## Contents:

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Executive Summary</td>
<td>1</td>
</tr>
<tr>
<td><strong>Section 1:</strong> Introduction</td>
<td>2</td>
</tr>
<tr>
<td><strong>Section 2:</strong> Regulatory Routes – The Regulatory Maze</td>
<td>3</td>
</tr>
<tr>
<td><strong>Section 3:</strong> The Aerial View – Conclusion</td>
<td>14</td>
</tr>
<tr>
<td>References</td>
<td>19</td>
</tr>
</tbody>
</table>
Executive Summary

This Paper is the second in the Collateral Management and Regulation series co-written by The Field Effect and BNY Mellon, shining the spotlight on specific industry regulations and directives by distilling their aims and objectives. We (The Field Effect and BNY Mellon) will consider the current and future collateral impacts and consequences – both direct and indirect, concentrating on market behaviour. The importance of understanding the 'consequences of change' is a key theme which runs throughout this Paper. We believe it to be essential reading for corporate treasurers, asset managers, pension funds, insurance companies, banks and broker dealers, as it will explore whole market regulatory consequences.

As a result of the 2008 financial crisis and resulting suite of regulatory changes, the market has been driven to recognise the significance of collateral and its value in trading and risk mitigation. This realisation has been the catalyst for collateral attracting an increased market focus, and becoming a standalone area of market expertise with some describing it as a new asset class. We believe market players may need to alter their mind-set to function effectively and take advantage of the challenges and opportunities of the new collateral landscape.

To date, regulatory comment and research has been almost exclusively focussed on individual market segments. The term ‘regulatory’ in this Paper is used loosely in that it encompasses initiatives (including directives and reports) designed to influence market behaviour and in turn impact the practices employed to manage collateral. The introduction of numerous interconnected, and at times possibly conflicting, regulations has resulted in some market players employing a ‘just-in-time’ or ‘self-preservationist’ approach. The benefits of a holistic collateral view represent a call to action for everyone. Even if you are not directly impacted by regulatory change, you may still experience an indirect business threat or opportunity as a result of the behavioural change of other market players. We believe that a firm-wide regulatory perspective is essential to complying with regulatory changes and delivering tangible benefits.

This Paper references statistics reported in the latest reports issued by the International Securities Lending Association (ISLA), International Capital Markets Association (ICMA ERC) and International Swaps and Derivatives Association (ISDA). This Paper focuses on the following initiatives as key influencers impacting and influencing the evolution and development of the collateral markets:

- European Directive on Institutions for Occupational Retirement Provision (IORP II)
- European Regulation on over-the-counter (OTC) derivatives and Central Counterparty Clearing Houses (CCPs) (EMIR)
- Collateral related elements of the Dodd-Frank Act (DFA)
- Basel III (including Liquidity Coverage Ratio (LCR)/Net Stable Funding Ratio (NSFR))
- European Insurance Directive (Solvency II)
- Collateral initiatives introduced by the Basel Committee on Banking Supervision and the International Organization of Securities Commissions (BCBS-IOSCO)
- Regulatory impact of Globally Systemically Important Bank (G-SIB) designation
- European Directive and Regulation on Markets in Financial Instruments (MiFID II)
- European Directive on Undertakings for Collective Investment in Transferable Securities (UCITS V)
- European Directive on Alternative Investment Fund Managers (AIFMD)
- Consequences of the Vickers Report
- Activities of the Financial Stability Board (FSB), such as Shadow Banking

The Paper will also examine the potential issues of implementing international regulations from a German perspective and highlight collateral developments in the Japanese Government Bond (JGB) market. We believe this Paper will provide valuable market insight from key BNY Mellon experts responsible for business areas significantly impacted by collateral regulatory changes.

The need to understand what’s happening in the wider market is not always on a firm’s radar. We believe the ability to be able to react in an innovative way in order to respond to regulatory threats and opportunities is a message which needs to be both widely disseminated and understood. We will see that doing nothing or employing a ‘wait and see’ approach is no longer a viable option; the new collateral landscape is taking shape now and demands your attention.
SECTION 1: Introduction

Since the 2008 financial crisis, policymakers have been busy formulating numerous domestic and international regulations, whose implementation is designed to minimise and contain the market-wide impact of a single participant’s failure. These changes are intended, inter alia, to improve the financial sector’s ability to absorb shocks arising from financial and economic stress and to reduce the risk of contagion from the financial sector to the real economy.

When catastrophic events occur, which are ultimately determined to have been a result of human error, natural reaction is to try everything humanly possible to ensure such errors are never repeated. The cause and effect chain is now in full swing; history may reveal whether or not these, or further enhanced regulations become a requirement.

It is our view that the implications of the new and constantly changing regulatory landscape present both opportunities and challenges which market participants have not yet fully assimilated into their philosophies. This potential failure to integrate market and legislative perspectives is compounded by delayed implementation deadlines and market uncertainty surrounding the collateral related regulations and directives.

The FSB plays a central role in promoting international financial stability. It does so by coordinating national financial authorities and international standard-setting bodies as they work toward developing regulatory, supervisory and other financial sector policies. It fosters a level playing field by encouraging coherent implementation of these policies across sectors and jurisdictions.

The FSB, working through its members, seeks to strengthen financial systems and increase the stability of international financial markets. The policies developed in the pursuit of this agenda are in turn implemented by jurisdictions and national authorities.

It is important to differentiate between a regulation and a directive in the EU.

**Regulation vs. directive in the EU**

A regulation is a legal act of the European Union that becomes immediately enforceable as law in all Member States simultaneously. A regulation can be distinguished from a directive which, at least in principle, needs to be transposed into national law. However, it is up to the individual countries to decide how this will be achieved.
SECTION 2:
Regulatory Routes – The Regulatory Maze

An ‘incomplete maze’ is one way of describing the new regulatory landscape. The aerial view, whilst complex, shows possible routes together with paths which are still under construction. Exit routes are not always obvious or in some cases, more than one is available. However, when viewed from ground level, the regulatory maze is almost impossible for each market player to navigate completely.

Each market player will experience its own unique set of regulatory impacts, as defined by its specific business profile and market segment. The mark of success lies in being able to identify and analyse what those consequences are and carefully considering how to respond to the opportunities or threats.

