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**Account of proceedings by Dominic Hobson**

## ABOUT ISSA

ISSA is a Swiss-domiciled association that supports the securities services industry. ISSA's members include CSDs, custodians, technology companies and other firms who are actively involved in all aspects of the securities services value chain.

ISSA - Shaping the future of Securities Services.

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## 1 Presentations

### 1.1 Securities Services - Clients, Technology and Risk

The global banking industry needs to transform itself. Its profitability peaked two decades ago, in 2005. That year, a sample of a thousand global banks delivered an average return on tangible equity (ROTE) of well over 20 per cent. Since the nadir of 2009, the ROTE of the global banking industry has averaged just 9 per cent.

Even the modest uplift in profitability since the onset of the Pandemic owes nothing to changes made by banks. Instead, it reflects improvements in net interest margin (NIM) as monetary tightening and inflated levels of customer deposits have widened the gap between the cost of funding and the return on lending.

#### 1.1.1 The need to seize the current opportunity

However, the improved earnings do provide global banks with an opportunity to transform their businesses. It is important that they seize the chance, since rising profitability dependent on an improved NIM, which is itself dependent on an unusual combination of circumstances, is unlikely to persist.

Most of the revenue generated by banks is earned from their balance sheets. McKinsey estimates that, of total industry revenues in 2022 of USD 6.8 trillion, more than three in every four dollars made use of the balance sheets of the global banks. This is where NIM is earned.

But bank balance sheets are constrained by internal capital allocations and by the need to manage liquidity risk. Regulatory restrictions, and especially risk-weighted capital requirements and leverage and liquidity ratios, place further limits on the use of bank balance sheets. Ultimately, these measures cap NIM.

Consequently, growth in the banking industry depends on less profitable off-balance activities, which are already larger in scale. The on-balance sheet liabilities which generate NIM (deposits, debt and equity) account for less than half the flows of funds intermediated by the banks.

It is off-balance sheet activity that accounts for most of the flows intermediated by banks and most of the clients of the banking industry – but not most of the revenue.

#### 1.1.2 Challenges facing the securities services industry

Securities services are one segment of those off-balance sheet revenues, and a relatively small one. McKinsey estimates the total revenue pool of securities services at c. USD 60 billion, or less than 4 per cent of total revenues generated by the global banking industry in 2022.

Like other parts of the industry, Securities Services firms face challenges. The geopolitical and macro-economic environments are volatile and uncongenial for cross-border capital flows. The cost of regulatory compliance continues to rise, not least in response to sanctions. Above all, margins in core businesses are under pressure from clients facing cost pressures of their own.

Both buy- and sell-side clients are rethinking what services they purchase from custodian banks and financial market infrastructures, especially in terms of technology and data. Banks are responding by forming partnerships with Cloud providers, primarily to facilitate the data collation and management capabilities essential to deliver the new client services.

Clients are also interested in new asset classes, such as digital assets and privately managed assets, which have yet to develop a supportive infrastructure equivalent to the central securities depositories (CSDs), central counterparty clearing houses (CCPs) and payments market infrastructures (PMIs) that underpin the traditional securities markets.

### **1.1.3 Infrastructure for privately managed assets is an opportunity for securities services**

Building that infrastructure is an opportunity for the securities services industry. McKinsey estimates that private market infrastructure services represent a revenue stream of USD 16-18 billion a year, which the firm projects will grow by 11-13 per cent a year over the next five years. That growth rate implies USD 30 billion in annual revenues available for capture by 2030.

This potentially burgeoning revenue stream stems primarily from a private equity industry which quadrupled its assets under management (AuM) between 2013 and 2023 and expects to double it again to USD 18.3 trillion by 2030.

At USD 9.7 trillion in AuM in 2023, the private equity industry is less than a tenth the size of the public equity markets (USD 111 trillion), but it is growing much faster. In the United States, there are now two and half times more private equity-backed businesses than publicly listed companies.

Between 2013 and 2023 the AuM of the private equity industry grew at a compound annual rate two and half times (14 per cent) the capitalisation of the public equity markets (5.5 per cent).

The wider privately managed assets industry, which incorporates real estate, private credit, infrastructure and natural resources as well as private equity, grew at the same rate from USD 4.0 trillion in 2013 to USD 14.8 trillion in 2023.

The infrastructure of the privately managed assets markets has demonstrably not kept pace with this rate of growth. Large private equity funds (those managing at least USD 15 billion) are reporting increasing diseconomies of scale. They employ 10 per cent more staff in operations and spend 20 per cent more on operations.

This reflects, among other factors, the declining frequency of exit transactions. Funds are having to hold investments for longer and try to create value within portfolio companies rather than arbitrage financial markets.

They are also holding a wider variety of asset classes, expanding geographically, facing investor demands for more and better data and sourcing capital from a broader range of investors.

Chief among the broader sources of capital are retail investors. iCapital, the investment platform for wealth managers distributing alternatives to retail investors, already services more than USD 220 billion.

Intermittent liquidity products, which are designed to suit retail investors, have grown by 20 per cent a year since 2018 to more than USD 300 billion in AuM. Privately managed asset portfolios for retail investors are expected to continue growing at an annual compound rate of 10 per cent for the next five years.

Many retail investors are more expensive to service than a few institutional investors. A poll at a recent Private Funds CFO Forum found more than half of General Partners are exploring technological and service solutions to rising costs. McKinsey reckons that this creates a USD 16-18 billion a year revenue opportunity.

### **1.1.4 Where the privately managed asset opportunity lies**

The opportunity is divided unevenly between front-office fundraising, distribution, and investment (51 per cent of revenue, but likely to grow at 12-14 per cent a year to 2030), middle-office portfolio management and monitoring (6 per cent and likely to grow at 10-12 per cent a year) and back-office fund administration, corporate trust and treasury (43 per cent and likely to grow at 10-12 per cent a year).

In the back office, McKinsey reckons the opportunity lies in outsourced fund administration and corporate trust services (USD 7 billion) plus fund administration and treasury management software (USD 0.5 billion). In the middle office the firm says the opportunity lies in portfolio management and monitoring software (USD 1 billion) and fund performance benchmarks (USD 0.5 billion).

The front office opportunities identified by McKinsey are larger and more varied. The biggest lie in fundraising and asset- and industry-level data (USD 5 billion) and investor and deal customer relationship management systems and virtual data rooms (USD 2 billion). Private market investing and distribution platforms (USD 1 billion) and private fund and company secondary exchanges (USD 0.5 billion) are the other opportunities.

The outsourcing of fund administration and corporate trust is scarcely a new opportunity for the Securities Services industry, but the opportunity is enticing enough for private equity firms themselves to be investing in fund administration businesses.

The novel opportunities lie in building front office platforms that connect General Partners and Limited Partners, and in software system rationalisation and data provision in the middle office. These new opportunities are already being exploited by new entrants.

#### **1.1.5 ISSA poll of its members highlights more familiar challenges**

Yet a poll of ISSA members found a limited appetite for novelty. Respondents named a familiar trio of concerns - cyber-security, technological developments such as blockchain, Cloud and artificial intelligence (AI), and regulatory compliance - as their biggest immediate challenges.

Though the poll did pick up concern about the changing behaviour of buy-side clients, and the attendant risk of further downward pressure on fees, the fear of losing business to new market entrants is clearly not a pressing concern for ISSA members.

Indeed, asked to name their immediate strategic priorities, ISSA members did not itemise systemic threats or infrastructural gaps of the kind posed by digital and privately managed assets.

Instead, they focused on meeting quotidian demands: improving the customer experience, tightening cyber-security, automating operational processes, enhancing client reporting, upgrading regulatory compliance and adding data analytics. Only in the longer term – three to five years – did ISSA members see building capabilities in digital and privately managed assets as important.

Overall, the poll depicted an industry that is not just comfortable with its ability to manage the current threat level but buoyant about its prospects.

Asked to rank on a scale of one to ten their level of confidence in the ability of the industry to grow and modernise itself successfully over the next one to three years, nearly three out of four ISSA members placed themselves somewhere between positive (seven) and exuberant (ten). Nobody offered even a mildly negative assessment of current prospects.

#### **1.1.6 The securities services industry is in buoyant mood**

The buoyant mood reflects several factors. One is confidence born of the successful transition to a tighter settlement timetable of trade date plus one day (T+1) in North America, Mexico and Argentina in May 2024.

This has reduced anxiety about the proposed switch to a T+1 timetable in Europe, scheduled for 11 October 2027. The experience of the T+1 transition in the Americas has also convinced the securities services industry it can accommodate wrenching changes to operational processes and procedures without needing to adopt an entirely new technological paradigm.



A second factor behind the buoyant mood is a growing conviction that securities services firms are well placed to profit from wider trends in developed economies.

In the last five years, Financial Data and Markets Infrastructure (FDMI) providers – a class of companies that encompasses global custodian banks and fund administrators as well as data vendors and traditional stock exchange groups - have outperformed almost every major industrial sector.

Since 2019 FDMIs have generated compound annual shareholder returns nearly twice (17 per cent) those of pure financial services businesses (10 per cent). In fact, only technology companies (25 per cent) have done better.

FDMIs grew revenues at a compound annual rate of 7 per cent between 2018 and 2023 to a total of USD 278 billion, which is more than twice the 3 per cent growth managed by pure securities services firms since 2019.

The bulk of FDMI revenues are still earned from core trade and post-trade services (42 per cent). But technology services such as trade lifecycle management and regulatory compliance (30 per cent) and information services such as market prices, valuations, reference data, indices, analytics and news (28 per cent) have grown between two and three times as fast since 2018.

In short, securities services firms are invested in growth areas: post-trade services, information and technology.

#### **1.1.7 The transformative potential of AI in securities services**

A third factor contributing to the buoyant mood in the industry is AI, and especially the potential of AI to deliver both further operational efficiencies and seamless integration with client systems.

When ISSA polled its members on their use of AI in sanctions monitoring, it found expectations were high. Every respondent (100 per cent) expected AI to improve efficiency, and more than half expected it to lift service quality (58 per cent) and even improve employee morale by reducing humdrum work (50 per cent). A substantial minority (42 per cent) think AI will contribute to improvements in customer service too.

However, McKinsey reports that banks have been disappointed by some AI models. Those that aim to predict behaviour (such as the propensity to default) have not impressed users. Single Large Language Models (LLMs), which can fillet and summarize documents, answer basic questions and draft content, have enjoyed more success.

The form of AI that banks currently find exciting is multi-agent AI systems, or “agentic AI”. Agentic AI has proved able to automate complex multi-step workflows of the kind that abound in securities services. It can process unstructured data, perform tasks, trigger actions, and interact as well as communicate in human-like language.

Agentic AI can perceive external environments, make decisions, use tools and learn and improve. It is also more reliable than predictive models and LLMs because it can operate within clear boundaries.

An unanswered question is whether Agentic AI can be deployed at scale, because corporate users have so far proceeded cautiously.

McKinsey estimates that integrating Generative AI (GenAI) to augment human employees can, with some process re-design, unlock productivity gains of 10 to 15 per cent. But the firm believes that implementing Agentic AI - at scale, as a “native” system that executes complicated tasks without human oversight - could unlock productivity gains five or more times as great: 50 to 75 per cent.

### **1.1.8 Potential applications of AI in securities services**

A proven application of Agentic AI in securities services is handling trade status inquiries. Agentic AI can grasp the context and intent of an inquiry, prompt internal systems to gather information about the trade, initiate the reconciliation of the trade details across execution, custody and accounting systems, check the client account is funded and the transaction fees correctly calculated, resolve any errors and inform the client of the status of the trade. However, obtaining these benefits requires significant organizational, personnel and process changes.

Another useful application of Agentic AI in securities services, which is already available, is the translation of legacy software code into modern languages. In an industry built by acquisition and plagued by legacy systems, the ability to accelerate the work of developers in translating legacy code into current software is making a substantial contribution to client service as well as operational efficiency.

AI could also contribute to improving efficiency in financial crime compliance (FCC). Sanctions, for example, are increasing constantly not only in number but in complexity.

The global supply chains that must be monitored evolve constantly as sanctioned states and individuals use name-changes, intermediaries or shell companies to circumvent sanctions, impede specific sanctions-screening controls or find alternative networks to transfer value. Cryptocurrencies are being used to hide counterparties and transactions.

At the same time, regulators are increasing the pressure on banks to close sanctions loopholes. As a result, the anti-circumvention controls deployed by banks are moving beyond simply screening transactions.

Processes are being integrated to aggregate and analyse data to identify and mitigate the risk in complex flows of value. Scenario analysis is being used to predict flows. Instead of applying a single global model, local variations are being assessed and monitored. Distinctions are made between addressable and non-addressable risks. Every arm of the business is being encouraged to contribute.

### **1.1.9 GenAI is proving its usefulness in customer due diligence**

GenAI can be used to automate many of the manual tasks that the growing complexity of sanctions compliance demands. The technology is already being applied to the Know Your Client (KYC) procedures that drive Anti Money Laundering (AML) and Countering the Financing of Terrorism (CFT), where there are compelling synergies with sanctions screening and transaction monitoring processes.

In KYC and AML processing, GenAI supplements a range of initiatives banks have in hand already. The collection and verification of identity documents from clients is being streamlined by the level of risk the client represents. Questionnaires are being pre-populated from third-party data sources. Documents are being collected via on-line portals. Findings are being shared across business lines and jurisdictions.

GenAI can contribute to these initiatives by extracting data from sources, including company reports, compiling summaries of client information, proposing risk categorisations and pre-populating questionnaires.

Experiments have proved encouraging. The earliest versions of GenAI applied to data extraction from company reports have achieved 85 per cent accuracy and 30-40 per cent reductions in Average Handling Time (AHT). AI models designed to automate AML tests have enabled more than 80 per cent of cases to be closed without further investigation.

All improvements to KYC processes increase operational efficiency. McKinsey says its investigations indicate the volume of cases processed per month can rise by 20 to 50 per cent, and the number that do not need to be re-visited by 50 to 60 per cent.

But the most meaningful impact is felt in risk management. The number of false positive identifications reduces by 15 to 20 per cent and the true positive count rises by 5 to 10 per cent.

The benefits extend beyond the efficiency gains. KYC processes are a major source of client dissatisfaction, so any improvement is a source of competitive advantage.

McKinsey studies have found that improved KYC capabilities reduce client touch points by 30 to 80 per cent and improve client experience scores by ten to 30 points. This translates into happier employees too. They raise their satisfaction scores by ten to 30 points as well, and employee turnover decreases by ten to 15 per cent.

#### **1.1.10 The growing importance of non-financial risk management**

There is a still larger reason for investing in more efficient financial crime compliance processes. This is the growing importance of non-financial risks, of which AML, CFT and sanctions screening are merely examples.

The CrowdStrike outage of July 2024, for example, highlighted a fresh dimension to operational resilience and cyber-security risk management: technology concentration risk within the industry.

Banks are now also under pressure to integrate the many varieties of environmental, social and governance (ESG) risk - financing and governance, as well as pollution, natural catastrophes and climate adaptation - into the three lines of defence (3LoD) model now used by most organisations to help ensure effective risk management and control.<sup>1</sup> This has implications for staff training as well as recovery and resilience plans.

The external environment poses a series of unpredictable non-financial risks. Politically polarising election results and armed conflicts are fuelling policies of deglobalisation, giving rise to trade barriers and cyber-attacks as well as sanctions.

