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TECHNICAL NOTE—SECURITIES—FUND MANAGEMENT; EQUITY AND DERIVATIVES TRADING; AND VIRTUAL ASSETS AND VIRTUAL ASSET SERVICE PROVIDERS

This Technical Note on Securities—Fund Management; Equity and Derivatives Trading; and Virtual Assets and Virtual Asset Service Providers for the United States FSAP was prepared by a staff team of the International Monetary Fund as background documentation for the periodic consultation with the member country. It is based on the information available at the time it was completed in July 17, 2020.

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SECURITIES—FUND MANAGEMENT; EQUITY AND DERIVATIVES TRADING; AND VIRTUAL ASSETS AND VIRTUAL ASSET SERVICE PROVIDERS

Prepared By
Monetary and Capital Markets Department

This Technical Note was prepared by IMF staff in the context of the Financial Sector Assessment Program (FSAP) in the United States held during October–November 2019 and February–March 2020. It was led by Ms. Michaela Erbenová. It contains technical analysis and detailed information underpinning the FSAP's findings and recommendations. Further information on the FSAP can be found at http://www.imf.org/external/np/fsap/fssa.aspx

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ANC Broker Dealer	Broker Dealer using an Internal Model to Calculate Capital under an 'Alternative Net Capital' Approach
ARRC	Alternative Reference Rate Committee
ATS	Alternative Trading System
ATS-N	Mandatory Disclosures for ATSs Offering Trading in Reg NMS Securities
AUM	Assets Under Management
BD	Broker Dealer
BIS	Bank for International Settlements
CBOE	Chicago Board Options Exchange
CEA	Commodity Exchange Act
CIS	Collective Investment Scheme
CCP	Central Counterparty (clearing house)
CFTC	Commodity Futures Trading Commission
CP	Commodity Pool
CPO	Commodity Pool Operator
CSBS	Conference of State Bank Supervisors
CTA	Commodity Trading Adviser
DCM	Designated Contract Market
DCO	Derivatives Clearing Organization
DFA	Dodd-Frank Wall Street Reform and Consumer Protection Act
ENN	Entity Netted Notionals
ERA	Exempted Reporting Advisor
ETF	Exchange-traded Fund
FATF	Financial Action Task Force
FCM	Futures Commission Merchant
FIA	Futures Industry Association
FinCEN	Financial Crimes Enforcement Network
FINRA	Financial Industry Regulatory Authority
FRB	Board of Governors of the Federal Reserve System
FSOC	Financial Stability Oversight Council
GAO	Government Accountability Office
IA	Investment Adviser
IAA	Investment Adviser Act 1940
ICA	Investment Company Act 1940
ICO	Initial Coin Offering
IOSCO	International Organisation of Securities Commissions
ISDA	International Swaps and Derivatives Association
LIBOR	ICE LIBOR, formerly London Inter-bank Offered Rate
LRMP	Liquidity Risk Management Program
LULD	Limit Up-Limit Down
MoU	Memorandum of Understanding
MSBSP	Major Security-based Swap Participant
MSP	Major Swap Participant

NASAA	North American Securities Administrators Association
NAV	Net Asset Value
NFA	National Futures Association
NMS	National Market System
NSE	National Securities Exchange
NYSDFS	New York State Department of Financial Services
NYSE	New York Stock Exchange
OCIE	Office of Compliance and Inspection Examinations
OTC	Over-the-counter
Reg NMS	Regulation National Market System
Reg SCI	Regulation Systems Compliance and Integrity
Reg S-ID	Regulation Identity Theft Red Flags
Reg S-P	Regulation: Privacy of Consumer Financial Information and Safeguarding Personal Information
SAI	Statement of Additional Information
SBS	Security-based Swaps
SBSD	Security-based Swap Dealer
SBSEF	Security-based Swap Execution Facility
SD	Swap Dealer
SEC	Securities and Exchange Commission
SEF	Swap Execution Facility
SIFMA	Securities Industry and Financial Markets Association
SOFR	Secured Overnight Financing Rate
SRO	Self-regulatory Organization
UIT	Unit Investment Trust
US$	U.S. Dollar
VA	Virtual Asset
VASP	Virtual Asset Service provider
WFE	World Federation of Exchanges

EXECUTIVE SUMMARY

This technical note considers the regulation and supervision of fund management and equity and derivatives trading in the United States (U.S.). As one of the main destinations for household savings and a key provider of funding to U.S. corporates, investment funds play a major role in the U.S. financial system. Distortions to equity trading could cause significant loss of confidence in markets, while international post-crisis reforms for OTC derivatives have underlined the importance of greater transparency and the value of central clearing. U.S. companies have also traditionally raised more finance through equity and other capital markets than through bank lending, and so capital markets are of greater structural significance in the U.S. than in some other jurisdictions.

At the time of the last U.S. FSAP in 2015, a detailed assessment was carried out of the regulation of securities, particularly equity markets. The assessment concluded that there was generally a high level of consistency between the U.S. regulatory regime and supervisory practice and the IOSCO Principles used as a benchmark. This is significant, given that U.S. equities markets were then and remain the largest in the world. The review in this technical note focuses accordingly on issues relevant for systemic risk in the regulatory and supervisory approach to fund management and oversight of equity and derivatives trading. Benchmarks for the review consisted of the updated IOSCO Principles, related IOSCO standards and guidance, the internationally agreed post-crisis reforms to OTC derivatives markets, and other relevant international standards. The technical note sets out a series of recommendations on the regulatory and supervisory framework aimed at reducing financial stability risks in U.S. securities markets.

The size and complexity of the U.S. fund management sector and equity and derivatives markets create unique challenges. Investment funds are larger than the banking sector as measured by assets under management, are a key source of funding for U.S. corporates and a major destination for U.S. household savings. The U.S. has the largest equity and derivatives markets in the world, with U.S. equity markets in particular being substantially larger than those of other jurisdictions. The nature of these sectors creates spillover risk both within the U.S. financial sector and internationally.

The importance of investment funds and equity and derivatives markets requires appropriate oversight. The missions of the Securities and Exchange Commission (SEC) and the Commodity Futures Trading Commission (CFTC) include investor protection and the orderly functioning of markets. They lack the independence over their budgets and their resource allocation needed to deliver regulatory and supervisory oversight commensurate with sectors of such significance both to the U.S. economy and internationally. Both authorities need to be able to determine the level of funding needed and raise it through fees on the industry, with appropriate accountability for their deployment of the sums raised.

