a journalist, covering the emergence of derivatives and the development of financial risk management.

Abstract

Banking and capital markets are broadly similar in size, each having a distinct role to play. But they are also very different in key ways, with implications for securities regulation. These implications are rarely, if ever, considered in a systematic way – a gap that this paper sets out to fill. Shares provide opportunities for growth over long time frames: for enterprises and, combating the effects of inflation, for investors. They also provide good opportunities to diversify risk and to recover after economic downturns. Capital markets support emerging enterprises and are inherently more likely than credit channels to offer 'breathing space'. Illiquid investments are not necessarily bad ones, especially for long-term investors. Volatility and risk are present in the whole financial system and, even though risk can spread from credit channels to equity markets, it nonetheless plays out in very different ways and therefore, cannot be treated as uniform. Asset price volatility is normal and not the same – either in terms of dynamics or consequences – as the jump to default associated with bank runs. In this context, it is worth considering the various types of policy measure that can be used to incentivise investment. Current regulatory debate focuses on 'shadow banking', now typically referred to as Non-Bank Financial Intermediation, without adequately weighing the differences in risk and in the risk-reward balance between very distinct channels. We look at the differences between (equity) capital markets and banking but also at their interaction. And we look at related incentives and regulatory issues, including risk to the financial system.

Securities Regulation – Why Capital Markets Deserve Credit

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Introduction

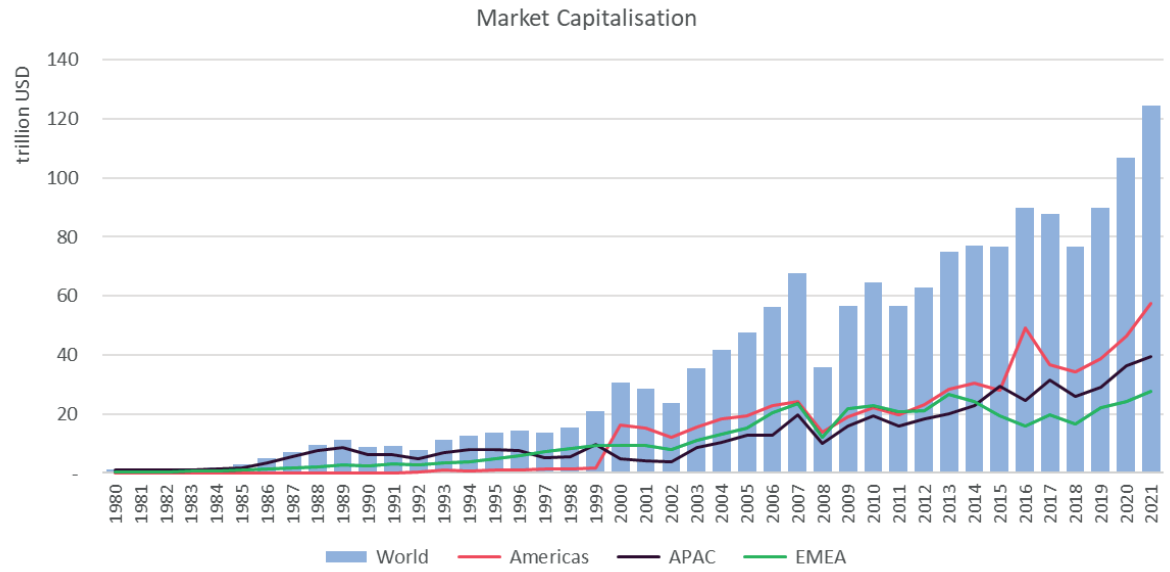
The world's banking system and the value of publicly traded shares on capital markets are both in the order of $100 trillion worth of assets.[1] The future may, however, require capital markets to shoulder much more of the responsibility for investment and growth. Equity capital markets are well placed to do that, and policy should encourage it, given the distinct and positive risk-reward profile of capital market-based finance.

Shares represent a way of investing for the longer term, in the face of inflation, via the combination of capital gains and dividends. For instance, according to World Federation of Exchanges (WFE) figures, the market capitalisation of shares on 50-odd exchanges increased by 190% between 2004 and 2021, from around $40tr to ~$120tr (*see Annex*). This is also broadly illustrated by the chart below (albeit this rise also includes an increase in the reporting population). Similarly, the Morgan Stanley Capital International (MSCI) World Index increased in value by 788% between 1986 and 2023, going from 357 to 3169.[2]

1 Banking Claims, Bank for International Settlements <https://data.bis.org/topics/CBS>; 'Welcome to the Future of Markets', World Federation of Exchanges <https://www.world-exchanges.org/> accessed 17 September 2024.

2 Statista Research Department, 'Development of the MSCI World Index from 1986 to 2023' (Statista, 22 May 2024) <https://www.statista.com/statistics/276225/annual-trend-of-the-msci-world-index-since-1969/> accessed 27 June 2024.

Stock Market capitalisation, 1980-2021



Source: WFE Database. Numbers are not directly comparable because of increases in reporting population.

In the short run shares can be relatively volatile, especially individual shares. But only in the most challenging years does volatility even approach 100% (*see Annex 1*). Intriguingly, there is some evidence that credit-market conditions temporarily affect share values. It would arguably be strange if share prices were not highly dynamic, since they represent the ever-changing potential of companies and balance of opinion thereon. [3]

Also, equity investments often do relatively well at recovering after a downturn, in line with the resumption of economic growth. This ability to bounce back has historically been true even of larger falls in asset prices. US shares were recovered within two years of October 1987 – the date of the significant market fall known as Black Monday.[4]

When it comes to funding, capital markets also accommodate 'new-economy' companies, which may not have much in the way of physical assets to post as collateral against loans. Such companies are, in principle, important to digitalisation and to ESG transition, the latter requiring significant funding.[5]

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3 One should not, however, expect stock-market investors to all simultaneously be gifted with perfect wisdom about the fundamental value of companies. In reality capital markets constantly reprice and a model for price movement lies in the varying distribution of the rational beliefs of agents. See Woody Brock, 'Resolving the Market Efficiency Paradox' (Strategic Economic Decisions, Number 125, March 2014), 14 <https://www.sedinc.com/fileadmin/user_upload/reports/March_2014/March_2014_SED_PROFILE.pdf)>.

4 Donald Bernhardt and Marshall Eckblad, 'Stock Market Crash of 1987', (Federal Reserve History, November 22 2103) < http://www.federalreservehistory.org/essays/stock-market-crash-of-1987#:~:text=Stock%20markets%20quickly%20recovered%20a,surpassed%20their%20pre%2Dcrash%20highs>.

5 Christian Keller and Maggie O'Neal, 'Costing the Earth: What will it Take to Make the Green Transition Work' (World Economic Forum, September 29 2023 < https://www.weforum.org/agenda/2023/09/costing-the-earth-how-to-make-green-transition-work/#:~:text=Estimates%20for%20just%20how%20much,product%20is%20about%20%24100%20trillion>.

01

Two distinct types of channel

Bank lending does have a vital role to play in the economy, especially for SMEs that may not be ready to go down the route of listing. But capital-market financing is relatively under-used in some parts of the world, compared with banking.[6]

Distinct from loans, bonds have the advantage of being tradable, with a certain amount of investor disclosure, via the prospectus at launch and at least some degree of transactional transparency.[7] Caution is, however, also needed in relation to credit more generally. Because all debt needs to be repaid or rolled over, as well as serviced through interest payments, borrowers need to be sure that they have or can quickly raise cash. This differentiates the two types of channel, as equity investors, even though they will naturally demand growth from a company, may differ from creditors in being prepared to forgo short-term income, if the long-term company prospects are good. Equity investment has more capacity to be patient – related to its potential for greater growth. Hence, incentivising SMEs to list is good policy, while letting investment funds take on less liquid positions should, within reason, be accommodated.

