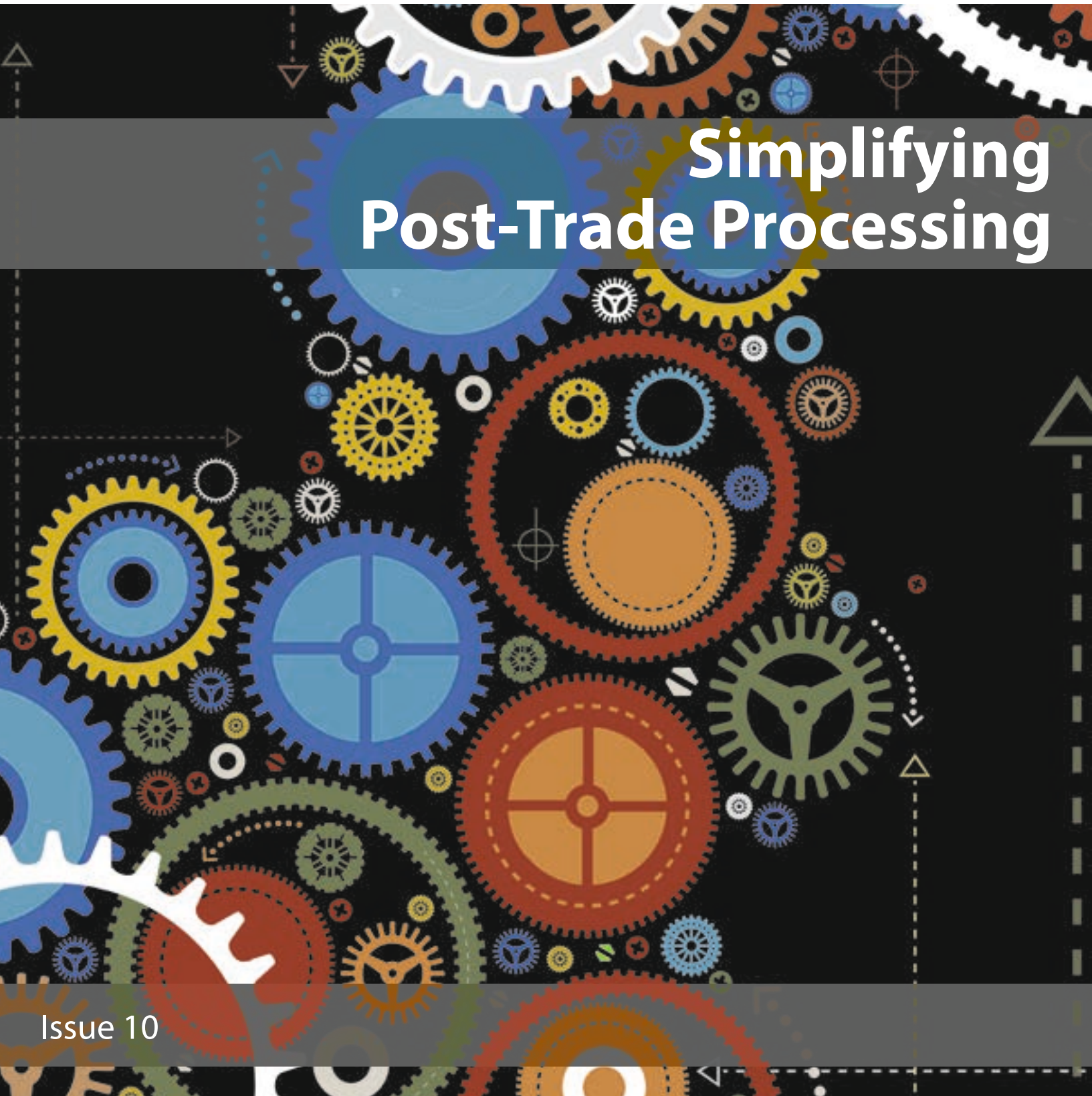


TCS B&NCS Research Journal



Simplifying Post-Trade Processing

A photograph of two men in a trading floor. They are standing and looking at several large computer monitors displaying financial data, including charts and tables. The man on the left is holding a mobile phone to his ear. The background shows a modern office environment with a grid ceiling and air vents. A semi-transparent blue box with white text is overlaid on the bottom right of the image.

TCS BOXNCS

BNP Paribas Securities set out to consolidate custody operations. They found a certain way.



Experience certainty.

FOREWORD

The Financial Services Industry is unique in that it is at the epicenter of the ostensible real economy, but intangible at best. It is both an enabler and barometer of real-world industries by enabling capital for investments and also a measure of performance and the returns generated. The complexity and dynamics of this intersection, and the global nature of the industry, continuously throw up enormous challenges even when the older ones are yet to be solved. Having said that, the industry is also a source of tremendous innovation and technology adoption. It is this industry that is at the forefront of high-speed frameworks for trading and the re-defining of real-time processing. It comes up with solutions to counter the incessant threat of cyber security and is at the cutting-edge of digital technologies

(like mobility, big data et al)--all with the objective of enhancing customer experience for retail investors. In fact, this innovation mindset, even amidst excessive volatility and continuously changing regulations, happens to be the only constant.

Even as we settle into the results of the first wave of T2S migration in Europe, we are now faced with the biggest change in Capital Markets--the movement of US markets to a T+2 settlement cycle. While the earlier vision of T+0 lost momentum due to issues with liquidity during periods of stress, these proposed changes will now bring the US markets in line with the rest of the world, apart from setting standards in the post-trade world. What this means is that all participants will have to continuously re-evaluate

the strength of their back-office processes.

Probably, the product which has grabbed the highest priority in terms of concept and execution has been collateral management, which was an effective response towards reducing systemic risk in the securities transaction value chain. It is something that service providers such as DTCC, Euroclear and Clearstream, and other financial institutions have reacted to with an equal sense of priority.

So, as this industry is propelled forward by technology innovations in mobility, big data, block chain, or de-risked by regulations that demand transparency in beneficiary accounts or changes in structural processing such as T2S or T+2 in the USA, we are certainly moving ahead into exciting times.



Arun Arunachalam
Principal Consultant
TCS Financial Solutions
TCS BaNCS

EDITORIAL

We are happy to bring you the 10th edition of the TCS BaNCS Research Journal and share with you viewpoints on emerging trends, technologies and markets. The evolution of the sub-custodian in emerging markets, the larger impact of T+2 in USA, how risks in asset servicing can be managed—or at least, continually reduced—and how collateral management has evolved are some of the topics we discuss in depth in this issue. Our authors delve into the possibilities of block chain technology in capital markets, something that is expected to

simplify complex processes through disintermediation and usher in more transparency.

Revamping post-trade processing demands that legacy, including position keeping management systems, be more modular and component driven, addressing the needs of both business and technology end users.

How can an industry-wide approach to compliance and distribution of securities and investment funds result in more transparency? What do the IOSCO PFMI principles mean for market infrastructure firms, and how can

they adhere to these tenets in a way that creates robust financial markets? These are some of the questions and answers we explore under the regulatory realm in our Journal.

No story today is complete without a discussion on the impact of Digital. The transformation that digitalization can bring about in capital markets opens up the various possibilities that ultimately seek to improve end customer experience.

Hope you enjoy reading our perspectives and we look forward to hearing from you.

Till next time...



Anjana Srikanth

Editor/General Manager
Marketing, Communications and Research
TCS Financial Solutions
TCS BaNCS

EDITORIAL ADVISOR



Dennis Roman
VP & CMO
TCS Financial Solutions
TCS BaNCS

what's inside...

ISSUE 10

- 8 T+2 Settlement in USA – When and Am I Prepared?
- 12 Blockchain in Financial Services – A Catalyst for Simplification
- 18 The Changing Face of Custody in Emerging Markets
- 24 Efficacy of Stock Position Management Systems
- 32 Is Cash still King?
- 38 IOSCO CPMI - Principles for Financial Market Infrastructures
- 50 Targeting Transparency in Securities Transactions and Custody
- 58 Digital Transformation in Capital Markets
- 64 Managing Processing Risk in Asset Services
- 70 Revamping Legacy in Securities
- 74 Partial Call Lotteries. Is a New Change Coming?
- 78 Meeting New Cost Basis Reporting Requirements



T+2 Settlement in USA – When and Am I Prepared?

Q: What is “T+2”?

In financial markets, T+2 is the acronym for the proposed three-day duration cycle between the day the order is executed (the trade date) and the day payment and the securities typically change hands (the settlement date). This change will reduce one day from the current process.

Shortening the settlement cycle affects any entity (retail clients, investment managers, hedge funds, custodians,

broker dealers and markets/depositories) that facilitates trading, including settling equities, corporates, municipal bonds and unit investment trusts (UITs) in the U.S. market.

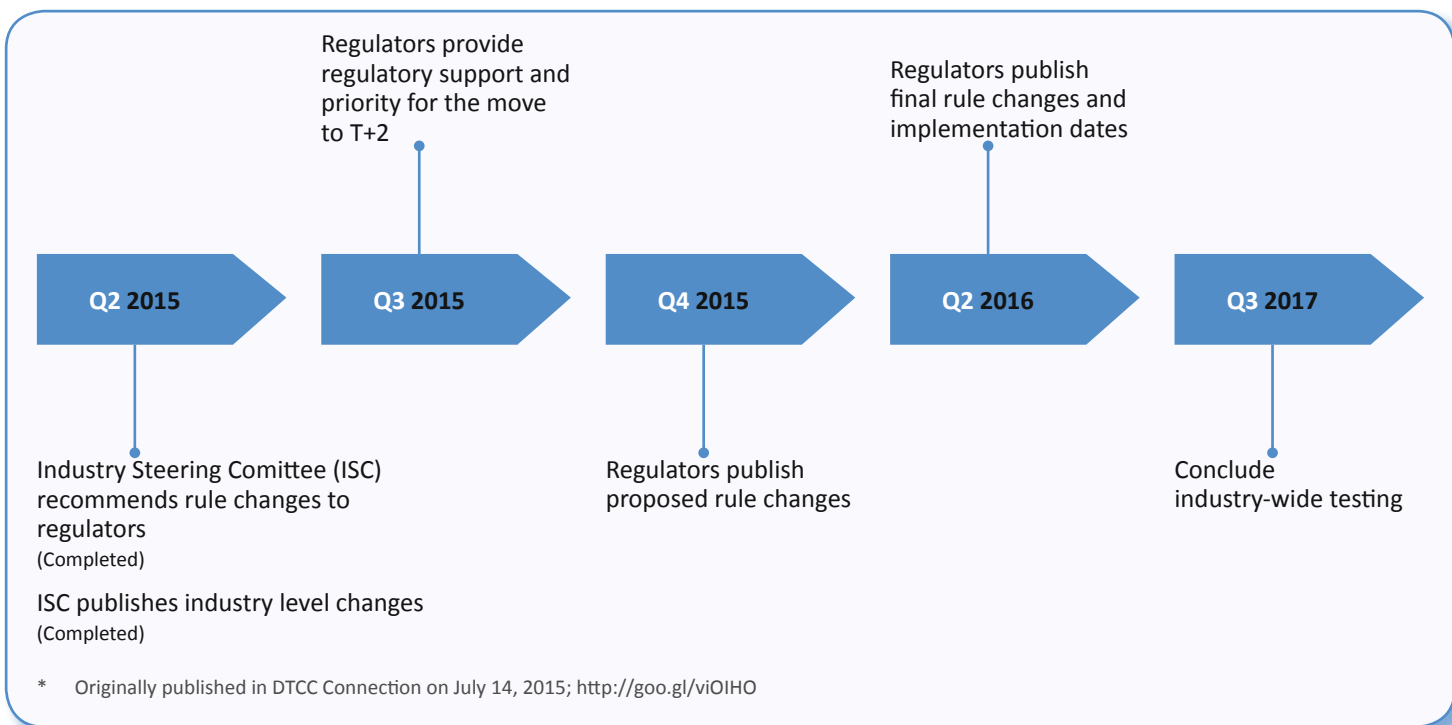
Q: When will T+2 implementation occur?

The tentative timeframe developed by the Industry Steering Committee (ISC) and the Industry Working Group (IWG) to implement T+2 is Q3 2017. The deadline is contingent on meeting certain milestones,

and a delay at any point may push back the overall implementation for the U.S. The major milestones include:*

Q: What needs to change to achieve T+2 settlement?

Shortening the settlement cycle is likely lead to some changes in market practices – e.g. pre-settlement matching, confirmation and affirmation of client orders as early as possible and, ideally, on trade date, improving matching



and settlement efficiency, accelerated clearance of retail funds, managing the potential for increased settlement failure, dealing with late settlements and sequencing deliveries to maximize settlement efficiency. A recent study by Omgeo indicates there is a direct correlation between high same-day affirmation rates and high settlement rates, implying that the processes that come under the microscope are allocation, confirmation, matching and affirmation.

Compressing the time it takes to complete these processes will help; although, without ensuring that systems contain proper settlement instructions, they may complete a process that inadvertently induces settlement fails or the need to make settlement into suspense accounts and subsequent post settlement internal transfers. Automating systems to receive, store and enhance deliveries with settlement instructions will help avoid the

A recent study by Omgeo indicates there is a direct correlation between high same-day affirmation rates and high settlement rates, implying that the processes that come under the microscope are allocation, confirmation, matching and affirmation.

time-consuming reconciliation process that is ill-afforded in a T+2 world.

Solution providers and in-house proprietary systems should review their processes against these practices and requirements, ensuring that the technology supports the business and market practices. These systems should be based on messages rather than rely on receipt of files, which inherently induces artificial delays. Similarly, systems should rely on events rather than trigger processes by time, wherever possible. Technology platforms need to optimize processing, ensuring database, application and web server processing is streamlined to process the volume required in compressed timeframes. The technology should support and implement high availability processing, with real time data backup and disaster recovery mechanisms that either support redundant processing with no single point of failure or the ability to quickly



Organizations will need to adjust the ex-date calculation for regular way trades and modify the due bill period for both regular way and irregular ex-dates, impacting announcement and due bill processing.

switch to backup systems with no loss of transactional data.

Q. How will corporate actions processing be impacted by T+2?

Organizations will need to adjust the ex-date calculation for regular way trades

and modify the due bill period for both regular way and irregular ex-dates, impacting announcement and due bill processing. Additionally, the cover/protect period must be reduced by one business day after the offer expiration date. The majority of the required changes will fall on banks, depositories and data vendors to ensure that the dates are properly calculated and communicated.

Firms that trade around expiration dates of voluntary reorganization offers must review processes for claiming failed deliveries, and recall of securities and tracking trades pending settlement.

Q. What is the impact that T+2 will have on financial firms in other regions around the world?

Financial firms have long since either overcome or have procedures to compensate for time zone difference when trading and settling in a global environment, particularly, in financing and foreign exchange required to settle trades in a global economy. Even as we approach T+2 in the USA, many other markets have already faced a similar settlement time and overcome the challenge. Perhaps harmonization across markets may be as, if not more, challenging to achieve. Much of Europe and Asia is already on a settlement cycle shorter than T+3. The possibility of aligning settlement cycles across geographies could help promote

Technology platforms need to optimize processing, ensuring database, application and web server processing is streamlined to process the volume required in compressed timeframes.

DTCC will need to make changes to its announcement systems to properly process regular way ex-date notifications and irregular way ex-date notifications, specifically to the DTC interim accounting process, including bond interest.

Firms that derive ex-date on their proprietary processing systems must change the date from the current two business days prior to record date to one business day prior to record date. Exchanges will need to modify their systems to account for the shortening of ex-date period and any associated downstream processing of that information.

harmony, enabling global financial firms to better manage cash flows and simplify financing and collateral needs.

Q. What is the impact of T+2 on Financing and Collateral Management?

The answer is speed; typically, financing and collateral management transactions occur closer to settlement date, and often can impact multiple financial intermediaries involved in the collateral management process, particularly, where the same position is used for collateral by multiple parties. This will be particularly true for clients residing in multiple time zones, sometimes, half the world away from the place of settlement. Trade execution is measured in sub-seconds where financing and collateral management is measured in hours or days. Are the technology and business processes sufficient to support collateral management in a T+2 world?

Q: Am I prepared?

At the broader market level, a white paper by Ganesh Padmanabhan and

Much of Europe and Asia is already on a settlement cycle shorter than T+3. The possibility of aligning settlement cycles across geographies could help promote harmony, enabling global financial firms to better manage cash flows and simplify financing and collateral needs.

Ramakoteswara Roa T, titled 'Shortening the Securities and Cash Settlement Cycle from T+3 to T+2' and published by Tata Consultancy Services' in a previous edition of the TCS BaNCS Research Journal stated: "The most important change required for transition [to T+2] is to mandate market participants to affirm trades on the day the trade is executed, enabling a timely and accurate settlement."

"Firms must look beyond short-term goals and evaluate options to re-engineer their business processes and enhance the IT infrastructures of the affected businesses processes before transitioning to a reduced settlement cycle. They must view this as an opportunity to invest in their technology infrastructure, to achieve the end objective of decreasing risk while enhancing business efficiency."

Buy side firms have traditionally been slower to invest and it remains to be seen whether any form of regulation will be mandated and/or included within client contracts.



Andrew Zelenka
Principal Consultant
TCS Financial Solutions
TCS BaNCS



Blockchain in Financial Services – A Catalyst for Simplification

The financial services space is resounding with a gradual but fast building crescendo about Bitcoin's blockchain technology, specifically in its non-currency applicability. The industry is abuzz with news about large banks and market infrastructures investing in Blockchain, and discovering new ways to utilize and adapt it—all of which can be best described as disruptive and unconventional. The most significant takeaway from all of this being that Blockchain demonstrates how

decentralization of authority can take place while still maintaining order in a new democratic form—where anyone can participate, everyone is equipotent, and no one trusts anyone. The fungibility and traceability of all block chain transactions right to their seed bring in hitherto unseen transparency in the space. Add to that privacy and anonymity of all users. Well, the upside sounds good, but is there a downside? Yes, there are a few. One being the lack of scope for arbitration or dispute redressal, delays in

transaction confirmation, the possibility of reversal of previously confirmed transactions, no sequencing guarantee of transactions, the likelihood of a 51% brute force attack, and a collapse due to reduced community participation and lack of sufficient revenue generation. The Bitcoin community seems to be fine with all of this and works with the credo that a balance can be achieved between community needs and its willingness to accept the risks entailed therein. This is summed up in the tables below.

Participation	Risks
- Is the community a closed group or open to all? - Level of de-centralisation desired: Are all users equipotent? Or, can there be a hierarchy of user levels? - What is the level of trust among participants? - Are participants willing to pledge resources to maintain the network? - What is the level of transparency, privacy and anonymity desired by participants?	- What is the basis for arbitration and adjudication? - How can consensus be reached among participants and how long can this take?? This can lead to sequencing and revocability of previously confirmed transactions. - How can they ensure perpetual viability of network: its use, management, security, etc.? - What happens to the asset if the community or network shuts down? Depends on nature and perpetuity of asset: Does it only exist within the network or does it represent something tangible? - Intellectual property protection - Managing bloat and ensuring optimal use of the block chain
The purpose of the network - Is it for sharing digital content? - Is it to maintain a ledger of transactions? - Is it for private use OR for creating a common, public good?	