Regulation and supervision of the fund management sector varies significantly between the SEC and the CFTC. This partly reflects the differences in statutory mandate of the two agencies. The

SEC has introduced important reforms since the 2015 FSAP but areas for improvement remain, including in the coverage of investment adviser inspections, and in the rules on funds' use of derivatives. The CFTC has not implemented the recommendations of the 2015 FSAP, which remain relevant. Both agencies should consider how they could apply additional scrutiny to new fund managers. With respect to money market funds, the reforms introduced by the SEC in 2010 and 2014 are now fully implemented and represent important additional safeguards. However, the substantial majority of money market funds that maintain a stable net asset value remain a significant component of the U.S. financial system.

Since the previous FSAP, equities markets have evolved, and the U.S. and other jurisdictions have made progress in implementing internationally agreed reforms to OTC derivatives ('swaps' and 'security-based swaps') markets. These changes in turn have prompted further evolution in the operation of these markets, in which trading in the U.S., and in instruments denominated in U.S. dollars (US$), plays a significant part. This technical note therefore reviews the regulatory and supervisory framework for the trading of equities and derivatives, with a particular focus on the reforms to OTC derivatives markets. In addition to changes in market structure, these markets are faced with threats of wider significance such as to technological and cyber-related resilience, and with the need to prepare for events such as the cessation of LIBOR from the end of 2021.

Welcome enhancements to equity market structure and the regulation of trading have been made since the last FSAP; however, more remains to be done. In particular, it is important to finalize arrangements for market-wide circuit-breakers and deliver the long-planned Consolidated Audit Trail.

The SEC is seeking further incremental enhancements and should ensure that future initiatives appropriately encompass off-exchange trading as well as trading on exchanges. This is because already over a third of equity trading is executed outside exchanges, including 20 percent which takes place outside national securities exchanges or regulated alternative trading systems, and there is the potential for this proportion to grow. The SEC should also carry out a strategic review of its overall supervision and oversight of the exchanges to ensure that there is sufficient focus on material areas of risk.

The U.S. was an early adopter of many aspects of the post-crisis reforms to OTC derivatives markets, but needs to complete implementation of the remaining aspects and make targeted adjustments to current arrangements, with close collaboration between the CFTC and SEC. In particular, it needs to finalize a trading platform regime for security-based swaps and to address barriers to increased trading on swap execution facilities and the resultant liquidity fragmentation. In the meantime, data suggests that the regime has been successful in incentivizing central clearing, a key component of reducing systemic risk.

The authorities have 'mainstreamed' consideration of cyber-security, business continuity and other aspects of technological resilience into both regulation and supervision. This has included sharing of key findings from examination for the benefit of other registrants, enabling a wider dissemination of lessons learned and good practices. Further incremental changes are likely to be needed as international exchange of best practice in this area develops.

The authorities are also closely engaged in preparations for LIBOR transition. As preparations advance, the CFTC and SEC should use a wider range of tools to ensure firms are on track with their transition.

There is no bespoke U.S. regulatory framework for virtual assets (VAs) and virtual asset service providers (VASPs). Depending on the features of a particular VA, and the nature and geographical reach of the activity being performed in relation to it, regulatory oversight may lie with the SEC, the CFTC or one of the state regulators. This leads to a significant level of fragmentation, both in relation to the rules that apply and the agency that applies them.

One notable gap in the current framework relates to the spot market for VAs that are commodities. While the CFTC has exclusive jurisdiction over derivatives on commodities that are not securities, it has only general anti-fraud and anti-manipulation powers in relation to the spot market for the underlying commodity itself, meaning that it can only act after the fact. As a result, except for AML/CFT purposes as described below, no federal agency is directly overseeing the spot market for Bitcoin, which is by far the largest virtual currency by market capitalization. This gap creates general customer protection risks, and raises questions on the risks of derivatives on VAs that are commodities and not securities.

The SEC and CFTC (and their staffs) took prompt action to address disruption to securities and derivatives markets arising from the COVID-19 pandemic through the issuance of orders, no-action letters and guidance. For example, among other relief, the SEC's actions included an order designed to facilitate open-end funds' (other than MMFs) and insurance company separate accounts borrowing from an affiliated person and the use of inter-fund lending arrangements. These measures were designed to provide funds with additional tools to manage their portfolios for the benefit of shareholders. The CFTC staff, meanwhile, issued no-action letters providing temporary, targeted relief to futures commission merchants, introducing brokers, swap dealers, retail foreign exchange dealers, floor brokers, and other market participants. The relief covered, inter alia, CFTC regulations requiring recording of oral communications related to voice trading and other telephonic communications. The CFTC also provided relief to swap execution facilities and designated contract markets covering certain audit trail and related requirements. In addition, circuit breakers that triggered temporary trading halts on several occasions in March 2020 were considered important in promoting orderly trading during the periods of most extreme volatility. The Federal Reserve Board (FRB) also rolled out a comprehensive set of liquidity support measures from March 2020 to combat widespread market dysfunction and to enhance monetary policy transmission.

Table 1. United States: Main Recommendations			
Theme	**Recommendation**	**Timing[1]**	**Priority**
Legislative and regulatory framework	CFTC and SEC to be given greater independence to determine their own resources, with appropriate accountability (¶14)	I	H
Fund management	SEC to monitor industry approach to liquidity bucketing under Form N-PORT and consider additional guidance in case of material divergences (¶29)	MT	M
	SEC to assess financial stability risks related to CNAV MMFs including through SEC-led stress testing (Box 1)	I	H
	SEC should ensure it has information on the gross leverage of funds covered by the new rule on use of derivatives (¶58)	I	H
	SEC and CFTC to identify scope for joint projects including development of consistent approaches to measurement of investment fund leverage and mitigation of risks of leveraged loans (¶61)	MT	M
	CFTC to explicitly require commodity pool operators (CPOs) to implement internal controls and risk management (¶66)	I	M
	SEC to continue to increase coverage of inspections of investment advisers (IAs) (¶93)	I	H
Equity markets regulation and supervision	SEC to finalize implementation of new capital requirements for broker-dealers (¶127)	ST	H
	SEC to carry out a strategic review of its supervision of exchanges and Reg SCI Alternative Trading Systems (ATSs), including examinations by the Office of Compliance and Inspection Examinations (OCIE), to ensure that resource is effectively targeted (¶129)	I	H
	SEC to finalize SB Swaps regime in close collaboration with CFTC and consider scope for joint or, with appropriate legislative empowerment, delegated examinations (¶146)	I	H

