Inherent Risks within the Global Custody Chain

February 2017

Abstract
In 1992, ISSA published a 'Report on Global Custody Risks' with an objective of improving the understanding of custody services, leading to a better appreciation of risks, and therefore an outcome where losses were minimized. This report remains a popular publication today.

Given this continued interest and the increased level of regulatory focus on asset protection, ISSA has decided to update the document. This new report is intended to elaborate further on the custody chain and to capture the key changes within the industry. Custody services have grown significantly in complexity and in size as financial markets themselves have grown. The document does not set out to be highly technical and granular, rather it has the objective of acting as an educational text, explaining in straightforward terms the key risks facing those that hold and service securities.

Target Audience
This document is intended to provide an introduction to the process and risks inherent in the custody value chain. Its objective is to be a comprehensive overview that is educational in nature and provides a good introduction of functions, the risks and the parties engaging in the custody value chain. It will be attractive to the following:

- Market intermediaries such as custodian banks, brokers, asset managers, issuers, market infrastructures and potentially industry associations and regulators.
- Those who are entering the industry and industry employees seeking to broaden their understanding of the securities service environment.

Acknowledgements
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Disclaimer
It is ISSA's intention that this report should be updated periodically. This document does not represent professional or legal advice and will be subject to changes in regulation, interpretation, or practice.

None of the products, services, practices or standards referenced or set out in this report are intended to be prescriptive for market participants. Therefore they should not be viewed as express or implied required market practice. Instead they are meant to be informative reference points which may help market participants manage the challenges in today's securities services environment.

Neither ISSA nor the members of ISSA's Working Group listed in chapter 12 of this report warrant the accuracy or completeness of the information or analysis contained in this report.

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1. Executive Summary

1.1 Introduction

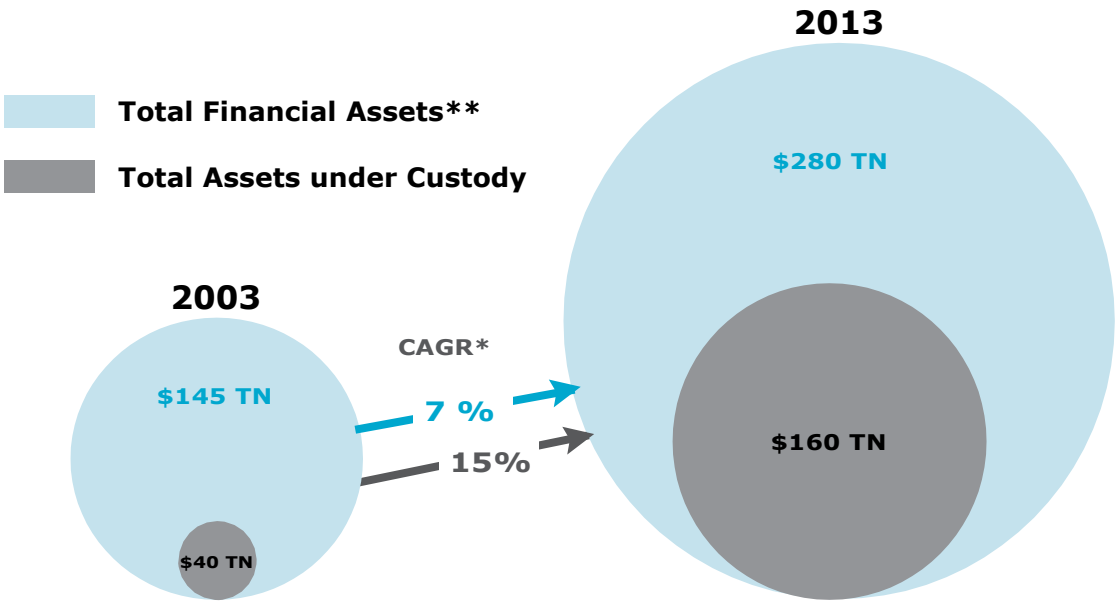
In 1992, responding to increasing cross border investment, ISSA organized a working group and published a 'Report on Global Custody Risks'. This was made available to industry participants with an objective of improving the understanding of custody services, leading to a better appreciation of risks, and therefore of outcomes where losses might be minimized. Over 20 years later this report remains a popular publication.

Given this continued interest and the increased level of regulatory focus on asset protection, ISSA believes that it is appropriate to update the document. The refreshed document is intended to elaborate further on the custody chain and to capture the key changes within the industry and with the macro and regulatory environment in which custody operates.

At its most basic, custody is a service consisting of safekeeping, holding and administering securities on behalf of third parties. Custodians providing this service will vary dependent on their business model and client base and can have a domestic, regional or global focus. This service has grown significantly in complexity and in size as financial markets themselves have grown in both size and complexity.

The following table depicts the growth of assets under custody from 2003 to 2013.

Total Financial Assets and Assets under Custody (AuC)



Source: Oliver Wyman's paper entitled 'Securities Services: The Good Times are over, it is time to act'

Source: Bank for International Settlements, The World Federation of Exchanges Limited, http://www.globalcustody.net, Oliver Wyman analysis

* Compound Annual Growth Rate

** Includes equity, bonds, securitized loans and listed derivatives

The structure of the document provides for a background to where custody services occur within the investment lifecycle. It explains the role of the actors within the custody chain before describing asset types and how these can be held. The document is then structured by the key risk types which are inherent within the service together with common approaches to risk mitigation. The nature of the custody service or chain gives rise to risks of an operational (service, regulatory, IT, asset protection) and credit nature whereas market risk (i.e. the risk of loss due to adverse investment valuation/price movements) does not manifest itself, other than as an impact associated with an operational risk.

While there are many ways in which asset owners/investors can hold assets, where portfolios are large or geographically or sectorally diverse, a common model is for asset owners/investors to appoint custodians as agent and therefore benefit from having a single entity point of contact and expertise rather than having to liaise with multiple sub-custodians, CSDs; tax agents; registrars etc. By appointing a specialist custodian, asset owners / investors can take advantage of this expertise and thereby ultimately reduce their custody risk.

This document does not cover Securities Lending, Collateral Management or Accounting Services.

A glossary of terms and definitions is provided in chapter 13 of the document.

It is recommended that the reader also refers to the ISSA Financial Crime Compliance Principles (FCCP). These principles aim to support the efforts of the global community of securities custodians and intermediaries to address the crticial challenges posed by financial crime. This document can be found on ISSA's website.

1.2 The Principles of Custody

To help provide context and aid understanding of the custody lifecycle, this section highlights the various functions and specialized services provided and the risks and challenges experienced by the various actors in the custody chain. Further detail is provided within the subsequent sections.

The essence of 'Custody' is the safekeeping and servicing of securities on behalf of investors. The following principles each operated in accordance with the relevant legal and operating standards, describe the framework within which this is done:

1.2.1 Safekeeping of Client/Investor Assets

The holding of securities owned by an investor is referred to as the Safekeeping of Client Assets. Assets are typically, although there are still exceptions, safekept in dematerialized electronic and demobilized format and are held in the issuing (I)CSD ((International)) Central Securities Depository) or where the securities are issued in physical paper format in a vault at the designated custodian / depository. This service maybe provided in a single or multiple markets. The assets will be held, serviced and monitored under the asset protection regimes of the initial contracting custodian's jurisdiction, the location of holding but also adhering to regional and global regulatory requirements.

The 'Custody chain' provides multiple layers of disintermediation between the issuer and the underlying investor i.e. the ultimate beneficial owner. Each layer constitutes a service provider whose services and risk profile will very much be dependent on the actor and their investor base.

1.2.2 Securities Transaction Processing and Settlement

The facilitation / enabling of the delivery and / or receipt of securities, most commonly against payment, in the designated securities system of the (I)CSDs is referred to throughout the securities industry as 'Securities Settlement'. The investor will most commonly submit their trade instructions, referred to as 'Settlement Instructions' to the global custodian and or sub-custodian. The sub-custodian will submit the instruction to the national infrastructure provider, often the (I)CSD.

This efficient movement of securities is often enabled by consolidated national infrastructure (Stock Exchange, CSDs, CCPs [Central Counterparties] and National Central Banks). At (I)CSD level the transfer of title and subsequent record of ownership occurs through the central settlement of securities.

1.2.3 Servicing of Client Assets

Commonly referred to as Asset Servicing, the servicing of client's assets typically includes:

- Asset ownership registration and recordkeeping
- Income processing (dividends and interest / redemptions)
- Corporate action (e.g. rights issues; stock splits etc)
- Tax services (tax withholding and reclamation)
- Proxy voting
- Client reporting (including statements / transaction reporting)

1.2.4 Conduct and Due Diligence

Due Diligence is core to the safe and efficient operating of the custody lifecycle. As such it underpins all of the principles from the outset and is fundamental for both investor and custodian transparency. For the custodian or CSD, due diligence ensures transparency and helps qualify the suitability of the underlying investor (the beneficial owner), their domicile and ownership (amongst other criteria) and aids the prevention of any undue exposure to political / sanction, credit and operational risks.

For the investor this process of due diligence on the custodian as service provider serves to promote investor protection by taking a number of steps to ensure that the products and services are transparent through the identification and mitigation of the associated risks. Criteria which must be fulfilled prior to entering into a relationship include the below:

- Suitability, Eligibility & Appropriateness Assessment: Is the product suitable for the investor?
- Know Your Client (KYC): Is the client suitable for the custodian?
- Legal Agreements: The mutual agreement
- Capital Adequacy Assessment

1.2.5 Reconciliation

Required at every stage of the custody lifecycle, reconciliation is a fundamental control and effectively serves as a 'hand-shake' between actors. Reconciliation will occur at multiple stages during the custody lifecycle pre and post settlement, including position and transaction level reconciliation.

Ultimately the sub- / local custodian will ensure that the assets under custody correspond to the national infrastructure / CSDs records as a standard base-line business operation. This will, in the first instance, be at position level for each security and then depending on the account structures applicable to particular holdings, at the beneficial owner investor level.

1.2.6 Banking Services

To provide cash accounts for deposits to support settlement and asset servicing activity. To facilitate the flow of cash and securities throughout the custody lifecycle the custodian may have to extend credit and provide intraday liquidity (cash and securities) to the investor.

1.2.7 Other Services

The investor may also require additional services such as securities financing and lending, collateral management, cash management (payment services) and foreign exchange. These services are typically offered from a menu of services by the custodian to the investor and will be priced accordingly. Typically, the custodian will also act as a transmittor of information, acting as an intermediary between the issuer and the beneficial owner of the security, advisor of regulatory change, market and industry information / disruption and other pertinent information

1.2.8 Technology, Solutions and Interfaces

The custody intermediaries often provide the technical access to the national infrastructure providers, including (I)CSDs and CCPs (and often also stock exchanges where execution services are offered). By connecting to a single custodian the investor will be able to reduce their system interface and development by leveraging the custodian's network and connectivity.

1.3 Key Risks

All actors within the custody chain are exposed to varying degrees of risk. Contractual protections usually exist to exclude or limit certain risks which are outside the control of custody service providers or beyond the respective entities' risk appetite.
Key risks include:

- Operational error
- Business interruption
- Fraud
- Embargo/sanctions
- Regulatory risk
- Legal ownership
- Geo-political / country risk
- Credit/Insolvency
- Counterparty risk
- Title transfer

1.3.1 Loss of Assets in Custody

A key risk within the custody chain is that of loss of assets whilst in safekeeping. This risk applies to all actors in the custody chain, and actors will be exposed to risks associated with parties upstream and downstream in the chain.
The following tables describe this risk at a summary level from the perspective of the key actors in the custody chain. The residual risk category highlights the risk that remains after risk mitigants have been deployed.

It is important to note that even after stringent risk mitigation practices have been deployed custody risk is not fully avoided. Absence of established and proven legal frameworks, country risk events (such as freezing of assets) and participant insolvency are amongst the risk factors that need to be considered in the asset manager / asset owner /investor and global custodian's risk appetite decision.

Asset Owner / Investor or Asset Manager Perspective

Risk	Mitigation	Residual Risk
Assets lost due to insolvency of participant within the custody chain	1. Selection of global custodian with consideration to robustness of control environment, financial strength, reputation, regulation and capabilities. Ongoing monitoring framework. 2. Global custodian network of sub-custodians has above attributes. 3. Global custodian ensures assets held in appropriate account structure and performs frequent reconciliation to ensure the assets remain present and are ringfenced from insolvency at all times.	Legal framework where assets are held may not have established clear and proven asset safety or insolvency remote structures.
Assets lost due to fraud event	1, 2, 3 above 4. Appropriate risk management through contractual arrangements.	Global custodian, sub-custodian or CSD is insolvent and assets cannot be claimed back. Global custodian, sub-custodian, CSD will not accept liability for a fraud risk event which occurs at the asset owner level and is outside their control.
Assets lost due to country event	1, 2, 3 above 4. Strong country risk analysis	Global custodian, sub-custodian, CSD will not accept liability for a country risk event which is outside their control.
Asset lost due to negligence/error	1,2, 3 above 4. Appropriate risk management through contractual arrangements.	Global custodian maynot accept liability for negligence of sub-custodian and would not accept liability for negligence of CSD

Global Custodian Perspective

Risk	Mitigation	Residual Risk
Assets lost due to insolvency event – Sub-custodian	1. Selection and ongoing monitoring of sub-custodian with financial strength, robustness of control environment, reputation, regulation and capabilities. 2. Reconciliation and validation process to ensure assets held in appropriate account structure to ensure ringfenced from insolvency at all times. 3. Strong risk identification & measurement practices to ensure appropriate capital held to protect against residual risks.	Where the global custodian acts as a depositary bank, strict liability for lost assets exists subject to certain external event provisions
Assets lost due to fraud event	1, 2 above Contractual arrangement with sub-custodian whereby sub-custodian is liable for fraud.	As above
Assets lost due to country event	Asset Owner / Asset Manager risk	
Asset lost due to negligence/ error	1,2, 3 above Contractual arrangement with sub-custodian for liability for negligent loss of assets	As above

Sub-Custodian Perspective

Risk	Mitigation	Residual Risk
Assets lost due to insolvency event – CSD/national infrastructure provider	1. Selection and ongoing monitoring of CSD. 2. Reconciliation and validation process to ensure assets held in appropriate account structure to ensure ringfenced from insolvency at all times. 3. Strong risk identification & measurement practices to ensure appropriate capital held to protect against residual risks.	Sub-custodian would not accept liability for CSD insolvency related losses.
Assets lost due to fraud event - CSD	1, 2 above Contractual arrangement with CSD whereby CSD is liable for their fraud.	As above
Assets lost due to country event	Asset Owner / Asset Manager risk	
Asset lost due to negligence/ error - CSD	1,2, 3 above Contractual arrangement with CSD for liability for negligent loss of assets	As above

CSD Perspective

Risk	Mitigation	Residual Risk
Assets lost due to insolvency event.	The CSD is the last link in the chain. In the event of an insolvency event of a party higher in the custody chain the CSD maybe exposed to non payment of fees or settlement obligations – however assets entrusted would be safekept	
Assets lost due to fraud event	Operational controls (segregation of duties; authentication; approval; reconciliations) within the CSD. Independent assurance testing (eg Audit)	
Assets lost due to country event	Asset Owner / Asset Manager risk	
Asset lost due to negligence/ error	Operational controls (segregation of duties; authentication; approval; reconciliations) within the CSD. Independent assurance testing (eg Audit)	

As securities infrastructures, CSDs operate in a highly regulated environment and are by design low risk institutions. They are subject to national laws on securities issuance, settlement and safekeeping, while being supervised by the relevant authorities, typically the securities or banking regulator, and subject to the oversight of the relevant central bank(s).

Notwithstanding this, CSDs are exposed to losses associated with their own errors / omissions, fraud and costs associated with business interruptions.

1.3.2 Other Risks

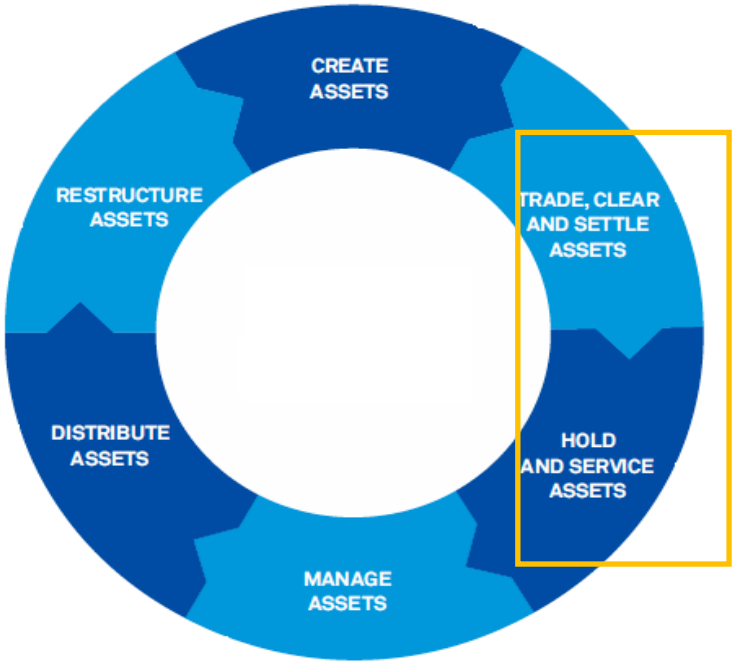
Further details of the risks present within the custody lifecycle are described in subsequent sections of this document, these risks being:

- Asset and Investor Protection
- Client Onboarding Risks
- Operational Risks associated with service delivery
- Credit Risks
- Liquidity Risks
- Information Security Risks
- Information Technology Risks
- Vendor and Outsourcing Risks
- Regulatory and Compliance Risks

2. Lifecycles

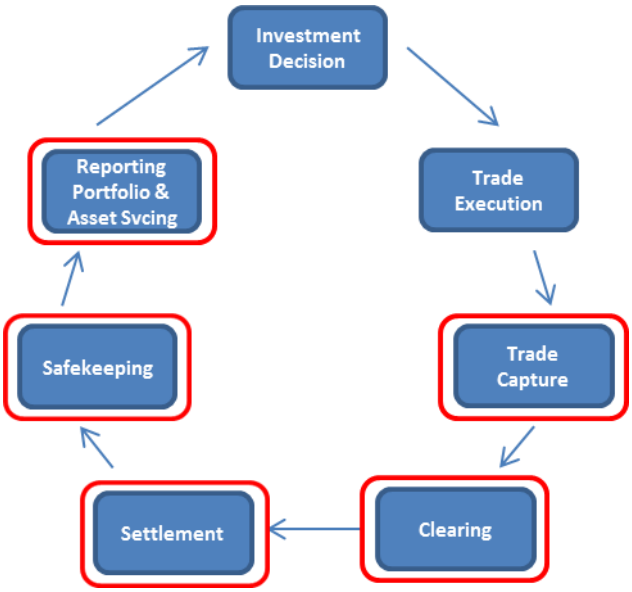
2.1 The Investment and Custody Lifecycle

The diagram below illustrates at a high level the investment lifecycle. This document will concentrate on the inherent risks within the custody chain in the post trade execution components of the lifecycle.



2.2 Custody Lifecycle – High Level Summary

The diagram below illustrates at a high level the post investment decision lifecycle which will be referred to throughout this document.



The components of the lifecycle displayed above form the key services performed by the custodian. These are described in a bilateral contract, the Global Custody Agreement, entered into between the custodian and its client.

There are critically important steps that need to be taken before a custodian can establish contractual relationships with clients that require a custodian to clearly conduct know your client (KYC) procedures to establish client identify and verify client authentication. In addition this requires custodians to fully understand what the client's intentions are and establish what is considered normal course of business. This process is discussed at length as part of the client onboarding process under chapter 4.

Following the establishment of a contractual relationship between a custodian and its clients and the set-up of accounts or portfolios on the custodian's records, the custody lifecycle begins (i.e. post the execution of a trade between two counterparties). From a practical perspective, an asset owner or asset manager (or, more likely, its agent or broker dealer) will send an instruction to the custodian with details of the trade in order to commence the clearing and settlement process. This will generally occur on (or close thereafter) the 'Trade Date' and will include details of the 'Settlement Date' and the 'Value Date'.