BNY Mellon Collateral Roundtable
As part of the review process to identify regulatory impact we recently gathered key BNY Mellon experts and The Field Effect in a roundtable event. The objective of the roundtable event was to enable BNY Mellon representatives from the different market sectors to share and compare opinions on their respective collateral management developments. The event started by identifying and agreeing the main regulatory drivers impacting collateral. These were then discussed by BNY Mellon experts representing the impacted business areas.

A Collateral Grid (see below) was produced that referenced regulation and consequential collateral impact. The output from these discussions (in the form of direct quotes) and references to the Collateral Grid are made throughout this Paper. A regulatory impact score was attributed to each business area (2 points for direct impact, 1 point for indirect impact and zero for no impact) in order to generate a relative impact comparison across each of the business areas.

Collateral Impact Analysis Grid (‘Collateral Grid’)

<table>
<thead>
<tr>
<th></th>
<th>Banks &amp; Brokers</th>
<th>Hedge Funds</th>
<th>Asset Managers</th>
<th>Sovereigns</th>
<th>Corporates</th>
<th>Insurers</th>
<th>Pensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>IORP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EMIR</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DFA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Basel III</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Solvency II</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BCB/S/IOSCO</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>G-SIB</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MIFID II</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UCITS V (&amp; AIFMD)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vickers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall Impact Rating</td>
<td>18</td>
<td>14</td>
<td>14</td>
<td>5</td>
<td>9</td>
<td>13</td>
<td>9</td>
</tr>
</tbody>
</table>

- Direct Impact (2 points on the Impact Rating)
- Indirect Impact (1 point on the Impact Rating)
- No Impact (0 points)
The key observations highlighted by the Collateral Grid are:

- The majority of market sectors were impacted either directly/indirectly;
- There are as many indirect impacts as there are direct impacts;
- Of all customer segments banking organizations are the most impacted;
- Because of their exemption from compliance, Sovereigns are the least impacted;
- Some regulations have a wider direct impact than others, for example EMIR and the DFA impact almost everyone directly whereas others such as Solvency II is focussed solely on Insurance Companies;
- The impact of the Vickers Report results in the least overall impact (however this is geographically concentrated in the UK).

The roundtable experts representing the various impacted BNY Mellon areas were:

- Mark Higgins (MH), Senior Business Development Manager
- Brian Leddy (BL), EMEA Head of Business Development, Asset Managers & Sovereigns
- Paul Traynor (PT), Head of Insurance and Pension Segment
- James Day (JD), EMEA Securities Finance Business Executive
- David Allen (DA), Collateral Management Tri-Party Product Manager.

In the next section we focus on a subset of the regulatory landscape and:

- Identify the regulation/directive and its implementation timelines;
- Summarise the regulation’s aims and objectives;
- Identify some of the possible collateral consequences;
- Review the collateral market comments of the BNY Mellon roundtable participants.

**European Directive on Institutions for Occupational Retirement Provision (IORP II)**

In March 2014, the European Commission issued a legislative proposal to amend the 2003 Directive on Institutions for Occupational Retirement Provision. The proposal is currently under review by the European Parliament and the Council of the European Union. The text of the Commission proposal includes a requirement for Member States to bring into force by 31 December 2015 laws and regulations necessary to comply with IORP II i.e. measures to increase the safety and integrity of European cross border pension practices, in a way and at cost that does not undermine pension provision.

**Collateral Consequence**

Although IORP II proposes specific collateral rules, its objective is to provide over-arching rules. The obligations depend on the size and EMIR classification of the Pension Fund.

**PANEL VIEW**

PT – Perhaps not always considered a priority by the industry, IORP II is an important part of the new regulatory landscape and we believe it needs to feature on firms’ radar sooner or later.
European Regulation on OTC Derivatives and CCPs & the Dodd-Frank Act (EMIR and the DFA)

In September 2009, the Group of 20 (G-20) countries committed to transparency and safety in the market place stating that ‘all standardised OTC derivatives should be traded on exchanges [...] cleared through central counterparties [...] and that OTC derivatives contracts should be reported to trade repositories’. This commitment resulted in EMIR coming into force in Europe in August 2012 (with stages of implementation to 2016) and the DFA in the US in July 2010; some elements of the commitment were also included in MiFID II.

The transactions covered by EMIR/ MiFID II and the DFA are broadly similar but because of different definitions of swaps and derivatives, there are differences, particularly in relation to FX transactions and the record keeping and reporting rules (as above). Other notable differences include the coverage of transactions with affiliates and portfolio reconciliation and compression arrangements.

EMIR and the DFA aim to increase transparency and reduce counterparty risk by requiring, among other things:
- Buy-side customers to meet incoming clearing broker calls for initial margin (IM) and variation margin (VM);
- The daily tracking and reconciliation of collateral allocations with firms maintaining accurate books and records;
- Within the European context, non-cash IM on cleared OTC derivatives is to be held by CCPs in a recognised Securities Settlement System (SSS).

Collateral Consequence

In order to ensure the timely movement of eligible collateral (both securities and cash), there has been an increased focus on collateral needs and operational requirements. Longer term, it is expected that collateral solutions will continue to be improved as efficiencies are sought. Specific developments identified on the buy-side include:

- The use of a CCP by buy-side institutions for cleared OTC derivatives;
- Increased focus on collateral segregation/ account structure strategy (see below);
- The legal and operational focus on delivered margin and the default risks and costs associated with the various solutions available;
- A focus on collateral eligibility and its availability for use to meet minimum eligibility criteria. The various market mechanisms available to automate the movement of collateral for margin purposes (e.g. tri-party collateral delivery mechanisms).
Account structures

The EMIR and the DFA requirement to centrally clear OTC derivatives with a CCP raised the need for buy-side players to develop an operational relationship with the CCP in order to move collateral between the two institutions. In engaging with the CCP, the buy-side player has a number of options:

- to clear directly with the CCP (i.e. become a direct clearing member of the CCP);
- to become a client of a CCP clearing member (i.e. GCM);
- to clear indirectly through a clearing member of the CCP (i.e. become a client of client of a GCM).

Most buy-side institutions have opted not to become direct clearing members but to access the CCP indirectly, either via a GCM or a client of a GCM. This has raised the need to review the risk levels associated with the intermediation of clients with CCPs, particularly regarding accounts' segregation, the corresponding level of client asset protection and operational efficiency.

The main areas of risk identified by the buy-side institutions engaging indirectly with CCPs is focused on the mechanism of posting or delivering collateral with the CCP, the default risk associated with intermediates in the collateral movement process and the account structures made available by the CCP for the purposes of holding margin.