Table 1. United States: Main Recommendations (concluded)			
Theme	**Recommendation**	**Timing[1]**	**Priority**
Derivatives markets regulation and supervision	CFTC to ensure that swap dealers are subject to robust scrutiny, beyond self-attestations of compliance, before determination of definitive applications for registration (¶149)	I	H
	The authorities to enhance the impact of the SEF regime and trade execution requirement by giving the CFTC rather than SEFs and DCMs the responsibility to determine whether there is sufficient liquidity to enable mandatory execution (¶154)	ST	H
	CFTC, SEC and SROs to make use of wider range of available tools to facilitate orderly transition from LIBOR to alternative reference rates (¶166)	I	H
Cross-cutting issues	SEC to maintain regulatory and supervisory focus on closing auctions (¶162)	ST	H
	SEC to run table-top exercise with participation of CFTC, other regulators and SROs on scenario where neither NYSE nor NASDAQ can run a closing auction (¶162)	I	H
	The authorities, with specific input from CFTC and SEC, to consider whether a regulatory framework would be beneficial in the oversight of other potentially systemic benchmarks in the US, particularly in relation to management of transition (¶167)	MT	H
	The authorities to consider the benefits of a financial-sector-wide framework for penetration and other intrusion testing (¶169)	ST	M
	FINRA to formalize and document its plans for extreme events in the market beyond business continuity (¶169)	I	M

[1] Recommendations are differentiated by urgency (I=immediate – i.e., within one year; ST=short term 1–3 years, MT=medium term 3–5 years) and importance (H=highest importance, M=medium importance).

INTRODUCTION

A. Background

1. **The U.S. has the largest fund management sector in the world.** At the end of 2018, there were 17,079 registered investment companies[1] with more than US$21 trillion in assets under management (AUM). In addition, investment funds[2] in the U.S. also include private funds, which encompass hedge funds and private equity funds, with more than US$8 trillion in reported net assets as of the fourth quarter of 2018. To complete the picture, as of August 8, 2019, there were 6,901 commodity pools (CPs)[3] being operated by a registered commodity pool operator (CPO) with total AUM of US$3.1 trillion. The market for investment funds investing in securities is dominated by mutual funds (MFs), which at end-2018 accounted for 82 percent of all registered investment companies' AUM. Meanwhile, ETFs' share of overall AUM has approximately doubled over the last five years, while closed-end funds and unit investment trusts (UITs) account for only a small proportion (approximately 1.5 percent) of total assets. At the end of 2018, retail investors held 89 percent of assets in mutual funds.

2. **The U.S. has the largest equity and derivatives markets in the world.** With an equity market capitalization of US$30.1 trillion at the end of 2018 and an average daily turnover value in 2018 of US$208 billion,[4] U.S. equity markets are substantially larger than any other jurisdiction. Of the US$3 trillion interest rate derivatives traded daily globally, US$1.2 trillion is traded in the U.S., more than any other jurisdiction.[5]

3. **The mission reviewed issues relevant for systemic risk in the regulatory and supervisory approach to fund management and oversight of equity and derivatives trading.** The IOSCO Objectives and Principles of Securities Regulation 2017 (and related IOSCO standards and guidance) were used as a benchmark, as well as other relevant international standards. Where the authors[6] identified a gap or shortcoming in the approach, this resulted in a recommendation which is included in Table 1 and reproduced (with additional context and commentary) in the relevant part of the note. The lack of a recommendation should be understood as indicating that the approach described is consistent with international standards. With respect to fund management

[1] This includes mutual funds, closed-end funds, exchange-traded funds (ETFs) and unit investment trusts (UITs). An overview of the different types of investment fund in the U.S. can be found in Table 3.

[2] Throughout this technical note the term "investment fund" is used to cover all pooled investment vehicles, except for collective investment trusts. Where a particular type of fund is being discussed, a more specific term is used.

[3] A commodity pool is a pooled investment vehicle created for the purpose of trading futures or options on futures, retail off-exchange forex contracts, or swaps, or to invest in another commodity pool.

[4] World Federation of Exchanges Annual Statistics Guide 2018, equity tables 1.1 and 1.6.

[5] Bank for International Settlements, OTC single currency interest rate derivatives turnover by country and instrument in April 2016, "net-gross" basis, daily averages, at https://stats.bis.org/statx/srs/table/d12.5?o=8:TO1

[6] The authors of this note are Richard Stobo (IMF) and Jennifer Long (IMF expert).

the review included authorization, ongoing supervision, valuation, liquidity, leverage, and segregation and safekeeping of fund assets. With respect to oversight of the trading of equities and derivatives[7], the review took into account the scale, nature and structure of the markets; the legislative and regulatory framework in place; arrangements for supervision of market participants; and how the authorities are addressing certain key threats to market integrity and stability, in particular resilience to technological, cyber or other threats to business continuity; and preparations for the period after which the LIBOR reference rate, commonly used in swap contracts as well as a range of other financial instruments, is not certain to continue. As such, it does not attempt to set out a comprehensive description of all aspects of the regulation of fund management and equity and derivatives markets given that these were covered in the 2015 assessment.[8]

4. The 2015 FSAP found a generally high level of implementation of the IOSCO principles and objectives for securities regulation, but recommended further enhancements. These enhancements included additional resources and funding stability for both the SEC and CFTC; increasing coverage of inspections of investment advisers; putting in place explicit obligations on commodity pool operators; addressing regulatory gaps in equity market structure, strengthening regulation of broker-dealer liquidity and leverage, and enhancing the agencies' contribution to the overall system's identification and management of systemic risk.[9] While progress has been made on some of these recommendations, others have not been addressed and remain relevant.[10] The assessors also noted that certain reforms in areas not explicitly captured by the IOSCO methodology, such as OTC derivatives, were work in progress.

5. The technical note draws on data and information provided by the U.S. authorities and a range of market participants and other stakeholders. The authors are grateful to the authorities for their time, effort and constructive engagement in the preparation of this technical note, and to the other stakeholders who contributed to the fieldwork. It should be noted, however, that the restrictions on the ability of the SEC and the CFTC to share non-public information with the authors had a material impact on the review. In particular, the limitations on access to certain case files limited the authors' ability to get an understanding of the supervisory judgement of the agencies' staff, including how they prioritize issues in the context of constrained resources. The on-site work supporting the findings and conclusions was conducted during October 22–November 8, 2019. The section on Virtual Assets and Virtual Asset Service Providers is based on onsite work during February 18–March 6, 2020. The analytical work reflected in the note was carried out before the global intensification of the COVID-19 outbreak. The note focuses on the medium-term challenges and policy priorities for regulation and supervision of securities markets in the U.S. and

[7] See Appendix 1 for a full list of IOSCO Principles and other international standards taken into account by the authors.