The two channels we address in this paper – credit and equity markets – have distinct dynamics and consequences but also an inter-relationship, especially when it comes to risk.

When a market-wide drop in share prices does happen, it appears that it is likely to accompany – and may even be triggered by – an end to easy credit in the financial system more broadly. The latter was true of the events of 2008, when the Dow Jones Industrial Average fell some 7% intraday on 29th September, on news related to the availability of credit bailouts in the US. The elevated stock market volatility around that time came once a multi-year bubble in mortgage finance burst, and triggered a worldwide shock.[8] Similarly, in his work on the global October 1987 crash, Robert Shiller notes many investors in the US citing general over-indebtedness as a factor.[9] Even when solvency is not in question, illiquidity can affect credit markets and then spread more widely, notably affecting broker dealers, as happened with the collapse of Lehman Brothers.

Even after 30 years of Basel Accords, it is genuinely hard to prevent bubbles and their consequences. There were signs during the Covid 19 period of concern for how the credit system would hold up. Even as equity markets continued to perform, pricing shares and providing a platform for Initial Public Offerings (IPOs),[10] there was some debate about whether some financial institutions should be required to retain funds rather than make dividend

6 Panagiotis Asimakopoulos, 'The Future of EU Capital Markets' (New Financial, September 2021) < https://newfinancial.org/the-future-of-eu-capital-markets/#:~:text=The%20reliance%20on%20banks%3A%20companies,than%20level%20in%20the%20EU27>.

7 Bonds also clearly play an important role in finance and in investment portfolios. In particular, someone approaching retirement may want more of their financial assets in fixed income than in shares, as compared with someone just beginning their career.

8 Kimberley Amadeo, 'The Stock Market Crash of 2008' (The Balance, updated 8 June 2024) <http://www.thebalancemoney.com/stock-market-crash-of-2008-3305535> accessed 27 June 2024.

9 Robert Shiller, 'Investor Behaviour in the October 1987 Stock Market Crash' (NBER, Working Paper 2446, November 1987) 10 <http://www.nber.org/system/files/working_papers/w2446/w2446.pdf>.

10 "When compared with 2019, the number of new listings through IPOs and investment flows through IPOs increased significantly, by 25.7% and 36.8% respectively. There was a 1.1% increase in the number of listed companies." WFE, '2020 Market Highlights' <https://www.world-exchanges.org/our-work/articles/fy-2020-market-highlights> accessed 17 September 2024.

payments.[11] Central banks started supporting corporate debt, to help the wider credit system.[12] As the European Supervisory Authorities (i.e., the European Securities & Markets Authority, European Banking Authority and European Insurance & Occupational Pensions Authority) noted in September 2021, "Vulnerabilities in the financial sector are increasing, not least because of side effects of the crisis measures, such as increasing debt levels."[13]

02

A Structural Issue

From a policy perspective, it is important to recognise that the inherent nature of banking is distinct from that of market-based finance. It is hard – maybe even impossible – to rule out runs, given that fractional reserve banking axiomatically entails self-reinforcing dynamics, whereby even the perception that others will withdraw their deposits creates an incentive for all depositors to do so.[14]

In the capital markets, by contrast, someone selling their investment in a company does not create the same imperative for others to do so. Price moves happen, without triggering an irreversible downward spiral. Moreover, investors can diversify away company specific risk, via collective investment vehicles, and can use derivatives to hedge.

Banking capital requirements cannot eradicate run risk, as failures in early 2023 demonstrate.[15] What is present in equity capital markets, by contrast, is price risk.[16] Capital-markets investors can ride out a downturn, whereas the whole credit system may seize up when one bank fails, and the effect on the economy can be widespread. In 2009, after such a shock, the whole US economy declined by 2.8%.[17]

This raises questions about policy proposals relating to so called 'Non-Bank Financial Intermediation' – proposals that attempt to treat traded markets as though they presented the same kind of liquidity problem as credit markets. Leaving aside edge cases such as money-market funds, weighing down collective investment schemes with unjustified costs may only compound liquidity issues.

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11 Sheila Bair, 'Force Global Banks to Suspend Bonuses and Payouts' (Financial Times, 22 March 2020) <www.ft.com/content/ed87b5d6-6a8e-11ea-a6ac-9122541af204?shareType=nongift>

12 ECB <www.ecb.europa.eu/mopo/implement/pepp/html/index.en.html> accessed 27 June 2024; and Jonnelle Marte, 'NY Fed to Begin to Sell Corporate Bond Holdings' (Reuters, 8 July 2021) <www.reuters.com/article/markets/us/ny-fed-to-begin-to-sell-corporate-bond-holdings-on-july-12-idUSL2N2OK1EC/>

13 ESMA et al, 'Joint Committee Report on Risks and Vulnerabilities in the EU Financial System', 2 < https://www.esma.europa.eu/sites/default/files/library/jc_2021_45_-_joint_committee_autumn_2021_report_on_risks_and_vulnerabilities.pdf> accessed 27 June 2024>

14 Royal Swedish Academy of Sciences, 'Financial Intermediation and the Economy' (Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel, to Ben Bernanke et al., 10 October 2022) <www.nobelprize.org/uploads/2022/10/advanced-economicsciencesprize2022.pdf> accessed 27 June 2024.

15 Edward Helmore, 'Why did the $212bn Tech-Lender Silcon Valley Bank Abruptly Collapse' (The Guardian, 17 March 2023) < https://www.theguardian.com/business/2023/mar/17/why-silicon-valley-bank-collapsed-svb-fail>

16 Related counterparty risk is managed through central clearing.

17 Wayne Duggan, 'A Short History of the Great Recession' (Forbes, updated 21 June 2023) < https://www.forbes.com/advisor/investing/great-recession/#:~:text=The%20Great%20Recession%20of%202008,down%2057%25%20from%20its%20highs.>

Considering credit channels, all debt appeals to issuers. Part of the attraction to issuers is the fact that inflation erodes the debtor's burden – the mirror image of shares, which hold their own for *investors* in the face of inflation. Tax breaks may play a role too, for corporate entities.

But, while such phenomena may be good for issuers of debt, credit channels do always come with the risk that there will be competition for market share, which can create challenges for the wider system. Hence the creation of the Basel Accord.[18]

03

The way forward

In policy terms, we can conclude that it is justifiable and important to avoid false positives for systemic risk and recognise that equity volatility is a very different type of issue from the structural issues inherent in the credit world.

In a similar vein, it is important to properly assess the nature and role of market-making and asset-management activities. Market intermediaries and proprietary traders help buyers and sellers interact, thereby promoting market capacity, while categorically not being a credit business (credit being an expectation of future cash liquidity).[19]

More broadly, just as national regimes in many parts of the world rightly encourage individuals' investment in residential property, the same could work well in relation to investments.

On the issuer side, due consideration can be given to minimising the costs and bureaucracy associated with listing, especially for smaller companies; and to ensure a level playing field with private markets when ESG disclosures are increasing, sometimes only on public issuers and not on privately funded entities. Prospectus requirements and disclosures should be proportionate, in terms of frequency and content (and the use of electronic delivery).