The custodian will facilitate the transfer of cash and securities which maybe through its direct connection with an (I)CSD or via a sub-custodian and cash correspondent bank. In the example of a purchase of securities, settlement is complete and final when (1) the assets are transferred within the CSD or recognized registrar in accordance with local settlement finality rules and also recorded as received into the account / holding record of the asset owner at the custodian, and (2) the cash account of the asset owner has been debited and funds remitted to the broker representing the seller of the securities. It is the simultaneous exchange of cash and securities that gives settlement finality.

From the point of settlement, securities held in custody are safekept and 'serviced' by the custodian, for example by processing any dividend payments received, facilitating withholding tax/tax reclamation, and handling corporate actions. The custodian will provide reporting to the asset owner and their asset manager on their holdings, and any ancillary services such as investment accounting or cash management will be performed. In addition to maintaining securities holding records, the custodian will often act as banker, opening cash accounts for the asset owner, where the asset owner is the cash account owner and obligor to any credit facilities offered by the custodian.

2.3 The Participants in the Custody Lifecycle

Custodian: A custodian is a financial institution which will be authorized and supervised by the financial services / bank prudential regulator in its jurisdiction of establishment. It is responsible for safeguarding the financial assets of an asset owner by holding the assets securely and to the extent possible within its control, protecting the assets from loss whilst in custody. It is furthermore responsible for processing and settling securities trades in all classes of financial instruments that are capable of being maintained in custody, and servicing the associated portfolios whilst they are held in custody.
A custodian can be considered a global custodian where its services extend beyond its and the client's base region and currency. This is often achieved through a network of relationships with sub-custodians and banks and with national and international CSDs. A custodian can either hold assets directly in the local market, if it has the infrastructure in place to do so, or appoint a local party to act as a sub-custodian.
The relationship between the custodian and the asset owner is governed by a custody agreement. This could be as simple as one bank appointing another bank as custodian in one country or as complex as multiple geographic fund managers on behalf of one plan sponsor providing master custody and valuation services. A custodian may interact directly

with the asset owner, or take instructions on the asset owner's behalf from an asset manager. A custodian's function and scope of service will depend on the clients and markets which it covers. These services are described in chapter 5.

In many ways the custodian can be considered as an information intermediary, communicating between issuers and securities holders. Custodians have typically invested in technology solutions to offer straight through processing capabilities, which bring economies of scale along with the benefit of lower error rates.

Given the above, the custodian has become a significant provider of services to asset owners, asset managers and investors. One of those many functions is securities clearing where the focus is on the capability of clearing securities via exchanges and effectively managing the clearing cycles. This function is a definitive service requiring substantial risk systems that is different to normal securities DVP / RVP settlement.

When choosing a custodian, various operating models should be considered. Certain custodians operate a model where the custodian contracts with multiple sub-custodians, benefitting from a diverse network, whereas others favour a local presence without the diversification and with greater concentration, although benefitting from in-house expertise.

Asset Owner / Investor: The asset owner / investor is generally the client of the custodian. They will be likely to be the beneficial owner of the assets held on their behalf by the custodian, and may also be referred to as the 'investor'. An asset owner may be an institutional investor, such as a pension fund, a sovereign fund, a hedge fund, a private equity fund or partnership, a bank (oftentimes holding assets for its underlying clients) or an insurance company. They may themselves be a financial institution but either do not have the capability to act as a custodian, or choose to obtain this function from an external provider. An asset owner may elect to appoint an asset manager, or take on that role itself. An asset owner will enter into a Global Custody Agreement (GCA) with its custodian and into an Investment Management Agreement (IMA) with its asset manager, if appointed.

Asset Manager: An asset manager acts on behalf of the asset owner and is appointed using an IMA or similar arrangement, which sets out the terms under which the asset manager is authorized to act on behalf of the asset owner to manage the assets referred to in the agreement. This will establish the extent to which the asset manager may act in a discretionary capacity to make investment decisions based on a prescribed strategy. An asset owner may appoint one or multiple asset managers depending on the assets under management and investment strategies. The asset manager(s) will interact with the global custodian on behalf of the asset owner, for example by transmitting settlement instructions, and receiving reports.

Sub-Custodian: A sub-custodian provides custody services with respect to securities traded in a particular market or jurisdiction, on behalf of a global custodian who may not have an operation in that jurisdiction. A sub-custodian may also be referred to as an 'agent bank', and its relationship with the global custodian will be governed by a 'sub-custody agreement'. In some instances, the sub-custodian will be part of the same parent group of the global custodian.

(International) Central Securities Depository: A CSD is an entity that provides securities accounts and, in many countries, operates a Securities Settlement System (SSS). A CSD also provides central safekeeping and asset services, which may include the administration of corporate actions and redemptions, and plays an important role in helping to ensure the integrity of securities issues. Securities can be held at the CSD either in physical (but immobilized) form or in dematerialized form (that is, as electronic records). The precise activities of a CSD vary based on its jurisdiction and market practices. A CSD, for example, may be the official securities registrar and maintain the

definitive record of legal ownership for a security, however, in some cases, another entity may serve as the official securities registrar. Further, the activities of a CSD may vary depending on whether it operates in a jurisdiction with a direct or indirect holding arrangement or a combination of both. A CSD should have clear and comprehensive rules and procedures to ensure that the securities it holds on behalf of its participants are appropriately accounted for on its books and protected from risks associated with the other services that the CSD may provide.

A domestic CSD primarily exists to serve a given domestic market.

An ICSD acts as primary place of deposit and issuance of international securities, but beyond serves to hold and settle all types of internationally traded financial instruments, with the ability to settle transactions cross-border and cross-currency. Usually settlement in an ICSD environment takes place in commercial bank money. ICSDs also provide a number of value-added services in the field of asset servicing and collateral management.

To hold securities in a given market or jurisdiction on behalf of asset owners, a custodian must hold an account at the (I)CSD. This is either held directly by the global custodian where it has the capability to do so, or on behalf of the global custodian by its appointed sub-custodian.

Investor CSD: A term used in the context of CSD links. An investor CSD – or a third party acting on behalf of the investor CSD – opens an account in another CSD (the Issuer CSD) so as to enable the cross-system settlement of securities transactions.

Issuer CSD: A CSD in which securities are issued. The Issuer CSD opens accounts allowing investors (in a direct holding system) and/or intermediaries (including Investor CSDs) to hold and settle these securities.

Financial Market Utility (FMU): A term defined in the US Dodd-Frank Act, and referred to by the Bank of International Settlements as Financial Market Infrastructures or 'FMIs', meaning the providers or operators of the necessary financial market infrastructure to transfer, clear or settle payments, securities or other transactions between financial institutions. As an intermediary, a custodian may access the FMUs directly through its own membership or indirectly through its sub-custodian network. Examples of FMUs are CSDs, CCPs and payment systems.

Cash Correspondent / Agent Bank: In order to perform the transfer of cash in a given currency, one must hold a cash account at the central bank for that currency. If a global custodian does not have direct cash clearing capabilities in a given currency, it will appoint a cash correspondent or agent bank to perform the transfer of funds on its behalf. This entity may be the same as the sub-custodian for that market, or separately appointed.

Central Counterparty Clearing House: A central counterparty (CCP), also called a clearing house, exists in some markets and acts as the central counterparty for all clearing members. The CCP replaces one party's contract with another party by novation to a contract with the clearing house. The CCP is responsible for clearing (post-trade and pre-settlement), defining net settlement obligation (where applicable) and assigning responsibility for undertaking settlement. Settlement occurs at the CSD following the clearing process at the CCP. In the event of a clearing member default, the CCP provides a full performance guarantee for all operations of the non-defaulting members by acting in the place of the defaulter The CCP protects itself by holding initial margin from both parties to ensure that downward changes in value are covered. It marks to market daily to ensure that both parties are able to fulfil their obligations. The CCP may hold securities as collateral and would therefore appoint a custodian to provide custody services.

Securities Broker or Prime Broker: Securities or prime brokers offer services to hedge funds and other professional investors including securities lending, leveraged trade execution and cash management. A prime broker may also hold assets in custody on behalf of its clients and act in the capacity of a sub-custodian. The broker may provide investors with access to trading platforms.

Central Bank: In certain countries, the central bank may act as or operate directly the national CSD for certain market segments (typically for government fixed income securities) and hold record of ownership for these securities. Settlement is then conducted in central bank money.

Exchanges/Trading Venues: Securities market places where investors can trade securities (ECNs Electronic Communication Networks, ATS Alternative Trading Systems).

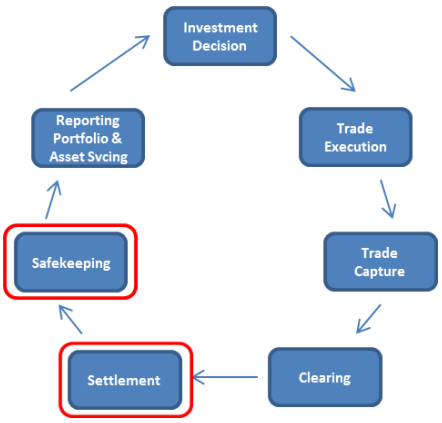
Transfer Agent: A transfer agent is a party appointed by a fund or an issuer of securities to issue and cancel certificates in physical or dematerialized form, to reflect changes in ownership of the securities of an entity, to act as an intermediary for the company and to handle interactions with asset owners, such as lost or stolen securities.

Registrar: Maintains a registry of the securities owners and number of securities held for a fund, bond or equity issuance, and ensures that not more securities are issued than have been authorized. Registrar and transfer agency functions are often provided by the same entity.

Regulators: Regulators govern the operation of the financial market for the jurisdiction for which they are responsible. Whilst the remit and scope of the regulator will vary from market to market, they often have a role to play in monitoring market conditions and stability and providing oversight. In some markets, the regulators play a direct role in the operation of market infrastructures (CCPs, CSDs) and central banks. Within the custody lifecycle, regulators set the rules by which market participants must operate, and may exercise their oversight responsibilities by, for example, taking feeds of data from CSDs and global custodians.

Depositary Bank: An entity appointed by a UCITS (Undertakings for the Collective Investment of Transferable Securities) or AIF (Alternative Investment Fund) to safekeep assets, monitor assets (including verification and recordkeeping), to ensure that all transactions (eg subscriptions, redemptions and cancellation of units, investment restriction compliance) are carried out in accordance with the law and fund documentation and that cash flow is monitored. The depositary bank has a strict restitution liability for lost assets subject to certain external event carve outs.

3. Asset and Investor Protection



3.1 How Assets are Held

3.1.1 Definition

The holding of client assets on behalf of the beneficial owner or intermediary in accordance with national, regional and international operating standards and laws. Ownership of assets is created through a series of contractual entitlements.

3.1.2 Introduction

Asset account structures vary throughout the custody chain and are governed by factors such as mandatory requirements within the market and commercial or business onboarding decisions.

The focus of this document is the holding structures for securities which are fungible, negotiable financial instruments that represent financial value.

The majority of assets held by a custodian are fungible i.e. the assets have the same attribute and characteristics and can therefore be mutually substituted but are not uniquely identifiable, whereas non fungible assets would be uniquely identifiable, for example an oil painting would be a non-fungible asset as its unique nature cannot be substituted.

The company or entity that issues the security is known as the issuer. For example, the issuer of a bond issue may be a municipal government.

In many markets, securities have been dematerialized (meaning held in electronic book entry form only) and immobilized (meaning the security can only be held in one location, a CSD). Dematerialization improves efficiency and control, with immobilization reducing the risk of settlement failure and fraud. In some markets, however, paper securities (certificated) referred to as 'physical securities' remain in circulation and are typically held in the vault of the sub-custodian. The asset types referred to throughout this section are as follows:

- Ordinary shares
- Global Depositary Receipts
- Hybrid securities (convertibles, warrants)
- Corporate bonds
- Government bonds
- Exchange Traded Funds (ETFs)
- Certificates of Deposit (CDs)
- Certificated Securities
- Fund units.

When investors purchase securities they become the beneficial owner. A beneficial owner has differing definitions according to local law, for example, a beneficial owner may be considered a party who has voting powers.
Registered securities: The ownership right / entitlement of the securities is maintained in the share or bond register of the issuer company. Depending on the market, registration can be undertaken at nominee or at final investor level.

Bearer Securities: There is no registration in the issuing company's books with the owner being whoever holds the bearer securities. Absence of a share or bond register increases the inherent risk of fraud with these asset types, with stringent securities safekeeping mitigants required. Most bearer securities represented by physical certificates are immobilized from issuance date with a (I)CSD and represented by book-entries on CSD participants' accounts, thereby reducing risk of fraud.

3.1.3 Securities Holding Structures

Account structures vary globally and throughout the custody chain. The variance is largely due to market practice / law, the commercial or operating preference of the intermediaries in the chain, the investor segment, the type of security or the domicility of the investor. There are multiple permutations. Regardless of the reasoning there are common account structures which are described below:

Account Type	Description	Threat to Asset Safety
Omnibus Client Segregation	Segregation of client assets from a custodian's proprietary	Risk of sub-custodian and counterparty default / insolvency. operational risk
Individual Client Segregation	Segregation of one sub-custodian's client's assets from another client. Maintained and in the name of either the sub-custodian or the client directly.	Client assets are ring-fenced and distinguishable at CSD level segregated from proprietary. It depends on the holding structure the A/C is held in, i.e. the name of the end beneficiary or e.g. global custodian.
End Investor Segregation	Segregation at beneficial owner level	Client assets are ring-fenced and distinguishable at CSD level, wholly segregated from proprietary and other client's assets at the global or sub custodian. Visible to creditors in event of sub-custodian default

3.1.3.1 Omnibus Account

An 'omnibus' account is an account opened in the name of the custodian either at depositary, sub-custodian or CSD level. As such, the positions held will belong to multiple investors of the custodian. Typically, the account owner (custodian) will be obliged to maintain accounts in its own books recording the individual ownership interest of each investor in respect of the securities held in the custodian's omnibus account.

Post financial crisis, additional KYC requirements and requirements of local tax authorities for custodians to provide beneficial owner tax information mean that even when omnibus accounts are permitted in the market, segregated sub-accounts may be required at beneficial ownership level at the custodian. In some jurisdictions, regulation may dictate that segregation is required at CSD level to segregate client assets from a custodian's proprietary assets.

3.1.3.2 Segregated Account

Beneficial Owner Account at the Sub-Custodian:
This account type constitutes the holding of securities in the beneficial owner's individual account at the sub-custodian. Although accounts are segregated within the books of the sub-custodian, segregation at beneficial owner level is not replicated or maintained at the CSD level where an omnibus account is still used (for example in the name of the sub-custodian). This omnibus account will however be segregated from the sub custodian's proprietary assets.
Designated Segregation – Beneficial Owner Name at the CSD:

Under this type of segregation securities are held in an individual account in the name of the beneficial owner in the books of the sub-custodian and the CSD. Some of the main benefits of this type of structure include increased asset ownership transparency throughout the chain, facilitation of tax processing and increased transparency for tax authorities, regulators and issuers.

(To be noted that whilst ongoing asset protection analysis continues, additional asset protection through account segregation is not yet conclusive)

3.1.3.3 Securities Account Structures Conclusion

The key purpose for the use of segregated accounts and omnibus accounts is to mitigate legal risk – i.e the risk that an end investor could lose securities or lose their right to the securities because an entity (such as an insolvency practitioner or court) does not recognize the rights of the end investor.

It could be considered therefore that if all relevant jurisdictions were to recognize that the assets held are the assets of a client and not the proprietary assets of any of the intermediaries in the custody chain then there would be no additional legal protection from the use of segregated accounts. However, in practice it is not that simple!

Different perspectives exist in respect to segregation and at the point of this document's publication much debate continues from a regulatory and industry perspective. Multiple and diverse market practice and laws exist which means there is no consistent global or indeed regional model. Until further legal guidelines or indeed revision of securities law exist, for example, through the Securities Law Legislation or until further reform and regulation is mandated, segregation is often seen in some jurisdictions and by certain actors to be a good approach to mitigate legal risk.

Recent papers published to provide further consideration of the issues associated with securities accounts structures include the ISSA Financial Crime Compliance Principles (which can be found on ISSA's website) and the AFME Principles of Asset Segregation, Due Diligence and Collateral Management.

3.1.4 Nominee Structure

A nominee is typically a company created for the purpose of holding securities on behalf of investors. It holds the securities on trust for one or more beneficial owners, and often only the nominee company is identified on the shareholder register. Custodians establish one or more nominee companies to hold securities for their custody clients. Essentially the use of nominee accounts provides the beneficial owner the opportunity to ease the operational burden of asset servicing. The use of the nominee will also result in less transparency of ownership, as well as shielding their identity from issuers, investors and other stakeholders.
Registering securities in the nominee's name segregates the security from the custodian's assets, thus reducing the risk linked to insolvency of the custodian, for example, a claim from the custodian's creditors. However, the nominee account is not recognized in many markets, thus the account holder is seen as the legal and beneficial owner of the securities held in the account.

Nominee features are as follows:

- A nominee may act for a single client. Single-client nominee accounts are common when a global account provider is not permitted, due to membership / equivalence rules applicable to the local CSD, to participate directly in the CSD.

- A nominee's duties and discretions will usually be limited compared to those of other account providers; i.e. where an omnibus account provider will be granted discretionary powers by its client, a nominee is likely to be permitted only to perform the tasks strictly necessary to maintain the client's holding of securities.

3.1.5 Account Operator Model

An investor can prescribe the services they require of a custodian but still have direct control of the account, which will be held at CSD level in the name of the beneficial owner or at ICSD level in the global custodian's name also. Local segregation may come with its own risks, e.g. direct exposure to local infrastructures (operational or not).

3.1.6 Cash Holding Structures

Custodians provide their clients with cash accounts in multiple currencies to support the movement, management and monitoring of cash positions associated with securities transactions. In order to do so, custodians may hold the currencies on their balance sheet ***'on book currencies'*** or where this is not possible (i.e. for restricted currencies) or not desirable (e.g. for improved cut-off times or deadlines in the market) the custodians will maintain the currencies outside of their books ***'off-book currencies'***.

- **On balance sheet/ On-book currencies:**
  The custodian will open and operate, in its books and records, a deposit account on behalf of the client who is thereby taking on the risk for possible insolvency loss of the deposit. In this example the client has credit counterparty risk to the custodian.

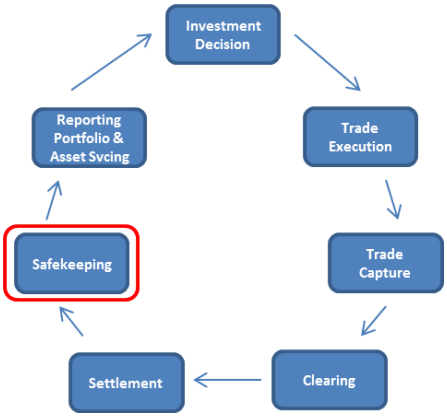
- **Off balance sheet - Off-book currencies:**
  The custodian will open cash accounts with a sub-custodian in the currency's local market on behalf of the client. The risk for insolvency loss of the deposit will be with the sub-custodian. In this example the client has credit counterparty risk to the sub-custodian.

Cash account structures may vary by market and currency. In on-book currencies either omnibus or segregated accounts may be possible, however, in markets where the currency is held as off-book segregated accounts may be the most common structure. The cash account structure could be also mandated by market requirements / regulations.

3.2 Asset and Investor Protection

3.2.1 Definition

The safekeeping of client assets on behalf of the beneficial owner or intermediary in accordance with national, regional, international asset safety / asset protection laws. This would include measures to mitigate against loss, concealment, fraudulent use or transfer of assets, insolvency, and breach of legal or regulatory requirements.



3.2.2 Introduction and Key Principles

The 2008 financial crisis and specifically the collapse of Lehman Brothers re-emphasized the rules for custody providers with an increase in regulatory attention associated with asset safety and enhanced investor protection throughout the custody chain. In its purest form, although assets are ultimately held at CSD level (often in omnibus accounts, which depending on the jurisdiction can be legally

owned by the custodian or nominee company) the beneficial (economic) owner will always be the end investor.

