ISSA International Securities Services Association

The Future of Securities Services 2024 – 2030

September 2024

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Executive Summary

The International Securities Services Association (ISSA) is a global association that supports the Securities Services industry. ISSA's members include CSDs, custodians, technology companies and other firms actively involved in various aspects of the Securities Services value chain. By connecting its members and facilitating collaboration, ISSA provides the leadership necessary to drive change in the securities services industry. Its focus is on finding progressive solutions to reduce risk whilst improving efficiency and effectiveness – from issuer through to investor – as well as providing broader thought leadership to assist in shaping the industry's future.

This paper sets out the views of the ISSA Future of Securities Services Working Group on the strategic composite forces that are driving the industry and the trends underpinning those forces. Those composite forces are:

- Changes in investor behaviour.
- The impact of technology.
- The changing geopolitical environment.

The industry has already witnessed a turbulent start to the first half of this decade. Including:

- The global fallout from the COVID pandemic, including the impact on monetary policy.
- The adoption of T+1 settlement cycles in India and the Americas.
- Profit margin compression amongst the industry's institutional clients.
- The impact on the geopolitical environment from the ongoing Russian-Ukraine war, the more micro-Securities Services industry's response to sanctions, and the increase in cyber risks.

All these events put pressure on the profit margins of Securities Service Providers. However, working together as an industry, there is the opportunity to overcome these challenges and to mitigate the pressure on profit margins by embracing process and technological innovation (e.g., Artificial Intelligence, smarter algorithms, Digital Assets) and adapting to the changing needs of the wider client base. Nevertheless, the Securities Services industry will have to remain nimble and vigilant to navigate the constantly evolving landscape.

Report Objectives

The primary objectives of this report are as follows:

- In 2020, the original Future of Securities Services paper analysed ten forces and discussed how they might impact the Securities Services industry over a five to ten-year horizon. There is a need now to validate whether those forces have persisted and whether they have impacted the industry as predicted.
- Outline a set of key composite forces and view these through the strategic themes which are expected to impact the Securities Services industry out to the year 2030, hence allowing industry leaders to take informed actions.
- Foster collaboration among members of the International Securities Services Association (ISSA) in order to solve industry-level problems.

As with the 2020 Future of Securities Services paper, it is unlikely that all of the predictions made will occur during the timeline suggested, whilst similarly, some new forces, composite forces or strategic themes will no doubt arise during the same timeline.

Target Audience

The report is aimed at Securities Services industry participants, including market intermediaries such as custodians and brokers, asset managers, investment managers, issuers, market infrastructures, third-party providers (such as technology providers and outsourcers), other industry associations, governments and regulators.

Working Group Participation/ISSA Reviews and Approval

The approach taken and the terms of reference used were approved by the ISSA Operating Committee prior to the Working Group's (WG's) initiation, namely:

- To identify the evidence (or otherwise) for the forces, composite forces and strategic themes being seen.
- To analyse the impacts of new forces, composite forces and strategic themes.
- To issue a revision to the paper in order to incorporate the necessary changes in ISSA's outlook for the Securities Services industry.

Acknowledgements

This paper is the result of efforts by a team of experts drawn from ISSA member firms who participated in the Future of Securities Services Working Group. This team included board and operating committee members as well as other ISSA member firms. The names of firms that have participated in creating this report are provided in the Appendix. The ISSA Executive Board wants to thank the WG members for their contributions as well as their firms for having enabled their participation.

1 Foreword – Vicky Kyproglou, ISSA Chair

Three years have passed since the original Future of Securities Services paper. The ISSA Executive Board and members asked that a Working Group (WG) be set up to review that paper. Its task was to verify whether – or not – the original hypothesis had occurred or was still in progress, and to forecast the future impacts of key trends or forces on the direction of the Securities Services industry. In addition, the WG was asked to include any additional forces that it felt were significant for the Securities Services industry and to detail why.

Open the link to watch Vicky Kyproglou, Head of Network and Market Infrastructure Management UBS, discuss the objectives of this revision of 'ISSA's Future of Securities Services paper 2024–2030'[1].

That work is now complete and is presented in this paper. The output both validates, and feeds into, the ISSA agenda for 2024 onwards. The ISSA board, along with the CEO office, continues to actively manage ISSA's priorities and, as can be seen in the concluding section, ensures that the strategic themes for the industry identified match the core ISSA agenda.

The report is broken down into three sections:

1. The WG's review of the forces that were forecast and the addition of any new forces.
2. The reflection on the overriding composite forces: changes in investor behaviour, the impacts of technological change, and the addition of geopolitics as a third composite force driving the industry.
3. An assessment on whether ISSA's agenda is appropriately responding to these composite forces, as viewed through the lens of the updated strategic themes.

ISSA hopes that you will find the paper informative and enlightening and, as always, please feel free to provide feedback with your opinions.

[1] FoSS introduction, Vicky Kyproglou - YouTube

2 Part 1: Predictions & Revisions

2.1 Shift to Passive and ESG

2.1.1 What ISSA said in the 2020 paper

The needs of investors, together with the mix of services that they will look to consume, will define the growth and margins of different elements of the capital markets ecosystem. Over the long-term, ISSA expects that continued growth in passive and ETF structures will continue to lower overall fees in the asset management space by c.20% to c.38% by 2023. This shift will subsequently lead to lower revenues and potentially lower margins in the Securities Services industry but could involve a higher number of transactions.

ISSA expects that COVID-19 will lead to an acceleration in investments into ESG or sustainability-linked products. Investors are now more aware of the susceptibility of certain sectors to macro risks and will consequently shift their portfolios to become less vulnerable to future macro risks, such as climate change. Securities Services can support this transition by providing increased transparency and reporting services for ESG.

2.1.2 2024 Revision

The original forecast made in the Future of Securities Services (2020) has been proven accurate, as passive and exchange-traded funds (ETF) investing has continued to grow. As predicted, this has led to a lower overall total of fees available for all Securities Servicing Participants (SSPs). This has impacted growth and profitability and will continue to have a negative impact on revenue growth. This effect is presently masked by Net Interest Income (NII), which given the higher global interest rate environment, has had a positive effect on SSPs' reported earnings.

Investors have continued to increase assets in passive funds more than in actively managed funds. Passive investing, often through funds which track an index, minimizes the fees for the investor through executing a buy and hold strategy with minimal investment management overlays. There are now passive funds tracking thousands of indexes, many in the form of ETFs, and net assets held in passive funds now exceed those held in active funds. There is USD 13.3 trillion held globally in passive funds with USD 8 trillion in passive US equities trackers alone (December 2023) – see Morningstar chart below.

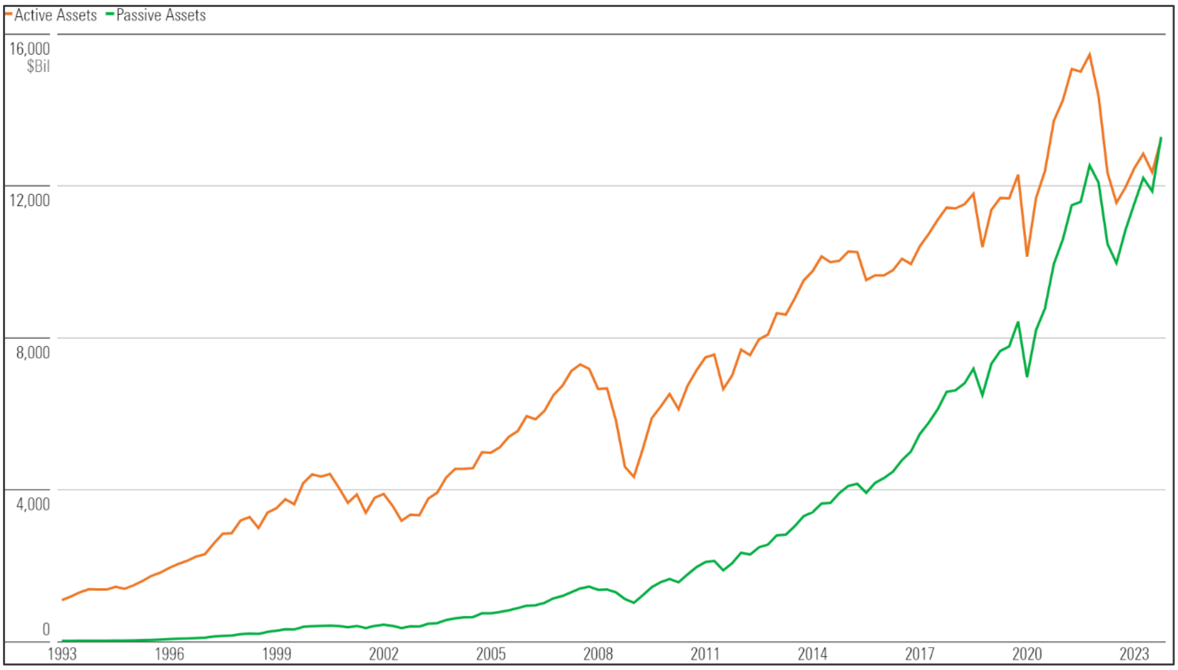


Figure 1: It's Official: Passive Funds Overtake Active Funds | Morningstar

The bull market and the apparent good value returned by passive investing have attracted new investment into the capital markets. The continuing rise of passive investment funds reflects their outperformance compared to active funds. The lower fees they charge is a significant factor in this outperformance. In 2023, the success of passive investment funds was further accentuated by the rise of the 'magnificent seven' technology firms and investors moving from short-term money market funds (almost always active) into longer-dated bond funds (more often passive).

There is a debate as to whether passive investment impacts the efficient allocation of capital. Given that many passive funds track the major indices – or their constituent elements – passive investment has probably resulted in both the diminished activity in small-cap stocks and in the reduction in their value.

It is likely that the rise in the proportion of assets allocated to passive investing will continue, even if passive and active investing become less distinct terms, as fund managers use both AI and smarter algorithms to drive investment decisions.

This has important implications for Securities Services, since passive funds:

- **Reduce fees.** Whilst passive and active funds make similar demands on SSPs, the shift to passive funds – and to ETFs – drives down fees throughout the industry and results in the need for increased automation, digitalization, efficiency and economies of scale.
- **Hold less cash.** Typically, passive funds are less likely to have large cash balances at custodians, reducing the NII. However, due to their buy and hold nature, they can generate additional returns by lending securities, thus enabling even lower fees to investors, but increasing the activity at the SSP level.
- **Transact less.** It was once assumed that index tracking might lead to increased transaction volumes as even small investments could cause multiple executions requiring continual rebalancing. It turns out that this increase has been capped by a netting effect as more investment has been concentrated in the mega-cap stocks whilst being less dispersed across mid and small-cap stocks. Furthermore, passive funds aim to buy and hold – they do not churn their investments but only react to index rebalancing. Additionally, investors can buy and sell units without the fund's involvement resulting in no portfolio movements at the SSP level.

An obvious conclusion is that in order to remain as profitable as in the past, the asset managers and providers of Securities Services for passive funds need to generate further scale efficiencies.

Environmental, Social and Governance investing (ESG)

ESG and impact investing are still on the rise. Driven by demand of retail investors, the managers of funds increasingly seek to invest in companies, issuers and projects which are aligned with their clients' values. Thus, institutional investors' commitment to net zero, impact investing and active ownership is increasing. All aim to achieve positive social or environmental outcomes alongside economic returns. This increasing interest is being driven by regulation, reputational risk and client demands. There has been some significant pushback against ESG initiatives in certain countries and it is not clear whether this trend has yet peaked. The ISSA Working Group notes that there are nuances between the 'ES' and 'G' elements of the investment trend, with better governance receiving support in all regions. The ESG Standards subgroup of the Standardization Working Group has created two key documents to support the understanding and education of ISSA members on the topic of ESG. The first is a glossary of ESG terms and the second is a document providing links to non-ISSA ESG collateral.

You can find these documents below:

- Glossary[2]
- Resource Centre Document[3]

A sustainable investment strategy introduces new factors to investment decisions. It involves screening potential investments to avoid companies with – what may be viewed as – negative social or environmental exposures, or unsustainable strategies. This is causing investment strategies to keep growing in complexity, from initially looking at ESG scores, to adding climate metrics (e.g., carbon footprints) and to now considering impact investing (aimed at measuring positive contributions).

The impact of this new style of investing on the Securities Services industry is two-fold:

- **There is a whole new set of client demand for data**. Although investors regard inconsistent, incomplete and expensive data as a significant barrier to ESG investing, recent surveys have shown that most investment firms integrate ESG data into their portfolio decisions.
- **This trend is consistent with increasingly active ownership.** Companies want their investors to know more about their activities, including their ESG credentials. In turn, investors want to participate more in the decisions made by the companies which they own, whether their ownership is direct or via a fund.

2.1.3 Looking Forward

The custody ownership chain has been constructed to ensure asset safety, efficient asset servicing and efficient settlement, not to provide the most effective two-way communication required for good corporate governance. The fast and efficient flow of information throughout the custody chain will increase in importance with the added benefit of transparency of beneficial owners to issuers. The Securities Services industry needs to adapt.

The Securities Services industry needs to change to meet the needs of investors who are not only interested in the economic return of their investment. Some of the existing participants will develop to meet these challenges. However, new entrants are starting to provide many of the required services and existing Securities Services firms will have to learn how to work with them.

2.2 Expansion into new asset classes

2.2.1 What ISSA said in the 2020 paper

A shift from public to private [assets], fractionalization and a shift to digital [assets] will have far reaching consequences for the capital markets ecosystem which is largely built on the back of trading of traditional public assets.

The past decade saw an unprecedented shift from public asset classes into private and alternative assets. ISSA expects this trend to continue as lower interest rates continue to encourage investors to increase their allocations towards private and alternative assets in order to generate additional yields. ISSA foresees that the growth in alternatives will expand to additional asset classes (e.g., infrastructure and natural resources). Fractionalization and tokenization will increase the fungibility and liquidity of alternative assets and fuel further growth.

[2] https://issanet.org/content/uploads/2024/02/ISSA-The-Securities-Services-ESG-Glossary-2023-FINAL.pdf

[3] https://issanet.org/content/uploads/2024/02/ISSA-ESG-Standards-Resource-Centre-2023-Dec.pdf

Digital assets are experiencing increasing demand from investors and the industry is steadily developing new products, services and infrastructures for the digital asset ecosystem. This will open new growth paths with attractive margins for Securities Services participants who can afford to invest in the required infrastructure and risk management but leave others with a shrinking pool of assets under custody and administration in traditional assets. ISSA expects that only those firms able to invest heavily on their own or via partners will be able to grow in the new scenarios that ISSA has forecasted.

2.2.2 2024 Revision

The forces which ISSA identified in 2020 – a shift from public to private and move to digital – continue to play out in 2024, although the pace of change has not been as quick as ISSA originally anticipated. There are several factors impacting the move to digital assets:

- Regulators have expressed concerns that need to be addressed in some major markets.
- New regulations have significantly increased the costs of addressing certain digital asset use cases.
- Investment and take-up have not been equally distributed throughout the world, and with the recent advances in AI, a significant amount of venture capital has already moved in that direction.

There have been successes across capital markets. Multiple projects have:

- Significantly shrunk issuance timeframes.
- Accelerated settlement.
- Tokenized assets to improve post-trade workflows such as in collateral management.
- Driven efficiencies for certain use cases for equity and fixed income.

New digital assets and workflows are being created, alongside distributed ledger and smart contract initiatives, which have resulted in substantial improvements to the lifecycle of traditional assets. These successes have not yet led to the attainment of sufficient liquidity thresholds and volumes in order to enable real traction within any particular asset class.

It is the WG's conjecture that digital assets will grow to make up a larger proportion of the investment universe. In the next six years, the WG does not predict the wholesale move of the equity or fixed income markets to digital assets. However, use cases will continue to develop and spread the impact of digital assets across capital markets, enabling acceleration in the growth of new asset classes. Therefore, SSPs will need to meet the challenge of managing blended holdings and the complexities of providing asset services over a much wider range of asset classes on both legacy technology stacks – to access existing liquidity pools – and stacks developed specifically for digital assets. The ability to innovate, extend and interoperate across decentralized finance and traditional finance solutions and digital and legacy infrastructure will become increasingly critical and will require knowledge gained from prior initiatives. A deeper understanding of the challenges and success factors can help to shape the scope and time to market of new projects. Detail and insights on these key lessons learned is available from ISSA's recent Distributed Ledger Technology Project Best Practice Report.

Open the link to watch Caroline Butler, Global Head of Digital Assets, BNY, discuss 'Expansion into new asset classes'[4].

[4] FoSS Caroline Butler - YouTube

In addition to the innovation in the equity and fixed income space, use cases within alternatives are also emerging. Tokenization is expected to broaden investor access to alternatives[5].

Alternative Assets are experiencing a surge in investor demand. In particular, interest in private assets (equity, debt, and real assets) has accelerated, with AUM expected to increase from USD 10.3 trillion to USD 15.1 trillion by 2026[6]. Growth factors include:

I. **Companies are turning to private markets for essential capital**, especially with firms staying private for longer[7] and the ongoing decline in venture capital investing[8].

II. **Investor interest**, as private asset returns are widely expected to outdistance public markets over the next several years. For example, private credit is expected to return a projected 8.3% over the next five years, versus 5.3% for the S&P 500[9]. Given the increasingly positive correlation between equity and bond returns[10], institutional investors plan to raise allocations to private assets. Fidelity notes that 86% of institutions invest in alternatives, with an average allocation of 23% and the most exposure in private assets[11].

