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Building Trust in the Era of AI: Fostering Public-Private Collaboration to Scale AI Responsibly

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Contents

Executive Summary

This whitepaper presents the issues faced by the financial sector related to the adoption of AI, focusing on the theme **"Building trust in the era of AI: Fostering public-private collaboration to scale AI responsibly"**. Drawing insights from the roundtable discussion at the Insights Forum, the report synthesises key discussion points for the growing role of AI in financial markets, as well as the importance of collaboration between stakeholders to ensure trust and safety, whilst also facilitating innovation.

Role of AI in the Financial Sector and Regulation

Although the adoption of AI into financial markets offers tremendous potential by improving efficiency, accuracy, and customer service, financial institutions must consider safety and ethical aspects. Regulators should strike a balance: risks should be managed on the one hand, whilst on the other hand, innovation should not be unnecessarily stifled.

Risks related to AI-adoption in the Financial Sector

With AI rapidly evolving and becoming more capable yet less transparent, security and reliability concerns arise. These security concerns include the potential for AI systems to be manipulated or hacked, leading to unauthorised access to sensitive information. Reliability concerns involve the inconsistent performance of AI systems, where errors or unexpected behaviour may lead to critical failures or costly decisions. As the financial sector faces both micro-level (institution-level) risks and macro-level (systemic) risks, safeguards need to be put in place to protect the integrity and safety of financial markets.

AI Skills Gap

Roundtable participants flagged that they see a critical AI skills gap in the financial sector, hindering institutions' ability to implement AI solutions effectively and responsibly. Recruiting and training specialised AI talent is a challenge, with few professionals able to grasp the complexity of AI and its practical applications.

This knowledge gap also fuels distrust in AI, as stakeholders may not trust AI-driven outcomes and regulatory assurances. Bridging the AI skills gap through education, training, and a collaborative approach is necessary to ensure proper AI implementation and governance. The skills gap affects the private sector as well as public sector entities, including regulators and policy makers.

Role of Policy Makers and Research Institutions

When adopting AI tools in finance, organisations should adopt a clear set of principles covering safety, privacy, and transparency aspects. Governments and public research institutions are essential in providing resources, research and guidance on responsible AI usage. These institutions can facilitate continual improvements in AI safety. Policy makers should develop regulatory frameworks that are robust and yet practical. Cooperation between public and private sector entities is important, as these stakeholders can learn from each other.

Introduction

The rise in Artificial Intelligence (AI) in recent years has undoubtedly changed the landscape of global industries. Worldwide spending on AI-systems was estimated at 154 billion US dollars in 2023 across all industries. The banking sector's investments amounted to 20.6 billion US dollars, the highest across the observed industries. Moreover, according to Thormundsson, the financial sector's investments into AI are expected to grow further between 2024 and 2027 [1]. AI can improve operational efficiency and enhance data analysis, posing significant potential for the financial services sector.

With AI's rapid advancements, both private and public sector stakeholders face the challenge of deploying AI in a safe and ethical manner. While AI offers great potential, its exponential growth also raises questions related to safety, transparency and governance. Collaboration between the private and public sector is vital to tackle these challenges.

This whitepaper draws on insights shared by private and public sector participants at the Insights Forum held at the Singapore Fintech Festival in November 2024, where they shared views on the respective roles played by policymakers, developers, and users in managing AI risks; considered near- and longer-term risks; the role of technology in solving these challenges; and opportunities for collaboration in managing these risks.

Role of AI in the Financial Sector

The adoption of AI in the financial services sector offers tremendous potential in terms of improving efficiency, model accuracy, and customer service. Today, we are in an era of AI implementation where algorithms have become a cornerstone of the financial landscape, seeding innovations in risk management, portfolio construction, investment banking and insurance [2]. The trajectory towards a partially or fully algorithmic finance industry, where multiple operations like trading, valuation and textual analysis will become highly efficient, appears unstoppable [2], even if the adoption of AI in trading applications is still nascent now.