EMIR requires CCPs to offer alternative account structures with differing levels of risk /cost profiles. The two most commonly referenced accounts structures are 'individual client segregation' and 'omnibus client segregation'. Advice from the recent European Securities and Markets Authority (ESMA) consultation paper states that while CCPs may offer other levels of protection in addition to individual client segregation and omnibus client segregation accounts (e.g. an omnibus gross margin client model), the omnibus client segregation account type is the minimum level of client protection that can be used.

Omnibus client segregation

The CCP has to maintain separate records and accounts for each underlying client holding collateral in such an account. This enables the clearing member to distinguish between the trades and collateral related assets of the clearing member from those of the clearing member's clients.

In this account structure, the client account at the CCP is fully segregated from the house account (of the GCM) and the positions held as collateral in the omnibus client account are commingled with collateral from other clients of the GCM. This account structure has many benefits (e.g. relatively low cost). However, in circumstances where there is shortfall of collateral in the account (e.g. the GCM has another client that defaults), then the CCP will look to the remaining clients using the account to make good any shortfall of collateral. i.e. clients with an omnibus client member account share a risk with each other which may be realised in the event of default.
Individual client segregation

Under individual client segregation the CCP is required to keep separate records and accounts for the trading and collateral positions of each underlying client. This structure enables the GCM to distinguish the assets and positions held for the account of each individual client. Such accounts are margined with collateral settled separately from all other clients and as a result it has the benefit that there is no ‘mutualisation of risk’ that is associated with a shared or omnibus account. However, there are disadvantages; the high costs of operating such accounts and the lack of opportunity of account netting of trades. In addition to the two broad account categories described above, there are other numerous account structures such as the Legally Segregated; Operationally Commingled (LSOC) which is mandatory in the US. Each account structure has its own implications in terms of margin calculation, position reporting, mutualisation of losses and ease of porting and treatment of collateral.

The individual client segregated account is generally considered to be the preferred client account structure as it provides the highest level of client protection. This is because all of the client’s trades/positions are fully segregated in a single account. This level of protection is undoubtedly costly. In individual client segregation accounts, IM is calculated only in relation to the client’s trades. All collateral is held apart from other client’s assets, with the added certainty that securities delivered as collateral by the client are actually being used as collateral at the CCP.

A further key benefit is the client’s control over the collateral held at the GCM. In the event of GCM default the client has certainty over the value and use of collateral held at the CCP.

The future

We are witnessing the evolution of even more sophisticated collateral management solutions enabling movement of collateral between the client and the CCP. CCPs are offering to clear an increasing number of products and developing a variety of account solutions for clients.

Most market participants would agree the asset segregation requirements of EMIR and the DFA have proved a key challenge over recent years and continue to be a key influence in the changes occurring in the capital market infrastructure. The decisions which need to be considered by clients implementing a cleared solution are many.

The selection of the clearing member to access the CCP and the selection of an account model best suited to a client’s risk, cost and capital usage have represented a major challenge faced by many buy-side firms over recent months. Regardless of their account structure choice, each market player should decide whether it is beneficial for them to use a tri-party service agent (TPA) or continue with manually processed margin deliveries. TPAs offer sophisticated collateral solutions to a) the GCM and CCP and b) the client and the GCM performing automatic collateral eligibility, sufficiency checks and collateral substitution events.
EMIR: Protection, Costs and Risks of Segregation Models

**Omnibus Net**
- Basic protection with operational efficiency and net margin effects
- Risk Mutualisation with other clients
- Portability of positions and collateral is not possible without support from the insolvency practitioner, the risk for liquidation is relatively high

**Omnibus Gross**
- Improved protection from clearing member default
- Portability of positions and respective collateral value is possible
- Single securities collateral is not portable
- Operational efficiency can be retained to some extent

**Individual Segregation**
- Highest protection from clearing member default
- Portability of positions and specific collateral is ensured
- Fragmentation of securities collateral and increased operational complexity
- Reduced capital weighting is possible

**PANEL VIEW**

The panel were in agreement that the larger buy-side firms seem to have built STP systems and are in the process of developing their businesses. In some cases, it is recognized that there is a need to reposition existing systems rather than creating new operating platforms. Generally buy-side members are playing catch up in the development lifecycle.

MH – European Pension Funds and Corporates may well avoid trading in the US or with those counterparts covered under the DFA favouring treatment under EMIR and a single line of regulation.

**Basel III including Liquidity Coverage Ratio (LCR) and Net Stable Funding Ratio (NSFR)**

One key focus of Basel III is to address the risk of a run on a bank by requiring differing levels of assets for different forms of bank deposits and other borrowings. This focus on bank funding has resulted in the introduction of two complementary tools to monitor, strengthen and promote global consistency in liquidity risk supervision, i.e. the LCR and NSFR.

The adoption of LCR is being phased in over a period of years in an attempt to limit market disruption. The LCR aims to ensure that the bank has sufficient minimum stock of unencumbered HQLA to survive a significant stress scenario lasting for one month, promoting short-term resilience of a bank’s liquidity risk profile.

\[
\text{LCR} = \frac{\text{Stock of high quality liquid assets}}{\text{Stressed net cash outflow over 30 calendar days}} \geq 100\%
\]

The NSFR, scheduled to be implemented by 1 January 2018, requires banks to maintain a stable funding profile in relation to the composition of their assets and off-balance sheet activities. The US and the EU have yet to propose regulations on this. The NSFR aims to reduce the likelihood that disruptions to a bank’s regular sources of funding will erode its liquidity position in a way that would increase the risk of its failure and potentially lead to broader systemic stress. It also intends to limit overreliance on short-term wholesale funding, encourage better assessment of funding risk across all on- and off-balance sheet items, and promote funding stability. Its time horizon is 1 year.

\[
\text{NSFR} = \frac{\text{Available amount of stable funding}}{\text{Required amount of stable funding}} > 100\%
\]
Collateral Consequence
- As banks are required to hold increasing amounts of unencumbered HQLAs, this is likely to reduce the available securities in use for collateralised funding and margining purposes. This is likely to increase the need for more expensive unsecured funding, or remain secured but with a more diverse range of acceptable collateral.
- Many banks have implemented funding arrangements to enable them to source longer term finance e.g. Revolving 'Evergreen' funding solutions.