ISSA identified many pain points associated with the processing of private assets in its 2022 exploration of private markets[12], including extensive manual processing, long settlement cycles, the lack of DvP settlement, slow inefficient asset servicing and more. Tokenization and digital assets can potentially address many of these pain points, ultimately supporting a broader investor base, greater volumes and enhanced liquidity. The promise is that by using distributed ledger and smart contracts, data can be standardized and shared across multiple participants on a permissioned basis, multi-party workflows and complex processes will become streamlined, transactions will be synchronized to unlock value more quickly, and transparency and auditability will improve. ValueExchange research shows that distributed ledger and tokenization can theoretically remove months from issuance, weeks from settlement, and enable secondary markets[13].

"Used well, tokenization can not only deliver operational efficiencies across the trade lifecycle – but can also drive liquidity and bring issuers and investors closer together, creating new networks of private investment flows."

The ValueExchange Private Markets Factsheet, 2023

A note on the advent of Central Bank Digital Currencies (CBDC)

ISSA does not believe the issuance of true CBDCs for leading currencies is a necessary success factor for the growth of digital assets (see DLT In the Real World Survey 2024[14] results). However, the pace of digital asset adoption could be

[5] How Tokenization Can Fuel a $400 Billion Opportunity in Distributing Alternative Investments to Individuals, Bain & Company and J.P. Morgan, 2023

[6] Distributed Ledger Technology and Private Markets, Broadridge, 2023

[7] As Companies Stay Private Longer, Advisors Need Access to Private Markets, Nasdaq, 2022

[8] Venture capital investment continues YOY decline in November , S&P Global Market Intelligence, 2023

[9] Still Keeping it Simple, KKR, 2023

[10] The correlation of equity and bond returns, BIS, 2023

[11] Allocations to Alternative Investments White Paper , Fidelity, 2023

[12] Private Markets – Call to Action, ISSA, 2022

[13] Private Markets Factsheet, The ValueExchange, 2023

[14] https://issanet.org/content/uploads/2024/08/DLT-in-the-Real-World-2024_ValueExchange-key-findings_v2.pdf

significantly accelerated if a leading national economy's central bank were to issue a wholesale CBDC capable of being used to trade a wide range of asset classes. According to the Atlantic Council's Central Bank Digital Currency Tracker[15]:

- Nineteen of the Group of 20 (G20) countries are now in the advanced stages of CBDC development.
- Countries that have fully launched a CBDC include the Bahamas, Jamaica, and Nigeria.
- There are thirty-six ongoing CBDC pilots, including the digital euro. The European Central Bank (ECB) is now in the preparation phase, conducting practical tests with some transactions being settled in a controlled environment. The digital euro is in a two-year preparation stage, ending in 2025.
- As the largest CBDC pilot in the world, China's digital yuan (e-CNY) currently reaches 260 million wallets across twenty-five cities.

The introduction of CBDCs by leading economies could remove the complexity of on- and off-chain (DLT) movements of the cash leg of securities transactions. This could increase the adoption of tokenization for securities which could lead to efficiencies in both domestic and cross-border trading of securities. It could enable several types of T0 settlement on a 24-hour basis and become the impetus, not just for accelerated adoption of various digital asset classes, but also for the development of a new fully digital technology platform underlying all capital markets.

2.2.3 Looking Forward

As more individual solutions come to market for public or private asset classes, a broader set of challenges is emerging. Like the in-market production applications of today, future use cases will deliver real-world benefits in terms of greater operational and capital efficiency, faster processing and settlement, and lower risk and cost. They will also expose a new set of challenges:

- A more complex servicing environment where traditional, tokenized, and natively digital assets co-exist.
- The risk of a new type of fragmentation, where individual solutions deliver benefits to a subset of participants or within a particular segment of trading/post-trade activities but cannot be more broadly extended or connected to achieve greater value or efficiency.
- The ability to handle higher volumes with the security and privacy demanded by regulated financial markets and market participants, including competitors and clients.
- Evolving, and increasing, regulatory scrutiny that differs by asset and jurisdiction.
- Support for innovation, which could include developing new assets/structures, reaching new investors, or creating solutions to address opportunities revealed as markets become more automated and efficient.

Looking forward to 2030, the WG expects the value from tokenization and digital assets to increase, bringing substantial benefits and innovation to alternatives, especially private asset classes. In addition, as stated in Section 2.11 'Accelerated Settlement', momentum on digital asset issuance and CBDCs – building on the success of the move to T+1 settlement in major global equity market centres – may lead to a serious exploration of moving to some form of T0 in traditional capital markets, a move that may lead to mass adoption of DLT in that industry, but probably not before 2030. As innovative solutions remediate the legacy challenges of those markets, the WG believes that the ability to interoperate and connect between platforms in order to extend value more broadly across capital markets will come into sharp focus as a key priority in the coming years.

[15] https://www.atlanticcouncil.org/cbdctracker/

DLT growth by ecosystem

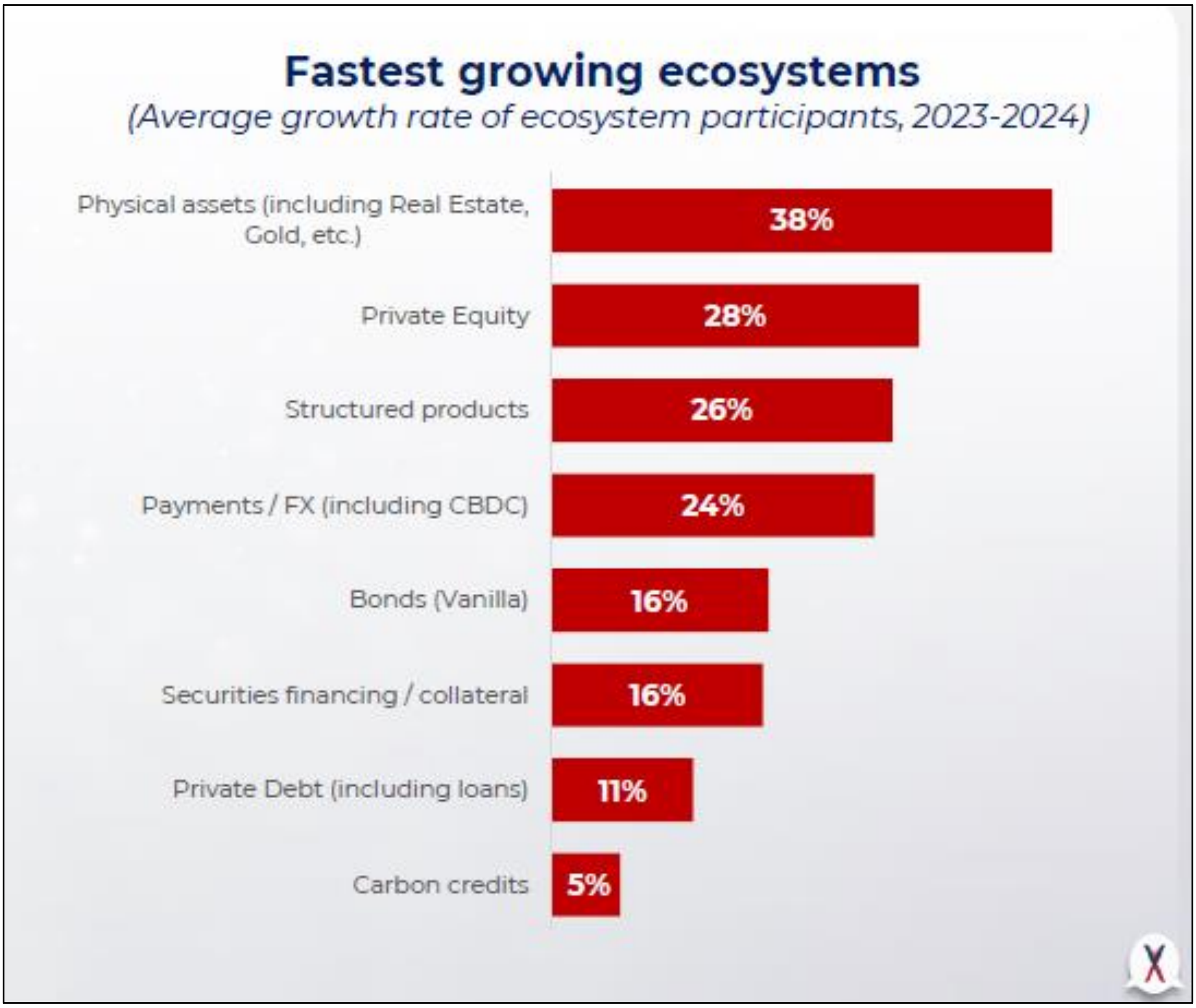


Figure 2: DLT In the Real World Survey 2024 | ISSA

Private Markets' AUM breaks new ground

Until recently, private market strategies (i.e., private equity private debt, etc.) were attracting record amounts of money. Despite fundraising slowing down due to the underlying macro conditions, data from Broadridge still indicates that assets under management (AUM) controlled by private market funds could increase from USD 13.4 trillion to USD 19.0 trillion by 2026.

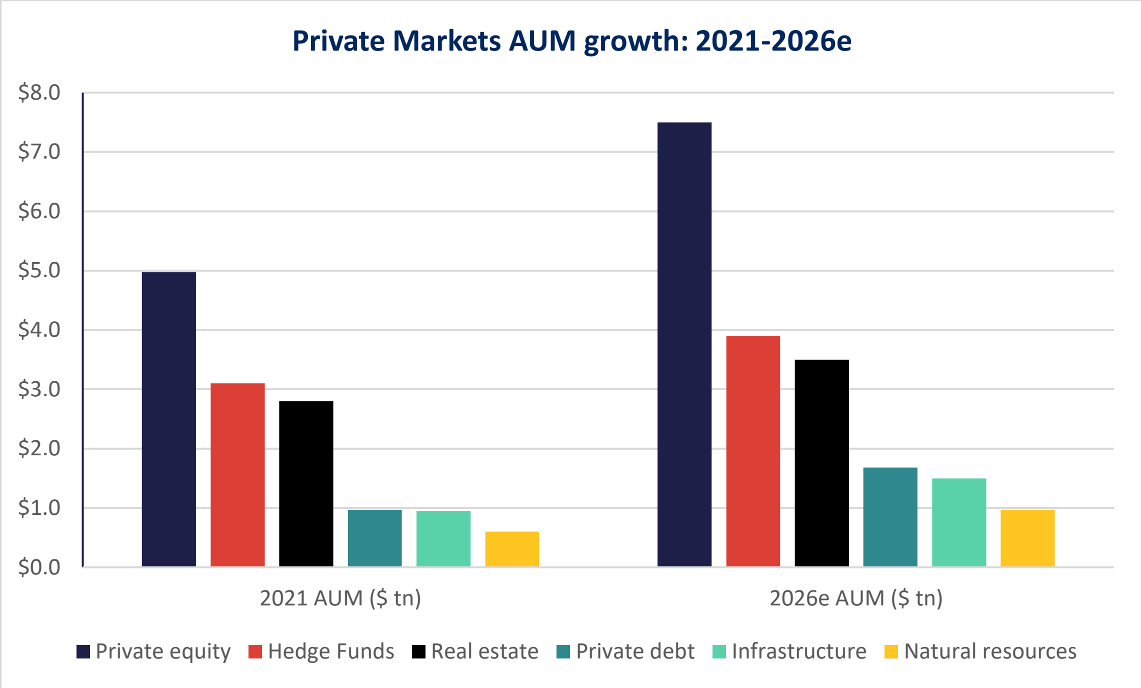
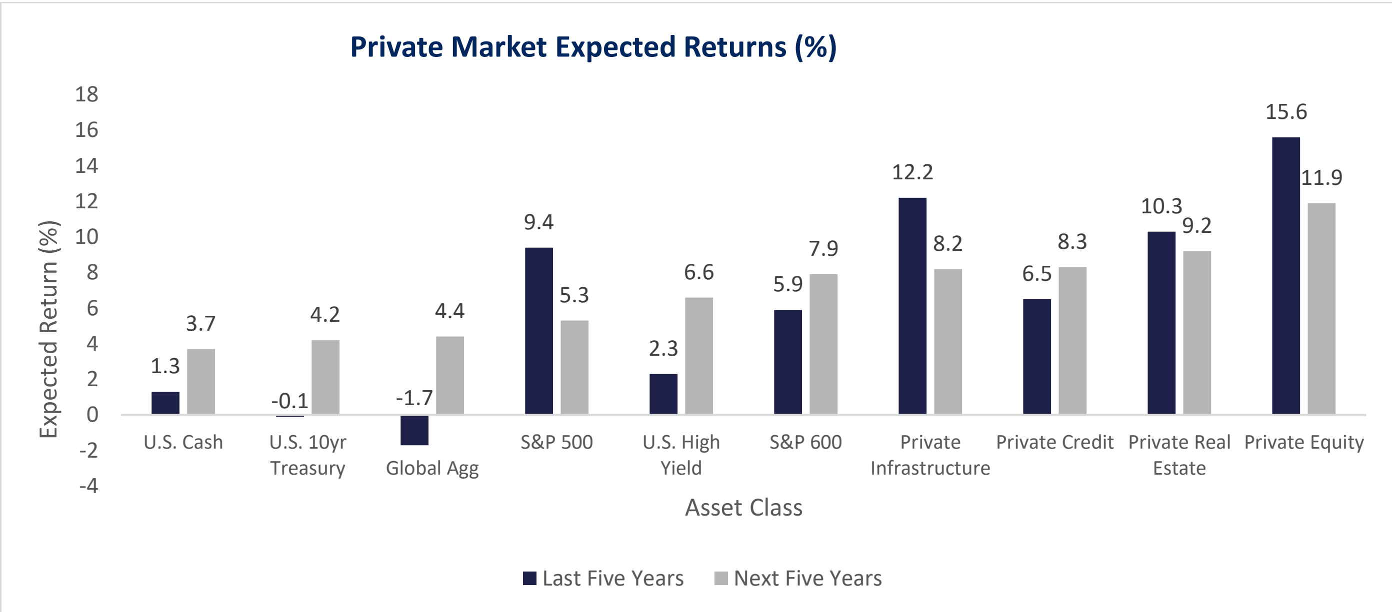


Figure 3: Global Demand Model | Broadridge, 2024



Note: Capital markets assumptions are average across all quartiles annualized total returns.
Forecasts represent five-year annualized total return expectations. Last five years' through 4Q22 due to limited data availability.
For private asset classes (Private Credit, Private Infrastructure, Private Real Estate, and Private Equity), returns are next of Fee/Carry
Note that we have altered our Private Credit methodology to exclude fund-level leverage, which has lowered total return on a go-forward basis.
Data as at May 31, 2023. Source: Cambridge Associates, Bloomberg, KKR Global Macros, Balance Sheet and Risk analysis.

Figure 4: Mid-Year Update 2023 | KKR

2.3 Financial deepening and globalization

2.3.1 What ISSA said in the 2020 paper

The evolving and shifting distribution of wealth globally and the levels of cross-border securities transactions are impacting the capital markets ecosystem. Growth in Emerging Markets (EMs) – specifically Asia and Latin America – will increase local savings and provide fuel for the growth of assets in the coming years. Investors in developed markets will increasingly invest in EMs, whilst EM investors will increasingly invest 'at home' as local market infrastructure and capital markets develop. As a result, net flows into EMs are increasing. The COVID-19 pandemic provided a setback both for wealth creation and cross-border transactions, but ISSA expects the general trend to remain intact over the long-term. This trend will negatively impact Securities Services firms that fail to build up a global business model with an integrated EM footprint, whilst Securities Services firms with a truly international reach will benefit in relative terms from higher levels of assets under custody and cross-border transactions. Financial deepening in developed markets – specifically in Europe – has not occurred in a meaningful way over the last decade, with projects such as the EU Capital Markets Union (CMU) yet to deliver the desired results.

2.3.2 2024 Revision

Financial deepening refers to increasing the reach of financial services to more segments of the population, both within nations and across the world, ultimately reaching members of all socioeconomic groups. The WG believes that the financial deepening trend continues, while the globalization trend identified also continues, but with significant geopolitical headwinds, including those playing out in the elections in major economies.

Are decoupling, deglobalization and regionalization really happening? To measure the depth of globalization by comparing the growth of international flows to the growth of domestic economic activity, the DHL Global Connectedness Index was developed by a team at the NYU Stern Center for the Future of Management[16]. Their findings were as follows:

- The report examined eleven types of trade, capital, information, and people flows, and found that the U.S. and China had both substantially reduced their flows with each other since 2016. The share of U.S. flows that were to, or from, China declined in eight out of eleven categories, falling on average from 9.3% to 7.3% (weighted average using our index's flow weights). The share of China's flows with the U.S. fell in seven of ten categories, dropping on average from 17.8% to 14.3%. The extent of U.S.-China decoupling, however, should not be overstated. The U.S. and China are still connected by larger combined trade, capital, information and people flows than any other pair of countries without a common border. Furthermore, the dollar value of trade between the U.S. and China grew to a record high in 2022.
- The flows of countries considered to be U.S. aligned with China did not indicate a significant decoupling of the world economy into rival blocs. Countries aligned with the U.S. and China have not meaningfully reduced the shares of their flows with the rival bloc.

[16] https://hbr.org/2023/07/the-state-of-globalization-in-2023

ISSA further explored areas of globalization and financial deepening that particularly impact the service providers in the capital markets, namely:

- AUM of global markets.
- Wealth growth.
- Cross-border capital flows.
- Retail participation in capital markets.
- Products and solutions which facilitate financial deepening.

Global AUM to rebound and APAC and emerging markets to set pace of growth.