In many jurisdictions, regulation mandates that client assets will be subject to segregation in the books and records of the 'custodian'. The IOSCO 2014 paper providing recommendations regarding the protection of client assets sets out a number of key principles on this topic and includes:

- 'Proprietary Assets' held by the custodian are physically and legally separate from client assets and, in a default scenario, an administrator should be able to identify assets belonging to the client and that the sub-custodian is purely facilitating custody on behalf of the beneficial owner. The importance of precise account naming conventions is critical.
- The custodian should also be able to identify the amount, location, ownership status and identity of client assets at all times and without delay. Reconciliation processes must be in place to confirm this. In addition, prior consent from the client must be held for any use of client assets.
- The custodian should provide a statement to its clients on a regular basis and on request.
- The custodian must understand the implications of holding assets in a foreign regime and ensure clarity and transparency in the disclosure of relevant client asset protection regimes.

Whilst many of the key mitigants for asset protection are operated at the business onboarding stage, risks to asset safety and protection are present throughout the custody lifecycle. Measures to detect breaches or abnormalities are cross-lifecycle, with particular emphasis at the custody and reporting and portfolio servicing stages. This section aims to identify the key risks focussing on holding structures, mitigation and underlying and / or unresolved threats to the custody sector.

3.2.3 Threats to Investors and to Asset Safety

The table below describes 10 of the most prevalent risk types which most compromise asset safety. To help provide further detail the table below serves as a non-exhaustive illustration of some of the threats within these risk categories with suggested mitigation. Of course, it is each actor's responsibility to conduct their own comprehensive due diligence:

Risk Type	Threat	Mitigation
Fraud	➢ Fictitious trade bookings ➢ Fraudulent transaction; payment details / client static data ➢ Cyber-crime	➢ Robust risk framework / policy & procedures, including establishing expected ethical standards / code of conduct to set risk behaviours. ➢ Stringent authentication processes; client validation; segregation of duties and approval policies; daily reconciliation - exceptions escalation ➢ Senior management oversight ➢ Compliance and finance trade activity screening ➢ Robust information security practices

Risk Type	Threat	Mitigation
Insolvency	➢ Insolvency of custodian / sub-custodian results in asset owner / investor assets being lost ➢ Insolvency of client / asset owner. Custodian 'pays out' cash to fund a client's RVP generating an overdraft - the client defaults leaving the custodian bearing the overdraft ➢ Contagion of a globally significant actor's default ➢ Legal language in client agreement deviates from country's regulatory / legal framework	➢ Strong custodian / sub-custodian selection; asset ring-fencing and frequent reconciliation ➢ Credit rating, credit limits, credit control and monitoring together with contractual mitigants (lien and right of sale) ➢ Bank recovery & resolution provisions ➢ Robust business acceptance process
Operational Error	➢ Failure to process transactions in an accurate, comprehensive and timely manner ➢ Manual / non-STP process / incorrect static data ➢ Late client instructions / late release to the market ➢ Information security breach (data transmission error)	➢ Strong transaction checking and end to end comprehensiveness controls; reconciliations ➢ Policies / procedures / staff training / risk culture ➢ Client reporting / incentives to deter late & non-STP instructions ➢ Multi hierarchy input / approve / release controls ➢ Strong data dissemination checking
Embargo / Sanction	➢ Lack of transparency in securities holding chains hinders detection of sanctioned assets / investors ➢ Increased sanction enforcement by regulators ➢ Lack of transparency of regulators' expectation - no clear global principals for the custody industry ➢ Freezing of assets	➢ Enhanced KYC ('Look through' to end beneficiary) and ongoing performance / transaction monitoring ➢ Robust screening tools, escalation procedures ➢ Enhanced omnibus A/C suitability requirements ➢ Ensure legal documents cover liability
Evolving Regulatory Framework	➢ High volume and complexity of regulatory change ➢ Non-adherence: Reputational risk, implication to business model & ability to transact / other services ➢ Potential increase in costs / opportunity ➢ Implementation of regulations into local law will often vary from jurisdiction to jurisdiction	➢ Active engagement staying abreast of the regulatory agenda. Training and escalation protocol ➢ Thorough internal impact assessments ensuring timely deployment of any changes to achieve compliance (e.g. system, legal, risk framework)

Risk Type	Threat	Mitigation
Legal / Beneficial Ownership	➢ Blurred visibility of beneficial ownership due to intermediation transforming ownership interests ➢ A/C could be 'blocked' due to anti-disclosure rules ➢ Reduced transparency due to banking secrecy laws	➢ KYC / business onboarding due diligence ➢ Robust inventory management & custodian book keeping controls including stock record, reconciliation and client / trade reporting ➢ Provisions to manage disclosure
Political / Country Risk	➢ Introduction of embargo / sanctions limiting the movement of / access to assets ➢ Political unrest, war, acts of terrorism and their impact to liquidity, systems, stock exchange, central banks	➢ Focused internal groups monitoring political environment ➢ Contingency arrangements, proactive inventory management to hold transferable assets in a cross border location
Counterparty / Participant Risk	➢ Contagion risk of CSD participant, CCP participant defaulting to other CCP / CSD participants. ➢ Risk of NCM (non clearing member) in a GCM's (general clearing member's) omnibus account defaulting, increasing liability to fellow account participants ➢ Risk of investor defaulting leaving custodian exposed to e.g. overdraft / price risk of assets (lien)	➢ Thorough KYC / business onboarding ➢ Robust credit risk mgmt oversight ➢ Robust margin / collateral / funding controls ➢ Legal documentation providing protection for various risk counterparty / client scenarios ➢ CSD level investor segregation
Title Transfer	➢ Lending	➢ Ensure legal documentation covers title transfer appropriately
Market Risk	➢ Price fluctuation / volatility ➢ Market collapse	➢ Focused internal groups monitoring political environment ➢ Contingency / diversification arrangements, proactive inventory management to hold transferable assets in a cross border location

3.3 Investor Safety - Insolvency / Default

A critical factor in mitigating the risk of loss of assets due to an insolvency event is understanding the law governing the custody agreement and the current regulation in the country where the client activity is contracted.

Typically, securities held in custody on behalf of the investor are held off-balance sheet and should, in theory, be protected from the custodian's liquidation (provided appropriate account structures and account naming conventions are in place). However, 'protected' or

not, the ability for an investor to gain access to their assets will depend on their rights in respect of i) the law of the country where the assets are issued (the law of incorporation of the securities (governing law) ii) the country where they are held in custody and iii) the law of the local CSD. As previously mentioned the custodian will often seek the legal opinion of local counsel to understand the extent to which client assets are safeguarded from insolvency.

For example, Japanese securities held by a UK client under a UK custody agreement, will be subject to both UK bankruptcy law and Japanese law. If the combination of the two provides that the investor is recognized as the owner and that the custodian is an intermediate holding the assets for the investor, the investor's ownership of the securities is still recognized. If that is not the case, ownership rights and access to the securities will be dealt with through the relevant national bankruptcy process. This can result in the investor having a claim, but not necessarily the assets.

What is clear, however, for both permutations of insolvency / default is that it is each actor's responsibility to seek legal advice and have thorough knowledge of the rules, regulations and law governing the jurisdictions where business is transacted. Further without the knowledge and transparency of national insolvency laws the custody actors will be unable to identify where interoperability across markets / access into other markets could leave them legally exposed.

NOTE: Where client cash is held on the custodian's balance sheet, the client has taken a credit risk on the custodian and as a consequence the client cash is not protected from the custodian's liquidation, although the client would benefit from deposit guarantee schemes where in place. The client should therefore ensure that appropriate due diligence has been performed on the custodian. As previously described, there may be situations where the client cash is held in segregated cash accounts with the sub-custodian and the client may therefore have a credit risk with the sub-custodian.

Mitigation – Provisions and Controls to Achieve Asset & Investor Safety

Enhanced supervision is an overarching post-crisis regulatory mandate. There is intensive regulation of investment firms that hold and control client assets.

i) Asset Safety Laws

UCITS V / AIFMD / EMIR / CSDR / MiFID II / National regimes such as UK CASS / IOSCO

interoperability and equivalence arrangements ensure that protection levels in one jurisdiction are upheld in another to ensure that the transfer of ownership of securities cross border does not result in unintended consequences.

ii) Legal Agreements

As described in the section 'Client Onboarding'– legal agreements will be in place between the custodian and the investor providing a liability framework of what is permissible and what is not between both parties in accordance with the governing local law.

iii) Market / Industry Due Diligence

- Awareness of applicable market rules e.g. settlement finality
- Legal assessment of what parameters an actor is transacting within with regard to local, regional and international law. This includes establishing external legal opinions as to the extent of the local legal framework where assets are held with regard to achieving a robust ring-fenced insolvency remote asset holding structure and operating environment (see Appendix 7 for a recent Baker & McKenzie and Association of Global Custodian exercise in this regard). Questions to consider include:

- Access to books and records (any restrictions)
- Confirmation of appropriate country of law (considering branch vs subsidiary differences)
- Restrictions on the ability to recover securities assets and cash
- Any difference in recovering assets from segregated or omnibus accounts at the global custodian, sub-custodian and CSD level
- Specific account naming conventions in the jurisdiction
- Existence of a guaranty fund / insurance for insolvency in relation to cash
- Local procedure for recovery of assets
- Restrictions on preventing contractual indemnifications and enforceability of contracts
- Restrictions on charges, security interest or liens
- Recognition of nominee concept or construct where assets can be held on behalf of the actual owner

- Due diligence on supply network and market infrastructure
- Please refer to the chapter 'Client Onboarding'.

iv) Due Diligence

Fines and penalties associated with non-compliance of anti-money laundering and anti-financial crime rules have added risk to the holding of securities and increased the need for comprehensive initial and ongoing due diligence control provisions including sanction screening. In particular, enhanced KYC requirements are a mainstay in post-crisis regulation – refer to the chapter 'Client Onboarding'.

Beyond an investor's own due diligence of their custody provider, and further beyond a custody provider's own suitability and appropriateness assessment of their investor there are provisions to de-risk the financial system to promote investor protection:

- CCPs appoint (I)CSDs to hold collateral and margin
- ICSDs may appoint a local or sub-custodian to access a domestic market
- EMIR authorization of CCPs
- CSDR authorization of CSDs
- UCITS V and AIFMD enhanced due diligence appointing a depositary / sub-custodian.

3.4 Additional Risk Appetite Considerations

The financial services industry faces constant change and evolution. An investor should work within the boundaries of their risk appetite and should only enter into a market, product or service that they have appetite and experience for. Some areas for consideration should be:

i) Concentration Risk

Threat: Risk of sub-custodians having a monopoly on a market(s) and holding a significant percentage of assets in their omnibus account at the CSD. If they were to fail, how freely accessible will the investor's omnibus (and at global custodian level ICSD) assets be? This is market specific as each jurisdiction will have their own insolvency protocol and also their bank recovery and resolution provisions.

Mitigant: Due diligence in selecting an appropriate account structure, ensuring adequate legal language to afford protection in accordance with local, regional and international law and regulation.

ii) Outsourcing

Dependency on a 3rd party thereby relinquishing internal expertise, oversight and control. Dependency on SLA, indemnity and liability provisions.
Please refer to the chapters 'Client Onboarding and 'Vendor and Outsourcing Risk'.

iii) Lack of Regional and Global Regulatory and Legal Harmonization

Threat: i) Legal: Disparate legal regimes diminish investor protection when transacting cross-border
ii) Market Rules: Non-standardized adoption of the Settlement Finality Directive
iii) National level adoption of regulations – interpreted by national law

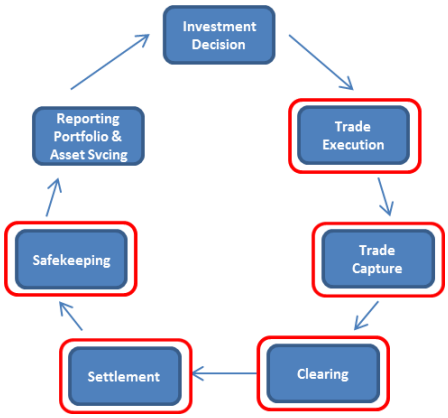
Mitigant: Harmonization would be a huge political, logistical and operational challenge. The only realistic mitigant would be a thorough legal assessment to be sure of the parameters relevant to the product, service and country.

iv) Strict Liability for Loss of Assets

Threat: Asset safety derived regulations have led custodians being burdened by increased levels of risk: Indemnification, liability provisions, penalties from holding sanctioned assets / assets for sanctioned beneficial owners not visible to the custodian due to the masking of omnibus account structures. Specifically, AIFMD and UCITS V place strict liability for the restitution of loss of assets of the depositary bank which often is the same legal entity as the custodian.

Mitigant: Selection of financially strong sub-custodians, contractual agreements that consider terms of regulation; robust control environment (correct account naming conventions, frequent reconciliations).

4. Client Onboarding



4.1 Definition

'Client selection criteria, clear articulation of the provider's responsibilities, liabilities, disclaimers and disclosures in the client contract; due diligence on client and appointed service providers.'

(*ISSA Report on 'Hidden Risks in the Securities Services Industry' of June 2012)*

4.2 Introduction

Post the financial crisis 'suitability & appropriateness' standards have been enhanced by a number of global and regional regulations to enhance investor protection and create a safer, harmonized securities market. At the forefront of these enhancements are measures to ensure that products and services are transparent and suitable for the investor and equally, that the investor itself is assessed for its suitability by the custody provider. This process is referred to as 'business onboarding risk'.

Business onboarding, often regarded as 'due diligence' is multi-faceted. A number of criteria must be fulfilled before a relationship is fully entered into in order to limit risk and exposure to the custodian and also the possibility of contagion in the investment lifecycle. They may include but are not be limited to:

- KYC 'Know Your Client'; KYP 'Know Your Provider'
- Product / Client Suitability & Appropriateness Assessment
- Operational Capability
- Capital Assessment; Credit Assessment
- Regulatory Considerations (eg UCITS / AIFMD / FATCA / VOLCKER / MiFID / DGSD)
- Legal Documentation (Global Custody Agreement tackling liability and securities interest)
- Country Addenda

All of the above will be assessed and agreed as part of a 'new business' approval process before business can commence between both parties.

4.3 Suitability, Eligibility & Appropriateness Assessment

Post-crisis regulations consistently demand improved transparency with new requirements mandating detailed information be sent to clients disclosing, for example, costs and charges which must be evidenced with full description.

1) Asset Owner / Investor View
When selecting and appointing a custodian the investor itself has the responsibility to conduct its own due diligence, often referred to as an 'RFP', and review the custody service provider, their structure, their management, their reporting / control capabilities and the supporting service offering. Such a thorough assessment, which will be conducted under an 'NDA' (Non-Disclosure Agreement) is essential to ensure that the delegated / nominated party has the capability to support their business.

Areas of focus might include, but will not be limited to:

- Capital (ICAAP, Basel Pillar 3 public disclosure) assessing sufficient financial strength to support the investor's business
- Regulatory and legal framework and enforceability of provisions in legal agreements
- Disclosure of annual results, accounts, audit reports, SAS70 and ISAE 3402 Control Reports
- Governance framework including management and board structure
- Risk management policy and control framework; disclosure of policies and procedures
- Historical performance and compliance with regulatory and best practice standards
- Contingency plans and recovery & resolution provisions
- Reputation including client base
- Operational and system capability vis à vis volumes and product complexity
- Account structure including conformance with any segregation requirements.

Any such requests from the investor are designed to give the investor a good insight into the quality and sustainability of the operations provided by the custodian, however, they might come with challenge. A custodian may not be willing to share certain non-public, proprietary information and hence a degree of tension may arise between what information an investor requests vs what a custodian is prepared to share. The investor does have, however, the responsibility to fully satisfy themselves, and in turn satisfy the service provider, that they understand the product(s) and the service the custodian is to perform. Whereas the custodian has the responsibility to ensure non-public information in respect of its operation and -of course- its other clients remain confidential.

2) Custodian View

i) Asset Owner / Investor

The custody provider must ask the potential client being the asset owner / investor to provide information regarding knowledge and experience in order to be able to assess whether the service or product is suitable for the client. In turn, the asset owner / investor needs to be able to demonstrate that they understand the service/ product and that it is appropriate for them. Although, as yet, the implications are not clear the natural impact will be reputational risk and the potential for operational risk (loss, errors, litigation and regulatory breaches). Areas of focus should include, but will not be limited to:

- Intended trading strategy including volume, client base, market, trade type, products
- Establishing whether the prospective client meets the standard service provided by the custodian
- The regulatory and legal framework e.g. country risk and enforceability of any provisions in legal agreements
- Any involvement in any breach of financial markets integrity, including market abuse, financial crime and money laundering activities
- Fit for purpose procedures and internal controls in accordance with prevailing regulatory and market standards
- Sufficient financial strength to support the proposed business, pre-fund and or obtain credit lines
- Collateral requirements
- Operational and system capability vis à vis volumes and product complexity
- Operational resources including technological interfaces/connectivity
- Payment systems and arrangements that enable clients to effect timely transfer of assets/cash (as margin) required
- Systems and/or access to information that helps clients to respect any maximum trading limit
- Internal risk control systems
- Reputation including client base

- Historical performance and compliance with regulatory and best practice standards
- Contingency plans and recovery & resolution provisions

The purpose of performing due diligence, in addition to meeting KYC and AML regulatory requirements, is to assess the quality and nature of the risks associated with the investor and any supporting party it appoints who will also interact with the custodian. The move to 'unbundle services' e.g. to separate core services such as settlement and safekeeping from value add services such as FX, cash management and stock lending can allow for more prudent client evaluation. Further, such due diligence may also lead to a drafting of a Service Level Definition (SLD) document and / or accompanying Service Level Agreement (SLA).

ii) CSD

In Europe, T2S provides the custodian the ability to access a market via an Investor CSD thereby opening up the European markets to alternative routes of access. As such CSDs are now essentially competing for business. A custodian needs to exercise sound judgement at what CSD they should look to use and should consider the following:

- Governance structure
- Entry criteria and how it translates in to risk profile
- Business continuity provisions
- Key participants and how they translate into the risk profile
- Capital
- Investments
- Service model and its correlation to CRD IV
- Recovery & resolution provisions
- Quality of ancillary services e.g. tax, asset servicing
- Messaging and technical requirements / compatibility
- Settlement finality model
- Risk management model
- Authorization of the CSD under CSDR (Q2 2018 approx)
- 3rd Country recognition of the CSD under CSDR (Q2 2018 approx).

iii) CCPs

A custodian's selection of a CCP when acting as a GCM will be similarly thorough to assessing the merits of CSDs and indeed investors. Again, due to competition, the custodian has the responsibility to select a CCP which best meets its risk appetite and may want to take into consideration the following:

- The use of collateral and default fund contributions including the liquidation of positions and collateral and the extent to which collateral is protected against third party claims
- Any interopability arrangements and how they are risk managed
- The levels of protection and the costs associated with the different levels of segregation
- Governance structure
- Entry criteria and how they translate into risk profile
- Business continuity provisions
- Key participants and how they translate into the risk profile e.g. impact to default fund
- Capital
- Investments and financial obligations
- Messaging and technical requirements / compatibility
- Recovery & resolution provisions
- Risk management model including initial / variation margin calculation and default fund provisions

- Authorization of the CCP under EMIR
- Third country recognition of the CCP under EMIR.

4.4 Know Your Customer (KYC)

KYC is a common and prevailing area of focus for the global regulators. Indeed, KYC comes in many shapes or forms and has many aspects to consider. The risk of fines for AML failure compounds the pressure to ensure that KYC processes in initial and ongoing client evaluation is watertight.

i) Entry criteria, may consider but will not be limited to:

- Type of institution: Broker dealer / hedgefund / investment firm, etc.
- Credit strength
- PEPs (politically exposed person(s))
- Embargo list
- Management structure
- Client's country of domicile and any country specific KYC requirements (E.G FATCA / VOLCKER)
- Any restrictions in the intended market of business
- Operating Model:
  - Client suitability vs custodian's standard operating model
  - Credit requirements and liquidity requirements to support client's business
  - Review client's existing trade flow, clients and volumes
- Contractual expectations of the client (consideration of exclusions to standard legal terminology and protection clauses vs risk appetite)
- The risk vs return the client presents (margin and growth vs risk appetite).