Another issue lies in accounting, particularly the effects of 'fair value'. Despite the role equity plays in financing real people's long-term future, rules and regulations around financial markets somehow miss the bigger picture. In some parts of the world, equity finance suffers from a bias in accounting with the result that pension schemes, in particular, are pushed towards bond investments. This supposedly means that they 'match' their liabilities, even though the relevant point is that those liabilities will not crystallise until well into the future, making capital growth and dividends the more appropriate hedge.

To suggest that pension schemes should, in effect, be forced to hold debt because it is less volatile, is arguably perverse because the real risk is that of poor returns for those who are going to retire. Debt may not even be

18 Bank for International Settlements, 'History of the Basel Committee' https://www.bis.org/bcbs/history.htm> accessed 17 September 2024. "There was strong recognition within the Committee of the overriding need for a multinational accord to strengthen the stability of the international banking system and to remove a source of competitive inequality arising from differences in national capital requirements."

19 Con Keating, 'Completely liquid' (Futures & OTC World, August 1999).

consistently less volatile, as the experience of UK asset owners in late 2022 shows, when their 'liability-driven investment strategies' proved highly problematic.[20]

On a related note, there may be scope for imaginative thinking around fund liquidity. If they have not done so already, jurisdictions should consider what scope there is for authorising and incentivising collective investment vehicles that (with due disclosure of the fact to investors) do not offer daily liquidity.

04

Conclusion

Equity capital markets bring a valuable channel for financing economic activity, in large part because they bring their own positive characteristics. While similar in size to banking, equity capital markets offer a very different experience, both for companies and for investors, in terms of long-term growth and the nature of the related risks. In particular, participating in collective investment in shares is not the same as being one of a number of bank depositors, partly because of the opportunity to diversify away risk but also because the dynamics around the liquidation of holdings are very different.

Market downturns can be a response to – rather than the cause of – credit squeezes and may sometimes be the correction of a credit bubble. Volatility and risk are present in the whole financial system but, even if they can spread from the credit channel to equity markets, they cannot be viewed as uniform, either in their dynamics or their consequences. The freedom to adjust (buy/sell) investment positions is socially valuable, partly because of this difference.

Various policy measures can be and are used to incentivise investment. Impeding access to capital markets, on the other hand, entails a significant risk of limiting growth (for both enterprises and investors) and of limiting the ability of investors to make best long-term use of their assets.

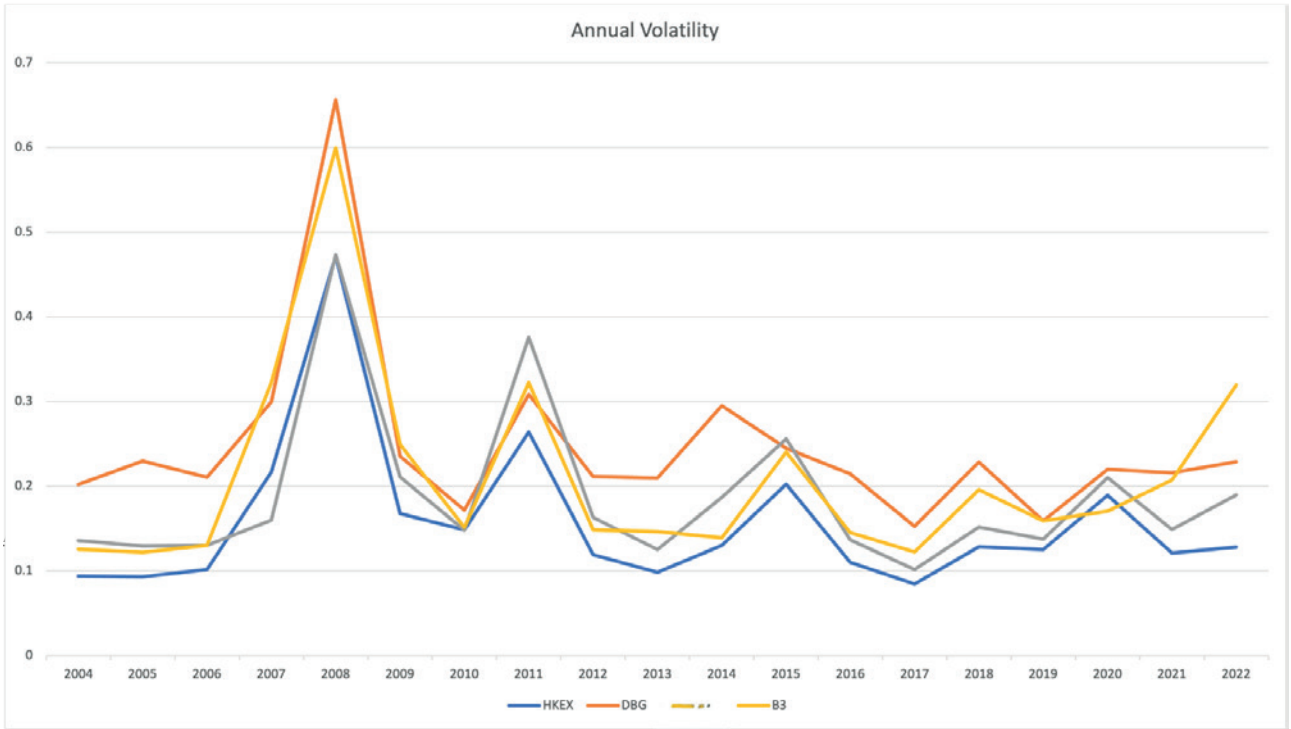
20 Con Keating and Ian Clacher, 'The Reframing of the LDI Narrative' (Professional Pensions, 14 October 2022) <www.professionalpensions.com/opinion/4057810/reframing-ldi-narrative-hide-tragedy-db-dc-schemes>.

Annex – Returns and risks

Market capitalisation, 2004-2021

	2004	2021	change 2004-21 (%)
Market Capitalisation ($m)	40,865,614	118,511,737	190%

Source: World Federation of Exchanges



Source: WFE

Independence of Financial Supervision

3
Professional Insight

Independence of Securities Regulators

Nathalie Piscione

Author's Bio

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Abstract

The EU regulation has granted to the European Supervisory Authorities (ESAs) the task to foster and monitor supervisory independence. This follows the observation that supervisors are subject to pressures while ensuring supervisory independence is a key factor in protecting investors and fostering confidence in financial markets. In that context, the ESAs have published the joint ESAs criteria on the independence of supervisory authorities to provide guidance on supervisory independence. This paper presents the approach adopted by the ESAs to prepare the criteria. Then, it focuses on some of these criteria that extend beyond the international standards and are particularly relevant to foster supervisory independence. Such criteria relate to the good functioning of the supervisor's governing body, the avoidance and management of conflict of interests and transparency. Finally, the paper concludes with the next steps, such as the guidelines on independence that EBA is tasked to prepare and the expected ESAs' assessment of supervisory independence.

Independence of Securities Regulators

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Introduction

Following the review of the European Supervisory Authorities (ESAs)[1] regulation in 2019, the European Securities and Markets Authority (ESMA) together with the other ESAs is required to foster and monitor National Competent Authorities' (NCAs) supervisory independence.[2] This new task adds to the already existing assessment of the degree of independence of the NCAs in the peer reviews ESMA and the other ESAs conduct. [3]

Supervisory independence is key to efficiently protect investors, foster confidence in financial markets and attract investments. However, as noted by the OECD, "a variety of pressures are placed on regulators"[4] by governments, politicians, supervised firms, interest groups and may put at risk supervisory independence and therefore supervisory efficiency. For instance, in the aftermath of the 2008 global financial crisis, the Financial Stability Board (FSB) noted a "high incidence of failure in the IMF-World Bank FSAP assessment" related to independence and considered that "reinforcing the operational independence of supervisory agencies is critical to ensuring supervisory effectiveness

1 The ESAs are the European Banking Authority (EBA), the European Insurance and Occupational Pensions Authority (EIOPA) and the European Securities and Markets Authority (ESMA).