Regulatory disparities, especially between the United States and the European Union (EU), are widening around capital adequacy, sustainability, data privacy, artificial intelligence (AI) and digital assets.

In fact, non-financial risks are now so extensive and multifarious that banks are raising the management of non-financial risk to the same level as operational risk. Regulators are encouraging this elevation of the threat. Once a niche for professional risk managers only, non-financial risk management is now a boardroom issue.

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<sup>1</sup> See the work of the Sustainability and Securities Services Working Group, page 68 below.

## 2 Panels

### 2.1 Collateral - Changing Needs and Availability

#### 2.1.1 Mandatory clearing of US treasury securities

In December 2023, the Securities and Exchange Commission (SEC) adopted a rule that requires most cash market and repo and reverse repo transactions in US treasury securities to be cleared through an SEC-approved central counterparty clearing house (CCP).

In practice, this means trades will clear via the Fixed Income Clearing Corporation (FICC) owned by the Depository Trust and Clearing Corporation (DTCC).

The rule applies to all repo and reverse repo transactions, all purchase and sale transactions with registered broker-dealers and government securities dealers and all purchase and sale transactions intermediated by interdealer brokers.

Although there are exceptions – the rule does not apply to most trades between dealers and clients, securities financing transactions that are not repos or trades done with exempt participants such as central banks – most of the market is affected.

The scale of the change led to concern that the transition would be challenging, especially to the initial deadlines set by the SEC of 31 December 2025 for cash market transactions and 30 June 2026 for repo transactions.

The switch to a settlement on a trade date plus one day (T+1) timetable from May 2024 had already devoured operational resources. The announcement by NYSE Arca in October 2024 that it would increase trading hours to 22 hours a day on weekdays – recently approved by the SEC - threatened to divert operational resources again.

Accordingly, in February 2025 the SEC agreed to extend the mandatory clearing deadlines to 31 December 2026 for the cash market and to 30 June 2027 for repos.

This has given market participants more time to assess which transactions are eligible for clearing, plan their cash and collateral liquidity needs, work out how to access clearing services and implement the operational and documentation changes necessary to ensure a smooth transition to clearing.

Despite the operational and timing challenges, there is nevertheless widespread support among market participants for mandatory clearing, which is expected to deliver three main benefits.

The first is a reduction in counterparty credit default risk. This will also contain contagion risk for the FICC if a principal trading firm or hedge fund that is neither a bank nor a dealer defaults on its obligations to a clearing firm.

The second benefit is a reduction in the risk created by the USD 2 trillion volume of bi-lateral repo transactions that are not cleared via the FICC.

These trades, in which dealers source collateral from leveraged buy-side clients such as hedge funds and finance them with funding from non-bank cash providers such as money market funds, concern the SEC because competition to finance dealers has driven collateral margins down to what it considers dangerously low levels.

The third benefit of mandatory clearing is intended to be an increase in the capacity of dealers in the US government bond market.

The inability of dealers to absorb the selling pressure that accompanied the “dash for cash” at the start of the Pandemic in March 2020 required intervention by the Federal Reserve to offset the downward pressure on prices (by buying Treasury securities).

This was the latest in a series of dysfunctional episodes in the US Treasury market, including the “flash” crash and rally of 15 October 2014 and the stresses in the US Treasury repo market in September 2019.

In fact, the origins of the SEC rule lie in a Group of Thirty (G30) report of 2021 that recommended all US Treasury repos and all cash market trades and repos executed on interdealer platforms be centrally cleared.<sup>2</sup>

Centralised clearing, by allowing trades to be netted and cross-margined, should in principle increase capacity, and there is evidence that this aim is being fulfilled already.

Before the SEC rule was adopted the FICC was clearing a daily average of USD 4.5 trillion of cash and repo transactions involving US Treasury securities, which is equivalent to a sixth of average daily outstandings of USD 27 trillion.

Once the rule was announced, cleared volumes increased to around USD 7.2 trillion a day, and they surged again to a daily average of over USD 9 trillion after the rule was formally adopted in December 2023.

On 24 March 2025 the FICC launched an enhanced version of its clearing service to meet a separate deadline set by the SEC for the clearing house to develop the capabilities to separate house and customer activity and to segregate margin posted to the FICC.

With these capabilities in place, the FICC has seen a further increase in clearing activity to over USD 10 trillion a day, with a peak of more than USD 11 trillion on 9 April 2025 – the day President Trump paused the tariffs he had announced a week earlier.

This comfortable accommodation of rapidly rising volumes by the FICC confirms that clearing is has added capacity to the US Treasury market, well ahead of the 2026 and 2027 deadlines.

Market participants believe increased capacity is essential. The Congressional Budget Office predicts the US Treasury market will double in size over the next decade, with government deficits and the rising cost of interest payments raising outstandings from \$27 trillion to \$46 trillion.<sup>3</sup>

However, a cleared US Treasury market will be different from the market that prevails today. The obvious change will be a demand for clearing services. Direct members of the FICC will clear their own trades, and clear trades for non-members in exchange for a fee or spread.

Bi-lateral trades that are currently cleared as well as executed by the same bank or dealer will in future be “done away.” In other words, direct members of the FICC will clear trades for clients with third-party banks or dealers.

There is also a risk that centralised clearing will not fulfil expectations of increased activity. After all, clearing will increase transaction as well as technology, connectivity and processing costs.

In principle, higher transaction costs could reduce activity in normal markets. They might also deny access to finance altogether for users that find sponsored access to cleared trading uneconomical. But the weight of opinion holds that the benefits of centralised clearing will outweigh the costs.

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<sup>2</sup> Group of Thirty, *US Treasury Markets: Steps Toward Increased Resilience*, Working Group on Treasury Market Liquidity, 2021, Recommendations 2 and 3 at <https://group30.org/publications/detail/4950>.

<sup>3</sup> BNY, *Reassembly Required: Central Clearing Will Re-shape the US Treasury Market*, Updated February 2025, page 4, at <https://www.bny.com/corporate/global/en/insights/central-clearing-us-treasury-market.html>



### 2.1.2 The prospects for mandatory centralised clearing in Europe

In Europe, the decision by the SEC to mandate the clearing of government bond and government bond repo transactions has sparked a debate among regulators and market participants over whether the European Union (EU) should follow suit. After all, the same benefits – reduced counterparty and market risk and increased dealer capacity through the netting of exposures – should apply.

Indeed, European policymakers are as concerned as their American counterparts about increased borrowing in the repo market by leveraged hedge funds paying zero per cent haircuts when they use government bonds as collateral.<sup>4</sup>

Mandatory centralised clearing, with its stricter collateralisation policies and netting of exposures, would add dealer capacity and reduce the risks of default and consequent market contagion.

The risks associated with leverage, zero per cent haircuts and lack of dealer capacity were highlighted in the September-October 2022 crisis in the United Kingdom, when rising gilt yields forced liability-driven investment (LDI) funds to sell gilts to raise cash. Lack of dealer capacity forced the Bank of England to step in and purchase long-dated government bonds.<sup>5</sup>

However, a significantly higher proportion of government bond repo transactions - around 60 per cent of outstanding amounts - are centrally cleared already, although the proportion varies between individual government issuers and between inter-bank and non-bank business. Many non-cleared trades are also netted between the counterparties.

This suggests mandatory central clearing would yield lower benefits in Europe than in the United States.

As the variation in the proportion of repo trades that are cleared suggests, the European government bond markets also remain fragmented by comparison with the United States. Each member-state of the single currency maintains its own government bond market, with its own issuance, trading and regulatory parameters.

Most importantly, this market fragmentation means the market infrastructure is also fragmented. While the US Treasury market is serviced by the FICC alone, repo clearing in Europe is dominated by five main Central Counterparty Clearing Houses (CCPs). Others are also active. The European Association of CCP Clearing Houses (EACH) has 18 members from 14 countries.

The Central Securities Depositories (CSDs), where the government securities that serve as collateral are held, are even more numerous. In Europe CCPs are obliged to build links to 22 individual CSDs so market participants can post eligible government bond collateral across markets. Custodian banks have also developed services to enable their customers to mobilise collateral in one market to cover exposures in another.

These work-arounds do work. The ability to move collateral across borders to CCPs and bi-lateral counterparties enabled obligations to be met quickly in the turbulent markets that followed the announcement of trade tariffs by the US government in April 2025.

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<sup>4</sup> Central clearing and the growing presence of non-bank financial intermediation in euro area government bond repo markets, European Central Bank Macroeprudential Bulletin, 26 January 2025 at [https://www.ecb.europa.eu/press/financial-stability-publications/macroeprudential-bulletin/focus/2025/html/ecb.mpbu202501\\_focus01.en.html](https://www.ecb.europa.eu/press/financial-stability-publications/macroeprudential-bulletin/focus/2025/html/ecb.mpbu202501_focus01.en.html)

<sup>5</sup> Yuliya Baranova, Eleanor Holbrook, David MacDonald, William Rawstorne, Nicholas Vause and Georgia Waddington, *The potential impact of broader central clearing on dealer balance sheet capacity: a case study of UK gilt and gilt repo markets*, Bank of England Staff Working Paper No 1026 June 2023 at <https://www.bankofengland.co.uk/working-paper/2023/the-potential-impact-of-broader-central-clearing-on-dealer-balance-sheet-capacity>

Despite the stress in the markets, the intra-day liquidity, margin management and settlement mechanisms in Europe did not buckle.

But there is still a need for infrastructural improvement. An additional problem during the LDI crisis in the United Kingdom in September-October 2022, for example, was the poor quality of the infrastructural connectivity between non-cleared asset managers looking to sell gilts and the cleared dealers available to buy them.

One potential avenue for infrastructural improvement to take is tokenisation of collateral. Supranational issuers have already issued bonds on to public as well as private blockchains, and the United Kingdom government is now planning to issue a digital government bond (or digital gilt). Repo transactions have also taken place on blockchain.

The proposed digitalisation of government borrowing by the government in the United Kingdom necessitates the construction of a digital asset financial market infrastructure.

This would operate as a blockchain-based platform for the issuance, trading, settlement and safekeeping of digital gilts. Tokenising assets for use as collateral is also being explored by several private sector initiatives.

If tokenised government bond markets follow the example of the cryptocurrency markets, trading will take place around the clock. This will challenge the collateralised financing markets if cash settlement timetables do not adjust as well, because borrowers and lenders need access to cash to post as or against collateral. This question has arisen already in the US equity markets, where trading hours are lengthening.

### **2.1.3 The Chinese government bond market opportunity**

The progressive opening of the growing Chinese government bond market to international investors since 2002, in conjunction with the growing internationalisation of the Renminbi (RMB), has created a new opportunity for banks and asset managers to use RMB-denominated assets as collateral outside China.

The rising proportion of RMB in central bank reserves has further increased foreign holdings of Chinese government bonds, creating a supply of useable RMB collateral offshore. Over time, this offshore pool of capital will expand, creating an RMB equivalent of the Eurodollar market, which foreign companies will tap with bond issues.

The mainland China central securities depositories, China Central Depository & Clearing Co., Ltd (CCDC) and the Shanghai Clearing House (SCH) have already cooperated with their counterpart in Hong Kong to develop an infrastructure that makes it easier for foreign capital to enter the Chinese bond market and Chinese capital to enter the international market.

Bond Connect is an infrastructure built and operated by the CCDC and SCH and the Hong Kong central securities depository. Its purpose is to facilitate access by international investors to the mainland Chinese bond market and to provide a channel by which Chinese investors can invest in the international bond markets. Bond Connect has grown significantly since it opened for business in July 2017.

Total foreign holdings in the Shanghai Clearing House (SHCH) and China Central Depository & Clearing (CCDC) increased from RMB 842.5 billion in July 2017 to RMB 4,444.5 billion in April 2025.<sup>6</sup> Since 2021, mainland institutional investors have also been able to use Bond Connect to invest in the Hong Kong bond market.

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<sup>6</sup> <https://www.chinabondconnect.com/en/Resource/Market-Data.html>

Bond Connect has in principle also made it easier for international investors to use mainland China bonds as collateral outside China. For example, they are accepted as eligible collateral by Swap Connect, the derivatives market access scheme between mainland China and Hong Kong, OTC Clear, LCH and tri-party collateral management service providers active in Asia.

However, overall levels of activity are low by comparison with other sovereign bond markets. One factor is legal uncertainty over netting. Another is that collateral posted under mainland Chinese law does not always ensure full transfer of title. In most transactions, collateral is pledged rather than transferred.

As a result of this legal obstacle, cash providers are concerned it will take time and effort to obtain and liquidate the collateral in an event of default. Legal uncertainty over how easy it will be to remit funds out of China after liquidation of collateral has erected another barrier to full international engagement in the Chinese repo market.

Efforts by the Chinese authorities to allay these concerns through operational mechanisms such as extended trading hours, more frequent settlement cycles, partnerships between CCDC and foreign CSDs and regulatory statements – which are not backed by the force of law – have not been successful. A standard, legally enforceable agreement comparable with the Global Master Repo Agreement (GMRA) is required.

Legal uncertainty is not a problem for bonds held in Hong Kong of behalf of mainland Chinese investors. Hong Kong retains the common law system inherited from the United Kingdom, and operates to agreed international standards, so there is no legal uncertainty over ownership of collateral in an event of default.

Over time, the mainland China government bond market is expected to evolve towards the same international standards. This will happen as government borrowing increases, China becomes a fully open market on capital account, the RMB becomes fully convertible, more foreign companies issue RMB bonds and China develops the trade deficits that will generate sufficient RMB liquidity offshore to integrate a bond market that is presently divided between its onshore and offshore components.

## **2.2 Client and Issuer View on Securities Services**

The securities services industry was founded to support the investment activities of end-investors. Yet it has tended to be more responsive to asset managers as fund issuers than to end-investors.

The sovereign wealth funds, pension funds, insurers and endowments and foundations that are the ultimate owners of the assets of the funds – and which custodians safekeep on their behalf – are a secondary consideration.

Since the great financial crisis of 2007-08, the securities services industry has placed a third interest group above end-investors as well. This is the banking and securities market regulators that determine what service providers can and must do.

### **2.2.1 What asset owners want from global custodian banks**

Asset owners would like global custodian banks to rediscover their needs. Historically, custodians have organised their activities around products, such as custody, fund administration and corporate trust.

Likewise, their technology platforms were built and continue to operate in asset class silos: equity, fixed income, funds, foreign exchange and securities lending.

This segmentation by product and asset class does not suit the needs of asset owners, who view their portfolios horizontally rather than vertically, and prefer reports that integrate data across product and asset class silos.

Asset owners would prefer global custodian banks to re-design their organisational structures around their needs. They also believe any new design will be improved if asset owners are consulted as part of the process.

If they are not consulted, asset owners fear remodelled services risk over-sophistication and even irrelevance. They are concerned that the innovative artificial intelligence (AI) and blockchain-based services custodians are developing today are far-removed from their immediate needs.

The needs of asset owners are simple than custodians believe. They include predictable emphases on asset safety and understanding of local market nuances. Asset owners also want the ability to hold assets in a market in their own name, reporting of intra-day cash balances in real-time, automatic trade status updates delivered every few minutes and a client representative that can cover all products and asset classes (and who stays in post for a long time).