The Basel Committee on Banking Supervision and the International Organisations of Securities Commissions (BCBS-IOSCO) on margin for non-cleared OTC derivatives
The September 2013 BCBS-IOSCO report on margin requirements for non-cleared trades outlines the requirement to exchange VM and IM between transacting counterparties. The requirement to exchange two-way IM, will be phased in from 1 September 2016. Firms with non-cleared OTC derivatives will need to exchange VM from 1 March 2017 and ultimately IM daily with bilateral counterparts (taking into account the currency of the underlying trade). Firms must undertake two way margin calls and must report any margin call disputes after 5 days duration. The implementation of this requirement falls under national jurisdictions; the EU is still finalising its approach whereas the US has largely completed its approach.

Collateral Management Activity
- Firms will need to calculate IM according to their chosen margin model(s) and will need to apply complex risk data.
- Firms will need to establish policies, procedures and controls for minimising disputes by reconciling portfolios, risk sensitivities, risk factors and margin calls with their counterparts.
- Firms will need to meet new minimum regulatory standards on key terms in Credit Support Annexes (CSAs) so will need to re-contract with all their counterparts.
- It is widely accepted that the buy-side are not impacted on day one by BCBS but that some of their largest counterparties will be.

PANEL VIEW
DA – Trade structures have changed to more Evergreens with dealers pre-optimising and predicting collateral. Client activity shows market players have started to allocate collateral in line with LCR’s mandate.
JD – There is a big push in the broker dealer community to engage with the equity side of the business, largely in Evergreen trades. Clients are committing to lend their assets for 33 or 93 days, often ISIN specific, to generate an increased return on their portfolio.
MH and DA felt the buy-side will probably use tri-party optimisation in one to two years with the buy-side operating a ‘peer to peer’ market. While the buy-side may not have historically worried about cost of collateral/margin but now with more margin and transparency required, they are being forced into ever more sophisticated trades.
JD – Of the universe of investable assets ($12 trillion) approximately 10% is being used as collateral. It is estimated that the possible returns could be between 2 and 12 basis points, depending on the asset profile.
MH – Risk return profiles vary enormously between market players – hedge funds take risks and demand high returns. High costs may be less of an issue for them.
DA – Reducing capital costs is a big driver for broker dealers (borrowers). A beneficial owner only (lender) would not see this capital reduction benefit and only sees additional costs when using a CCP.
MH – The tri-party agent will probably be the easiest mechanism to move collateral to/from a CCP but there will be a cost associated with it which the buy-side may not be accustomed to today.
DA – Data from our global tri-party collateral management platforms shows that market participants have already begun to allocate collateral in line with the LCR’s mandate.
Solvency II Directive
This EU Directive, often called ‘Basel for insurance companies’, covers all 28 Member States. To be applicable from 1 January 2016, it intends to harmonise insurance regulation by addressing the amount of capital EU insurance companies should hold to reduce the risk of insolvency. Its key objectives are:

- **Improved consumer protection**: a uniform and enhanced level of policyholder protection.
- **Modernised supervision**: the “Supervisory Review Process” will shift supervisors’ focus from compliance monitoring and capital to evaluating insurance companies’ risk profiles and the quality of their risk management and governance systems.
- **Deepened EU market integration**: through the harmonisation of supervisory regimes.

Collateral Consequence
- The need to hold assets for use as collateral may have a direct impact on a firm’s investment performance.
- With increasingly complex collateral requirements, it is likely that insurance companies will need to develop more sophisticated collateral solutions (i.e. collateral management/repo desks).

The Markets in Financial Instruments Directive (MiFID II)
MiFID II is the EU legislation for investment intermediaries who provide services to clients in relation to shares, bonds, units in collective investment schemes and derivatives and the organised trading of financial instruments. Its changes are expected to take effect from January 2017 or January 2018, and it aims to reduce systemic risk and strengthen financial stability by ensuring maximum markets transparency and ensure robust levels of investor protection.

Originally, MiFID was applied in 2007 but is now being comprehensively revised (MiFID II). In order to achieve this, the European Commission has focussed on OTC markets, and extended pre- and post-trade transparency requirements currently applicable to equity markets to non-equity and equity-like products.

Collateral Consequence
- Increased focus on collateral requirements by smaller institutions requiring collateral services.
- We are likely to see increased client reporting requirements leading to an increase in operational costs.
PANEL VIEW
MH – MiFID II is principally focussed on ensuring “best execution” and providing “transparency” on pricing/charges applicable to investment transactions. The businesses most directly affected are those where prices are required and orders executed. What is becoming clear is that services like collateral management, securities finance and liquidity management may be less impacted than established execution businesses like the FX and capital markets.

It’s likely that MiFID II reporting of securities finance transactions will take place even though its reporting will not become mandatory until later in the regulatory calendar. We do not believe that collateral optimisation will be deemed a MiFID II activity and therefore collateral management will be relatively unaffected.

Undertakings for Collective Investment in Transferable Securities (UCITS V)
The UCITS V EU Directive came into force on 17 September 2014 with implementation scheduled to occur by 18 March 2016. It allows collective investment schemes to operate freely on the basis of a single authorisation from one member state. One of the key elements of UCITS V is the need for an appointment of a single depositary for the fund. The depositary has the responsibility as the ‘eyes of the investor’ and is responsible for the new cash monitoring obligations including the following collateral related rules:

Non cash collateral received:
- Should be highly liquid and traded on a regulated market with the ability to value the security daily and sell it quickly, at a price that is close to pre-sale valuation;
- It should also be of a high quality and subject to a pre-check and on-going verification of issuer credit rating with on-going liquidity checks on all collateral received;
- It cannot be further used (re-used) as part of another repo, or securities lending agreement;
- A maximum issuer limit of 20% of the fund’s Net Asset Value (NAV) including any collateral considerations.

For cash collateral received:
- If UCITS reinvest cash collateral in reverse repo transactions, these should comply with rules requiring the receipt of HQLA; cash collateral received by UCITS cannot be used by UCITS for clearing obligations under EMIR.

Collateral Consequence
- Possible reduction in the level of securities lending activity amongst some UCITS fund managers because of reduced revenue opportunities.
- Article 22(7) imposes significant restrictions on the re-use (including lending) of assets of UCITS funds. This will limit the use of agent lenders in relation to UCITS funds.
- Traditional repos are being replaced by a variety of financial derivatives e.g. total return swaps.