2 Regulation (EU) N. 1095/2010, art 8.1(b); Regulation (EU) No 1093/2010, art 8.1(b); Regulation (EU) No 1094/2010 art 8.1(b).

3 Regulation (EU) No 1093/2010, art 30.3; Regulation (EU) No 1094/2010 art 30.3; Regulation (EU) N. 1095/2010, art 30.3.

4 *Being an independent regulator* (OECD Publishing 2016) ch 2, 'Why does independence matter? The view from the literature'.

and credibility in general."[5] More recently, in November 2020, ESMA identified in a peer review "a heightened risk of influence by the Ministry of Finance given the frequency and detail of reporting to the Ministry of Finance in the Wirecard case."[6]

In this context, fostering and monitoring supervisory independence is an important addition to the role of the ESAs. Indeed, supervisory independence is instrumental to achieving effective and efficient supervision and consistent application of EU rules across the Union. It also supports a level playing field of high-quality regulation, supervision, enforcement, and hence supervisory convergence. Therefore, to tackle this additional responsibility, each of the ESAs conducted a stock-take exercise on NCAs' independence. Working in close coordination with each other, they published their respective sectoral reports on the same day, on 18 October 2021.[7]

For this stock-take exercise, ESMA prepared a questionnaire for NCAs building on its experience in using the IOSCO Objectives and Principles of Securities Regulation ('Principles')[8] and their interpretation provided in the IOSCO Methodology for Assessing Implementation of the IOSCO Objectives and Principles of Securities Regulation ('Methodology')[9]. In particular, due to the absence of specific EU legal requirements specifying NCAs' independence definition, ESMA relied on the chapter of the 'Principles' dedicated to regulators. This chapter provides that "the Regulator should be operationally independent and accountable in the exercise of its functions and powers"[10] and that "the Regulator should have adequate powers, proper resources and the capacity to perform its functions and exercise its powers."[11]

Based on NCAs' responses, ESMA found that "NCAs' independence is multi-faceted" and noted that although "first enshrined in [national] legislation and institutional design, it is also how NCAs operate on a day-to-day basis through their activities, decision-making, and stakeholder engagement, which embeds the culture of independence and the achievement of good regulatory outcomes."[12] In view of this conclusion and noting that EIOPA already adopted criteria on NCAs' independence in September 2021,[13] ESMA together with EBA and EIOPA considered useful to provide further guidance to NCAs to foster supervisory independence.

The aim of this paper is to share the ESAs' approach to develop the joint ESAs' criteria on independence, to focus on some of them that are particularly relevant to foster supervisory independence before concluding with the next steps.

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5 FSB, *Intensity and Effectiveness of SIFI Supervision*: *Recommendations for Enhanced Supervision* (2 November 2010) ch II.2, 'Independence'.

6 *Fast Track Peer review on the application of the Guidelines on the enforcement of financial information by BaFIN and FREP in the context of Wirecard* (ESMA 42-111-5349) para 10.

7 <https://www.esma.europa.eu/press-news/esma-news/european-supervisory-authorities-publish-sectoral-reports-supervisory>.

8 <https://www.iosco.org/library/pubdocs/pdf/IOSCOPD561.pdf>.

9 <https://www.iosco.org/library/pubdocs/pdf/IOSCOPD266.pdf>.

10 Principle A 2.

11 Principle A 3.

12 ESMA, *Report on the Independence of National Competent Authorities* para 8.

13 EIOPA, *Criteria for the Independence of Supervisory Authorities* (EIOPA criteria).

01

The ESAs' approach to developing the independence criteria

Following the 2021 stock take on NCAs' independence conducted by each of the ESAs, it appeared clearly that further work related to this topic needed to be conducted, in close cooperation between the ESAs. In addition, not only the founding regulation of the three ESAs was updated in 2019 with the same new task to foster and monitor supervisory independence as already mentioned, but some ESMA members are also a member of EBA and/or EIOPA. Finally, the approval of the same criteria by each of the three ESAs' Board of Supervisors ensures the relevant focus on supervisory independence. With that background, in 2022, ESMA, EBA and EIOPA agreed to closely work together to develop joint criteria on supervisory independence.

In October 2023, building on international standards,[14] the ESAs published their joint independence criteria.[15] Although non-binding, they are expected to be practically implemented under the NCAs' relevant legal frameworks. As such, they are a very solid basis for NCAs to support and strengthen their independence. Indeed, NCAs can use them for internal discussions but also externally, for instance in discussions with the relevant ministries. In addition, the ESAs can consider the criteria as a benchmark to assess the level of independence of the NCAs, identify good practices to inspire other NCAs as well as potential weaknesses to be addressed.

To develop the joint ESAs' independence criteria, ESMA together with EBA and EIOPA, decided to build on the 2021 EIOPA criteria,[16] keeping the same structure. So, they are organised around the same four chapters i.e., operational, financial, and personal independence as well as accountability and transparency. This structure ensures the continuity with the EIOPA criteria. It builds also on the IOSCO Principles that stress the need for NCAs to have operational independence[17], a stable and sufficient source of funding to exercise its powers,[18] to ensure that conflicts of interest and misalignment of incentives are avoided, eliminated, disclosed, or otherwise managed[19] and to be accountable.[20]

Finally, as the joint ESAs criteria aim to provide further guidance to NCAs, the level of granularity of the criteria was carefully considered so they reach a good balance, accounting for the different types of organisational structures of NCAs. For that purpose, the criteria were drafted using a principle and outcome-based approach. Indeed, it was important for the ESAs to focus on the results to be achieved and not on prescribing ways to reach them. As different organisations and systems exist in the EU, depending on the history and choices made in each member

14 BCBS, *Core Principles on Effective Banking Supervision* Principle 2; FATF, *Recommendation 26*; IADI, *Core principles for effective deposit insurance systems* Principles 2, 11; IAIS, *Insurance Core principles* Principle 2; IOSCO, *Objectives and Principles of Securities Regulation* Principles 1-8.

15 *Joint European Supervisory Authorities' criteria on the independence of supervisory authorities* (JC 2023 17 – 25 October 2023).

16 EIOPA, *Criteria for the Independence of Supervisory Authorities* (EIOPA criteria).

17 *Principles Relating to the Regulator of the Objectives and Principles of Securities Regulation* para 2 p 4.

18 Key issues related to Independence of the *Methodology For Assessing Implementation of the IOSCO Objectives and Principles of Securities Regulation* para 4 p 26.

19 *Objectives and Principles of Securities Regulation.* Principle A, para 8.

20 *Principles Relating to the Regulator of the Objectives and Principles of Securities Regulation* para 2 p 4.

state, too detailed criteria may have resulted in difficulties for certain NCAs, although they could well achieve the desired outcome using different means. In addition, the criteria do not intend to be exhaustive and address all individual types of situations and circumstances but to provide a clear view on the objectives to be achieved. With this approach, the NCAs can define their own implementation path for the criteria.[21]

02

Focus on some ESAs joint criteria

Some of the ESAs joint criteria exceed international standards, such as the IOSCO principles, and are particularly relevant to foster supervisory independence. This is the case for instance for the criteria that aim to foster the good functioning of the NCAs' governing body, to avoid and manage conflict of interests and to reinforce transparency. They are further discussed below.