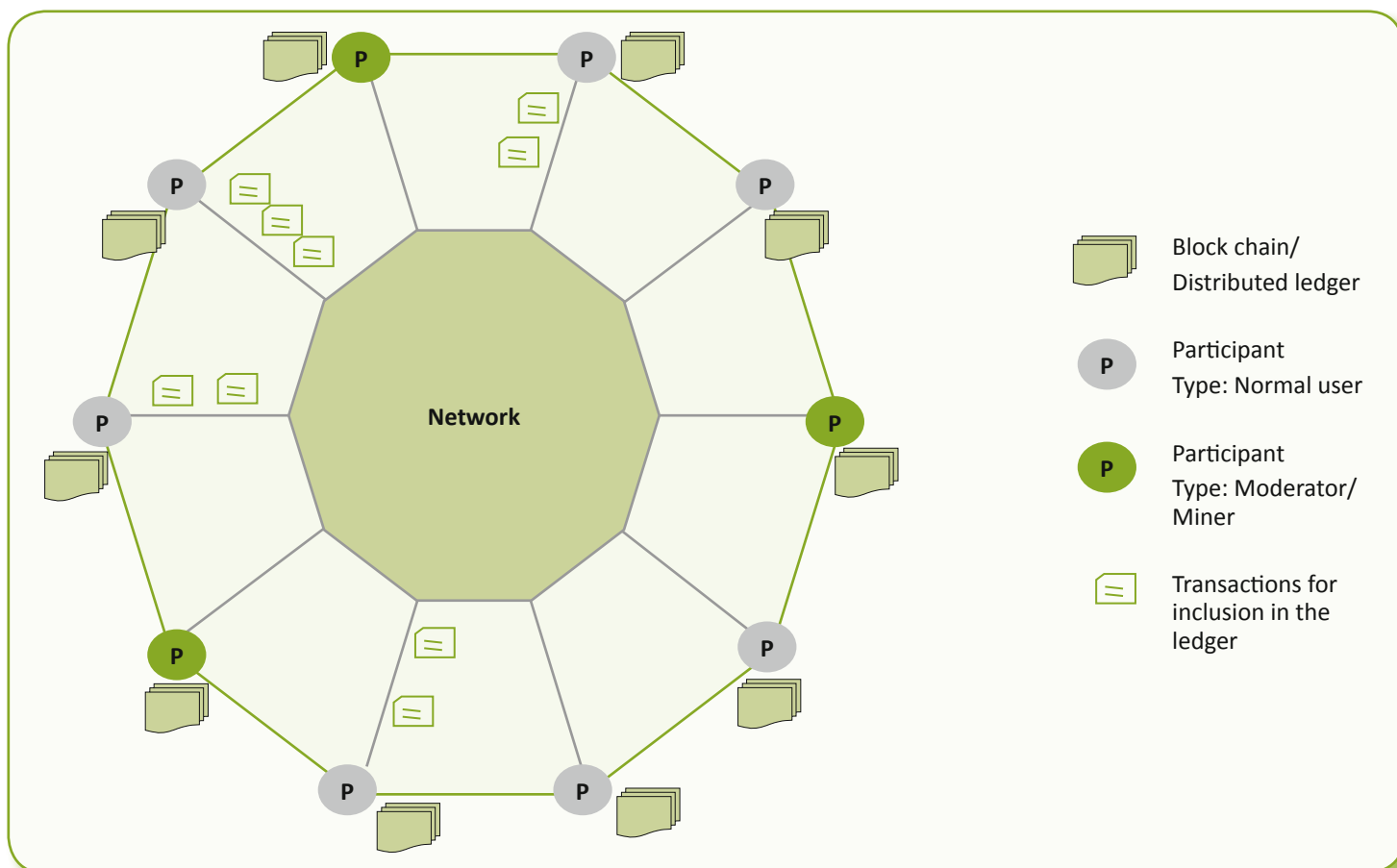


The industry is abuzz with news about large banks and market infrastructures investing in Blockchain and discovering new ways to utilize and adapt it—all of which can be best described as disruptive and unconventional.

In a simplified view, blockchain is a digital file comprising logical stacked sheets and a peer-to-peer file transfer program, which transfers this file to all participants. Participants publish transactions to the network for inclusion in the ledger. Special participants, called moderators/miners, group these transactions, create a new sheet (including a reference to the current top sheet) and add the new sheet on top of their copy of the blockchain digital file. The peer-to-peer file transfer program pushes these updates to all other participants. All communications in the network are secured by encryption. Tamper-proofing and non-repudiation is ensured with the use of digital signatures.

Community models and their needs vary widely. A single moderator, a.k.a. trusted third party, is at one end of the spectrum and represents the traditional model in

use today, such as in stock exchanges or with a CCP or a CSD. While multiple anonymous moderators and anonymous participants are at the other end of the spectrum, like in Bitcoin. In this case, as multiple moderators update their copy of the blockchain digital file simultaneously, diverging (forking) situations arise when two or more new sheets reference the same top sheet. The community soon attempts to close the fork and arrive at a consensus by building onto the longest chain and orphaning the rest. In this case, therefore, to ensure equipotency among moderators and to remove the risk of dominance by any single moderator/group, the right to add to the top of the blockchain digital file has to be earned by solving a mathematical problem, thus spreading the probability equally among moderators.



In between this spectrum, various business use cases are being explored and nurtured across multiple industry segments. The technology groups are adapting the offering to different business use cases. Within financial services, use cases tend to favor permission-based Blockchains for compliance and accountability. Accountable, selected moderators are preferred over anonymous ones. Many use cases also require bridges to be built to connect existing traditional infrastructures and, possibly, other Blockchain initiatives. Therefore, Blockchain solutions will gravitate towards specific business cases, and their capabilities will be driven by the community's business needs. The technology is adaptable to the needs of different communities, and can be applied in a varied context. Communities could

look at hybrid models, combining the use of blockchain technology with traditional systems and processes. A new blockchain community could arise by leveraging

Securities trading and clearing is one area that is actively being pursued, where blockchain is touted to improve efficiency and drive down risk.

existing blockchain communities. To study the applicability, a good starting point is to review the existing, established communities and their service offerings.

Securities trading and clearing is one area that is actively being pursued, where blockchain is touted to improve efficiency and drive down risk. Blockchain can be used by a new community of trade life cycle participants as a common shared ledger of asset holdings. This new arrangement opens the possibility of immediate confirmation and settlement instead of waiting for the settlement cycle. Unlike the traditional siloes of CCPs, Custodians and Depositories working on their own copy of data, this new community could benefit from a single, shared asset register. This new arrangement fuses the existing layers in

trade processing, reducing integration effort and processing times.

Blockchain can be used in the asset servicing space in multiple ways. An announcement capture community -- understandably not involved in any transfer of assets or their records -- might use blockchain to arrive at a consensus on the Golden copy, with extended communities working on country- or market-specific information. Another use could be in capturing the value chain from raw data to the formation of structured information. This can bring in transparency and help build confidence in the quality of information.

Exploring the Creation of a Golden Copy of Corporate Actions Events and Capturing of the Value Chain through Consensus using Blockchain

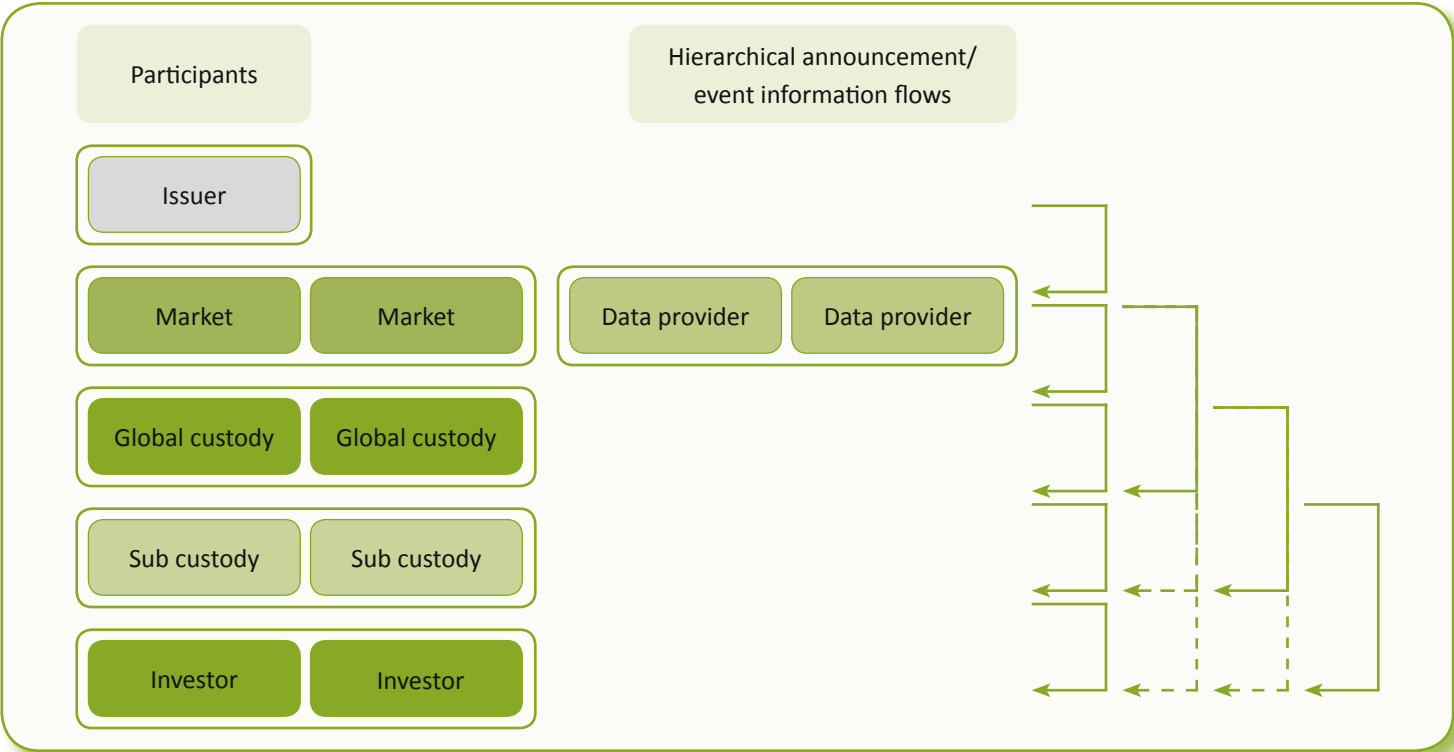
Let us explore a specific use case of blockchain adaptation in more detail.

An important step in Corporate Actions processing is the generation of a Golden Copy of the announcement, as it impacts the complete downstream processing of the event. Time and effort is spent towards scrubbing and cleansing of the event information received from diverse set of sources such as CSDs, exchanges, public sources, data vendors, among others. In most of the cases, market participants are expending resources in scrubbing the same piece of data many times over. This duplication results in inefficiencies and, in some cases, increases the risk exposure, stemming from self-interpretation of conflicting or incomplete information.

As depicted below, event information flows in a hierarchical model. Participants at any level pull processed information from the participants above them and arrive at their own version of the truth (golden copy).

In most of the cases, market participants are expending resources in scrubbing the same piece of data many times over. This duplication results in inefficiencies and, in some cases, increases the risk exposure.

A new community could evolve comprising participants from within a single layer or across all layers. During initial formation days, it seems practical for this community to be formed of



All participants are connected to each other in a peer-to-peer network, contributing to building the same version of the truth. Information, as it changes, is available to all participants.

peer participants from one or two layers. It could grow into a larger group comprising participants from across all layers. This new community can benefit by introducing blockchain technology. The first change being in the way the new participants are organized. All participants are connected to each other in a peer-to-peer network, contributing to building the same version of the truth, as depicted

below. Information, as it changes, is available to all participants.

Contributions analogous to transactions are pushed into the network, and will get vetted and clubbed into new logical sheets adding to the blockchain ledger. While all participants can contribute, moderators decide what gets added into the blockchain ledger. A template can be used for contributions, which includes an IN and OUT component. The IN component is mandatory in all contributions. IN components reference raw information sources of announcements such as newspaper or website links. The OUT component is derived, structured information that the participant wishes to see in the final message with the accompanying syntax. Contributors could be incentivised through a share in the fees for accepted contributions.

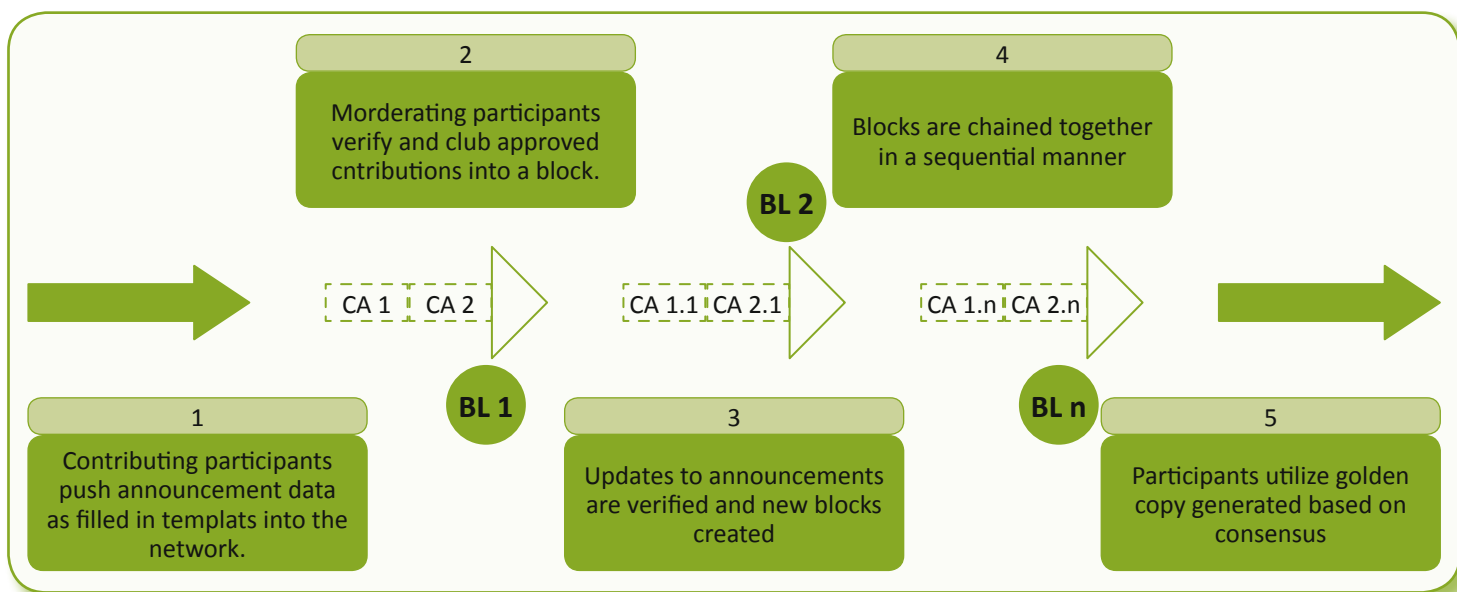
Construction of the structured message is transparent to all community participants. Importantly, the build is incremental and any participant can trace the complete path of construction. This approach

can eliminate the need for each of the participants to scrub and cleanse announcement data separately.

Blockchain as an underlying technology and the emerging paradigm of usage can help improve efficiencies and reduce costs and risks in the announcement capture process.

Construction of the structured message is transparent to all community participants. Importantly, the build is incremental and any participant can trace the complete path of construction.

Participant A Contribution 1	Participant B Contribution 1	Participant C Contribution 1
IN Scanned paper clipping of issuer announcement in newspaper Link to the announcement page on the stock exchange related to this security.	IN Ref #1 OUT Structured Message Component 1 with filled-in values Structured Message Component 2 with filled-in values	IN Ref #1 OUT Structured Message Component with filled-in values
A moderator accepts and adds to the news ledger page and assigns references #1 and #2	Differing contributions at the message component level are arbitrated immediately and only the approved changes are added to the specific Corporate Actions event information ledger page.	



In Conclusion

The technology components per se i.e. the peer-to-peer networks for file distribution, cryptography and public

key infrastructures, have been in use in different forms and for multiple purposes for a while. The participant community needs to be willing to accept the new paradigm behind this technology for

it to gain wider acceptability. Given the increasing interest generated and its potential of wide applicability, it makes sense for the industry to invest in exploring new possibilities with blockchain.



Venkata Kamesh Thatikonda
Consultant
TCS Financial Solutions
TCS BaNCS



Yogesh Sharma
Senior Consultant
TCS Financial Solutions
TCS BaNCS



The Changing Face of Custody in Emerging Markets

The custody services market is an interesting place where an ever-changing landscape of regulation both, within and across countries, has resulted in the innovation of niche services as well as consolidation among various global as well as local players.

There is no single definition by any leading agency as to what is an emerging market. From an economic and academic point of view, the emerging markets require no specific support from

international agencies for the prevention of epidemics nor global interventions with regard to political stability as compared to developing economies. This is in contrast to an investor point of view where high potential of capital growth, often associated with high risk and market volatility, makes emerging markets an attractive destination.

Today, the emerging markets are capturing more mindshare from fund managers than any other time since the

last global crisis and as they continue in their quest to capture the elusive alpha. This has made global custodians respond by providing direct custody or by creating a strong network of sub custodians in markets that differ in infrastructure and connectivity.

Fund managers, in return, are asking for a more cautious approach on how their assets are maintained by their custodians, as the emerging markets are complex in nature vis-à-vis market regulation as

Today, the emerging markets are capturing more mindshare from fund managers than any other time since the last global crisis and as they continue in their quest to capture the elusive alpha.

well as local market practices. The key consideration being the capability of the global custodians or their network sub custodians to safe guard client assets and ensure securities as well as cash settlement by adhering to local rules and regulations.

One emerging market that is currently witnessing renewed investor interest is the Middle East where the opening up of the Saudi Market and the addition of new markets such as Qatar and UAE to the MSCI EM index has created profound interest in investor community.

This paper will examine these new markets and the opportunities available to incumbent custody providers as well as new entrants.

The Middle East - A Potpourri of Rich Business Opportunities

The Middle Eastern nations exhibits heterogeneity not only in their social

or economic development but also in the lack of integration with the global economy, with the exception of the GCC countries. The countries of the GCC comprising of Saudi Arabia, the United Arab Emirates (UAE), Oman, Qatar, Bahrain, and Kuwait are more integrated with the global economy. These GCC countries have built their economy on oil wealth that has enabled them to become a destination of capital investment. Some key characteristics of these markets are:

1. The Middle East markets work on different trading days compared to the other trading centers in the world. The Qatar and UAE markets operate from Sunday to Thursday while the Saudi Market works from Saturday to Wednesday.
2. Their legal and regulatory framework needs changes as far as corporate governance and investor protection are concerned, for e.g., there are no concepts of central counterparty (exception being Dubai) or a clear bankruptcy code for many of these countries.
3. The major hindrance to attracting international capital are the restrictive listing and admission requirements by the various exchanges in this region, with a notable exception being Dubai.
4. The domestic debt markets of these countries are quite shallow as the need for alternative funding is not very high.
5. The Middle Eastern markets are highly dominated by retail investors as the market for mutual funds, pension and insurance are not fully

developed leading to low Institutional participants.

6. The markets are also very low in free float as compared to other developing markets, which can be attributed to the stated ownership of listed companies.
7. The low foreign institutional investor participation in these markets can be attributed to the investment restrictions for non GCC investors, which is what has been moving towards liberalization for the past few years.

1. The Evolution of the Sub Custodian in the GCC Countries

A sub custody business can be defined as “Any service provider that does custody services for local market participants or institutions, i.e., mainly the domestic

The key consideration being the capability of the global custodians or their network sub custodians to safe guard client assets and ensure securities and cash settlement by adhering to local rules and regulations.

players, as well as servicing the global custodians who are part of their network”.

As a result of the global financial crisis that swept the financial markets back in 2008 there has been a wave of regulatory reforms across markets that redefined the way global custodians assess risk of network sub custodians. Ongoing regulatory changes such as the Alternative Investment Fund Manager (AIFM) Directive and the UCITS V Directives that shifts fiduciary responsibility onto the global custodians who are forced to take responsibility of their sub custodians and any failure or default associated therewith.

This has necessitated stringent standards by global custodians in selecting their

network of sub custodians. Many global custodians have reacted to these changes by enhancing their reach through direct clearing and settlement arrangements in such markets. This shift in the business dynamics coupled with fluid market changes such as T2S in Europe, which enables global custodians to be a direct market participant (although, through a CSD), has resulted in intense competition reaching their door steps. This is reflected in the Middle East in interesting ways.

Integration with Global Markets and Practices

As the markets enhance foreign ownership limits the need to align with international best practices to meet the

needs of foreign Financial Institutions is emerging on a faster pace.

The dual account structure which has been followed by most countries in this region is one of the key drawbacks for non-participation of large institutional investors to a large extent. The need for movement of securities to trading accounts before trading to avoid trade failures has resulted in additional operational overheads on account servicers, necessitating the decision by Qatar and UAE to do away with dual account structures.