Customer service is one of the areas where AI could create value, in the form of AI assistants, personalised financial recommendations, automated document processing, and more [3]. Generative AI (GenAI), which refers to a type of AI that can create new content and ideas, including text, images, videos, and music, could be used to tap into the huge amount of investment data to provide a better customer experience.

However, financial institutions must also consider risks when implementing AI into their processes. As technology evolves, risks evolve as well. For example, AI-driven trading may inadvertently create market volatility due to unforeseen interactions with other algorithms, leading to flash crashes or significant financial losses. Such algorithms could fundamentally change the dynamics in financial markets. Hence, human judgement must remain dynamic in the face of the ever-changing AI landscape. Regulation can play an important role to prevent or mitigate AI related risks, but financial institutions also have their individual responsibility to implement AI-solutions in a safe and ethical manner. While regulation can help to safeguard the financial system, it could also stifle innovation if implemented too rigidly.

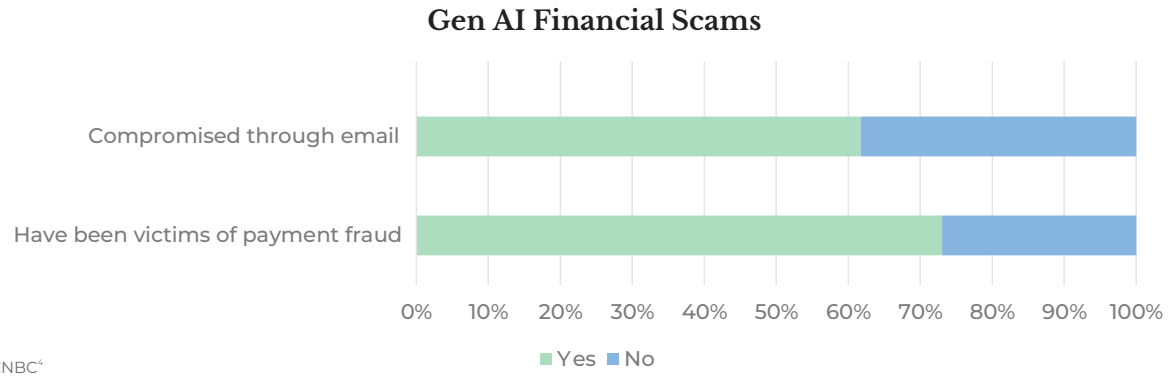
Risks and Challenges

With AI and GenAI increasingly being adopted in the financial sector, risks surrounding traceability, data privacy, bias, and safety have grown. AI impacts both individual financial institutions as well as the financial system, and it is necessary to understand how system-wide risks can emerge from the use of AI by individual institutions.

Risk management is already a core task for financial institutions, and firms employ various safeguards when using AI in critical processes. In the area of algorithmic trading, many firms use manual fallbacks or kill switches for the instance of undesirable outcomes. However, such safeguards could have unintended consequences at the system-level. Kill switches or automatic risk limits could lead to instabilities, especially under stress. Interactions between algorithms could also change market dynamics if AI-driven trading were to become more dominant.

Financial institutions must also consider new AI-specific issues such as hallucinations, IP and data privacy challenges, and bias. Since biases may be explicitly or implicitly contained in training data, AI could learn to make undesirable or erroneous decisions, also in financial trading.

With the rise of AI, we could also see an AI arms race. Bad actors could use AI in fraudulent activities, cyber-attacks and manipulation. Following the rapid advancements of Gen AI, criminals can now easily create deep fakes. Some deep fake incidents have already been reported in the financial sector [4]. In a recent survey by the Association of Financial Professionals, 65% of respondents said that their



Source: CNBC[4]

organizations had been victims of attempted or actual payments fraud in 2022. Of those who lost money, 71% were compromised through email [4].