3.1 Fostering the good functioning of the NCAs' governing body

The good functioning of the governing body within an NCA is essential to protect and foster the NCAs' supervisory independence. Indeed, the governing body must operate independently from external influences, such as industry pressure or political interference, so supervisory decisions are made objectively and without bias. For this purpose, the criteria establish a framework for the appointment process of the governing body members, their selection and ensure transparency regarding the profile of the appointed member.[22]

First, the criteria require that the process for the appointment of members of the governing body be set out in legislation, be publicly available and include certain provisions. Indeed, given the key role of members of the governing body, their appointment process should not be left to discretionary practices and instead the process should be set in law. It is worth noting that the criteria refer to key aspects of the appointment process and therefore flexibility remains, outside of these key aspects, to shape the process as needed.[23]

Second, to complement the framework for the appointment process of members of the governing body, the criteria also establish a framework for their selection: candidates are required to have high integrity, individual relevant qualifications, as well as specific skills, knowledge and experience. In addition, members of the governing body who are responsible for international cooperation should also demonstrate a proficient level of English. Indeed, the full understanding of the framework and discussions by members of the governing body constitute the first line to support the independence of the NCAs' decision making.

21 Introduction of the ESAs, *Joint Criteria* (JC 2023 17 -25 October 2023).

22 Absence of undue influence and section; The functioning of the governing body of supervisory authorities of the ESAs *Joint Criteria* (JC 2023 17 -25 October 2023) ss 2-1, 2-7.

23 Appointment of members of the governing body of the ESAs *Joint Criteria* (JC 2023 17 -25 October 2023) s 3.1.

Finally, as not all NCAs use a public call for candidates for the selection of members of the governing body, the profile of the appointed candidate should be publicly disclosed. This is to ensure transparency, incentivise the selection of a candidate with an appropriate profile and ultimately preserve the independence of the NCA.[24]

3.2 Avoiding and managing conflict of interests

Conflict of interest is a key topic to foster supervisory independence. Indeed, promoting and fostering supervisory independence involve the avoidance of conflicts of interest and, when not possible, their adequate management. For this reason, the provisions of the criteria related to conflict of interests apply to both members of the governing body and staff members.[25]

The concept of conflict of interest used in the joint ESAs criteria includes real, potential and perceived conflicts of interest. Indeed, the mere perception that there are conflicts of interest may put at risk and seriously damage the reputation and credibility of an NCA, therefore putting at risk the proper functioning of the financial market.[26] This could be the case for example, when the spouse or a parent of an NCA's chair would obtain a senior position in a supervised firm. The IOSCO principles do not explicitly refer to perceived conflict of interests. However, the OECD considers that "undue influence, whether real or perceived, can undermine a regulator's ability to behave in this way, impinge on its independence, and ultimately, on its performance."[27] In the same direction, the IAIS Core Principles stress that "the supervisor should have policies and processes or a code of conduct to avoid or manage real, potential or perceived conflicts of interests"[28] and the Ethics Framework of the European Central Bank (ECB) also refers to "situations that … may be perceived to give rise to conflicts of interests."[29] It was therefore important for the joint ESAs criteria to also cover perceived conflicts of interest.

However, although the joint ESAs criteria retain a broad concept of conflict of interests, the cautious application of proportionality is equally important. Indeed, while the objective to foster supervisory independence is of paramount importance, each specific situation needs to be considered to apply the criteria in a balanced way. For instance, a staff member with no or very limited access to supervisory information is less likely to face a situation of conflict of interest than a member of the governing body with large access to sensitive supervisory information.

24 Selection criteria of the ESAs, *Joint Criteria* (JC 2023 17 -25 October 2023) s 3.2.

25 Conflicts of interest of the ESAs, *Joint Criteria* (JC 2023 17 -25 October 2023) s 3.4

26 *The Ethics framework of the ECB.*

27 OECD, *Practical Guidance Against Undue Influence* "Creating a culture of independence" 2.

28 *Insurance Core Principles and Common Framework for the supervision of internationally active insurance groups* Principle 2.1.6.

29 *The Ethics Framework of the ECB* (2015/C 204/04) art 3.

In that context, to prevent conflicts of interest, the joint ESAs criteria ban the holding of "financial interests" in entities supervised by the NCA for staff and members of the governing body.[30] Indeed, such holdings could result in a biased behaviour impacting supervision or enforcement. For instance, in the review of a prospectus or in an investigation, a staff member may conduct supervisory activity or make decisions where a conflict could arise should they hold some financial interests in the firm issuing the prospectus or subject to investigation. The ban also extends to the holding of consultancies, directorship in these entities as well as the expectation of any future benefit or the involvement in any capacity in these entities. The ban, however, still allows the member of the governing body or of the staff to be a consumer of retail financial services such as, for instance, holding rights in a collective pension plan. In addition, the NCA could allow members of its governing body or staff to keep their financial holdings when joining the NCA, subject to certain conditions. The first condition relates to the "prior assessment" of the potential conflicts of interest by the NCA, and the second condition to the "management of any relevant conflict of interests" by the NCA.[31] These two conditions imply that the NCA has in place a process to perform that prior assessment and a framework to require the sale of the financial interests when required.

Finally, situations where a member of the governing body or of the staff decides to leave the NCA also presents an increased risk of conflicts of interest. For instance, the staff member may wish to join a supervised firm. Specific measures should therefore apply in these situations and key tools to prevent or manage conflicts of interest include: (1) limiting access to relevant supervisory information during the notice period, and (2) setting a cooling-off period after leaving the NCA. However, the application of both tools has implications, in particular with regard to the ability for NCAs to attract junior and senior staff[32]. In these circumstances, using proportionality will be of paramount importance. Indeed, the limitation of access to supervisory information or the length and scope of the cooling off period will depend on the actual work done by the staff member, the level of decision-making, and the seniority. [33]

30 ESAs, *Joint Criteria*, JC 2023 17 para 40.

31 ESAs, *Joint Criteria*, JC 2023 17 para 41.

32 OECD, *Revised recommendation of the Council on principles of corporate governance*, (8 June 2023, JT03521268) 10.

33 ESAs, *Joint Criteria*, JC 2023 17 para 53.

3.3 Reinforcing transparency

NCAs' transparency is another key element to ensure effective governance and to maintain public trust. In this respect, the joint ESAs criteria require NCAs to limit and disclose their external delegation of supervisory activities, to make public some documents and translate them in English when possible.

Regarding the external delegation of supervisory activities[34], it makes perfect sense in some circumstances like for example, to consider cost and/or expertise, as is the case for instance for delegation of tasks to entities such as ESMA or other institutional bodies.[35] However, the delegation of some large part of supervisory activity to entities such as commercial entities may hamper the good execution of the mission granted to the NCA. External delegation could for instance result in insufficient guarantee of independence in the execution of the tasks.[36] Therefore, to preserve supervisory independence, it will be important to limit the use of external delegation, to clearly define, document the processes set up and ensure transparency. In this respect, it is key to note that NCAs remain responsible for any delegated supervisory task, so the performance of an effective oversight of the delegation is of paramount importance for the NCAs.