As per PwC's 2023 Global Asset and Wealth Management Survey[17], global AUM is set to rebound, with AUM forecast to reach a base case of USD 147.3 trillion by 2027, representing a compound annual growth rate (CAGR) of 5% (see chart below). Asia-Pacific, along with emerging markets in Africa and the Middle East, will set the pace. In PwC's base case scenario, growth rates in Asia-Pacific will be roughly 50% higher than in North America by 2027. Historically slow industry expansion in the Middle East – due to complex regulatory environments – is expected to pick up as asset and wealth management organizations seeking new markets for revenue growth will have renewed impetus to make inroads into these highly valuable regions.

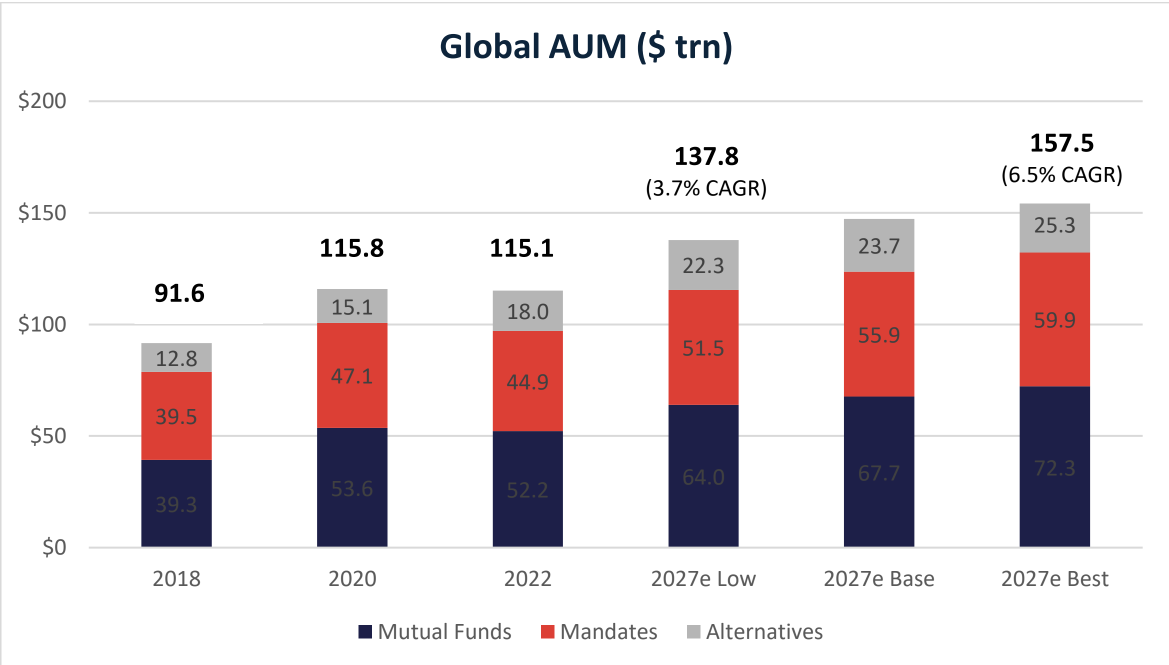


Figure 5: Asset and wealth management revolution 2023: The new context |PwC

[17] https://www.pwc.com/gx/en/industries/financial-services/asset-management/publications/asset-and-wealth-management-revolution-2023.html

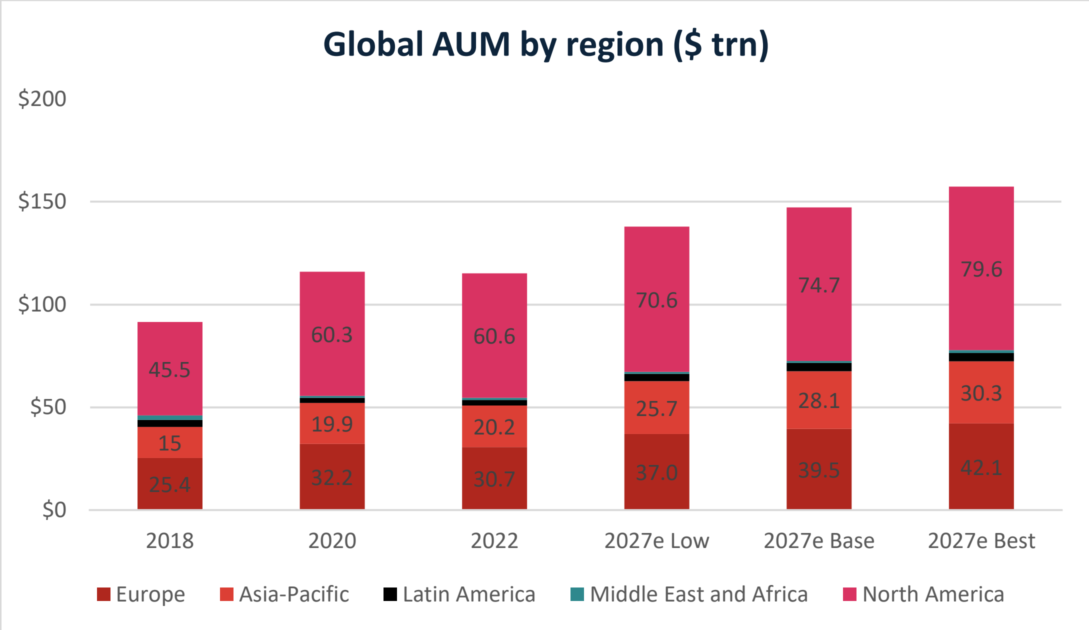


Figure 6: Asset and wealth management revolution 2023: The new context | PwC

Wealth Growth

As per the UBS Global Wealth Report 2023, *"…the emerging economies have contributed greatly to global wealth growth since the beginning of this century. Consequently, their share of world wealth has increased: between 2000 and 2022, the wealth share of emerging economies more than tripled from 7% to 25%. Emerging economies recovered from the below-par performance during the pandemic and regained momentum in 2021 and 2022, which we expect to continue over the next five years, further narrowing the gap with the developed world."* It forecasts that the middle-income countries will account for about 43% of wealth growth over the next five years and that their wealth share will climb to 30% by 2027.

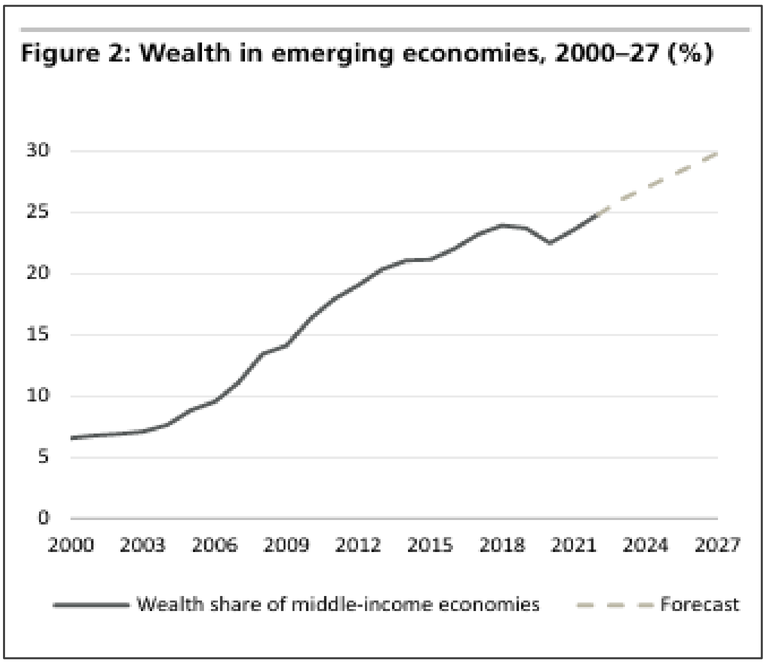


Figure 7: UBS Global Wealth Report 2023[18]

[18] Global Wealth Report 2023 – in-depth data on wealth around the world | UBS Global

Cross-border capital flows

An independent analysis of the portfolio flows published by the IMF[19], revealed that while cross-border flows on an aggregate basis have grown from USD 61.1 trillion in 2017 to USD 69.7 trillion, the flow from developed markets to emerging markets has contracted from USD 30.6 trillion to USD 8.5 trillion. This may be an interim consequence of the geopolitical frictions that are currently in play, but one needs to closely track the flows across years to see whether capital flows also mirror the underlying globalization of trade flows. The opening up of frontier and emerging markets to foreign investors may therefore be a function of the USD interest rates rather than a long-standing investment philosophy or the globalization of the investors.

Products and solutions that facilitate financial deepening

As bond yields have risen, the same Fintech participants who are helping to ease market access in equities – thereby lowering the cost of retail trading – are now focused on improving access to fixed income asset classes. Several participants already offer this to retail high net worth (HNW) investors and will be expanding into other retail segments.

There is an effort to provide access to retail investors where ticket size and net worth were previously barriers to entry. For example, bonds are now being tokenized to fractionalize bond holdings by Fintech participants. Custodians then provide settlement and custody services to their clients trading fractionalized bonds. Also, securities lending – which has historically been the forte of institutional participants – has found retail participation in markets such as Brazil. FinTech's are democratizing lending by providing wealth managers, custodians and agency lenders with a platform whereby the small ticket lending activity of retail investors can be aggregated to be lent to larger institutional borrowers. Similarly, there is a growing trend in asset allocation to private assets by retail investors and asset managers have focused on fund offerings that cater to the retail appetite for alternative investments. The advances in deploying technology underlying digital assets – as referenced in Section 2.2 of this paper on the trend in the 'Expansion into new asset classes' – may be an enabler of growth in this area.

2.3.3 Looking Forward

The continued deepening in financial markets is evident from the above data sets in the areas described above in Figures 5 through 7. ISSA expects SSPs to continue to focus in the following areas through 2030 and potentially beyond:

I. All capital market providers will have to evolve their product suite to cater for a new retail investor ecosystem. SSPs must develop solutions to cater to this accelerated democratization, particularly across fractionalized bonds, tokenization of private assets and other new asset classes held by retail investors (e.g., crypto, NFTs etc.)

II. The services will need to be focused on asset aggregators and, in some cases, they must transcend the traditional silos to provide the essential framework to service the beneficial owners of these aggregators.

III. Multi-market SSPs will have to continue to deal with and provide solutions to comply with the complex and fragmenting market rules and regulations.

[19] Source: IMF Data – Consolidated Portfolio investment summary (CPIS) |https://data.imf.org/?sk=b981b4e3-4e58-467e-9b90-9de0c3367363&sid=1424963554286

2.4 Increased adoption of new technology

2.4.1 What ISSA said in the 2020 paper

Innovation in underlying technology is driving change across the capital markets ecosystem. Some firms in the industry do not have the advanced capabilities in new technologies that could be needed to deliver the services clients may want, exposing them to a risk of disruption from Big Tech participants. New technologies are on the brink of moving from the experimentation to the adoption stage, but implementation will require incumbents to fund significant upfront investments before reaping the potential long-term. In recent years, many capital markets participants in the banking and market infrastructure space have made inorganic investments to bring new technological capabilities in-house.

For Securities Services, the most tangible use cases for new technology (e.g., robotic process automation, artificial intelligence/machine learning) are aimed at increasing the efficiency of highly operationally intensive processes and can ultimately help to lower the industry cost base. However, experience has shown that cost savings are often passed on to clients, resulting in stagnant or even lower overall industry margins over the long-term. This could adversely affect smaller participants who lack the required scale or who fail to adopt new technology to reduce their cost base. More innovative technology has yet to be widely adopted and deployed at scale (e.g., DLT), but in theory, has the potential to disrupt core industry processes.

2.4.2 2024 Revision

Since the 2020 Future of Securities Services paper, the industry has moved explicitly forward from merely innovating to the concrete adoption of – what some in the industry term as – the ABCDEFGs of digital transformation: APIs, Blockchain, Cloud, Data, Efficiency ecosystem, Fifth generation programming language and Generative artificial intelligence (Gen AI). This trend is set to continue.

Open the link to watch Philip Brown, CEO of Clearstream Banking SA, discuss 'Increased Adoption of New Technologies'[20].

[20] FoSS Phil Brown (youtube.com)

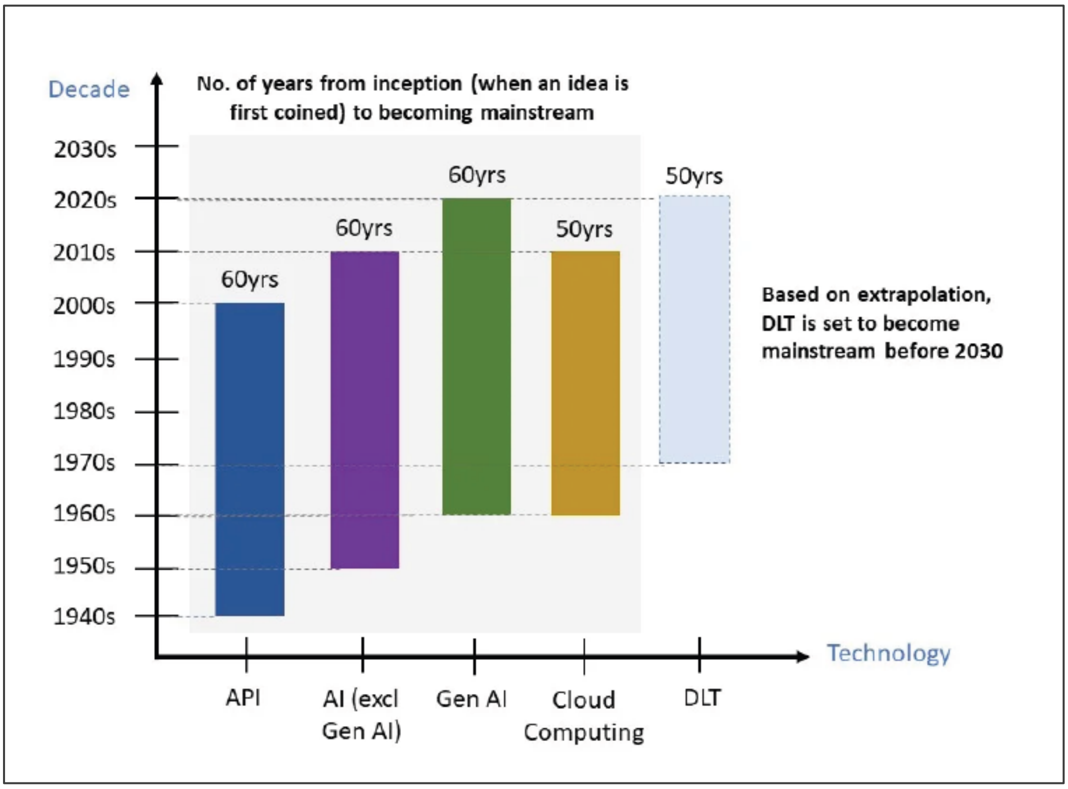


Figure 8: Deutsche Bank Securities Services Research 2024

Application Programming Interfaces (APIs) have become the cornerstone of the industry's future-state architecture. The ability to provide real-time information, integrated across counterparties – which in turns helps clients garner insights – has catapulted API adoption. Almost all SSPs today have a suite of APIs to integrate with their clients, partners, market infrastructures and other stakeholders. By 2030, API usage might even lead to new ways for custodians to charge their buy-side clients – for data pulled or pushed via API calls – rather than relying so extensively on the traditional safekeeping, transaction, or per fund fees.

Blockchain (aka Distributed Ledger Technology) is moving forward, though not perhaps at the speed some early adopters had predicted. While the initial premise was that DLT would replace the legacy stack, it has now become the backbone of how digital asset custodians operate and will clearly need to interoperate with the legacy technology stacks of all capital markets participants. According to the latest GDF, ISSA and Deloitte report Digital Asset Custody Deciphered: *"Evolution in technology and the growth of the DAC market will drive standards creation and adoption across the market, and regulation will follow or evolve in jurisdictions where it has begun. Investors must take heed of these evolutions and seek to understand how it may influence the terms of their contractual agreements with their custodians and the safety of their assets in custody."* ISSA does not believe that the systems developed by SSPs for digital assets will replace those for processing traditional assets anytime soon. Thus, the future belongs to those who will be able to bridge the gap between the processing of traditional and digital assets.

The cloud is now ubiquitous and has become the catalyst for a wave of technologies going mainstream – Artificial Intelligence (AI), Machine Learning (ML) in its many forms, Natural Language Processing, chatbots, et al. Virtually every firm in the industry now has multiple cloud providers, featuring a marquee cloud provider partnership – see Section 2.8 on the trend for 'Increased Sourcing and Partnerships'. The cloud promises to transport data from one location to another, allowing instant movement from one device to another – akin to the famous 'transporters' in the sci-fi Star Trek series. Furthermore, service providers can leverage the cloud to provide large data sets to their clients. These can be combined by clients with their own proprietary data and then fed into advanced data analytics tools to drive insights for themselves and their clients. On the flip side, it is important to analyse the implications of relying on an infrastructure that is still evolving and faces multiple challenges, especially on how secure it really is?

Resilience for financial institutions is of paramount concern to the public sector and this encompasses the partners it uses for critical services, including providers of cloud services.

Open the link to watch Paul Maley, Global Head of Securities Services, Regional Head of Corporate Bank (Americas), Deutsche Bank, discuss 'Custody in the Cloud'[21].