### **2.2.2 Private markets are an opportunity for global custodians**

That said, the needs of asset owners are not unchanging. One major new product area in which global custodian banks could help asset owners is private markets.

In pursuit of higher returns, asset owners have in recent years increased significantly their exposure to privately managed assets. They have purchased the exposures mainly via segregated funds run by asset managers.

According to BCG, in the decade to the end of 2024, private equity, private debt, real estate and infrastructure funds grew at a compound annual rate of 11.1 per cent, 70 per cent faster than other asset classes (6.5 per cent).<sup>7</sup>

However, asset owners report that asset managers are struggling to cope with the operational and administrative demands of growth at this pace.

They are servicing hundreds of Limited Partners with capacity designed to support a third to a fifth of this volume. Asset owners believe global custodian banks can relieve this operational shortcoming by offering asset managers an expanded outsourcing service.

### **2.2.3 Global custodians can help asset owners by helping asset managers cut costs**

The under-investment by asset managers in the operational and administrative infrastructure to support privately managed assets is an apt measure of the priorities of the global asset management industry.

According to Boston Consulting Group (BCG), privately managed assets account for less than a quarter of global assets under management (AuM) but more than half of the revenues.<sup>8</sup> In other words, asset managers are focused on asset gathering and investment performance, not operational infrastructure.

Infrastructure interests them chiefly as a source of cost. They would like to reduce that cost because their revenues are under pressure.

Asset managers are being pushed by asset owners to lower fees in actively managed strategies, but declining revenues also reflect a long-term shift by investors to low-margin investment vehicles such as exchange-traded funds (ETFs).

The shift to passive investing is evident with institutional investors but is especially true of retail investors. In France, 30 per cent of retail inflows now go into ETFs. In Germany, the equivalent figure is 50 per cent.

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<sup>7</sup> Excluding money market funds. See BCG, *From Recovery to Reinvention*, Global Asset Management Report 2025, 23rd Edition, April 2025.

<sup>8</sup> BCG, *From Recovery to Reinvention*, Global Asset Management Report 2025, 23rd Edition, April 2025.

Even the less stable markets which have followed the election of the Trump administration in the United States are unlikely to arrest this trend to passive investing. This presents asset managers, and especially smaller managers that lack economies of scale, with a major challenge.

Indeed, the disruptive potential of the fee compression associated with passive investing is comparable with the threat electric vehicles posed to the motor industry.

One major global asset manager says 15-16 basis points of cost must be recovered for a passive fund to match the margin of an active fund. Fees even on actively managed ETFs are half the value of the fees chargeable on the equivalent actively managed mutual fund, without any offsetting savings in manufacturing and distribution costs.

#### **2.2.4 Cost pressures are re-shaping fund distribution strategies**

This explains the emphasis on asset gathering over operational infrastructure. It takes four to eight times the AuM to generate the same revenue from passively managed assets as actively managed portfolios.

One symptom of this increased emphasis on asset gathering is the efforts by asset managers to rebuild ties with retail investors. Until recently, asset managers were content for fund distributors to own the relationships with the investors. Most sold their books of retail business.

Now, asset managers are buying - or collaborating - with private banks, retail brokers, wealth management platforms, direct-to-consumer firms, and financial advisory services.

Such partnerships enable asset managers to increase retention and widen distribution while reducing dependence on fund distributors, which are traditionally rewarded handsomely via trailer fees.

This has implications for the transfer agency and wider distribution support services provided by global custodian banks, because several new opportunities arise as a result.

One is to help asset managers develop their privately managed asset fund ranges by providing distribution as well as operational support.

Another is to make the production and distribution of Key Investor Information Documents (KIIDs) more efficient. The scale of this regulatory obligation is a burden for larger asset managers.

One major European asset manager is obliged, after taking account of different languages and share classes, to produce 34,000 KIIDs a year to fulfil its regulatory duty to provide potential investors with a succinct and standardised overview of its funds.

#### **2.2.5 Getting the basics right is more valuable than tokenising assets and AI**

However, global custodians do not need to innovate to win plaudits. They can impress asset managers simply by getting the basic fund accounting and compliance services right every time.

If the Net Asset Value (NAV) of a fund is miscalculated, or a fund inadvertently drifts out of compliance with its investment rules, it creates significant risks and costs for asset managers.

They are obliged to calculate the financial impact of NAV errors and compensate any investors who lost money as a result, triggering thousands of letters in multiple languages to the affected savers. Purely manual processes cannot cope with these demands, yet the risks of incurring an expensive regulatory penalty are high.

Averting these risks and costs by providing basic services to a high standard is more valuable to end-investors as well as asset managers than innovative products that make use of artificial intelligence (AI) and blockchain technologies.



For example, one end-investor found buying and holding bonds issued on to blockchain networks in tokenised form was less efficient than investing in traditional bonds.

Tokenised bonds entailed checking the treatment of the assets in three separate legal jurisdictions. There were no savings in transaction costs. The coupon entitlement was also paid ten days late.

This experience suggests that applying blockchain technology to established, liquid markets might add no value. However, other use-cases for tokenisation are more promising.

The most prominent is collateral management but another value-adding tokenisation opportunity lies in funds. This is especially true of funds invested in privately managed assets, where tokenisation has the potential to reduce transaction costs, enhance transparency and facilitate the development of programmable and fractionalised investment products.

It is also helpful for banks to provide cryptocurrency trading and custody services to asset managers.

The applications of AI to post-trade operations are more limited. However, expectations that AI-powered assistants can reduce transaction processing times and automate the production of customised client reports are high.

### **2.2.6 Where global custodians should focus their efforts**

End-investors prefer that global custodians concentrate on delivering the basic issuance, settlement and safekeeping services to a higher and more consistent standard.

Asset managers need to change their operating model to accommodate new asset classes, changing distribution strategies and the shift to passive investing. They must rely on global custodians to help them effect the transition, because even larger asset managers lack the requisite scale.

However, it is not helpful for global custodians to push for tighter systems integration, since this can create unmanageable cyber-security risks for buy-side firms.

## **2.3 Future of Securities Services**

Mapping and re-mapping the future of the securities services industry is the perfect expression of the triple mission of ISSA. The Association exists to inform its member-firms about issues affecting the industry; enable member-firms to address issues collaboratively, armed with solid information; and help member-firms respond to issues by acting at the industry level.

The Working Group that drew up the original Future of Securities Services paper, published in November 2020 in conjunction with Oliver Wyman<sup>9</sup>, fulfilled these three responsibilities by making a series of predictions about the impact on the securities services industry of a range of secular trends over five to ten years.

The paper identified ten trends in total, which it analysed through four strategic lenses, which it labelled as cost pressures, growth opportunities, industry disruption and lessons of the Pandemic. It concluded, after surveying of member-firms for their perspective, that two “composite” trends (changes in investor behaviour and technology and technology-enabled competition) would be the most impactful of the ten forces.<sup>10</sup>

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<sup>9</sup> See ISSA and Oliver Wyman, Future of Securities Services, November 2020 at

[https://issanet.org/content/uploads/2013/04/ISSA\\_Future\\_of\\_the\\_Securities\\_Services\\_Industry\\_final\\_Nov20.pdf](https://issanet.org/content/uploads/2013/04/ISSA_Future_of_the_Securities_Services_Industry_final_Nov20.pdf)

<sup>10</sup> The ten trends were Shift to passive and ESG; Shift into digital and alternative assets; Financial deepening and globalisation; Increased adoption of new technology; Industry disruption by Big Tech; Increased data and associated use cases; Emerging new risks; Increased sourcing and partnerships; Loose monetary and expansionary fiscal policy; and Uncertain regulation. The four strategic lenses were Cost pressure to the core; New growth paths; Industry disruption; and COVID-19 early lessons learned. The two “composite forces” were Changes in investor behaviour and Technology and technology-enabled competition.

### 2.3.1 The need to update the 2020 predictions

A major purpose of the paper was to spark a debate among ISSA member-firms to ensure that the work of the Association over the next three to five years was aligned with the challenges that the various forces posed to their businesses. As with any forward-looking projection, the predictions were vulnerable to changes in the environment.

And since November 2020 a great deal has changed. The Russia-Ukraine war has broken out, interrupting financial flows, complicating sanctions compliance and multiplying cyber-security risks; generative artificial intelligence (genAI) has become available; the settlement timetable in North America, Mexico, Argentina and India has shrunk to trade date plus one day (T+1); and President Trump was re-elected with a mandate to impose tariffs on trade with the United States.

In 2023 the ISSA Executive Board reconstituted the Future of Securities Services Working Group, with a larger and broader membership of 60 firms, and with Coalition Greenwich rather than Oliver Wyman as external consultant. Coalition Greenwich supplied assets under custody (AuC), fee income and net interest margin forecasts to 2030.

With these forecasts in mind, the Working Group was asked to consider whether the forces identified in 2020 were unfolding as expected and whether they were still valid at all. The Group was also charged with identifying any additional forces that had and might disclose themselves over the rest of the decade to 2030. The Group delivered its report in September 2024.<sup>11</sup>

### 2.3.2 The outcome of the 2020 predictions

It concluded that eight of the ten trends identified in the original paper were evolving broadly as anticipated. Of the two exceptions – the post-Pandemic tightening of monetary policy and the absence of Big Tech firms as competitors to the established securities services firms – only the prediction that monetary policy would remain loose proved completely wrong.

Indeed, when members of the Executive Board scored the 2020 predictions out of ten, the scores average more than seven. With the exceptions excluded, it rose to more than eight out of ten. Overall, the authors of the 2020 paper got five predictions right, three largely right, one partially wrong and only one completely wrong.

The purchase by a BigTech firm of a bank with a securities services arm was an understandable competitive anxiety in 2020. Five years on, both Google and Meta are facing anti-trust lawsuits, and Apple and Amazon are expected to face similar actions. This has diminished their appetite for entering such a highly regulated industry as securities services.

Instead, BigTech is forming partnerships with incumbent firms, especially exchanges. Google Cloud entered partnerships with CME Group in 2021 and Deutsche Börse in 2023. Microsoft Azure and London Stock Exchange Group formed a strategic partnership in 2022. In 2025 Amazon Web Services (AWS) expanded its longstanding partnership with Nasdaq.

ISSA is developing a set of best practices for partnerships with Big Tech firms.<sup>12</sup>

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<sup>11</sup> See ISSA, The Future of Securities Services 2024-2030, September 2024 at [https://issanet.org/content/uploads/2024/09/ISSA-FOSS-Paper-2024\\_FINAL.pdf](https://issanet.org/content/uploads/2024/09/ISSA-FOSS-Paper-2024_FINAL.pdf)

<sup>12</sup> See the work of the Evolving Technologies Working Group, page 64.

### 2.3.3 The unexpected acceleration of settlement timetables

Apart from the less successful predictions, there was one conspicuous absence from the 2020 lists of trends. This was accelerated settlement. Though the subject is treated in full in the September 2024 revision of the predictions, it is forgivable not to have identified faster settlement as a priority four years earlier. At the time of the 2020 report, major capital markets had shortened their settlement timetables to two business days after trade date (T+2) relatively recently, and further tightening seemed unlikely.

Consultations after the United States switched to T+2 in September 2017 had concluded that moving to T+1 would deter foreign investors, notably in Asia time-zones, and especially when the foreign exchange markets would continue to settle on T+2. It was unreasonable to believe that the American regulators would choose to ignore foreign investors.

Even when India began its transition to settlement one day after trade date (T+1) in February 2022, the formal announcement by the Securities and Exchange Commission (SEC) that the United States would switch to T+1 was still a year away.

In the end, the decision by the SEC was driven by political rather than market considerations. The Game Stop short squeeze of January 2021 had highlighted the threat to retail investors posed by settlement of margin payments on a T+2 timetable in volatile markets.

During congressional hearings on the Game Stop short squeeze, the CEO of one retail brokerage firm deplored the fact Amazon could collect payment and deliver a physical parcel faster than a securities trade could be settled.

His call for an exploration of the potential for moving to real-time (T+0) settlement of equity trades turned the settlement timetable into a problem for retail investors. Since retail investors double as voters, Congress pressed for action.

At the SEC, work on shortening the settlement timetable was already under way, but the political consequences of the GameStop short squeeze accelerated it. The SEC announced the transition to T+1 on 15 February 2023.

On 28 May 2024 the United States – and Canada, Mexico and Argentina, all markets closely dependent on the United States - shortened their securities settlement cycles to T+1.

The United Kingdom, Switzerland, the European Union (EU) and Australia are now developing plans to follow suit. The European Securities and Markets Authority (ESMA) has proposed a target date of 11 October 2027<sup>13</sup>, and the United Kingdom and Switzerland are working to the same date for switching to T+1.<sup>14</sup>

ISSA believes it is now reasonable to expect the remaining T+2 markets to move to T+1 and that an eventual move to same-day trade settlement (T+0) cannot be ruled out, if the benefits are judged to outweigh the costs of the investment in new technology, intra-day funding of settlement and adaptation of existing market practices.

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<sup>13</sup> European Securities and Markets Authority (ESMA), *ESMA assessment of the shortening of the settlement cycle in the European Union*, Report, 18 November 2024. See <https://www.esma.europa.eu/press-news/esma-news/esma-proposes-move-t1-october-2027>

<sup>14</sup> In December 2023 ISSA published *T+1 Global Impacts*, which identified six impacts that needed to be addressed. See <https://issanet.org/publications-media/t1-global-impacts-paper-published/>. See also the work of the Accelerated Settlement Break-out Group on page 45 below and the Accelerated Settlement Working Group on page 61 below.

### 2.3.4 The continuing relevance of technology and technology-enabled competition

The political sensitivity of the settlement timetable surprised the securities services industry, but it is a measure of how technology is changing the environment. Which is why the 2024 update of the 2020 trends retained *technology and technology-enabled competition* as a highly impactful “composite” trend.

At work in the institutional securities services industry, members of ISSA interact with technology that is quite different from the technology they encounter as individuals in their private lives. Because it affected retail rather than institutional investors, the Game Stop short squeeze posed an important question for the industry: does it wish to close the technological gap between the institutional and the retail experience?

A SWIFT MT548 settlement status message, for example, has 102 fields for users to populate, which enables the information it contains to be processed automatically by another firm. But technological developments mean it is no longer necessary for the parties to a securities transaction to exchange information by structured message types of this kind.

Data can instead be exchanged via application programme interfaces (APIs). Cloud, blockchain and artificial intelligence (AI) are enabling large stores of unstructured data to be accessed, transferred and transformed into information of the kind retail investors experience via the apps they use every day as retail consumers.

A challenge for securities services firms is whether they wish to use data in similar ways to change the experience of their institutional customers. Investment in Cloud partnerships suggests that they wish to meet it, though it is a substantial investment and they cannot rely on the vendors they use to ensure their data is ready for consumption by AI algorithms.

Indeed, one finding of the ISSA Working Group on the ISO 20022<sup>15</sup> messaging standard was that syntax (the structure and format of the message itself) is less important than the standardisation of the semantics (the data elements that convey the meaning or information the message contains).

Unfortunately, many securities services firms still conceive of data in terms of structured, SWIFT-style message templates.

The difficulty the industry has experienced in improving a major client pain-point - Anti Money Laundering (AML), Countering the Financing of Terrorism (CFT) and sanctions screening checks before on-boarding - proves securities services firms still prefer form-filling over capturing and transmitting data elements.