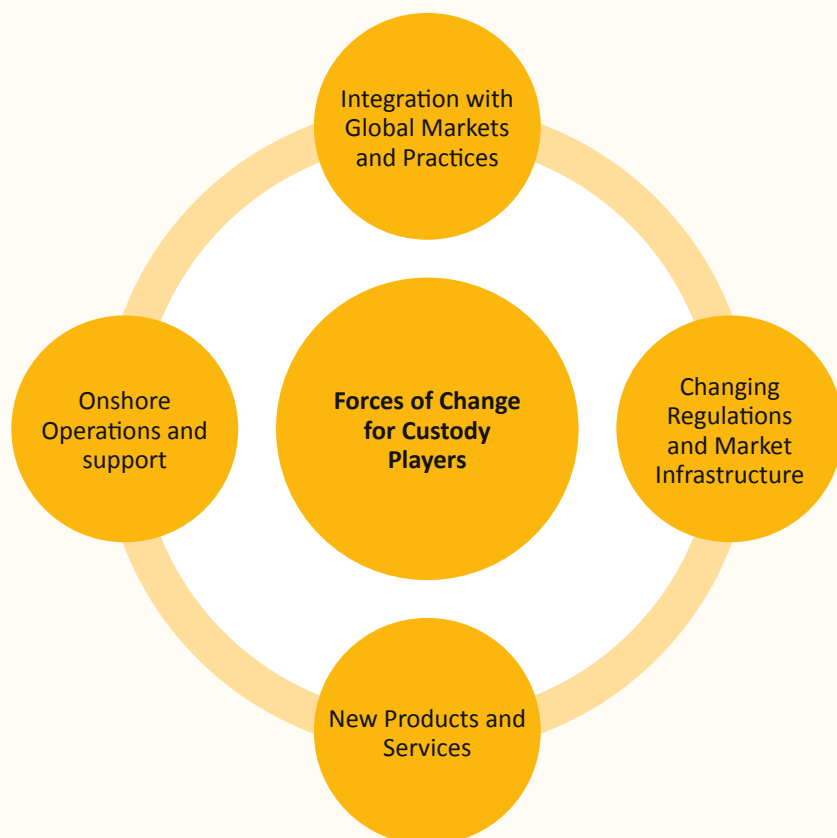
The associated changes to support integration with global practices such as launch of the DVP (Delivery vs Payment) mechanism in Qatar and the introduction of the independent custody model in Saudi are some of the practices which provide custodians the ability to safeguard client assets and control them while also providing opportunities in terms of enhancing core custody services.

Changing Regulations and Market Infrastructure

The market infrastructure for post trade activities for these markets are limited. While in most of the GCC markets, the exchange and CSD are part of the same organization, increased efforts are being made by the respective markets to have them aligned with global standards.

Markets are looking at formally introducing CCP concepts so as to support increasing trading volumes due to international investments as well as allowing for non-trading clearing members to be part of clearing infrastructures. This helps reduce client

Key Trends driving Custody Business in MENA



risks arising from trading cum clearing members.

Another notable point being that the entire value chain of post trade processing from trade capture to settlements is highly manual, lacking electronic communication media, for e.g. the market intermediaries and participants are not on a standard network like SWIFT, thereby increasing costs as well as risks.

As the GCC economies move forward by changing regulations and strengthening market infrastructure alongside a positive migration towards from debt market financing vis-à-vis bank financing, custodians will encounter increased competition in meeting end client requirements.

Opportunity for New Products and Services

As regulation keeps changing in the Middle East, custodians are able to tap into opportunities that help them introduce new products and services, such as the concept of agency clearing, lending and borrowing in Qatar as well as changes to fund administration.

Agency Clearing:

As the largest stock markets in the Middle East - Tadawul - open up for international investors, this move could significantly alter the composition of the markets in terms of increased institutional players versus retail investors. As this happens there will be a renewed interest in such exchanges from international broker dealers as in other markets such as UAE where global brokerage houses have become remote members.

While in most of the GCC markets, the exchange and CSD are part of the same organization, increased efforts are being made by the respective markets to have them aligned with global standards.

As a provider of clearing services in these markets, custodians are poised to take over the back-office operational activities of these players. Those who have well-developed agency clearing product offerings will be able to reap the benefits from such opportunities.

Securities Borrowing and Lending:

Qatar has provided proper fail trade mechanism in opening up securities lending; although, this is to prevent security fail and not as the typical lending/borrowing mechanism as available in the other mature markets.

Many of the GCC countries have large sovereign funds, which are active securities lending participants with their international assets, and can play a bigger role in creating a local lending market. As the markets evolve, custodians' capabilities around such product offerings can become a key differentiator.

Fund Administration:

The UAE has made mandatory that local funds need to have third party administrators and custodians for fund administration. This, although, dated couple of years back opens up opportunities to provide fund administration services by custodians. Similar investment fund regulations are in various stages in Qatar as well as the Saudi. Another byproduct of these developments being the opening of transfer agency, reconciliations and performance reporting.

Shari'ah Compliant Custody:

As fund administration opens up the need for an independent administrator, there is also a need to support custody and administration services for Shari'ah compliant funds. This means checking if the fund adheres to investment in Shari'ah compliant stocks and if its

As the GCC economies move forward by changing regulations and strengthening market infrastructure, custodians will encounter increased competition in meeting end client requirements.

revenue sources are also Shari'ah compliant such as with Zakat calculation and dividends cleansing. Naturally, this gives local players to offer and participate in custodial services.

Close to the market – Onshore Operations and Support:

Due to a lean presence in these markets, most players have had limited coverage. And more so, since the GCC markets didn't have well defined roles for custodians. Custody services have become regulated with clear eligibility and licensing requirements over the past few years only.

A critical success factor for the custodians in these emerging markets is the nearness to the market that enables them to gain deep local market knowledge with the ability to drive market changes using their relationships with the regulators and other market intermediaries. An example of this can be the success of HSBC Securities Services in the Middle East where they traditionally started operations with trade finance and moved on to offer securities custody services. Another success story is that Standard

Many of the GCC countries have large sovereign funds, which are active securities lending participants with their international assets, and can play a bigger role in creating a local lending market

Chartered Bank which has built a strong regional custody model across the MENA region.

As the winds of change sweep the Middle Eastern capital markets either in form of regulatory changes such as corporate governance and capital adequacy or by bridging the gap between International practices on trade and post trade infrastructure, we are also witnessing

transformation in the way custodial services are provided. This has resulted in the custody landscape seeing large foreign players such as Northern Trust, JP Morgan, State Street and BNY Mellon augmenting their operations in the view of increased opportunities.

Local custodians are focused on serving domestic or regional funds whereas larger players are interested in offering bundled services such as clearing and custody which increases their value addition. The global players are also at a disadvantage in closed end real estate funds, which predominantly invest in real estate assets such as malls or commercial offices or in servicing the traditional Shari'ah compliant mutual funds.

Local custodians can compete directly with large, cross-country players for traditional custody services such as safe-keeping, settlements and asset servicing but when clients are in need of complex services such as fund accounting, collateral management and comprehensive portfolio reporting, they may look at established global players where having cross-asset class experience has a definite advantage.



Sumesh B
Consultant
TCS Financial Solutions
TCS BaNCS

Bank Muscat wanted to offer customers multi-channel Direct Market Access and a 2-in-1 account with banking and brokerage facilities. They found a certain way.

Bank Muscat, Oman's largest financial services provider, wanted to enhance its Investment Management and Private Banking offering by providing its customers with a Direct Market Access and Internet Trading Facility. Tata Consultancy Services (TCS) implemented the Securities Trading and Securities Processing Solution from TCS BaNCS for securities trading, portfolio management, corporate actions and funds in accordance with the regulatory requirements of the region. This solution equipped Bank Muscat's customers with seamless multi-market, multi-channel portfolio management and trading facilities in GCC countries, thus helping the company with integration of internal systems, online risk management and core banking solutions.



Visit www.tcs.com/bancs to learn more or write to us at tcs.bancs@tcs.com

IT Services
Business Solutions
Consulting

TATA CONSULTANCY SERVICES

Experience certainty.



Efficacy of Stock Position Management Systems

The Problem Statement

The bulk of position management applications in financial institutions reside on aging platforms that pose myriad challenges. High operational risks arising from low automation, poor data quality, and high running costs coupled with technology risks are typical problems that organizations are faced with; not to mention the limitations implicitly imposed on business growth. The dynamic nature of regulatory changes across the globe

and introduction of new data standards poses a gargantuan challenge for a legacy system to keep up with.

The capability of position management systems, being at the very heart of securities processing services will be a key driver for platform modernization. Selecting a best-of-breed system to help remain competitive and offer niche services to customers is fast becoming the norm. The long-term IT strategy involves using a single position management

system across time zones, markets, asset classes and customer segments.

This white paper examines the drawbacks of legacy position management systems and explores the benefits of ultra-modern position management components that can offer not just basic services but go beyond. The key consideration is the adoption of a single position management component for all business needs, be it for custody or brokerage and sans any limitations in the form of customer or

market segments. The stress on the word 'component' needs to be noted as this article is interspersed with references to position management systems and position management components. The difference in notation is because modern position management systems will need to exist as loosely coupled components which can easily sit in the complex solution map and interact with a number of surrounding systems.

Position Management Systems – A Legacy View

The solution landscape of many traditional securities processing platforms is dotted with split legacy systems. Organizations, due to various in-house constraints, tend to focus on tactical and short-term goals. It is here that a long-term vision of the business roadmap and continuous cost reduction plays an important role. An efficient position management platform can not only enable niche business and real-time services to customers, but also unify the diaspora of operational teams and processes across geographies, which

The capability of position management systems, being at the very heart of securities processing services will be a key driver for platform modernization.

have been invariably split due to regional drivers.

Some of the key challenges that these organizations are faced with are:-

- **Lack of Agility and Inflexibility**

Constrained 'go to market' timelines for enhancements—whether functional or technical or regulatory—as a result of a tightly coupled architecture. Historically, the approach has been to adopt tactical solutions rather than address the root cause at an architectural framework level as, many times, the right solution is too complex or carries an execution risk.

- **Dated Technology and Legacy Knowledge Risks**

Aging infrastructure and outdated technology stacks prevail. Add to this, a dwindling pool of Subject Matter Experts who understand the working of these split systems deployed across the landscape.

- **High Cost**

Split systems lead to redundant software and duplicate processing groups. Unequal investments in these platforms across a time period result in skewed capabilities across each application. Furthermore, clients need to be managed across these multiple systems. The challenges from a safekeeping aspect are even more pronounced when it comes to the inception of a single system to cater to front- to mid- to back-office needs across customer segments.

- **End - Customer Experience**

A plethora of systems cause STP breaks and manual overheads,

The key consideration is the adoption of a single position management component for all business needs, be it for custody or brokerage and sans any limitations in the form of customer or market segments.

especially, for clients who trade around the globe. Systems evolved differently across multiple lines of business; for example, those which serve settlements would be oriented around overnight batch processing, whereas clients demand a service which is more real time and 24x7. Global clients will always look for a uniform and consistent customer experience across markets.

- **Disruption in Markets**

The markets are witnessing an extended era of disruption in technology, standards and regulations. What this means for a position management system is the challenge to continuously cope with the surging demands for shorter turnaround times required by regulatory agencies.

Position Management Systems, Today and Tomorrow

Organizations with outdated position management systems are faced with myriad challenges ensuing from the complex, hybrid legacy applications and business processes, with significant functional duplication leading to high RTB and CTB costs. The target state architecture is envisaged as being well-defined, scalable, functionally apt and cost-effective since it is expected to drive platform and business simplification.

Key features that are expected to be part of a forward-looking position management component are:-

Systems evolved differently across multiple lines of business; for example, those which serve settlements would be oriented around overnight batch processing, whereas clients demand a service which is more real time and 24x7.

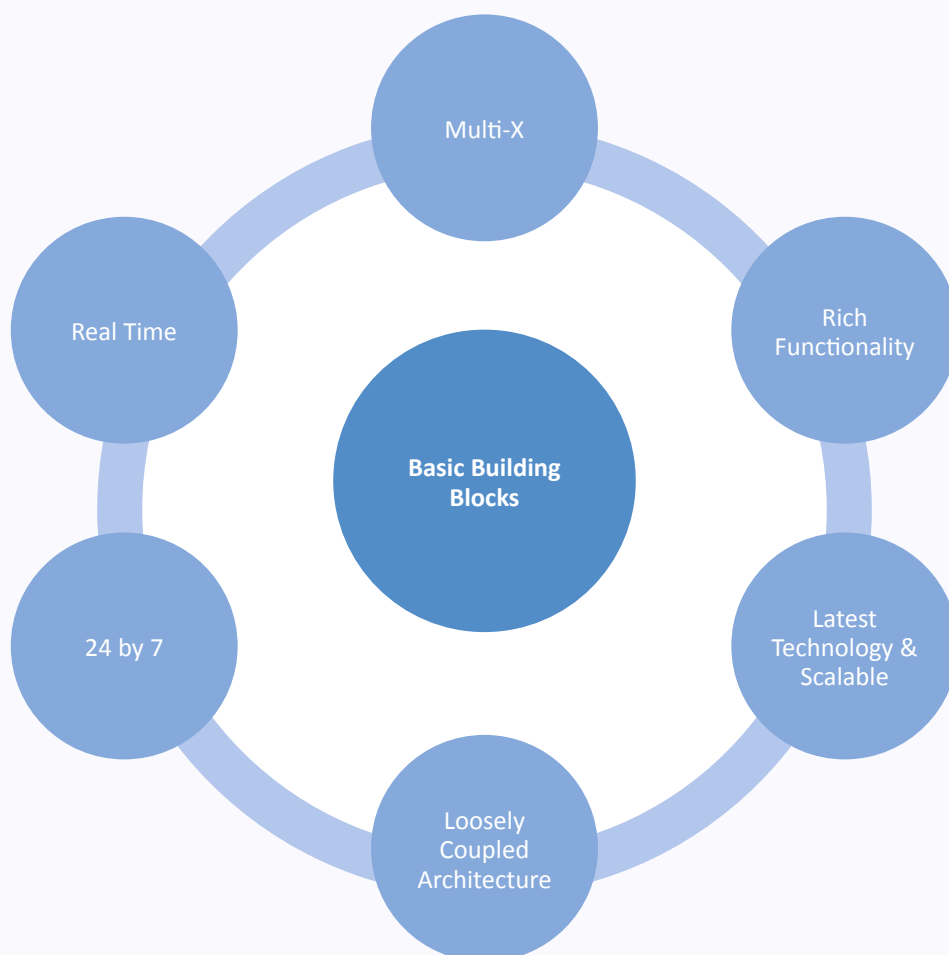
• Business Architecture Elements and Capabilities

The Multi-X Support

The position management component would be expected to be able to support the business for multiple legal entities and multiple markets across time-zones for multiple asset classes.

Real-Time Capability

Traditionally, position management systems have been batch based, or at best near real time. This is no longer acceptable given the risk involved during the interim period when the



Organizations with outdated position management systems are faced with myriad challenges ensuing from the complex, hybrid legacy applications and business processes, with significant functional duplication leading to high RTB and CTB costs.

positions have been taken up by certain transactions, but their effects not yet reflected in position balances. The component will need to process and update balances in real time.

Double-sided Accounting

The position management component would be expected to cater to safekeeping of positions both from the perspective of the client as well as the street, i.e. what the client holds with the firm, and what the firm holds with the custodian on the street would form two different views. While the client-side position views can be consolidated as needed for holding checks and position reporting, the street-side position views can be utilized for reconciliation with the market.

Balanced Accounting Entry

A position management component is expected to align to the basic tenet of balanced securities postings to ensure that the sum of client positions is equal to the sum of street-side positions.

Position Granularity

To enable configurability for different clients and markets, the position management component is expected to allow flexibility in terms of the definition of the position granularity, both from the perspective of a client- as well as street.

Blockchain Technology

There is a significant amount of traction being witnessed in the industry around the decentralized ledger technology and its relevance to capital markets. NASDAQ said earlier this month that it would use the block chain to create a “securities distributed ledger” to streamline the auditability, governance and transfer of ownership capabilities in the NASDAQ Private Market. While the various players in the industry look at ways of harnessing block chain technology, the potential is more or less obvious, and forward-looking position management components will need to track and adapt them as relevant.

• **Business Capability Enablers**

Multiple Customer Segments

Legacy position management systems were mostly segregated on the basis of the business drivers

for a system. Some were developed for retail clientele of the firm, and others for institutional clientele. While some systems were driven by prime services and client positions were represented as trading books, others followed a custody model. Furthermore, the underlying drivers for each region where the firm would have operated would have been traditionally different e.g. volume driven in Americas and STP driven in Europe. Imagine the power unleashed by a modern position management component which in a single instance is able to meet requirements presented from multi-dimensional business drivers.

Traditionally, position management systems have been batch based, or at best near real time. This is no longer acceptable given the risk involved during the interim period when the positions have been taken up by certain transactions, but their effects not yet reflected in position balances.

While the various players in the industry look at ways of harnessing block chain technology, the potential is more or less obvious, and forward-looking position management components will need to track and adapt them as relevant.

Multiple Business Areas

The position management component would be expected to cater to multiple business areas such as pre-trade activities, post-trade settlements, corporate actions, lending & borrowing, vault management, registration & conversions, and reporting among others.

Multiple Transaction Types

The position management component is expected to cater to a diaspora of transaction types, including standard trades, portfolio transfers, custodian transfers, lending, borrowing, repo, reverse repo, collateral, buy sell backs, and block trades, among others.

Segregated Models

The positions on the street may be held in segregated beneficial owner

accounts or in omnibus accounts. The component should be able to allow street-side holdings to exist in either model, i.e. omnibus or segregated. Additionally, a certain amount of flexibility is expected in defining the granularity of client-- as well as street-side positions based on the preferences of firms as well as clients, in terms of reporting. The challenge here for position management components lies in allowing linked and de-linked models. A linked model implies position granularity such that it is always possible to determine on a one-to-one basis, which client position is reflected in which specific street-side position.

Regulatory and Tax Reporting in various markets

While it is not expected that a position management component will need to necessarily take on the job of tax and regulatory reporting, it is expected to enable the same in the form of a rich data repository for positions and associated data.

Tax Lot Accounting

Strong position management components will also be able to cater to the capture of tax lots due to purchase and sale activities, and based on various attribution methods be able to compute capital gain/loss. This activity per se is not mandatory from a position management aspect as financial institutions usually adopt segregated platforms for such accounting and tax reporting. However, the deeper and broader the capabilities that a single position management system is able to support, the greater the advantage vis-à-vis an uncluttered solution map.

Client Reporting

The position management component is expected to be able to deliver rich, flexible and consistent reporting tailored to the needs of the financial institution, especially when it comes to customer statements. A separate reporting module or a singular data warehouse may be leveraged to provide reporting flexibilities sitting on top of data extracts from the position management system.

Other Functional Cornerstones

Holding Checks

While every position management system supports stock sufficiency checks for deliver trades, the real challenge stems from the ability to, in a single system, enable such checks as per algorithms specific to client

The positions on the street may be held in segregated beneficial owner accounts or in omnibus accounts. The component should be able to allow street-side holdings to exist in either model, i.e. omnibus or segregated.

risk profiles, regional preferences and different lines of businesses. The holding check for a DTCC trade settlement would be different from that of a US front office trade before it is released to NYSE. The position management component is expected to be able to aggregate positions as per the need, and be able to use the same as per rules encapsulating the myriad holding check algorithms; e.g. for a specific client, include any projected receivables due to corporate actions or trade settlements as part of the available balance, whereas for others, exclude any projected receivables as part of the available balance.

Balance Prioritization

This is a niche feature which many financial institutions are finding attractive and useful when it comes to automation of exceptions due to insufficiency of positions for deliver trades. This feature helps set business attribute-driven configuration in the position management component for prioritized allocation of positions (as and when they are available) to deliver trades. Effectively, this does away with monitoring of deliver trades and manually allocating positions when sufficient balance becomes available in the system due to, say, the settlement of a receive trade or cancellation of a deliver trade.

Position Views

Position management components are expected to be able to provide position drilldowns to underlying accounting entries/transactions. The component should be able to provide position balance projections as well as back-dated views. For different types

While every position management system supports stock sufficiency checks for deliver trades, the real challenge stems from the ability to, in a single system, enable such checks as per algorithms specific to client risk profiles, regional preferences and different lines of businesses.

of balances, the system should not only allow the viewing of traditional balances (settled, lent, available, pending deliver, blocked, etc.), but also allow the flexibility to set up new balance types following dictated algorithms.

Position Restrictions

The position management component would also be expected to provide the features of blocking positions based on various events such as conversion of securities, registration of physical securities and corporate action elections, among others. The component should be able to link up to any corporate actions system, whether internal or external.

- Technical Aspects

Loosely-coupled Architecture

Traditionally, the architecture of position management systems is guided by regional preferences which effectively implies that for most of the time there will be no overarching program to govern its evolution. The position management systems for each region may differ from the perspective of regionally-aligned booking models, or technical architecture, or even the same system being deployed for multiple regions with varying data structures. This behavior, over decades of development, has created complex, tightly coupled architecture. The need is hence for loosely coupled componentized architecture, which enables 'plug and play' of the position management component in the solution map by choosing best-of-breed products. The business layer will need to be sufficiently segregated from the accounting layer.

*24*7*

Most financial institutions need to have a system downtime when the overnight batch processing is in progress. This implies that transactions flowing online at that point will be queued up for processing till the overnight batch completes successfully. This is a significant issue as it translates into STP breaks not only for client instructions but also street-side communication, and the issue is further accentuated for financial institutions that deal in global markets. Hence, it is a fundamental need for position management systems to be up 24 * 7. This is an architecture level feature, which ensures that overnight batch

processes are cognizant of the fact that they need to seclude online transactions which are stepping in for the next day, so that batch processes work consistently on the same baseline of data.