[8] U.S. FSAP Detailed Assessment of the Implementation of the IOSCO Objectives and Principles of Securities Regulation, IMF Country Report 15/91, April 2015, https://www.imf.org/external/pubs/ft/scr/2015/cr1591.pdf.

[9] See IMF Country Report No. 15/170, United States: Financial System Stability Assessment, July 2015, paragraphs 48, 49, and 55, and IMF Country Report No. 15/91, United States: Detailed Assessment of Implementation of the IOSCO Objectives and Principles of Securities Regulation.

[10] See Table in Appendix 2 outlining progress against the 2015 recommendations.

does not cover the outbreak or the related policy response, which has since become the overarching near-term priority. The FSAP recommendations are meant to be considered once the impact of the pandemic on the economy and the securities sector becomes clearer.

B. Legislative and Regulatory Framework

Overview of Arrangements

6. **The two principal regulators for securities and derivatives markets are the SEC and CFTC.**[11] The SEC's mission is to protect investors, maintain fair, orderly, and efficient markets, and facilitate capital formation, while the CFTC aims to promote the integrity, resilience, and vibrancy of the U.S. derivatives markets through sound regulation. Both agencies are public bodies with responsibilities enshrined in statute and funded by appropriations from Congress as part of the Federal budget.[12] The SEC's appropriation from Congress is offset by private sector securities transaction fees, and so is designed to be deficit-neutral. The CFTC's US$315 million budget request for the 2020 fiscal year contained a one-time request for authorizing legislation permitting the CFTC to collect fees from derivatives users in the amount of US$31 million to support relocation of the regional offices, each with expiring leases.[13] Requests for user fees have been contained in CFTC budget requests in previous years but have not to date been granted. Given their lack of independent funding, both agencies were constrained by the government shutdown in December 2018–January 2019 and only core staff carrying out certain activities falling within permitted exceptions were able to work during that period.

7. **Both the SEC and CFTC regulate and supervise exchanges and other infrastructure providers, as well as market intermediaries such as dealers.** As at December 31, 2018, the SEC oversaw, among other types of regulated entity, 22 national securities exchanges, and approximately 3,700 broker-dealers. Broker-dealers (entities engaged in effecting transactions in securities both on their own account and for the account of others), which could be affiliated to bank holding companies and banks, are required to register with the SEC, but some activities carried out by banks are exempt from regulation by the SEC in light of regulation by the banking regulators.[14] The CFTC

[11] Although there are also state-level regulators, entities engaged in 'inter-state commerce' and/or with operations above a size threshold are required to be registered with the federal authorities, so the role of the state regulators is not considered further here.

[12] The SEC was established as an independent agency under the Securities Exchange Act of 1934 (see http://www.sec.gov/about/laws/sea34.pdf) and has been given additional responsibilities under a number of subsequent acts. The CFTC was created in 1974 under the Commodity Futures Trading Commission Act, and exercises many powers under the Commodity Exchange Act, first passed in 1936.

[13] Fiscal Year 2020 President's Budget (March 2019), available at https://www.cftc.gov/About/CFTCReports/index.htm

[14] See Exemptions for Banks – Regulation R, Release No. 34–56502 (Sep. 24, 2007), available at http://www.sec.gov/rules/final/2007/34-56502fr.pdf

oversees, among other entities, around 16 derivatives clearing organizations (DCOs),[15] 15 designated contract markets (DCMs),[16] 19 swap execution facilities (SEFs),[17] 60 futures commission merchants (FCMs),[18] and 107 swap dealers.[19]

8. Responsibility for oversight of investment funds and their service providers is split between the SEC and CFTC. Mutual funds (including money market funds) and their operators fall under the scope of the SEC, while the CFTC has oversight of CPs, CPOs, and commodity trading advisers (CTAs[20]). In some cases, such as when hedge funds manage more than a de minimis amount of swaps and commodity interests, the relevant investment adviser (IA)—the entity operating the fund—is required to be registered with both the SEC[21] and the CFTC.

9. While the SEC is solely responsible for equities markets, and the CFTC for commodity futures, responsibility for swaps and options is split between the two. The SEC's remit includes security-based swaps and options on securities, on groups and indices of securities, on certificates of deposit and on foreign currencies when traded on a national securities exchange. The CFTC's remit includes futures trading on government securities, foreign currency, broad-based groups or indices of securities[22] and options on such futures. Security futures, i.e. futures on single securities and narrow-based security indexes, are subject to joint SEC and CFTC jurisdiction.[23]

[15] DCOs are entities that enable each party to an agreement, contract, or transaction to substitute, through novation or otherwise, the credit of the DCO for the credit of the parties; arranges or provides, on a multilateral basis, for the settlement or netting of obligations; or otherwise provides clearing services or arrangements that mutualize or transfer credit risk among participants.

[16] DCMs are boards of trade (or exchanges) that operate under the regulatory oversight of the CFTC. DCMs are most like traditional futures exchanges, which may allow access to their facilities by all types of traders, including retail customers.

[17] SEFs are trading facilities for the trading and processing of swaps. SEFs may offer access to their swap trading facilities only to eligible contract participants (ECPs), as defined in the CEA; retail customers cannot trade swaps on SEFs.

[18] FCMs are entities that solicit or accept orders for the purchase or sale of any commodity for future delivery on or subject to the rules of any exchange and that accept payment from or extend credit to those whose orders are accepted.

[19] A swap dealer is any person who: (i) holds itself out as a dealer in swaps; (ii) makes a market in swaps; (iii) regularly enters into swaps with counterparties as an ordinary course of business for its own account; or (iv) engages in activity causing itself to be commonly known in the trade as a dealer or market maker in swaps.

[20] See paragraph 16 below.

[21] With respect to SEC registration, advisers that solely advise "private funds" with total U.S. assets under management of less than $150 million are not required to register. However, these advisers ("exempt reporting advisers") are required to report certain information to the SEC.

[22] For example, this would cover indices that have: (i) more than nine securities; (ii) no component constitutes more than 30 percent of the weighting; (iii) the five highest weighted components do not constitute more than 60 percent of the weighting; and (iv) each component is a "large" security.

[23] See CEA Section 2(1)(1)(D).