PANEL VIEW
MH – UCITS funds have restrictive guidelines around the concentration of risk related to collateral and the re-use of assets. When they need to clear derivatives, they require almost instant access to cash to post as collateral, which may require that they hold pools of cash for this purpose, which would inevitably lead to a performance drag on the fund.

JD – We are seeing a general migration into various synthetic products as firms search for alternative balance sheet acceptable transactions to achieve a given economic need.
Collateral Management in the German Market

Whilst regulations and directives apply within all EU countries, in practice we have observed a variation in the speed of responsiveness of the different national authorities and initial interpretation of the new rules.

The goals of a Directive need to be reflected and implemented practically in each EU country. The country specific responses may at times generate a perception that some jurisdictions are more engaged or proactive than others. This in turn, can imply that there are market differences from one country to the other as solutions are implemented.

A new German capital Investment Act (Kapitalanlagegesetzbuch ‘KAGB’) came into effect in 2013 designed to regulate all German Investment laws. Incorporating the requirements of the AIFMD, KAGB is in the process of incorporating the requirements of the UCITS V Directive into a single set of German investment fund rules.

Market changes are being implemented in the German market to accurately reflect the requirements of AIFMD and UCITS V, with key changes occurring specifically around the UCITS V Article 22 relating to the appointment of a ‘single depositary’. The depositary’s responsibilities include amongst others: fund oversight, cash monitoring, reporting and the control over fund asset re-use.

An early market mover will be the first to identify ambiguity in the possible interpretation of a new Directive. As such, the German market is in a unique position to raise a number of such examples – one of which is the interpretation of ESMA guidelines on OTC collateral. UCITS V Article 22(7) states that securities owned by the fund are not permitted to be re-used unless at least one of the four specific conditions is met. This has raised an element of confusion concerning the use of collateral transformation transactions within the context of UCITS V. As a result the BVI (Bundesverband Investment und Asset Management), the German buy-side association is currently in dialogue with the relevant authorities to highlight the impacts for the funds industry and to encourage the Federal Financial Supervisory Authority (BaFin) to resolve this inconsistency.

However, we see the vast majority of details in each directive being commonly interpreted across national borders. We expect the small number of inconsistencies once scrutinised to be clarified, resulting in a single interpretation of directives, applied uniformly across the EU.

The Alternative Investment Fund Managers Directive (AIFMD)

The AIFMD EU Directive, from July 2013, increases transparency of Alternative Investment Funds (AIFs), essentially hedge funds and private equity funds. Its aims are:

- To enhance the supervisory practices of ESMA and the European Systematic Risk Board (ESRB) enabling them to support timely and pre-emptive action to prevent market instability and the build-up of systemic risk in the European financial system.
- To improve investor protection by imposing new depositary standards including rules covering segregated client accounts, enhanced transparency through new investor disclosure rules and mandatory reporting to competent authorities.

- To foster efficiency and cross-border competition by deregulating national barriers and creating level playing fields through harmonised rules on an European Economic area (EEA) wide passport.

It also covers firms who are managing or marketing AIFs in the EU wherever they are based. Essentially, if countries comply with the AIFMD requirements, the firms are granted a ‘passport’ allowing them to transact business across the EU.

Collateral Consequence

- Possible reduction in the revenue generating opportunities of the EU’s AIF industry resulting from collateral regulatory compliance.
MH – As AIFMD and UCITS requirements start to converge, we are starting to see the regulatory landscape becoming more cohesive. This is a good example of the direction of travel – harmonisation across the differing regulatory area.

**Vickers Report – UK**

The Independent Commission on Banking (ICB) produced the Vickers Report, requiring British banks to ring-fence vital domestic retail services from the investment banking arms to safeguard against riskier banking activities (together with other recommendations on bank capital requirement and competition in retail banking).

**Collateral Consequence**

- It is inevitable that larger UK players will be required to uncouple investment banking from retail banking activities. This increases the requirement for transparency which in turn will result in a more forensic approach to costs and cost allocation.

- Firms will probably become more transparent in terms of the ability to benchmark their collateral competitiveness with ‘like’ institutions.

**Financial Stability Board (FSB) Shadow Banking Report**

In October 2014, the FSB published a report that specified the regulatory framework for haircuts on certain non-centrally cleared Securities Financing Transactions (SFTs) with non-banks against collateral, other than government securities, and introduced a framework for haircut floors for non-centrally cleared SFTs.

The BCBS issued its consultative document on 5 November 2015 seeking comments by 5 January 2016 inter alia on the following proposed haircut floors:

<table>
<thead>
<tr>
<th>Residual maturity of collateral</th>
<th>Corporate and other issuers</th>
<th>Securitised products</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \leq 1 \text{ year debt securities, and Floating Rate Notes (FRNs)} )</td>
<td>0.5%</td>
<td>1%</td>
</tr>
<tr>
<td>( &gt;1 \text{ year, } \leq 5 \text{ years debt securities} )</td>
<td>1.5%</td>
<td>4%</td>
</tr>
<tr>
<td>( &gt;5 \text{ years, } \leq 10 \text{ years debt securities} )</td>
<td>3%</td>
<td>6%</td>
</tr>
<tr>
<td>( &gt;10 \text{ years debt securities} )</td>
<td>4%</td>
<td>7%</td>
</tr>
<tr>
<td>Main index equities</td>
<td>6%</td>
<td></td>
</tr>
<tr>
<td>Other assets within the scope of the FSB framework</td>
<td>10%</td>
<td></td>
</tr>
</tbody>
</table>

**Collateral Consequence**

- For lower quality and longer dated securities involved in SFTs (e.g. repo), it is likely that there will be less funding sourced (given the increase in collateral haircuts).

- The change in funding arrangements may impact the appetite to hold such securities.

- Changes in the funding practices (and funding cost) of SFTs may result in a greater cost of funding – with a consequential direct impact on a firm’s profitability.

**PANEL VIEW**

The panel did not feel that the current cost of holding HQLA was significantly impacting the overall cost of funding of sell- side institutions and indeed it was likely that they were absorbing the costs.

A number of buy- side asset managers with sophisticated securities lending platforms have declared that these additional FSB haircuts are particularly onerous, with one publicly calling for an exemption.
SECTION 3:  
The Aerial View - Conclusion

The aim of the new regulations is to influence market behaviour, so it is unsurprising that changes in market behaviour are being observed across many collateral related product areas. In order to identify and comment on the market changes, this Paper references data included in market reports regularly issued by market organisations such as ISDA, ISLA and the ICMA ERC report.