Scalable

The position management component is expected to be built on the premise of an agile, robust and scalable architecture, which is consistent across all entities and enables high quality of service even at peak volumes.

Latest Technology Stack

The position management component is expected to be built on the latest technology, enabling a low TCO (Total Cost of Ownership).

Recent Developments in Data Standards

With the advent of latest standards for harmonizing electronic data

The position management systems for each region may differ from the perspective of regionally-aligned booking models, or technical architecture, or even the same system being deployed for multiple regions with varying data structures.

interchange between financial institutions, it is but a normal expectation that a forward-looking position management component be able to support multiple data standards such as ISO 15022 and ISO 20022, including SMPG.

In Conclusion

There is significant traction within financial institutions to do away with monolithic systems with the objective of reducing the RTB and CTB cost.

Continuous disruptions in the business environment, technology and data standards will make demands from these platforms. Considering that position management systems are at the heart of securities processing services, the challenge they will have to live up to will be to not only keep up with these expectations but also stand out as the enabler of niche services.



Manish Masand
Senior Consultant
TCS Financial Solutions
TCS BaNCS

Strate is the Central Securities Depository for South Africa. Strate desired to move from physical settlement to electronic settlement of securities. Tata Consultancy Services (TCS) developed a unique clearing and settlement system based on multilateral netting, to ensure a smooth transition. All within record time and allocated budgets. As one of the world's fastest growing technology and business solutions providers, and a trusted partner of Strate for over 15 years, TCS delivered an efficient and cost-effective platform enabling them to benchmark their solution against global best practices and standards. Also, helping Strate stay competitive by playing a significant role as its solution partner for all asset classes.



Experience certainty.



Is Cash still King?

There was a time when cash was considered to be more valuable than any type of financial asset. A business with a healthy cash flow on their balance sheet was viewed with envy by many organizations. Cash enables the smooth functioning of funding within financial markets and promotes economic growth. During periods of political instability or economic turmoil, investors have always traditionally turned to cash as a safe haven.

Recently, however, banks, financial institutions and even depositors have started to be charged a fee on their

cash reserves due to the introduction of negative interest rates from some Central Banks in the Eurozone.

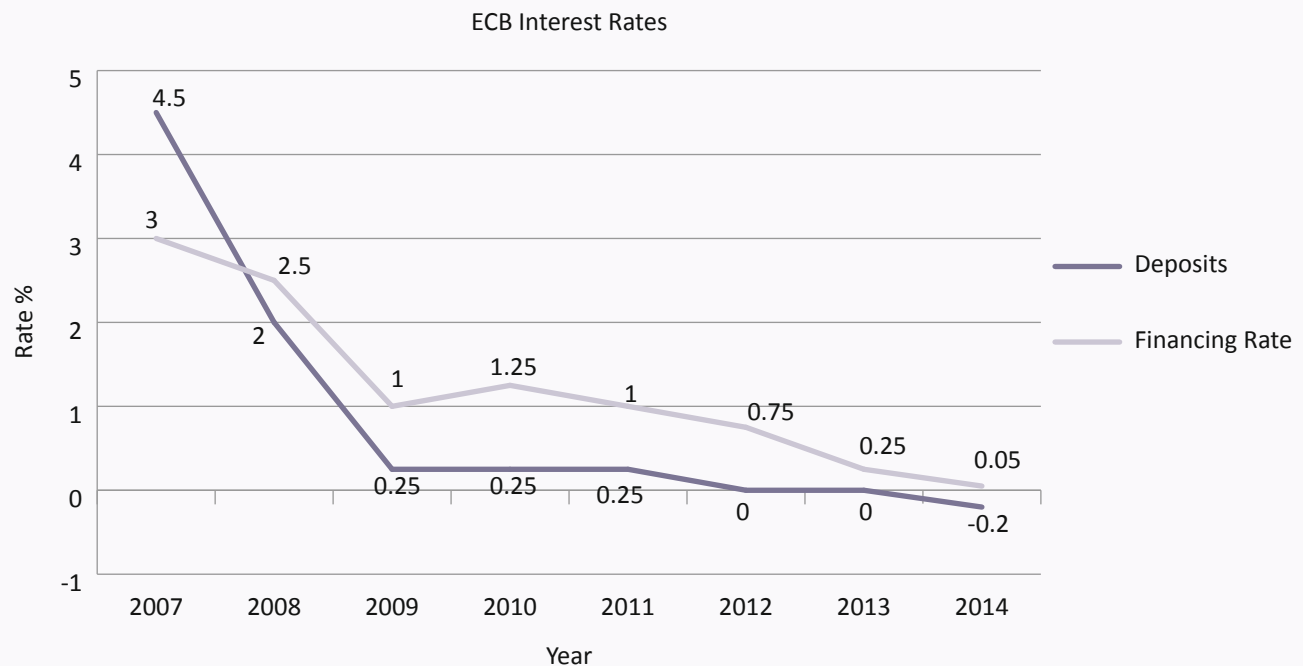
In September 2014, The European Central Bank (ECB) announced that a negative rate will be applied to reserve holdings in excess of the minimum reserve requirements. The Swiss National bank and Denmark's Central bank have also recently followed suit.

These negative rates have subsequently spread to a range of Fixed Income Securities issued by countries within Europe, and who are now auctioning

their bonds with negative yields. In effect, investors are now paying for the privilege of lending money to governments.

We are all familiar with events leading up to the recent global financial crisis of 2007-2008 and the resultant significant downward turn. Challenges in the Eurozone and the banking crises all converged to create uncertainty and gloom across the global economy. As a consequence, many Central banks cut their interest rates to help promote growth and head off deflation.

In addition to adopting negative rates, Central banks have also engaged in



quantitative easing programmes (QE). This involves the purchasing of assets to boost the flow of money within their respective economies. One consequence of QE is that it can also peg interest rates. Central banks have also attempted to increase the supply of credit by reducing their funding costs and encouraging businesses and consumers to borrow money at reduced rates thus stimulating their respective economies.

Central bank rates represent the rate of interest that a Central Bank is prepared to pay on the reserves that commercial banks hold with them. These reserves can be converted into cash at the level of short-term rates in the wholesale money markets. The Central Bank rate can also determine retail lending and deposit rates charged to retail customers and businesses.

- So why are Central Banks setting their rates below zero?

- What does it mean for commercial banks and companies and their cash reserves?
- What is the impact on investment banks (buy side and sell side), especially with respect to their financing activities?
- How does this impact custody banks and collateral management providers?

The Adoption of Negative Rates by Central Banks

The drivers for Central banks adopting a negative rate policy are primarily towards improving the supply of credit and boosting consumer spending by influencing interest rates on retail lending. When accompanied by other measures such as quantitative easing, these combined actions help stimulate credit in economies and again encourage banks to lend money back into the economy.

Impact on Wholesale Banks and Corporations

So how does this impact commercial banks? Well, it erodes their profitability as they are penalized for their excess cash reserves. Some banks may decide to pass these costs onto their customers, but the majority are reluctant to do so for fear of losing their retail and corporate clients.

Some banks, however, have taken this route, and have, indeed, informed their large depositors that a 'utilization fee' will be charged on deposits in excess of the cash they need to fund their operations. Banks, of course, could always choose to withdraw their reserves from Central banks and lock their cash away securely in vaults. However, this option would introduce significant costs to maintain the infrastructure required to store cash, ensure security and provide transportation.

The likelihood is that punitive interest rates will encourage banks to lend money into the economy, particularly, the non-financial sector, which has suffered from a lack of credit since the financial crises.

Cash rich corporations have now started to move into the Repo market for their cash management operations. Pre-crises, treasurers would traditionally deposit their cash on an unsecured basis with commercial banks. However, post the

The drivers for Central banks adopting a negative rate policy are primarily towards improving the supply of credit and boosting consumer spending by influencing interest rates on retail lending. When accompanied by other measures such as quantitative easing, these combined actions help stimulate credit in economies and again encourage banks to lend money back into the economy.

financial crises and the Lehman failure, corporate treasuries want the assurance that their cash deposits are safe.

Treasury departments are now utilizing the repo market, and in particular tri-party repos as an alternative solution to optimize their returns. Not only is this market more secure and fully collateralized but it also allows companies to obtain a higher rate of interest than with a bank deposit. How does the tri-party repo work? Well, investors can determine the quality of collateral that they receive from the cash borrower in a repo transaction, the cash lender has full beneficial ownership of the collateral during the life of the Repo and can further re-use the collateral through re-hypothecation, if they wish to do so. The tri-party provider takes care of the collateral and the management of margin. In the event of a counterparty default, the treasurer has economic ownership of the collateral and can crystallize the position, if required.

Impact on Investment Banks and their Financing

In addition to the squeeze on interest rates, investment banks are having to contend with a myriad of regulations, including Basel III, mandatory clearing, European Market Infrastructure Regulation (EMIR) in Europe and the Dodd-Frank Act in the USA. These initiatives are all increasing the pressure and the demand for high quality, non-cash collateral. As a result, banks are being mandated to set aside more capital than in the past.

Ever since the financial markets crises in 2007/8 and till date, banks have been unwilling to accept low quality collateral.

Treasury departments are now utilizing the repo market, and in particular tri-party repos as an alternative solution to optimize their returns.

Buy side firms have also recently indicated a reluctance to hold cash deposits from peripheral Eurozone countries due to the contagion risk from the current Greek crises. Again, firms are seeking safety in less risky assets such as North European Government bonds. This continues to place further strain on the availability of high quality collateral that firms will prefer.

Institutions now look to improve the quality of their collateral to safeguard themselves against credit and counterparty risk. ICMA's semi-annual survey of the Euro Repo market estimates that credit worthy government bond collateral accounts for around 80% of the repo collateral market. In the US, treasury securities account for about two thirds of the repo market. The rest is made up of high quality bonds issued by supranational firms and the private sector.

The main reasons for banks pledging and receiving collateral is to mitigate the credit risk associated with trading activity. Due to regulatory pressures for collateral demand, firms now need to be able to take a global view of their collateral and

exposures, and be able to move collateral cross-border in real time.

Since 2014, as negative rates have become more persistent, cash investors have been exposed to negative repo rates so that the repo buyer (who is lending cash) effectively pays interest to the seller (who is borrowing cash). One of the key challenges around collateral is the ever increasing demand for high quality collateral demanded by cash lenders and regulators against a backdrop of reduced supply of eligible securities, creating an imbalance between demand and supply.

Evolution of Collateral Management and its Impact on Custody Services

There are two recognized Collateral Management models that exist in the market place today - tri party and bi-lateral. Tri-party services are provided by custody banks such as Euroclear and Clearstream in Europe and JP Morgan and Bony New York Mellon in the US. These providers offer participants access to fully automated services, including collateral selection, settlement, optimization and asset servicing.

In contrast, bi-lateral collateral management is usually performed in-house and directly between counterparties, and has historically involved high levels of manual processing. To improve the management of the bi-lateral model, many financial institutions are now actively seeking out specialist collateral management service providers in the market who are able to source inventory for their clients across multiple geographies and business lines, mobilize it and then allocate it accordingly. These providers can also offer additional services such as the management of substitutions, daily mark-to market valuations, margin calls, reconciliation and

reporting throughout the lifecycle of the transaction.

Collateral Mobility

One of the current challenges for institutions and their custodians is the requirement for rapid mobilization of collateral between CSDs and settlement infrastructures. Lack of automation and the shortage of high quality collateral implies that at present there are many challenges for custodians to move collateral efficiently, intra-day and on a cross-border basis to meet demand.

Settlement platforms need to be able to support the efficient flow of collateral between market participants, depositories, jurisdictions and systems. However, there are many inefficiencies

Buy side firms have also recently indicated a reluctance to hold cash deposits from peripheral Eurozone countries due to the contagion risk from the current Greek crises. Again, firms are seeking safety in less risky assets such as North European Government bonds.

Since 2014, as negative rates have become more persistent, cash investors have been exposed to negative repo rates so that the repo buyer (who is lending cash) effectively pays interest to the seller (who is borrowing cash).

in place today that are inhibiting the flow. Standardization of messaging is critical for custodians and CSDs if intra-day mobility is to be achieved. Many financial institutions today use manual instructions; usually, by way of e-mail or fax to instruct their custodians to move collateral. The utilization of the appropriate message type to instruct the movement of collateral and margin is essential. When standard and uniform messaging is used, custodians are able to recognize the movement of securities as being collateral-based.

The elimination of manual processing for bi-lateral messages can bring in many benefits, including -

- Enhanced operational controls
- Scalability

When standard and uniform messaging is used, custodians are able to recognize the movement of securities as being collateral-based.

- Compliance with industry best practices
- Collateral mobility
- Management by exception
- Standardization

Collateral Optimization

The increase in collateral volumes will mean custodians will be tasked with the identification of collateral movements from vanilla settlement movements to ensure that collateral is readily available to cover exposures and meet collateral

demands. Custodians will need to identify movements across jurisdictions and business lines and provide banks with a consolidated view of available collateral.

Collateral Segregation

New demands from regulators for the safekeeping of collateral and events like Lehman will lead towards a drive for the greater use of fully segregated accounts for margin and collateral. In the segregated model, delivery of collateral is made directly to and from the clients account. This is in contrast to omnibus account structures where assets are pooled together. In the segregated model, clients are able to protect themselves from the risk of insolvency; in effect, they become bankruptcy remote.

Conclusion

More stringent capital requirements and increased mandatory collateralization for exposures driven by regulators, increased liquidity requirements and cleared OTC derivatives are creating imbalances between supply and demand for collateral.

The increase in volume and complexity in managing the different components of collateral management will mean that banks, custody providers and financial institutions will need to develop and invest in their system infrastructures and processes to support the ever-increasing demand for new collateral requirements and margin activity.

Going forward, banks and their custodians will need to select collateral, perform mark-to-market valuations, perform settlements and manage substitutions on an intra-day basis, and have systems and processes in place to eliminate manual processes.

Going back to the earlier statements made in this paper on cash, it appears that negative Interest rates within the European region are likely to result in increased costs for most financial institutions. Banks, for now, are absorbing the costs as they continue to be reluctant to transfer these rates to retail customers for fear of losing them. We have, however, moved into a new era where investors have to pay bond issuers for the privilege of lending them their cash.



Andrew Dobbs
Consultant
TCS Financial Solutions
TCS BaNCS

“The flexibility and richness of TCS BaNCS has truly surpassed our expectations, and we will dramatically raise the bar in serving our customers in a variety of ways most notably offering them real-time information throughout the transaction cycle.”

*Louise Currie
General Manager
Nedbank Investor Services*



IOSCO CPMI - Principles for Financial Market Infrastructures

Market Readiness and Compliance

1. Background

Financial Market Infrastructures (FMI), facilitate the clearing, settlement, tracking of monetary, other financial transactions, providing financial stability and strength to the markets they serve. However, poorly managed FMIs can pose significant concentrated risks to the financial system and can be a source of systemic failure. Some lessons for effective risk management resulting from the financial crisis in 2008 led the Committee on Payment and Settlement Systems (CPSS)

and the Technical Committee of the International Organization of Securities Commissions (IOSCO) to review and update the standards for FMIs or the Principles of FMIs (PFMI). All CPSS and IOSCO members are expected to apply these standards to the relevant FMIs in their jurisdictions to the fullest extent possible.

These standards comprise a set of 24 principles that are targeted for FMIs, including CSDs, CCPs, Payment and Securities Settlement Systems. The revised standards incorporate additional

guidance for over-the-counter (OTC) derivatives CCPs and Trade Repositories (TRs). They also incorporate a specific minimum requirement in the credit, liquidity, and general business risk areas to ensure a base level of risk management across organizations. The regulation covers jurisdictions such as Argentina, Australia, Belgium, Brazil, Canada, Chile, China, European Union, France, Germany, Hong Kong SAR, Indonesia, India, Italy, Japan, Korea, Mexico, Netherlands, Russia, Saudi Arabia, Singapore, South Africa, Spain,

Sweden, Switzerland, Turkey, United Kingdom and United States.

The objective of this paper is to discuss the key tenets of the IOSCO PFMI principles and the strategies that can be adopted by Market infrastructure organizations, including CSDs and CCPs to adhere to these principles, thereby creating more robust financial markets.

2. IOSCO's PFMI Regulations – Key Tenets

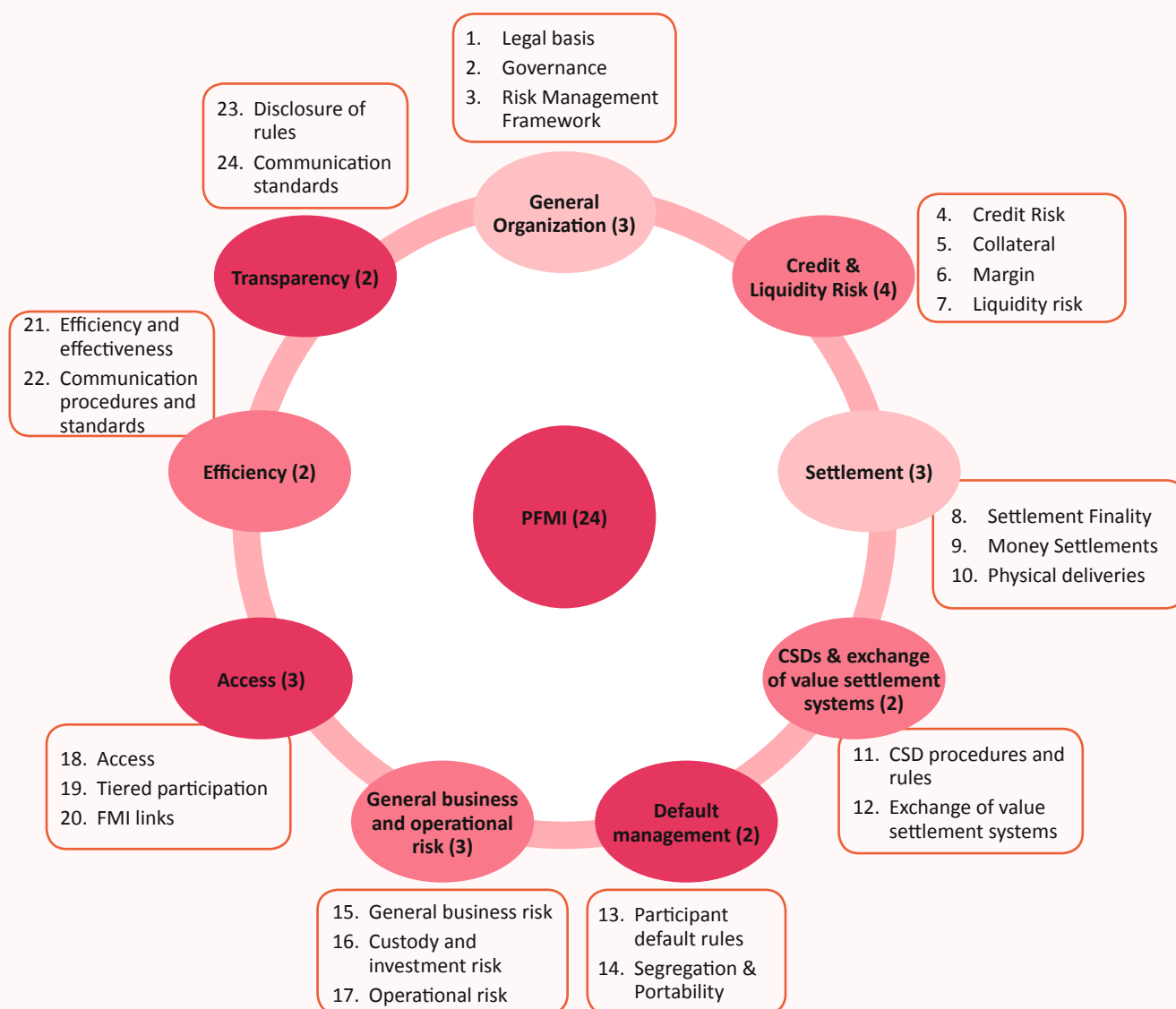
The 24 principles lay emphasis primarily on the following areas:

- The financial resources and risk management procedures an FMI uses to cope with the default of participants

- The mitigation of operational risk
- Procedures to handle the links and other interdependencies between FMIs through which operational and financial risks can spread

An overview of the principles for MI organizations is depicted below:

Figure 1: Principles for Financial Market Infrastructures (IOSCO-CPMI)



Source: TCS representation of the IOSCO principles

Applicability of the Regulation

The following table outlines the key principles of--and highlights the FMI/(s) applicable to the regulation:

S. No	Principles	CSDs	CCPs	TRs
1.	Legal Basis An FMI should have a well-founded, transparent, and enforceable legal basis for each aspect of its activities in all relevant jurisdictions.	✓	✓	✓
2.	Governance An FMI should have governance arrangements that are clear and transparent, promote the safety and efficiency of the FMI, and support the stability of the broader financial system	✓	✓	✓
3.	Framework for the comprehensive management of risks An FMI should have a sound risk-management framework for comprehensively managing legal, credit, liquidity, operational, and other risks.	✓	✓	✓
4.	Credit risk An FMI should effectively measure, monitor, and manage its credit risk arising from participants and internal processes. In addition, the CCP should also maintain additional financial resources to cover a wide range of potential stress scenarios.	✓	✓	
5.	Collateral An FMI that requires collateral to manage its or its participants' credit risk should accept collateral with low credit, liquidity, and market risk and enforce appropriately conservative haircuts and concentration limits.	✓	✓	
6.	Margin A CCP should cover its credit exposures to its participants for all products through an effective margin system that is risk-based and regularly reviewed.		✓	
7.	Liquidity risk An FMI should effectively measure, monitor, and manage its liquidity risk. An FMI should maintain sufficient liquid resources to effect same-day and, where appropriate, intraday settlement.	✓	✓	
8.	Settlement Finality An FMI should provide clear and certain final settlement, at a minimum, by the end of the value date. Where applicable, final settlement needs to be supported intraday or in real time.	✓	✓	
9.	Money Settlement An FMI should conduct its money settlements, preferably, in central bank money. In case this is not possible, the FMI should take steps to control the liquidity and credit risk arising from the use of commercial bank money.	✓	✓	
10.	Physical deliveries An FMI should clearly state its obligations with respect to the delivery of physical instruments or commodities and should identify, monitor, and manage the risks associated with such physical deliveries.	✓	✓	
11.	CSDs A CSD should have appropriate rules and procedures to help ensure the integrity of securities issues. A CSD should maintain securities in an immobilized or dematerialized form.	✓		

12.	Exchange of value settlement systems If an FMI settles transactions that involve the settlement of two linked obligations, it should eliminate principal risk by conditioning the final settlement of one obligation upon the final settlement of the other.	✓	✓	
13.	Participant default procedures An FMI should have clearly defined rules to manage a participant default and ensure that timely action is taken to contain losses and liquidity pressures.	✓	✓	
14.	Segregation and Portability A CCP should follow rules and procedures that enable the segregation and portability of positions and collateral belonging to customers of a participant.		✓	
15.	General Business risk An FMI should identify, monitor, and manage its general business risk and hold sufficiently liquid net assets funded by equity to cover potential general business losses to ensure continuity in operations.	✓	✓	✓
16.	Custody and investment risk An FMI should safeguard its assets and minimize the risk of loss or delay in access to those assets, including assets posted by its participants.	✓	✓	
17.	Operational risk An FMI should identify all plausible sources of operational risk, both internal and external, and minimize their impact through the deployment of appropriate systems, controls, and procedures.	✓	✓	✓
18.	Access and Participation requirements An FMI should have objective, risk-based, and publicly disclosed criteria for participation, which permit fair and open access.	✓	✓	✓
19.	Tiered participation arrangements An FMI should understand and manage the risks arising from tiered participation arrangements.	✓	✓	✓
20.	FMI Links An FMI that establishes a link with one or more FMIs should identify, monitor, and manage link-related risks.	✓	✓	✓
21.	Efficiency & effectiveness An FMI needs to be efficient and effective in meeting the requirements of its participants and the markets it serves.	✓	✓	✓
22.	Communication procedure and standards An FMI should use or accommodate the relevant internationally accepted communication procedures and standards	✓	✓	✓
23.	Disclosures of rules and key procedures An FMI should have in place comprehensive procedures and provide sufficient information to enable participants to have an accurate understanding of the risks they incur by participating in the FMI.	✓	✓	✓
24.	Disclosure of Market Data A TR should provide timely and accurate data to relevant authorities and the public in line with their respective needs.			✓

Apart from the above, the following responsibilities are defined for Central Banks, market regulators, and other relevant authorities:

Responsibility	Description
Responsibility A	These entities need to be responsible for the regulation, supervision, and oversight of FMIs
Responsibility B	Should have the powers and resources to carry out effectively their responsibilities in regulating, supervising, and overseeing FMIs.
Responsibility C	Should clearly define and disclose their regulatory, supervisory, and oversight policies with respect to FMIs.
Responsibility D	Should adopt the CPSS-IOSCO Principles for financial market infrastructures and apply them consistently
Responsibility E	Should co-operate with each other, both in domestic markets and internationally, as appropriate, in promoting the safety and efficiency of FMIs.

An FMI should maintain sufficient liquid resources to effect same-day and, where appropriate, intraday settlement.

3. Adaptation Strategy of Market Infrastructure Organizations

PFMI implementation is being monitored by The Committee on Payments and Market Infrastructures (CPMI) and the International Organization of Securities Commissions (IOSCO) to promote consistent implementation of the PFMIs.

The monitoring process covers the 24 principles contained in the PFMI as well as responsibilities A to E.

The reviews are being carried out in three stages:

- Level 1 self-assessments cover the legal and regulatory changes necessary for all types of FMIs.
- Level 2 assessments are peer reviews conducted to assess if the jurisdiction's implementation measures are complete and consistent with the PFMI. The three Level 2 reports focus on the CCPs and TRs in the EU, Japan and US.
- Level 3 peer reviews will examine consistency in the outcomes of implementation of the principles by FMIs and implementation of

If an FMI settles transactions that involve the settlement of two linked obligations, it should eliminate principal risk by conditioning the final settlement of one obligation upon the final settlement of the other.

the responsibilities by authorities. The review will focus on a subset of requirements under the PFMI that relate to financial risk management by central counterparties (CCPs), including practices related to governance, stress-testing, margin, liquidity, collateral, and recovery. A report presenting the results of this first Level 3 assessment is expected to be published in 2016.

The following picture depicts the timelines of the assessment.

The assessment reports published so far, clearly demonstrate the commitment of FMIs to comply with the principles. The report also indicates that participating

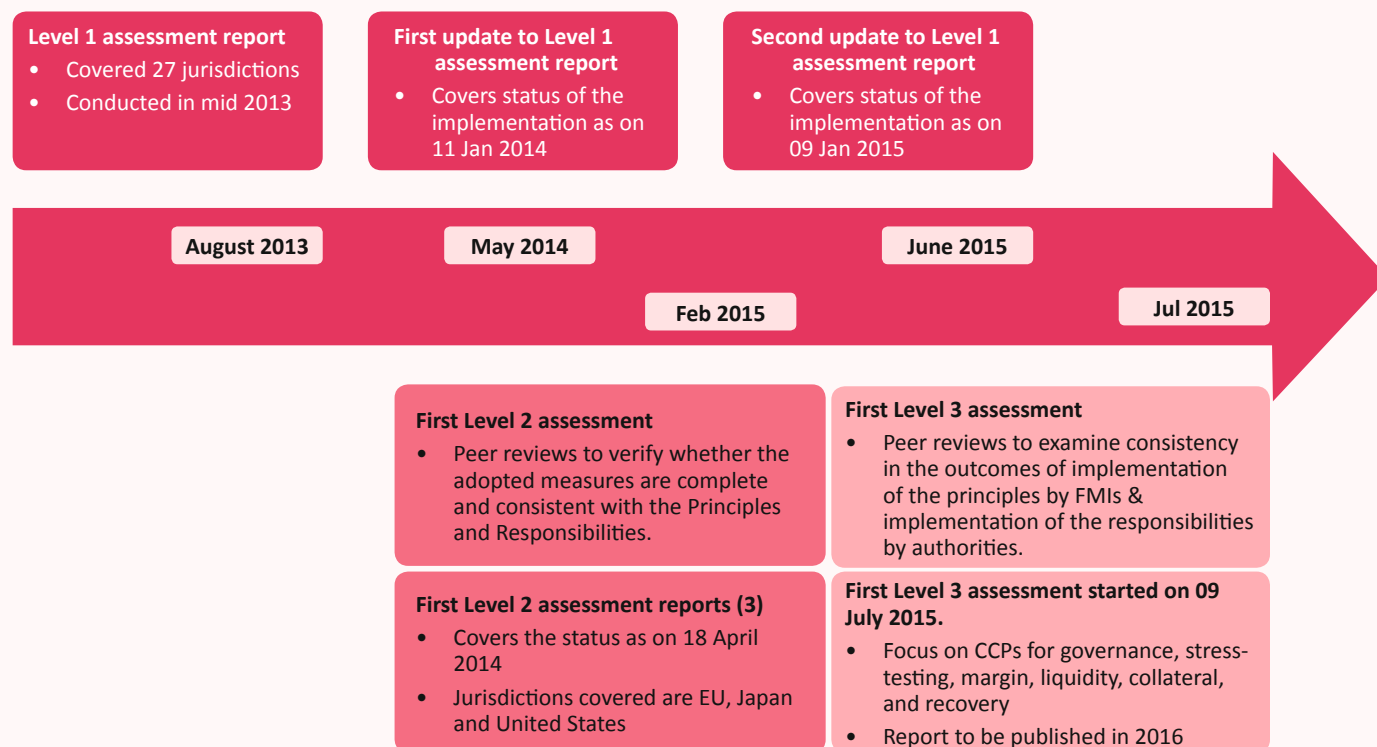
In response to the rules on governance, clearly defined organization structures, including composition, roles and responsibilities of board members as well as information on the organization's capital structure are being shared with the market participants.

jurisdictions are making progress towards implementing the principles, although the progress may be slightly slower in certain jurisdictions.

These principles nevertheless are expected to cause major upheavals in the business landscape at Market Infrastructure institutions. These institutions are, therefore, spending considerable effort, time and resources on deciding their regulatory and business strategy, to navigate the complex sea of regulatory change.

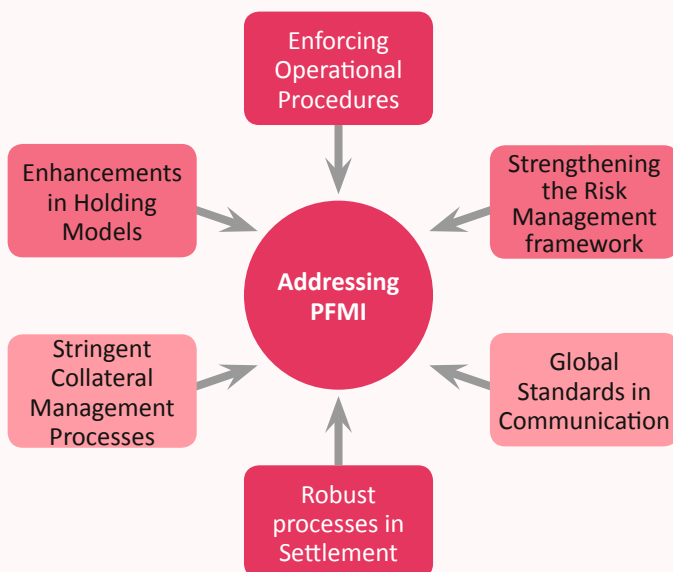
Some of the key strategies that CSDs and CCPs are evaluating towards compliance are as depicted below:

Figure 2: Timelines for Assessment



Source: TCS representation of the IOSCO principles

Figure 3: Compliance Strategies Being Adopted



Enforcing Operational Procedures and Bringing in better Transparency

In adherence to the “legal basis” requirement, CSDs and CCPs are publishing operational rules and procedures to the markets. Rights and obligations of market participants are also

being published to ensure transparency. In response to the rules on governance, clearly defined organization structures, including composition, roles and responsibilities of board members as well as information on the organization’s capital structure are being shared with the market participants.

Enhancements in Holding Models – Nominee and Beneficial Ownership

Both the IOSCO PFMI principles and CSD-Regulations advocate holding of securities in book-entry form rather than in the form of physical certificates. CSDs, are therefore, taking steps to ensure that all the balances are maintained in electronic form, through the process of dematerialization (or immobilization in certain markets).

To ensure the integrity of securities issues and minimize risks arising out of safe-keeping and transfer of securities, CSDs have adopted control measures, including double entry mechanism of book-

With margin requirements dramatically growing as a result of regulatory mandates such as those related to moving OTC derivatives into central clearing, there is a huge demand from participants for specialized collateral management services.

keeping, internal and external (Nostro) reconciliation.

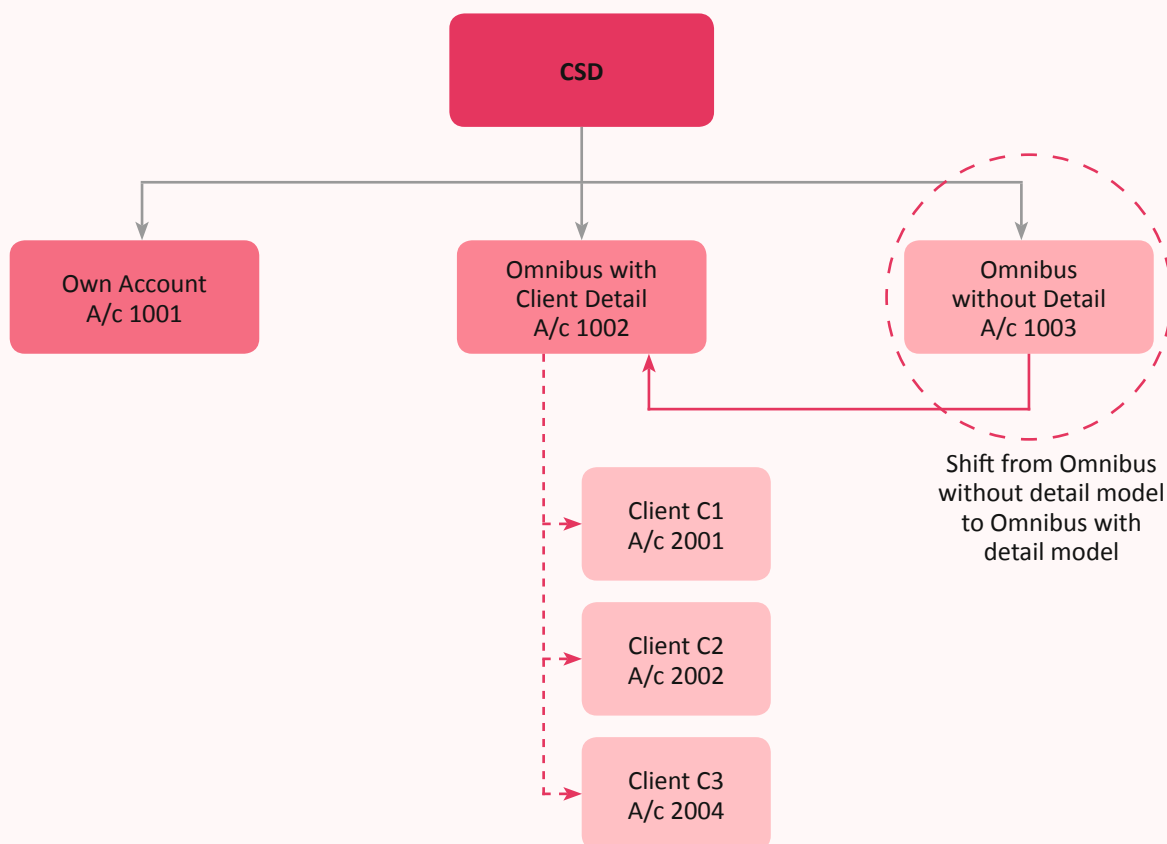
An important development in securities markets is the fact that CSDs are actively exploring the ability to provide multiple models of safe-keeping. CSDs are, therefore, looking at providing direct holding as well as a nominee model of securities holding to ensure that the CSD’s assets are not commingled with the Depository Participants’ assets, and also that client assets are not commingled with each other. This is a key change in the drive towards reducing risk, easily facilitated by electronic holdings.

Strengthening the Risk Management Framework

From a CCP’s perspective, monitoring exposure from participants at an

An important development in securities markets is the fact that CSDs are actively exploring the ability to provide multiple models of safe-keeping.

Figure 4: Move towards Client Level Segregation



individual level as well as on an aggregated basis has become a key business imperative. CCPs are undertaking a thorough assessment of their risk management methodologies, through refining their existing procedures for initial margin, intra-day and near real-time margining as well as introducing practices such as stress testing and back-testing. Some CCPs have even adopted more stringent risk management standards than what the CPMI IOSCO principles prescribe, for example, with respect to the way that Initial Margin is calculated.

Back testing helps CCPs calibrate their Initial margin models against the identified targets based on past data. This is to ensure that the actual losses are not either under or overestimated. Stress testing provides the CCPs an estimation of credit and liquidity exposures that would result from the realization of extreme price changes. Many CCPs are thus using stress testing to evaluate the adequacy of the default fund, and are conducting their stress tests either over a pre-defined period (say, five years) or over specific 'stress months' that witnessed high volatility; for example, in September

Some CSDs are opting for optimization algorithms that are designed to pick up the “best set of settlement instructions” for settlement.

2008 when news of the Lehman brothers' bankruptcy hit the markets. This is in some ways similar to the tests that banks which are 'too big to fail' have been subjected to since 2008.

Finally, CCPs are also taking steps to ensure that changes to their risk management methodologies and practices are communicated in a timely manner to their participants.

Stringent Collateral Management

With margin requirements dramatically growing as a result of regulatory mandates such as those related to moving OTC derivatives into central clearing, there is a huge demand from participants for specialized collateral management services. The PFMI principles require FMIs to impose stringent rules on collateral such as through influencing the quality of collateral being placed, and usage of conservative haircuts and concentration limits. To achieve better operational control, near real-time collateral valuation is also seen as a critical business need.

CSDs enter into arrangements with commercial banks to provide credit line limits, against which participants can avail an overdraft facility upon submission of eligible collateral.

In line with this trend, market infrastructure institutions, including CCPs and CSDs, are re-evaluating their strategy around collateral management and actively pursuing options to either strengthen their in-house collateral management capabilities or enter into agreements with collateral management service providers such as Clearstream1 and Euroclear2 who provide specialized services such as the Liquidity Alliance and Collateral Highway. This strategy helps CCPs/CSDs deliver sophisticated collateral management services to their participants, without the need for the latter having to build additional interfaces with the specialized collateral service providers.

Robust Processes in Settlement

To reduce settlement failures, CSDs are exploring multiple options to ensure higher settlement efficiency. Some CSDs are opting for optimization algorithms that are designed to pick up the "best set of settlement instructions" for settlement. The objective here is to maximize the volume and value of settlements using available security and cash resources, thereby minimizing the number and value of failed transactions at the end of a settlement run. In effect, the optimization process aims at finding a right balance between achieving volume and value maximization using specific algorithms. Each market uses the algorithm best suited for them – while some CSDs opt for the "build up" algorithm where the eligible transactions are incrementally included for settlement, others opt for "deselect" algorithm where the transactions that are not improving the settlement efficiency are excluded from settlement.

Market infrastructures are the main drivers of adoption of ISO 20022 messages in three main areas – Payments, Securities, and Global Standardization.

Another model adopted by CSDs is that of providing real time settlement services that are based on transaction priority. In this model, CCP and Exchange transactions are accorded higher priority than off-market transactions, to ensure that such transactions (which may be guaranteed transactions) are settled earlier. In case securities are not available, the pending transactions are re-triggered once security/cash credits are received.

IOSCO also advocates completion of cash settlement through Central Bank Money (CeBM), further strengthening the guaranteed availability of funds. This has received a further boost in Europe with initiatives like T2S that mandate settlement to be completed in CeBM. In non T2S markets, Commercial Bank Money based settlement continues to be a model that is adopted and hence supported by CSDs providing settlement services. In order to achieve this, connectivity to these Payment systems is ensured through ISO 150022/ISO 20022 Payment messages.



In addition, CSDs are also providing credit line facilities to ensure that cash settlements are completed irrevocably and on time. These credit limits are permitted only on an Intra-day basis in accordance with CSD-Regulations, with instances of any overnight usage subject to penalty payments. To provide this service, CSDs enter into arrangements with commercial banks to provide credit line limits, against which participants can avail an overdraft facility upon submission of eligible collateral. The CSD prescribes the quality of collateral that is permitted to be deposited by the participant and monitors collateral sufficiency through near real-time valuation and generation of margin calls where necessary.

Facilitating the Adoption of New Messaging Standards

Market infrastructures are the main drivers of adoption of ISO 20022 messages in three main areas – Payments, Securities, and Global Standardization. In Europe, T2S has played an important role in the adoption of ISO20022, since the settlement of securities and cash transactions is permitted only by using these standards. However, such a transition (to new messaging standards) is not easy. The IT changes that this

transition would need are typically viewed as an overhead by many downstream entities including smaller custodians and other market participants who may lack the ability to manage change of this order.