To ensure transparency when a delegation to an external entity is set up, it should be publicly disclosed. The disclosure should not entail information on all the details related to the delegation but on the principle like for example, what is delegated and to whom the delegation is granted.

Furthermore, as transparency about the supervisor's responsibilities is important to support NCAs' independence, NCAs' reports related to its objectives, priorities and performance should be publicly available.[37] However, given the significant number of languages used in the EU, publishing reports in local language is not sufficient to ensure transparency. This is why the criteria require that supervisory requirements and information about the supervisor's responsibility be available in English. Indeed, using a common language supports broad access to the documents and allows comparability across NCAs. However, the translation of a large number of documents represents a burden and a cost. So, to balance the need for transparency and the burden/costs of translation, the criteria use a proportionate approach. When translation is not possible for some defined documents,[38] it can be replaced by a short description in English. This would apply for instance for public consultations, for the analysis of the responses.

34 ESAs, *Joint Criteria*, (JC 2023 17) s 2.4..

35 Regulation (EU) No 1095/2010 of the European Parliament and of the Council of 24 November 2010, art 28.

36 *ESMA, Report on the independence of National Competent Authorities* (ESMA42-110-3265 18 October 2021) para 62.

37 ESAs, *Joint Criteria* s 5.2.

38 ESAs, *Joint Criteria* paras 76-77.

03

Conclusion

Following the 2021 stock-take on supervisory independence, the publication of the joint ESAs criteria on 25 October 2023 is an important step to further foster supervisory independence. Indeed, NCAs can use the guidance provided by the criteria to further analyse their situation and identify where progress could be made. They can also use the criteria externally to support their proposals, for instance to Ministries, to reinforce their supervisory independence.

Furthermore, the revised CRD[39] contains specific provisions related to the independence of supervisory authorities and requires EBA to issue guidelines "…on the prevention of conflicts of interest in, and on the independence of, competent authorities, taking into account international best practices."[40]

As a next step, the ESAs could perform an assessment of NCAs against the joint ESAs criteria. This would help identifying and sharing good practices and fostering supervisory independence, as well as potential weaknesses still to be addressed. This exercise, also encouraged by the European Commission,[41] would require both an appropriate format and timeframe. The assessment combined with the EBA guidelines could be important additional steps to build on the joint ESAs criteria and further foster supervisory independence.

39 Directive (EU) 2024/1619 of the European Parliament and of the Council of 31 May 2024.

40 Directive (EU) 2024/1619 of the European Parliament and of the Council of 31 May 2024, arts 1(2)-(4).

41 European Commission, *Report from the Commission to the European Parliament and the Council on the operation of the* ESAs, 11.

Education and Capacity Building

4
Academic Article

Collaboration on Capacity Building Between Regulators and Universities

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Author's Bio

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Abstract

This paper explores the symbiotic relationship between universities and financial regulators, particularly within the European financial services landscape. It highlights the critical role universities play in enhancing regulatory capacities through specialised training, cutting-edge research, and dialogue. The collaboration between entities like the University of Malta and the Malta Financial Services Authority (MFSA) serves as a case study, demonstrating how joint initiatives lead to robust regulatory frameworks, improved financial stability, and a steady pipeline of skilled professionals. The paper underscores the mutual benefits of these partnerships that not only enhance academic and regulatory goals but also contribute to the broader financial sector's integrity and sustainability.

Keywords: capacity building, financial services, research, regulation, universities

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Introduction

Universities and financial services regulators are two important elements that ensure the effective regulation of financial services globally. The European financial services landscape is no exception – a milieu that is complex, dynamic, and evolving rapidly thanks to advances in research and technology.

Universities are a source of cutting-edge research and specialised expertise that are essential for the development of skills in the financial services sector – both from a human resources and technical perspective. More importantly, universities help in the development of innovative regulatory frameworks that ensure the smooth and efficient operation of financial services at national and international levels. Such partnerships contribute to these effects in three ways.

First, partnerships between financial regulators and universities are not uncommon, both nationally and internationally. For instance, the partnership between the European Central Bank (ECB) and the European University Institute[1] seeks to enhance the competences of European banking supervisors at an international level. A key outcome of this partnership is the provision of capable supervisors equipped with the necessary knowhow that addresses emerging risks in the financial services sector related to increasingly critical themes like climate and cyber security.

1 European Central Bank, 'ECB Launches Partnership with European University Institute to Train Banking Supervisors' (2022) <www.bankingsupervision.europa.eu/press/pr/date/2022/html/ssm.pr221206~648a78d36b.en.html> accessed 9 August 2024.

Secondly, universities offer specialised training and development that supports the continued professional development of regulators' human resources. University and regulator joint approaches leading to specialised training help ensure professional development is well aligned with *the* latest regulatory requirements and financial technologies, both current and forthcoming. Such professional development ensures that regulators retain forefront capabilities to effectively monitor and control financial services providers' regulatory compliance. One instance is the Florence School of Banking and Finance's administration of advanced training to over 6,000 supervisors across the European Union over the past years, supporting integration and consistency in European banking supervision.[2]

Third, and equally important, is the notion that within the European context, university and regulator collaboration promotes the development of a pan-European common regulatory philosophy. Such ubiquitous understanding is fundamental for a stable and integrated European financial system, supported by a robust and adaptive regulator environment capable of addressing the challenges posed by globalisation and technological innovation.

01

Importance of Capacity Building

Financial services are a dynamic industry that is increasingly complex, competitive and sensitive to emerging risks of potential abuse. Ensuring stability and integrity is a key role for any regulator at national and international levels. The effectiveness of such a role remains dependent on a strong regulatory framework along with proficient monitoring and enforcement. Without the latter, a regulatory framework may only be worth its weight on paper.

The value of such capacity building emerges from five key themes as discussed below.

i. Complexity and Innovation in Financial Markets

The constant introduction of innovative financial products, services and technologies is a key determinant of a financial sector that is in perpetual flux. Despite their benefits, such innovations bring about new risks that regulators need to understand, monitor, and manage effectively. Such administration requires human resources, technology, and supervisory frameworks that endow regulators with a capacity to ensure financial stability by shunning regulatory gaps that may emerge from insufficient regulatory function.[3]

2 European University Institute, 'EUI and ECB Unveil New Programme in Central Banking and Banking Supervision • European University Institute' (October 2023) <https://www.eui.eu/news-hub?id=ecb-and-eui-unveil-new-programme-in-central-banking-and-banking-supervision&lang=en-GB> accessed 12 August 2024.