### 2.3.5 Changes in investor behaviour remain a crucial influence

This has created a potential rift with buy-side clients of the securities services industry, which is why the 2024 update of the 2020 trends also retained *changes in investor behaviour* as a second highly impactful “composite” trend.

While the securities services industry has understood the commercial impact of the continued move from active to passive investment, the expansion of asset management into privately managed and alternative asset classes and the growing importance of ESG investment strategies, the fact that investor needs are more data-driven is proving harder to grasp.

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<sup>15</sup> See ISSA, ISO 20022 Working Group, at <https://issanet.org/working-groups/archived-working-groups/iso-20022-working-group-home/#:~:text=ISO%2020022%20has%20been%20touted,an%20ISO%2020022%20Working%20Group.>

Asset managers are already creating a standardised data eco-system of their own via platforms such as BlackRock Aladdin and Bloomberg Asset and Investment Manager (AIM). The end-state of current developments is that data will move between buy-side clients in the Cloud, rather than via traditional networks such as SWIFT.

The growing buy-side appetite for data is not confined to the search for alpha either. The priorities of the clients of the securities services industry now include sustainability.<sup>16</sup>

In an increasingly unstable global environment, buy-side firms are also interested in asset safety. This includes novel concerns, such as the emergence of shortages of critical supplies in particular regions. In short, investors want help to manage rising geopolitical risk.

### **2.3.6 The emergence of a new factor: geopolitical risk**

Although the 2020 paper did mention geopolitical risk, it saw it as an opportunity rather than a threat for securities services firms with truly global reach.

However, the acceleration of geopolitical risks in the last five years, evident in the outbreak of war between Russia and Ukraine, the proliferation of political movements and governments opposed to globalisation and the imposition of tariffs by the Trump administration, means geopolitical risk has now emerged as a major factor.

Accordingly, the authors of the 2024 report added a changing geopolitical environment - which impacts regulatory frameworks, market access and investor confidence - to the list of high impact “composite” forces affecting the securities services industry, and especially the global custodian banks that are active in multiple jurisdictions.

Geopolitical risk now shapes the way global custodians view the future of their industry. In the short term, they are confronted by the possibility that a client servicing location in one country might face a higher tariff than a client service location in another country.

Similar considerations affect the choice of business partnerships. Likewise, some markets might be more heavily sanctioned by some jurisdictions than others.

In the medium term, asset management clients might adjust their asset allocations drastically, disrupting service models.

In the long term, a securities services industry that has grown largely through the cross-border capital flows that have accompanied 30 years of globalisation might face a period of falling or even negative growth as capital retreats to domestic markets.

## **2.4 Demographic Timebomb in Securities Services - The Right People, the Right Environment, the Right Skills**

According to the United Nations, the population of the world will continue to grow for another 50 to 60 years, peaking at 10.3 billion in 2080.

The ten countries with the fastest rates of population growth are all in Africa, closely followed by the countries of the Middle East. Three countries - India, Nigeria and Pakistan - will see the largest increase in their population numbers between now and 2050.

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<sup>16</sup> See the work of the Sustainability and Securities Services Working Group, page 68.



The population of Europe, by contrast, is declining. The average number of children born per woman in Europe is now below the replacement rate of 2.1. The European population is also ageing, and not sufficiently offset by immigration.

The populations of the United States and Canada are still increasing but also ageing, so in both Europe and North America the ratio of workers to retirees is inverting.

#### **2.4.1 The securities services industry is vulnerable to demographic trends**

The securities services industry cannot insulate itself from these wider trends, especially in locations with shrinking populations.

One obvious implication is that firms need to move operations to where the people and the talent live. To be effective in convincing potential recruits locally, senior leadership needs to be re-located too.

But demographics have wider implications than matching operations to labour pools. Global population dynamics make it more important than ever for the industry not just to widen the geographic reach of its recruitment net but to remain attractive to younger people starting their careers and then retain a higher proportion of the talent it attracts.

#### **2.4.2 Retention of junior employees is a problem**

Retention is a problem already. At 13.5 per cent, the overall rate of attrition - the number of people who leave the industry as a proportion of the total number of employees - is not disastrous, but the early retention rate is worryingly low. 35 per cent of recruits leave financial services within the first two years.

The reasons given for leaving the industry include lack of work/life balance, inflexible working hours, limited opportunities for career progression, and training programmes that focus on compliance rather than personal development.

There are contradictions - younger employees are reluctant to retrain, for example – but it is clear the securities services industry has a problem with retention.

The problem partly reflects generational differences in attitudes to work. This is obvious in the demands of younger employees for a voice, a clear development path and greater flexibility in how they work.

These attitudes do contribute to high turnover in the early years, but it would be wrong to conclude that intrinsic generational conflict means the problem is unmanageable.

Research shows that getting the conventional “hygiene” factors – competitive pay and benefits, meaningful work, respect for health and well-being, recognition of a job well done, regular promotion opportunities and thoughtful leadership – right means young people do not leave, even if they can earn 30 per cent more in another industry.

#### **2.4.3 Solving the retention problem is difficult**

Nevertheless, the securities services industry is undeniably experiencing a shrinkage in its workforce at the entry and lower levels. Arresting it will not be easy, not least because the industry has an image problem.

Up-to-date information and analysis of the securities services industry is not readily available. It is not a discipline which can be learned at a university. It is seen by young people not as it is (a business being transformed by data and digital technology) but as the back office of the (dull and morally disreputable) banking industry.

Changing this image is difficult, especially through personal experience, because recruitment no longer depends on personal or familial connections. It takes place mainly through automated online platforms that focus on matching skills, experience and compensation.

Counter-intuitively, this has created some barriers to recruiting people suited to the industry. Candidates have become adept at manipulating the technical job specifications that recruitment platform algorithms weight most heavily, increasing the number of “perfect” curriculum vitae (CV) submitted.

Sifting “perfect” CVs has increased the risk of “groupthink” in operations. Team leaders need emotional intelligence as well as technical skills, which recruitment platform algorithms cannot assess. Nor can they identify adaptability and resilience, which are crucial qualities in senior roles, but important also in lower ranking positions.

#### **2.4.4 The modern securities service industry needs new types of skills**

Recruitment is further complicated by the fact that, although the securities services industry is still an operations and technology business, its external and technological environment has changed.

As a result, it needs different skills from those it attracted in past. In addition to traditional roles such as settlement assistants and trade support, securities services firms now need geopolitical risk analysts and especially data engineers and artificial intelligence (AI) developers.

Even junior roles now need digital skills and the ability to work with data and AI. This is a problem in recruiting graduates, in that potential recruits now assess whether their role will be eliminated by AI. Lower-level recruits are more excited by AI, expecting it will make their jobs less onerous and more interesting.

This has prompted consideration of a shift in recruitment in securities services away from graduates and Masters of Business Administration (MBAs) towards people aged 16 to 18. They can be trained in AI. This earlier recruitment and vocational training could be expanded if employers were ready to work with universities and on cross-training projects with other firms.

#### **2.4.5 Retention of the knowledge and experience of senior employees is important**

Any form of training depends on industry knowledge. Much of that knowledge is tacit, rather than formal, and resides in the experience of senior employees. Indeed, one major securities services market infrastructure has now abandoned on-line training and reverted to face-to-face training led by experienced employees.

This aspect of the demographic crisis - retention of the valuable knowledge and experience of senior employees - is not widely recognised. Senior employees often want to retire early for lifestyle reasons. If they take their knowledge and experience with them, the firm loses its institutional memory.

The solution is more complicated than persuading senior employees to stay. If too many stay in post, it blights the promotion prospects of ambitious juniors. But teams led by people with limited experience are apt to repeat mistakes. Finding the right balance requires intelligent succession planning.

#### **2.4.6 Increased working from home is a mixed blessing**

The increase in working from home (WFH), which was accelerated by the global Pandemic, has made it harder to transmit tacit knowledge. The mentoring of younger employees needs personal contact. Personal networks are harder to build and maintain on-line. Soft skills can be acquired face-to-face only.

WFH has undermined team-working and loyalty to the immediate group of colleagues, both of which are built by physical presence in the office. The energy and drive to get tasks completed is also easier to generate in the office than on a Teams or Zoom call.

Nevertheless, securities service firms have recognised the risks of an overly zealous approach to persuading employees to spend more time in the office, by adopting a flexible approach. Some employees that need to be in the office must be pushed to return, but others are allowed to make their own decisions.

Employees that find it uncomfortable to work at home return to the office naturally. Those working in operations also return more readily, while salespeople believe they can be as effective working from home. Breakout areas and “chill-out zones” are being introduced to make being in the office more appealing.

Some old-fashioned remedies might be equally helpful. If the demographic crisis means people must work longer before retiring, the reintroduction of defined benefit occupational pension schemes might make the securities services industry a more attractive proposition for talented people.

## **2.5 Fireside Chat: The Changing Face of Cyber Risk**

Cyber-security threats can be divided into two main groups, with some overlap. 90 per cent of cyber-attacks are perpetrated by orthodox criminals looking to steal or extort money by obtaining data and using it to blackmail companies or sell it to similar criminal groups to use in tax and other frauds.

### **2.5.1 The different types of cyber-attacker**

Orthodox criminals use malware tools that are at least ten years old, and penetration techniques that are equally long-established. There is no need for criminals to change their approach because they can rely on human beings to neglect and mismanage cyber-security measures.

The remaining 10 per cent of cyber-attacks are launched by higher-level criminal or nation-State actors that can penetrate almost any organisation they choose to attack. Even the defence establishment of the United States is not immune to such attacks. All that potential targets can do is live with the risk and minimise its effects when it occurs.

This is not an argument for putting more resources into resilience and recovery than protection. It is a recognition of the fact that the inherent connectivity of digital systems and dependencies on third parties mean any organisation can be damaged by a cyber-attack even if it is not the target of the attack.

### **2.5.2 The biggest risk is becoming collateral damage**

In fact, collateral damage from a nation-state actor pursuing a conflict with another nation-state – with consequent damage to an important supply-chain - is now the biggest cyber-threat for major banks and financial market infrastructures.

Distributed Denial-of-Service (DDoS) attacks, by contrast, are now manageable. Social engineering remains problematic because human weaknesses are hard to eliminate. If a bank employs more than 100,000 people, one of them is almost bound to click on a malign link or QR code. All a bank can do is try and interrupt the link between the click and the bad actor before it is activated and persist with regular simulated phishing attacks to keep employees alert.

Recovery and resilience, on the other hand, means focusing on core business services that must be protected at all costs: the tiny proportion of assets that a business cannot afford to be without for longer than, say, 72 hours. Recovery and resilience measures should aim to maximise protection of these assets.

### **2.5.3 What regulators expect**

It is what regulators expect. Banking is a heavily regulated industry, and cyber-security is no exception, not least because regulators know standards of cyber hygiene vary widely across the industry.

Regulators check controls and encourage white-hat attacks to test defences. They check benchmark tests of operational resilience are being met. Regulators also insist technology suppliers to regulated institutions – and a major financial institution will have thousands of technology suppliers, any one of which can provide an entry-point for a cyber-attacker - meet global standards or benchmarks.

Regulators review the Cyber Profiles published by the Cyber Risk Institute (CRI) to benchmark organisations against the global cyber-security standards set by organisations such as the International Standards Organisation (ISO) and the National Institute of Standards and Technology (NIST).

#### **2.5.4 Why banks do not share cyber-threat intelligence and experience**

The CRI focuses on members sharing a cyber-risk framework rather than cyber-threat information. Yet banks could improve their resilience significantly if they were prepared to share intelligence about cyber-threats in the same way that European law enforcement agencies pool information through Europol in The Hague.

Banks have so far chosen not to do this. This is partly because of the perceived reputational risk of being associated with a cyber-attack. For example, a financial market infrastructure found publicity about a cyber-attack in which it was implicated (rather involved directly) undermined trust in its services.

Similarly, public companies affected by cyber-attacks have found negative publicity puts downward pressure on their share price. However, experience shows that the price recovers quickly if the company responds effectively – and the chances of an effective response are increased greatly by being able to draw on the experience of others.

But there are additional reasons why banks are shy about pooling knowledge. Anti Money Laundering (AML) regulations and data privacy regulations inhibit the sharing of information about people, organisations and transactions. As a result, each firm captures threat data in its own silo, and the early victims cannot alert later targets.<sup>17</sup>

This is unfortunate, since early identification of a cyber-threat is the best way to mitigate it. It is doubly unfortunate because the most capable threat actors have reduced from weeks to days the timetable on which they can exploit newly discovered vulnerabilities. This is the main reason Ransomware remains a problem: a vulnerability is exploited so fast.

#### **2.5.5 Why banks struggle to respond quickly to cyber-threats**

Yet some banks still take hundreds of days to install security patches. The delays are understandable. Slow responses to cyber-security threats reflect the complexity of global organisations built over many years by mergers and acquisitions that have lumbered banks with multiple legacy systems that are not well-integrated. Different parts of the same bank will even access the Internet in a different way.

There are resource constraints too. When the need for a security patch is first raised, the best software engineers at the banks might be focused on another project. Taking them off that project – which might be something as important as the digital transformation of the bank – to install a patch takes time, and especially money.

Cyber-security is expensive. An industry rule of thumb is that banks should devote 7-8 per cent of their total technology expenditure to cyber-security. This is a significant cost, especially for purely defensive measures, but it is expected to grow further as the threat environment gets more testing.

#### **2.5.6 The cyber-threat environment mutates constantly**

It is certain to get more testing because every new technology is quickly exploited by bad actors.

A prime example is cryptocurrency. Cryptocurrencies have converted ransomware blackmail into an on-line enterprise with an invisible payment route. The identity of the attacker is hidden, and they get paid the ransom in equally invisible Bitcoin. Similarly, artificial intelligence (AI) is now being exploited to make bogus calls.

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<sup>17</sup> On the value of sharing cyber-security information, and how ISSA can contribute, see the work of the Networked Securities Services Break-out Group on page 42.

Worryingly - and ironically, given the pressure they are putting on banks - regulators have themselves become an additional source of cyber-risk. In April 2025 the Office of the Comptroller of the Currency (OCC) admitted to the United States Congress that the email accounts of executives and other employees of the agency were hacked by bad actors who exploited longstanding vulnerabilities.

Regulators are conscious they need to hold themselves to the same cyber-security standards as those they impose on regulated firms.

### **2.5.7 The Cloud is not a complete solution to cyber-threats**

In such a dynamic and challenging environment, outsourcing cyber-security protection to Cloud providers is often proposed as an answer. It is helpful but, unfortunately, it is not a complete solution.

That is because nation-State actors are now attacking the main Cloud providers as well. They are finding that integration links their customers use, such as messaging, and Application Programme Interfaces (APIs), create novel points of vulnerability.

Nevertheless, the leading Cloud service providers are spending considerably more than other commercial organisations - an estimated US 1 billion each – on cyber-defences. They are also more adept at operating digital technology. It is their core business, and its continuing success depends on maintaining the best cyber-security in the world.

Banks will always maintain some technology on their premises, but as a rule Cloud cyber-security is bound to be superior to the go-it-alone security measures of an individual bank.

### **2.5.8 How banks can raise their own awareness and discipline**

Where banks can help themselves is by raising consciousness, within the organisation, of the scale of the threat. This starts at the level of the board, whose members must accept that cyber-security is not a problem they can resolve with money alone.