To address this, CSDs have adopted an inclusive strategy that facilitates a gradual and phased adoption of ISO20022 standards by their participants. This strategy involves the CSDs providing for a period of ‘co-existence’ where both ISO 15022 and ISO 20022 messages would be supported by the CSD. This provides smaller participants with a choice of continuing to send messages in ISO15022 which would be converted into ISO20022 by the CSD before forwarding the instruction to T2S. Participants are therefore provided with the flexibility of completing the roll out of ISO20022 over a period of time, as and when their system enhancements are completed.

4. The Road Ahead

The IOSCO-CPMI Principles are designed to make Financial Market Infrastructures more resilient to financial crises and participant defaults. These Principles are aimed at strengthening FMIs by providing guidance across multiple dimensions, including governance, credit

and liquidity risk, settlement and default management, CSDs and exchange of value settlement systems, operational efficiency and effectiveness, access principles and transparency of rules and procedures. FMIs have largely welcomed these principles, recognizing the fact that prudent risk management, operational efficiency and transparency are a must for the safe functioning and long term viability of the markets that they serve.

Apart from changes to their business models, FMIs need to also factor in technology Investments to effectively comply with these Principles. These investments are likely to be seen in some of the areas listed below, so that software solutions can act as the fulcrum on which the organization can structure its compliance strategy.

- Flexibility in the solution to handle multiple account structure models and configure beneficial ownership
- Ability to ensure the segregation and portability of client balances, which is also one of the requirements of EMIR
- Ability to perform simulation, stress testing and back testing functions, so that the capital requirements of CCPs are backed by strong statistical analysis
- Ability to provide specialized collateral management services, including wider choice of collateral, collateral optimization, real-time valuation, substitution and interfaces with external CSDs/Global custodians
- Ability to support the co-existence of ISO 15022 and ISO 20022 messages to ensure minimal impact on market participants

- Ability to maximize settlement efficiency, through the use of various settlement algorithms

The continuous monitoring by IOSCO of the status of implementation, combined with the commitment demonstrated by FMI in ensuring compliance to the PFMI

principles, is expected to go a long way in ensuring stability and restoring investor confidence in global financial markets.

Further Reading

1. <http://www.bis.org/publ/cpss101a.pdf>
2. http://www.financialstabilityboard.org/cos/cos_120418.htm
3. <http://www.bis.org/publ/cpss111.pdf>
4. <http://siteresources.worldbank.org/FINANCIALSECTOR/Resources/C09.pdf>
5. <http://www.clearstream.com/blob/74068/a34b4ba970e358db86cfe4a9da929c61/liquidity-alliance-flyer-2015-data.pdf>
6. <https://www.euroclear.com/collateralhighway>

1. <http://www.clearstream.com/blob/74068/a34b4ba970e358db86cfe4a9da929c61/liquidity-alliance-flyer-2015-data.pdf>
2. <https://www.euroclear.com/collateralhighway>



R Vivekanand
Vice President
TCS Financial Solutions
TCS BaNCS



Malini Raman
Senior Consultant
TCS Financial Solutions
TCS BaNCS



V Anjana
Consultant
TCS Financial Solutions
TCS BaNCS

“Using TCS BaNCS, we have more confidence from a control standpoint, because we’re able to ask the compliance team to check on a reconciliation status, the present volume, or account ownership data faster than ever.”

*Suwoko Singoastro
Managing Director – Operations & IT
Bank Negara Indonesia*



Targeting Transparency in Securities Transactions and Custody

The failure of a large US based investment bank due to the subprime crisis in 2008 and the collapse of the largest broker in many commodity exchanges brought into focus the interdependence of the world's financial markets. It led to the need for higher levels of transparency, segregation of assets, increased regulation and improved access to the securities of regulated financial institutions—in the event of an intermediary failure.

In 2014, findings by regulators on two large global custodians provoked an industry-wide discussion in the intermediation of securities transactions and the risks posed to regulated financial institutions in areas such as sanctions compliance, money laundering, terrorist financing and tax evasion.

Compliance has become a significant focus of the financial services industry with:

- Increased focus on sanctions enforcement and counter-terrorism measures.
- Concerns about the lack of transparency in securities holding chains leading to adoption of new standards in regulation.

The industry has also realized that development of compliance monitoring practices in securities settlement could

In the initial days of global custody as a concept, most shares and bonds were in physical form that required ownership to be tracked by registration, a process that significantly hampered availability of such securities to be traded till such a process was complete.

lead to significant operational costs and friction, if not accompanied by appropriate cross-industry standards.

The Need for an Industry-Wide Structured Approach to Financial Crime Compliance

In May 2014, the International Securities Services Association (ISSA) decided on three key drivers to address financial crime compliance in securities custody, settlement and distribution of securities and investment funds, which are:

- To provide a meaningful and substantive framework to guide custodians and fund distributors in the application of the IOSCO [International Organization Of Securities Commission] Principles of 2004 on

Client Identification and Beneficial Ownership for the Securities Industry.

- To address issues raised by recent enforcement actions with a view to minimizing any gaps between market practices and the expectations of regulatory and enforcement authorities;
- To articulate a securities equivalent to the Correspondent Banking Principles of the Wolfsburg Group in order to define a set of standards to manage/operate omnibus accounts as well as to address those specific characteristics of conduct risk in the securities field, which are absent in high value payments processing.

Benefits of Intermediation/Importance of Omnibus accounts

In the initial days of global custody as a concept, most shares and bonds were in physical form that required ownership to be tracked by registration, a process that significantly hampered availability of such securities to be traded till such a process was complete. By holding shares in an omnibus or nominee account name, the industry reduced the need for re-registration, associated out-of-pocket expenses, and availability delays for trading such securities.

Despite more automation in the life cycle of transaction processing and dematerialization of securities, a significant section of the industry feels that usage of omnibus accounts is still of critical use to the industry.

- **ICSD Model:** The bulk of ICSD clearing model is based on the usage of omnibus accounts where securities are usually held through a common

Depository and Local agent network in omnibus structure such that title can be changed in the ICSDs outside the regular clearing hours of the local market.

- **Collateral Management:** The mobility of collateral and hence the practicality of securities as a collateral class is accelerated.

To improve collateral management efficiency, leading ICSDs have developed highly automated tri-party repo models to net multiple, individual collateral transactions and create a net position as required between key parties in the market, enhancing collateral efficiency but dependent on the ability to hold assets in omnibus accounts to facilitate rapid book-entry movements.

- **Reduced Transaction Costs:** The costs of safekeeping benefit from

Despite more automation in the life cycle of transaction processing and dematerialization of securities, a significant section of the industry feels that usage of omnibus accounts is still of critical use to the industry.

the economies of scale of combining securities interests into the hands of only a handful of significant intermediaries, such as global custodians, agent banks and (I)CSDs.

- **T2S:** It is on the basis that the concentration of ownership interest can give rise to significant economic benefits that projects such as T2S have been launched to build scale in securities settlement and clearing. The core T2S model is built on an assumed usage of omnibus accounts to avoid the requirement of individual clients

The development of MT202 cover messages led to a significant increase in the operating costs of correspondent banks with the need for screening software to scan any MT 1XX/2XX message for references to sanctioned parties, designated persons, and politically exposed persons in either the final payer or beneficiary details.

to open segregated accounts with each underlying CSD.

Transparency in the Intermediated Custody Chain

But the most common criticism of the omnibus model is that it reduces transparency by substituting a record of the end investor's identity for a record of the custodian's or the broker's identity. Therefore,

- Issuers cannot easily identify their shareholders, reducing the utility of shareholder registers and requiring complex disclosure processes.
- The management of the risks arising from money laundering, terrorist financing, market manipulation & tax evasion becomes more challenging as a result.

Payments Industry – Transparency & Associated Costs

There are significant differences in the manner in which the correspondent banking sector addresses the issue of transparency as against the processes in the securities industry.

Wolfsburg Recommendation: MT 202 Cover Message

In the case of the correspondent banking sector, the trend towards greater transparency was driven primarily by sanctions compliance, thereby leading to the introduction of MT202 cover message in 2009 with details of payer and final beneficiary details.

An MT202 cover message is designed for use when two financial institutions transact a payment in a third country

A financial institution settling a securities trade is in a position similar to that of an intermediate financial institution in the correspondent banking sector, as a significant amount of value is transferred cross-border by securities intermediaries in the form of settlement messages rather than by the cross-border payments Industry.

through correspondent banks, in any of the currencies such as US Dollar, Swiss Franc, Euro, Yen & Renminbi. This makes the details of the final payer and beneficiary details known not only to the two financial institutions directly reflecting the payments in their books but also to their correspondents.

Impact on Operational Costs

- 1) The development of MT202 cover messages led to a significant

increase in the operating costs of correspondent banks with the need for screening software to scan any MT 1XX/2XX message for references to sanctioned parties, designated persons, and politically exposed persons in either the final payer or beneficiary details.

- 2) Substantial technology investments were required to build such software and also the capability to assess data on a substantial number of parties who may have otherwise not be known to the financial institution.

Correspondent Banking vs Securities Processing – Similarities & Differences

A financial institution settling a securities trade is in a position similar to that of an intermediate financial institution in the correspondent banking sector, as a significant amount of value is transferred cross-border by securities intermediaries in the form of settlement messages rather than by the cross-border payments Industry.

Securities custody and funds distribution are, however, distinguished from correspondent payments activities by two key factors, which are:

Wolfsburg Principles for Securities – Driving Factors

Cross-border payments and securities/funds custody therefore expose firms to financial crime risks that are similar in nature but far from being identical. ISSA recognized the need to address the specificities that are peculiar to securities and funds custody, which distinguish this sector from that of correspondent banking.

The ISSA Financial Crime Compliance Principles are hence designed to provide a framework to manage financial crime risks in a manner that is effective, affordable and implementable in a reasonable time frame, while preserving the benefits of the various custody models used around the securities world.

Summary of the Proposed ISSA Principles

The working group set up in May 2014 has published to ISSA participants and key regulators a draft of the core principles that are intended to provide guidance in the application of risk-based measures to protect the global community under which securities are safe kept and settled from criminal abuse. The key aspects that were covered in the draft are to:

1. Define the principles that should govern the intermediation in securities industry and the tools available
2. Define the securities equivalent of the Wolfsburg Anti-Money Laundering Principles for Correspondent Banking
3. Evaluate the Cost & Benefits of different account holding structures

It is expected that the Principles will be formally announced at SIBOS 2015 in Singapore.

The following are the key focus themes in the recommendation made by the working committee.

Dimension	Securities	Payments
Tenure Impact	An interest in a security or fund is continuing and permanent so that an intermediary's exposure to the ultimate beneficial owner's conduct continues to exist far beyond the point of execution of the transaction.	A payment represents only a transactional exposure to financial crime risk since it involves the correspondent only at point of execution
Industry Players and Purpose of the transaction	Securities are held and transacted by a significantly smaller set of underlying owners who include a high proportion of professionals acting as asset managers and brokers. Securities are transferred primarily to complete trading contracts or to transfer collateral interests.	Cross-border payments can be conducted by practically anyone for virtually any purpose and, therefore, represent a considerably more heterogeneous risk for correspondent banks.

Focus Theme	Principle	Custodian - Client
Account Structure	There is a need to be able to track the “ownership” of accounts in a clear manner and distinguish between Final beneficiaries, Clients/Intermediary Omnibus. The focus of the Principles are on how custodians can ensure that their compliance standards and legal obligations can be imposed on downstream clients who may be at several steps removed from themselves in the custody chain.	The core aspect of the ISSA principles dictates not only the requirements to be communicated but have representations related to them reflected contractually. It is envisaged that an adjustment to existing contractual terms between a Client and Custodian will be required to reflect: • An agreement to provide the custodian with the information necessary to assess the customer’s compliance with the ISSA FCC Principles. • An agreement to disclose any underlying account holder/ beneficial owner in the event of a request by a legally entitled authority or issuer or in the presence of aggravated risk factors.
Due Diligence Framework	ISSA has developed a Due Diligence Framework to support custodians in the assessment of their financial institutional customers in particular and in relation to the third-party client business. The Framework is supported by a Questionnaire, which is divided into the three parts covering: • Proprietary business; • Segregated account businesses; and • Omnibus account businesses.	The Principles require custodians to notify downstream customers and distributors of their KYC Standards and Requirements • Any standards that go beyond FATF [Financial Actions Task Force – An intergovernmental body] norms. • Any requirements of the custodian’s own depositories and sub-custodians which go beyond FATF norms. • To determine the ownership status of each account, whether proprietary in nature or held for third party clients and if so, whether in segregated or omnibus form. • To agree to the communication protocols, procedures and timelines for any request for information and associated responses.
Risk-Based Disclosure of Holdings	The core of this recommendation is that the industry should adopt a risk-based approach to disclosure, as against a transaction-based approach for the disclosure of the underlying holders of securities interests in an omnibus account. A framework needs to be agreed to between the Custodian and their clients to make disclosure requests of their end clients and the timeframe and standards that should be accepted, considering that the chain of omnibus accounts may be several layers deep.	The communication protocol has to be agreed between the Custodian and the Client and changes, as opportunities for future automation arise. There are options to communicate via ISO and non-ISO standards. • The ISO 20022 Transparency of Holdings message is a new ISO 20022 message for disclosure of account holders and can be sent downstream and upstream the custody chain. • Considering the technology investment for ISO messaging, on a bi-lateral basis, clients & custodians can agree on formats such as .CSV files or .XLS formats.

Impact on Custodians in the Value Chain

Dimension	Impact/Possibilities
Data Collation & Aggregation- To aid Disclosure	LEI: Use of LEIs is encouraged as a preferred standard for all institutional clients in the chain as a lever for existing beneficiary data source to meet disclosure processing. TAX Documents: Existing tax-driven requirements, including FATCA disclosures, should be leveraged to avoid the duplicate maintenance of databases, and reporting requirements.
Cost of Adaption The adoption of the Principles is not expected to lead to significant investments in technology nor to any significant changes in the account structures, that are supported by custodians	Areas wherein there may be additional costs are Contractual Adjustments – Documentation KYC: Organize the Custodian KYC teams to address the due diligence requirements of ISSA. Reconciliation: Implementation of system ledgers to capture legal and beneficial ownership and reconciliation tools to cross-check such data provided by clients against other data held by the Custodian [Example – Tax database] Framework: Development of communication protocol & related ISO or non-ISO messages to manage disclosure requests.

Industry-wide Implementation

ISSA anticipates members to commence implementation after SIBOS [October 2015], and the key milestones that are in place are:

June 2016	- Finalization of Contract adjustments - Definition of KYC & Due diligence program - Definition of ownership ledger requirements - Specification for Custodian's KYC - Definition of disclosure request protocols
Jan 2017	- Launch of Contractual Documentation Programs - Launch of KYC Due diligence programs
June 2017	- Implementation of ownership ledgers - Implementation of disclosure request protocols
Dec 2017	- Completion of contractual documentation program - Roll out of any change to customer account structure
Dec 2018	Industry-wide cross-market adaption of ISSA principles

In summary, there is a case for developing best practices or standards to provide greater levels of transparency to protect the securities industry and satisfy the expectations of the regulatory authorities. The system of intermediation enables over USD 100 Trillion of securities in issuance to be concentrated into (I)CSD accounts by a relatively small number of financial institutions which has significant benefits to the industry as a whole. However, the continued use of omnibus accounts may need a high level of sophistication under risk management in core processing systems to be able to track suspicious transactions – for example, whether a client from a country with sanctions is indeed trading on securities.

It is hence possible that a certain section of intermediaries may find the risk attached to operating under an omnibus account unattractive, given

the regulations, as well as the fear of insolvency of the chosen participant or custodian under whom the omnibus has been maintained and may tend towards the concept of segregated accounts. It is to be noted that depositories such as STRATE in South Africa have introduced the concept of segregated depository accounts [SDA], the key driver being that the legal ownership remains undisturbed for the client even if there is a case of insolvency against their primary participant/custodian. Maintenance of segregated accounts also helps in an account being compliant to regulations under FCC or to be FATCA compliant in a more direct and easy manner, given the knowledge of the beneficiary. Large increase in segregated accounts may force application providers to focus on areas of inefficiency in account maintenance, which may not manifest when the model is under an omnibus account and volumes are small.

If the shift does take place from omnibus towards segregated, it may make fund managers with direct accounts at CSDs seeking more automated reporting, and that may provide opportunities for CSDs to look at new revenue areas such as an account operator model.

Whether the industry prefers to strengthen the disclosure processes whilst retaining the benefits due to an omnibus structure or whether there will be a gradual shift towards the concept of segregated accounts directly at CSDs, bringing in a change in business models of CSD/Custodians, will become clearer when the securities industry reacts to the proposal from the working group.

Proper implementation of ISSA recommendations by industry players will help protect their preferred model while reinforcing adequate measures to address the challenges of transparency.



Ramann Bhavani
Principal Consultant
TCS Financial Solutions
TCS BaNCS

“We selected TCS BaNCS for Corporate Actions due to the solution’s high levels of exhibility and superior technology in terms of open architecture and modern design. Since the implementation, we have been able to increase productivity, enhance operational eciency, and reduce risk.”

*Brad Massey
General Manager Fund Services
Colonial First State*



Digital Transformation in Capital Markets

Digital Transformation – An Overview

We are all witness to the disruption and change sweeping across business and technology today; more so, in the digital sphere that promises customers a seamless and richer user experience with complete and real-time access to information. The last two years have witnessed a data explosion, and the amount of data is expected to grow another tenfold in the next six years. A sevenfold increase in mobile

penetration over the past four years is also having a profound effect. Intuitive interfaces, 24 by 7 availability, real time data-analytics, personalized experiences, zero errors and global standardization - this is the world that customers are getting accustomed to. Digitalization is the all-encompassing goal, which all solution providers are quickly working towards evolving even as they define strategies that complement and supplement existing systems and ensure superior customer

engagement services. Service Providers will need to not only digitalize existing business processes, but also go beyond and reinvent entire business processes, including providing for automated decision making, dealing with fraud and regulatory aspects, as well as aligning operating models to match these reinvented processes.

This article explores the benefits that digitalization can provide to the capital markets value chain.

The Capital Markets World - Time for Digitalization?

With business going digital, capital market firms must also transform in order to retain their competitive edge. To stay relevant, financial institutions must shift to the digital age where personal devices are replacing other communication channels. Smart phones and tablets are changing the way customers approach banking as well as how operations managers approach supervision activities 'anytime' and 'anyplace'. New market entrants and emerging technologies pose considerable challenges for financial institutions to keep pace with, prompting them to "Shift Digital." A holistic,

Service Providers will need to not only digitalize existing business processes, but also go beyond and reinvent entire business processes, including providing for automated decision making, dealing with fraud and regulatory aspects, as well as aligning operating models to match these reinvented processes.

business-sponsored digital strategy is hence becoming a must for firms.

In the journey of digitalization, process control is shifting towards customers based on the convergence of the five forces: social, mobile, big data, cloud and analytics. Customers will configure the combination of products and services that they require, themselves, via the device or channel that they prefer at the moment that is convenient for them, with businesses losing the flexibility to dictate terms. However, it is key to note that digital transformation is not just a technology imperative, but also a re-hauling and reimagining of processes, especially those that are information-intensive and customer-facing.

Customer Experience

In financial markets, electronic trading is becoming the dominant technology, highlighting the need for urgent reforms

In the journey of digitalization, process control is shifting towards customers based on the convergence of the five forces: social, mobile, big data, cloud and analytics.

of investment banking IT systems. In response, investment banks have invested significantly in institutional client web portals that transverse multiple products and services, address the full trade life-cycle, and provide personalization

Customers



These options come in the form of apps which can enable personalized views of transaction lifecycles, statement downloads, portfolio views and election options, among others.

of format and content. A flood of smart mobile devices and customer demands of accessing data on-the-go is pushing Investment banks to replicate web-based services as intuitive mobile applications. Digitalization can help banks keep up with

these demands, enabling rich customer experiences and personalization, thereby helping them gain an edge over the competition while also reducing costs. A survey of top financial institutions in the capital markets space reveals that there is growing focus on providing services in the form of mobility tools. These options come in the form of apps which can enable personalized views of transaction lifecycles, statement downloads, portfolio views and election options, among others.

Operational Agility

Needless to say, digitalization has a far-reaching impact on operations of businesses across the globe, giving managers the capabilities to not just automate processes but also intuitive algorithms to pre-empt risk and flag exceptions that require urgent attention.