10. Since the financial crisis and subsequent internationally agreed reforms,[24] the remit of both the SEC and CFTC has substantially expanded. In particular, Title VII of the Dodd-Frank Act (DFA)[25] brought swaps within the scope of regulation for the first time, and gave the CFTC powers to regulate a new category of trading venue (swap execution facilities), swap dealers and other major swap market participants, with the SEC having analogous powers related to security-based swaps. This was a significant change as it addressed the gap in U.S. financial regulation of swaps by providing a comprehensive framework for the regulation of the swaps markets. In 2018, the CFTC and SEC updated their bilateral MoU, including additions to reflect the Dodd-Frank regime.[26]

11. Both the Chairman of the SEC and Chairperson of the CFTC are voting members of the Financial Stability Oversight Council (FSOC), chaired by the Secretary of the U.S. Treasury, which was established under the DFA to identify and respond to emerging threats to financial stability.[27] The FSOC operates through a committee structure, with remits including the identification of gaps in regulation, systemic risks, and designation of nonbank systemically important financial institutions (based on the activities-based approach to monitoring for which the FSOC issued final guidance in December 2019) for additional supervision by the FRB.[28]

12. The system provides for the use of self-regulatory organizations (SROs) under the oversight of the SEC and CFTC.[29] FINRA and NFA are non-profit membership corporations, funded by their members, which regulated entities and individuals are obliged to join as a condition of registration to carry out specified activities in financial markets. FINRA is registered with the SEC as a registered national securities association[30] and its membership encompasses broker-dealers, including those operating ATSs. NFA has been designated by the CFTC as a registered futures association, and its membership includes swap dealers and FCMs.[31] Both organizations have rules for members, which must be approved (or not objected to) by the relevant regulator; consider applications for membership from new registrant firms within their respective remits and from individuals wishing to carry out specified positions in registered firms; they also both have supervisory programs for their members which supplement those carried out directly by the relevant regulator. Exchanges and clearing agencies are also designated as SROs, with obligations to operate

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[24] See https://www.oecd.org/g20/summits/pittsburgh/G20-Pittsburgh-Leaders-Declaration.pdf page 9.

[25] See https://www.govinfo.gov/content/pkg/BILLS-111hr4173enr/pdf/BILLS-111hr4173enr.pdf.

[26] https://www.cftc.gov/sites/default/files/2018-07/CFTC_MOU_InformationSharing062818.pdf.

[27] https://home.treasury.gov/policy-issues/financial-markets-financial-institutions-and-fiscal-service/fsoc. There is also a non-voting representative of the state securities regulators, nominated by the North American Securities Administrators Association: https://www.nasaa.org/37710/maryland-securities-commissioner-lubin-to-represent-nasaa-on-financial-stability-oversight-council/.

[28] https://www.treasury.gov/initiatives/fsoc/governance-documents/Documents/The%20Council%27s%20Committee%20Charters.pdf.

[29] There are a range of SROs other than those discussed here, whose functions are outside the scope of this technical note.

[30] See https://www.sec.gov/rules/sro.shtml.

[31] See https://www.cftc.gov/sites/default/files/idc/groups/public/@lrfederalregister/documents/file/2015-23046a.pdf for discussion of extension to other membership categories.

their markets in such a way as to avoid or manage threats to market integrity, and to supervise and enforce compliance with the venue's or agency's rules by participants. Many venues contract with FINRA or NFA to provide market surveillance services on their venue.

13. The U.S. is unique in splitting oversight of capital markets between two agencies, and the institutional set-up has led to differences in the regulatory and supervisory approach. Over the years the idea of merging the SEC and CFTC has been mooted. Potential benefits could include operational efficiencies, greater consistency in regulatory and supervisory approaches, and reduction of opportunities for arbitrage. At the same time, it is important to recognize the different natures and purposes of the entities and markets overseen by the two agencies, and the specific expertise that the staff of each agency brings to bear in exercising their respective mandates. Rather than advocating a merger of the agencies, the authors have identified several other steps related to the institutional set-up which would represent a material improvement on the current arrangements and would help reduce risks to financial stability in the areas covered in the technical note. These include notably changes to the budget-setting processes of each agency, more cross-agency cooperation and improvements in supervisory coverage and strategy in certain areas.

14. Recommendation: As recommended in the last FSAP, both SEC and CFTC need greater independence to determine their own resources.[32] These agencies are responsible for oversight of the largest global financial markets. To assure the integrity and resilience of those markets, and maintain investor confidence that they are orderly and subject to appropriate oversight, they need access to appropriate resource, including in times when the government is not functioning but markets are still open. This in turn helps ensure efficient allocation of resources and reduce risks to financial stability. The current arrangements place too great an incentive on the agencies to over-delegate to the SROs, which being privately funded are not subject to the same constraints, and limit important multi-year investment, such as in the modernization of IT systems. Clearly such independence would come with a requirement for accountability, and the agencies would need to demonstrate a commitment to continuous improvement in efficiency and a risk-based approach to the deployment of available resources: such accountability and focus should be beneficial to the regulated sector as well as the agencies themselves.

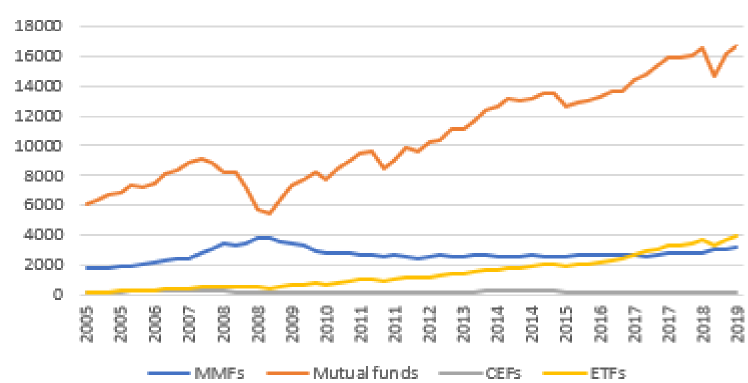
[32] Congress requested a report from the Government Accountability Office on alternative funding structures for the SEC in 2002, and the SEC itself stated in the report that it supported self-funding: https://www.gao.gov/new.items/d02864.pdf.

FUND MANAGEMENT

A. Market Structure

15. A broad range of types of pooled investment vehicle exist under the U.S. regulatory framework.[33] Section 4 of the Investment Company Act of 1940 (ICA) provides for three principal classes of collective investment scheme (CIS) in the U.S.: management companies; Unit Investment Trusts (UITs); and face-amount certificate companies. An open-end management company (commonly known as a mutual fund) offers for sale or has outstanding any redeemable security of which it is the issuer. A closed-end company is a management company other than an open-end company.[34] Open-end companies typically offer their shares continuously, while closed-end companies generally do not continuously offer their shares for sale but instead sell a fixed number of shares that trade at market-determined prices on a national securities exchange. ETFs possess characteristics of both mutual funds and closed-end funds in the sense that they are priced at or near the net asset value of the portfolio investments while also being traded continuously on an exchange.

Figure 1. United States: All Fund Types



Source: Flow of Funds, Refinitiv Datastream.