Board members also need to understand cyber-risk well enough to challenge management to explain clearly what good cyber-defences for their organisation are.

The Board needs to decide what level of risk they are prepared to tolerate, because the tolerance level of a major financial institution or crucial market infrastructure must be much lower than that of a start-up. In fact, regulators will insist they have a low tolerance threshold precisely because of their importance.

Ultimately everybody working at a bank or financial market infrastructure must accept that they too are cyber-security managers. It is their responsibility to emphasise the importance of security against cyber-attacks and promote adherence to the established cyber-security benchmark standards.

Without that individual commitment at every level, the securities services industry risks being committed to a minimum standard in theory but failing to attain it in practice.



## 3 Breakout Groups

### 3.1 Client Experience

Buy-side expectations of client service are rising, largely because of their exposure to different service models in their private lives. Both asset managers and end-investors have become used to services that are instant and available around-the-clock.

They are also under pressure from their own clients to cut costs, so they expect the securities services industry to deliver lower costs for them, but not at the expense of service quality. They expect lower prices to be combined with a better client experience.

That means access to knowledgeable experts and to data about their holdings and transactions, in real-time. Shorter settlement cycles have intensified the demand for real-time access to data, not just for settlement purposes, but to maximise returns from corporate action entitlements and proxy voting as well.

A better client experience also means a seamless service across all asset classes, including novel markets such as cryptocurrencies and privately managed assets, and continuous access to yield-enhancing services such as securities lending and collateral trading.

These demands are not easy for global custodian banks and financial market infrastructures (FMIs) to meet with existing people, processes and platforms.

It is difficult partly because client experience encompasses every aspect of every interaction with a service provider, from initiation to settlement, and from impressionistic perceptions to measured indices such as Key Performance Indicators (KPIs) and Service Level Agreements (SLAs). It is hard to define what exactly to do to improve the client experience.

But improving the client experience is also difficult because it entails sweeping changes in the behaviour, operational processes and data flows not just of individual firms but of the entire securities service industry.

Sweeping changes are further impeded by the bifurcated structural inheritance of the industry. In securities services, the client experience is delivered by financial market infrastructures (FMIs) as well as global custodian banks.

The division of labour weakens the sense of ownership and responsibility for the outcome experienced by the end-client. It follows that the securities services industry, as presently structured, cannot put the appropriate client service models in place. Efficiency and service are poorly integrated because of the industrial structure.

Some difficulties are self-inflicted. Ensuring transactions are settled and reported promptly, for example, is an important aspect of client service, but individual firms sacrifice it by endeavouring to service every client in the way that each client prefers. In short, client service suffers from a conflict between standardisation and customisation.

The conflict stems from contradictory approaches to standardisation between service providers and asset managers and end-clients. The industry views standardisation as a question of data formats, whereas asset managers and end-clients judge the service by the data content.

The industry values standardisation as an effective technique for avoiding problems in post-trade processes and data flows, but the end-client attaches no value to problems avoided and a lot of value to the management of problems that do arise.

The transition to settlement on trade date plus one day (T+1) in North America, Mexico and Argentina in May 2024 is a case in point. Two thirds of respondents to a Value Exchange survey on the transition thought it was neither good nor bad.<sup>18</sup>

With the same survey reporting that only one in two respondents are ready for the coming transition to a T+1 settlement timetable in Europe, there is ample scope for end-clients to be unpleasantly surprised.

The securities services industry would be well-advised, from a client service point of view, to educate end-clients about the work currently in hand to make the transition seamless. Historically, however, the industry instinct is to avoid contact with end-clients until a perfect explanation and solution are available.

This is because the industry interprets accuracy and completeness - such as delivering a settlement status or corporate action notification on time - as the essence of high-quality post-trade servicing. If a process breaks, or an incident occurs, end-clients are not generally informed until the problem is solved.

Certainly end-clients value efficient transaction processing, but their experience would be enhanced by more informal contacts when a problem arises, such as a telephone call to explain how the issue will be resolved, in addition to an unsigned, computer-generated email once it has been resolved.

Improving data management is the obvious solution to this imbalance between the efficiency of a process and the quality of the client service. Most obviously, it can improve the quality as well as the efficiency of transactional processes by furnishing end-clients with content.

Less fragmented data sets would enhance client service in another way. If end-clients had continuous access to data in real-time, it would dampen their appetite for personal contact.

Better data management would also create an opportunity for global custodian banks and FMIs to use aggregate industry data to provide end-clients with insights and benchmarks that could drive efficiency improvements throughout the industry.

There are two immediate opportunities to test the notion that data can be used to enhance the client experience. The first is the on-boarding process.

The Know Your Client (KYC), Anti-Money Laundering (AML), Countering the Financing of Terrorism (CFT) and sanctions screening tests conducted when a client is on-boarded have become a major pain-point for end-clients.

Duplication is endemic to the process, with end-clients being asked questions they have answered already, because data is fragmented across different parts of the organisation. It is an issue the ISSA Digital Identity and Onboarding Working Group is addressing.<sup>19</sup>

The second opportunity is to make it easier for end-clients to access and safekeep privately managed assets. Because it is a relatively novel asset class, without established processes, client experience can be built into the services by design. It will likely entail the construction of a new industry utility.

To further improve client experience, the securities services industry will need to invest in data engineers and develop new data models that use data not only to improve the efficiency of post-trade processes but to change the behaviour of service providers and enhance service quality.

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<sup>18</sup>See <https://thevx.io/campaign/t1/>

<sup>19</sup> See the work of the Digital Identity and Onboarding Working Group below, on page 62.

ISSA must build client experience into the work of all its Working Groups, with the goal of overcoming the fragmentation of data between the different parts of the securities services industry, which is the principal source of poor client experiences. In addition, the work of three of the existing Working Groups should be expanded immediately to solve pressing client experience issues.

The Out of Network Assets Working Group should develop common standards for privately managed asset market infrastructures to support the full lifecycle of privately managed assets funds and design a work programme to standardise the administration of privately managed asset funds. It should also engage with Limited Partners in privately managed asset funds to secure their support for making these changes.

Secondly, the Accelerated Settlement Working Group should expand its remit to develop industry best practices for managing compressed settlement timeframes and create predictive tools for better management of the cash and assets exchanged at settlement. A priority must be to minimise any negative impact on clients of tighter settlement deadlines.

Thirdly, the Digital Identity and Onboarding Working Group should establish standards for the completion of Know Your Client (KYC), Anti-Money Laundering (AML), Countering the Financing of Terrorism (CFT) and sanctions screening checks at on-boarding.

The same Working Group should also consider standardisation of the data elements and documentation required at on-boarding and develop client satisfaction metrics to measure whether the on-boarding experience is improving.

Finally, consideration should be given to setting up a new Working Group to focus solely on client experience. It would be charged with defining the components of the ideal customer service model.

These would include the publication of industry standards for striking a balance between technological and human support, designing a framework for the use of artificial intelligence (AI) to handle client queries, setting criteria for the certification of individuals as subject matter experts and shifting asset-servicing from the current reactive approach to a pro-active one.

## **3.2 Networked Securities Services**

The securities services industry operates at significant scale. But it is also a complex network of nodes operated by central banks, banks, brokers, issuers, asset managers, exchanges, central counterparty clearing houses (CCPs), central securities depositories (CSDs), payments market infrastructures, Cloud service providers, technology and data vendors and various other market participants.

There are interdependencies between these institutions, and the failure of any one of them could threaten the survival of the entire network.

Recent events such as the collapse of Silicon Valley Bank (March 2023), the botched CrowdStrike software upgrade (July 2024), the TARGET 2 (T2) and TARGET 2-Securities (T2S) outages (February 2025) and the power outages in Spain, Portugal and southern France (April 2025) are reminders of this vulnerability.

While the impact of these episodes was managed successfully, a better understanding by risk managers and regulators of the interdependencies between the various parts of the network would improve the resilience of the securities services industry.

It would also enable the industry to strike a better balance between risk-reducing regulation and risk-increasing innovation.

Regulation and innovation are not necessarily contradictory. However, the current culture of compliance is not conducive to innovation. When new technologies are introduced, such as blockchain, market participants are unwilling to commit without regulatory certainty. Unfortunately, regulators – as the experience with the Cloud shows – can take time to catch up with technological developments.

Nor is regulation always coherent even when it is in place. Different parts of the same institution can be supervised by different regulators, and similar actors in the same market find themselves operating under different rules. Regulations are local, while markets are global. Regulatory arbitrage is a constant temptation.

Both providers and their clients suffer under an unceasing burden of information gathering on behalf of regulators, and reporting to regulators, which is duplicative as well as repetitive.

Data protection rules such as the General Data Protection Regulation (GDPR) of the European Union (EU) are particularly unhelpful because they create data silos and limit information sharing – even where it is crucial to compliance with other regulatory mandates, such as cyber-security and operational resilience.

None of these regulatory measures encourage investment in innovation. Regulators should instead adopt a principles-based and innovation-friendly approach. It should be based on strong collaboration between well-resourced regulatory agencies that understand innovative technologies and market participants that invest in the technologies. Regulators should use cost-benefit analysis routinely, to inject a bias to proportionality.

Regulators should also recognise that the persistence of outdated regulation can lead to the misallocation of resources and a consequent lack of investment in innovation. All regulations should be subject to periodic review, with redundant or ineffective regulation removed from the statute book.

All of that said, regulation can encourage as well as discourage innovation. The Central Securities Depositories Regulation (CSDR) of the EU, for example, drove a series of innovations by securities firms looking to avoid being fined for settlement failures.

The Digital Operational Resilience Act (DORA), which came into force in the EU in January 2025, might over time have similar effects.

DORA aims to ensure that financial institutions are resilient to cyberattacks and can recover quickly from any disruptions to data and communications systems, by imposing a uniform framework for managing internal and external digital operational risks, including the risks posed by third-party service providers.

At present the securities services industry has limited insight into vendors and chains and vendors that firms use, including their operational resilience and business continuity plans.

The industry needs a standard due diligence questionnaire, a registry of critical third-party service providers firms can consult, a map of dependencies between banks, financial market infrastructures and third-party vendors, crisis management playbooks and regular simulations of prolonged outages.

Importantly, DORA obliges regulated firms and their service providers to report incidents to the authorities. This obligation to report to regulators ought to encourage securities services firms, financial market infrastructures and vendors to share information about incidents with each other. Regulators could encourage this by adopting a more accommodative data regulation framework than GDPR.<sup>20</sup>

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<sup>20</sup> For reasons why banks are reluctant to share cyber-security data, see Fireside Chat, page 35.

Data sharing without undue regulatory risk matters. When a firm suffers an incident, counterparties and clients are affected and even lose money. The confidentiality of client data is also potentially put at risk.

Yet compliance pressures mean firms are not given full information about incidents at other firms in their network, and sometimes no information at all until the incident is resolved, even if an outage last for days or weeks. In the absence of any countervailing facts, firms not directly affected naturally proceed on worst-case assumptions.

This combination of cautious victims and catastrophising counterparts can cause unnecessary costs and delay effective mitigating action. It would be better if affected firms did not delay communicating about an incident to customers, counterparties and uninvolved peers.

Other members of the eco-system need to know precisely what to tell their clients and when it is safe to re-connect to an affected member, based on shared risk thresholds and interpretations. Sharing information as early as possible on how a problem is being resolved also provides reassurance.

In fact, to minimise the elapse of time before reconnection, the sharing of information should be accelerated by shifting from bi-lateral to multi-lateral communications. Regulators could help to make this happen. But communications vendors could contribute to early information-sharing too, by standardising their protocols.

ISSA can play a role in achieving consensus within the securities services industry on standards of this kind, but also on multi-lateral communications protocols, third-party vendor due diligence questionnaires and risk assessment criteria.

Importantly, ISSA can also co-ordinate the search for agreement between the members of the securities services eco-system and regulatory bodies on how data about incidents that affect wider networks can be shared.

### 3.3 Accelerated Settlement

Settlement is a core function of the securities services industry, and it is taking place on ever-shorter timetables. The successful transition to settling securities transactions one day after trade date (T+1) in Argentina, Canada, Mexico and the United States from 28 May 2024 has strengthened a growing conviction that major capital markets currently settling on T+2 will follow suit.

The shortening of settlement timetables is unlikely to stop at T+1. Regulators have made it clear that T+0 is the destination. India, which adopted a phased transition to settlement on T+1 between February 2022 and January 2023, introduced a voluntary T+0 settlement cycle in March 2024.

Instant settlement is expected to follow in India, perhaps as early as 2025. It is reasonable to expect major capital markets to offer settlement on T+0, at least as an option, within five years.

There are three possible models for settlement on T+0.

The first is *Multi-lateral Netting*. This requires no adaptation to existing securities settlement and cash payment infrastructures, with transactions either settling net at the end of the day or in multiple intra-day netting and settlement cycles.

But Multi-lateral Netting will require significant investment in upgrading automation systems and processing capacity. The cash side can use Central Bank Digital Currencies (CBDCs) or Stablecoins once these are available.

The second model is *Real-Time Gross Settlement* (RTGS). This dispenses with netting in favour of settling transactions gross in real-time, which reduces but does not eliminate counterparty risk.

RTGS can use existing payments market infrastructures but requires increased liquidity and operational effort to ensure accounts are funded at the point of settlement. Like Multi-Lateral Netting, the cash side can use CBDCs and Stablecoins once these are available.

The third model is *Atomic Settlement*, which would take place on a Distributed Ledger Technology (DLT) or Blockchain network. Tokenised securities (or wholly native security tokens) can be delivered against cash payment if central or commercial bank money is available on-chain in the form of CBDCs or Stablecoins.

Atomic settlement also dispenses with netting and requires additional liquidity and operational effort to fund settlement, but it does eliminate counterparty risk because transactions do not fail but cease to exist if the buyer or seller fails to deliver.

These three models are not mutually exclusive. They can co-exist as options, though some clearly require the support of additional or enhanced liquidity provision mechanisms to deliver assets and cash on time.

Nor does settlement on T+0 need to be introduced for all asset classes at once. It could be implemented for certain types of security or market segments or offered on a voluntary basis alongside T+1 settlement, as it is in India.

The benefits of transitioning to settlement on T+0 must be weighed against the increased costs.

T+0 will require investment in new technology platforms – though the technology implications of the three models are different, they all require investment - and reorganisation of operational processes.

Processes must adjust to capture executed orders and settle them faster, in terms of allocations, confirmations and affirmations, and instructions to custodian banks and central securities depositories (CSDs).

A provocative idea is that much of the settlement process that currently happens post-trade must be done at the trade level if T+0 is to work.

A block trade being worked into the market slowly by a broker with multiple “fills”, for example, leaves virtually no time to fix allocation problems - such as dormant accounts - before settlement. Similarly, on a T+0 timetable, short sellers will have to locate the stock to borrow before adopting a short position.

Compliance checks at on-boarding and reporting of trades to the authorities will also be accelerated. Settlement might be conditional on Know Your Client (KYC), Anti-Money Laundering (AML), Countering the Financing of Terrorism (CFT) and sanctions screening tests being complete.

Post-trade asset servicing will be affected too, in terms of record dates to collect entitlements such as interest and dividends, and especially if smart contracts drawing on data “oracles” are used on blockchain networks to pay entitlements. Agreement on these matters will likely require consultation with issuers.