Data (see Section 2.6 on 'Increased Data and Associated Use Cases') is the new 'oil', yet the industry has mixed results when it comes to the basics of advanced data management – archiving, backups, cleansing, enrichment, encryption, extraction, lineage, governance, mapping, privacy and provenance. All this is a necessary foundation for achieving Data as a Service (DaaS): access, advanced data analytics, a shared standard data dictionary, blending, feeds, lakes, masking, modelling, striping…etc. – there are a veritable ocean of different terms that can be used. SWIFT – the industry utility for securities and payments messaging – is taking steps to help participants manage, transfer and visualize data related to securities. By end of the decade, the expectation is that this will be an area ready for a high degree of mutualization.

Efficiency, especially of operations, has been a success, driven ever onwards by the bourgeoning ecosystem of Fintech partners who are specialized in slivers of the industry's ecosystem, from account opening to offboarding and from no-code/low-code automation to chatbots. Thus, product managers are shifting away from the traditional 'build' approach to a white-labelled 'partnership' model, relying on industry experts to streamline day-to-day operations, enabling them to pivot to focus on leveraging and further monetizing their core competencies. Automation, in the pursuit of efficiency, will see rapid adoption over the rest of the decade and the industry is not far away from the day that a fully digital asset servicing provider emerges and becomes relevant.

Fifth generation programming languages must be at the heart of the industry's future transformation, yet at the heart of the industry today is the mainframe which is capable of large-scale processing, managing the spikes in market volumes – and its needs for resilience – with panache. In reality, these are archaic platforms on old code supported by a dwindling supply of developers. There has never been a more opportune moment to become a 'data and digital native' – this is the industry's opportunity to seize the strategic advantage.

Artificial Intelligence (AI). The rush to implement Generative Artificial Intelligence (Gen AI) has taken over the industry. The potential of even recent Gen AI advances – especially in Large Language Models (LLMs) – is not yet fully understood but is expected to be significant. The industry can already see the day-to-day application, such as when word suggestions pop up on an e-mail draft, including updated content and ideas. It is not hard to imagine a world where a client's query is answered by AI-driven machines, or better still, the reason for the query is made redundant because of the front-to-back integration with AI. The Gartner Hype cycle is still in the 'peak of inflated expectations', but it is not hard to believe that investment in AI will be a significant feature of the next decade. Some use cases will work well and provide a return on investment (ROI) whilst others will not.

AI has made considerable progress in recent years with advances in machine learning, natural language process and processing power. The recent advancements in AI, particularly with the introduction of LLMs in the market, have democratized access to AI technology by providing a user-friendly interface to allow individuals to interact with data and AI models through simple human-readable prompts and responses. This has enabled people without extensive technical expertise to harness the power of AI, unlocking new possibilities for creativity, problem solving and innovation. AI is expected to significantly improve efficiencies, reduce costs and improve the customer experience.

[21] FoSS Paul Maley (youtube.com)

An example in fraud detection is SWIFT's enhanced Payment Controls Service[22], which uses an AI model trained using historical patterns of activity over the SWIFT network to create a more nuanced and accurate picture of potentially fraudulent activity. An example in post-trade securities processing is Broadridge's OpsGPT[23] which applies Generative AI and an LLM to analyse transactions, settlements and positions data to provide clients with a tool for faster fails resolution as the industry looks to accelerate settlement cycles.

There are considerable risk elements concerning the adoption of LLM and AI that are not yet fully understood. These range from the simple, such as bias and transparency of the models, through to complex areas including privacy and cyber risks. These need to be understood and managed to ensure that the industry is not positioning itself for the 'unknown, unknowns'. However, given the massive level of investment in AI across all industries, the cumulative return for capital markets and Securities Services from this technology may be the greatest of all the new technologies.

Despite the potential of the digital alphabet soup, multiple challenges abound. These include replacement of legacy infrastructure, navigating the constant shifts in the pace of globalization, (see Section 2.3 on 'Financial Deepening and Globalization'), the level of investment to ensure technology adoption and the time it takes to build up the required new competencies (see Section 2.5 on 'Industry Disruption by Big Tech'). A foundation for leveraging AI to drive increased organizational performance is to establish the right governance, security, and high level of data quality for all the firm's data. This must go hand in hand with permissions to access and use the data. There is significant risk of multiple ecosystems evolving in parallel which eventually create an expensive labyrinth that will prove even more difficult to untangle than the current quasi-digital stack.

Open the link to watch Johnna Powell, Managing Director of Technology and Innovation of DTCC, discuss 'AI Applications in Capital Markets and Securities Services'[24].

[22] https://www.swift.com/news-events/news/harnessing-ai-fight-against-payments-fraud

[23] https://www.broadridge.com/press-release/2024/broadridge-launches-genai-powered-opsgpt

[24] FoSS Johnna Powell (youtube.com)

How technology shapes industry trends

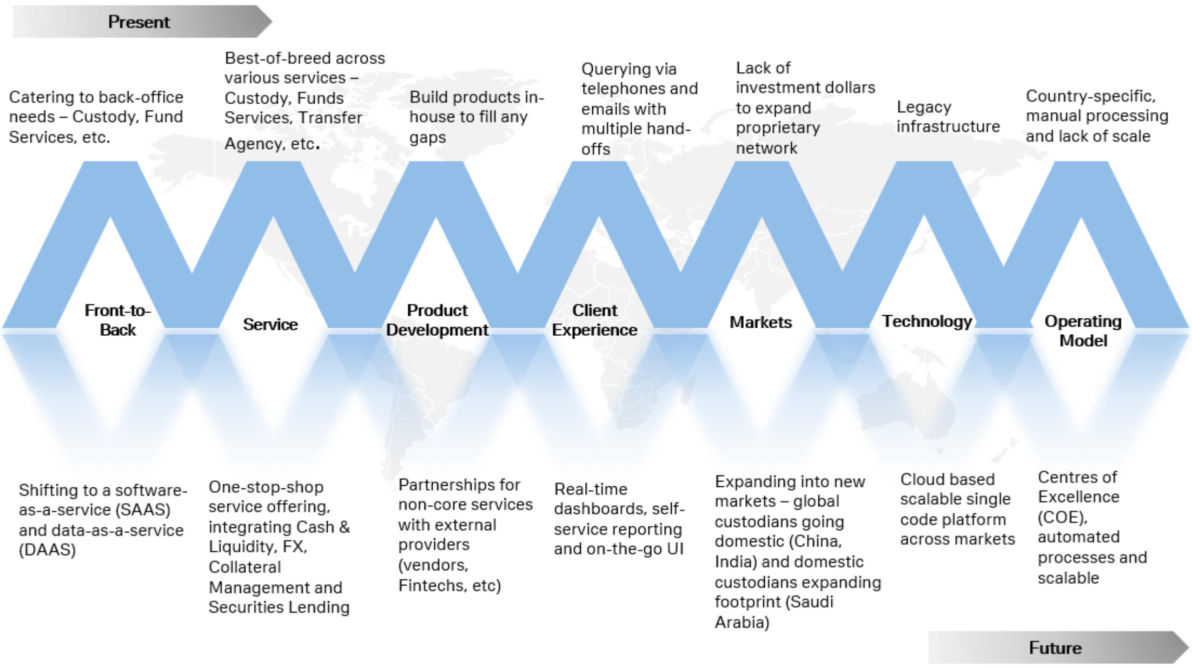


Figure 9: Deutsche Bank Securities Services Research[25] 2024

2.4.3 Looking Forward

In summary, SSPs have realized that their clients demand transparency of their requests, immediacy of their transactions, responsiveness to queries and access to insights from experts. The only way to achieve the full automation of Securities Services is by digitizing every record, digitalizing the client lifecycle, and using all the digital tools (ABCDEFGs) to enable digital transformation.

Several firms in the financial services industry have already made significant investments in AI. Some have created customer LLMs and customer-facing AI-driven co-pilots/chatbots. AI will continue to play an increasingly important role in securities servicing and the broader financial services industry. This will include providing improved customer experience through hyper-personalization and 24/7 support. While the early focus will be on driving down the costs of delivering products and services to clients, applying AI should also lead to improved management decisions and enhanced risk management. This is in addition to the expected reduction in costs through automation and efficiency gains and the ability to comply with regulations more effectively.

By 2030, in the Securities Services industry, ISSA foresees the concrete adoption of the ABCDEFGs of digital transformation – APIs, Blockchain, Cloud, Data, Efficiency ecosystem, Fifth generation programming language and Gen AI without losing sight of the core needs of the industry; i.e., solving problems that address its critical needs.

[25] Securities Services – Deutsche Bank (db.com)

2.5 Industry Disruption by Big Tech

2.5.1 What ISSA said in the 2020 paper

Over the long-term, ISSA expects new entrants from the technology sector – including, but not limited to Big Tech – to enter capital markets and challenge incumbent business models – as they have done in other sectors of the Financial Markets – either by launching services on their existing market platforms, making acquisitions, or entering via partnerships with incumbents. Established Big Tech participants could look to abruptly position themselves in the ecosystem, potentially by leveraging their existing interfaces already used by end clients and investors as well as their technological leadership. This disruption could inflict pressure on incumbents in the rest of the value chain who would suddenly no longer be in sole command of core industry processes or margins.

Securities services firms could move to protect their position in the value chain by proactively partnering or acquiring smaller technology companies to enhance connectivity, offering better or cheaper services, or building a modular ecosystem around them. The existing data pools of industry participants represent a significant advantage over Big Tech and could provide a meaningful advantage to industry incumbents if they are used successfully to provide proprietary insights and solutions.

2.5.2 2024 Revision

Since the original Future of Securities Services paper was published in November 2020, no Big Tech firm has tried to enter the capital markets or Securities Services space via the acquisition of a financial services company. There have been several instances of partnerships between Big Tech firms and financial services firms, including those with large footprints in capital markets. Several of these partnerships have been targeted at greatly accelerating the move to the cloud for the financial services firm or quickly developing advanced data analytics and optimizing core services. Some notable examples include:

- The Google Cloud and Deutsche Börse partnership in 2023 to accelerate cloud adoption, advance data analytics, develop its digital securities platform, and optimize trading and post-trade services[26].
- Google Cloud and CME Group formed a 10-year partnership in 2021 to accelerate CME's movement to the cloud and transform global derivatives markets[27].
- Microsoft Azure and London Stock Exchange Group's strategic partnership in 2022 to develop new data analytics solutions to enhance trading and post-trade services[28].
- Amazon Web Services' (AWS) partnership with Nasdaq to fully migrate its capital markets infrastructure to the cloud[29].

[26] https://deutsche-boerse.com/dbg-en/media/press-releases/Deutsche-B-rse-Group-and-Google-Cloud-Announce-Strategic-Partnership-to-Accelerate-Innovation-3405724

[27] https://www.cmegroup.com/media-room/press-releases/2021/11/04/cme_group_signs_10-yearpartnershipwithgooglecloudtotransformglob.html

[28] https://www.lseg.com/en/microsoft-partnership

[29] https://www.nasdaq.com/press-release/nasdaq-and-aws-partner-to-transform-capital-markets-2021-12-01

These recent partnerships continue a trend seen prior to the publication of the original Future of Securities Services (2020) paper, mainly focused on accelerated cloud adoption including:

- Amazon Web Services (AWS) and FINRA in 2017.
- Microsoft Azure and UBS in 2018.
- Microsoft Azure and JP Morgan Chase in 2019.

With the recent developments in AI – and especially in cognitive AI – virtually all financial services firms are now experimenting in this field. Firms are identifying use cases and racing to provide AI-powered solutions to their clients. Moving their computing infrastructure to the cloud, transforming their platforms to fully digital, and implementing advanced data management and analytics are all foundational in order to benefit from investments in AI. The level of investment required to compete in the AI race will probably increase the pace of partnerships with Big Tech firms, allowing firms to bring AI-based solutions to their clients more quickly, whilst leveraging the capabilities resulting from massive investments in AI technology by the Big Tech firms and others.

2.5.3 Looking Forward

ISSA therefore does not see a significant chance of disruption to the capital markets or Securities Services industry by Big Tech firms by the year 2030. Continued partnership opportunities will serve to increase the footprint of Big Tech firms in financial services, helping them to grow and diversify their revenue streams. Entering the industry on their own – via acquisitions – remains unlikely owing to the increased government and regulatory scrutiny on the market power of Big Tech companies which has resulted in several notable large anti-trust cases being brought in the U.S. and Europe. Additionally, there is the heavy regulatory burden that entering financial services would entail. ISSA foresees Big Tech firms and smaller Fintech firms continuing to focus their core capabilities and investments on developing financial market innovations able to be marketed to many financial services firms. This would be more beneficial than entering the market directly to compete with what is – for them – an increasingly large and strategic customer segment. ISSA foresees key participants in capital markets and Securities Services accelerating their partnerships with Big Tech firms and FinTechs in order to speed up their adoption of all key emerging technologies, including cloud, advanced data analytics, machine learning and AI.

2.6 Increased Data and associated use cases

2.6.1 What ISSA said in the 2020 paper

The evolving role of data across the capital markets ecosystem will pose both threats and opportunities for participants. Going forward, ISSA expects that data-related use cases (e.g., analytics, visualization, combination of proprietary with publicly available data or traditional with alternative data) will have a larger share in overall value creation in capital markets, whilst the underlying data becomes increasingly commoditised (e.g., a continued demise of research). The Securities Services industry could draw on its existing data assets to provide analytical services. This is a unique chance to transform into data-led organizations able to face-off against technology firms, leveraging the existing wealth of data on securities flows and beneficial ownership in order to provide insights to clients (e.g., on collateral optimization opportunities, market alerts based on combining securities flows with real economy data) and further build-out solutions (e.g., advanced reporting, yield maximization tools). However, data ownership and privacy considerations will still need to be carefully considered.

2.6.2 2024 Revision

In envisioning the future of Securities Services through 2030, several pivotal themes emerge, shaping the industry's trajectory amidst evolving market dynamics and technological advancements. The fundamental shift towards data-driven innovation remains central, underpinned by the imperative for common data standards in order to streamline analytics and foster broader data sharing across platforms. While the demand for data products is surging, SSPs still encounter significant hurdles in leveraging data to create substantial new revenue streams, given data's increasing indispensability in core service offerings.

To navigate this landscape effectively, SSPs must bolster their technological capabilities in data management, analytics, and platform delivery, necessitating substantial investments and potential partnerships with Fintech firms – and perhaps with Big Tech firms – to enhance existing capacities. Regulatory considerations loom large alongside customer concerns regarding data ownership and usage permissions, necessitating a delicate balance between innovation and compliance (which is a major hurdle for Big Tech firms working on their own - see Section 2.5 on 'Industry Disruption by Big Tech').

Partnerships with FinTechs will emerge as strategic imperatives, offering access to specialized capabilities crucial for sustainable growth. The platform model – prevalent in adjacent industries such as Payments – will gain prominence, facilitating enhanced data sharing through common standards and datasets, albeit without joint ownership or governance of shared platforms (especially true in highly innovative fields such as tokenized assets, see figure below).

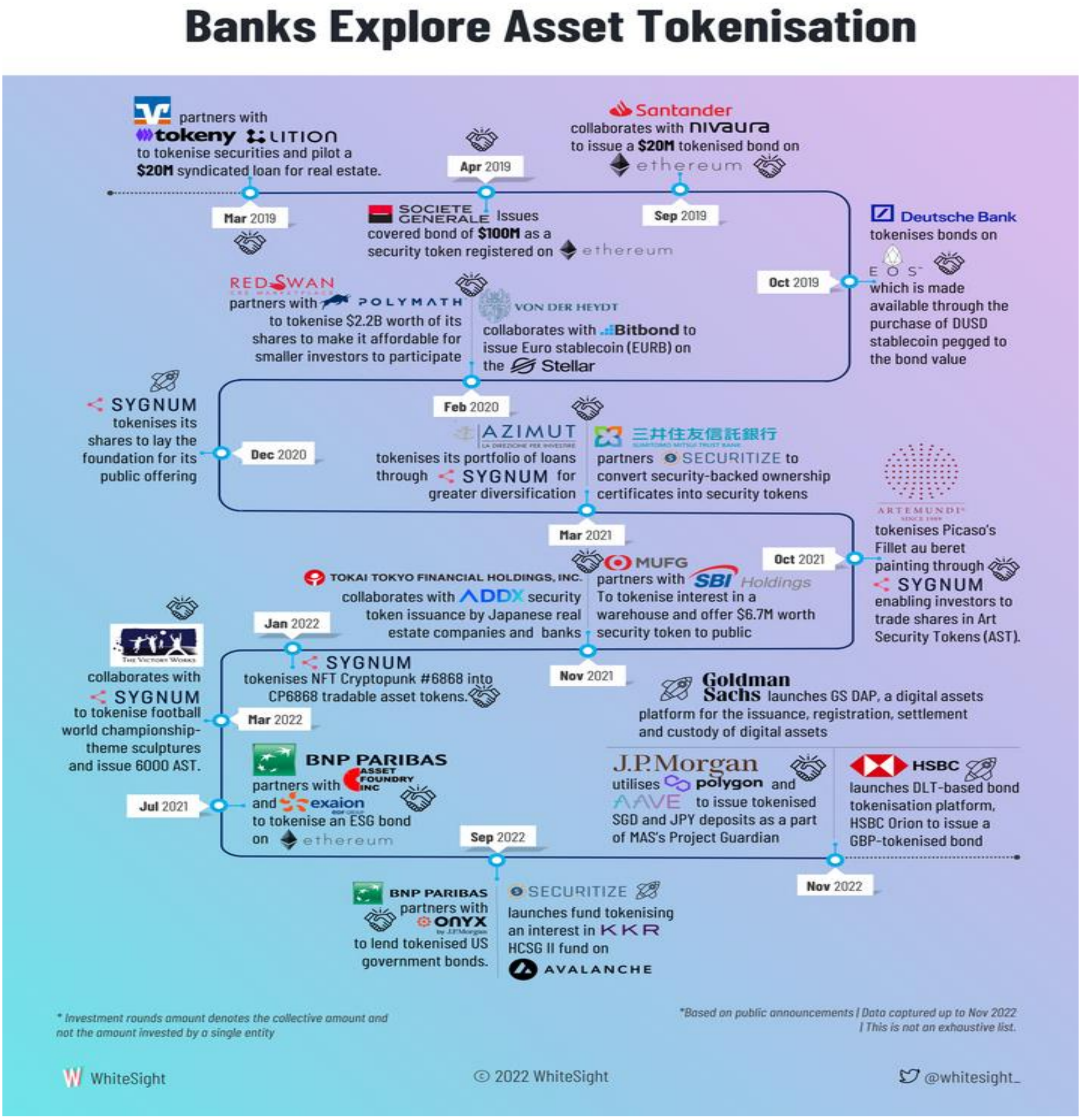


Figure 10 : Asset Tokenisation: The Next Frontier for Partnerships in Banking | WhiteSight[30] 2022

However, amidst the promise of innovation through mutualization and consortium formations, regulatory scrutiny will intensify, particularly concerning firms' resilience in core services and risks associated with third and fourth-party outsourcing. Challenges abound in aligning disparate economic models and liability concerns among investment banks and brokers, hindering seamless implementation.