These detailed reports analyse market data and identify trends in their respective product areas, i.e. derivatives, securities lending and repo, providing a valuable source of statistical evidence to validate and illustrate our market observations. A recurring theme throughout the reports is the interconnectivity between the respective market and the collateral impact of the various emerging regulations.

Cause and Effect – Statistical Viewpoint

The presence of legal documents is a useful marker of market intent. The latest ISDA Margin Survey Report Published in August 2015 indicates an increase of over 50% in the total collateral volume related to cleared OTC transactions, with client related clearing volumes more than quadrupling. It would be reasonable to suggest that this increase is a direct result of a shift of activity on the client side driven by EMIR and the DFA regulations.

As there is a move towards centrally cleared OTC activity, we would expect the non-cleared activity to reduce. The same ISDA Report identifies the number of non-cleared agreements in place to have fallen by 7.2% over 2014. Interestingly, it reports the total count of inactive agreements also increased by 17.9% in 2014, raising the possibility that some players may have exited the market altogether. We believe this may be true as smaller players conclude that the cost of adherence to regulations is not justifiable.

There is also evidence of changes in the quality of securities and maturity of collateral trades. The September 2015 ISLA Report identifies EMIR and components of Basel III such as LCR as clear drivers in the market’s increased desire to source HQLA.

Balance sheet and capital charges have made the use of equities increasingly attractive for banks to provide as collateral (relative to cash) and the absence of real returns in the short term money markets is making cash collateral even less attractive to lenders. The same ISLA report identifies a 4% increase in government bond lending over a 12 month period, which now stands at 39% of all securities on-loan. This upward trend is one we believe may continue as firms continue to access government bonds as a source of HQLA. Detailed analysis of the ISDA report supports this trend and identifies a jump of 247% in the use of UK government bonds for use as collateral.

In addition to the increase in value of HQLA driven lending transactions, the ISLA report also highlights an increase in the number of trades with a term of 3 or more months. Over the 12 month period, 12% of all transactions were for a maturity of 3 or more months. The same report also identified an accompanying reduction in the share of repos with maturities between two days and one month, together with a reduction in the share of both open repo and floating rate repo business. We believe this is a direct impact of the Basel III LCR and NSFR regulations as trades with longer term maturities are being targeted.

The focus on HQLA is also reflected in the ICMA ERC results for December 2014, in which the share of government bonds within the repo pool of securities has been reported to have risen to 81.5% (however this has subsequently reduced marginally in the June 2015 report). The overall upward trend in sourcing HQLA is echoed in ISLA’s findings identifying the increase in HQLA activity has been predominantly driven by German, UK and to some extent Japanese government securities.
Japanese Government Bonds and Collateral

The ICMA ERC December 2014 survey highlights an increased collateral use of Japanese Government Bonds (JGBs) in the international repo markets. JGBs, as a percentage of the total collateral volumes, stood at an all-time high with 8.6% – an increase partly attributed to FX arbitrage opportunities enabling JGBs to be used in collateral transformation trades.

The Bank of Japan (BOJ) is facilitating the development of an enhanced JGB settlement infrastructure to ensure the smooth delivery of the Japanese Yen and JGBs globally. BOJ has already been collaborating with a number of Asian central banks on cross border collateral arrangements. In addition to these bilateral arrangements, the BOJ has announced various market initiatives designed to support the large scale availability of JGBs for use as collateral in the international markets as demonstrated by:

- The shortening of the JGB settlement cycle – the current T+3 settlement period (together with the additional time zone considerations) limits the use of JGBs as collateral in western markets. The settlement period has contracted in some cases to T+2 and from 2017 is planned to contract to T+0.
- Longer intraday settlement hours in Tokyo – extending the BOJ-NET operating hours to overlap with overseas working hours; plans currently will enable JGBs to be delivered up until midday London time by early 2016. This will facilitate the movement and therefore use of JGBs as collateral, for example at European CCPs.

The large scale initiatives underway in Japan (involving a government bond market just marginally smaller than the US government market), is anticipated to provide a mechanism that will enable the large scale collateral value locked up within the JGB market to be unleashed both for use in Tokyo and on a global basis.

Collateral market trends

Sell-side institutions have upwards of 25 years’ experience in implementing sophisticated balance sheet driven collateral solutions. In direct contrast, buy-side institutions are now being forced to implement solutions over relatively short time frames and are required to rethink the fundamental pillars of their business with regards to risk, capital considerations and collateral management. As a result, the buy-side is playing a game of serious catch-up.

As referenced in the early pages of this Paper, the wide range of regulatory developments have varying levels of direct and indirect impacts when compared across the different market segments. Although we have identified trends, it is worth noting that even within a given market segment there are significant differences between firms. These differences may be based on one, or a number of factors, such as institutional size, sophistication (business profile, legal structure, operational maturity etc.) and geographical locations.

We believe regulatory changes are becoming intrinsically linked to an organisation’s risk management function across all market sectors. Risk departments within organisations are becoming the kingpin to the operational, trading and regulatory activities of the firm and are driving all of their collateral related decisions.
In summary, the collateral trends below have been identified as specifically driven by regulatory changes:

- Increased use of non-cash for collateral purposes;
- Increased use of HQLA such as Government bonds;
- Longer maturity of collateral-related transactions;
- Greater levels of collateral are being required for use at CCPs;
- Increased complexity of collateral management solutions available in the market to ensure enhanced collateral efficiency and ultimately collateral optimisation.

Market Review

The collateral market impact of both EMIR and the DFA is direct across the majority of market sectors. These regulations have required a large scale market move by the buy-side players to adopt solutions to enable them to clear OTC derivative transactions through CCPs.

The universal market impacts of Basel III are without a doubt starting to filter through as are those of UCITS V and AIFMD. Regulatory changes which target market specific sectors e.g. Solvency II on insurance Companies, have resulted in direct effects but indirect responses are only just starting to filter through to the wider market. Other regulations such as IORP and MiFID II continue to be a work-in-progress.

The Collateral Grid included on page 3 illustrates the direct and indirect regulatory impacts across market segments, with financial institutions most affected whilst sovereigns (who can choose to be exempt) are the least affected. However, all players are impacted as the new regulations continue to influence market behaviour as risk, capital impact and associated costs of individual trades are more closely monitored.