The client 'type', for example: Broker dealer, hedge fund, global custodian, depositary, financial institution etc, their domicile, their credit rating, amongst other factors, will drive the frequency of the KYC review and will vary from custodian to custodian.

The outcome will be knowledge of the proposed investor, their internal capability and whether their profile matches the products and services requested.

ii) Additional measures - enhanced KYC – 'know your client's client'

Increased attention and focus on sanctions enforcement and counter-terrorism measures necessitate increased due diligence. The lack of transparency in securities holding chains have led regulators to adopt new standards especially relevant to omnibus accounts which obscure the beneficial ownership of sanctioned parties through its 'layers'. Custodians need to ensure that their KYC and suitability & appropriateness assessments delve into the prospective investor's client base and, as a minimum, they should have a control suite to manage and / or consider the following for AFC / AML due diligence on an ongoing basis:

➢ Embargo Screening	To ensure that assets owned, controlled and intermediated by sanctioned parties are prevented; screening should be at holding and at instruction level
➢ Omnibus A/Cs	How many layers in the Omnibus chain? Measures to look through to the end beneficiary including any additional suitability and appropriateness criteria which may be specific to an institution. (Please also refer to Appendix 4 on Account Structures)

➢ Messaging	Only accepting instructions via standard media (e.g. Swift). Also considering the industry's drive for transparency of the beneficial owner through global LEI and KYC repositories (market dependency)
➢ Activity Monitoring	Controls to identify: o Instructions received with off-market price o Instructions resulting in a position being closely held o Significant activity in low priced stocks o Short selling o Short entitlements over compensation dates
➢ Regulatory Standards	Understanding / glossary of each regulator's standards and expectations of sanction enforcement
➢ Legal Language	Custody agreements with a provision for the custodian's policy and practice for the identification, escalation and management of sanctioned assets

Refer to the ISSA Paper 'Financial Crime Compliance Principles' which covers conduct risks in general providing guidance on controlling transparency of ownership.

iii) Ongoing Client Performance

A custodian will need a robust control suite to monitor a client's performance and have the ability to freeze / limit activity should the client show signs of difficulty or inefficient behaviour or deterioration in their credit worthiness.

4.5 Legal Agreements (Including Liability Provisions)

Contractual agreements need to be in place clearly defining the parameters of the services offered and the expectations of each party. Such agreements are often referred to as Global Custody Agreements and are to the most part largely standard and may be supplemented by Market Addenda which further fulfil operating, legal and market practices of any given market e.g. settlement finality and insolvency definitions. They may also be further supplemented by a service level description or similar document.

The custodian and investor may require the provision of certain protection clauses which would be inserted in accordance with local law and subject to the custodian's risk appetite with the mutual agreement of the relevant actors. Indemnity provisions such as those required under UCITS V and AIFMD will need to be considered and included in legal language to ensure regulatory conformance and transparency and definition of liability.

It is vital in agreeing legal language that fair consideration is required as to where liability should lie. Where is it suitable and appropriate for a risk to sit? A custodian should not be expected to bear all risks and losses and as such clear definitions of liability are required, for example - liability for the actions of third parties (third party choice maybe limited by the investment choice of the asset owner rather than driven by the custodian); types of loss – direct vs indirect (for example loss of connectivity, Act of God).
As custodians are generally banking entities, capital adequacy assessment (and cost of capital) form part of the risk appetite and risk acceptance decision particularly in relation to liabilities and indemnities. Custodians must perform impact / probability assessments vs revenue reward to influence risk acceptance or rejection decisions.

In their 2013-2014 Depository Information Gathering exercise the Association of Global Custodians (AGC) with assistance from Baker McKenzie LLP conducted a detailed legal

questionnaire to assist global custodians in meeting the ongoing monitoring obligations. Although the questionnaire was devised to help global custodians achieve compliance with the SEC Rule 17f-7, the questionnaire was global in reach. See section 3.3. 'Investor Safety – Insolvency/Default; Market/Industry Due Diligence' and Appendix 7 which cover this subject.

4.6 Capital Adequacy Assessment

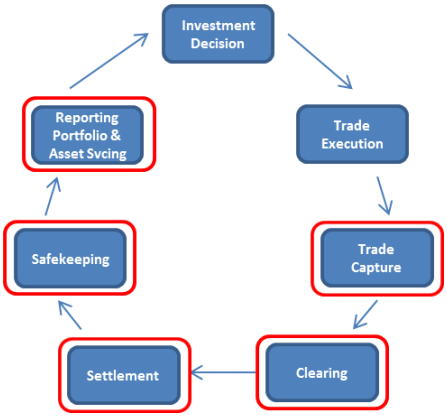
The onboarding party must assess the risk of each new piece of business and understand whether the onboarding legal entity has sufficient capital for these risks. Factors for consideration include the extent to which cash will be required to be deposited or withdrawn from the bank's balance sheet and an assessment of the implications on capital usage, together with an assessment of the operational risks. Operational risk capital is often determined based on a factor of the revenue received for providing the service or by modelling relevant external losses, internal losses and conducting risk based scenario analysis.

Large custodian banks have often been designated as globally systemically important financial institutions (G-SIFIs) and as a consequence have greater regulatory requirements to hold capital and to have effective recovery and resolution plans.

4.7 Business Acceptance Process

Following the comprehensive due diligence detailed in this section a custodian and indeed the investor also, will typically have a decision making procedure in accordance with its governance framework. This may be referred to as 'business acceptance' or 'new client approval' and may consist of pertinent information being presented to various committees for approval. Such committees should be formed by a balance of suitably senior and experienced representatives across various divisions such as: Risk management, operations, compliance, business and finance who will ensure that decisions are made fairly and without prejudice and together with the appropriate legal entity approval. In the event that a decision cannot be met exceptions might go to a more senior committee to achieve a decision. A specific deal approval process may also be practiced to review new business at an early stage.

5. Operational Risk Associated with Service Delivery



5.1 Definition

The operational risk presented to the investor when consuming the services of an intermediary and the risk assumed by the custodian when performing services on behalf of the investor. Operational risk is defined within the Basel Capital Accord as the risk of loss resulting from inadequate or failed internal processes, people and systems or from external events.

5.2 Introduction

As previously alluded to custody services expose the custodian to operational and credit risks. The services provided by the custodian are described in section 1. This section summarizes the key operational risks associated with the core services provided.

Operational risk is defined within the Basel Capital Accord as the risk of loss from inadequate or failed internal processes, people, systems or from external events. It also includes the risk of failure to comply with applicable regulations, contractual agreements and firm policies.

Operational risks are categorized in the following loss types:

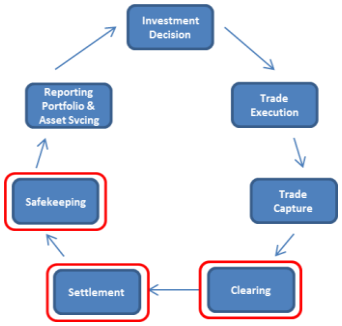
- **Execution Delivery and Process Management**: Processing errors and omissions would fall in this category. Given the high volume nature of the service together with the significant size of holdings and trades serviced, the risk profile of the custodian would typically expect to record a higher volume of operational risk events under this category than other categories below.
- **Internal and External Fraud:** Misappropriation of client securities or cash would be examples. Whilst the likelihood of these risks materialising is not as significant as above, the potential value given the value of assets held can be very significant.
- **Clients, Products and Business Practices**: Failure to follow KYC/OFAC requirements or adhere to regulation are included. Recent fines and sanctions imposed on banks for compliance failures have been very severe and this is therefore a very significant risk for the custodian.
- **Business Disruption and Systems Failure**: Unforeseen technology outages, premises unavailability or even loss of life are examples. High volume processing requirements across multiple intraday deadlines could also mean that this risk type becomes a critical exposure.
- **Damage to Physical Assets**: Damage to buildings and hardware due to events such as natural disasters or terrorist activity.
- **Employee Practice and Workplace Safety**: Loss to the firm, generally related to employee suits.

Clients of custodians are exposed to the risk of loss or delay arising from operational errors of their custodian, resulting from, for example, inadequate internal processes, human error and system failure. An operational error such as a failure to make a payment or accurately process a corporate action may leave the client at risk of losing part or all of the value of an investment, and the client may look to claim this back from the custodian. As such, the

contractual provisions between a client and its custodian related to breach of contract and negligence are important in mitigating the risk to the client of being unable to recover its losses. It is important to note that these risks are not unique to custody relationships. They are risks that are inherent in using any service provider for holding assets and handling transactions, or performing these activities inhouse.

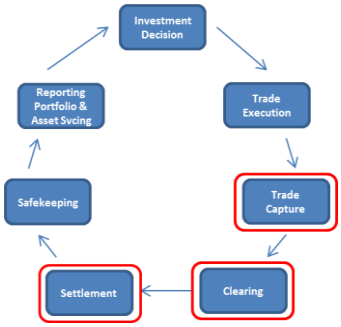
5.3 Securities Safekeeping

The custodian must ensure that assets are held in appropriate account structures to ensure maximum protection from the insolvency of the parties that have a controlling ability.



Risk	Mitigation
Failure to protect client assets from insolvency	➢ Robust selection and monitoring of sub-custodians and understanding of CSD account structures ➢ Ongoing review and assessment of insolvency protection related legal opinions ➢ Appropriate account titling, naming and registration ➢ Frequent reconciliation of assets held at sub-custodian / CSD vs custodian's own books and records
Failure to protect client assets from fraudulent misappropriation	➢ Establish appropriate authorized access; instruction lists ➢ Maintain robust system and physical access control (role based privileges; strong ongoing validation) ➢ Frequent reconciliation of assets held at sub-custodian / CSD / registrar records (for physical securities) vs custodian's own books and records
Failure to protect client assets from erroneous delivery	➢ Establish appropriate authorized access; instruction lists ➢ Establish automated operating model minimising opportunity for human error ➢ Establish system enforced dual controls conducted by trained and capable staff members ➢ Maintain robust system and physical access control (role based privileges; strong ongoing validation) ➢ Frequent reconciliation of assets at sub-custodian / CSD vs custodian's own books and records ➢ Frequent statement generation to clients
Failure to protect physical assets	➢ Ensure physical securities are registered where possible ➢ Ensure vault / secure room appropriately secure, fire / water protected for value / nature of assets held

5.4 Trade Capture, Clearing and Settlement



In the event a trade fails to settle the client may face a claim from the counterparty. Dependent on the market a failed trade could be bought in leading to exposure to the market. Certain markets have also introduced settlement disciplines with settlement fines to encourage robust behaviour.

Trade settlement can be considered 'on exchange' or 'off exchange'.

On exchange settlement benefits from the supervision and rules of the exchange and market transparency and is often supported by settlement in conjunction with a CCP that steps in to take ownership of the trade from the buyer/ seller. The exchange sends all orders for verification to the customer via a clearing member - normally a clearing custodian bank. The clearing member is obliged to settle all trades at the end of each day on a net basis with the CCP and supports this obligation with appropriate levels of eligible collateral. This gives greater security to final settlement. Trading members who are not clearing members need to find a third party clearing service provider. Third party clearing organizations (custodians) must clear all on exchange trades of their trading clients and will ask for suitable collateral from their clients to support their settlement obligations.

Off exchange trade settlement takes place away from the stock exchange. It will normally take place between two custodians using their accounts at the CSD or ICSD on a delivery versus payment (DVP) or receipt versus payment (RVP) basis. This can be facilitated with the help of a CCP but will normally always be trade for trade settlement without netting. Each trade settles for cash in cycles throughout the day. Where cash or securities are not available in the account settlement will fail.

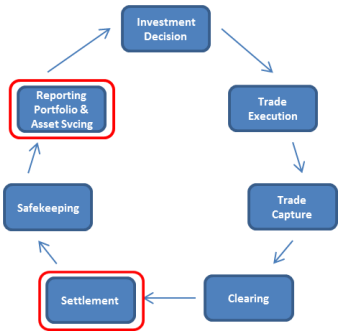
Some instruments do not lend themselves from a credit perspective to on exchange clearing and therefore are settled off exchange. Illiquid stocks or those hard to value transactions and some securities that are issues specific may not be eligible due to their perceived market liquidity should a trade failure take place.

Free of Payment - The most risk-intensive settlement is when securities are delivered to a counterparty 'free of payment'. This is a transfer of title without consideration. This type of settlement is kept to a minimum for obvious reasons but may be deployed in the issuance of new securities where payment takes place before delivery or when an account transfer from one provider to another needs to be executed. Extra caution needs to be exercised as any incorrect delivery may be hard to recover and will create full liability should the transaction be invalid. A delivery free of payment carries inherently higher risk of fraud as no value is exchanged in return.

Risk	Mitigation
Failure to capture / authenticate trade details accurately	➢ Establish system controls that can uniquely identify the origination of the client instruction to the client ➢ Establish system controls to uniquely validate the correct client account ➢ High risk media such as fax, e-mail need special care and dual processing to validate client authenticity through call back

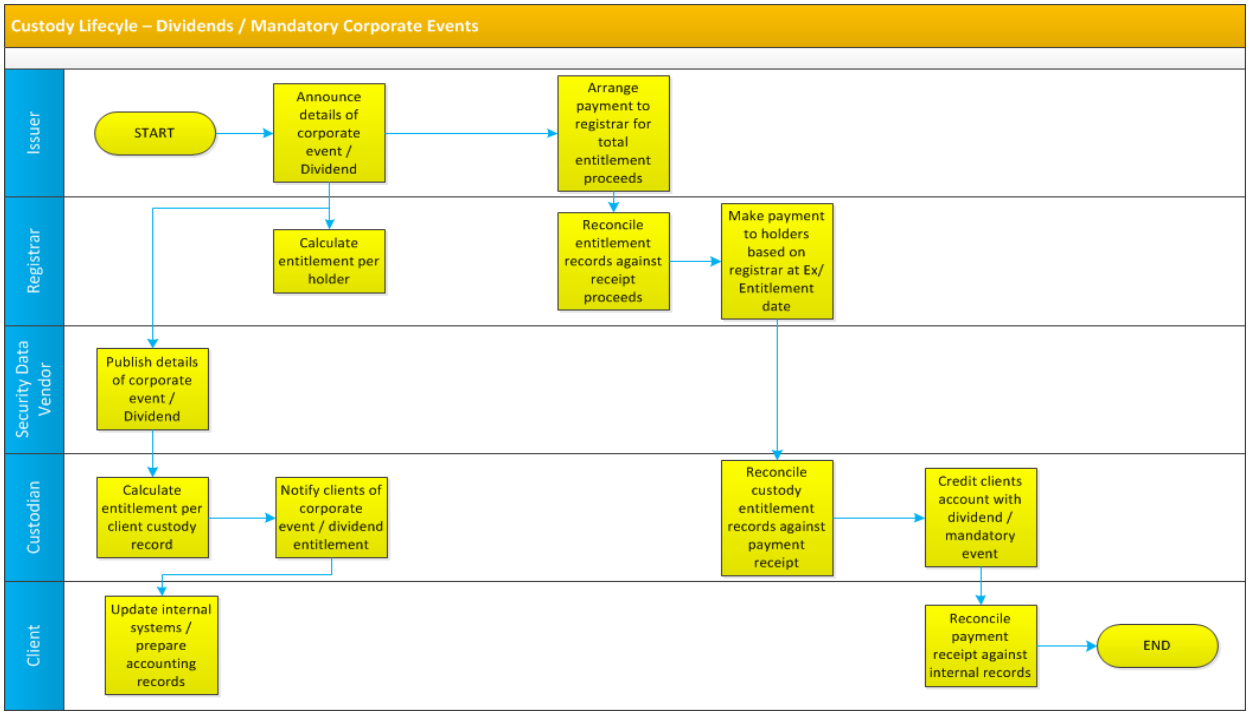
Risk	Mitigation
Failure to apply appropriate settlement details	➢ Establish system controls to validate content and ensure instruction is complete ➢ Establish standing instructions file to ensure consistent delivery data
Failure to check trade for securities availability	➢ Establish check on Securities Movement and Control System (SMAC) for availability of securities ➢ Securities for delivery need to be available on an actual basis (not contractually) ➢ Periodic automated reconciliation of positions with the actual depository / CSD
Failure to check trade for cash availability	➢ Establish check on cash account or client general ledger for availability of cash ➢ Cash for receipt of securities needs to be available in the account and not shown as contractual ➢ Periodic automated reconciliation of cash positions against the agent nostro bank
Failure to instruct the sub-custodian / CSD	➢ Establish robust end to end completeness review controls ➢ Automated end to end process from client through custodian to the sub-custodian ultimately minimizes risk
Failure to monitor for trade matching (where applicable)	➢ Establish automated trade matching capability ➢ Where trades fail to pre-match contact settlement parties to establish reasons for failed pre match ➢ Accept new instructions where appropriate to achieve matched status ➢ Report matching status to end client ➢ Establish frequent automated matching status to ensure complete oversight
Failure to monitor for trade settlement	➢ Establish automated trade monitoring capability ➢ Where settlement fail to pre-match contact settlement parties to establish reasons for failed pre match ➢ Accept new instructions where appropriate to achieve matched status ➢ Report matching status to end client ➢ Establish frequent automated matching status to ensure complete oversight
Failure to settle transactions in a timely manner, including cross-border transactions	➢ Establish automated trade monitoring capability ➢ Use standing instructions and structured messaging formats for complex instructions
Failure to prevent buy-ins	➢ Ensure timely settlement of transactions ➢ Regular reporting of short deliveries ➢ Robust understanding and communication of buy-in markets / timeframes / penalties ➢ Effective monitoring / reporting of trades at-risk of buy-in with timely delivery of buy-in notifications
Failure to prevent machting / settlement fines / penalties	➢ Understanding of fine regime in each market / security type ➢ Effective monitoring / reporting of potential / breached limits

5.5 Corporate Actions



A corporate action is an event initiated by the issuer of a security, giving rise to a right in favour of the investor. For the global custodian, the corporate action servicing of the clients' assets is often considered one of the highest risk processes from the perspective of the opportunity for error and the impact of the error given the market price differential often seen with corporate action events. As a consequence, the operating model is often designed to ensure that automation and straight-through processing exists to reduce the risk of mis-interpretation and failure to meet timelines.

Corporate actions may be mandatory (e.g. such as stock splits, merger and acquisitions, cash dividends) or voluntary (e.g. tender offers, rights offers, buy-backs). For a mandatory corporate action, the shareholder / bondholder does not have to take any action, and has no choice whether to participate when the issuer initiates the event. Voluntary events are exercised at the discretion of the shareholder / bondholder who has the option to elect their choice by sending an instruction, or to take no action, which will leave their securities unaffected. Mandatory events with options are also possible, whereby there are choices for the investor to make by sending an instruction, but there may be a default option that will be applied if no choice is made. The custodian is exposed to increased operational risk where an instruction is required from the client. The following diagram illustrates the relationships and transaction flows between the participants in the custody chain in respect of dividend/mandatory corporate events:



Risk	Mitigation
Failure to identify corporate action	➢ Trusted source and feed of information from independent sources to enable comparison. ➢ Custodian to ensure SLA with sub-custodian sets out requirements
Failure to notify client of corporate action	➢ Operating model designed to auto notify holders ➢ Control points to identify notification failures ➢ STP model to aid timely and accurate notifications ➢ Client obligation to support STP model
Failure to take action on voluntary event	➢ Operating model designed to receive client responses through automated and STP means; maker / checker controls ➢ Confirmation messages and chaser / uninstructed follow up process back to client ➢ Client obligation to follow operating model and use electronic messaging to support STP and to review and respond to confirmations / chaser where appropriate.
Failure to apply client requirements to client entitlements	➢ Operating model designed to ensure client entitlements to corporate action options are auto calculated considering availability of position and ensure position protected. ➢ Reconciliation of securities or cash position received from sub-custodian / depository to custodian's books and records.
Failure to apply Standing Instructions to client entitlements	➢ Ensure robust process for storing and applying client standing instructions (SI's) ➢ Ensure reporting to clients as SI's to entitlements
Failure to act on instructions received after custodian cut off, before market cut off	➢ Ensure custodial agreements clearly outline impact of instructing late

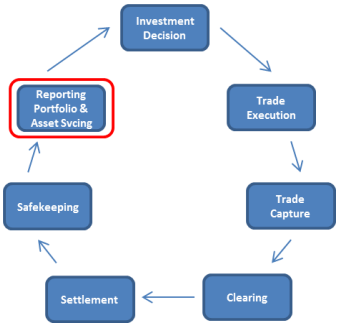
Further services which can be broadly categorized as corporate actions are proxy voting and class actions.