Moreover, industry incumbency can lead to inertia, impeding the swift adoption of common approaches and necessitating a nuanced strategy wherein select firms pioneer frameworks which later expand across the industry. Strategic partnerships with industry giants offers collaboration avenues, demanding scalable relationship management

[30] https://whitesight.net/asset-tokenisation-the-next-frontier-for-partnerships-in-banking/

frameworks to unlock full potential. Two very good examples of this are the recent partnerships in GenAI adoption between Microsoft and Moody's[31] and between Microsoft and Swiss Re[32].

Drawing parallels from the Payments industry, changes in Securities Services are driven by economic, regulatory, and competitive factors. Historically high barriers to entry are poised to lower significantly as a result of emerging technologies and partnerships, prompting industry-wide innovation and adaptation.

Navigating these complexities demands a nuanced understanding of emerging trends and strategic imperatives, charting a course towards sustainable growth and resilience in the dynamic landscape of capital markets.

2.6.3 Looking Forward

In summary, the future of Securities Services through 2030 hinges on navigating the evolving landscape of data-driven innovation, regulatory scrutiny, and strategic partnerships. Financial institutions must prioritize bolstering technological capabilities organically and by forging alliances with Fintech firms or Big Tech firms, in order to meet the growing demand for data products, whilst addressing regulatory concerns and customer expectations regarding data ownership and privacy. The platform model pioneered in adjacent industries holds promise for facilitating enhanced data-sharing with customers and partners in the cloud by leveraging advanced data analytics tools – some powered by AI. However, challenges persist in aligning economic models and navigating regulatory scrutiny. Nonetheless, strategic partnerships and a nuanced approach to industry collaboration offer avenues for unlocking growth and resilience in the face of evolving market dynamics. Industry collaboration on a standard data model(s) would also accelerate the path to monetization. If such partnerships and collaboration are absent, ISSA feels that even by 2030, the industry will have failed to unlock the revenue growth potential of leveraging the data it has under management.

[31] Moody's and Microsoft develop enhanced risk, data, analytics, research and collaboration solutions powered by Generative AI - Stories

[32] Microsoft and Swiss Re Drive Innovation with Generative AI Rollout - Microsoft Switzerland News Center

2.7 Emerging New Risks

2.7.1 What ISSA said in the 2020 paper

The capital markets ecosystem will need to respond to 'new' risks such as cyber risk and indirect risk types such as environmental risk. This will require the industry to invest in its own processes but may also open new revenue pools to help participants manage these risks. Specifically, although new technologies offer enormous promise, significant caution is also required to control and mitigate emerging cyber risks. The overriding requirement to guard against cyber-crime and to preserve operational resilience is so critical to service provision that it cannot be compromised by the rushed adoption of new technology. Other risks, such as climate change, will have a first-order impact on the banking and asset management industry, but will also indirectly impact Securities Services.

The COVID-19 pandemic has recently highlighted the importance of cyber resilience in times of crisis and the increased importance of home network security to cyber experts. The rapid, enforced shift to remote networking led to a spike in cyber-attacks and the attack surface increased due to the remote distribution of the workforce. The industry must now quickly adjust to the 'new normal' way of working caused by the COVID-19 pandemic and prepare diligently for future possible cyber-attacks and other black swan events. To do so, risk assessments should be performed ahead of any potential crisis, to test and refine the planned crisis response. Communication and response in the event of cyber-attacks should also be developed ahead of any such attacks. An accelerating adoption of both cloud utilization and quantum computing will amplify the risk for potential cyber risks.

2.7.2 2024 Revision

This section does not look to repeat any of the discussions of the risk categories from the upcoming the 'Securities Services Risks 2024' paper but will instead highlight some new risks or new aspects of traditional key risks which ISSA sees as becoming more prominent in the future, looking out to 2030.

ISSA has updated its comprehensive paper on 'Securities Services Risks 2024'. That paper introduces a framework for analyzing the following key risk categories:

Operational Risk categories

- Regulatory, Legal and Compliance Risk
- Client Risk
- Third-Party Provider Risk
- Asset Protection Risk
- Execution, Delivery and Process Management Risk
- Information Security Risk
- Information Technology Risk

Other Risk categories

- Credit Risk
- Liquidity Risk
- Systemic Risk
- Geopolitical Risk
- Digital Assets Risk

The ability of SSPs to effectively manage risks has been stress tested and repeatedly proven over the years, especially since the coronavirus pandemic fundamentally affected the industry's ways of working and living.

The pandemic and other disruptive events have served to strengthen the resolve of all market participants, as the industry come to embrace the notion that these types of 'black swan events' can be addressed quickly and in a manner that leads to as little disruption as possible to the market.

The capital markets environment continues to pose risks that have the potential to disrupt ecosystem participants across the globe. As the severity and types of risks continue to evolve and expand, so do the mitigating strategies of capital market participants, including SSPs. Risks which affect the market participants' ability to serve their clients and deliver value for their stakeholders range from economic and political to environmental risks. That said, ISSA believes that the prevailing themes which represent the most significant risks to the Securities Servicing industry relate to technological advancements, the changing investment landscape and investor profile, and geopolitical considerations. Due to the criticality of Securities Services to the broader capital markets, the regulators continue to concentrate their focus on the industry's ability to continually improve its resilience to all the risks discussed in this section. Information Technology-related risks.

As the industry continues to embed better-known technologies such as blockchain, the ecosystem participants are also focused on understanding and leveraging technologies that drive digital transformation such as Generative Artificial Intelligence (Gen AI) and its related subsets, including Machine Learning (ML) and Deep Learning (DL). The adoption of these technologies is growing rapidly despite not being able to fully ascertain the impact they might have on the industry. The potential systemic failures and liability that could arise from these events is of concern to those who grow increasingly reliant on the potential benefits that these technologies can deliver to their businesses.

Digital assets present key risks, including – but not limited to – cyber security and systems failures, and regulators are growing increasingly concerned about compliance with cross-border obligations and risk management frameworks. Assessing Crypto and Digital Asset Risks - KPMG United States

2.7.2.1 Information Security cyber-related risks

These take on many forms, but the most critical are those risks which arise from systems and data-related attacks, as well as fraudulent activities.

In addition to the potential theft of assets and cash, Securities Servicers may also be exposed to data theft. Data stolen by cyber attackers can lead to substantial damage to individual clients and significant ransom demands, as well as material reputational damage.

The cyber threat posed by nation states, advanced persistent threat (APT) groups and organized crime (with ransomware in particular) is also increasing. Given the criticality of capital markets and Securities Services to the global economy, the industry is increasing investment in mitigating major cyber-attacks which are driven by a desire to materially disrupt key infrastructure.

To counter these risks, organizations across the industry have developed increasingly sophisticated strategies to protect themselves and their stakeholders. Despite these concerted efforts to ensure the safety of their data and systems, it is virtually impossible for every organization to mitigate against all the possible cyber-related scenarios. The sheer pace of change that continues to drive technological advancements across the industry calls for a consolidated and collaborative approach to addressing cyber-related incidents, since the failure of one participant has the potential to adversely affect many others across the industry.

2.7.2.2 Artificial Intelligence-related risks

Executives have identified Artificial Intelligence (AI) as a significant driver of the existential risks that their organizations face. AI has led to fundamental shifts in the way that organizations operate, as leaders seek to pivot their business models to ensure the long-term sustainability and survival of their organizations. That said, the pace at which this technology is being embedded in the industry raises concerns, especially as it relates to the AI models and the way this technology is adopted and consumed.

The main concern relates to the fact that the modelling of these platforms is taking place at a rate that may be too quick to embed inputs from the financial industry, which could lead to instances of disinformation down the line. This potential lack of data integrity is compounded by the notion that if the technology use case is inappropriate to begin with and is widely adopted in the industry despite fundamental flaws, the possibility of a future financial crisis arises.

Generative AI provides expert capabilities to even the most novice of users which can be used to create sophisticated fraud schemes – such as AI-generated fake financial reports – or used to infer sensitive information about individuals and organizations thereby posing privacy risks and potential security breaches, or in the use of deepfake technology resulting in potential identity theft and other privacy violations. Deep fakes within the financial services world have already impacted institutions – see the Hong Kong Zoom Deep Fake Story[33]. The injection of poisoned data into the model's training set can lead to biased or inaccurate outputs, which can compromise the security and integrity of financial transactions and data.

AI is a new aspect of tech risk that requires a comprehensive and integrated approach to risk management. While AI-specific risks are emerging, they are also interconnected with existing risks, such as cyber risk, operational risk and reputational risk. Therefore, AI risk should be considered a new dimension of technology risk, requiring a tailored risk management framework that addresses its unique challenges and opportunities.

2.7.2.3 People risk

During the last decade, Securities Services processes have become highly automated and fragmented with many new, specialized roles focused on discrete aspects of the overall process. This will clearly continue due to the significant advances in AI and expected applications in financial services, including in Securities Services. More new roles will be developed to train AI models and continually improve the results. At the same time, a generation of people will retire from the business – people who have managed much broader aspects of the Securities Servicing process. Thus, it is more important than ever for firms to formalize knowledge transfer and documentation of the full value chain process and to conduct regular testing and tabletop exercises about what needs to be done in the event of process breakdowns or future black swan events.

2.7.2.4 Investor-related risks

The technology-driven risks highlighted also have the potential to impact the investment landscape, i.e., any market failures which place investor returns at risk could adversely affect their trust in capital markets as a whole. This negative impact on trust in the market could potentially lead to disinvestments and a shift in preference to alternative markets, leading to an erosion of some of the gains already achieved through the move towards passive investing. To compound this, there is the continued shift in the investor profile – retail investors continue to drive investment activity and it is anticipated that this trend will continue for the foreseeable future. Simultaneously, investor activism continues to influence the way that the ecosystem functions. The potential risks posed by advancements in technology and the growing influence of the retail investor call for increasingly considered business models and investment products.

2.7.2.5 ESG-related aspects of Regulatory, Legal and Compliance risks

The rise of investor activism and a focus on organizations conducting their businesses in a manner that is responsible to all impacted stakeholder's places increased pressure on organizations to prove they are responsible citizens. This poses risks for those organizations who have not committed their resources to conducting their businesses in responsible and ethical ways benefitting a broad range of stakeholders. Additionally, greenwashing and similar practices remain an industry concern, even if the deception is only perpetuated by a few, since these practices fundamentally erode the principles of green investing.

[33] Arup lost $25mn in Hong Kong deepfake video conference scam (ft.com)

To ensure sustainable investments, investors should continue to include new factors in their decision-making processes. The lack of a global taxonomy increases the potential risks of reporting inconsistencies across industries and organizations. Furthermore, organizations may incur significant investment costs embedding country-specific taxonomies into their operations which may then need to be revised at a later stage. There could be participants outside of the regulated financial services space providing services to various parts of the crypto assets space. In some cases, SSPs are not able to compete effectively with the unregulated participants due to the regulatory hurdles placed upon them. A failure in that space could have spillover impacts onto the capital markets and Securities Servicing industry.

2.7.2.6 Geopolitical risks

The supply chain risks that were highlighted during the pandemic have led to multinational organizations rethinking their geographical footprint. The main consideration is the location of the organizations' operations in order to minimise expenses whilst increasing the reliability and quality of operations. This is being challenged by the impact of geopolitical events and there are signs of deglobalization where organizations are seeking to consolidate their operations into regions and locations where they perceive there to be less geopolitical risk. Sanctions, although well-intended, place pressure on organizations which operate in those sanctioned countries, thereby hindering the ability to conduct business across borders.

Additionally, regarding the issue of business location, sanctions increase the responsibility on SSPs to ensure they are not avenues through which sanctions can be avoided. The regulatory risks that organizations are exposed to as a result of these sanctions make it increasingly prohibitive to conduct business in the sector. These geopolitical-related frictions ultimately affect cross-border flows, which recently been negatively impacted across developed markets and emerging markets alike.

2.7.3 Looking Forward

Despite the myriad of risks that the Securities Services industry continues to deal with, the prevailing sentiment is that as a collective, SSPs are resilient as they continue to address current risks and anticipate future ones. The coronavirus pandemic and the many global challenges already faced to date have highlighted the ability to address these issues in a way which protects the organizations, their stakeholders and the returns that they seek to deliver. That said, the rapid introduction of AI into any of the industry's customer-facing or core internal processes, presents new risks for which the mitigation framework may not be able to keep pace with, in the face of the competition to win the AI race.

2.8 Increased sourcing and partnerships

2.8.1 What ISSA said in the 2020 paper

Capital markets participants continue to scrutinize their high-cost bases and explore measures to increase efficiency by forming strategic partnerships or sourcing lower cost vended/managed services and solutions. There is still room for further cost-sharing and outsourcing. For example, of the post-trade associated costs that could be outsourced by global Tier-1 and Tier-2 sell-side institutions, only c.30–50% are currently outsourced. We also expect the buy side to continue their recent focus on cost base reductions by removing intermediaries, outsourcing additional services and investing in next generation software and platforms.

The Securities Services industry has the opportunity to help these capital markets participants reduce costs by providing some of the services – for example, trade execution, data, reconciliations, analytics, and reporting – as outsourced or managed services. Similarly, the Securities Services industry itself could explore a more modular approach and form partnerships with technology companies to address capability gaps and to advance cost solutions. A more modular approach would require firms to upgrade their third-party risk management frameworks in order to better manage risks arising from critical dependencies on third parties — the recent experience from the COVID-19 pandemic should be taken as an example of a stress scenario that led to disruption for some BPO firms. One of the key impediments for clients to source more from external providers – or for Securities Services to provide holistic solutions – is the lack of standardization in the industry. This might be an area which requires further cooperation towards an industry-wide solution.

Further standardization of data standards and protocols would allow the industry to mutualize and reduce costs by making decisions leading to similar technology solutions and needs. This could also permit a reconsideration of previously failed attempts to form industry utilities for non-core processes.

2.8.2 2024 Revision

Although the cost-driven focus remains, the drivers behind sourcing and partnerships have expanded to drive client experience, resolution of collective industry issues, agility of infrastructure and operating models to address fluctuating volumes and market changes.

The WG has seen an acceleration of partnerships with Fintech's and other technology firms as demand for data-driven insights, stronger client experience and core process harmonization has shifted thinking about the traditional in-house bespoke models. There is a move from simple vendor relationships to strategic partnerships as firms seek far more valuable outcomes from their partners. This is driving a need for more sophisticated vendor management disciplines as they become a more significant part of the operating model, whilst geopolitical factors and ESG become more important parts of vendor analysis.

Aligned to this is the emphasis on integration with the leading asset manager platforms to achieve stronger automated data exchanges with their service providers. The far broader set of data sharing between participants is changing how services have been packaged and may in turn influence outsourcing trends.

ISSA is seeing a growing emphasis on collaboration in 2024, both in terms of shared ownership solutions – where participants recognize the benefits of a common platform – and also in terms of driving greater harmonization of processing models. The initiatives to accelerate settlement cycles are opening the door to novel solutions along with new Fintech and solution partners, thereby accelerating the introduction of shared platforms and collaborative models.

Momentum regarding cloud usage and IT infrastructure outsourcing has continued to accelerate, changing the nature of IT deployment and maintenance models and bringing opportunities for greater organizational agility. As the industry expands its use of data and AI, the ability to flex this infrastructure and enhance data sharing becomes far more critical to the business model. However, there is greater regulatory focus on the concentration risks that this may bring and hence a higher organizational burden on compliance oversight.

Finally, standalone business process outsourcing appears to have plateaued, with the focus instead on moving towards bundled outsourcing solutions and partners that can provide a more impactful set of technology, data and operating outcomes.

Open this link to watch Graham Ray, Global Head of Financial Intermediaries of BNP Paribas, discuss 'Client Relationships and Partnerships'[34].

2.8.3 Looking Forward

The outsourcing and partnership trend is forecast to continue and expand. The question for the industry is whether this will reduce the cost of entry for new entrants and in turn change the competitive landscape.

Collaboration between competing firms around core processing and the adoption of common standards and solutions will most likely open the door for the expansion in utilities and shared ownership structures. Key examples include the move to T+1 settlement for equity trades – which has highlighted opportunities to simplify operating models with common reference data – Standard Settlement Instructions (SSIs), and matching utilities. This will probably lead to a focus on data-driven solutions to predict settlement fails and the sharing of these solutions will lead to even greater efficiency.