AI can also be part of the solution. For example, a local startup in Singapore specializes in AI-driven solutions for anti-money laundering (AML). NUS FinTech Lab suggests that sophisticated algorithms scrutinize and identify potential threats in financial transactions, enhancing AML efforts[5].

Another pressing issue is that for tech-savvy graduates, the financial services sector may not be as appealing as the technology sector. This hinders the financial sector's ability to continually evolve and innovate, and the sector may be ill-equipped to implement AI safely.

Lastly, environmental, social, and governance (ESG) considerations have to come into play. Shorthand for an investing principle that prioritises environmental issues, social issues, and corporate governance, the ESG perspective questions the resources used to fuel the massive scale of computations done by AI in financial markets.

Goldman Sachs suggests that a single ChatGPT query requires 2.9 watt-hours of electricity, compared with 0.3 watt-hours for a Google search, according to the International Energy Agency[6]. This highlights a worrying trend of increased carbon emissions emitted to power these new AI models. From the Goldman Sachs report, the expected rise of data centre carbon dioxide emissions will result in a "social cost" of $125-140 billion (at present value)[6].

AI Skills Gap

The lack of AI knowledge and skills within the financial sector was one of the key discussion points during the roundtable. As an illustrative example, only a handful of people in the room indicated that they had ever built an AI model when prompted. The skills gap does not only concern private sector players; it also affects regulators, impairing the design of effective rules and the development of AI-based surveillance tools.

Across financial institutions, there are large variations in AI-proficiency. Some financial institutions are ahead of the curve, and other market participants as well as regulators can learn from them. For example, the Evident AI Index suggests that JPMorganChase is a frontrunner in the banking sector. On the regulatory side, the Monetary Authority of Singapore (MAS) is at the forefront with its Veritas 2.0 toolkit to test AI applications. Collaboration is necessary to understand the broader systemic risks that AI may pose, and how stakeholders can collectively minimise those risks.

Financial institutions should have an appropriate understanding of the AI models they use. Otherwise, they cannot create the necessary guardrails to mitigate risks. Popular GenAI models like ChatGPT have a very accessible interface which makes them appear very simple and attractive. This can create a false sense of safety, and financial institutions should question the design and output of third-party models.

Only once the skills gap is bridged, trust can grow, as teams would be able to put in place necessary guardrails or build their own internal models drawing on trusted data sources if necessary. Alternatively, a scenario of AI-distrust could emerge. Questions like "How do I trust this information?", "How do I trust the citations for this information?", "How do I trust this website?" could cast doubt on anything that is generated through AI.

According to Clere, three-quarters of workers in the industry believe that the FinTech industry is being held back by a lack of digital skills and gaps in the workforce. A survey found that 75% of respondents believe that their

"The FinTech industry is being held back by a lack of digital skills and gaps in the workforce."

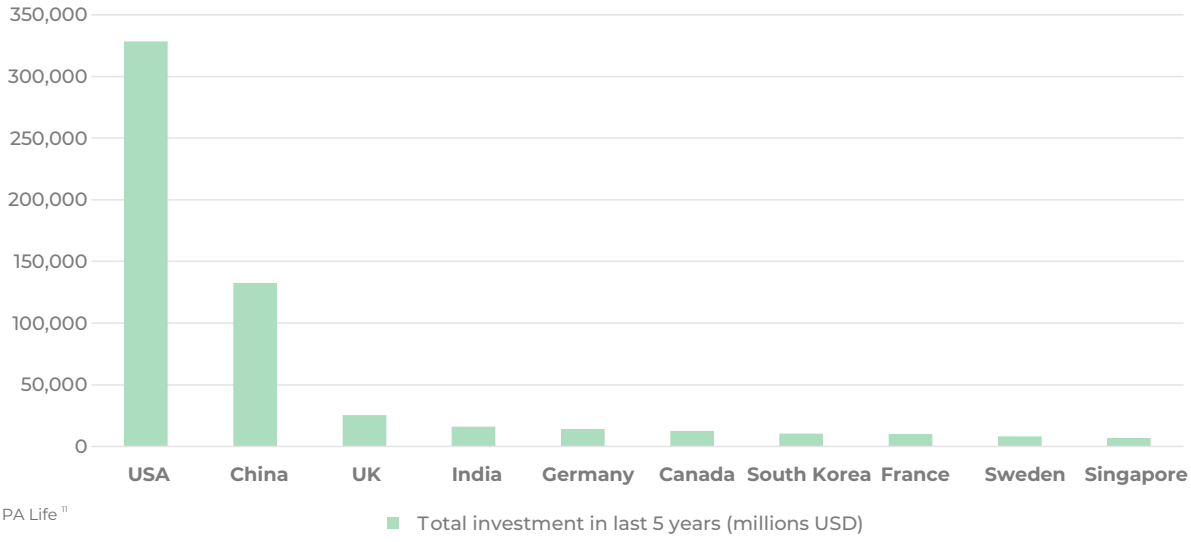
Source: Fintech Magazine[7]