Proxy voting service is essentially providing asset owners with notification of situations advised by the asset issuer whereby the asset owner is requested to vote. The custodian and/or their agent will ensure that the asset owner's voting intentions are advised as required.

Class action service includes collecting proceeds of specific class actions and remitting these to the asset owner. As the results of class actions can oftentimes take a prolonged period to finalize, it is important for both asset owner and custodian to have robust sustainable records of the asset owner's pay-away details, with the asset owner ensuring that these are kept up to date as there is a likelihood that these will change over the often extended period it takes for the class action to settle.

5.6 Income Processing

Similar to corporate action processing, notification of income events and reconciliation of entitlements is key.



Risk	Mitigation
Failure to identify income event and details	➢ Trusted source and feed of information from independent sources to enable comparison. ➢ Custodian to ensure SLA with sub-custodian sets out requirements
Failure to apply income to client entitlements	➢ Operating model designed to ensure client entitlements are auto calculated considering availability of position and ensure position protected ➢ Reconciliation of cash position received from sub-custodian / depository to custodian's books and records
Failure to apply FX in an accurate and timely manner per client's requirements	➢ Automated tracking / booking of client FX requirements
Failure to track events after announcement, missing changes to terms (eg cash div to cash div with options)	➢ Trusted source and feed of information
Failure to apply standing instructions to client entitlements	➢ Ensure robust process for storing and applying client standing instructions (SI's) ➢ Ensure reporting to clients as SI's to entitlements

5.7 Foreign Exchange

A further service provided by the custodian is the provision of currency exchange often to repatriate foreign currency proceeds (in relation to receipt of proceeds from the sale of securities, maturing redemption, income / dividend and tax reclaim) to the client's base currency.

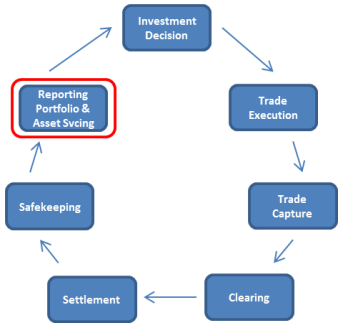
From an asset owner / manager perspective disclosure of FX pricing methods from its FX provider is important as are clear and timely instructions. From a custody provider view accurate and timely processing is assisted by straight through processes and standing instructions.

Ability to FX currency can be restricted (currency controls) based on market rules and on occasion as a result of governmental actions. The custodian's market intelligence can provide clients with details of these as they become known.

Risk	Mitigation
Failure to provide clear FX pricing methodolgy	➢ Clear documentation between all parties setting out standard approach to FX pricing
Failure to process FX in an accurate, complete and timely manner in accordance with client requirements	➢ Clear account opening and FX standing instruction set up process and controls with dual control /maker-checker accuracy control ➢ Periodic confirmation of account set-up / standing instructions ➢ STP operating model with robust queue management ➢ Confirmation process
Failure of FX settlement	➢ Selection of approved FX counterparties ➢ Monitoring of exposures ➢ Use of counterparty netting (Continuous Linked Settlement) ➢ Robust daily reconciliation

5.8 Tax Processing

The custodian may offer a tax service which facilitates the client receiving tax reduction on the income received consistent with their status. Certain markets whilst allowing tax reduction dependent on treaties and client status do not function on a particularly timely basis and can have prolonged timeframes to receive tax reclaims. A point of note here is the importance of the provision of pay-away details on file as there is the possibility that a client to custodian relationship may have ended before tax reclaim monies are received.

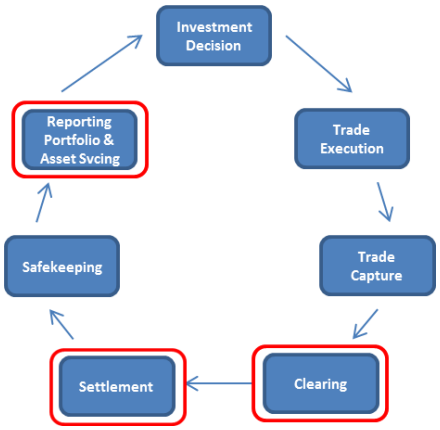


Applying appropriate tax relief at source dependent on client status and tax documentation can also be a significant risk, particularly where the markets prevent subsequent tax reclaims. The complexity of tax treaties and the development of tax transparent vehicles/funds have led to the risk of failure to perform activities increasing, thus resulting in expanding the use of tax experts.

Risk	Mitigation
Failure to identify tax reclaim markets	➢ Trusted source and feed of information ➢ Custodian to ensure SLA with sub-sustodian sets out requirements
Failure to obtain appropriate tax documentation from the client	➢ Establish monitoring / missing documentation reports, management information to identify areas of concern
Failure to generate tax reclaims	➢ Establish aged outstanding reclaim reports and perform ongoing monitoring
Failure to submit tax reclaims in line with deadlines	➢ Establish aged outstanding reclaim reports and perform ongoing monitoring
Failure to monitor for receipt of tax reclaim monies	➢ Establish reconciliation processes with sub-custodians, tax authorities ➢ Establish expected repayment schedules
Failure to apply appropriate tax rate	➢ Ensure independent review of tax rate set up versus client status

Risk	Mitigation
Failure to report / pay Financial Transaction Taxes (FTT) / Stamp Duty	➢ Ensure understanding of who is eligible / exempt from FTT's ➢ Automate identification of eligibility rules, payment & reporting requirements
Inability to reclaim tax overpaid in certain constituencies and / or penalties levied on tax reclaims	➢ Additional control checks on tax rates in markets with low / no reclaim ability
Failure to obtain sufficient documentary evidence / proof of tax reclaim eligibility prior to submitting reclaim (speculative / reclaim) leading to delays in reclaim, risk of losing tax agent status	➢ Ensure understanding of requirements in each constituency ➢ Establish detailed pre-reclaim validation process
Failure to perform obligations as witholding agent	➢ Ensure stringent procedures in place and adhered to

6. Credit Risk



6.1 Definition

Credit Risk: The risk that an obligor is unable or unwilling to satisfy an obligation when it falls due.

6.2 Introduction

Credit risk can originate from on-balance sheet obligations such as deposits, loans, commitments, securities and other assets by failing to make the required repayments. Credit risk can also be created by off-balance sheet items including trade settlement, counterparty credit risk and securities lending indemnifications as well as letters of credit. As regulated banks custodians mostly deploy appropriate credit risk assessment, limit setting and exposure monitoring to ensure the extent of credit taken does not breach their regulatory restrictions (such as large exposure rules).

6.3 View from the Actors

Asset Owner/Manager Perspective

A clear credit risk is the risk that securities are delivered to the trade counterparty, however, payment is not received or payment is sent but securities are not received. Both situations would lead to a credit exposure to the trade counterparty. To mitigate this credit risk simultaneous exchange of securities and cash (Delivery vs Payment; Receipt vs Payment) has been introduced. However, there are both different types of DvP/RvP models by market (including individual transaction based simultaneous exchange through to exchange based on netting securities and / or cash obligations), together with certain more frontier markets that have yet to implement true DvP / RvP.

Not all transaction types will benefit from a DvP / RvP arrangement, for example corporate actions including IPO's may require cash to be paid prior to receipt of securities / asset of value.

Markets operate on differing settlement cycles after trade date, the longer the cycle the greater the credit risk with the trade counterparty. In challenging market conditions this can create uncertainty in relation to whether a trade will settle or not. To reduce this risk most markets operate on a Trade Date Plus Two (T+2) settlement cycle.

A credit risk arises where an asset owner / manager holds a cash account with the custodian (or the sub-custodian for certain restricted markets). The asset owner / manager must ensure they have performed their own credit analysis on the specific legal entity they have the credit exposure to, which may also include a concentration risk analysis. Asset owners / managers should also consider the extent to which government backed deposit guarantee schemes exist and whether deposit preference rules apply (which may give preference to certain depositor domiciles over others).

Custodian's Perspective

As banker to the client / asset owner, the custodian will provide a demand deposit account for the purposes of the client funding its investments and operating costs and for receipt of investment proceeds and income collection.

The custodian may choose to provide the client / asset owner with credit facilities (particularly intraday credit) for the purposes of enabling the client to fulfil settlement obligations or advancing income monies when not yet received from the issuer. The custodian may choose to provide these as unadvised and uncommitted facilities and therefore may decide, based on country and counterparty reasons, to remove these.

The asset owner may wish to purchase and sell securities across differing markets that operate in differing timezones, with differing settlement cycles and differing cut-off times. To assist settlement and subject to appropriate credit analysis, the custodian may provide intraday credit facilities and short term overdraft. Whilst the extension of credit by the custodian is by design short term, the size of the short term facilities can be significant. It is not uncommon for intraday credit to become overnight credit should covering funds from other securities trades or other funding sources fail. In this situation the custodian has a credit exposure to the client and therefore a risk weighted asset for which it may have to hold risk based capital against.

The custodian will of course perform analysis and set limits taking into account the obligor rating, security (types and value of assets it has a lien on - see below) and the financial capacity / capital adequacy of the lending legal entity. In addition, there are certain markets (for example Middle Eastern markets) where overnight exposure / overdrafts are not permitted and for which the custodian cannot provide facilities.

Custodian's Perspective – Contractual Credit Mitigants

A custodian will typically look to have accurate and enforceable protection clauses to cover themselves against a defaulting client. The nature of such clauses may provide the custodian with a 'claim' on the client's assets. Such protection clauses may take the shape of:

- **Lien** (Right of Retention)**:** A lien is the right of a person who has lawfully received property belonging to another to retain that property for so long as a debt owed by the owner of the property remains unpaid. Liens are a possessory security and only grant the right to retain goods which are subject to the lien. As such, they do not grant the holder the power to sell the goods to discharge or reduce the debt owed, subject to any contractual rights.

  Typically, a lien will provide the custodian with the right to 'hold' client assets but not to sell.

- **Pledge** (Right of Sale): A pledge involves the transfer of possession of assets to a creditor for the purposes of allowing the creditor to secure a debt. If the debt is not discharged, the creditor is entitled to sell the assets to discharge the debt when it falls due or the debtor is otherwise in default.

  Typically, a pledge provides the custodian with the right to hold and also sell client assets.

  As described in previous sections, local law will dictate what is permissible and what is not. What is standard in one jurisdiction may not be in another, therefore a custody service provider should seek legal guidance as to what is permissible in any one jurisdiction as without guidance there may be a risk that the lien clause is non-compliant with the market's rules and the custodian will be exposed.

Custodian's Perspective - Contractual Settlement and Contractual Income

Custodians frequently offer contractual settlement date and contractual income date accounting. In these situations, the custodian takes a decision based largely on the country risk of a particular market to reflect posting on the client account at the expected value date of the security settlement or income payment date rather the actual settlement or

income posting date. The custodian is taking a credit risk on the settlement counterparty and the securities issuer for receipt of the monies and also a credit risk on the client should the client become insolvent and the monies cannot be received from the market.

CSDs' Perspective
As organizations with very low risk appetites, CSDs often require collateral to be posted in exchange for the provision of intraday and overnight facilities in relation to the settlement of securities transactions.

CSD's usually operate a conservative credit policy and consequently credit lines are, in principle, only granted against collateral. There is though to be distinguished between the domestic CSD role and, if active, the CSD's offering agent bank services in crossborder markets. The credit risk policy may vary between the two roles taking local rules and regulations into consideration.

6.4 Credit Risk Associated with Securities Clearing

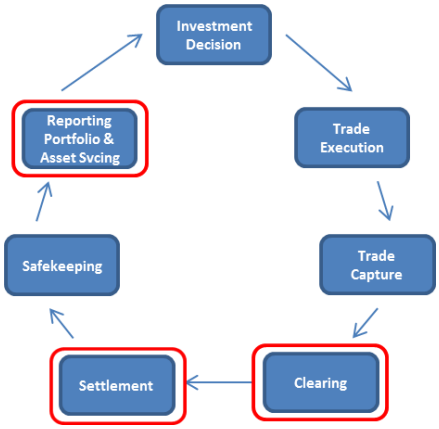
Within securities clearing the risk is that multiple trade date executions are not settled on settlement date. To secure this settlement liability (between trade and settlement date) the custodian will take eligible collateral from the client and take a risk that sufficient cash is made available to ensure final settlement. Where a CCP is involved this counterparty settlement risk is mutualized amongst all the CCP members.

The custodian provides the client with the capability to execute "on exchange" trades and must ensure that the client is able to meet all its daily settlement obligations and the obligations to the exchange for maintaining margin payments. The custodian will mitigate its risk through a thorough risk management analysis on the client and set limits on the client ability to execute trades and resulting settlement obligations. The custodian needs to make sure the client has available collateral such as securities or cash available to meet any margin calls and the cash proceeds to meet the daily Exchange cash settlement obligation. Where this collateral is insufficient a margin call is made for additional eligible collateral.

This clearing facility is normally conducted on a third party agency basis. This is where the customer has the direct account relationship with the clearing organization and appoints the custodian to operate this account on the clients behalf. Service level agreements and contracts will clearly outline the account operations. In the event that the client cannot provide funding on time their is a risk that the custodian ends up holding assets as principal until those securities are fully paid for by the client. Should this event happen the custodian is exposed to both credit risk to the client and market risk on the value of the securities.

Given the substantial obligations that can be incurred due to on exchange trading these arrangements demand a high level of risk analysis automation and price feeds to continuously monitor the clients trading activities and resulting collateral requirements. Clear actionable procedures and agreements need to be in place that allow a custodian to effectively "stop the clearing" in the event of breach of agreement or client distress/ insolvency.

7. Liquidity Risk



Liquidity is defined as the ability to access funding, convert assets to cash quickly and efficiently, or to roll over or issue new debt, especially during periods of market stress, in order to meet short-term obligations.

From the perspective of the custodian, fulfilling the settlement obligations of its clients with the CSDs, central banks and sub-custodians may give rise to liquidity risk where the custodian cannot get access to funding. A custodian may experience liquidity challenges where cash going out significantly exceeds cash coming in (eg significant RvP transactions processed above DvPs).

Intraday liquidity risk and its measurement has been a significant area of focus by the custodian community and their regulators driven by the significant increase in exposure values. Changing credit appetite (particularly for intraday credit) and reduced access to cheap credit has increased pre-funding requirements by many market participants. Changes to settlement timelines mean the need to fund the night before settlement date (e.g. T2S) has increased.

Custodians and counterparties increasingly require accurate liquidity management, this coupled with increased market transparency results in reputation risk, or risk of failed trades, where funding is provided late in the settlement cycle.

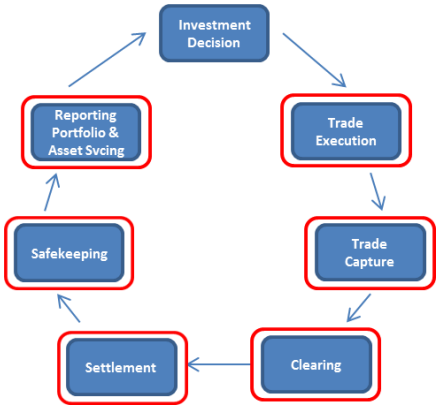
Increasing use of segregated accounts and client level cash accounts are pushing funding ownership increasingly to custodian clients.

Custodians are developing and using more sophisticated liquidity management systems designed to smooth the flow of incoming and outgoing monies.

Given the increasing collateral requirements against intraday credit facilities, availability of this collateral will increase liquidity challenges.

Custodians are increasingly likely to require a return on their liquidity risks and will manage and monitor intraday liquidity with their clients to a greater extent going forward.

8. Information Security Risk



A strong information security program is critical to ensuring the safety and soundness of a mature custodian environment. Modern day custodian / CSD practices rely heavily on the computer systems that support their activities. Unauthorized access or modification to these systems could have negative impacts which would dissolve the trust in the system. Deploying a defense in-depth strategy that builds upon concentric rings of defences is the most generally accepted way in which to ensure malicious computer activities are prevented.

Information security, or the more currently referred to practice of cyber security, is designed so that single points of failure do not result in the complete compromise of critical resources or systems. Similar to the practice of building castles 600 years ago, protections are used on the external perimeter, the internal areas, and the most sensitive or valuable locations. It is expected that problems will occur in various locations, and defenses will be tested by those attempting to do harm. But a properly built environment will ensure that a failure of one component does not directly result in a failure of the entire system.

From a custodian / CSD view point all client data is strictly confidential. This is especially critical when considering the quantity of data held by custodians on asset owners, asset owners appointed asset managers, trustees, the trading strategies they employ and the holdings and values of those holdings held by the custodian. Holdings are often strategic in nature and are extremely sensitive – such as the holdings of Government or Public bodies, Central Banks and Sovereign Wealth funds. Custodians and CSD also hold data on beneficial owners that can include private individuals addresses and account numbers.

Clearly any data leak could cause substantial damage to individual clients and clearly impact the reputation of the custodian / CSD.

In order for an information security program to be effective, one must first understand what they are trying to protect. Identifying critical processes and data sets helps build the foundation for strong security practices. Firms are able to use data classification schemes to continually highlight what elements of the firm are most important and therefore require the most effort to protect. Conducting risk assessments of an organization's applications, infrastructure, and critical processes will also assist in directing efforts on a prioritized approach. Not all areas are equal, nor do they require or demand the same levels of protections. Understanding what needs to be protected and how best to protect it helps to ensure reliable custodian practices.

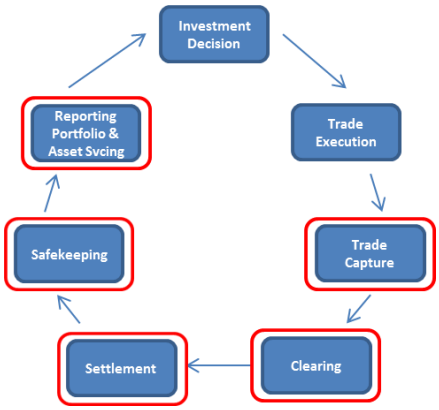
Generally accepted information security frameworks exist that articulate areas of focus when creating a robust information security program. Two of the most common information security frameworks are:

- International Standards Organization (ISO) 27001 – Information Security Management Systems
- National Institute of Science and Technology (NIST) – Cyber Security Framework

Both of these frameworks provide exhaustive examples of best practices when looking at broader information security programs. The table below calls out specific items of concern from a custodian standpoint and acts as a subset of material covered under the wider frameworks:

Cause	Exposures	Countermeasures
Lack of confidentiality of securities in transit	Market risk, damages claim, damage to reputation	➢ Ensure that data is properly encrypted when electronically transmitting securities (e.g. SWIFT) ➢ Use secure communications when transmitting securities data, such as Secure Sockets Layer (SSL) or Secure File Transfer Protocols (SFTP)
Lack of confidentiality of securities in storage	Market risk, damages claim, damage to reputation	➢ Use data encryption when storing securities data on file systems or in databases ➢ Data encryption routines should be of sufficient strength to prevent against brute force attacks
Inability to detect suspicious activity	Market risk, damages claim, damage to reputation	➢ Intrusion detection systems should be deployed to monitor for suspicious traffic ➢ Critical systems should follow a logging and monitoring strategy that ensures all electronic communication and actions are properly interrogated for suspicious behavior
Lack of awareness amongst staff on expected information security practices	Market risk, damages claim, damage to reputation	➢ Robust training programs should be created that educate the user population on expected behaviors and proper information security practices ➢ Awareness campaigns
Securities processing systems are vulnerable to electronic attack	Market risk, damages claim, damage to reputation	➢ Vulnerability management programs should be deployed that ensure securities process systems are not susceptible to current threats ➢ Patch management routines should be created to ensure that systems are patched on a regular basis as new vulnerabilities are released ➢ Penetration programs should be leveraged to help simulate real world attacks and how to best defend against manual techniques
Access privileges to securities data is not properly managed	Market risk, damages claim, damage to reputation	➢ Identity and access management programs should be in place that manage all aspects of the identity lifecycle ➢ Access recertification should be leveraged to ensure that individuals who no longer require access to securities data have said access revoked ➢ Termination routines should be in place that monitor for employees who leave the firm so their access is properly removed from critical securities processing systems
Technology systems are not hardened against possible cyber attack	Market risk, damages claim, damage to reputation	➢ Hardening documents (security baseline documents) and automated scripts should be maintained and deployed to increase resiliency of technical systems against possible attack ➢ System configurations should be evaluated on an annual basis to ensure that required changes are incorporated into the baseline

9. Information Technology Risk



Technology risk is a broad category and logically is used to define just about anything that can go wrong with technology environments. Similar to the comments in the previous section on information security, custodian activities rely heavily on the underlying technology infrastructure they use to operate each day. An unreliable or unstable technology system can result in the lack of processing abilities and essentially leave a custodian in an inoperable state. It is therefore important that custodians understand the basic essentials of technology risk and how they can positively or negatively impact operations.