Perhaps countering some of this, there is an increased focus by regulators on resilience, especially in respect of core services and the third-party risk – or even fourth-party risk – associated with outsourcing elements of core services, including concerns about concentration risks with multiple financial firms outsourcing activities to common providers. A Third-Party Risk Management Survey completed by Deloitte in 2021, observed that financial services organizations were more likely to bring previously outsourced services in-house compared to organizations in other sectors. However, competitiveness was still driving adoption, leading for the need for financial services organizations to increase their resilience as a result of their unique exposure to third-party risk, given the global dispersion of some of these third parties.

Listed below are some of the discussions concerning important segments of the industry outsourcing and partnerships environment.

Partnerships with asset manager platforms have continued and expanded for integration with leading asset manager platforms – including Aladdin, Alpha, and Simcorp – to enable client data to be shared between the platforms. This is reducing the focus on individual channels with asset and investment managers and helping bring broader adoption of common standards. However, this trend is also raising questions on the far wider data sharing, and as a result how this impacts the traditional packaging of service from the Securities Services platforms.

There has been less progress with **investment banks and brokers** outsourcing to Securities Services firms. Although the headline intent and motivation to outsource seems to exist, the challenges with different economic models, operating models and liability concerns serve to derail many implementations.

[34] FoSS Graham Ray (youtube.com)

There are large in-house differences in the way that firms do business, and this makes it exceedingly difficult to wholesale lift core services and have them transacted in a common way.

There is a greater focus on **ESG and geopolitical drivers**, especially when selecting which partners to work with. Any service provider is now required to be fully transparent about its ESG policies and initiatives. Geopolitical issues are now critical factors when considering outsourcing partners and operating locations, driven – in part – off the back of the Ukraine conflict, but also more broadly political considerations in Asia. Closer scrutiny and ongoing active monitoring are therefore required to fully understand the underlying operating models of any ecosystem partner. Furthermore, sanctions compliance is complex and – whilst the potential benefits of greater information sharing, and collective industry views remains clear – this is likely to be offset by the compliance liability that rests at an individual firm's level.

ISSA predicts a wider set of **core business processes** will be open to outsourcing as the competitive emphasis shifts more heavily towards data, insights and client experience, and an underlying expectation that core service standards will be delivered. The trend for standalone business process outsourcing seems to have plateaued with a stronger focus on how such outsourcing partnerships are aligned with technology provision to drive stronger outcomes. The question that will be asked of the industry as they partner and outsource non-core activities is whether the benefits are indeed being realized or whether it will be a case of the 'productivity paradox'; i.e., despite investments in partnerships, why are significant efficiencies not realized immediately?

Industry use of FinTech's is expanding to leverage new technologies, and specialist service provision, notably regarding digital asset and crypto currency offerings. As highlighted in Section 2.2 on 'Expansion into new asset classes', the industry has recognized the importance of integrated networks and solutions around asset classes and the WG has seen expansion in the use of vendor and consortium-based solutions. The WG expects this trend to continue.

Furthermore, ISSA sees the emergence of a model similar to open banking on the payments side, where Securities Services firms are creating marketplaces for their clients to access a broader range of service providers with pre-integration to include client data. However, this comes with a greater set of risks in terms of smaller business partners and vendors and the increased focus on third-party risk management.

There is wider take-up of **cloud** by Securities Services firms – including cloud data warehouses such as Snowflake – as a means to quickly consolidate and analyse data from multiple sources. ISSA sees this evolving into an expanded use of cloud marketplaces, where multiple vendors and service providers can efficiently exchange data at far lower costs.

Technology outsourcing continues to move forward. The trend is moving towards platforms and ecosystem solutions, which provide a far stronger model across the operating lifecycle. AI is likely to force firms to consider mutualized innovation to attain the benefits of consolidating data and provide a wider set of underlying inputs and experiences for their client solutions.

Sub-custody outsourcing is becoming more strategic as firms look to expand a broader set of partnership benefits from these relationships. Accelerated settlement cycles are likely to encourage the consolidation of correspondent relationships between different parts of the bank, including payments, FX and treasury, as well as for equity and debt brokerage, and hedging solutions. ISSA expects to see the emergence of firms which are equipped to bring these services as a consolidated proposition and model.

2.9 The conundrum of loosening or tightening – Monetary and Fiscal Policy

2.9.1 What ISSA said in the 2020 paper

Governments and central banks set the broad direction of travel for the capital markets ecosystem by influencing interest rates and asset prices with policy decisions. Specifically, post the COVID-19 pandemic, ISSA expects a 'lower for longer' interest rate environment and, in some countries, the continuation of negative interest rates which will impact the Securities Services industry negatively via a lower achievable net interest margin. This will also lower yields for investors who will become even more cost-sensitive and seek to reduce the prices they pay to their service providers across the value chain. However, lower interest rates will also encourage debt issuance and inflated asset prices. Together with expansionary fiscal policy, overall assets under custody and administration may therefore increase. Geopolitical uncertainties may continue to drive short-term spikes in market volatility and trading volumes.

2.9.2 2024 Revision

Yes, ISSA was wrong on this one! Since the last paper, interest rates have been on the rise. With quantitative easing programs coming to a tapered close, the additional liquidity which assisted the capital markets also contributed to rising inflation. Central banks around the world have taken a hawkish stance and reacted with increases in interest rates to curtail inflation, at the same time ensuring liquidity to ensure overall growth of the economy.

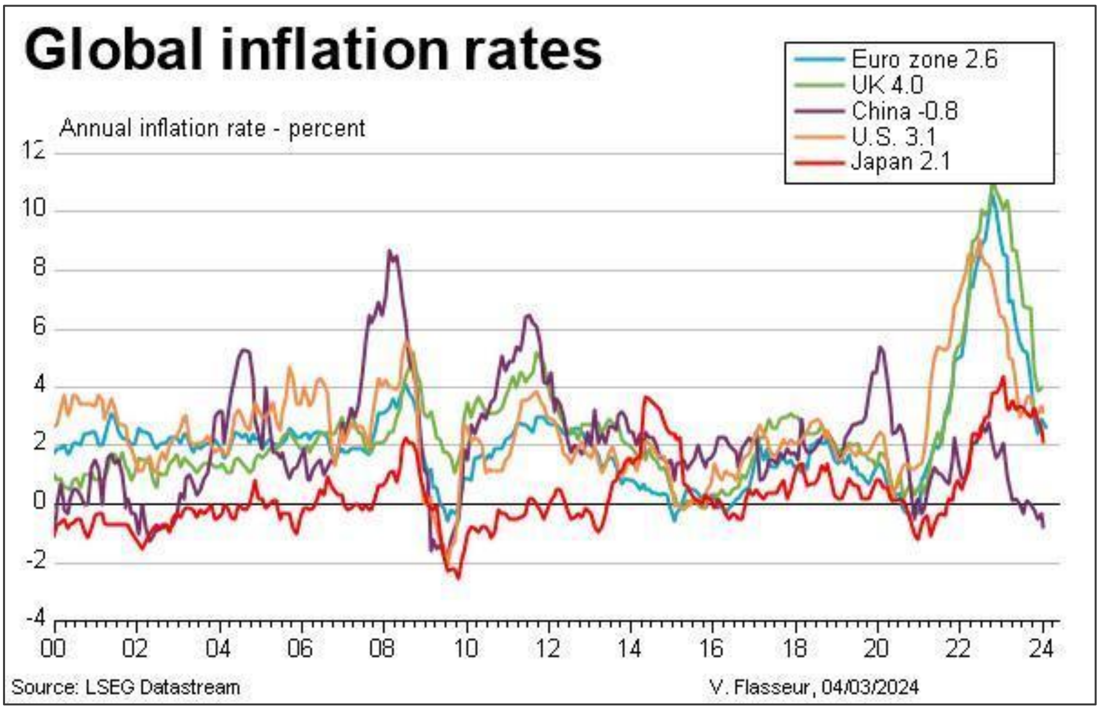


Figure 11: LSEG Datastream 2024

In terms of the bond yields, the earlier paper had anticipated longer lower to negative returns. The trend took the predicted path of lower yields up until 2021. However, since then, the U.S. central bank has spurred an upward trajectory of interest rates with other developed markets following suit, so that the benchmark 10-year yield is now on par with pre-global recession 2007 levels.

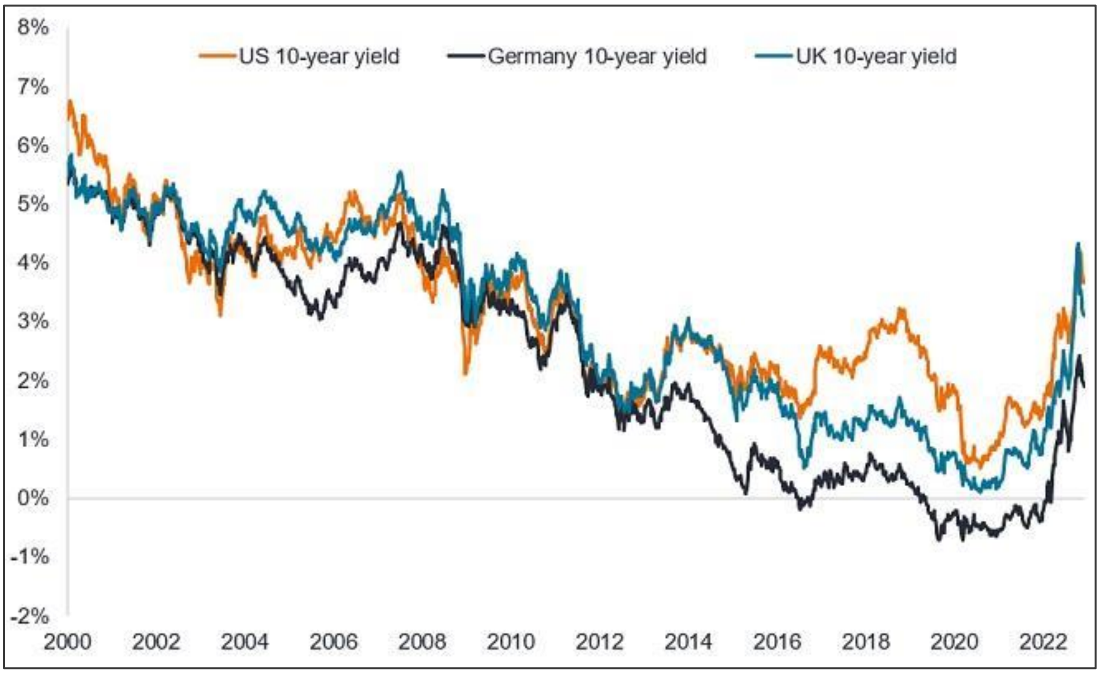


Figure 12: Source: Bloomberg/Funds Society 2024

With the tightening of monetary policy and higher interest rates, asset allocation moved to fixed income across the spectrum of fixed income (FI) sectors – government bonds, corporate bonds, mortgage-backed, etc.

However, with inflationary pressures seen across the globe and lower returns within the FI sector, the flows have reverted towards equities since 2022.

"The pressure that the Ukraine–Russia crisis brings to bear at a time in which inflation was already concerning means that the uphill battle is even more uphill." *– Carmen ReighHart, Chief Economist, World Bank.*

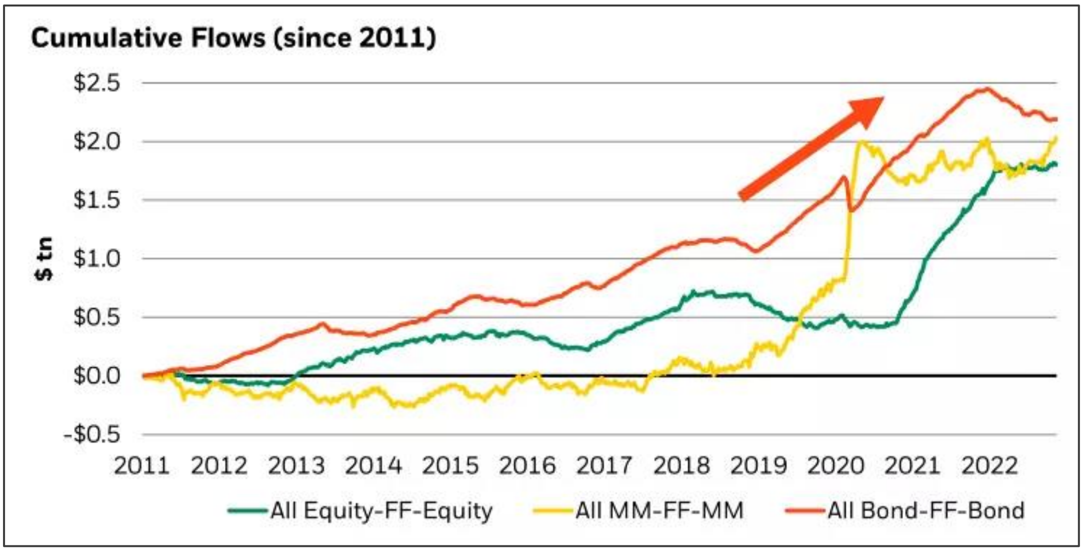


Figure 13: Fixed Income in 2023 | Blackrock

The impact of geo-political uncertainty was mentioned as a key factor behind the resulting spikes in trading volume. The Russia–Ukraine war (2022 onwards) and the Middle East unrest of 2023/2024 have both impacted on the global supply chain, oil prices and the FX market. With global markets factoring in the wars and with expected loosening in the monetary and fiscal policy on the horizon, an increase in the assets under custody and under administration across the industry are expected to rise, although with greater volatility and overall longer-term growth will probably decline.

2.9.3 Looking Forward

With the impact of the pandemic waning and global headline inflation being revised downwards for the later part of decade, there is an anticipation that policymakers from the major economies will ease their fiscal stance to stimulate growth during the second half of the decade. As elevated inflation recedes and spending once again increases, an easing in monetary and fiscal policy will result in renewed liquidity flowing into the securities market.

This will directly impact the rise in value of investor assets, hence assets under management will also increase and improve revenue against this metric. However, lower interest rates will counterbalance this to a large degree as many SSPs will capture lower returns on the cash balances held with them. Thus, the industry is challenged with evolving its business model to becoming less reliant on generating net interest margin in order to be profitable.

However, the push to reduce the global dependency on the U.S. dollar could lead to changes in major institutional investors' investment patterns. There could be more hedging activities by investors from developing economies to protect them from the impact of any sudden FX movements.

2.10 Uncertain Regulation

2.10.1 What ISSA said in the 2020 paper

Like the last decade, regulation will continue to be a key driver for the overall capital markets ecosystem and determine the direction of policymakers at global, supranational and national level. The introduction of new regulation and standards, specifically on topics such as climate risk and ESG, cyber, and overall operational resilience (but also resolvability and recovery & resolution planning for critical infrastructures), will require investments from the industry. It remains to be seen to what extent regulations and standards will be drafted to guide the adoption of new technology and refine the framework for data requirements and reporting. Considering recent geopolitical developments and the impacts of the COVID-19 pandemic, a continued fracturing of regulation has become more likely, which will add further compliance costs for the industry.

2.10.2 2024 Revision

The global regulatory landscape continues to be characterised by ongoing developments, which is not a new phenomenon but rather a function of the need to respond to the myriad of economic, societal and technological shifts that are constantly occurring. Globally, regulators respond to these various forces and the risks they pose in differing ways, with some choosing to define detailed legislation, whilst others seek to develop legislation as and when the risks and events have unfolded and are better understood. The capital markets will – over the remainer of this decade – be significantly impacted by these regulatory developments. The industry will endeavour to develop and implement guardrails that will protect entities against the risks which arise from technological innovations and the geopolitical landscape.

There is an increased risk of regulatory arbitrage. A key question is whether there is a set of global regulators – such as those at the G20 – who set the framework after the global financial crisis? The geopolitical situation is creating a divergence of regulation and that drives complexity for SSPs. There are many differing regulatory views on topics such as the Basel 3 implementation, digital assets and accelerated settlement – this lack of agreement drives fragmentation and inefficiency.

Technological innovations continue to drive regulatory shifts in cyber, operational resilience and recovery. These regulatory shifts will continue to grow and become the most significant part of SSPs' regulatory budgets. However, it is uncertain what these changes will mean in practise, as although the driver remains global, the application in each jurisdiction will vary. For instance, in the context of the European Union (EU), the Digital Operational Resiliency Act (DORA)[35] is an extremely important piece of legislation which is likely to come into effect in 2025. This legislation will have a marked impact on the information and communications technology (ICT) of EU financial institutions and will greatly impact the management of ICT and third-party risks. This is indicative of the global trend of amending legislation to ensure that organizations remain resilient against technologically driven risks. The industry is likely to see regulatory shifts that change the nature of FMIs, particularly the manner in which they ensure their own resilience as well as the operational effectiveness of their participants. Furthermore, as outsourcing continues to become increasingly important in many areas, regulators will increase their focus on resilience. This is also emphasised by an increasing number of cyber hacking incidents. Disruptions from cyber incidents will continue to represent a major concern for all participants in the financial markets and regulators will continue to introduce more regulation in this area.