A second major cost will stem from the need for inventory and liquidity to be available to deliver settlement on T+0. This will be complicated, because the liquidity requirements of domestic investors will differ from those of cross-border investors, and those of broker-dealers and market-makers from both.

The margin requirements of central counterparty clearing houses (CCPs) will be affected too. Demand for cash, and for intra-day repo and securities borrowing services, will increase.

In all, ISSA has identified ten areas as liable to be impacted by a transition to settlement on T+0 (see Table 2). Analysis of each of these, their investment costs and their impact on market participants, will determine whether the case for transitioning to settlement on T+0 is sound.



### 3.3.1 Factors impacted by a transition to settlement on T+0

#### Funding, FX and Liquidity

- **Domestic Funding**
  - Cash funding/liquidity for domestic investors, both institutional and retail, including availability of and access to funding, cost of funding, timing of funding
  - Dealer/market maker liquidity\$
  - Capital required by various segments to support equity trading and settlement
- **International Trading and Funding**
  - Cross-border trading by both retail and institutional investors - time zone and foreign exchange (FX) considerations
  - Cash funding/liquidity for international investors both retail and institutional
  - Sourcing of inventory and place of settlement (PSET)
- **Short Selling/Stock Loan/Securities Financing Transactions (SFT)**
  - Short selling
  - Stock loan - borrows/recalls/returns
  - Other securities financing transactions
- **Technology**
  - Overall technology stack and software to support the changes to all the above for each major segment of players

#### Processes and Data Flows

- **Trading/Allocations/Confirmations**
  - Orders
  - Executions
  - Post-trade processing including allocations, confirmations and trade agreements between the two trading parties for institutional trades
- **Central counterpart clearing houses (CCPs) and central securities depositories (CSDs)**
  - Role of CCPs and CSDs
  - Instructing settlement agents
  - Settlement agents instructing CSDs
  - CSD settlement process
  - Impacts on margin and collateral requirements
- **Funds**
  - Mutual funds, Exchange Traded Funds (ETFs) and other baskets – domestic and cross-border
- **Asset Servicing**
  - Corporate actions
  - Proxy voting
- **Technology**
  - Overall technology stack and software to support the changes to all the above for each major segment of players
- **Regulatory**
  - Know Your Client (KYC)/Anti-Money Laundering (AML) process including timing
  - Regulatory support required
  - Transaction transparency to regulators

An additional factor is the need for other sectors beyond securities services – payments, trade finance, commercial banking and foreign exchange (FX) - to move in concert with the industry as it advances towards T+0.

If a decision to proceed is made with any of the three models or some combination of them, the experience of the Americas in transitioning to settlement on T+1 indicates that it would be wise to educate all market participants about the challenges of shifting to a T+0 timetable.

After all, the business case for T+0, whichever model is chosen, will vary between retail investors, asset managers, institutional investors, broker-dealers and market-makers, global custodians, local custodians and financial market infrastructures (FMIs).

So different perspectives about the value of a transition to T+0 will have to be accommodated. Since some models imply changes in the roles of intermediaries, the industry is best advised to focus on the overall value proposition for each group, rather than trying to evaluate which model will work best.

But all interest groups must be able to agree on high-level considerations. These are that a transition to T+0 must be based on a conviction that it is essential to making a market competitive, and a strong likelihood that it will cut costs and risks. Retail investors must also be protected from the risks and costs associated with a move to settlement on T+0.

An ISSA Working Group on Accelerated Settlement is already in place<sup>21</sup> and its brief will now be updated with input from members of the Break-out Group, although its overall objective is unchanged.

Small teams should be formed to analyse each of the eleven factors across the three possible models, to assess the impact of each model on market participants. Their findings should be delivered to the Working Group.

It is important to remember that the Working Group was set up to ensure that the securities services industry leads and shapes the discussion on transitioning to settlement on T+0 to avoid the risk that regulators impose an unworkable model on the industry.

In this respect, the Indian example is encouraging. The regulators announced that they wanted the Indian securities markets to transition to settlement on T+0, chiefly for the benefit of retail investors, but they left it to the industry to figure out how to do it.

### 3.4 Realising Evolving Technologies

Technological change is one of the three “composite” forces identified by ISSA as driving change in the securities services industry.<sup>22</sup>

Blockchain, with its promise of eliminating data reconciliation costs and point-to-point messaging, automating asset servicing and replacing reporting with real-time data sharing, is the most conspicuous of the new technologies to affect the industry.

Although adoption of blockchain is slow and constrained by protocol silos that limit interoperability between blockchains, the technology is being implemented in securities services.

Broadridge, for example, operates a blockchain-based repo platform that is processing transactions worth USD 100 billion a day, including tokenised US treasury bonds posted as collateral when the traditional market is closed.

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<sup>21</sup> See the work of the Working Group on Accelerated Settlement on page 61 below.

<sup>22</sup> See Future of Securities Services panel above, page 24 above. See also ISSA, *The Future of Securities Services*, September 2024, at <https://issanet.org/publications-media/issa-publishes-future-of-securities-services-2024-2030/>

Other novel technologies that might impact securities services include Permissioned Data Sharing Marketplaces (platforms where data is shared by consent, akin to permissioned Blockchains); Cloud (which is already widely used in the securities services industry); Confidential Computing (which protects data while it is being processed in the Cloud); and artificial intelligence (or AI, of which large language models, or LLMs, are regarded as the most promising for widespread application in securities services<sup>23</sup>).

Each of these technologies is viable, in the sense that Proofs of Concept (PoCs) and Pilot Tests have proved they work. They are now being applied to real uses-cases.

In fact, Cloud provision is sufficiently mature, and widespread in the industry, to attract regulatory attention. The European Union (EU) recently became the first jurisdiction to regulate AI as well.<sup>24</sup>

These technologies are at different stages of maturity. But each of them has the potential to contribute to the transformation of the cost structure of securities services. However, to capture the savings, the industry would have to adopt the new technologies rapidly and at scale, without putting existing business and clients at risk or imperilling regulatory compliance.

This implies that any transition must be evolutionary rather than revolutionary and encompass the status quo rather than disrupt it. But it does require securities services firms to move beyond dabbling in the new technologies via PoCs and Pilot Tests and commit to substantial investment in alignment with other market participants.

The need for alignment is especially true of blockchain, where the benefits in terms of cost savings cannot be captured by firms building new technology platforms in isolation from each other, simply because other market participants are reluctant to endorse the technology of a competitor. Entire markets and value chains must go on-chain in tandem. This is intrinsically difficult to achieve. No firm wants to expose its clients to a competitor. Public companies are under perpetual pressure to deliver short-term returns which these technologies cannot deliver. The promise of higher revenue or wider margins will always attract investment but, if growth and profitability depend on scale, investment will be constrained by a chicken-and-egg dilemma.

Though the securities services industry has built user-owned and user-governed infrastructures, and some blockchain projects are organised collaboratively, it remains hard to persuade competing firms to invest collaboratively for the benefit of every firm in the market.

Market crises can change attitudes, especially if they attract the attention of regulators. The redemption pressure experienced by money market funds (MMFs) during the Liability Driven Investment (LDI) episode in the United Kingdom in September 2022, for example, increased interest in tokenising MMFs on blockchain. But it would be imprudent to rely on a crisis to spur collaboration.

Inevitably, most firms active in securities services will remain sceptical bystanders anyway. This puts the onus on the pioneers to make the case for blockchain, but they too are apt to dissipate the weight of industry-wide investment by searching for truly compelling use-cases whose rents they can then capture.

The industry needs to be more discerning about which evolving technologies are relevant for the industry collectively and those that make good business sense for individual institutions.

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<sup>23</sup> See Securities Services - Clients, Technology and Risk, page 9 above, for more on the use of LLMs and agentic AI in securities services.

<sup>24</sup> The Artificial Intelligence Act (EU AI) came into force in the European Union (EU) on 1 August 2024. Most of its provisions will apply from 2 August 2026.

It is unclear how the forces militating against change can be broken. A quick and dirty transition to blockchain in a sizeable market by a collaborative group of willing firms, without waiting for perfection, might be a more effective way of generating the momentum that attracts a steadily rising proportion of market participants.

But even this possibility hinges on adoption of open eligibility criteria for users and data interoperability standards, to enable market participants to join a network easily and transfer value between blockchains efficiently.

It also requires harmonisation between the regulatory regimes that govern assets issued on to blockchains in different jurisdictions.

So far, the issuance of assets on to blockchains has gravitated to the jurisdictions which have implemented regulations designed to enable blockchain services to be established and succeed. Success would be more rapid if regulation was supportive in the jurisdictions where traditional assets are issued and trading in them is still concentrated.

Assets also need to be issued on to blockchains in “native” form if the market is to scale rapidly, because digital “twins” - on-chain analogues of assets that continue to exist in traditional form – cannot eliminate the costs of the traditional market infrastructure and the network of service providers that support the asset in its traditional form.

A bias to “digital twins” is nevertheless discernible, especially in the funds markets where blockchain is currently achieving its highest level of penetration. Likewise, the debate over whether growth is best assisted by issuing assets on to private blockchains, or public blockchains, or public permissioned blockchains, remains unresolved.

Yet a similar private versus public debate took place when Cloud services were first discussed in the securities service industry. It did not need to be resolved in either direction, since various options can co-exist. In the same way, the debate about blockchain needs to be less binary.

ISSA can help in making the dialogue less black-and-white by highlighting the artificiality of the different terms used to describe traditional finance (TradFi) and decentralised finance (DeFi).

There is no need, for example, to treat custody and digital asset custody as entirely separate domains. Nor are blockchain and other digital technologies mutually exclusive. Relatively successful innovations in securities services, such as Proximity, have not used blockchain.

It would be helpful to the industry if technological innovations of all kinds – Cloud, AI, Confidential Computing and Blockchain – were considered together rather than in isolation from each other, so the benefits can be compared. ISSA can encourage this type of thinking.

Indeed, changing the terms on which technological changes relevant to the securities services industry are discussed is primarily an educational task, which ISSA can conduct through its existing activities. Publications, live events and webinars can review use-cases relevant to ISSA member-firms and develop a set of standard questions to ask about any evolving technology.

ISSA can also develop a set of interoperability-by-design principles that firms and technology firms working with ISSA member-firms should adopt. A similar set of principles could be developed to ensure that the eligibility criteria for assets and institutions remain open.

One further technique that ISSA could deploy is to collate information from members on which innovations worked, and which did not, and publish the findings in a regular paper. This should lead to a more pragmatic approach to technological innovation.

### 3.5 Optimising the Securities Services Demographic

The securities services industry is not immune to the demographic trends affecting developed economies.<sup>25</sup> Lower birth rates, increased longevity and a greater proportion of economically inactive people are shrinking the pool of talent available to the industry. Securities services firms need to mitigate the risk this presents to their businesses.

Risk mitigation should focus on three areas.

The first is to *insulate the business from demographic changes* as far as possible. Simplifying and standardising operational processes makes them more susceptible to automation. Any process that can be automated should be automated. It is also helpful to identify the roles most at risk from demographic change and make automating these the priority.

The second area of focus is *recruitment*. Securities services firms should segment their branding to ensure it appeals to the values and aspirations of different age and cultural groups, most obviously via diversity and inclusion initiatives. Job advertisements should be crafted to match the requirements of different age groups. Efforts to rebrand the securities services industry as a more exciting career choice should be redoubled.

The third area of focus is *retention*. Different groups, but especially younger employees, need clear career and remuneration paths. Opportunities to move between locations and regions should be emphasised and multiplied. Working arrangements must become more flexible as employees start families and especially as they approach retirement, when the risk of losing valuable knowledge increases.

#### 3.5.1 However, the immediate problems lie at either end of the age spectrum.

The first is difficulty in retaining younger people. Industry data suggests that new entrants are most prone to leave, within five years of joining the industry. Keeping the most talented in the first five years and then providing them with reasons to stay for at least another five years, is proving a challenge.

There are various reasons for this. One is the brand-image of the industry, which is seen by young people as dowdy where it is not disreputable. This is reinforced by the reliance of the industry on legacy technology.

Young people are also increasingly mindful of the risks that jobs will be displaced by artificial intelligence (AI), disrupting their career prospects. But the main reason young people leave securities services is lack of opportunities for self-realisation.

There are various ways these problems can be addressed. One solution is to invest where populations are younger, such as India and Africa. A second is to acquire companies that are at the forefront of innovation. They bring talent with them but also offer opportunities to existing employees to work with the latest technologies.

A third solution is to offer paid learning sabbaticals for younger staff.

A fourth is retraining programmes to re-skill employees of all ages that are affected by automation.

A fifth is to ensure that salaries are liveable, especially in locations where employees are expected to commute to an office five days a week.

But the most effective solution is to shift new entrant recruitment from graduates to non-graduates by offering apprenticeships to 16- to 18-year-olds.

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<sup>25</sup> See the Demographic Timebomb in Securities Services – The Right People, the Right Environment, the Right Skills panel, page 31 above.

Young non-graduate employees are easier to mould and shape to the requirements of the firm, including training in the use of new technology. They also have lower expectations in terms of salary and the nature of their work than graduate employees. The industry should introduce apprenticeships for 16-18-year-old school leavers.

At the other end of the age spectrum, the risk that needs to be managed is the loss of knowledgeable employees to retirement.

Retaining older employees as formal mentors for younger employees – a “reverse mentoring” technique commonly used in Japan - is one way of passing knowledge on. But retention must be balanced against the risks of creating a “grey ceiling” which blights the promotion prospects of younger employees.

AI, by contrast, is a distant threat. At present AI promises increases in efficiency of 10 to 15 per cent. This is helpful for recruitment and retention because it means tedious manual work can be automated, freeing up time for employees to do more interesting work.

When AI promises efficiency increases of 50-60 per cent, it will have a larger impact on employee numbers and prospects and be worthy of serious consideration as a major disruptor of staff morale.

ISSA can contribute to solving rising demographic risks through a combination of data sharing and educational and training initiatives.

In terms of data sharing, the Association can collate information about salaries, benefits and living costs in different locations and regions for benchmarking purposes. It can also host a securities services jobs portal aimed at the crucial industry cohort that has worked in the industry for between five and ten years.

In education and training, ISSA can open an academy, with accredited training and leadership programmes based on its Working Group papers for the five-to-ten-year cohort. The academy should also help to shape the retraining of older and experienced employees displaced by automation.

Lastly, ISSA should encourage universities to create courses in securities services. Working with universities to develop industry-specific credentials has proved successful in India. It would help to build and promote a more positive brand-image for the industry.

### **3.6 Emerging Risks in a Changing World**

In 2024 ISSA added geopolitical risk to changes in investor behaviour and technology and technology-enabled competition in its list of the risks most likely to have a major impact on the securities services industry.<sup>26</sup>

The reasons are not hard to identify. Geopolitical conflicts over territory and trade are manifesting themselves in “geoeconomic” forms: chiefly sanctions and tariffs but also new regulatory requirements.

This is obviously impacting investor behaviour. Less predictably, it is increasing technological risk. Adversaries are launching cyber-attacks on financial institutions, to disrupt services and occasionally to extort or steal money, and on energy, transport and health services.

Cyber-security has become a constant source of concern, amplified by the increased use of third-party providers.