9.1 Reliability and Resiliency

One of the primary areas that technology risk focuses on is reliability. Systems must be built with appropriate resiliency which ensures they continue to operate during times of crisis. The extent to which a system must continue operations during an incident is defined via a comprehensive business impact assessment process. On an annual basis, each firm must evaluate the impact an outage may have on each product and service they operate. These assessments must review legal, regulatory, and contractual requirements while defining the overall impact an outage would have on the firm. Based on the results of the impact analysis, a recovery time objective is determined. This objective is then factored into the overall business continuity strategy. In some cases, a critical system or product is defined as requiring a 2-hour recovery time. In which case technology must be deployed to ensure that even during unexpected outages, the product is able to limit itself to no more than 2 hours of unavailability. Notwithstanding this, a custodian / CSD will have multiple intraday market deadlines to meet to ensure securities and cash transactions are completed and therefore dependent on the time of day an incident occurs, additional business contingency actions will be planned.

Choosing accurate recovery times is critical to ensure appropriate continuity of business, particularly for critical businesses both to the firm and to the broader financial services sector within specific jurisdictions. Furthermore, a firm may end up spending too much money to protect less important systems and too little money protecting high value systems. Equally important is determining a location strategy and understanding how much infrastructure must be built and run out of a geographically separate location.

An additional consideration should be given to ensure cross regional recovery arrangement exist for critical business activities to enable recovery of workload from one operational location to another. As with other business contingency arrangements, cross regional recovery arrangments should also be tested.

9.2 Framework

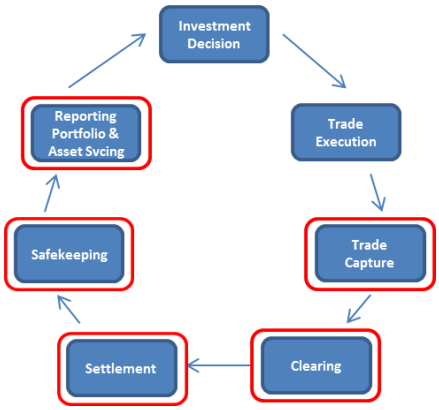
Generally accepted information technology risk frameworks exist that articulate areas of focus when creating a robust information technology risk program. Two of the most common information technology risk frameworks are:

- International Standards Organization (ISO) 20000 – Information Technology Service Management
- AXELOS – Information Technology Infrastructure Library (ITIL)

Both of these frameworks provide exhaustive examples of best practices when looking at broader information technology risk programs. The table below calls out specific items of concern from a custodian standpoint and acts as a subset of material covered under the wider frameworks:

Cause	Exposures	Countermeasures
Lack of technology inventory of securities systems	Market risk, damages claim, damage to reputation	➢ An information technology management system should be deployed that tracks and catalogues technology assets / systems important to securities processing ➢ A technology asset management system should identify the system owner for each technology component to ensure proper individuals are notified if system issues occur
Limited testing exists prior to moving securities applications into production	Market risk, damages claim, damage to reputation	➢ A quality assurance team should be created to test all aspects of securities systems prior to an application being moved into production ➢ Regression testing should be performed to ensure new features do not cause adverse impact on legacy activities ➢ Roll back routines should be created to ensure that new changes can be backed out of production environments if system disruptions occur
Poor capacity planning results in system performance issues	Market risk, damages claim, damage to reputation	➢ Performance management systems should be used to monitor system utilization and identify any system spikes ➢ Technology build plans should take into account existing performance management metrics, combined with projected growth requirements and consider stressed environment.
Limited change management practices result in loss of integrity of securities platforms	Market risk, damages claim, damage to reputation	➢ All production level changes should be documented as part of a formal change management program ➢ Notification and approval of all system changes should be managed effectively ➢ Logs should be maintained that track all system changes in order to facilitate troubleshooting potential incidents
Failure to monitor infrastructure running securities systems results in system outages	Market risk, damages claim, damage to reputation	➢ A technical operations center should be leveraged to monitor activity across all aspects of an information technology program ➢ Alarms should configure to alert personnel to unusual or concerning system behavior ➢ Escalation protocols should be established to effectively communicate system problems
Poor incident response practices results in prolonged recovery times	Market risk, damages claim, damage to reputation	➢ An incident management function should exist which acts as an escalation element of an existing monitoring function ➢ Incident management routines should ensure that proper notification and escalation exists for all potential incidents

10. Vendor and Outsourcing Risk



This chapter outlines a framework for managing vendor and outsourcing activities.

- A vendor provides goods or a service into the principal party. Good examples where vendors can be engaged include supply of share price and FX feeds, corporate action data services, SWIFT as a data carrier, IT applications, proxy voting and AGM services, network management, correspondent banking.
- Outsourcing involves the contracting out of a business process to another party. The other party can be an entity belonging to the principal (maybe near or off shored) or an independent third party. Good examples include account reconciliation, static data maintenance, KYC processing, accounting and client reporting functions.

Throughout the custody processing chain virtually every participant has the ability to engage services from or outsource proprietary activities to a vendor provided no contractual or regulatory restrictions apply.

Where another party provides material services that are an inherent part of the principal's product / service to its clients then a number of risks need to be managed. This is not only from a pure service level / client experience perspective but increasingly there is a strong regulatory focus around vendor governance and business continuity. Formalization and strengthening external and internal vendors' arrangements is a key focus area for recovery and resolution planning.

A key balancing act with vendors is to be as close as possible with vendors to create optimal process and efficiency but also retain the institutional ability to move to an alternative vendor should that need arise. Where an activity has been outsourced, a key consideration, again influenced by contractual, regulatory and risk appetite is the extent to which the activity can be recovered by the outsourcer and over what period the recovery can be sustained.

Network Management

A critical function in global custody is the ability to have access in each domestic market via a sub-custodian and / or CSD. The sub custodian will hold all the assets and execute instructions on behalf of the global custodian. The network management group undertakes a critical vendor management function. It will have the responsibility to manage the various sub-custodians employed by the global custodian in accordance with the agreed network management policy. Many of the oversight functions carried out are critical to the overall process of ensuring asset safety and compliance to regulations.

The network management function may be independent within the organization but work closely aligned to both the business and IT / Operations. They will have defined responsibility for various vendors that typically include the selection, documentation, performance and risk assessment of sub-custodians and Nostro Banks. In the past years this scope of responsibility has increased to also include other market institutions such as domestic CSD, CCP and clearing houses.

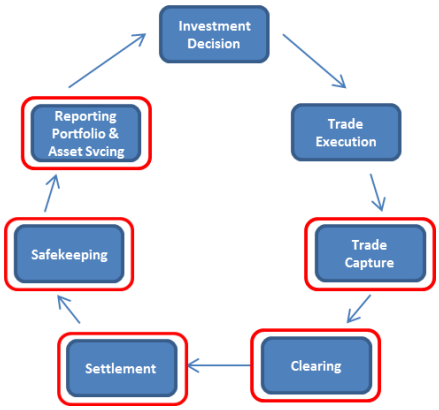
This team also has a detailed knowledge and insight into domestic markets which is critical for both investor safety and operational intelligence. The network team can therefore have the function of systematic oversight and the function of client / institutional educator when it comes to domestic market expertise. In addition, the team may have responsibility for dissemination of market intelligence internally and to clients.

The principal should establish a clear framework to manage vendor and outsourcing activities which include the following:

Focus Item	Function/ Mitigation	Risks
Principal Internal governance/ organization structure	➢ Institutional / legal entity decision to outsource or appoint vendors based on vendor management/ network management recommendations. ➢ Assign internal responsibilities for vendor policy, management and oversight function ➢ Approve incremental resources for appropriate vendor management outsourcing, retained organization and vendor management team	Business Risk Operational Risk Reputational Risk Counterparty Risk Credit Risk
Vendor Policy	Internal policy that outlines how the principal will conduct the search and appointment of acceptable vendors. Focus should include: ➢ Governance structure to determine eligible vendors and acceptable geographical vendor operations ➢ Governance structure to determine what functions can be outsourced ➢ Appointment of internal oversight and responsibility for vendor management ➢ Acceptable liability covering operational errors & loss, business disruption, training, BCP etc ➢ Auditable acceptable service level standards ➢ Contractual duration and review process ➢ Contractual access to proprietary client data and recovery	Operational Risk Market Risk Counterparty Risk Loss of Proprietary operational capability Geopolitical disruption to service capability Vendor failure
Creation of a Vendor Management Team	A group of qualified resources that is able to execute on the vendor policy and monitor the services and performance of vendor appointment. This group will: ➢ Qualify vendors as eligible by validating credit rating, capital requirements, liability insurance, good standing, regulatory permissions (where appropriate), BCP facilities and vendor management ➢ Manage concentration risk at the vendor so that vendors don't take on too much business that then compromises service ➢ Ensure that vendors provide contracted services at agreed quality levels, within agreed processing timeframes and agreed prices. Be the primary point of contact at the principal for external audit requests and regulatory inspection and enquiries concerning all vendors.	

Focus Item	Function/ Mitigation	Risks
Legal Documentation Documents the legal framework for vendor/ outsourcing engagements	A key document that appoints the vendor to perform duties for the principal and outline the legal terms and conditions. Key aspects include: ➢ Scope of work ➢ Standard of service ➢ Change control mechanisms ➢ Liability, indemnities and insurances ➢ Prices and fees ➢ On boarding co-operation ➢ Employment issues (key resources) ➢ Confidentiality / third party access ➢ Access to vendor premises and resources ➢ Dispute resolution /arbitration ➢ Vendor ability to further sub contract ➢ Termination ➢ Exit provision/ co-operation	Operational Risk
Service Level Agreements (SLA) documents the operational expectations	A second key document that will detail the scope of work that should be delivered by the vendor to the principal. This document must be as definitive as possible and may get adjusted as the business evolves and as the principal volumes or processing requirements change. SLA key aspects include: ➢ Scope of work detail ➢ 'In scope' and 'out of scope' boundaries ➢ Timeframes of task completion ➢ Quality levels expected for tasks completed ➢ Pricing levels agreed for tasks completed ➢ Default process in the event of query ➢ Default process in the event of enterprise or business support failure ➢ Key vendor/ principal contacts, hierarchy and officers ➢ Escalation points in vendor/ principal management ➢ Minimum level of individual qualification requirements ➢ Staff access authorization to principal applications ➢ Business continuity plan testing cycles ➢ Document and data retention framework ➢ Regular vendor process (key data) reporting ➢ Annual/ periodic audit/inspection requirements The service level should be monitored by the appropriate proprietary department receiving the benefit and service breaks or deficiencies raised to the vendor management team. It's good practice for the proprietary department to include the vendor in strategic business planning to ensure the vendors are informed and allow vendors to adjust to continue to support the business.	Operational Risk Service interruption, lack of quality leading to client dissatisfaction Vendor unable to support business growth strategy

11. Regulatory Risk and Compliance Risk



11.1 Definition

Regulatory Risk and Compliance Risk:
These risks are often considered subsets of legal risk and impact different actors in different ways dependent on their role and the jurisdiction.

Regulatory risk may arise as a result of a failure to comply with existing regulations (which may be jurisdiction specific or regional), failure to keep abreast of regulatory change or to recognize the impact any new or change in law / regulation may have on a business and its associated products or services. Compliance risk can be viewed as a subset of regulatory risk and stems from failure to comply with any applicable local, regional, international law or regulations, which may result in:

- **Financial loss:** Very significant penalties, fines or sanctions
- **Business Loss**: Loss of trading licence, or other such restrictions that result in the inability to perform business in a certain jurisdiction(s)
- **Reputational damage**

Compliance failures can be institutional or arise from the actions of individuals.

It is accordingly a risk category, like others, which requires sophisticated analysis on a case by case basis.

11.2 Introduction

Presenting itself at every stage of the investment lifecycle and impacting all actors in the custody chain, the extent of regulatory risk will vary in accordance with the actor's role, the jurisdiction(s) they are operating in, the applicable laws they are operating under, and the instruments and services involved.

Regulations and the implementation of regulations into local law vary from jurisdiction to jurisdiction and the regulatory environment is constantly changing.

As such, it is vital to be aware of the applicable rules in any given jurisdiction, to ensure that existing business models comply with current regimes (and also to ensure that as businesses evolve and products evolve, they continue to comply), to keep abreast of changes to such rules, and to understand how these rules impact liability when operating in that jurisdiction.

For global organizations, understanding how the various regulations work together is also imperative although working out precisely what regulatory regime applies to a particular service, branch or subsidiary is not an easy task.

Each component of a product needs to be assessed looking at where and how it is delivered, breaking it down to component elements and then identifying where each element is delivered from.

Client outreach and any measures for jurisdictional equivalence are also required in order to decipher what the regulatory environment / requirements are. Jurisdictional agnosticism is a recipe for a breach and must not be underestimated.

There are other permutations of risk to consider though. Change in laws or regulations can increase the costs of operating a business, reduce the attractiveness of investment and / or change the competitive landscape. Conversely, from an opportunity and innovation perspective, much market and product development is driven by regulatory change, and participants in the custody chain may risk loss of business if they are unable to keep pace with such change.

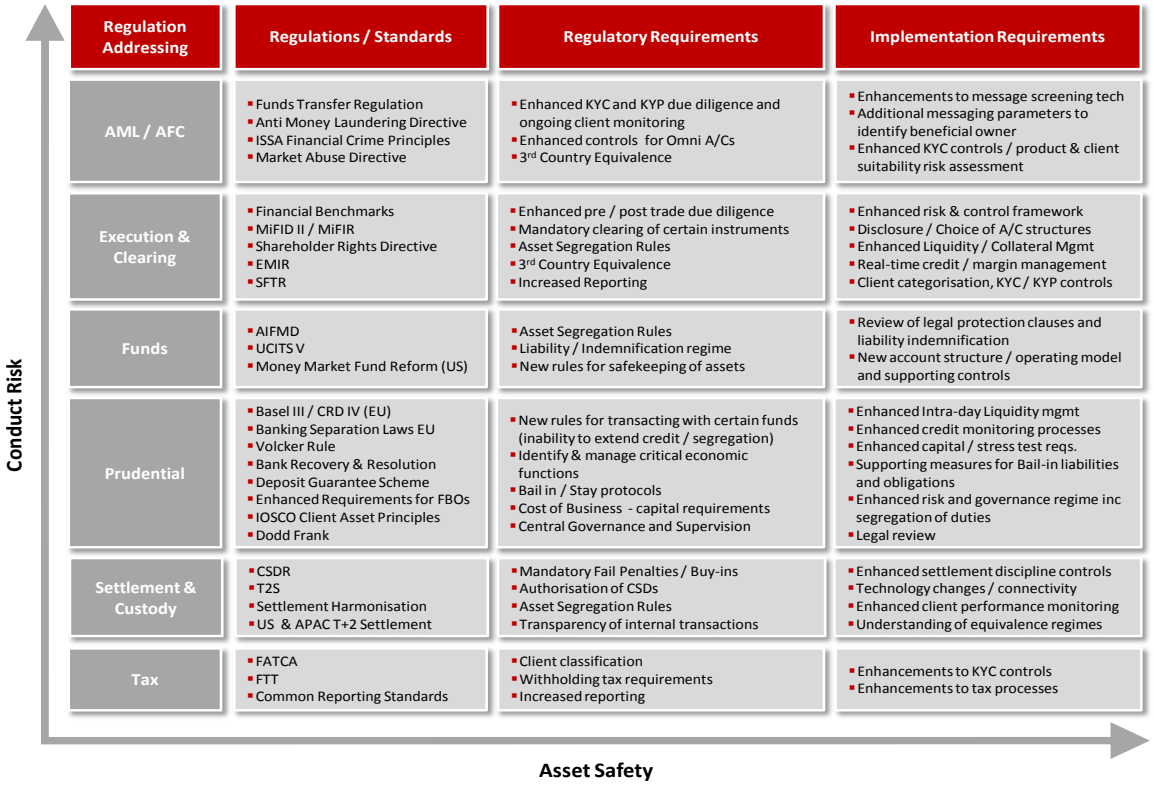
This chapter looks to highlight key regulatory themes and to discuss the risks and potential mitigants in the context of the custody chain. It is however important that users of this document obtain up to date legal and compliance advice relevant to their business.

11.3 The Regulatory Landscape

For custodians, their clients and regulators, **asset safety and ownership** is **a key priority**, and as such is a central requirement of the regulations both in force and on the horizon.

Conduct risk is a similarly common theme and is an area of regulatory focus throughout the custody lifecycle. Whilst there are many definitions, most focus on the behaviours and culture of organizations and their employees and how they impact their clients, the market or the firm itself due to, for example, inappropriate execution of business activities, fraud and other such breaches of professional conduct.