[35] https://www.eiopa.europa.eu/digital-operational-resilience-act-dora_en

2.10.3 Looking Forward

Across the globe, several countries have already held – or will be holding – their national elections. There are several high-profile elections that many are paying close attention to, since the outcomes will affect the global geopolitical and regulatory landscapes. For example, during 2024 Europe will see a brand-new European Parliament with many more MEPs from the far-right parties and a new cohort of EU commissioners to be appointed. Even if the EU Commission president remains unchanged, this will impact the commission's agenda. Topics such as strategic autonomy could take centre stage in financial services policy and may create concerns for the Securities Services industry as this could lead to diverging interpretation and provisions with non-EU jurisdictions, notably in the field of clearing and settlement. That being said, the Capital Markets Union (CMU) – which endeavours to create a single market for capital – will be on the agenda, regardless of the outcome of the election. This will lead to initiatives that may bring post-trade processing into focus, along with tax and legal systems. If the CMU works as intended, there should be an increase in capital markets and cross-border securities flows benefitting SSPs. The US election results may also have a significant impact on the global regulatory landscape, including potentially on post-trade processing.

Although ISSA remains uncertain as to the overarching impact of these drivers, what the WG is certain of is that regulatory changes which seek to manage risks related to technological innovations and the impact that these have on organizational resilience will remain firmly on the agenda of regulators across the globe. Furthermore, as the electorates head out to cast their votes in national elections, regulators will be mindful of the potential agenda shifts that may impact the regulatory priorities, since these will shape the market in years to come.

2.11 Accelerated Settlement

2.11.1 What ISSA said in the 2020 paper

ISSA did not note accelerated settlement as a trend in the 2020 paper.

2.11.2 2024 Revision

When the original Future of Securities Services paper was published in November 2020, the issue of accelerating settlement of equities trades was not at the forefront of industry discussions. However, since major capital markets centres moved from T+3 to T+2 settlement between 2014 and 2017, there were incremental actions taken to pave the way for a potential eventual move to T+1 settlement. This all changed in 2021 with:

- The meme stock crisis in the U.S.
- The Securities and Exchange Board of India (SEBI) allowed the exchanges to shorten the settlement cycle in India to counteract default (and other) risks. The exchanges started implementing this in a phased manner from February 2022.

Meme stock crisis. The extreme volatility in a handful of stocks during that period and the impacts on some broker-dealers and retail investors, led to policymaker interest – including U.S. congressional hearings – to understand the causes. A major focus was the margin collected between trade date and settlement date by the U.S. CCP via its transparent risk management procedures and the actions taken by some of the CCP's participants[36]. During the congressional hearings, the CEO of one brokerage firm underscored the fact that it still took two days to settle securities trades while so many other retail purchases of physical goods via on-line shopping were paid for and delivered to customers in just one day. He called for an exploration of the potential for moving to real-time (T0) settlement for equity trades[37].

As efforts were already underway prior to the meme stock crisis, the industry in the U.S. immediately analysed the potential to further accelerate the settlement cycle. That analysis[38] indicated that a move to T0 settlement would require a vast transformation of virtually all capital markets' post-trade processes and would potentially have significantly higher liquidity costs for firms, especially if it were to be implemented as real-time settlement, as opposed to end-of-day on Trade Date net settlement. As a result, the industry in the U.S. proposed a move to T+1 settlement, pointing out all the significant benefits including a significant reduction in overall margin collected by the CCP via a 40% reduction in volatility margin, arguing that it could be achieved with minimum market practices changes and with the existing legacy technology used throughout the industry. In February 2023, the U.S. SEC adopted rule amendments to mandate the move to T+1 with an implementation target of May 2024[39].

The plans moved along quickly, and the U.S. was soon joined by Canada, Mexico and other countries in the Americas, all aiming for a mid-2024 implementation to align with the U.S. settlement cycle, given their interdependency on the U.S. market and extensive use of ADR-like instruments.

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[36] https://www.dtcc.com/dtcc-connection/articles/2021/may/06/hearing-before-the-us-house-of-representatives-committee-on-financial-services

[37] https://www.congress.gov/117/meeting/house/111207/witnesses/HHRG-117-BA00-Wstate-TenevV-20210218.pdf

[38] https://www.dtcc.com/-/media/Files/PDFs/White-Paper/DTCC-Accelerated-Settle-WP-2021.pdf

[39] https://www.sec.gov/files/rules/final/2023/34-96930.pdf

India moved even more quickly, transitioning in phases to T+1 for its equity market, completing this move in January 2023. The rationale for the move was different to the U.S. but with the same intellectual base; i.e., improved servicing of retail investors. In the case of India, this move facilitated opportunities for the growth of retail investors and seamless unified payments interface (UPI) gateway functionality on a real-time basis, whilst reducing investors' counterparty risk against their brokers. The shift to a shorter settlement cycle was also motivated by the desire to be at the forefront of global trends.

Europe and the U.K. have both created task forces for accelerating settlement and are looking to complete their investigations by the end of 2024. This should provide a firm answer as to whether their markets will move to T+1 – and if so, by when – as well as what market practice changes will need to be adopted to ensure successful implementation. Whilst no potential target date has yet been set by Europe, the U.K. has set a tentative date of before end-2027[40].

It is noteworthy that, apart from the Indian market, all major market centres – in their discussions of accelerated settlement – have, at least for now, ruled out a formal investigation of the business case for moving to some form of T0 settlement for traditional equities, even while some emerging digital asset classes can already be settled on T0.

In December 2023, ISSA issued a paper on 'T+1 Global Impacts'[41] focused on the implications of cross-border trading and settlement, international investors and the Securities Services industry. ISSA made five firm recommendations to all domestic market centres investigating accelerating their settlement periods, including focusing on the impacts of international investors, focusing on the FX/funding impacts, and implementing all required market practice changes well in advance of the T+1 target implementation date. In the paper, the WG delayed the discussion of a potential acceleration to T0 settlement, to the future.

2.11.3 Looking forward

ISSA now believes that following the successful T+1 implementation in many major capital markets centres, together with the continued progress and growth of digital assets, and if there is substantive progress made towards one of the larger economies moving to a central bank digital currency, that the remaining T+2 jurisdictions will continue to discuss a potential move to T+1 and – more broadly – ISSA expects that attention will progressively move towards T0. Business cases will be commissioned, focusing on the comparison of the marginal benefits of going from T+1 settlement to various forms of flexible settlement, including T0 settlement (real-time settlement at the point of trade or end-of-day settlement following multi-lateral netting of marketplace trades, as well as potentially other models). This will be weighed against the investments required in new market practices, including those related to trading and funding of settlement for cross-border trades and perhaps the new technology platforms needed to facilitate such a move. ISSA makes no prediction as to the outcome of these investigations, except that by 2030, ISSA expects a consensus on whether there will be a compelling case for moving forward in the future to flexible settlement, including T0. Of course, even if the answer is to hold steady at T+1, this will be revisited at a later date as further technological breakthroughs transpire.

Open the link to watch Vivek Ramgopal, President – BFSI Products & Platforms of Tata Consultancy Services, discuss 'The Future of Market Infrastructures'[42].

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[40] https://assets.publishing.service.gov.uk/media/6603f31bc34a860011be762c/Accelerated_Settlement_Taskforce_Report.pdf

[41] https://issanet.org/content/uploads/2013/04/ISSA_Future_of_the_Securities_Services_Industry_final_Nov20.pdf

[42] FoSS Vivek Ramgopal (youtube.com)

In the meantime, the industry has to manage the various implications and risks of misalignment between the markets that have accelerated settlement to T+1 and those that remain at the previous global standard of T+2, including managing the different settlement cycles for dually listed securities and asset classes representing baskets of securities, with some underlying securities settling T+1 and others settling T+2. This is not a new issue for the industry as it was managed during the three-year period when the UK and European markets moved to T+2 whilst the markets in the Americas remained on T+3 settlement. A potential current opportunity for custodian banks is providing bundled trade execution and FX/funding solutions for their clients. Custodians who can efficiently bundle trade execution have immediate access to trade data and the potential benefits of common reference and client static data, while also extending the window for a wider set of options for the FX and funding of the trade. This in turn may lead to revenue uplift opportunities for those able to effectively bundle these solutions in an advanced manner. Another opportunity for custodians is in securities lending, related to messaging and inventory. Those custodians who can automatically initiate borrowing and recall instructions at the time of trade execution – on the basis of a real-time view of inventory – may create significant value for their clients and themselves. As others become more conservative and reduce their activities, these custodians will be able to grow their lending through greater mobilization and lower settlement risk.

2.12 Conclusion

2.12.1 What ISSA said in the 2020 paper

Amongst these ten forces, the ISSA working group believed that the most impactful forces for the Securities Services industry revolved around changes in investor behaviour – i.e., the shift to passive and ESG, digital and alternative assets, and the globalization of asset flows – as well as changes in technology and technology-enabled competition – i.e., the adoption of new technology and industry disruption by Big Tech.

2.12.2 2024 Revision

Since late 2020, when ISSA published the Future of Securities Services paper, there have been significant changes in the world that have been relevant for capital markets and the Securities Services industry. These include the full impacts of the pandemic becoming deeply embedded into society and business, the outbreak of war in Ukraine and the ensuing imposition of sanctions with its knock-on effect on the global economy, other geopolitical shocks – including the war in Gaza – significant advances in everyday uses of AI, and – closer to Securities Services – the meme stock crisis in 2021 and its ensuing fallout. While the same ten forces continue to impact Securities Services, there have been surprises, especially regarding monetary and fiscal policy, with a much quicker and sharper end to the low interest rate regime in order to counter the fast acceleration of inflation emanating from a multitude of factors. Accelerated settlement was not highlighted on our radar back in 2020 and is now a clear trend, so is added here as an eleventh force. The geopolitical shocks are so significant, that as discussed in Section Two, the WG are adding a third composite force to the two outlined in the original Future of Securities Services (2020) paper.

3 Part Two: Outlook for the Securities Services Industry

The pace of change within the industry has accelerated since the 2020 Future of Securities Services paper and the WG's members from ISSA member institutions have embraced the speed of evolution since then. The two previously identified impactful composite forces – Changes in Investor behaviour and Changes in Technology – have been retained and a new composite force has come to the fore – the Disruption and Long-term Ramifications of Geopolitics. The WG debated this extensively and concluded that it warranted inclusion owing to its direction and significant industry impact.

3.1 Changes in Investor Behaviour

Institutional investors have had a tumultuous time post-pandemic, being challenged with:

- The continued move toward passive investment.
- An upending of traditional portfolio management into ever expanding asset classes.
- Consolidation of platforms and providers in pursuit of a lower expense ratio.
- Pressure to incorporate sustainability.
- Becoming more data driven.
- Demonstrating a richer real-time bookkeeping.

These pressures have necessitated increased efficiency and digital integration from the post-trade constituents. At the same time, in some leading economies, due to political polarization, there has been significant pushback on certain aspects of the ESG agenda. This is arguably slowing the trend towards capital markets facilitating sustainability in the corporate world and therefore hampering its ability to slow the potential negative consequences of climate change. It is definitively making the institutional investor's roadmap of investment priorities harder to navigate.

Within the context of their customers' challenges, the custodian banks and CSDs are significantly impacted by the ten underlying drivers of change resulting from the macroeconomic and technological upheavals faced by investors. These drivers are included in the chart below.

Driver of change	Significance of change	
	Custodian	CSD
Continued flows into alternatives and digital assets		
Investor demand for digital service delivery		
Continued flows into passive funds and ETFs		
Rise of 'Generation Z' investor type		
Growing importance of retail over institutional investors		
Accelerating technology adoptions		
Growing demand for personalised services		
Growing demand for data solutions		
Deglobalisation of asset flows		
Stringent data sharing and privacy rules		

Key	
Low	
Medium	
High	

Figure 14: ISSA Future of Securities Services Working Group 2024

3.2 Changes in Technology and Technology-enabled Competition

The original paper correctly identified the technological trends that were, and still are, impacting the industry. Adoption of digital tools has continued unabated, fast-tracked and proven by the pandemic. The following chart from the 2020 Future of Securities Services paper is still relevant.

Driver of change	Significance of change	
	Custodian	CSD
Artificial intelligence and machine learning		
Application programming interfaces (APIs)		
Cloud adoption		
DLT and blockchain adoption		
Cyber security		
Partnerships		
Quantum Computing		
Large-scale adoption of RPA and automation		
Fragmentation of technology regulation		
Front-to-back integration		

Key	
Low	
Medium	
High	

Figure 15: ISSA Future of Securities Services Working Group 2024

- The use of artificial intelligence is still nascent and, as noted above, has yet to enter the fabric of Securities Services, although it is being deployed in various use cases.
- APIs and cloud computing are embedded in the industry's architecture and are still being rolled out in numerous organizations.
- DLT projects and production systems exist and are in use by an increasing number of participants; however, the breakout use case has still not yet been established.
- Cyber security expenditure has grown significantly – not only in the SSPs which are part of banking groups – but also within the CSDs as threats turn from financial gain to government-sponsored systemic attacks on vital national infrastructures, including financial infrastructure.
- Strategic partnerships continue to grow, as evidenced above. However, quantum computing remains embryonic within SSPs and work is focused on the addressing quantum's cyber challenge to encrypted databases.
- Front-to-back integration, robotics processing automation and automation projects in general continue to receive funding for good business cases. Outside of DLT and data – particularly client data – where it is prevalent, the regulation of technology has not fragmented to a level where it has become unmanageable.
- Leveraging the available changes in technology to lead to a step change in the reduction of costs and/or uncovering new revenue opportunities has proven difficult for both custodian banks and CSDs.

3.3 Changes in Geopolitics

In the original Future of Securities Services (2020) paper, ISSA stated that, *"… global geopolitical uncertainties increase the risk that the global Securities Services industry becomes regionally fractured. This might disadvantage firms that consequentially need to scale back their global business models. As a counterpoint, the firms that manage to retain global business models or which have a deep regional franchise in growing markets, may be able to increase their business."*

This set of risks has clearly accelerated, based on both armed conflicts and political polarization in many leading economies, which has led to populist movements, the stressing of nationalist priorities, and the rejection of many aspects of globalization as having not delivered on its original promise. A new world contract is being drawn up and industry participants are gradually being forced to choose sides. Within this regionalization, there is a new arms race for innovation sandboxes, computational scale, data storage et al.

Market infrastructures are less affected due to their natural focus within a country, whereas global and regional custodians must navigate the myriad cross-border – as well as home jurisdiction – requirements.

Driver of change	**Significance of change**	
	Custodian	**CSD**
Stricter regimes focused on traditional asset classes		
Data localisation		
Corporate fund structures		
Onshoring		
Preference for domestic service providers		
Sanctions		
Divergent ESG standards		

Key	
Low	
Medium	
High	

Figure 16: ISSA Future of Securities Services Working Group 2024

While the industry and relevant participants are monitoring the trends, this decade will increasingly present more challenges requiring mitigation than opportunities which can be monetized. Fragmentation and deglobalization have eroded the filament of mutualization and standardization which have been the mainstay of the industry for the last three decades.

3.4 The Overall Securities Services Industry Outlook – A view from Coalition Greenwich

3.4.1 2024–2030 Forecast

The industry faced a tough year in 2022 with Assets under Custody / Administration dropping by 13% compared to 2021, the biggest decline since 2008. In the near-term, market volatility, inflation and interest rates will continue to dominate. However, a full recovery is expected by 2027 as global markets rebound, inflation comes down and interest rates stabilise notwithstanding any further exogenous shocks. While AUC/A are expected to grow in the single digits, driven in large part by the continued growth of ETFs and alternatives, as well as increased outsourcing of other activities in the value chain, industry revenue is expected to flatline at best. Falling interest rates will reduce the tailwind from NII that Securities Services providers have reaped over the last 18–24 months. Fee compression is expected to bottom out in custody and fund administration but will likely spread to other products and services as investment managers continue to rationalise their own costs. Overall, industry margin is expected to continue its steady decline reaching +/- 1.75bps by the end of the decade (Figure 17).

The industry will continue to transform at an increasing rate over the next decade, driven by the changes in investor behaviour, technology and technology-led competition, and geopolitics as outlined in Section 3 above. The large-scale adoption of new technologies will disrupt the industry and change both the economics of the business and the operating models required to compete. Similarly, in their underlying client base, the investment management industry is evolving, led by digital transformation, consolidation and shifting investor expectations that require different business models. Client expectations will require these business models to be highly cost-effective.

Amidst all this change, the Securities Services industry will become more concentrated and the ability to delivery at scale amid cost and competitive pressures will become even more important. This will require ongoing heavy investment in technology and new platforms at significant capital cost. There is a high entry threat from new participants unencumbered by legacy architecture and able to deliver a bespoke value proposition for discrete businesses within the overall industry. Nonetheless, new value propositions are emerging for SSPs, not least from the commercialization of data analytics and other technology-enabled opportunities.

Model assumptions

- AUC/A growth, based on MSCI ACWI Index projection, is expected to stabilise in 2024 after the recovery in 2023; future growth projected at historic CAGR of 5%.
- Fee growth is forecasted to flatline, with any incremental growth in asset values offset by continued fee margin pressure based on the historical margin erosion rate.
- NII growth is expected to drop in FY24F and FY25F as interest rates fall then stabilise from FY26F into a steady but slowing decline in the low single digits YoY. This is based on the aggregate forecast of major global interest rates.