3 OECD, 'Shaping the Future of Regulators: The Impact of Emerging Technologies on Economic Regulators' (2020) <https://www.oecd.org/content/dam/oecd/en/publications/reports/2020/11/shaping-the-future-of-regulators_3c55d5ca/db481aa3-en.pdf> accessed 9 August 2024.

ii. Emerging Risks

Emerging and pervasive risks like cybersecurity threats, digital currencies and climate change place additional demands on regulators, that in turn depend on expert knowledge and skills. The ECB has consistently stressed the need for regulatory competence that enables regulators to be resilient in the face of complexity which results from the digital transformation of the banking sector and its conduct in the face of climate-related financial risks.[4] Such competence is required to ensure that regulators can anticipate and mitigate risks before materialising and becoming systemic concerns.

iii. Supervisory Effectiveness

To maintain consumer and business market confidence in the financial system, regulators need to be effective supervisors. Such an objective necessitates regulators to invest in capacity in terms of resources such as advanced analytic tools and associated skilled human resources to support effective and thorough supervision. Stress testing, systemic risk monitoring and enforcing compliance with regulatory standards among financial institutions are key endeavours that constitute effective supervision.[5] It is the specialised nature of these efforts that call for consistent and constant updates of any regulator's skills and capacity.

iv. Global Regulatory Consistency

Enduring globalisation means that financial markets are increasingly interconnected globally. This proliferation necessitates regulators to collaborate across borders to effectively manage risks. The effectiveness of this collaboration relies on continued investment in capacity building, allowing regulators to engage in international regulatory forums that contribute towards the development of global standards while concurrently ensuring that domestic regulations are consistent with international best practices. [6]

v. Public Trust and Market Confidence

A strong regulatory competence is a key factor that leads to public trust in any financial system. Publics see capable and effective regulators as an assurance that sustains trust in financial systems, resulting in enhanced market confidence that in turn, spurs the smooth functioning of financial markets. Public trust is especially critical in times of financial crisis or otherwise challenging times.[7]

These five themes emphasise the consistent evolution of financial markets and their need of resilient regulators that can monitor, detect, and limit the effect of emerging risks. An overarching requirement for such regulators is to be reliably outfitted with skilled professionals that are bestowed with the latest knowledge and analytical skills.

The question, then, is: how can universities contribute positively to such a context?

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4 European Central Bank (n 1).

5 Basel Committee on Banking Supervision, 'Core Principles for Effective Banking Supervision' (2012) <www.bis.org/publ/bcbs230.pdf> accessed 9 August 2024.

6 Financial Stability Board, 'FSB Framework for Strengthening Adherence to International Standards' (2010) <https://www.fsb.org/wp-content/uploads/r_100109a.pdf> accessed 9 August 2024.

7 Steven Radelet, 'The IMF and Capacity Development—Monitoring, Evaluation, and Effectiveness' (2022), Michael Kell and others, 'The IMF and Capacity Development' (2022) <https://ieo.imf.org/en/our-work/Evaluations/Completed/2022-1004-the-imf-and-capacity-development> accessed 9 August 2024.

02

Role of Universities

Universities and higher education institutions have a vital role in the building and maintaining of competences of financial services corporates and regulators. Universities provide education, administer cutting edge research and offer collaborative opportunities for financial services actors that lead to the enhancement of knowledge and skills of finance professionals.

Yet, the very provision of education, research and collaboration with financial services actors is fundamental for universities' own survival in an increasingly demanding and competitive higher education context. Whereas funding for trailblazing research is increasingly dependent on larger budgets financed by international corporates or governmental institutions, the teaching of state-of-the-art knowledge and skills remains largely dependent on diminishing direct government funding and increased reliance on student fees. Collaboration between universities and regulators is thus a symbiotic arrangement that nourishes the livelihood and competence of both sectors.

There are four key elements that define any university's role in this arrangement. First is the universities' provision of professional training and education in the form of specialised degree programmes (at bachelor's, master's and doctoral levels), alongside executive education and professional certification. This training helps individuals build and garner the necessary skills and knowledge to work in a dynamic environment that financial services and regulation present. Programmes like the Postgraduate Diploma in Financial Regulation and Compliance (administered by the University of Malta in collaboration with the Malta Financial Services Authority - MFSA) provide an in-depth understanding of financial markets, instruments and regulatory frameworks that are crucial for financial regulation capacity building. The partnership between the University of Malta and MFSA helps in tailoring programmes that address specific areas of risk and regulation pertinent to Malta as a financial services hub in a European and global context. At a European level, the collaboration between the European University Institute and the ECB addresses the same objective – that of providing comprehensive and specialised training for European banking supervisors, helping augment those supervisory capabilities of European financial regulators, especially in areas like digital transformation and cyber security.[8]

Second is universities' undertaking of research that informs policymaking and the development of new regulatory frameworks. Such research helps financial regulators understand the emerging trends and threats in financial markets, especially because of fintech innovation or climate-change associated risks. It is thanks to such research that Europe implemented critical reforms over the past two decades, helping regulators adapt their operations to emerging realities like cyber currencies, digitalisation of markets and regulatory harmonisation.[9] It is the collaboration between universities and central banks, along with other financial institutions that renders specialised research on systemic risk and financial stability feasible. This research helps regulators develop more effective regulatory policies at national and international levels.[10]

8 European University Institute (n 2); European Central Bank (n 1).

9 Thomas Philippon, 'The FinTech Opportunity' (2016).

10 Stijn Claessens and Laura Kodres, 'The Regulatory Responses to the Global Financial Crisis: Some Uncomfortable Questions (IMF Working Paper, 2014) <https://www.bookstore.imf.org/books/the-regulatory-responses-to-the-global-financial-crisis-some-uncomfortable-questions> accessed 12 August 2024.

Third is the extensive policy dialogue and advisory roles that universities often assume, typically with a neutral outlook. Dialogue brings together regulators, academics and industry professionals who discuss current and emerging issues and challenges impacting on financial regulation. The interchange of evidence-based knowledge and ideas fosters a better understanding of regulatory needs, helping regulators develop more effective regulatory policies. Universities thus have a critical role in providing guidance and intelligence to governments and regulators, exploiting their academic expertise to support policy design and implementation.[11]

Finally, universities supply talent in the form of graduates to the financial services sector. Graduates enter the financial services industry and regulatory bodies and bring with them progressive knowledge and innovative thinking – qualities that effectively address contemporary challenges that financial services face. Such consistent influx of skilled professionals is crucial to the sector, helping it maintain and enhance its capacity.[12]

Considering these features of universities' roles in financial services markets and regulation, one then needs to consider what justifies partnerships. If universities thrive with or without the involvement of regulators, why are partnerships key to the prosperity of an efficient and trustworthy financial market?

03

University-Regulator Partnerships

By working together, universities and financial services regulators harness their respective strengths to improve the regulation, stability, and integrity of any financial system. This collaboration leads to more informed policies, innovative solutions, and a more resilient financial sector. Reaching such objectives leaves both collaborating partners with mutual benefits in the form of five premises.

First, a coordinated and transparent dialogue between the universities and regulators encourages the associated stakeholders, like financial services corporates, consumer associations, and governments among others, to engage in frank information and opinion sharing. Such honest exchanges help financial markets function more transparently and can address emerging consumer and business customer needs effectively. Concurrently, regulators can address such evolving trends before demand, supply and sustainability features become real complications, thanks to regulators' collaboration with universities.

11 Paul Tucker, *Unelected Power: The Quest for Legitimacy in Central Banking and the Regulatory State* (Princeton University Press, 2019) <https://www.jstor.org/stable/j.ctvc7789h?turn_away=true> accessed 12 August 2024.

12 David T Llewellyn, 'The Northern Rock Crisis: A Multi-Dimensional Problem Waiting to Happen' (2008) 16 *Journal of Financial Regulation and Compliance,* 35 <https://ejournals.um.edu.mt/login?url=https://www.proquest.com/scholarly-journals/northern-rock-crisis-multi-dimensional-problem/docview/235042504/se-2?accountid=27934>; David T Llewellyn, 'The Northern Rock Crisis: A Multidimensional Problem Waiting to Happen' in Robert R Bliss and George G Kaufman (eds), *Financial Institutions and Markets* (Palgrave Macmillan US, 2009).