In addition, Internet-based social media are used to spread misinformation and disinformation which can affect market prices. These can impact clients and suppliers as well as firms. If they affect a market or a currency, risks can cause collateral damage at securities services firms.

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<sup>26</sup> See The Future of Securities Services Panel above, page 24.



The securities services industry cannot prevent any of these risks materialising. It can, however, anticipate the form that risks will take and prepare to mitigate them. The crucial question is whether this work is best undertaken at the level of the firm, or the industry, or both.

ISSA can help to address this question by undertaking an impact assessment. Member-firms should itemise how they expect each risk to impact their business, and share it via ISSA, which can then draw up a list of preparedness “considerations.” It would help if member-firms were willing to share their experience of incidents.

These can be analysed via a Proof of Concept (PoC) to identify those risks that would benefit most from a common industry response. The PoC would also indicate whether Working Groups should be formed to raise awareness of emerging risk and define a minimum set of requirements for industry preparedness.

One final idea is to resurrect a notion first advanced at the Symposium of 2023<sup>27</sup> for ISSA to convene a crisis management group when a risk materialises. By bypassing time-consuming bi-lateral chains of communications, such groups would help member-firms understand the issues quickly and respond more rapidly

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<sup>27</sup> See ISSA, 21st ISSA Symposium 10 – 12 May 2023 Wolfsberg, Account of proceedings by Dominic Hobson, page 17.

## 4 The Work of ISSA

### 4.1 ISSA Aims

ISSA has succeeded in its stated ambition to broaden its geographic scope. The 22<sup>nd</sup> Symposium attracted 131 individuals from 74 firms. Although more than two out of three were based in Europe, there was strong representation from Asia (20), the Americas (11) and the Middle East and Africa (8).

Since the 21<sup>st</sup> Symposium in May 2023, members of the ISSA CEO Office have attended 26 external events<sup>28</sup> hosted by regional associations of central securities depositories (CSDs), other financial market infrastructures (FMIs), consultants and technology vendors across Europe, the Americas, the Middle East, Africa and Asia.

ISSA has also succeeded in its ambition to broaden its reach across the securities services industry. Although two thirds of attendees at the 22<sup>nd</sup> Symposium work for custodian banks or financial market infrastructures (FMIs), asset managers, technology vendors, service bureaux and consultants were also represented.

But the principal measure of the success of ISSA is the Working Groups and their publications. Since the beginning of 2023, ISSA has published 27 papers, surveys, questionnaire templates and responses to consultations, almost all of them produced by Working Groups. The quality as well as the quantity of the published output is a tribute to the dedication of the members of the Working Groups.

The publications, which benefit from the fresh perspectives brought by geographic and sectoral expansion, are the best measure of the transformation of ISSA since the leadership of the organisation changed in 2019.

The publications are widely read because they are promoted effectively widely through social media and especially because they respond to pressing industry issues, provide vital intelligence for large firms as well as small, educational material for industry veterans and new entrants alike, and equip students considering a career in securities services with valuable insights.

The publications are made possible by the healthier finances which have accompanied a broadening of the membership of ISSA. They also reflect a clear sense of purpose, which is to help the member-firms of the securities services industry do together those things which they cannot do alone because they lack the time, budgets or knowledge. The work of ISSA also creates a common industry view on issues of common concern.

### 4.2 Priorities for the Future

Clients were one of the three themes of the 22<sup>nd</sup> Symposium, and improving the client experience will be a priority for ISSA in the next 12 months.

Because it is a business-to-business industry, in which the underlying clients are filtered via a range of intermediaries, the securities services industry has struggled to develop an institutional and cultural bias to the client experience, as opposed to concentrating on the resolution of its own operational and regulatory challenges.

However, institutional investors do detect a greater willingness on the part of custodian banks and central securities depositories (CSDs) to recognise that they are parts of an eco-system in which the shortcomings of one part can undermine the client experience of all parts, even if every other part is performing well.

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<sup>28</sup> ISSA has also hoisted four internal events in addition to the (usually) biennial Symposium.

This interconnectedness argues for collaboration in some areas, which ISSA is well-placed to foster. But it also argues for a deeper commitment to interoperability across markets and asset classes, especially in privately managed and digital assets, but also between these new markets and the traditional debt and equity markets. ISSA could prepare a set of interoperability-by-design principles.

Interoperability is not without risk, which was the second of the three themes of the 22<sup>nd</sup> Symposium. The obvious risk is cyber-attacks, since interoperability is bound to increase the attack surface for bad actors. Cyber-security remains, as it was in 2023, a rapidly mutating area rich in scope for collaboration between securities services firms.

The growing use of third-party vendors, for example, offers ISSA an opportunity to do two things. First, to sponsor a register of vendors employed by member-firms, Secondly, to create a standard Due Diligence Questionnaire (DDQ) for member-firms to use.

One suggestion is that the Working Groups that publish standard questionnaires remain in existence to promote adoption. However, Working Groups made up of volunteers are bound to be short of time, and may lack the skills to operationalise a standard questionnaire, as opposed to draft it.

Another idea, first floated at the 21<sup>st</sup> Symposium<sup>29</sup>, is for ISSA to coordinate an ad hoc crisis management group for member-firms to discuss with their counterparties common solutions to common problems created by a cyber-attack or service outage, but it would place a heavy burden on the ISSA CEO Office.<sup>30</sup>

Updating the 2018 cyber-security risk management in securities services paper<sup>31</sup> is a more realistic priority for ISSA. Indeed, the paper should be updated continuously. The updating process should incorporate views from outside the securities services industry, including those of Chief Information Security Officers (CISOs) at major banking groups.

A second risk is geopolitics, which is now creating the same level of anxiety in the securities services industry as cyber-attacks. One reason for the heightened anxiety is the contradictory pressures at work.

Technological developments such as digital assets are strengthening the case for interoperability. But geopolitical developments threaten to reverse the long process of globalisation that has shaped the modern securities services industry. There is a risk of reversion to the fragmented capital markets of the past. ISSA can help the securities services industry make contingency plans for that outcome.

A third risk is diminution of human capital. The securities services industry is not alone in facing adverse demographic trends, but it has a particular problem in attracting young talent of the type it needs to thrive in a changing technological environment.

Theoretically, technologies such as blockchain and artificial intelligence (AI) make a career in securities services more interesting. They provide an opportunity to re-brand the industry as technology-led, rather than providing back-office services to banks.

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<sup>29</sup> See ISSA, *21st ISSA Symposium 10 – 12 May 2023 Wolfsberg, Account of proceedings by Dominic Hobson*, pages 29-30 at [https://issanet.org/content/uploads/2023/08/21st-ISSA-Symposium- Account-of-proceedings-by-Dominic-Hobson\\_FINAL.pdf](https://issanet.org/content/uploads/2023/08/21st-ISSA-Symposium- Account-of-proceedings-by-Dominic-Hobson_FINAL.pdf)

<sup>30</sup> See the work of the Securities Services Risks Working Group, page 68 below.

<sup>31</sup> ISSA, *Cyber Security Risk Management in Securities Services*, October 2018, at <https://issanet.org/working-groups/archived-working-groups/cyber-risks-in-securities-services-2/>

ISSA could help the industry improve its brand-image by developing an education and training programme, perhaps in collaboration with other trade associations or commercial education and training organisations. This idea, which recurs regularly at ISSA Symposiums, needs to take concrete form if it is to progress.

Another *leitmotif* of ISSA Symposiums is the relationship between the Association and regulators. Regulators and regulations affect every member of ISSA and influence the direction of every Working Group. There is pressure for ISSA to amplify the voice of the industry on regulatory matters alongside other trade associations.

But the leadership of ISSA has long made clear that they do not lead a conventional trade association. ISSA will never lobby for or against regulation, not least because its membership is too broad to reach a stable consensus on any one regulatory issue. What ISSA can do is educate regulators.

Unfortunately, the distinction between education and lobbying is not always clear. Sometimes, as with the preparations for a transition to settlement on trade date plus one day (T+1), the distinction is clear. In such cases, ISSA contributes to the technical implementation of a decision that has been taken already. The same is true of sanctions.

But everything regulators enact will impact the industry. It is easy to argue that regulators lack the time, money, technical knowledge and information to understand the consequences of measures they take. Furnishing them with an improved understanding can be portrayed as education, but the distinction from lobbying is imprecise.

The ISSA Financial Crime Compliance Principles for Securities Custody and Settlement published in 2015, for example, were prepared in consultation with regulators in the United States. They aimed to satisfy the demands of regulators but also to protect the securities services industry from a regulatory threat its members regarded as unhelpful.<sup>32</sup>

An appropriate role for ISSA in shaping regulation is to be forward-looking. The Association should anticipate regulatory measures, engage all affected parties, and develop a clear view of the least-worst outcome. The likely transition to same-day settlement (T+0) in major markets provides an opportunity to play exactly that role.

### 4.3 Current Working Group Activities

ISSA Working Groups focus on practical challenges and problems confronting the securities services industry today. Their objective is to identify workable solutions in the form of best practice guidelines. The solutions are adopted because they are based on the free exchange of information and ideas between representatives of all parts of the industry.

Working Groups also provide an opportunity for individuals working in the industry to meet and collaborate on solving common problems. They have an educational dimension as well, since members learn from each other. Lastly, the papers produced by the Working Groups have a durable influence, not only over how the industry changes and develops but over how it is regulated too.

Although a Working Group can endure for many years, if an issue is of persistent concern, Working Groups exist to find practical solutions to immediate issues. Working Groups set up to deal with a particular issue are wound up once it ends or is resolved. Of the 11 Working Groups extant at the time of the 21<sup>st</sup> ISSA Symposium in 2023, only four were still both extant and completely unchanged two years later.

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<sup>32</sup> See the work of the Financial Crime Compliance Working Group below, on page 65.

#### 4.3.1 Accelerated Settlement

This Working Group has expanded its responsibilities to take account of a worldwide trend towards shorter settlement timetables. Set up when India moved to settling securities transactions on trade date plus one day (T+1) in January 2023 and the Securities and Exchange Commission (SEC) announced a month later that the United States would follow suit from May 2024, the Group was originally called the T+1 Impacts Working Group. It published a paper on the impact of T+1 in December 2023.<sup>33</sup> The impact of shorter settlement timetables on the time available to match and allocate trades, source inventory, fund liquidity and meet margin calls remains an important part of its remit. The European Union (EU), Switzerland and the United Kingdom are all planning to move to a T+1 settlement cycle from 11 October 2027, and members of the Group have represented ISSA within the governance structure set up by the European Securities and Markets Authority (ESMA) to support the transition to T+1 in the EU and on the Accelerated Settlement Taskforce established to fulfil a similar role in the United Kingdom. The Working Group is collaborating with The ValueExchange on surveys to monitor industry readiness in all jurisdictions affected. The Working Group is also preparing for an eventual move to settlement on T+0, though regulators have set no timetable for this. It will publish a paper that assesses the three potential models - Multi-lateral Netting, Real-Time Gross Settlement (RTGS) and Atomic Settlement<sup>34</sup> - by which settlement can be accomplished, especially across borders, on such a compressed timetable.

The paper will draw on the experience of transitioning to T+1 in both the Americas and Europe but also explore new challenges. These include likely needs to pre-fund cash, pre-borrow stock and pre-allocate trades and access data in real-time to complete Know Your Client (KYC), Anti-Money Laundering (AML), Countering the Financing of Terrorism (CFT) and sanctions screening tests before settlement. The Working Group has identified nine different settlement functions which will be affected by settlement on T+0. The paper will help regulators, as well as the industry, prepare for the transition to settlement on T+0.

#### 4.3.2 Asset Servicing

It is not surprising that this is one of the oldest Working Groups, because it focuses on the most intractable issues in securities services, such as corporate actions, proxy voting and tax reclaims. It has two sub-groups active. One is responding to the increased legislative and regulatory pressure on institutional investors to take their governance responsibilities seriously by reducing the inefficient, costly and manual processes by which they vote proxies. It has identified the principal blockages in the long series of steps that separate the publication of an announcement or information by an issuer and the casting of a vote by a beneficial owner and between the casting and the counting of the votes at the company meeting. Globalising best practices is not easy, since proxy voting procedures vary widely around the world. The second sub-group is exploring how technologies, such as Application Programme Interfaces (APIs), can increase operational efficiency in asset servicing areas such as corporate actions and proxy voting. In the third quarter of 2025 the Working Group will publish a paper that draws on the work of both sub-groups. It will offer principles and best market practices rather than a prescription, so commercial organisations are free to develop a variety of solutions consistent with the principles. Most importantly, the paper will urge issuers, proxy voting agents, registrars, independent transfer agents, listing authorities and central securities depositories (CSDs) to collaborate in raising the level of automation in asset servicing. Although securities services firms have achieved incremental improvements on their own, real progress in asset servicing depends on the engagement of these other groups. Surveys conducted in conjunction with The ValueExchange indicate groups outside the securities services industry are getting more engaged. Issuers are not among them.

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<sup>33</sup> ISSA, *T+1 Global Impacts*, 2022 at <https://issanet.org/publications-media/t1-global-impacts-paper-published/>

<sup>34</sup> See the work of the Accelerated Settlement Breakout Group, on page 45 above.

They are not yet convinced there will be any return on the investment for them, or that they - rather than, say, their transfer agents - must invest directly in any solutions. Ultimately, the benefits to shareholders ought to persuade issuers to be more supportive. The paper will include case studies from various markets illustrating best practices. The next topic to be explored by the Working Group is to improve how institutional investors take part in class action lawsuits.

### 4.3.3 Digital Identity and Onboarding

This is a relatively new Working Group, set up in 2022 to explore solutions to the vexed issue of completing Know Your Client (KYC), Anti-Money Laundering (AML), Countering the Financing of Terrorism (CFT) and sanctions screening tests when a customer is on-boarded. Opening an account with a custodian bank has become a tiresome process in which a customer has to complete separate questionnaires containing the same information from the account opening, risk management and credit risk departments, each of which uses a separate system. Each step can take weeks, in which the customer is contacted only to query inconsistencies in the answers they gave. The entire process must then be repeated for the central securities depositories (CSDs) in the markets where the customer trades, and on a periodic basis whose frequency is governed by the perceived riskiness of the customer. In other words, customer onboarding and revalidation are plagued by data duplication and redundancy, incompatible systems, information silos, poor communication and a procedure that takes so long documentation is at risk of ageing to the point of being invalid before the process is complete. However, replacing it with a better process is a large, complicated and multi-dimensional problem. Rather than advocate wholesale replacement of a clumsy, inefficient and customer-alienating process with officially sanctioned digital identities, the Working Group has set itself a more modest objective. It is to devise industry standards that specify what digital documentation and what sources of digital documentation are acceptable to prove the identity of an individual or organisation.

In August 2024 the Working Group published a paper that listed the obstacles to efficient onboarding.<sup>35</sup> In September 2025 a second paper will propose solutions to the obstacles, for implementation at the level of the industry as well as the level of the firm. These solutions - grouped under three broad themes of documentation, mutualised and vendor services and client experience - will be categorised by the scale of their impact on the obstacles and the difficulty of implementation. This will enable the Working Group to focus on the highest impact and most workable solutions. Its ambition is to publish standards that are useable for multiple products in multiple jurisdictions, covering 90 per cent of use-cases in the 30 highest volume markets. The Working Group will publish a template for digital identity documentation that can be used by any third party to design a solution. It will educate the industry through webinars and events and believes it can change the behaviour of securities services firms at onboarding. The Working Group also believes its work will raise consciousness of the issue of digital identity among policymakers and regulators. But ultimately the Working Group will gauge its success by other metrics. These are a reduction in the number of bad actors transferring value through the securities services industry, lower costs for customers at on-boarding, and increases in the levels of automation of the on-boarding process.