The following table summarizes prominent themes within the custody chain with examples of some of the key applicable overarch regional and global regulations and market standards as at the date of this document (it does not list the array of individual national regulations):



Regulation Addressing	Regulations / Standards	Regulatory Requirements	Implementation Requirements
AML / AFC	▪ Funds Transfer Regulation ▪ Anti Money Laundering Directive ▪ ISSA Financial Crime Principles ▪ Market Abuse Directive	▪ Enhanced KYC and KYP due diligence and ongoing client monitoring ▪ Enhanced controls for Omni A/Cs ▪ 3rd Country Equivalence	▪ Enhancements to message screening tech ▪ Additional messaging parameters to identify beneficial owner ▪ Enhanced KYC controls / product & client suitability risk assessment
Execution & Clearing	▪ Financial Benchmarks ▪ MiFID II / MiFIR ▪ Shareholder Rights Directive ▪ EMIR ▪ SFTR	▪ Enhanced pre / post trade due diligence ▪ Mandatory clearing of certain instruments ▪ Asset Segregation Rules ▪ 3rd Country Equivalence ▪ Increased Reporting	▪ Enhanced risk & control framework ▪ Disclosure / Choice of A/C structures ▪ Enhanced Liquidity / Collateral Mgmt ▪ Real-time credit / margin management ▪ Client categorisation, KYC / KYP controls
Funds	▪ AIFMD ▪ UCITS V ▪ Money Market Fund Reform (US)	▪ Asset Segregation Rules ▪ Liability / Indemnification regime ▪ New rules for safekeeping of assets	▪ Review of legal protection clauses and liability indemnification ▪ New account structure / operating model and supporting controls
Prudential	▪ Basel III / CRD IV (EU) ▪ Banking Separation Laws EU ▪ Volcker Rule ▪ Bank Recovery & Resolution ▪ Deposit Guarantee Scheme ▪ Enhanced Requirements for FBOs ▪ IOSCO Client Asset Principles ▪ Dodd Frank	▪ New rules for transacting with certain funds (inability to extend credit / segregation) ▪ Identify & manage critical economic functions ▪ Bail in / Stay protocols ▪ Cost of Business - capital requirements ▪ Central Governance and Supervision	▪ Enhanced Intra-day Liquidity mgmt ▪ Enhanced credit monitoring processes ▪ Enhanced capital / stress test reqs. ▪ Supporting measures for Bail-in liabilities and obligations ▪ Enhanced risk and governance regime inc segregation of duties ▪ Legal review
Settlement & Custody	▪ CSDR ▪ T2S ▪ Settlement Harmonisation ▪ US & APAC T+2 Settlement	▪ Mandatory Fail Penalties / Buy-ins ▪ Authorisation of CSDs ▪ Asset Segregation Rules ▪ Transparency of internal transactions	▪ Enhanced settlement discipline controls ▪ Technology changes / connectivity ▪ Enhanced client performance monitoring ▪ Understanding of equivalence regimes
Tax	▪ FATCA ▪ FTT ▪ Common Reporting Standards	▪ Client classification ▪ Withholding tax requirements ▪ Increased reporting	▪ Enhancements to KYC controls ▪ Enhancements to tax processes

11.4 Meeting Regulatory Requirements

When considering the risk associated with regulatory change, any assumption that the status quo will be maintained is incorrect. The following actions and mitigants may be applicable:

- **Active Engagement:**
  - Scanning the regulatory environment for upcoming changes (actors may choose to perform this in-house or make use of legal advisors or consultants). The resource demand will be material for global firms with multiple business lines.
  - Detailed initial impact analysis
  - Participating in regulator's consultation papers on new or proposed regulation
  - Advocacy / lobbying legislators / regulatory bodies, either directly or through industry / trade associations
- **Preparation:**
  The timely and thorough review of the impact of regulatory change on:
  - Products: New opportunity and change to existing products / services should be considered carefully. A new product and services process should include detailed analysis of regulatory requirements and should also capture product and services changes.
  - Clients: Regulatory change may not impact an actor directly but may impact their client. Prompt understanding of the regulation is required to identify any necessary changes to the actor's products and services and how it engages with the client. Product and service offerings may need to be varied to accommodate regulatory impacts on clients.
  - Resourcing: Regulatory change may require additional resources to understand impact and implementation. It may also impact what resources an actor needs

to perform its business. Any such requirements may impact the cost of transacting in certain markets, products or services.
- Processes: Regulatory change may prompt changes in processes and controls, which should be analysed and the impact understood. Such changes can be highly material and take long periods to implement, particularly if they are associated with material technology builds.
- Technology: System, messaging and static data changes may be required to cater for regulatory requirements.
- Business Model: In some cases, regulatory change may affect the landscape to such an extent that an actor would be required to change its business and operating model and adapt to changes that curtail or impact the profitability of certain activities, or to take advantage of new opportunities presented.

- **Risk Management:** Regulatory change can often alter the risk profile of a product, service and market to the extent that a 'risk vs return' assessment is required on a periodic basis to ascertain the risk appetite of continuing to do business vs financial reward. In addition, regulatory change may significantly alter the risk profile to the extent that material changes to the operating structure may be required.
- **Implementation:** The need to consider project delivery risk, execution risk and the need to recognize and factor in any incremental changes to the risk profile of the organization and associated governance through, for example, the use of risk framework tools such as Key Risk Indicators and Risk Control Self Assessments.
- **Governance**: The need for thorough understanding of the implications of each regulation is a given. Setting a suitable internal senior management regime, compliance and risk strategy to ensure that adherence to regulatory requirements are upheld and consequences for non-compliance known each actor will also need to consider the below which are by no means exhaustive:

  - Delegation: There must be acknowledgement that any delegation will lead to further intermediation in the custody chain and should be considered with governance solutions in mind.
  - Policies and procedures: In line with 3 lines of defence methodology they should be drafted to uphold risk standards and ensure a common ground in meeting regulatory demands.
  - Training: Ensure that staff understand their responsibilities and the action and escalation requirements should a breach be identified including 'whistle-blower' protocol.
  - Tone from the top: A management structure that prescribes responsibility under regulations to specific people or functions with periodic attestation of compliance.
  - Risk reporting: A comprehensive suite of management reporting KRIs, KPIs, SLAs and other tools to spot trends or risk events which may challenge an actor's compliance to a regulation and or identify client, operational or any other such behaviours which may bring regulatory compliance into jeopardy. Use of regulatory reporting is not for the sole use of regulators. Actors in the custody chain each have their own responsibility to identify themes, concerns or areas for further scrutiny.

- **Due Diligence:** Consideration of the information or data points required to comply with regulation at the outset of a client or vendor relationship and on an ongoing basis, for example MiFID client classification or tax status, and how that data will be collected, stored and used (refer to the section 'Client Onboarding').

12. Working Group Members

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Hersh Tegala, Clearstream

Richard Thompson, Northern Trust

Marc Tibi, BNPPSS

13. Glossary of Terms

Terminology	Description
Accrued Interest	Coupon interest that is earned on a bond from the last coupon date to the relevant record date.
Account Holder	The regulated financial institution account holder or customer of the custodian including fund distributors.
Account Operator	An Investor can open accounts directly at an exchange or CSD and ask a third party to operate the account on the investor's behalf under a Power of Attorney. This can allow an investor to be visible by name in a market. The third party will be the account operator.
Actual Settlement	A process of settlement based on actual ownership change. Actual settlement will only be processed where securities and or cash have been posted to the investor's accounts in final settlement.
Agent Bank	A bank that acts on behalf of a third party client. The agent does not usually take any risk in the transaction. An agent bank can be a sub-custodian.
Asset Owner	The owner of legal record of the asset and often the client of a custodian bank.
Asset Manager	An asset manager acts on behalf of the asset owner and is appointed using an investment management agreement or similar arrangement, which sets out the terms under which the asset manager is authorized to act on behalf of the asset owner to manage the assets referred to in the agreement.
Basis Point	One hundred basis points equal one percent. One basis point is 0.01%.
Beneficial Owner	A party that is entitled to the rights of ownership of property. In the context of securities, the term is usually used to distinguish this party from the registered holder (a nominee for example) that holds the securities for the beneficial owner. The ultimate owner of an asset, who may or may not be the client of the custodian.
Broker (Securities or Prime)	Securities or prime brokers offer services to hedge funds and other professional investors including securities lending, leveraged trade execution and cash management. A prime broker may also hold assets in custody on behalf of its clients and act in the capacity of a sub-custodian. The broker may provide investors with access to trading platforms.
Cash Correspondent	An agent bank that provides payment and clearing services for a principal, A cash correspondent can be but not always necessarily the same party as a sub-custodian.
Central Securities Depository	A specialist financial organization holding securities such as shares either in certificated or uncertificated (dematerialized) form so that ownership can be easily transferred through a book entry rather than the transfer of physical certificates.

Terminology	Description
Central Bank	A national central bank that provides financial and banking services for its country's government and commercial banking system, as well as implementing the government's monetary policy and issuing currency.
Central Counterparty (CCP)	A central counterparty clearing house (CCP) is an organization that exists in various countries that helps facilitate trading done in derivatives and equities markets. These clearing houses are often operated by the major banks in the country. The CCP steps in and acts as the counterparty to each transaction reducing risk of counterparty/ settlement default.
Client	The underlying investor or holder.
Client Account	Any account containing securities interests that are beneficially owned by any party other than the account holder.
Client Assets	Client assets is a description that applied to certain holdings of property clearly indicates that although the assets are held by a third party these assets are held on behalf of others and are protected under the rules of a local client asset protection regulation and accordingly are not available to the liquidator of the designated account holder.
Collateral	Securities, financial instruments or deposits that are delivered by a borrower to the lender as security in connection with a financing transaction.
Contagion Risk	A situation where a shock in a particular corporate entity, economy or region spreads out and affects others by way of, say, price movements. The contagion effect explains the possibility of spread of economic crisis or boom across countries or regions.
Contractual Settlement	A recordkeeping and accounting process that can be applied by a custodian to help clients manage cash flow or securities delivery difficulties - securities are contractually settled into an account on the technical settlement date for a trade irrespective of settlement date activity but often subject to final settlement on an actual basis. The custodian helps smooth the cash flow but does not take ultimate risk on settlement.
Corporate Action	A corporate event in relation to which the holder of the security must or may make an election or take some other action in order to secure its entitlement and/or to opt for a particular form of entitlement in respect of a security it owns.
Corporate Event	An event in relation to a security as a result of which the holder will be or may become entitled to: a benefit (dividend, rights issue etc.); or securities other than those which he holds prior to that event (takeover offer, scheme of arrangement, conversion, redemption etc.). This type of corporate event is also known as a stock situation.
Coupon Date	The date upon which the issuer of an interest paying security makes an interest payment to the registered holder (as of the ex-coupon date) of that security. Coupons may be paid (in most cases) annually, semi-annually or quarterly.

Terminology	Description
Credit Risk	The risk of default on an extension of credit (whether a formal loan or other facility provision) that may arise from a borrower failing to make required payments. In the first resort, the risk is that of the lender and includes lost principal and interest, disruption to cash flows, and increased collection costs.
Custodian	An entity that holds securities of any type for investors, effects receipts and deliveries, and supplies appropriate reporting. It can be considered the upstream account holding institution which may be a bank acting as global custodian and sub-custodian, fund distributor, trustee/depositary bank, broker, prime broker, International Central Securities Depository and Central Securities Depository, to the extent that cross-border operations are involved.
Custody	The range of services provided by the custodian as defined within the custody agreement. The services largely include safekeeping, securities movement and settlement, dividend collection, tax and corporate action processing.
Delivery versus Payment (DVP)	The securities trade settlement process where the trade is settled by the simultaneous delivery of securities against the payment of funds.
Dematerialized Securities	Securities that have no certificates (maybe presented by a single certificate for entire issue) and where all trading takes place based on electronic book entries.
Dividend Date	The date upon which the issuer of the share pays the dividend to the registered holder as at the record date of the security.
Embargo	An embargo is a government order that restricts commerce or exchange with a specified country or the exchange of specific goods. An embargo is usually created as a result of unfavou-rable political or economic circumstances between nations.
Embargo Screening	A process that screens certain accounts or transactions against known embargos.
Emerging Market	Jurisdictions where there is an immature securities market, in which there is neither a sophisiticated domestic securities market nor a long history of substantial foreign investment.
Fail	The failure to deliver cash, securities or collateral in time for the settlement of a transaction.
Financial Market Utility	A term defined in the US Dodd-Frank Act, and referred to by the Bank of International Settlements as financial market infrastructures or 'FMIs', meaning the providers or operators of the necessary financial market infrastructure to transfer, clear or settle payments, securities or other transactions between financial institutions.
General Collateral	Securities that are not "special" in the market and may be used, typically, simply to collateralize cash borrowings. Also known as "stock collateral".

Terminology	Description
Immobilized Securities	Securities that have been centralized in one place and taken out of circulation to enable book entry transactions and are represented by a legal registry of guaranteed ownership at a central point i.e. by a CSD
Income Processing	The processing of cash derived from securities holdings such as dividends, interest on bond holdings, redemptions from bond repayments to the beneficial owners of that entitlement.
Indemnity	A form of contractual undertaking, offered by a party supporting a liability. Terms vary significantly and the value of the indemnity always depends on the credit worthiness of the giver of the Indemnity.
Initial Margin	Initial margin is the excess of cash over securities or securities over cash required by a third party in respect of a particular transaction. One party may require an initial margin because of the perceived credit risk of the counterparty. The size of the margin often varies according to the volatility of the collateral and the credit standing of the counterparties.
International Central Depository (ICSD)	An ICSD is a central securities depository that settles trades in international securities such as Eurobonds although many also settle trades in various domestic securities, usually through direct or indirect (through local agents) links to local CSDs.
Know Your Client (KYC)	The process of verifying the identity and material characteristics of clients, including legal identity, nationality, business etc. The term is also used to refer to the bank regulation which governs these activities.
Lien	The right of a person who has lawfully received property belonging to another to retain that property for so long as a debt owed by the owner of the property remains unpaid.
Liquidity Risk	The risk that a company or bank may be unable to meet short term financial demands. This usually occurs due to the inability to convert a security or hard asset to cash without a loss of capital and / or income in the process or in a timely fashion to meet an immediate cash requirement.
Margin Call	A request by one party in a transaction for the initial margin to be reinstated or to restore the original cash/securities ratio to parity. Usually follows a mark to market of the exposure to reflect current market prices.
Mark to Market	The act of revaluing the securities to current market values. This may be done daily or at a suitable interval agreed upon by the parties to a transaction.
Market Risk	The risk that the value of an investment will decrease due to moves in market factors. Volatility frequently refers to the standard deviation of the change in value of a financial instrument with a specific time horizon.

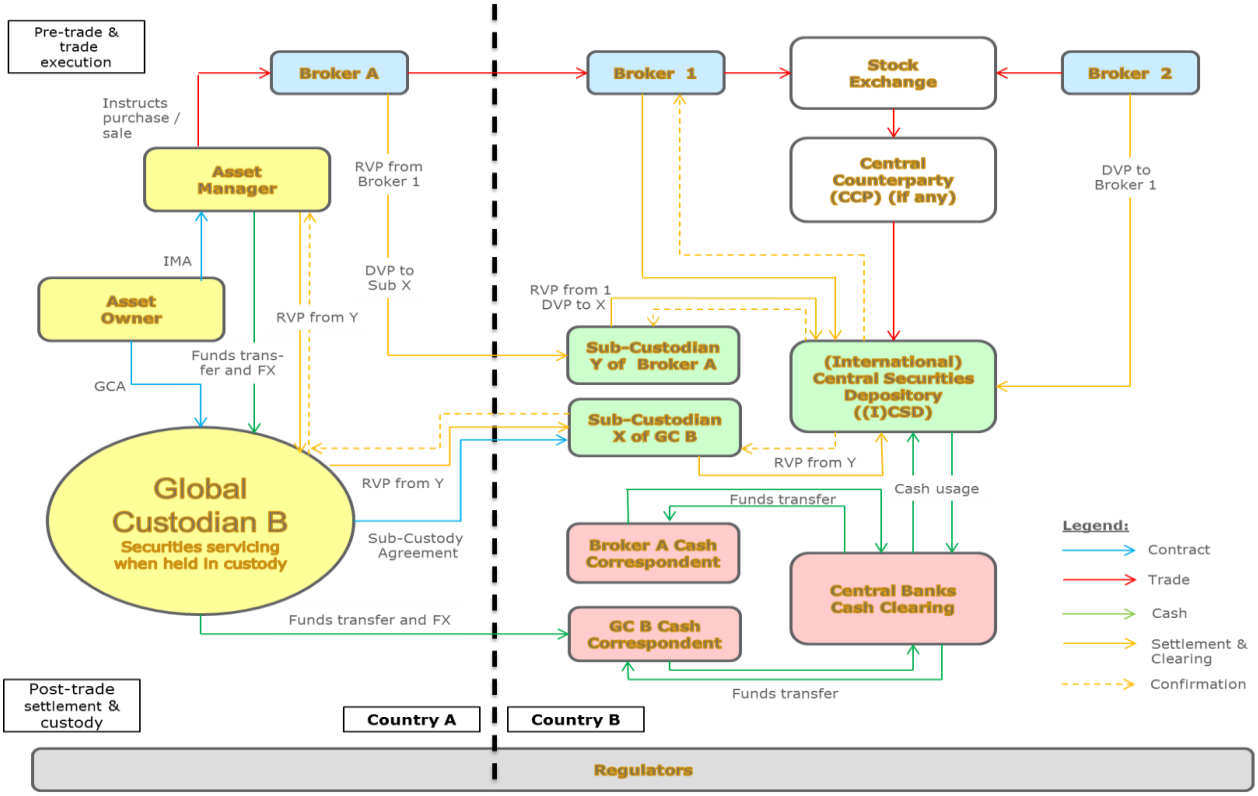
Terminology	Description
Market Value	The value of securities or collateral as determined using the last (or latest available) sale price on the principal exchange where the instrument was traded or, if not so traded, using the most recent bid or offered prices.
Net Asset Value (NAV)	A financial statement that calculates the value of assets in a portfolio including all accrued costs and income to value a holding. This value is then used as a basis to calculate the net vsset Value of a fund or unit holding.
Network Management	A term given to a process carried on within an organization for the selection and management of key counterparties in the custody chain (typically third party sub-custodians and agent banks)
Nominee Account	Typically, an account opened in the name of a company created for the sole purpose of holding securities on behalf of investors. Often the nominee appears on the register as the owner of the securities.
Offboarding	A term used to describe a process of taking a client and assets out of an organization.
Off-Book Currency	The custodian will open cash accounts in the domestic market in the name of the client. The client gives power of attorney to the custodian to operate the account. The risk of third party insolvency is now carried directly by the client.
Omnibus Account	Account opened in the name of a custodian at a CSD or sub-custodian that holds cash or securities on behalf of multiple clients. The ultimate ownership of all the assets in the account are shown by the account holder (custodian) in the custodian's books of records.
Onboarding	A term used to describe a process of bringing a client and assets into an organization.
On-Book Currency	The custodian will open and operate in its own books and records a deposit account for clients and assume the risk of third party agent insolvency on that position.
Operational Risk	Operational risk is defined as the risk of loss resulting from inadequate or failed internal processes, people and systems or from external events. This definition includes legal risk, but excludes strategic and reputational risk.
Pledge	Transfer of possession of an asset to a creditor for the purpose of allowing the creditor to secure a debt.
Principal	A principal is a party to a transaction that acts on its behalf (and therefore always represents its own risks rather than that of a client).
Proprietary Assets	These assets belong to the account owner and are clearly segregated form client assets. The proprietary assets of a client may become available to any liquidator.
Receive versus Payment (RVP)	The process for settling a securities transaction involving the simultaneous receipt of securities against the payment of funds

Terminology	Description
Registrar	An entity that maintains a registry of the securities owners and number of securities held for a fund, bond or equity issuance, and ensures that not more securities are issued than have been authorized. Registrar and transfer agency functions are often provided by the same entity.
Regulator	Regulators govern the operation of the financial markets for the jurisdiction for which they are responsible. Whilst the remit and scope of the regulator will vary from market to market, they often have a role to play in monitoring market conditions and stability and providing oversight. In some markets, the regulators play a direct role in the operation of market infrastructures (CCPs, CSDs) and central banks. Within the custody lifecycle, regulators set the rules by which market participants must operate, and may exercise their oversight responsibilities by, for example, taking feeds of data from CSDs and global custodians.
Safekeeping	The holding of assets in a secure and controlled environment.
Segregated Account	An account opened for one party that may have a specific purpose to segregate holdings. (i.e. tax purpose or identify specific ownership etc.). Any client account containing securities interests that are legally owned by a single party other than the account holder.
Settlement Date	The date of finalization of a securities transaction, and registration of the transfer of securities and cash in fulfilment of the obligations committed to in an executed trade.
Settlement Risk	The risk that a counterparty does not deliver a security or its value in cash as per agreement when the security was traded after the other counterparty or counterparties have already delivered security or cash value as per the trade agreement.
Sub Custodian / Agent Bank	An agent that provides defined domestic markets services. A sub-custodian is often employed by a global custodian.
Trade Date	Date when an irrevocable trade is executed and the price fixed for settlement on the same day or an agreed date after trade date.
Transfer Agent	Party appointed by a fund manager or issuer of securities to issue or cancel certificates in physical or dematerialized form to reflect a record of ownership.
Value Date	The date upon which funds are received and credited to a cash account.

Appendix 1

Custody Lifecycle – Equities & Bonds Settlement

The following table illustrates the typical relationships and transaction flows between the participants in the custody chain where the asset is a traditional equity or bond.



The lifecycle starts with an investor who is interested to buy / sell securities. The asset owner may take this decision directly or employ a specialized asset manager. Upon deciding on the desired asset the asset owner or asset manager will engage a broker.

Broker A will receive a trade order from the asset manager and will either route the order directly or if the broker is not represented in the domestic market, go via a domestic broker (Broker 1). Broker 1 will place the order on the stock exchange.

Broker(s) 2: These are other brokers who will also be entering orders from their clients on the stock exchange.

The stock exchange receives orders from buyers and sellers throughout the day and will attempt to match the orders from a buyer and a seller broker. When matched the order will be executed at a defined price.