In today's fast-moving and interlinked financial markets, risks can arise quickly

and reflect in asset valuations almost instantaneously—with occasional catastrophic repercussions to banks that cannot react quickly. Firms today have complex systems due to multiple lines of business and global operations. This complexity adds to the risks involved, which directly affects the profits of the firm as well as franchise risk. Ability to pre-empt and combat risk is key for an operations supervisor. Quickly

A survey of top financial institutions in the capital markets space reveals that there is growing focus on providing tools, which enable not only consolidated views across footprint countries, but also real-time, 'slice and dice' analytics and drilldowns to supervisors to help them concentrate on those exceptions that are critical in terms of reputational risk or monetary value.

Operations



An intuitive, alerts-based, enterprise-wide monitoring app can add tremendous value in such a scenario, empowering personalized views for each team member based on their respective roles in the organization.

delivering the information about the first 'symptoms' of a risk's advent to key decision-makers can have enormous effects on subsequent exposure, profits, and reputation. Making information available digitally helps a supervisor combat this risk. There are key initiatives going on wherein such digital tools will become niche by virtue of their ability to subject digitalized data into artificial intelligence, leading to predictive analytics that can guide firms about risks and opportunities.

A survey of top financial institutions in the capital markets space reveals that there is growing focus on providing tools, which enable not only consolidated views across footprint countries, but also real-time, 'slice and dice' analytics and drilldowns to supervisors to help them concentrate on those exceptions that are critical in terms of reputational risk or monetary value.

Enabling IT Support Teams

Typically, IT support managers have their hands full in terms of keeping the technology infrastructure and the hybrid mix of applications up and running, apart from monitoring technical glitches and then acting on time to resolve them and minimize their business impact. With businesses spread across the globe, system support is often required 24by7, and IT teams need to keep an eye on their application ecosystem. Again, the overlay of artificial intelligence on top of digital data can enable teams to make quick decisions supported by predictive analysis. An intuitive, alerts-based, enterprise-wide monitoring app can add tremendous value in such a scenario, empowering personalized views for each team member based on their respective roles in the organization.

The dashboard will be able to represent graphically the volumes of corporate action events, number of accounts involved, the complexity of processing, time available and the financial exposure, and accessible to the operations team in real time across the web.

IT-Support



Facilitating Collaboration in Securities Processing

In a commoditized industry such as financial markets, it has been critical for investment banks to control all aspects of the value chain—from origination to distribution to dealing—in order to maintain a competitive edge. Proprietary access to information had placed the balance of power in their hands. But increase in processing power and bandwidth have allowed information to flow more easily and cheaply, particularly in the world of securities pricing and supply, and also in the field of research and information-based investing. As a result, the entire competitive landscape is changing. Mobility technology is an obvious solution to facilitate collaboration, including tracking, workflow management and security needs. Combining collaboration (e.g., email and instant messaging), content management and business process

Alerts can be defined based on the type of risk, time-sensitive corporate actions, financial exposure and volumes and depending on a firm's business, its clients and key responsibilities.

management with mobile or 'wearable' devices can enhance collaboration, while preserving security, the necessary audit trails, and required workflows. Digital solutions can 'virtualize' end-to-end deal management processes, perhaps, using a web-based portal to bring together a virtual team from multiple functional areas of the organization.

Simplifying Corporate Actions Processing

Corporate actions operations represents a significant challenge for the operations team in the financial services world. Often times, the operations manager and team spend significant time assessing each corporate action for unknown risks like complexity, volume, urgency and capitalization based on multiples sources of data and legacy systems such as spreadsheets, static data or, more often than not, through the experiences of the corporate action processing team itself - thus making the assessment of corporate actions events a very complex and manual oriented process. This can result in loss of valuable time, including financial and reputational losses.

Let us examine the challenges involved in corporate action operations management and the increasing need for automated systems. Financial institutions have often neglected the prospects of digitalization of corporate actions operations due to various reasons and faced limitations in the form of complex legacy systems and the attendant cost of upgrading these systems. Such legacy systems impede the capability to access data across operations systems. Often, this results in redundant work for the operations team,

As digital technology continues to evolve and knock the door harder with the force of benefits it brings along, financial institutions will need to formulate a roadmap to achieve digital objectives.

resulting in manual processing, slow decision making and errors.

Operations Dashboards

One of the possible solutions is to have a digitalized dashboard, which can present the operations team with a simple, operations focused, dynamic and user criteria-based view. The dashboard will be able to represent graphically the volumes of corporate action events, number of accounts involved, the complexity of processing, time available and the financial exposure, and accessible to the operations team in real time across the web.

Alerts

Real-time alerts from web portals and mobile apps can help quickly spot risks and enable better management. Alerts can be defined based on the type of risk, time-sensitive corporate actions, financial exposure and volumes and

depending on a firm's business, its clients and key responsibilities.

Customer Interfaces

Delivery of real-time information to clients and operations users is at the center stage of corporate actions markets today. A stand-alone corporate actions system via a web portal or mobile app can give users access to data through a feature-rich and intuitive user interface offering a high degree of personalization. It will provide users with easy access to their corporate actions events with full visibility into their positions. Users can then enter their instructions via the portal or app, thereby, completely automating the process and gaining full control in managing their risk priorities.

These capabilities ease the burden on and reduce the risk to the back-office user.

Conclusion

Whilst the retail banking space is already witnessing significant traction in digital transformation, institutional customers in capital-markets businesses are also helping raise the bar in this space. The focus is on digital transformation efforts in alignment with business priorities. Organizations which have a diverse set of products and clients worldwide will tap into significant opportunities for digital transformation as far as interaction with clients and collaborative work forces go. As a result, we are seeing transformational activity in both customer interactions and staff agility, though there

is a relative lack of capital markets-focused start-up firms, which may be due in part to the high level of complexity as well as the regulatory requirements associated with capital markets.

Financial institutions have had reasonable concerns around the use of mobile technology, and some of these relate to data security and audit and the use of such tools outside office premises. However, as digital technology continues to evolve and knock the door harder with the force of benefits it brings along, financial institutions will need to formulate a roadmap to achieve digital objectives, to not only keep up with competition, but also with increased demands from customers, and towards creating a digitally skilled and equipped work force.



Daizy Mehta
Assistant Consultant
TCS Financial Solutions
TCS BaNCS



C Damodar
Consultant
TCS Financial Solutions
TCS BaNCS



Managing Processing Risk in Asset Services

Basel II regulations define Operational Risk as “the risk of a change in value caused by the fact that actual losses, incurred for inadequate or failed internal processes, people and systems, or from external event, (differ from the expected losses)”.

However, Operational Risk is a broad discipline, and must be coupled with good management and quality management. Basel II identifies seven event type categories:

1. Internal Fraud
2. External Fraud
3. Employment Practices & Workplace Safety
4. Client, Products & Business Practice
5. Damage to Physical Assets
6. Business Disruption & Systems Failures
7. Execution, Delivery & Process Management

Specifically for Asset Services, the focus is within the seventh category. Further, let’s look at the definition of Operational Risk as seen within the Asset Servicing function – “the risk of direct or indirect loss resulting from inadequate or failed internal processes, people and systems or from external events”.

What differentiates Operational Risk from other risk types is that they are not, usually, willingly incurred and neither are they revenue driven. Further, they

are not able to be “laid off”, in that as long as people, systems and processes remain imperfect, the risk cannot be fully eliminated.

The target must be then to manage the Operational Risk, and ensure that any losses are within an agreed tolerance level, and so also the expected losses. This tolerance level is agreed on the principle of “how much risk are you prepared to accept in pursuit of the objectives”, and this is further driven, by the determination of balancing the costs of improvement against the expected benefits.

Finally, Operational Risks affect client satisfaction and company reputation, whilst increasing business volatility.

So, Operational Risk has to be accepted as an unavoidable cost of “doing business”, and the focus must be on managing the risk and recording the instances of risk, be it actual loss or a ‘near miss’, and then using the data to model an Operational Risk approach and to calculate adequate capital reserves (and Risk Tolerances) going forward.

This approach, must be applied to Asset Services processing. Managing the

What differentiates Operational Risk from other risk types is that they are not, usually, willingly incurred and neither are they revenue driven.

Operational Risks affect client satisfaction and company reputation, whilst increasing business volatility.

processing risk within Asset Servicing, by identifying where risk occurs and addressing it with the right resources, approach and tools, should lead to a reduced overall risk profile and the elimination of errors within the process.

Operational Risk within Asset Services will always be an issue, and whilst the introduction of and the continued development of -

- Messaging standardization
- User/Client interfaces for direct entry
- Improvements to Straight Through Processing (STP)
- Reduction of human/user touch

...has seen the risk decline, along with greater management and controls, it hasn't totally removed it. What remains, is the approach to managing the risk successfully, and that is by identifying where and when risk is likely to occur and addressing it with the correct resources.

What exactly is The Risk Involved in Asset Servicing?

Essentially, it's the act of -

- Not doing something

- Not doing something within the given time constraints
- Doing something incorrectly
- Not following up on something and, therefore, missing the chance to take the action required

To be more specific, risk is concerned with the likelihood of the impact (financial or reputational) as a result of one of the above. The aim is to ensure that either:

- One or all of these actions doesn't happen
- Identifying it as possibly happening and managing it so it doesn't happen
- If it does happen, to ensure the impact of it is managed correctly.

The use of ISO 15022 and 20022 messaging standards, allowing for increased levels of market data standardization and the move away from proprietary feeds, has further eliminated the need for user interaction leading to a reduction in the risk of misinterpretation.

As the potential for error occurs at all stages during the event lifecycle, it's only right to ensure that the risk is measured and managed throughout the event lifecycle.

What has been done so far to Reduce Errors and Improve the Management of Risk?

Data vendors have increased their market, instrument and event coverage over the years. Along with improvements to data

Improvements to settlement rates, the reduction in the settlement life cycle, the harmonization of event dates and the use of central counterparties, clearers and third party claim matching vendors, have all led to a reduction in the number of open positions within an event and allowed for a greater awareness of Street Side position management.

matching and the use of comparison services, including comparing data to custodian messages have helped create golden records for event processing available from the source. Thus making the need for a user to compare data almost redundant, and eliminating a lot of human error and interpretation risk.

Further, the use of ISO 15022 and 20022 messaging standards, allowing for increased levels of market data standardization and the move away from proprietary feeds, has further eliminated the need for user interaction leading to a reduction in the risk of misinterpretation.

Separately, position keeping records have vastly improved, with a single stock record now common and the instrument static data linked to ISIN numbers for multi-listed securities, along with derivatives linked to underlying equities. This ensures that securities can be linked, which ensures correct position eligibility records.

Improvements to settlement rates, the reduction in the settlement life cycle, the harmonization of event dates and the use of central counterparties, clearers and third party claim matching vendors, have all led to a reduction in the number of open positions within an event and allowed for a greater awareness of Street Side position management. This in turn has seen a reduction in the number of liability letters issued and the number of claims raised.

Finally, the automation of entitlement bookings has led to a reduction in the delays incurred in cash and security transaction processing. Historically, this would have involved manual bookings, transformations and reconciliation issues. This has moved from being manual and

Where there is a high STP rate, only those items that need attention or action are actually addressed and worked upon.

with overnight batches and is now live, with intraday adjustments, ensuring that the correct position is shown at the right time.

So, Despite all this Happening, what Risks are there today in Asset Servicing?

- An event is missed. This is still a major risk and one that may never fully go away, but has been reduced
- Incorrect event or option interpretation, including mis-identification of restrictions.
- Human error, on either distribution of event information or a missed keying in of a manually received election
- Missing a deadline for an election
- Missing or incomplete documentation, for tax or other entitlement

If these risks can't ever be eliminated, then there should be more focus on them. But, resources are finite and need to be managed, so should there be better focus and effort and resources managed correctly to target the higher risk items rather than the lower risk ones?

Does all Asset Servicing Processing Carry the same Level of Risk?

The simple answer is no. A voluntary event carries a greater level of risk. But as risk lies throughout the event lifecycle, choice and mandatory events still carry elements of risk.

We must consider the 80:20 rule here, where 80% of all events will lead to 20% of the risk, leaving 20% of all events potentially carry 80% of the risks.

By adopting this approach, we encourage specific event focus and allow for the different treatment of events, and in different conditions or situations. All of which leads to better management of risk within the Asset Servicing process.

Does this mean that Risk can be Managed and Continually Reduced?

Well, it can be better managed because there is greater focus; plus, better management should lead to greater control, which ultimately will result in reduction in errors.

The aim is to ensure that events are not be given the same consideration and to be aware that different events will have risk at different times during the event lifecycle. Essentially, all events are not equal.

Preference and priority must be given to the more risky events or the riskier processes within an event, and where possible, to ensure that the more experienced user processes these.

So where should the 80% Focus be?

Firstly, processing must be by exception only. Where there is a high STP rate,

only those items that need attention or action are actually addressed and worked upon. There is also a need to be able to determine which exception item should be addressed first; after all, exception items are not equal. If the user undertakes the determination, then there is a further risk based on their judgment and a decision to favor one exception over another. Therefore, the determination needs to be automated and we must consider two factors:

1. The time by which the exception item needs to be completed by. Each exception item is raised within a timed lifecycle process and each has a completion by date and time.

A cash dividend event will have a lower risk rating than a rights subscription, but if the cash dividend is in an emerging market, or the underlying share price is high, or the dividend represents a high percentage value of the underlying, then the cash dividend event could be considered a higher risk.

2. By giving each event a risk rating, which is also applied to any exception item arising from it.

By combining these two factors (and the order of the two can be reversed), the processor is shown what exception item needs to be addressed first.

What is a Risk Rating? How is it Calculated and Applied?

Every event is given a high, medium or low risk rating depending on various factors within an event. The rating can change during the event lifecycle, thus any exception item created can also have a risk rating, which can also change during the event lifecycle.

These factors are captured and their values measured and recorded to pre-agreed levels (limits), with the resulting number given a weighting, which can then determine the correct risk rating at that particular time. The process starts when the event is first created and as the event evolves, additional factors are considered. This determines if the risk rating changes based on the information obtained.

At the announcement of an event the Risk Rating is calculated using the factors:

- Event Type
- Security market listing
- Number of options available
- The price of the underlying security
- The value of the option as a percentage of the underlying security

By way of an example, a cash dividend event will have a lower risk rating than a rights subscription, but if the cash dividend is in an emerging market, or

By considering the risk rating given to an event—and any of the exception items arising from that event, and by considering the current phase of event lifecycle—the risk can be determined.

the underlying share price is high, or the dividend represents a high percentage value of the underlying, then the cash dividend event could be considered a higher risk.

The risk rating calculation continues when the eligible positions are identified and is calculated with the additional factors of –

- The position types
- The number of positions within a certain position type
- The value of an account/client position

Where based on the event creation a rights subscription event was considered as high risk, it may now not be a low risk because there is only one client who is holding only one right that may not value much.

Further, for an elective event, a consideration must be made as to how far away the deadline date/time is. The further away the time, the lower the risk rating, and as the deadline approaches the number of unelected accounts and their total value as a percentage of the overall position value can be considered.

This way, an event's risk rating is continually monitored and calculated throughout the event lifecycle. The exception items arising from it can be given an accurate and meaningful rating, ensuring it is processed in the correct order. Other factors can also be considered and they depend on the client's overall risk profile and measurement capability.

And what does this mean for the day-to-day Processing?

By considering the risk rating given to an event—and any of the exception items arising from that event, and by considering the current phase of event lifecycle—the risk can be determined, and the item needing processing is taken up by the correct user, in the correct order and within the allotted time. Whist here we have only considered exception Items, the same principle and approach can be adopted for authorization and work items as well.



Alan Lawman
Consultant
TCS Financial Solutions
TCS BaNCS

“The capabilities we’re rolling out with TCS BaNCS have placed us at the leading edge, this will change the industry. We will be the go-to custodian and the go-to provider of market access for our clients across Asia, Africa, and the Middle East.”

*George Nast
Head of Product Management
Transaction Banking
Standard Chartered*



Revamping Legacy in Securities

Over the last 25 years, investment banks and broker/dealers have been challenged with replacing monolithic, legacy, back office systems. Coinciding, are the slashed budgets attributed toward upgrading and enhancing these systems. This includes keeping up with the ever changing regulatory landscape. Due to the struggle of keeping their stock prices relevant, investment banks and brokerage firms cannot attribute budget dollars to back-office legacy systems. They must

spend on more relevant systems such as trading, research and risk which provide more profitability. Additionally, programmers and developers versed in COBOL, Assembler, RPG, among others, are a dying breed and cannot be sourced any longer. This, and the fact that millions of lines of programming code needs to be changed and retro fitted for one simple enhancement adds to the complexity and costs associated with maintaining these systems.

In addition to all the Investment banking, back office, proprietary systems, and third-party vendors also face challenges to stay afloat. Although, they may make changes that affect multiple clients, they sometimes have different securities product offerings on different systems that have different programming languages that require different skill sets. These systems sometimes do not talk to each other and have to be consolidated into a universal stock record which is

Due to the struggle of keeping their stock prices relevant, investment banks and brokerage firms cannot attribute budget dollars to back-office legacy systems.

required by the regulators. What the investment banks, broker/dealers and third-party vendors have done is to create workarounds in newer programming languages such as JAVA to expedite these changes. What this has done is create dis-jointed operating systems that are suspect to break downs and passing data back and forth, leading to unreliable data and tremendous exception handling. This results in costly errors, additional head count, regulatory violations and reputational losses. This is likened to a building being constructed on a bad foundation with non-permitted additions that are cracking and ready to collapse.

Some of the challenges associated with trying to build a state-of-the-art back-office processing system in modern JAVA such as RAD programming languages are that many of these programming languages are built for desktop and server-type computing systems. Some of this hardware is not meant to handle

huge trade and data volumes. There are investment banks and broker/dealers that process millions of trades a day requiring millions of associated entries, such as general ledger, stock record, regulatory reporting, among others. Legacy mainframe systems were built to handle huge volumes but are big, hard to maneuver trucks. One of the biggest challenges is to get the sleek, new modern programming languages on hardware that will handle the inordinate volumes. This is achieved by utilizing and adding servers that will handle the volumes and spikes in the market. One of the other things associated with legacy mainframe processing systems is it's all or nothing at all. Although, some of the proprietary systems have built peripheral, ancillary systems around the mainframes to handle margin, reconciliations, tax, regulatory needs, etc., the majority of third-party vendors are a one-stop shop. Meaning, as a customer you cannot pick and choose modules custom to their needs. As an example, this requires a customer to accept a sub-standard margin system when it actually requires is a state-of-the-art portfolio margin system.

What the market place is looking for is a modular, component driven system written in modern code. The dilemma today is that legacy systems provide operational functionality, volume sensitivity and regulatory compliance for all the operational and compliance staff but give little control, flexibility and cost containment to the technology folks. By creating and implementing the modern, modular system it satisfies both worlds. Costs are dramatically reduced by creating automation and work flow

for exception handling, which leads to a reduction of operational staff and the ability to manage risks through MIS dashboards. Similarly, internal technology groups can reduce staff to manage archaic, legacy proprietary systems or third party vendors. Additionally, firms will be able to control their costs during volatile, volume-sensitive periods and be able to grow market share with little or no effect to the cost basis. This also provides the opportunity for industry-wide utilities. Many of the brokers have independent, peripheral systems to process, trade allocations and confirmations, break resolution, reconciliations, regulatory/compliance and tax reporting, among others. In the case of a settlement utility, it gives the investment banking community the ability to create a common cage yet utilize all their proprietary peripheral systems or plug-and-play modules where they do not possess these systems. Notwithstanding,

The fact that millions of lines of programming code needs to be changed and retro fitted for one simple enhancement adds to the complexity and costs associated with maintaining these systems.

whether it be full proprietary back-office replacements, full vendor package replacements or industry utilities, it is imperative for the industry to reinvent itself through new technology.

As budgets continue to tighten, the regulation becomes stricter and the volumes and complexity continue to grow, and this situation will only get worse. Up until now, the industry has not been able to create a modular environment that will facilitate a 'hub and spoke' environment that can work in conjunction with customized proprietary spokes that have been created to circumvent the shortcomings of the legacy type hubs that could not meet the regulatory and market demands. This has continually evolved into deteriorating infrastructures due to lack of funding

This results in costly errors, additional head count, regulatory violations and reputational losses. This is a likened to a building being constructed on a bad foundation with non-permitted additions that are cracking and ready to collapse.

which have been diverted to front office, revenue producing technologies. Like a cracked foundation in a building the ramifications will be debilitating. The cemented legacy back office systems built over many years must eventually be remediated. More than ever, the industry requires a player that can create a universal, modular componentized system that will address both retail and institutional brokerage processing. If this dilemma is not addressed sooner rather than later, investment banks will deal with a continuing bevy of cost over runs, increased regulatory scrutiny and processing inefficiencies. If light, fuel efficient, state-of-the art automobiles can be built, we can certainly build an efficient, volume-sensitive, modular system utilizing modern programming technology.