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<sup>35</sup> ISSA Digital Identity and Onboarding Working Group, *Defining the problem*, August 2024, at <https://issanet.org/working-groups/digital-identity-and-onboarding-working-group/>



#### 4.3.4 Domestic CSDs

This Working Group is based on a recognition that domestic central securities depositories (CSDs) are different from international CSDs (ICSDs). They service international flows into their markets, but service mainly a domestic client base. As a result, even though the domestic CSDs are an integral part of the international securities services industry, they do not necessarily follow international standards. The Working Group, which is supported by four out of five domestic CSDs around the world, exists to solve the frictions that this can create with global custodians, regional custodians and ICSDs. This is why its membership is open to and includes global and local custodian banks, stock exchanges and technology vendors as well as CSDs. The Group has for some time worked on the standardisation of the due diligence questionnaires (DDQs) issued to domestic CSDs by global custodian banks and others. The burden of completing DDQs, which are always lengthy and ask mostly similar questions in different ways to different timetables, but always contain bespoke questions as well, is becoming intolerable for domestic CSDs. Efforts to adjust the CSD DDQs issued by the Association for Financial Markets in Europe (AFME) and the Association of Global Custodians (AGC), and align them with a third DDQ published by the World Forum of CSDs (WFC), have not proved entirely fruitful. Instead, the Working Group is now developing a single DDQ of its own for domestic CSDs which it hopes will be acceptable to the members of AFME, the AGC and the WFC. The Working Group is exploring two other topics. The first is change management. When domestic CSDs suspend services to complete internal platform upgrades or other changes, usually in response to local users or regulators, they tend to underestimate the impact on international investors. The Working Group is drafting a paper on best practices for domestic CSDs looking to minimise operational disruption when making changes. The second topic is mutualisation of technology. Many domestic CSDs lack the resources to build or buy or even operate new technology platforms. A forthcoming paper from the Working Group will analyse the feasibility of creating mutual entities to own and operate technology, including artificial intelligence (AI) applications, on behalf of domestic CSDs.

#### 4.3.5 Evolving Technologies

This is a new Working Group, set up in 2024, to explore and educate members of ISSA on how new technologies such as Cloud, Confidential Computing, artificial intelligence (AI), blockchain and quantum computing can be applied to securities services in ways that create value. The objective is to shift the discussion from technology to value and enable decision-makers in the securities services industry to distinguish between the opportunities that create value and those that do not. The value-creating opportunities the Working Group intends to identify will fall into three broad categories - industry-wide, firm-specific and customer experience – but will always reduce to individual use-cases. The Working Group will, for example, investigate how data and data analytics can improve client experience, with a view to publishing a paper on the digitalisation of client interactions. It will also explore how blockchain technology can transform industry-wide value chains by turning securities, funds, real-world asset (RWAs) and collateral into tokenised digital assets. A paper on using blockchain to improve collateral management will be published too. The Working Group will monitor opportunities to accomplish digital transformations through the digitisation of data and the digitalisation of operational processes. This continues the work of the Digitisation Working Group on how digitisation could improve operational processes, which the new Working Group has absorbed. The new Group will also support the DLT in the Real-World survey of buy- and sell-side firms run by The ValueExchange, now in its sixth iteration. The survey, which provides a valuable guide to blockchain-based innovations that have either worked or not worked, was previously supported by the DLT Working Group, whose educational activities the new Group has also absorbed. A final mission is to help securities services firms work more successfully with Big Tech companies by inviting firms such as Google, Microsoft and Snowflake, which have already formed partnerships with members of the securities services industry, to present to the Working Group. These presentations are expected to cover data analytics and AI as well as Cloud.

Although perceptions of BigTech companies within the industry have changed – they are now seen as collaborators rather than disruptors - the opportunities for working with them have not yet progressed much beyond Cloud, and the specific opportunities within securities services remain obscure. Eventually, a paper will be published on how to work with BigTech partners, including best practices. Wherever possible, the Working Group will define industry standards as well as best practices.

#### **4.3.6 Financial Crime Compliance**

This Working Group is an instance of a persistent need for vigilance and education. It was first established in 2014, when two securities services firms were fined by regulators in the United States for violations of sanctions and Anti-Money Laundering (AML) rules perpetrated not by the banks but by their sub-custodians. This undermined the previous assumption that the regulated entity responsible for the breach would bear the responsibility. The fines were accompanied by a regulatory threat to mandate the replacement of omnibus accounts by beneficial owner accounts, which would have damaged the profitability of the securities services industry by obliging it to deal with excessive numbers of individual accounts. More than a decade later, the Working Group continues to exist, largely to conduct an annual review and updating of the 17 Financial Crime Compliance Principles for Securities Custody and Settlement it first published in August 2015 and the related Financial Crime Compliance Due Diligence Questionnaire (DDQ) for sub-custodian banks it first published in 2018. In 2025, for example, the Working Group is expected to add questions to the DDQ to cover the risks posed by new asset classes and the deteriorating geopolitical environment. The Principles continue to provide custodian banks and central securities depositories with contractual assurances about the controls sub-custodians impose on their clients and the representations that they make about them. Sub-custodians are also obliged to report any potential breaches of their obligations to prevent financial crime, so positions at risk can be blocked. Unfortunately, there is still resistance at some firms to completing the DDQ, on grounds that they cover the risk by other methods or are supervised by another regulator.

The Working Group is conducting a survey to benchmark current practices in sanctions management and identify opportunities for improvement, which will likely include the application of artificial intelligence (AI).

The Working Group will publish a report on its findings and a paper on best practices for sanctions screening, as part of its longstanding efforts to maintain a high level of consciousness of financial crime compliance risk throughout the securities services industry.

#### **4.3.7 Investor Solutions**

This new Working Group addresses the need for securities services firms to improve their understanding of what retail end-investors want from their service providers. Although institutional end-investors appoint custodian banks, global custodian banks and central securities depositories (CSDs) interact with retail end-investors mainly through intermediaries such as stockbrokers, wealth managers and fund distribution platforms. As the recent ISSA paper on the Future of Securities Services<sup>36</sup> points out, investors are changing their behaviour. They are switching their portfolios into passive instruments, especially Exchange Traded Funds (ETFs), environmental, social and governance (ESG) strategies, alternative and digital assets and cryptocurrencies. Institutional asset managers are responding to this shift by reverting to retail fund distribution and by purchasing wealth management platforms. Securities Services firms must also adjust to these changes if they are to provide the services that retail end-investors require.<sup>37</sup>

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<sup>36</sup> ISSA, The Future of Securities Services 2024 – 2030, September 2024 at <https://issanet.org/publications-media/issa-publishes-future-of-securities-services-2024-2030/>

<sup>37</sup> See the Future of Securities Services Panel, page 24 above.

The Working Group exists to aid that process by understanding the investment flows of retail end-investors; mapping the intermediaries and service providers that they use; representing the current information flows between securities services firms and retail end-investors; researching what services, including execution and lending, that retail end-investors are seeking from securities services firms; identifying the barriers retail end-investors encounter to investment in securities, funds, private markets, digital assets and cryptocurrencies, from investment research, through execution, to settlement and custody; analysing the shift from mutual funds to ETFs; and proposing solutions to any problems that are discovered, drawing lessons especially from markets where retail end-investors are well-served. The Working Group will issue a survey questionnaire to retail end-investors and prepare a report based on its findings that outlines ways in which securities services firms can better serve not just retail end-investors but the intermediaries that service them. Over time, the Working Group will refine its scope and concentrate on the most impactful opportunities for the securities services industry.

#### **4.3.8 Out of Network Assets**

This new Working Group revives a topic that ISSA first explored more than ten years ago. In 2014 ISSA published, jointly with the Association of Global Custodians (AGC), a report on the challenges of safekeeping Out of Network Assets (ONAs), or assets that must be held in safe custody outside the traditional networks of sub-custodians and central securities depositories (CSDs). At the time, ONAs referred to deposits with third-party banks, interests in private equity funds, bank loans, derivatives and precious metals. The concern was that custodian banks had less control over these ONAs than over traditional assets such as equities and bonds but were facing new regulations in the European Union (EU) – namely, the Alternative Investment Fund Managers Directive (AIFMD) of 2011-13 and the fifth iteration of the Undertakings for Collective Investment in Transferable Securities (UCITS V) of 2014-16 - that obliged them to make whole any investors who lost their assets. In 2025, the issue has re-surfaced. Although some of the ONAs at issue, such as digital assets and cryptocurrencies, are new, most are familiar from 2014: third-party bank deposits, private equity and credit funds, derivatives, physical commodities and bank loans.

What has changed since 2014 is that demand for ONAs has increased and the safekeeping, record-keeping and supervisory techniques for ONAs that are available to custodians and depository banks have improved. The Working Group, which will again collaborate with the AGC, will collate and share knowledge of these with ISSA members. However, there are still gaps.

The operational complexity remains immense. But the Working Group will identify how securities services firms can navigate the legal and regulatory challenges as well as the operational difficulties of safekeeping ONAs efficiently without running excessive risks. It will analyse separately the challenges of four classes of ONA – private markets, digital assets, physical assets and certificated physical assets, and derivatives – from the legal, product, technology and operational angles. The aim is to mitigate the risks and maximise the operational efficiency of holding each of the four ONAs by publishing best practices for the safekeeping of each in a series of papers over two years. Each paper will follow a similar timeline, beginning with data gathering and ending with publication. The Working Group will recommend areas for inter-company collaboration and, wherever it is practical, standards for adoption. There is likely to be some overlap between the individual ONA papers. Operational solutions to privately managed and physical markets, for example, include turning privately managed assets and physical asset certificates into digital assets. The Working Group might also need to become a standing body, since ONAs and ONA safekeeping laws, regulations and techniques are unlikely to remain static.

### 4.3.9 Securities Services Risks

Understanding and mitigating risks is the only defence the securities services industry has against financial, operational and reputational losses. Which is why ISSA first published a paper on risk in securities services as long ago as 1992. It was updated by a newly formed Custody Risk Working Group in 2017.<sup>38</sup> By 2023, it was obvious that a further update was necessary. New asset classes such as privately managed and digital assets and new technologies such as blockchain have created novel risks. The geopolitical environment has also deteriorated. But an update was necessary chiefly to recognise the broadening of the membership of ISSA beyond custodian banks. Which is why the Working Group, then still called the Custody Risk Working Group, was reconstituted. Its revised paper, *Securities Services Risks 2025 Report*<sup>39</sup>, was published in April 2025. The paper proceeds from an understanding that securities services is a complex, delicate and interconnected eco-system which is only as strong as its weakest link, so almost every area and every person working in the industry is to some extent engaged in risk management. Sanctions, for example, could be seen as a matter of financial crime compliance only, but they are covered in the paper because securities services firms will be fined by regulators if they fail to identify a sanctioned party through a complex custody chain. Similarly, the paper covers information security, data protection and geopolitics, even though these areas are distant from conventional custody risks such as asset losses and missed corporate actions. However, there are limits to the comprehensiveness of any single paper. Artificial intelligence (AI), for example, is not covered in the paper. Just as the 2017 paper spawned a separate Working Group on cyber-security, the 2025 paper is likely to lead to further investigations of some topics by separate Working Groups. The paper also provides a foundation for the realisation of an idea put forward at the 2023 Symposium.<sup>40</sup> This is for ISSA to establish a crisis risk management group that would meet on an ad hoc basis to consider how the industry might respond whenever there is a serious market dislocation.

### 4.3.10 Sustainability and Securities Services

This Working Group was first established more than two years ago as the Environmental, Social and Governance (ESG) Standardisation Working Group. The change of name is not a superficial alteration. The ESG Standardisation Working Group was unable to fulfil its original ambition of devising standards because individual companies within the industry, let alone the securities services industry as whole, could not agree on a single definition of ESG. In fact, the signal contribution of the ESG Standardisation Working Group was to publish, in November 2023, a glossary of ESG terms for the securities services industry.<sup>41</sup> The original Group also created a repository of documents that the industry has produced in the field of ESG.<sup>42</sup> Both were based on a recognition of the then need to simply raise awareness of ESG in securities services. The reconstituted Sustainability and Securities Services Working Group is now serving a better-informed industry. It aims not to continue to raise awareness of ESG but to measure the impact of the three components of ESG on the day-to-day work of the securities services industry. Its ultimate purpose is to transform ESG in securities services from a set of metrics into a set of principles which are integrated into the investment decisions and business strategies of the industry.

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<sup>38</sup> ISSA, *Inherent Risks within the Global Custody Chain*, February 2017 at [https://issanet.org/content/uploads/2013/04/ISSA\\_Report\\_Inherent\\_Risk\\_February\\_2017.pdf](https://issanet.org/content/uploads/2013/04/ISSA_Report_Inherent_Risk_February_2017.pdf)

<sup>39</sup> ISSA, *Securities Services Risks 2025 Report*, April 2025 at <https://issanet.org/content/uploads/2025/04/ISSA-Securities-Services-Risks-2025-Report-FINAL.pdf>

<sup>40</sup> See ISSA, *21st ISSA Symposium 10 – 12 May 2023 Wolfsberg: Account of proceedings by Dominic Hobson*, page 17.

<sup>41</sup> ISSA, *The Securities Services ESG Glossary 2023*, at <https://issanet.org/content/uploads/2023/11/ISSA-The-Securities-Services-ESG-Glossary-2023-FINAL.pdf>

<sup>42</sup> <https://issanet.org/content/uploads/2024/02/ISSA-ESG-Standards-Resource-Centre-2023-Dec.pdf>

Those decisions are themselves influenced by ESG regulations, and especially reporting regulations, which have created an ESG compliance risk. Techniques for managing this risk were outlined in a paper published by the Working Group in December 2024.<sup>43</sup> The paper suggests securities services firms adopt three “lines of defence” against ESG risk. These are the introduction of risk management policies and procedures, monitoring and oversight of their implementation, and evaluation and audit of their impact. In March 2025 the Working Group followed up this initial work with a study of the data flows between securities services firms, asset managers, issuers, investors and data vendors as the various parts of the industry endeavour to comply with their ESG reporting obligations and satisfy the growing volume of ESG due diligence questionnaires.<sup>44</sup> The next project is to issue a survey questionnaire, in collaboration with The ValueExchange, to ask securities services firms how sustainability is impacting their business and what they would like the Working Group to undertake next. The survey findings will be published in a report that will identify trends in ESG integration in the industry, challenges to it and opportunities for the Working Group to provide best practice information to firms in need of help to raise their ESG performance.

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<sup>43</sup> ISSA, *The Impacts, Challenges and Opportunities of Sustainability within Securities Services*, December 2024 at <https://issanet.org/content/uploads/2024/12/ISSA-Sustainability-WG-White-Paper-FINAL.pdf>

<sup>44</sup> ISSA, *Sustainability Data Flows*, March 2025 at <https://issanet.org/publications-media/issa-sustainability-data-flows-document/>