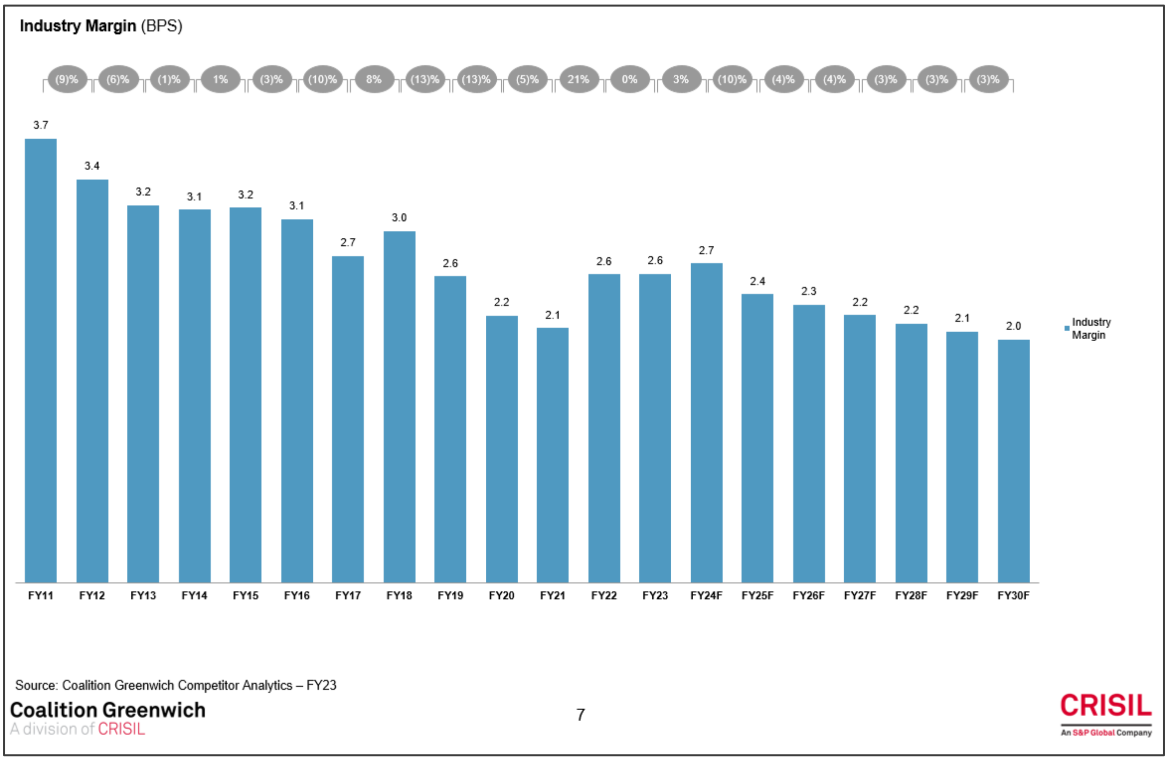

Figure 17: Coalition Greenwich Competitor Analytics – FY23, Slide 7

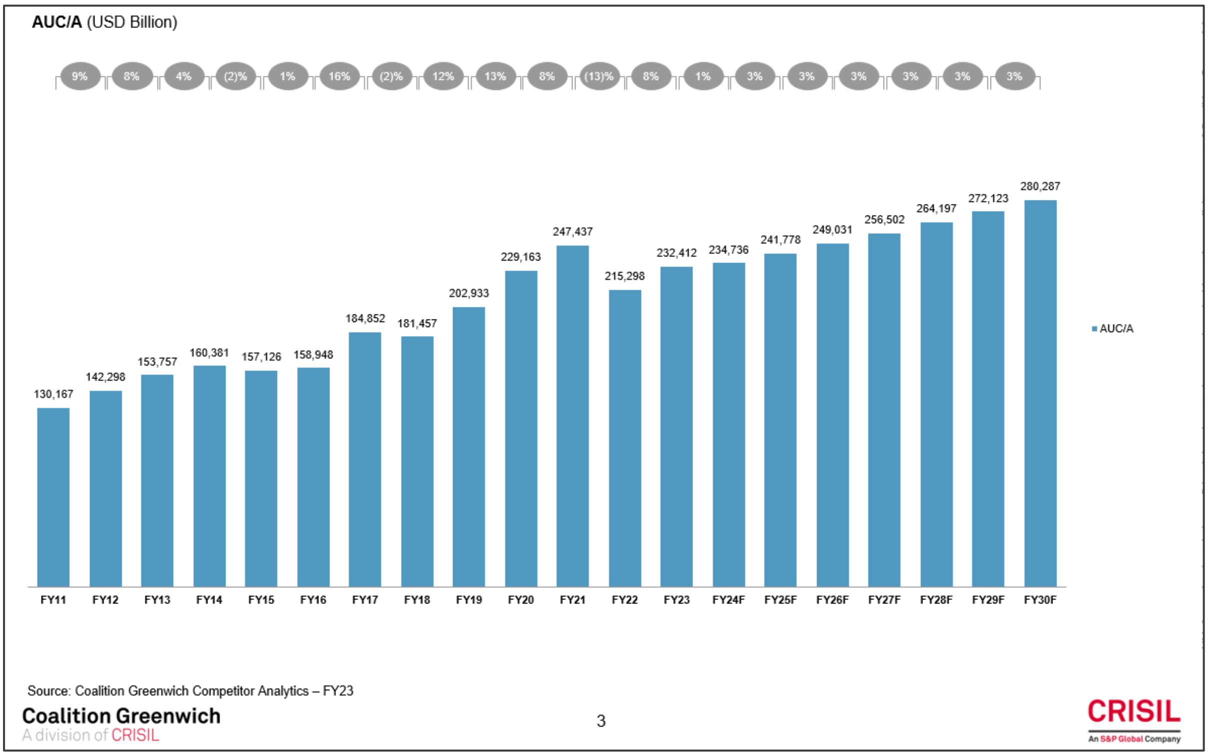

Figure 18: Coalition Greenwich Competitor Analytics – FY23, Slide 3

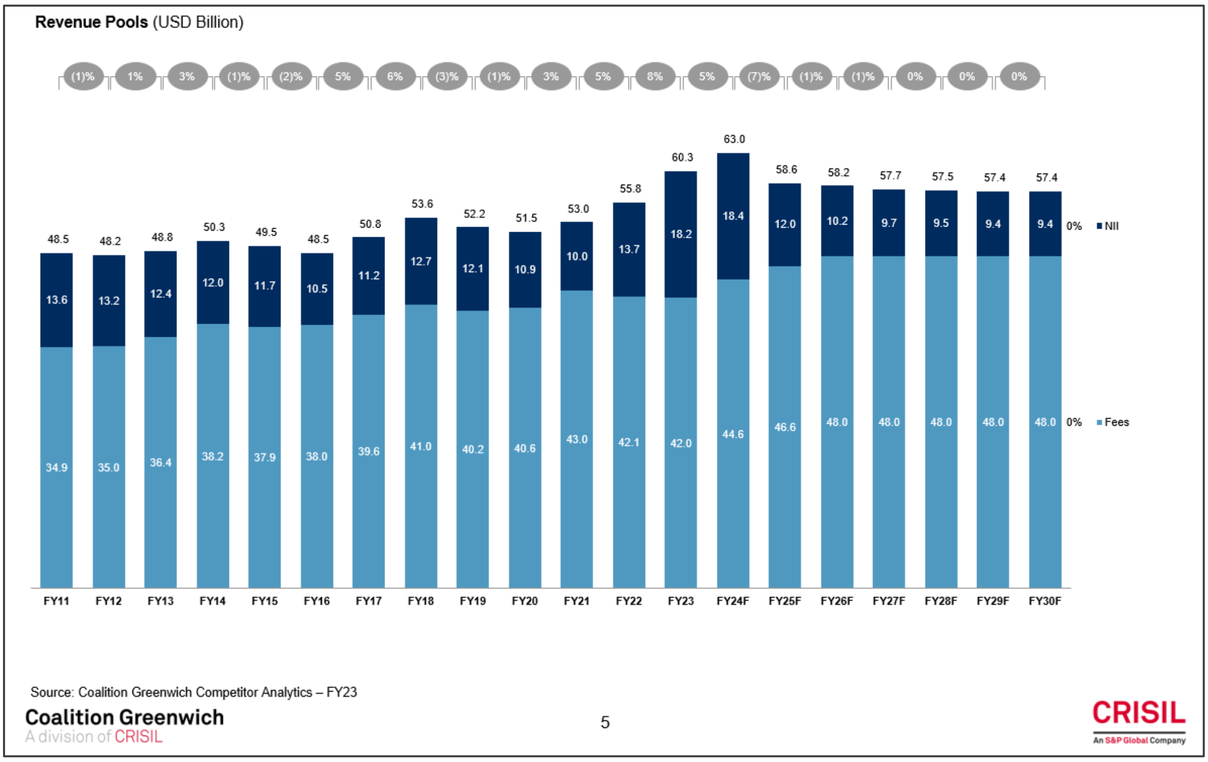

Figure 19: Coalition Greenwich Competitor Analytics – FY23, Slide 5

4 Part Three: ISSA's Agenda

4.1 ISSA's areas of focus for the Securities Services industry over the next three to five years

Looking back, the Future of Securities Services (2020) paper did an incredibly good job in identifying the major trends and forces that could impact the industry in the following decade. A few notable exceptions were:

- Not identifying the impetus for accelerated settlement.
- The lack of any significant move into SSPs' business by Big Tech firms.
- The abrupt change in monetary and fiscal policy emanating from moves by major economies to reverse the economic disruptions caused by the COVID-19 pandemic and their inflationary impact.

In that context, ISSA reacted logically to the revised trends, adjusting its focus and those of its working groups proactively to address the revised trends and the expanded three composite forces observed. This revised paper provides members with some important strategic considerations to reference when analysing what to continue, what to accelerate and what to halt. The aim is to take the inputs from this paper to debate at the 22nd ISSA Symposium and ultimately agree whether the current ISSA strategy and focus reflects the needs of the association, or whether this requires updating.

The 2020 Future of Securities Services paper used four strategic considerations to analyse the trends/forces identified and the two composite forces whilst crafting responses from ISSA on behalf of the industry. The same approach has been taken with this revised paper, apart from adding the Geopolitics Composite Force and dropping the 'Early COVID Lessons Learned' strategic consideration, as that has now been fully internalised by the industry. Thus, the three remaining strategic considerations for the industry are cost pressure on the core, new growth plans, and industry disruption.

4.2 Cost Pressure on the Core

The industry is countering continued pressure on top-line revenues by:

- Placing additional focus on strategic cost reduction.
- Doubling down on cloud-enabled modular Fintech ecosystems to achieve higher levels of efficiency.
- Forcing higher levels of service standardization across clients.
- Pursuing strategic partnership choices and industry consolidation.

Reducing costs in the industry's core business remains critical moving forwards. While the increase in interest rates had a positive impact on net interest income, the effect of the central banks winning the war against inflation has led to a climate in which the central banks can now ease policy and reduce interest rates, possibly rates may fall considerably. Therefore, net interest income in the industry is still under pressure and will be unlikely to replicate the levels of the last three years. Another continued pressure on margins is the continued success of the passive investment funds. These are lower margin products for the clients of our industry and therefore those clients want to minimise their cost bases, hence putting pressure on the Securities Services industry. In conjunction with this, the trend to accelerate settlement has increased the investment needed by the Securities Services industry, consequently putting pressure on both the income and the expenditure sides of the P&L.

The response by ISSA has been to continue the work on efficiency across the industry, looking to address areas which have large cost bases and low levels of automation. The working groups with particular focus on addressing the industry's efficiency include:

- Asset Servicing.
- Digitization.
- Digital Identity and Onboarding.
- Standardization.

These working groups have collectively pushed for the adoption of standards throughout the industry including the use of ISO 20022, as well as data standards for ESG and private markets. Within asset servicing, ISSA has worked to explain the rationale and value proposition of golden copy announcements generated at source by issuers or their agents, new principles for corporate governance activities – including proxy voting and class actions – and has started work on technology that can enable transformation throughout the issuer to investor value chain. The digital identity and onboarding group have identified the issues faced by the Securities Services providers regarding onboarding clients in a controlled and regulated manner. The digitalization group continues to address issues such as the use of paper and non-structured data within the value chain.

In support all of this, the Custody Risks Working Group is identifying new emerging risks and changes to existing risks and potential mitigants for them. This work helps firms in the industry further protect against losses and ensure profit protection.

4.3 New Growth Plans

The industry will continue to focus on developing new revenue opportunities by investing in new products and services, possibly built on data and artificial intelligence, recalibrating distribution channels and service offerings to reflect the increasing importance of buy-side clients and transforming underlying legacy IT infrastructure to increase flexibility for future innovation.

Growing a securities services business during a margin compression cycle requires focused investment. This investment can either be in new markets and new products, or through the deployment of modern technology servicing a newly identified need.

A further challenge to growth plans is the ability to fully monetize the new infrastructure in which firms have invested to serve clients. There are areas in which the service capability growth has not led to more revenue, but rather the further bundling of services at the same price whilst providing the clients with a better client experience or product.

This is an area in which ISSA can only act where there is clear agreement on the activities for industry collaboration versus those which can present competitive advantages for individual firms. One main area of focus has therefore been in the Distributed Ledger Technology Working Group, which highlighted the opportunities for collaboration on best practices for implementing the technology, and especially using it in a safe and risk-mitigated manner to promulgate the issuance of digital assets. Within digital assets, the area of private markets continues to be one of high opportunity to create scale efficiencies to enable its projected growth. The DLT Working Group will focus on the development of joint standards that ensure the digital assets infrastructure developed by different participants will be interoperable and hence result in lower operating costs and higher efficiencies for the industry overall.

The Domestic CSD Working Group has focused on providing guidance to the smaller CSDs to help with areas such as remote working and operational resilience and is now pivoting to helping frontier and emerging markets to grow and efficiently process the amount of investment coming to their market.

4.4 Industry Disruption

The industry is rethinking its positioning along the current post-trade value chain to ensure preparedness for potential industry disruption, potentially by filling capability gaps with partnerships and acquisitions, and reviewing insourcing and outsourcing decisions.

Geopolitics is most clearly evident in this strategic consideration. There is a significant risk that further fragmentation of the rules and regulations across the globe will make the Securities Services industry's arena more complex and thus, more costly. The industry directly impacts the wealth of nations and the prosperity of their populations by efficiently enabling the flow of capital between regions. The current geopolitical headwinds may reduce that flow of capital and increase its cost, and this will be exacerbated if the regulations around securities servicing and servicers fragment. Since ISSA is not a lobbying organization, there is little it can do beyond educating regulators and other public authorities of the potential impact that the fragmentation of regulation of the Securities Services industry will have on the level of cross-border investment and the direct impact of that on economic growth.

The second area of potential industry disruption that the revised trend analysis is causing ISSA to focus on is the implementation of recently introduced or radically improved technologies, especially those under the umbrella of artificial intelligence. While this paper is written by humans, it is not hard to see a time when tools powered by generative artificial intelligence will be able to record working group sessions, summarize key findings, and then write the first draft of a paper such as this one. The skills needed to program the AI tools, analyse the output, correct it, and thus improve not only the end-product but also the ability of the tool to create vastly improved outputs, will become critical. This example will be repeated in many areas of the business, especially around providing customized services to clients based on their unique needs. ISSA continues to take an extensive view of all emerging technologies and focuses on addressing their risks in its various papers. ISSA will address the opportunities that these technologies present, especially through our digitization and the Evolving technologies in Securities Services Working Group.

5 Appendix

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Philip	Brown	Deutsche Börse Group
Kristina	Buchweitz	State Street Corporation
David	Cahill	Northern Trust Corporation
Alan	Cameron	BNP Paribas S.A.
Hari Shanaker	Chaitanya	The Standard Bank of South Africa
Jennifer	Cryan	Citi
Sameera	Dada	Strate (Pty) Ltd
Alex	Dockx	JP Morgan Chase & Co.
Alex	Duggan	Cognizant
Charifa	El Otmani	SWIFT SCRL
Giles	Elliott	Tata Group
Carlos (JIA WEN)	Fan	Chongwa (Macao) Financial Asset Exchange Co., Ltd.
Göran	Fors	SEB Group
Stefano	Galletti	Intesa Sanpaolo S.p.A.
Mikhail	Grishko	Central Securities Depository Joint-Stock Company Kazakhstan
Jonathan	Hartwell	Northern Trust Corporation
William	Hodash	ISSA
Matthew	Jimenez	Northern Trust Corporation
Emma	Johnson	JP Morgan Chase & Co.
Alexandr	Kamchatnyy	Central Securities Depository Joint-Stock Company Kazakhstan
Mathew	Kathayanat	Deutsche Bank AG
Katalin	Kiss	UniCredit S.p.A.
Abhijit	Kulkarni	Deutsche Bank AG
Vicky	Kyproglou	UBS Group AG
Orateng	Letebele	Strate (Pty) Ltd
Eric	Li	Coalition Greenwich
Andreas	Lundell	Nasdaq Inc.
Kelly	Mathieson	Digital Asset Holdings, LLC
Yedil	Medeu	Central Securities Depository Joint-Stock Company Kazakhstan
Snezhanna	Mustafina	Central Securities Depository Joint-Stock Company Kazakhstan
Yajnesh	Pandey	Citi
Gilles	Papadopoulos	Swiss Re Ltd
Colin	Parry	ISSA
David	Petiteville	Royal Bank of Canada
Florian	Pfleiderer	Deutsche Börse Group
Mihai	Radu	Montran
Howard	Rapley	Northern Trust Corporation
Gabriel	Sampaio	JP Morgan Chase & Co.
Andis	Stagis	Nasdaq Inc.
Jason	Teahon	Banque Lombard Odier & Cie SA
Erik	Veerman	ABN Amro
Martin	Watkins	Archax Holdings Ltd
Richard	Wilson	S&P Global
Duncan	Woodward	Coalition Greenwich
Ankush	Zutshi	S&P Global