organisation has struggled to fill vacancies requiring digital skills. In addition, more than 90% of workers believed that improved digital skills would support the technological implementation taking place in their workplace[7].

The AI skills gap also has a geographical dimension, with some American and European financial institutions advancing much faster than those in other countries. O'Brien shows that the US leads the world in terms of developing AI technology, with the gap between the US and the rest of the world widening as the US continues to invest more at the level of firm creation and firm funding[8].

Bratley states that one risk is that only the leading nations will benefit from AI-driven productivity gains[9]. The advent of AI can exacerbate economic and social inequalities due to uneven rates of investment, adoption, and use. The International Labour Organization suggests that the emerging "AI divide" means high-income nations could disproportionately benefit from AI advancements, while low- and medium-income countries, particularly in Africa, could lag behind[10]. This would affect the financial sector, as well as other sectors.

Total investment in last 5 years (millions USD)



Source: PA Life [11]

Role of Policy Makers, Regulators and Research Institutions

While AI is not entirely new – it has been around for quite some time –, the autonomy, speed and complexity of models, and the breadth of data sources have grown tremendously in recent years.

The onus is on industry leaders and policy makers to ensure that the financial services sector adopts AI in a safe and ethical manner. An example of policy makers' contributions includes a paper from the Monetary Authority of Singapore, "Cyber Risks Associated with Generative Artificial Intelligence (GenAI)". According to the Monetary Authority of Singapore, the paper aimed to raise financial institutions' awareness by providing an overview of key cyber threats arising from GenAI, the risk implications, and some of the mitigation measures that financial institutions could take to address these risks[12]. However, financial institutions bear responsibility towards their investors, owners, clients or consumers to take ownership of adopting AI in a safe manner; policymakers can help to set rules and guidelines.

To mitigate the AI skills gap, private corporations and public sector entities could collaborate with each other and with research institutions. When needed, they should hire specialists to develop accessible programmes for its employees to bridge the gap. To keep track of the relatively constantly evolving use cases of AI in the financial sector, some regulators use an outreach approach to exchange knowledge about the use of AI with industry partners. For example, the Bank of England has recently set up an AI consortium, intended to "provide a platform for public-private engagement to gather input from stakeholders on the capabilities, development, deployment and use of AI in

UK financial services." This approach can be useful, especially at the early stages of AI adoption, but it requires openness and willingness to participate.

Policymakers can also engage in collaboration with research institutions. In Singapore, the Agency for Science, Technology and Research (A*STAR), for instance, provides a collaborative research environment, which extends into private sector initiatives as well. Topics such as AI model drift are investigated, which can help to improve the safety of models. Even when model-owners test their models, new angles of attack can be developed by bad actors. Researchers have, on several occasions, identified adversarial actions that can trick models. This research helps to identify model weaknesses, and to keep both private sector model users as well as regulators sharp. Research institutions can also provide governments with human resources who are well-versed in AI.

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