16. Commodity pools are defined in the Commodity Exchange Act (CEA) as any investment trust, syndicate, or similar form of enterprise operated for the purpose of trading in commodity interests. Commodity interests are defined as including contracts of sale of a commodity for future delivery, options on such contracts, security futures, swaps, leverage contracts, foreign exchange, spot and forward contracts on physical commodities, and any monies held in an

[33] Table 3 provides an overview of investment fund types in the U.S.

[34] A business development company (BDC) is a type of closed-end company that elects to be treated as a BDC and comply with certain provisions under the Investment Company Act. This note does not cover regulation and supervision of BDCs.

account used for trading commodity interests. Although the regulatory framework does not specify the legal form that a CP must take, a CP must be a separate legal entity from the CPO. Most CPs are organized as limited partnerships or limited liability companies and the CPO is typically either the general partner or managing member, respectively. A CPO can be a natural person or a legal entity.

17. As of Q4 2018, 1,747 IAs registered with the SEC advised at least one hedge fund. Registered IAs to HFs manage approximately US$3.8 trillion in AUM. In addition to IAs registered with the SEC, there are also exempt reporting advisers (ERAs), which are exempted from registration with the SEC, but are subject to limited reporting on their business and their private fund clients.

Table 2. United States: Types of Investment Fund in the U.S.[1]

Type of Fund	Sub-Category 1	Sub-Category 2	Legal Form	Manager
Registered investment company	Management company	Open-end company (commonly known as a mutual fund)	Corporation or business trust or statutory trust, organized pursuant to state law	Investment adviser
		Closed-end company	Corporation or business trust or statutory trust, organized pursuant to state law	Investment adviser
	Unit Investment Trust		Trust, organized pursuant to state law	Trustee
	Face-amount certificate company		Corporation or business trust or statutory trust, organized pursuant to state law	Face-amount certificate companies; investment adviser
Private fund	Hedge funds[2] Liquidity funds Private equity funds Real estate funds Securitized asset funds Venture capital funds Other private funds	Open-end fund Closed-end fund	Limited partnership or limited liability company	Investment adviser and/or CPO/CTA
Commodity pool			Limited partnership or limited liability company	Commodity pool operator or commodity trading advisor

Source: IMF staff.
[1] This technical note does not cover the regulation and supervision of UITs and face-amount certificate companies.
[2] Classifications taken from Form PF (see text on Reporting in section E below for more information).

B. Key Reforms Since 2015 FSAP

18. Several important changes have taken place in the U.S. regulatory framework for fund management since the 2015 FSAP. Reforms to the regime for money market funds were adopted in 2010 and 2014, but were only fully implemented in 2016. The SEC also adopted a major new rule on liquidity in 2016[35] for which compliance deadlines are staggered depending on the regulated entity and the precise element of the new rules. In November 2019, the SEC proposed a new rule designed to enhance the regulation of the use of derivatives by funds, including mutual funds, ETFs, and closed-end funds. In addition, the SEC recently issued new rules on ETFs, generally clarifying and codifying multiple individual exemptions provided over the years. In contrast to the significant changes for funds under the scope of the SEC, the CFTC's regulatory framework for CPs and their service providers is largely unchanged over the preceding five years. With respect to oversight of risks in the financial sector more broadly, the FSOC has recently adopted a change in its approach to designation of systemically important entities in the nonbank sector.[36]

C. Regulation

19. The regulatory framework for investment funds in the U.S. is complex. The key pieces of legislation for investment funds (and related service providers) that fall under the jurisdiction of the SEC are the Investment Company Act of 1940 (Investment Company Act or ICA), and the Investment Advisers Act of 1940 (Advisers Act or IAA). For the CFTC the principal legislation is the Commodity Exchange Act 1974 (CEA). The DFA introduced important changes to both agencies' powers aimed at addressing issues that had arisen during the global financial crisis.

20. Both agencies have the power to adopt rules under their respective statutes, and staff may give its informal views on specific matters. The SEC staff has the ability to give interpretative and advisory assistance to members of the general public and prospective registrants. For example, persons having a question regarding the availability of an exemption may secure informal interpretations of the applicable statute or rule as they relate to the particular facts and circumstances presented. Similarly, persons contemplating filings with the SEC may receive advice of a general nature as to the preparation thereof, including information as to the forms to be used and the scope of the items contained in the forms. Staff advisory documents such as no-action letters, responses to frequently asked questions, and interpretive views/positions are available on the SEC's website. CFTC staff may provide non-binding guidance to market participants and practitioners on a variety of legal and regulatory matters. Given the generally burdensome process involved in rulemaking for both agencies, the ability of staff to give its informal views is helpful and does not constrain the agencies' ability to take a different approach through subsequent rulemaking.

21. The requirements that apply to entities seeking to operate an investment fund in the U.S. vary according to the type of fund. Section 203 of the Advisers Act requires a CIS operator to

[35] See paragraphs 23–27 below.

[36] See section G below on Systemic Risk Monitoring.

register with the SEC. Generally, the shares of any CIS may be marketed by the CIS itself or its principal underwriter. Each of these entities is required to be registered with the SEC. A CPO can either manage the assets of the CP itself or contract with a CTA. CTAs can be either natural persons or legal entities and are generally required to register with the CFTC to provide commodity advice to a commodity pool, with limited exceptions.

22. The discussion below focuses on the elements of the regulatory framework for investment funds that are considered most relevant for financial stability. For each topic it describes the rules in place for SEC-registered funds (and their service providers) first, given their dominance in the overall investment fund landscape, followed by those that apply to CPs. The discussion is based on a comparison of the regulatory framework with the relevant IOSCO Principles or Standards, and takes account of the fact that the U.S. is home to the largest and most complex investment funds sector in the world. The manner in which the SEC and CFTC address compliance with the regulatory framework when authorizing and supervising firms and funds and monitoring risks in the sector is discussed in sections D and E respectively.

Liquidity Management

SEC

23. Management of redemption risk is a key challenge for investment fund managers. In 2016 the SEC adopted a rule on Investment Company Liquidity Risk Management Programs,[37] Rule 22e-4 under the ICA. This requires open-end CIS, including open-end ETFs but excluding money market funds (MMFs),[38] to establish a written liquidity risk management program (LRMP). A CIS's board, including a majority of the CIS's independent directors, is required to approve the CIS's liquidity risk management program and the designation of the CIS's operator, a CIS officer, or CIS officers[39] to administer the program. The CIS's board is also required to review, at least annually, a written report on the adequacy of the program and the effectiveness of its implementation. Rule 22e-4 requires a CIS to assess, manage, and periodically review (at least annually) its liquidity risk, based on the following factors as applicable:

- Investment strategy and liquidity of portfolio investments during both normal and reasonably foreseeable stressed conditions (including whether the investment strategy is appropriate for an open-end CIS, the extent to which the strategy involves a relatively concentrated portfolio or large positions in particular issuers, and the use of borrowings for investment purposes and derivatives);

[37] See Investment Company Liquidity Risk Management Programs, Release Nos. 33-10233, IC-32315 (Oct. 13, 2016), available at https://www.sec.gov/rules/final/2016/33-10233.pdf; Investment Company Act Rule 22e-4.