In some markets the stock exchange will execute all orders against a central counterparty (CCP) The CCP steps in on behalf of the brokers to fulfil the settlement obligations and by doing so reduces the exposure for buyers and sellers dealing with brokers directly.

Upon execution brokers 1 and 2 confirm the trade details via a trade confirmation to the asset owners or asset managers. If broker 1 acts for broker A then broker A informs the asset owners or asset managers.

Broker 1 and broker 2 both issue instructions to the CSD to receive/ deliver securities against payment to the named broker account. Where a CCP is involved the CCP will debit the brokers and collect the money accordingly. If broker 1 acts for broker A then broker A will issue instruction via sub-custodian Y of broker A to the CSD.

The global custodian B receives notification from the asset owner or asset manager to settle the trade executed on the stock exchange. The global custodian will check the client account, make sure securities or cash are available and then instruct its sub-custodian to settle the trade.

Sub-custodian X of global custodian B receives the instruction. The sub-custodian checks the availability of cash and securities in the global custodian's account held with the sub-custodian and enters an instruction into the CSD.

CSD matches instructions from both the buyer and seller and then on settlement date will move the securities to the buyer's account. CSD simultaneously debits the cash account of the sub-custodian. The cash account of the sub-custodian will be either at the central bank or via a designated cash correspondent.

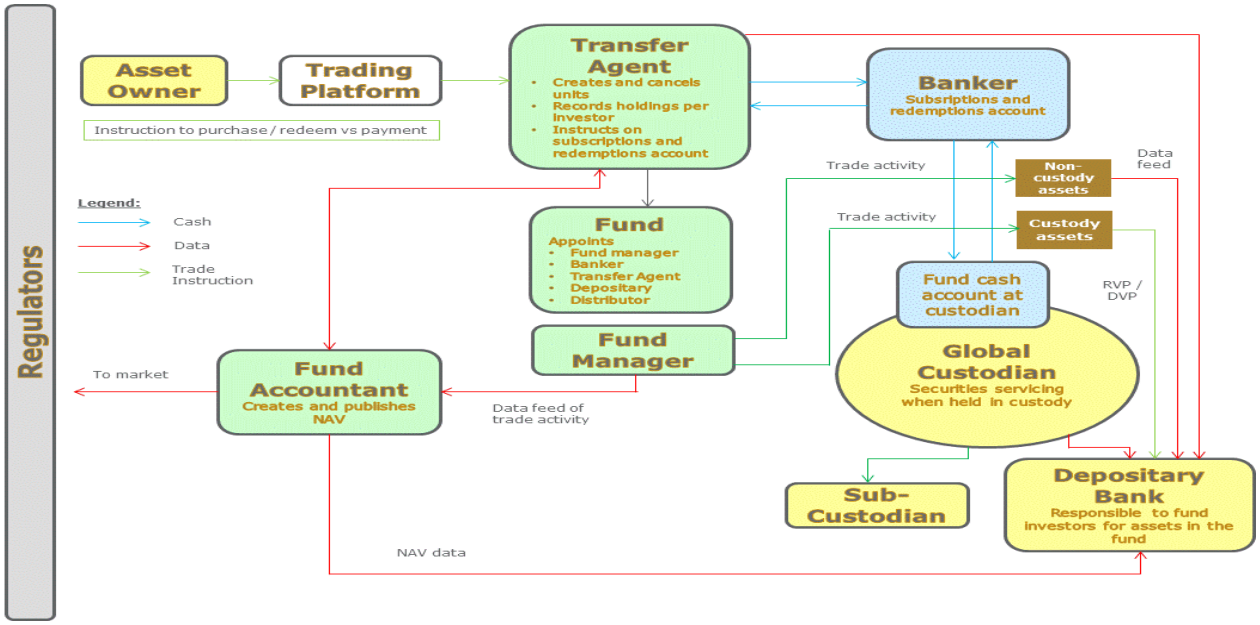
Sub-custodian X of global custodian B confirms the settlement to the global custodian B. Sub-custodian will book securities and cash to the account of the global custodian.

Global custodian B confirms the trade to the asset owner or asset manager. Global custodian will book the securities and cash to the account of the asset owner/ asset manager.

Appendix 2

Custody Lifecycle – Funds Settlement

The following table illustrates an example (typical but not universal) of the relationships and transaction flows between the participants in the custody chain where the asset is an investment in fund units.



The lifecycle for funds starts with an investor wishing to buy or sell a fund unit.

The asset owner decides to buy / sell units in a selected fund. The owner will hold these in an account at a transfer agent who will be connected to an electronic trading platform.

Trades are entered on the trading platform. The trading platform will allocate trades and creates the actual trade confirmation.

These trades are sent to the transfer agent. The transfer agent then creates or cancels units for each investor in each fund throughout the day to reflect the trading activity and gives the net positions to the fund manager and fund accountant. For purchases, the transfer agent will instruct or pay monies to the banker. For sales it will instruct the payment to investors based on trades received by issuing instructions to the banker. All activity through the banker is reconciled by the global custodian.

The fund manager will adjust the fund to make sure that all trade obligations can be meet. If there are more redemptions requests than cash available, assets need to be sold to meet the cash proceeds. Likewise, if the fund attracts new asset owners and the cash is surplus then the fund manager can allocate these monies and buy new assets for the fund.

Any trades executed by the fund manager are sent to the fund accountant and to the depositary bank. In some countries global custodian and depositary bank are the same institution. If this is not the case the global custodian will update the depositary bank on changes / movements.

The fund accountant runs the net asset value (NAV) based on the information received from the transfer agent that shows the number of units in existence and the assets in the fund – managed by the fund manager. The fund accountant will also reconcile all fund assets with the global custodian.

The global custodian will hold all the assets for the fund and make sure that the cash is paid to the banker for payment date and that all assets are reconciled towards the fund manager, fund accountant and transfer agent.

Appendix 3

Differing Market Protocols

The following are examples of the different account holding structures used across the global securities industry and show the diverse protocols adopted across the globe.

Developed Markets

USA		
Securities Instrument Type	Equities	Fixed Income
Registered	Yes	Yes
Bearer	No	Yes
Settlement Convention	T+3	T+1 UST / T+3 Corps
Account Structure at CSD	Equities	Fixed Income
Omnibus	Yes	Yes
Designated Segregated	Yes	Yes

Germany		
Securities Instrument Type	Equities	Fixed Income
Registered	Yes	No
Bearer	Yes	Yes
Settlement Convention	T+2	T+2
Account Structure at CSD	Equities	Fixed Income
Omnibus	Yes	Yes
Designated Segregated	Yes	Yes

Australia		
Securities Instrument Type	Equities	Fixed Income
Registered	Yes	Yes
Bearer	No	No
Settlement Convention	T+2	T+2
Account Structure at CSD	Equities	Fixed Income
Omnibus	Yes	Yes
Designated Segregated	Yes	Yes

Singapore		
Securities Instrument Type	Equities	Fixed Income
Registered	Yes	Yes
Bearer	No	Yes
Settlement Convention	T+3	T+1 / T+3
Account Structure at CSD	Equities	Fixed Income
Omnibus	Yes	Yes
Designated Segregated	Yes	Yes

Emerging Markets

Poland		
Securities Instrument Type	Equities	Fixed Income
Registered	Yes	Yes
Bearer	Yes	Yes
Settlement Convention	T+2	T+2
Account Structure at CSD	Equities	Fixed Income
Omnibus	Yes	Yes
Designated Segregated	Yes	Yes

Turkey		
Securities Instrument Type	Equities	Fixed Income
Registered	Yes	Yes
Bearer	Yes	Yes
Settlement Convention	T+2	T+0 / negotiable
Account Structure at CSD	Equities	Fixed Income
Omnibus	Yes	No
Designated Segregated	Yes	Yes

India		
Securities Instrument Type	Equities	Fixed Income
Registered	Yes	Yes
Bearer	No	No
Settlement Convention	T+2	T+0-T+2
Account Structure at CSD	Equities	Fixed Income
Omnibus	No	No NSDL/CDSL / Yes RBI
Designated Segregated	Yes	Yes

South Africa		
Securities Instrument Type	Equities	Fixed Income
Registered	Yes	Yes
Bearer	No	No
Settlement Convention	T+3	T+3 negotiable
Account Structure at CSD	Equities	Fixed Income
Omnibus	Yes	Yes
Designated Segregated	Yes	Yes

Frontier Markets

Nigeria		
Securities Instrument Type	Equities	Fixed Income
Registered	Yes	Yes
Bearer	No	No
Settlement Convention	T+3	T+2
Account Structure at CSD	Equities	Fixed Income
Omnibus	Yes	Yes
Designated Segregated	Yes	Yes

Vietnam		
Securities Instrument Type	Equities	Fixed Income
Registered	Yes	Yes
Bearer	No	No
Settlement Convention	T+2	T+1
Account Structure at CSD	Equities	Fixed Income
Omnibus	Yes	Yes
Designated Segregated	No	No

Colombia		
Securities Instrument Type	Equities	Fixed Income
Registered	Yes	Yes
Bearer	No	Yes
Settlement Convention	T+3	T+0-T+3
Account Structure at CSD	Equities	Fixed Income
Omnibus	No	No
Designated Segregated	Yes	Yes

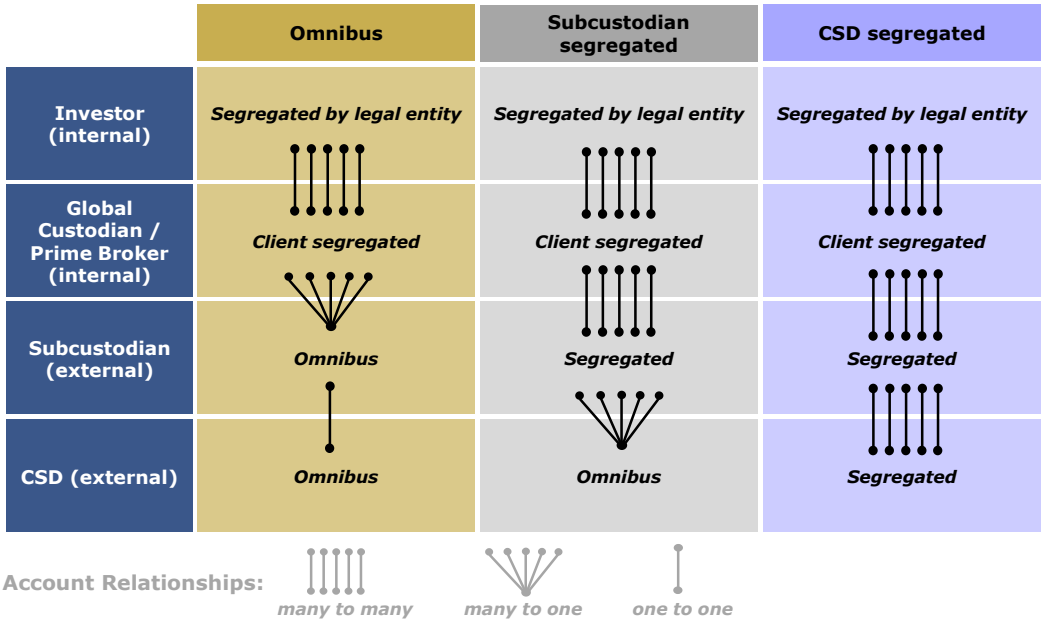
Qatar		
Securities Instrument Type	Equities	Fixed Income
Registered	Yes	Yes
Bearer	No	No
Settlement Convention	T+3	T+3
Account Structure at CSD	Equities	Fixed Income
Omnibus	No	No
Designated Segregated	Yes	Yes

Appendix 4

Omnibus versus Segregated Accounts

There is currently a wave of industry analysis and much consideration by the global regulators, in Europe in particular, of securities account structures. Such evaluation includes the regional differences and the advantages versus the disadvantages of one account type versus another. Until the regulators provide definition and clarity this debate is likely to continue. One current study (2016) is the **AFME Working Group paper titled 'Position & Proposed Principles on Asset Segregation'** which documents the following concise Investor, Intermediary and Account Structure Matrix:

Account Structures – Asset Segregation



Excerpt from
AFME Principles on Asset Segregation, Due Diligence and Collateral Treatment
Report September 2016

Appendix 5

The Advantages and Disadvantages of Omnibus Accounts

	Advantages of Omnibus Accounts	Disadvantages of Omnibus Accounts
Settlement Processing & Inventory Management	➢ Custodian / CSD operating efficiency (time and resources) as one account is used for multiple investors. ➢ Opportunities for internalized settlement (where both parties to a trade have holdings in the same omnibus) as there may be no requirement to instruct the CSD, therefore leading to reduced cost and greater settlement certainty. ➢ Aligns to omnibus related market infrastructure strategies (e.g. T2S) ➢ Cost and time efficient position level settlement fails coverage / securities lending subject to client agreement and service offered.	➢ Potential for investors within the omnibus account delivering securities that they do not hold, leading to a securities shortfall with other investors in the account, leading to a loss of investor assets and a client asset safety rule breach. ➢ Short positions could force the need to borrow creating ambiguity, at least initially, possible as to who should bear the cost. A permanent shortfall on the account could cause a loss.
Corporate Action Processing	➢ Single point of processing for issuers and investors for corporate actions. ➢ Custodian / CSD operating efficiency (time and resources) as one account is used for multiple investors. ➢ Collectively held securities allow for simpler processing of corporate events as significantly fewer messages to receive and send and fewer accounts to apply.	➢ Distance between issuers and investors can create delays in custodian processing; e.g. notification time to the end investor versus cut-off times, particularly where operating model does not benefit from full automation. ➢ The processing of certain corporate events may lead to rounding issues or imperfect division of assets amongst investors. ➢ Potential for issuers to prevent differing votes within one omnibus account.
Administration	➢ Reduced burden for issuers dealing directly with the account holder rather than a large number of investors directly. ➢ Due to the account being held at the CSD by the intermediary the omnibus acount proves a quicker route to enter a market for a new investor since the account is in existence.	➢ Corporate communications are made more difficult in particular in countries where issuers are required to stay in touch with investors.
Control	➢ Reduced number of accounts leads to reduced number of reconciliations required. It also leads to a reduction in the number of accounts that may become dormant.	➢ The one-to-many nature of the omnibus account makes stock reconciliation more cumbersome and requires a sophisticated and timely settlement system / stock record to be able to reconcile positions and identify breaks on an investor level.

	Advantages of Omnibus Accounts	Disadvantages of Omnibus Accounts
Collateralization	➢ Streamlined flow of settlement and collateral cross border. Aligns to omnibus related market infrastructure strategies (such as T2S). ➢ Auto-collateralization of flow in T2S for omnibus accounts increases liquidity mobility subject to client agreement of service.	
Cost	➢ Operational efficiency due to reduced number of accounts / messages leads to lower cost. ➢ Opportunity for internalized / net settlement across the books of the account provider reduces transaction costs.	
Transparency of Ownership		➢ Risk that the relevant legal system does not recognize the omnibus account as a valid form of co-ownership which creates the risk that the investor may not have any property rights at all if the account provider pools its securities with those of other investors. ➢ Disintermediation of ownership through distance between issuer and investor. The issuer loses transparency of who the investors are and who has title to the investment. ➢ No look through to the end investor at client onboarding stage.

Appendix 6

The Advantages and Disadvantages of Segregated Accounts

	Advantages of Omnibus Accounts	Disadvantages of Omnibus Accounts
Settlement Processing & Inventory Management	➢ Transparency of a single investor's position. ➢ Segregation of position ownership eliminates potential use of another investor's position to satisfy a delivery of an investor. ➢ Potential for improved deadlines when direct segregated account at the CSD level.	➢ Inability for internalized settlement requires all trades to settle at the CSD (cost).
Corporate Action Processing	➢ Transparency of the end investor (or the intermediary accountable for the end investor) aids the notification process providing clarity as to who should elect / vote. ➢ Segregated positions prevent any detrimental rounding issues. ➢ No opportunity for an investor's vote to be compromised.	➢ Operationally more demanding for a custodian (see cost).
Administration	➢ Transparency of the investor makes corporate communications easier, particularly in countries where issuers are required to stay in touch with investors.	➢ Restrictions by the CSD in regards to the entities that are eligible as participants – segregated account may not be possible. ➢ Greater burden for issuers who have to deal directly with the end investors rather than through the intermediary. ➢ Opening an account at the CSD itself takes a greater time to market than onboarding a new client into an omnibus structure.
Control	➢ The 1:1 nature of the segregated account often renders the investigation and resolution process associated with reconciliation breaks more straightforward.	➢ The number of reconciliations required can be significant. ➢ The increased number of accounts can lead to increased number of dormant accounts and increased client data to safeguard.
Cost		➢ Increased number of accounts, reconciliations and messaging increases operational cost. ➢ Due to the silo'd nature of the account, all instructions need to be settled across the CSD, therefore no benefit of reduced internalized settlement cost.

	Advantages of Omnibus Accounts	Disadvantages of Omnibus Accounts
Transparency of Ownership	➢ Potential for faster identification of the end investor to the issuers, to the regulators and to administrators in the event of the account holder's insolvency or any other default / insolvency in the transaction lifecycle (albeit this cannot always guarantee more time favourable remediation in a default scenario).	

Appendix 7

Questions for Asset Safety Global Legal Opinions

Questions to consider in respect of ascertaining the robustness of asset safety regimes globally include:

- *Are all securities of a particular class or series of any issuer that are deposited in your institution treated as fungible, and can they be transferred or pledged by bookkeeping entry without physical delivery of the securities?*
- *Please provide details of the structure and composition of your Board together with their industry experience and responsibilities in governing the depository. What are the qualifications to become a board member? What are the election procedures?*
- *Are annual financial statements publicly disclosed? If no, and annual report and/or financial statements are not disclosed, please state your share capital, reserves, and retained earnings (or equivalents as determined under local accounting standards).*
- *Is an operational audit performed by an Audit Firm, Regulatory Authority, or other external party?*
- *Please confirm the basis for the arrangements in place to ensure that the assets you hold for custodians receive the same level of safekeeping protection as the assets held for other categories of participants.*
- *Please list by instrument type the percentage of the total market in your jurisdiction (either volume or value) settled within your institution, exclusive of your links with third parties.*
- *Are there any activities performed by a third party on behalf of the depository for the depository participants (e.g., vaulting of physical securities, registration, entitlement processing, etc.)? If third parties are employed, does the depository assume liability for losses incurred by participants as a result of the actions/inactions of the third parties?*
- *Are procedures and controls (firewalls) in place to avoid systemic collapse or contamination if one of the linked entities should experience business interruptions for whatever reason?*
- *Are participants required/permitted to segregate assets held for their own benefit from those they hold for their clients? How does segregation occur? (Choose all that apply.) Do laws exist, which define as well as protect the rights of beneficial owners with respect to securities registered in nominee name? Does the depository maintain records that identify the assets of each participant and segregate the system's own assets from the assets of participants?*
- *In the event a participant's single or main account is blocked for any reason (e.g., insolvency, penalties, violations, liens), would securities held in any account or accounts on behalf of the participant's clients be accessible?*
- *Can the depository assess a lien on participant accounts? (A lien would entitle the depository to take and hold or sell the securities of the participant in*

payment of a debt.) If yes, for what reasons are liens or similar claims imposed? If a lien is placed on a participant's account which has been designated for its clients, will the depository select certain securities to be subject to the lien? For accounts designated as client accounts, do procedures exist to restrict the placement of liens only to obligations arising from safe custody and administration of those accounts?

- *When does title or entitlement to depository securities pass between participants? Does the depository accept liability (independent of any insurance coverage) for E.G: Reconciliation errors with the registrar and / or the issuer that result in direct damages or losses to participants? Failure of the depository's systems that result in direct damages or losses to participants because they cannot use either securities or funds? Any direct damages or losses to participants caused by the depository as a result of force majeure events, acts of God, or political events, etc.?*

- *Do the depository's written contracts, rules, or established practices and procedures provide protection against risk of loss of participant assets by the depository in the form of Indemnification?*

- *Do participants have access to affect their holdings, including confirming and affirming trades, movement of securities on their accounts, etc.?*

The above is an excerpt from a recent exercise conducted by Baker & McKenzie and the Association of Global Custodians.