Second, a formal and long-lasting collaborative arrangement between universities and regulators leads to the establishment of mutual trust.[13] Such trust leads to further and enhanced interorganisational commitment, information sharing and relationship-specific investment, with consequent mutual improvement in non-economic performance.[14]

Third, because of augmented trust, researchers can better access consumer, industry and regulatory data, helping academics and practitioners better understand emerging trends. Such understanding contributes to early identification of potential issues and can help regulators proact nationally and internationally. Equally, such scientific understanding helps universities contribute to academia in the form of scientific publications as well as adopt such knowledge in cutting edge higher education.

Fourth, a cooperative and complementary partnership with regulators helps universities afford better resources in the form of research tools and specialised human resources, who in turn can engage in trailblazing research and practice-oriented teaching. It is thanks to these elements that universities earn a reputation for outstanding contribution to economies and societies, attracting better scholars and students.

Finally, demonstrated transparency in any university-regulator cooperation attracts the trust and respect from associated stakeholders including (but not limited to) consumer groups, industry players and governments among others.

It is precisely these benefits that the University of Malta and the MFSA seek to attain as a result of their collaborative arrangement that has been in place for the past decades.

04

University of Malta and MFSA

Over the past years, the University of Malta and the MFSA sought to collaborate through several initiatives, alongside other current similar initiatives in collaboration with financial services organisations like insurers, bankers, and organisations that represent these sectors at national and international levels.

Indeed, thanks to the participation of academics and professionals employed at the University of Malta and the MFSA, the financial services sector has benefited from specialised conferences and seminars where latest cutting-edge research was presented. These initiatives are too numerous to list, but examples include recent research work published jointly by University academics and MFSA executives, like Buttigieg and colleagues in 2023 and 2024. This research was often possible thanks to the resources made available by MFSA, data collected from national and international sources or data subjects, and the supervision of specialised academics in financial markets, regulation, and competition. Projects are often focussed on regulatory frameworks, financial technology, crypto

13 Reinhard Bachmann and Andrew C Inkpen, 'Understanding Institutional-Based Trust Building Processes in Inter-Organizational Relationships' (2011) 32 *Organization Studies* 281 <https://doi.org/10.1177/0170840610397477>.

14 Bahar Ashnai and others, 'Inter-Personal and Inter-Organizational Trust in Business Relationships: An Attitude–Behavior–Outcome Model' (2016) 52 *Industrial Marketing Management* 128 <https://www.sciencedirect.com/science/article/pii/S0019850115001893>.

assets as well as market trends. These initiatives also meant bringing together industry professionals (both local and international), academics, and students to discuss current and emerging challenges and opportunities. Furthermore, the Authority also supports the University's teaching by offering and administering internship opportunities to the University's students to work in financial regulation and compliance. Such experiences help students earn precious insight and skills that are quickly applicable to their future careers. The collaboration between the University of Malta and the MFSA has contributed not only to enhance the learning experience of university students, but also to the continued development of a robust and well-regulated financial services sector in Malta thanks to a consistent talent pipeline, placing the country among the best financial services centres in the world.

Moreover, academics from the University and experts from the Authority have often joined forces to co-author research papers and reports on several topics, contributing to the growing body of knowledge on financial regulation and compliance.

Finally, the MFSA also supported several academic programmes and initiatives administered by the University of Malta as part of the University's academic programmes at undergraduate and postgraduate levels. Efforts ranged from guest lectures to workshops and seminars, kindly sponsored by the Authority, targeting students who in turn would become human resources engaged in the financial sector, if not the Authority itself. The latest joint effort is the design, development, and administration of the Postgraduate Diploma in Financial Regulation and Compliance – a programme that was launched earlier this year and bound to welcome the first cohort of students in October 2024.

The postgraduate diploma programme seeks to help learners explore the multifaceted landscape of financial regulation at national and international levels. Regulatory frameworks, risk management practices and associated ethical considerations are presented to learners from academic and professional stand points and are intended to educate students on how financial institutions can maintain integrity in a safe and trustworthy industry. The programme involves the use of case studies as well as simulations that place students in decision-making roles to learn through application. Key outcomes of the programme include the assessment of compliance risks, the implementation of effective control mechanisms, as well as a fluent understanding of the complex regulatory landscape. These outcomes allow students to be well prepared for professional roles in regulatory bodies and financial services providers.

With a total of 60 ECTS[15] credits (equating to around 1,700 hours of study), the postgraduate diploma engages students in a diversity of areas ranging from general approaches like business ethics and risk management, to more specific areas like sustainable finance regulations, governance and audit management, prevention of money laundering, digital finance regulation and compliance management. All themes in the programme are presented by a team of experts and academics who have accrued years of experience in the respective fields as well as associated reputation in industry and academia, nationally and overseas.

15 The European Credit Transfer and Accumulation System (ECTS) is a standardized framework adopted by European higher education institutions to facilitate the recognition and comparison of academic achievement across institutions. It quantifies student workload and learning outcomes, thereby promoting mobility and academic transparency across the European Union. One academic year of full-time study corresponds to 60 ECTS credits, equivalent to approximately 1,500 to 1,800 hours of total study and learning.

05

Benefits of the Collaboration

The University – Authority collaboration is bound to lead to several benefits at individual, institutional and sectorial levels. At an individual level, this cooperation helps equip students with knowledge and skills that underpin the effective role of professionals engaged in regulatory or service provider functions. As programmes like the postgraduate diploma target both new entrants as well as seasoned professionals in financial services provision and regulation, the cooperation between the University and the MFSA impacts on the financial sector's sustainability through a constant upgrade of the skills of the sector's professionals, translating into augmented career opportunities for the sector's human resources.

At an institutional level, this collaboration leads to a constant availability of hard-to-find qualified professionals for employment by financial services providers as well as the regulator. From an academic perspective, the partnership with the MFSA helps the University access data, tools and policy resources that support the University's provision of education as well as engagement in world-class scientific and policy research that in turn is shared with local financial services actors. It is also thanks to this collaboration that educational curricula (as in the case of the University's postgraduate diploma discussed above) can be well aligned with both industry practices and regulatory requirements.

At a sectorial level, the MFSA-University partnership ensures the entire financial services sector benefits from an efficient regulatory framework that not only protects institutions and consumers from risks like cybercrime, credit defaulting, market price fluctuations, liquidity deficiencies and business interruption, but also assures a sturdy reputation for the entire Maltese financial services sector.

06

Conclusion

This paper has presented how the collaboration between financial regulators and universities translates in benefits for the entire network of actors involved in financial services industries. Such collaboration strengthens regulators' capacity building approaches through continued regulatory development, investment in assets that support effective industry monitoring as well as the development of professionals. It is thanks to the cooperation between universities and regulators that the financial services industry (at national and international levels) can be effectively supervised, preventing the emergence of risks that harm the reputation and sustainability of a healthy financial sector.

These cooperative partnerships support an important dialogue between relevant stakeholders, leading to the sharing of emergent knowledge that informs policy making and business development. A resultant mutual trust between regulators and universities reinforces interorganisational commitment, information sharing and investment in cutting-edge research as well as sector-specific state-of-the-art education. Overall, these benefits translate into a constant flow of skilled professionals into the financial services industry as well as maintenance of up-to-date talent employed by financial institutions, financial regulators and universities alike. The collaborative partnership between the MFSA and the University of Malta is no exception to the above narrative, and benefits (although unmeasurable) are evident.

The long-term benefits of regulator–university collaboration are undeniable. It is these benefits that justify further steps that not only strengthen the current collaborative partnership between the MFSA and the University of Malta, but also help to develop new partnerships with other actors in the financial services industry as well as in other sectors of the Maltese and European economies.