[38] MMFs are excluded from the scope of Rule 22e-4 because, based on the historical redemption patterns of their investors and the characteristics of the assets they hold, they are already subject to extensive and stringent requirements concerning the liquidity of their portfolio assets and to broad liquidity related disclosure and reporting requirements (see Box 1 for a specific discussion of MMFs).

[39] These officers could not be solely the portfolio managers of the CIS.

- Short-term and long-term cash flow projections during both normal and reasonably foreseeable stressed conditions; and

- Holdings of cash and cash equivalents, as well as borrowing arrangements and other funding sources. In addition to these factors, an ETF must consider, as applicable: (i) the relationship between the ETF's portfolio liquidity and the way in which, and the prices and spreads at which, ETF shares trade, including the efficiency of the arbitrage function and the level of active participation by market participants (including authorized participants); and (ii) the effect of the composition of baskets[40] on the overall liquidity of the ETF's portfolio.

- A CIS may incorporate other considerations, in addition to the above factors, in evaluating its liquidity risk.

24. Rule 22e-4 also requires several additional elements as part of a CIS's LRMP.

- First, open-end CIS (other than in-kind ETFs and CIS that hold primarily highly liquid assets) are required to determine a minimum percentage of their net assets that must be invested in highly liquid investments, defined as cash or investments that are reasonably expected to be converted to cash within three business days without significantly changing the market value of the investment, taking into account market depth. The CIS is also required to implement policies and procedures for responding to a highly liquid investment minimum shortfall, which must include board reporting in the event of a shortfall.

- Second, a CIS is not permitted to purchase additional illiquid investments[41] if more than 15 percent of its net assets are illiquid assets. If a CIS breaches the 15 percent limit, the occurrence must be reported to the board, along with an explanation of how the CIS plans to bring its illiquid investments back within the limit within a reasonable period of time, and if it is not resolved within 30 days, the board must assess whether the plan presented to it is in the best interest of the CIS. In this regard, a CIS must also confidentially notify the SEC, on Form N-LIQUID, when its level of illiquid investments exceeds 15 percent of its net assets or when its highly liquid investments fall below the CIS's minimum percentage for highly liquid investments for more than seven consecutive calendar days.

- Third, open-end CIS other than in-kind ETFs are required to classify each of the investments in their portfolio. The classification must be based on the number of days in which the CIS reasonably expects the investment would be convertible to cash in current market conditions without significantly changing the market value of the investment, and the determination must

[40] ETFs are generally structured so that an authorized participant will purchase or redeem a creation unit with a "portfolio deposit," which is a basket of assets (and sometimes cash) that generally reflects the composition of the ETF's portfolio.

[41] An investment is considered illiquid if the fund reasonably expects that an investment cannot be sold or disposed of in current market conditions in seven calendar days or less without the sale or disposition significantly changing the market value of the investment.

take into account the market depth of the investment. This classification must be reported to the SEC quarterly, broken down into monthly increments.

25. The rule adopted in 2016 is a significant step forward in promoting sound liquidity risk management by mutual funds. It imposes robust requirements on CIS operators to put in place a comprehensive LRMP and while ensuring that the SEC will receive extensive data on the liquidity profiles of funds' portfolios. Public awareness and understanding of funds' liquidity will also improve thanks to the N-PORT information on fund portfolio holdings that will be made available to them in a structured format, and disclosure of information on the operation and effectiveness of liquidity risk management programs. However, it is notable that the rulemaking as adopted in 2016, for which the first compliance deadline was originally December 2018, was subject to targeted changes approved by the Commission in June 2018 after a public notice and comment process.[42] Key among these changes was the removal of the requirement on funds publicly to provide a quantitative end-of-period snapshot of historic aggregate liquidity classification data for their portfolios on Form N-PORT. This obligation was replaced with a narrative discussion in each fund's annual or semi-annual shareholder report on the operation and effectiveness of its LRMP. The SEC made this change following feedback from industry on apparent practical difficulties arising from the implementation of the rule as adopted in 2016. At the same time, the Commission indicated that there would be a further evaluation by SEC staff to consider, among other things, whether there should be public dissemination of fund-specific liquidity classification information and asked for comment from funds, investors, and others on this and on other types of information that may allow investors to better understand the liquidity of their funds.[43]

26. Regulatory approaches to management of liquidity risk of open-end investment funds vary across jurisdictions. In some countries the emphasis is placed on prescriptive rules on eligible assets, complemented by requirements on diversification and concentration, while in others more flexibility on eligible assets is mitigated by strong requirements on how fund managers manage their liquidity risk. The U.S. approach tends to fall in the second category, but with important additional disclosure requirements. Judgements on liquidity of portfolio assets are subjective to some extent. The SEC itself noted in its 2016 rulemaking that fund managers may take different approaches to liquidity bucketing for the same asset.

27. The SEC's approach to investment fund regulation attaches significant weight to disclosure, and the resulting ability of investors to carry out their own due diligence. In this context, the SEC set out convincing arguments for its final approach to the public disclosure aspect of its 2016 rulemaking, noting the value of fund-level data to investors. This should be seen against the background of Section 45(a) of the ICA, which requires information in investment company forms to be made available to the public, unless the SEC finds that public disclosure is neither necessary nor appropriate in the public interest or for the protection of investors.

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[42] The changes adopted in June 2018 were approved by a 3–2 vote within the Commission.

[43] https://www.sec.gov/rules/final/2018/ic-33142.pdf, at pp. 31-34.

28. The effectiveness of an investment fund's LRMP depends largely on the quality of data at its disposal. This includes information on the profile of the underlying shareholders in the fund. As in many other jurisdictions, there are multiple distribution channels for investment funds including broker-dealers and fund platforms. This leads to a situation where, at the level of the fund manager, investment channeled through, e.g., a large fund platform would typically not provide transparency to the manager into the identity of the particular individual underlying shareholders. Indeed, such a holding could appear to the CIS operator as being a single investment when in fact there could be a wide range of underlying shareholders who might behave differently in periods of financial stress. Industry feedback suggests that a fund's ability to design an appropriate LRMP would be improved if fund managers had better data on the liability side.