PANEL VIEW

MH – BNY Mellon is being tasked with delivering more sophisticated solutions to meet the ever more complex requirements of its clients; this is a direct result of clients becoming more organised – a view echoed by JD who is starting to see engagement with the buy- side as they seek to understand how to profit from collateral being the new asset class.

For most sell-side financial institutions and hedge funds, collateral has been a key business driver for some years. However it is evident that there are increasing numbers of asset managers, insurance companies and pension funds developing greater levels of sophistication in this area, with many having implemented improved collateral, risk and balance sheet management solutions on their journey towards collateral optimisation.

PANEL VIEW

The panel felt that faced with a plethora of regulations, market participants were adopting a ‘just in time’ mode of operation, often reacting in a tactical rather than strategic mode. According to the panel hardly any conflicts between regulations were evident. JD said: It’s early days, unintended consequences are yet to fully materialise and it’s currently very much ‘work in progress’.

For those involved in stock lending there is a growing trend for securities to be taken as collateral against stock rather than receiving cash collateral. This provides an advantage of a lower balance sheet charge to the counterparty under Basel III.

PANEL VIEW

PT – There is evidence that insurance companies are becoming more proactive in their use of collateral and are taking advantage of greater market demand for HQLAs by other market participants.
Traditionally, different arms of large insurance companies have tended to operate their treasury activities independently of each other. As insurance companies are targeting more sophisticated, cost efficient collateral processes, there is evidence that some insurance companies are pooling their collective collateral expertise at a group level. This is resulting in a centralised holistic view of the group’s assets across the areas of balance sheet management, collateral management and risk management.

Other buy-side institutions also appear to be progressing well on their respective collateral journeys, although there is obviously a variation in the level of engagement across and within different market segments. Even though the lack of certainty (or postponement) of timings has created some delays, most institutions have now identified their collateral regulatory obligations and are at least at the implementation stage.

For buy-side to buy-side trades, involving a broker dealer principal, regulations are also appearing to change market behaviour with participants seeking to avoid the cost of capital for certain types of trades. Market participants may look to alternative transactions that allow counterparties to be fulfilled but without the broker incurring prohibitive capital cost that would negate the transaction.

**Future challenges**

Many market players, including pension funds are increasingly embracing a ‘forensic’ approach to analyse the full cost of each transaction. We believe this trend may eventually extend to most market players over time as they systematically analyse their collateral options. This analysis should lead to improved collateral usage, ultimately resulting in collateral optimisation. For each trade, this means gaining a thorough knowledge of factors such as:

- All costs of transacting;
- All settlement and service costs;
- All capital costs;
- All collateral costs.

The observations of the BNY Mellon experts and the market trends evidenced by reported market statistics provide a remarkably consistent message. Each illustrate an industry of activity focused on the preparations around implementing clearing arrangements, the increase in CCP related transactions, and more recently, the increased market focus on HQLAs. As the market addresses the needs of UCITS V and Basel III requirements, it is expected that there will be an increasing focus on sourcing HQLAs. The observed trend in HQLA activity that clearly illustrates the increasing number of longer dated securities transformations transactions involving HQLAs, is likely to continue.

**PANEL VIEW**

PT – Pension funds and insurance companies are seeing a demand for their assets and many are now unlocking the collateral value of their assets, including optimising collateral held within trust vehicles.

JD – Regulations are pushing term structures, often to 90 days, which in turn is forcing insurance companies and pension funds to lend longer term.

The observations of the BNY Mellon experts and the market trends evidenced by reported market statistics provide a remarkably consistent message. Each illustrate an industry of activity focused on the preparations around implementing clearing arrangements, the increase in CCP related transactions, and more recently, the increased market focus on HQLAs. As the market addresses the needs of UCITS V and Basel III requirements, it is expected that there will be an increasing focus on sourcing HQLAs. The observed trend in HQLA activity that clearly illustrates the increasing number of longer dated securities transformations transactions involving HQLAs, is likely to continue.

**PANEL VIEW**

PT – Some buy-side firms are showing sophistication in the area of collateral management. Large insurance companies show positions and collateral movements automatically and are informed of the consequences of interest rate movements. These organisations are combining collateral management and treasury functions and undertaking collateral optimisation, with the fund manager taking into account how the financing desk uses their own balance sheet.
What’s Next?

Ultimately, we believe the first key decision for any market participant is whether or not to engage a service provider partner and outsource or to perform the collateral function internally. In order to make this decision, a complete collateral impact analysis has to be undertaken. G-SIBs, such as BNY Mellon, provide the safety, security, service breadth and responsiveness that many clients are actively seeking.

We have covered a broad range of the regulatory landscape in this Paper, with the Collateral Impact Analysis Grid helping to summarise these regulations across market segments. Market players should consider this grid and compile an impact analysis checklist for their own business. Only then will you be able to answer key collateral questions which determine your collateral fitness, such as:

- Do I know all the collateral impacts on my business (direct and indirect)?
- Do I understand the threats and opportunities?
- What collateral options are available to me?
- What steps do I need to take?
References:

Proposal for a DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on the activities and supervision of institutions for occupational retirement provision (recast) /* COM/2014/0167 final – 2014/0091 (COD) */


Basel III: The Liquidity Coverage Ratio and liquidity risk monitoring tools January 2013
http://www.bis.org/publ/bcbs238.htm

Basel Committee on Banking Supervision Board of the International Organization of Securities Commissions Margins requirements for non-centrally cleared derivatives September 2013
http://www.bis.org/publ/bcbs261.pdf

Revisions to implementation of margin requirements for non-centrally cleared derivatives issued by the Basel Committee and IOSCO
http://www.bis.org/bcbs/publ/d317.htm

Bank of England; Solvency II
http://www.bankofengland.co.uk/pra/Pages/solvency2/default.aspx

Solvency II (including “Omnibus II”)
http://ec.europa.eu/finance/insurance/solvency/solvency2/index_en.htm

Addressing SiFs

Updated rules for markets in financial instruments: MiFID2

ESMA Consultation paper on MiFID2

Directive 2014/91/EU Of The European Parliament And Of The Council

http://ec.europa.eu/finance/investment/alternative_investments/index_en.htm

The Independent Commission on Banking: The Vickers Report & the Parliamentary Commission on banking standards