Gary Dedilectis
Senior Consultant
TCS Financial Solutions
TCS BaNCS

The team spirit between SGSS and TCS is excellent – it has underpinned good cooperation amongst all those involved. Overall, TCS has been consultative throughout, really listening to us, and understanding our challenges.

*Bruno Prigent
Global Head of
Societe Generale Securities Services*



Partial Call Lotteries. Is a New Change Coming?

Background

Lottery processing in US for partial calls brings out a set of challenges in allocating affected positions under an Omnibus account structure for a DTCC participant. The Short Positions and Loaned Positions are not considered in the Lottery process run by the participants, which results in short holders having to cover an increasingly illiquid security and long holders potentially missing out on “in the money” redemption payments. This leads to the question if the current partial

call allocation methodology is still the most efficient in a world of ever more complex trading strategies and derivative products. This paper attempts to describe the current challenges and the different options that are being debated in the US Asset Servicing fraternity and the steps that are being taken next.

Current Lottery Process and Related Issues

The current allocation methodology employed by DTCC is a computerized

impartial lottery that allocates using a call increment, random starting point, and a security number assigned to each lot the participant holds based on the denomination of the product. Once the called bonds are identified, they are segregated at DTCC in the participant’s account and intimated to the participant on the called quantity.

The DTCC participant, who could be a broker/custodian, will also run a lottery internally based on the ‘Called Quantity of Security’ to identify the affected positions.

The allocation of the called quantity is done across all of their long client and firm accounts, with client accounts being given priority over firm accounts. Because the lottery only affects long positions, this means that short positions are not called. Long positions that are loaned as part of a repo or stock loan contract are not called, unless the recipient was holding the security at DTCC in lieu of covering shorts. (Buying back borrowed securities in order to close an open short position. Short covering refers to the purchase of the exact same security that was initially sold short, since the short-sale process involved borrowing the security and selling it in the market)

Further, NYSE rule 217 and FINRA rule 11530 make called securities ineligible for delivery, which presents a problem for the seller if part of the security is called prior to settlement. It requires either a difficult negotiation with the buyer or purchasing additional securities to cover those called to make whole on the delivery.

The problems encountered are in part caused by the way partial calls are

Long positions that are loaned as part of a repo or stock loan contract are not called, unless the recipient was holding the security at DTCC in lieu of covering shorts.

announced and the timing of the lottery in relation to that announcement. Partial calls have a publication date and a payment date. The publication date is used as a trigger to run the lottery leaving holders no time to cover shorts, recall lending contracts or halt trading strategies to avoid delivery shortfalls.

Possible Alternative Solutions :

Two possible solutions to simplify the current partial call process are:

1. Pro – rata redemptions.

Pro rata redemption is the typical methodology used for European bonds, whereby all positions are impacted by the same percentage call amount regardless of whether they are long, short, on loan or pending settlement. This allows long holders to receive the benefit of in the money calls and short accounts (margin account) to have part of their position covered reducing their exposure to potentially illiquid securities. Illiquid securities have some value, and eventually are sold at a later date.

Operationally, the processing workload will increase slightly due to the counterparty claims that need to be completed for trades and loan contracts, but the result is equal reduction of positions. The biggest challenge to implementing this approach in the US market is security denominations. Most European bonds are denominated as 1 enabling easy attribution of partial calls. Most US bonds are denominated as 1000, which would result in baby bonds if pro rata methodology was employed. Either a complex rounding calculation would need to be developed by DTCC or there should be enough lobbying

Operationally, the processing workload will increase slightly due to the counterparty claims that need to be completed for trades and loan contracts, but the result is equal reduction of positions.

done to ensure that all new US bonds are denominated as 1. This would have upstream trading implications and huge operational impact while there are two calculation methodologies until all 1,000 denominated bonds have matured.

2. Inclusion of Record and ex Dates into the Partial Call Announcements.

If ex and record dates were included as part of the partial call announcement with the key dates being a period after the publication date, this would put the decision around position management in the hands of the securities holders. They could cover shorts, recall lending contracts and would be trading informed of whether they were buying securities that could potentially be called based on the relationship of trade date to ex date. DTCC would continue to use its impartial lottery process but would adjust the run date to be record date rather than based on the publication date. The biggest change would be having all issuers

If ex and record dates were included as part of the partial call announcement with the key dates being a period after the publication date, this would put the decision around position management in the hands of the securities holders.

announce a record date and having the NYSE announce an ex date, coupled with the announcement template changes DTC and all participants would need to make to their systems.

Participant voices grow ever louder as their frustration with the current process increases; the pro rata model employed by Europe is undoubtedly the ideal solution, but presents numerous operational challenges to implement. The inclusion of ex and record dates may just be enough to quiet the displeasure for the time being, but a move to pro rata in the long term is likely the only way to satisfy all holders.

Next Steps:

In response to an increased demand for change from the participants, SIFMA Corporate Actions Section of the Operations and Technology society has created a committee comprising members from brokers, custodian banks and data providers, charged with creating a white paper to present to the industry that would outline the problems that the current lottery process causes and solutions that can be implemented to prevent them. The committee met in March to discuss the white paper and broke up the contents

into, current state, challenges, solutions, pros & cons and ideal state with each committee member taking a piece to investigate and draft. The first draft of the white paper is expected to be completed by early fall 2015.

Conclusion:

The market had definitely taken cognizance of these issues, and various stakeholders have started taking the right steps for debate and deliberation of a potential solution. A change in Lottery Processing for Partial calls is in the cards in the near future. The process could take at least a year in finalizing the documents to seek approval/disapproval on the plan. It is an interesting story, as it could possibly change the landscape of lottery process in the US and impact not only the participants (brokers, banks, and custodians) but the data providers and vendors. Proprietary systems will have to be changed at a client's location and data providers will have to alter their methodologies and algorithms to assist in the new process.



Thomas Ruggiero
Consultant
TCS Financial Solutions
TCS BaNCS

“Excellent people, excellent product. We are really happy to work with TCS”

*Maria Susana Montero Pinilla
Head Manager
Legal representative
CorpBanca Investment Trust*



Meeting New Cost Basis Reporting Requirements

Over the past few years, Tax Lot accounting and Cost Basis Reporting have been discussed in great depth by the securities back office and tax accountant fraternity across the globe and, specially, in the USA, after a legislation was passed mandating that all parties involved in securities transactions accurately report the cost basis as part of the tax reporting environment. While most of the tax authorities in different countries had simpler rules for calculating capital gains tax on securities transactions, clients

usually had difficulty in reporting the correct capital gains and losses due to challenges of adjusting the basis of the security. This paper attempts to examine the background of tax Lots and cost basis, the challenges in maintenance of cost basis, and the increasing need for automated systems in managing the tax lot maintenance and reporting requirements.

Cost basis: Cost basis is the total cost of acquisition of a security, including

the original cost paid plus commissions and any other fees. From a taxation perspective, the calculation and storage of cost basis of individual transactions becomes important as it is one of the key inputs in calculating the tax liability for a reporting period.

Tax lot accounting: The method of position-keeping based on the cost basis of the transactions is called tax lot accounting. This is used to calculate the realized gain/loss for the trades.

For calculation of realized gain/loss for specific trades, different tax lot methods can be applied. The choice of tax lot method can have a significant effect on the computation of capital gains and losses. Some benefits of tax lot accounting are:

- Track securities by tax lot – To minimize the tax outflow.
- Avoid short-term gains. – Flexibility to decide on the lots that should be squared off based on the tax lot method that is chosen.
- Flexibility to carry forward the losses to future years.
- Flexibility to offset the losses made against the gains in order to minimize the tax liability.

Tax Lot Accounting Methods: Some of the important accounting methods chosen by the investor are:

- First In First Out – FIFO
- Last In First Out – LIFO
- Highest In first Out – HIFO
- Lowest In First Out
- Specific Lot Method
- Average Cost Method

- Min Capital Gain
- Max Capital gain
- Lowest Tax

Tax authorities are generally indifferent to the choice of tax lot method chosen among the approved methods in their country. However, they expect consistency in the method chosen in each accounting year.

Regulatory Framework for Cost Basis Reporting in USA

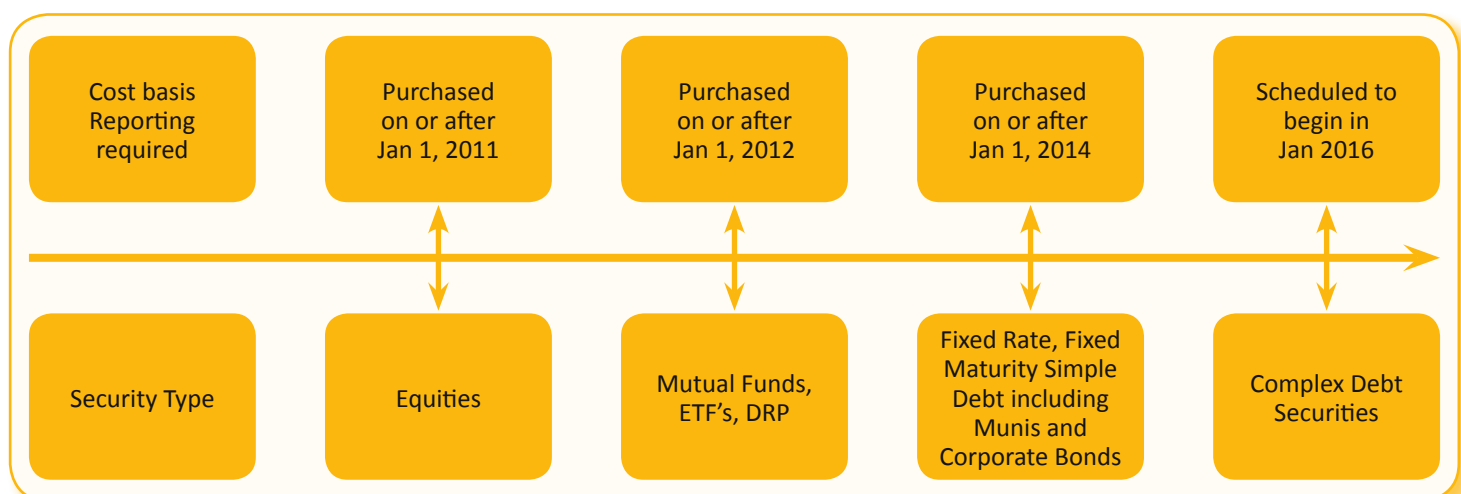
On Oct 2008, the US congress passed the Emergency Economic Stabilization Act. Section 403 of Division B of the Act made Cost Basis Reporting Mandatory for all parties executing transactions that involve publically traded securities. The legislation applies to securities acquired on or after the effective date as depicted in the diagram below.

The legislation requires that all financial services firms, including brokers, mutual funds, investment advisers, bank trust departments, custodians, transfer agents and other companies issuing Form 1099-B (Cost Basis Reporting) report the Cost basis of their clients to IRS. These firms have faced a significant challenge to

While most of the tax authorities in different countries had simpler rules for calculating capital gains tax on securities transactions, clients usually had difficulty in reporting the correct capital gains and losses due to challenges of adjusting the basis of the security.

bring their tax policies, operations and technology into compliance.

Reporting for Transfer of Assets: Brokers need to generate and send out transfer statements of their clients' accounts



From a taxation perspective, the calculation and storage of cost basis of individual transactions becomes important as it is one of the key inputs in calculating the tax liability for a reporting period.

along with the cost basis and historical transactions in case of an asset transfer to another financial intermediary.

Default Election of Cost Basis: Financial Institutions provide a default method of Cost basis to their clients, unless the client specifically requests for a method to be used for calculating his cost basis.

There are a number of factors which need to be considered while reporting the correct cost basis for a client, some of which are:

Consideration of Wash Sales: A wash sale is said to have occurred when a security is sold at a loss and an identical security is purchased before or after 30 days from the date of sale. By buying stock prior or immediately after a sale resulting into a loss, an investor can take undue advantage by converting a long-term loss into short-term loss or reduce tax burden of gains by showing such losses. Firms need to adjust the cost basis

accordingly to reflect the disallowance of the reduction in tax burden.

Impact of Corporate Actions: Corporate Actions such as Capital Returns, Stock Splits, Dividend Payments, Mergers, Tender offers, DRIPS, ADR and Spin offs lead to adjustment of cost basis to reflect the correct distribution of costs across different securities of the corporate event.

Reporting of Covered Securities: Firms need to report the cost basis of only the covered securities acquired on or after the effective date prescribed.

Complexities in the Maintenance of Cost Basis

Maintenance and reporting of cost basis for clients has been a challenging task for financial institutions owing to the complexities in handling different election methods and the exceptions. The degree of complexity increases with coverage of Debt Securities, Options and also to cover the Impact of corporate actions, wash sales and treatment of covered/non-covered securities.

Adjusting for corporate actions requires firms to maintain historic data of transactions of a security and every corporate event it has encountered. Further, the impact is complicated when percentage allocation of the cost needs to be performed on multiple base and outturn security lines. In many cases, the fair market value of the security is adjusted after the posting of transaction, which leads to reversals and retriggering of cost basis calculation.

Adjustment of Cost Basis for Fixed Income Securities: The Cost basis of the fixed income security needs to be adjusted by the Market Discount/

Premium that is paid over the life time till the maturity of the bond. Clients can choose between different amortization methods "Constant Yield" or "Straight line method" to adjust their cost basis. Further, the cost basis need to be adjusted accordingly for Original Issue Discount securities based on the OID price available.

Firms need to shore up their Position Keeping/Reporting systems to not only maintain tax lots for every transaction but also to maintain the cost basis due to the impact of different transactions mentioned above.

The Myriad ways of Calculating Capital Gains Tax

Capital gains tax is a tax on profit that an investor realizes when he or she sells the capital asset for a price that is higher than the purchase price. Capital gains are again classified as long term capital gains and short term capital gains based on the

By buying stock prior or immediately after a sale resulting into a loss, an investor can take undue advantage by converting a long-term loss into short-term loss or reduce tax burden of gains by showing such losses.

duration of holding the asset. Typically, the capital gains tax is levied on a net basis within an accounting year and also on realization basis.

It is important to understand how investors circumvent the applicability of capital gains tax in different scenarios across the globe.

Consider an example where ABC Corp whose stock price is USD10, issues a 1:1 bonus of the same stock. An investor 'A' who is holding 1,000 quantity of stock before the bonus at the cost basis of USD 8 each will now get 1,000 stock of ABC Corp as part of the bonus proceeds. Typically, post bonus the stock price corrects itself to the extent of the proportionate increase in equity, which in this case is 50%. Assuming the stock price post bonus is USD 5, the investor sells 1,000 quantities of stock and books a net Loss of USD 3000 (1000 * USD 8 minus 1000 * USD 5). This loss is then offset against the profit he would have booked on other stock transactions thus reducing his capital gains liability.

A similar strategy is adopted by savvy investors when there is stock or cash dividends (Dividend is tax free or taxed at a lower rate in many countries) announced by the company or the mutual fund, thereby reducing the capital gains tax liability for that reporting period.

To ensure that the Tax rules are fair and equitable, many tax authorities are now bringing in stricter norms to ensure that Cost basis are adjusted to reflect the Corporate Actions on the position.

Calculating Capital Gains for Securities

A study of Capital gains computation on Securities of G20 countries depicts that while the actual capital gains calculation

The impact is complicated when percentage allocation of the cost needs to be performed on multiple base and outturn security lines.

rules might be specific to a country, the inputs required are as below:

1. Cost basis of transactions including Trades/Corporate Actions
2. Resident of the tax country
3. Source of Income - Local and or Foreign
4. Gains from Stock listed on different exchanges (Different rates for Stocks listed on different exchanges.
5. Capital gains taxed on slab basis along with a possible exemption limit
6. Only some % of capital gains are taxed at the marginal tax rate
7. Capital Loss can be carried forward to 'x' number of years or indefinitely
8. Capital gains due to investment in certain types of account are exempt. Differential capital gains tax, if held in certain types of accounts
9. Holding basis - capital gains tax applicable to holdings after a specific date/after some period
10. Category of Investor (Substantial Shareholder or otherwise)
11. Asset Type: Equity, Fixed Income, Inflation indexed Bond, Options

12. Method of possession: Inheritance, Gift, market purchase, ESOP
13. Method of disposition: Sale to charity, gift to spouse, market sell, among others.
14. Disallowance to offset capital loss against gains in case of wash sale (similar type of sale)
15. Value of the transaction in a particular period
16. Type of the business of the Customer (Trading or Investment): A day trader might not be taxed capital gains while an investment might be subjected to capital gains tax.
17. Inflation rate in the country

Growing need for Automation

While only some of the above factors are applicable to capital gain calculation in one country, Cost Basis remains one of the mandatory ingredients in calculation of capital gains tax. It is also becoming increasingly evident that maintaining tax lots and Cost basis in traditional applications/small databases/macros and generating reports is not the effective way of processing as it may lead to inaccurate outputs. Further, cost basis information is seen to become an integral part of the brokerage house solution as all front-middle- & back-offices personnel would need timely and accurate information. Hence, there is a growing need to implement an Integrated Tax Lot Accounting and Cost Basis Reporting System.

Conclusion: Applicability of Tax Lots and Cost Basis Reporting across the Globe:

At present, the applicability of various tax lot methods, the amortization/accrual process and the Cost basis

reporting is not warranted by regulation in other countries except the USA. Typically, in other countries, the Weighted Average Cost method or FIFO is widely prevalent for ascertaining the capital gain or loss on securities transactions, both short and the long term. However, as economies grow and investments in securities increase, we will see some of the practices around cost basis in USA being implemented in other countries.

Move towards Transparent Reporting:

We can see more and more regulators pulling plugs to bring in amendments and ensure that capital gains calculations are fair, transparent and eliminate current scenarios where investors reduce their tax liability by following different practices. Countries are trying to enforce compliance with correct computation of

capital gains and adherence to accounting standards. The process of maintenance and reporting of tax lots/cost basis is been increasingly seen as a mandatory activity for a financial institution who is buying/maintaining positions on behalf of the client. While the ownership of filing the correct tax returns is still with the client, more regulators are expecting that brokers/custodians/asset managers also report the Cost basis of their clients to them.

Complex Application Landscape: The complexities in maintaining the correct Cost Basis for a gamut of instruments along with the impact of corporate actions on them necessarily mean that complex logic needs to be built on their record keeping systems to generate Cost Basis Reports. Although, majority

of countries follow the Weighted Average Cost Method or FIFO methods as default for recognizing Capital gains, the complexity increases if clients have an option to choose a method of tax lot recognition. Further, the enormous amount of data that is created on account of maintenance of tax lots demands big changes in the data storage requirements for financial institutions. Integration of cost basis system to other systems in the application landscape such as trading systems, asset servicing and tax reporting systems will be required. Firms who have a robust Tax Lot System which performs various kinds of cost basis adjustments with a high degree of accuracy and flexible enough to be a single source of cost basis information shall benefit by providing highly reliable and flexible service delivery to their clients.



Balasubramanian T
Senior Consultant
TCS Financial Solutions
TCS BaNCS



Pradeep Rao S
Consultant
TCS Financial Solutions
TCS BaNCS



SEI wanted to automate its wealth management value chain across 53 markets. They found a certain way.

SEI is a leading provider of global asset management and investment processing solutions for the institutional and personal wealth management business. They wanted to create a new technology platform supporting global wealth management outsourcing, capable of providing end-to-end investment and processing solutions. Tata Consultancy Services (TCS) implemented its Global Wealth Services and the Securities Processing solution from TCS BaNCS to provide scalable and efficient trade processing. As one of the world's leading financial technology providers, TCS enabled SEI to offer a comprehensive suite of wealth management products and services in 46 countries, across 33 currencies and, thereby, trade on 107 stock exchanges.

Visit www.tcs.com/bancs to learn more or write to us at tcs.bancs@tcs.com



IT Services
Business Solutions
Consulting

TATA CONSULTANCY SERVICES

Experience certainty.

TCS BaNCS

SEI New ways.
New answers.®

TATATATAT
ATATATAT



Custodians today seek a robust trade processing platform that is integrated with corporate actions and cash processing capabilities for real-time settlement. Add to this the ability to manage risk and compliance needs.

TCS BaNCS for Securities Processing manages high volumes of local and cross-border trades while supporting diverse and complex financial instruments. Central to our strategy is a collaborative approach involving customers, prospects, analysts and other industry players, who continually participate in the evolution of our platform. The result is an enriched solution, offering market-specific functionality and regulatory reporting compliance.



**We thank our customers
for this marvelous
endorsement.**

TCS BaNCS