Global Shadow Banking Monitoring Report 2015

Takehiro Sato (Member of the BOJ Policy Board) Speech (Feb 2014)

ISDA Margin Survey 2015 August 2015
https://www2.isda.org/functional-areas/research/surveys/margin-surveys/

ISLA Securities Lending Market Report Sept 2015

ICMA ERC Market Survey Dec 2014 & June 2015

Amundi Calls for SFT Reporting Exemption for Asset Managers – Global Custodian edition 26.02.2015

Regulators Have Misunderstood Securities Lending, Argues BlackRock – Global Custodian edition 14.05.15

FSB to Enforce SFT Haircut Rules for Buy-Side from September – Global Custodian edition 29.07.15
www.globalcustodian.com/Regulation/FSB_to_Enforce_SFT_Haircut_Rules_for_Buy-Side_from_September.aspx/

Indirect Clearing Arrangements under EMIR and MiFIR November 2015
The Field Effect

TFE is a boutique consultancy specialising in clearing and collateral management, spanning cleared and uncleared OTC Derivatives and Exchange Traded Derivatives.

We provide advisory services to every participant in the industry value chain including; buy-side and sell-side firms, clearing houses, custodians and CSDs.

TFE was founded and is led by David Field, an acknowledged expert in clearing and collateral management. With over 20 years financial services consulting experience, David has led many clearing and collateral advisory projects across buy-side, sell-side, CCPs and custodians, spanning strategy, target operating model, and technology. David speaks at numerous industry conferences and is frequently quoted in financial services media.

About BNY Mellon

BNY Mellon is a global investments company dedicated to helping its clients manage and service their financial assets throughout the investment lifecycle. Whether providing financial services for institutions, corporations or individual investors, BNY Mellon delivers informed investment management and investment services in 35 countries and more than 100 markets. As of Dec. 31, 2015, BNY Mellon had $28.9 trillion in assets under custody and/or administration, and $1.6 trillion in assets under management. BNY Mellon can act as a single point of contact for clients looking to create, trade, hold, manage, service, distribute or restructure investments. BNY Mellon is the corporate brand of The Bank of New York Mellon Corporation (NYSE: BK). Additional information is available on www.bnymellon.com. Follow us on Twitter @BNYMellon or visit our newsroom at www.bnymellon.com/newsroom for the latest company news.
BNY Mellon is the corporate brand of The Bank of New York Mellon Corporation and may be used as a generic term to reference the corporation as a whole and/or its various subsidiaries generally. This material and any products and services may be issued or provided under various brand names in various countries by duly authorized and regulated subsidiaries, affiliates, and joint ventures of BNY Mellon, which may include any of the following: The Bank of New York Mellon, at 225 Liberty St, NY, NY USA, 10286, a banking corporation organized pursuant to the laws of the State of New York, and operating in England through its branch at One Canada Square, London E14 5AL, UK, registered in England and Wales with numbers FC005522 and BR000818. The Bank of New York Mellon is supervised and regulated by the New York State Department of Financial Services and the US Federal Reserve and authorized by the Prudential Regulation Authority. The Bank of New York Mellon, London Branch is subject to regulation by the Financial Conduct Authority and limited regulation by the Prudential Regulation Authority. Details about the extent of our regulation by the Prudential Regulation Authority are available from us on request. The Bank of New York Mellon SA/NV, a Belgian public limited liability company, with company number 0806.743.159, whose registered office is at 46 Rue Montoyerstraat, B-1000 Brussels, Belgium, authorized and regulated as a significant credit institution by the European Central Bank (ECB), under the prudential supervision of the National Bank of Belgium (NBB) and under the supervision of the Belgian Financial Services and Markets Authority (FSMA) for conduct of business rules, and a subsidiary of The Bank of New York Mellon. The Bank of New York Mellon SA/NV operates in England through its branch at 160 Queen Victoria Street, London EC4V 4LA, UK, registered in England and Wales with numbers FC029379 and BR014361. The Bank of New York Mellon SA/NV (London Branch) is authorized by the ECB and subject to limited regulation by the Financial Conduct Authority and the Prudential Regulation Authority. Details about the extent of our regulation by the Financial Conduct Authority and Prudential Regulation Authority are available from us on request. The Bank of New York Mellon SA/NV operating in Ireland through its branch at 4th Floor Hanover Building, Windmill Lane, Dublin 2, Ireland trading as The Bank of New York Mellon SA/NV, Dublin Branch, is authorized by the ECB and is registered with the Companies Registration Office in Ireland No. 907128 & with VAT No. IE 9578054E. The Bank of New York Mellon, Singapore Branch, subject to regulation by the Monetary Authority of Singapore. The Bank of New York Mellon, Hong Kong Branch, subject to regulation by the Hong Kong Monetary Authority and the Securities & Futures Commission of Hong Kong. If this material is distributed in Japan, it is distributed by The Bank of New York Mellon Securities Company Japan Ltd, as intermediary for The Bank of New York Mellon. Not all products and services are offered in all countries. The information contained in this material is intended for use by wholesale/professional clients or the equivalent only and is not intended for use by retail clients. If distributed in the UK, this material is a financial promotion. This material, which may be considered advertising, is for general information purposes only and is not intended to provide legal, tax, accounting, investment, financial or other professional advice on any matter. This material does not constitute a recommendation by BNY Mellon of any kind. Use of our products and services is subject to various regulations and regulatory oversight. You should discuss this material with appropriate advisors in the context of your circumstances before acting in any manner on this material or agreeing to use any of the referenced products or services and make your own independent assessment (based on such advice) as to whether the referenced products or services are appropriate or suitable for you. This material may not be comprehensive or up to date and there is no undertaking as to the accuracy, timeliness, completeness or fitness for a particular purpose of information given. BNY Mellon will not be responsible for updating any information contained within this material and opinions and information contained herein are subject to change without notice. BNY Mellon assumes no direct or consequential liability for any errors in or reliance upon this material. This material may not be distributed or used for the purpose of providing any referenced products or services or making any offers or solicitations in any jurisdiction or in any circumstances in which such products, services, offers or solicitations are unlawful or not authorized, or where there would be, by virtue of such distribution, new or additional registration requirements. All references to dollars are in US dollars unless specified otherwise. This material may not be reproduced or disseminated in any form without the prior written permission of BNY Mellon. Trademarks, logos and other intellectual property marks belong to their respective owners. The Bank of New York Mellon, member FDIC.