29. Recommendation: It is positive that the SEC announced in its liquidity release that there would be a further evaluation by SEC staff to consider, among other things, whether there should be public dissemination of fund-specific liquidity classification information. The SEC staff should monitor carefully the data that it receives on liquidity bucketing through Form N-PORT and, if it finds material divergences in fund managers' approaches to similar assets in similar circumstances (e.g., anticipated trade size), the SEC should consider providing guidance to promote consistency or making changes to the liquidity rule, as appropriate. The SEC and its staff should also consider further, as the SEC announced it would, the extent to which investors would benefit from public liquidity classification information as well as alternative means of communicating liquidity information to fund investors. Finally, the SEC should assess whether CIS operators have access to sufficient data on the underlying shareholders in designing their LRMPs and, if appropriate, take steps designed to enhance access to that data.

30. CIS operators have a variety of liquidity risk management tools at their disposal. These include suspension of redemptions during certain limited, statutorily prescribed circumstances, redemption fees, and in-kind redemptions. A CIS may suspend redemptions in two situations: (i) for any period during which trading on the NYSE is either closed or restricted; and (ii) for any period during which an emergency exists,[44] as a result of which it is not practicable for the CIS to liquidate its portfolio securities or fairly determine the value of its net assets.

31. Redemption fees and in-kind redemptions are possible under certain conditions. An open-end CIS must consider whether to impose a redemption fee, in an amount (but no more than two percent of the value of shares redeemed) and on shares redeemed within a time period (but no less than seven calendar days), that in its judgment is necessary or appropriate to recoup for the CIS the costs it may incur as a result of those redemptions or to otherwise eliminate or reduce so far as practicable any dilution of the value of the outstanding securities issued by the CIS. Open-end CISs have the right to redeem shareholders in cash or in kind (that is, by delivering certain assets from the open-end CIS's portfolio, rather than cash, to a redeeming shareholder). An open-end CIS could choose to redeem in-kind when faced with significant redemptions, because this would result in the

[44] The SEC has the authority to adopt rules under the ICA to establish conditions under which an emergency will be deemed to exist; however, the SEC and its staff have historically dealt with any emergency situations on a case-by-case basis.

redeeming shareholder (and not the CIS and its remaining shareholders) bearing any liquidity costs associated with dispositions of portfolio assets. An open-end CIS that engages in or reserves the right to engage in in-kind redemptions is required to adopt and implement written policies and procedures regarding in-kind redemptions as part of the management of its liquidity risk. These policies and procedures, which must be disclosed to prospective investors, generally should address the process for redeeming in-kind, as well as the circumstances under which the CIS would consider redeeming in-kind.

32. Swing pricing[45] has been permitted in the U.S. since 2018 but to date no CIS has adopted it. The ability to use swing pricing is subject to certain disclosure and reporting requirements, policies, and procedures specifying how the CIS's "swing threshold"[46] is determined and to board approval of the policies and procedures and threshold (and any changes thereto).[47] Although there are operational challenges involved in implementing swing pricing, it is notable that this mechanism has become common practice in European investment funds in recent years.

CFTC

33. Neither the CEA nor CFTC rules include specific rules on the liquidity of CPs. Requirements on liquidity apply indirectly through reporting obligations of CPOs. All CPOs must file a Form CPO-PQR on a periodic basis depending upon their assets under management with detailed information regarding the investments held by their CPs, their relationships with service providers, and stress testing. Specifically, all CPOs with assets under management in the amount of US$500 million or greater are required to provide the CFTC with the following information: pool borrowings, counterparty credit exposure, fund strategy, derivatives exposure, and a full schedule of investments. Further, all CPOs with assets under management greater than US$1.5 billion must also provide the following information to the CFTC: their operated pools' geographical exposure, liquidity, and risk testing based upon several specific scenarios.

[45] Swing pricing is the process of adjusting a CIS's net asset value per share to pass on to purchasing or redeeming shareholders certain of the costs associated with their trading activity. It is designed to protect existing shareholders from dilution associated with shareholder purchases and redemptions and serves as another tool to help funds manage liquidity risks.

[46] A CIS's swing pricing policies and procedures must provide that the CIS is required to adjust its NAV once the level of net purchases or net redemptions from the CIS has exceeded a set, specified percentage of the CIS's net asset value known as the "swing threshold."

[47] See Investment Company Swing Pricing, Release Nos. 33-10234, IC-32316 (Oct. 13, 2016), available at https://www.sec.gov/rules/final/2016/33-10234.pdf.

Box 1. United States: Money Market Funds

The 2008 global financial crisis exposed certain structural weaknesses in MMFs. In particular, the "breaking of the buck"[1] by the Reserve Primary Fund led to historic outflows[2] across MMFs. The U.S. authorities took measures to stabilize the sector, notably by putting in place the Temporary Guarantee Program for MMFs.

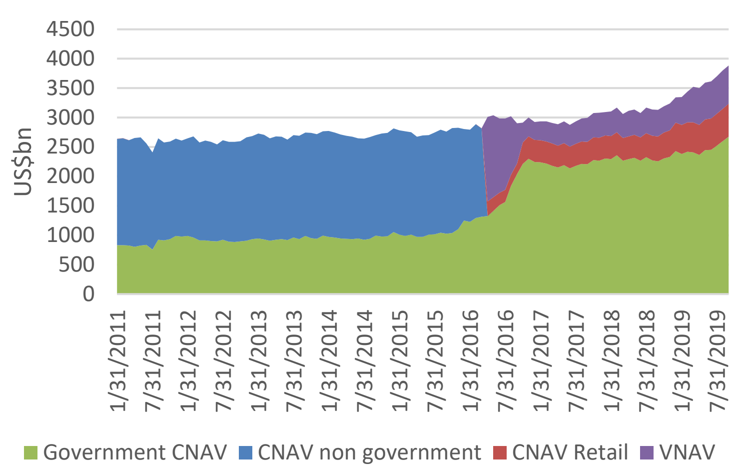
The SEC adopted a first series of amendments to its rules on MMFs in 2010 that were designed to make these funds more resilient by reducing the interest rate, credit, and liquidity risks of their portfolios. Although these reforms improved MMF resilience, the SEC said at the time that it would continue to consider whether further, more fundamental changes to MMF regulation might be warranted. After further review, in July 2014 the SEC adopted more fundamental structural changes to the regulations of MMFs.

These reforms required non-government institutional MMFs to "float their NAV" (no longer maintain a stable price) and provided non-government MMF boards with new tools—liquidity fees and redemption gates—to address runs. Although these measures were adopted before the last U.S. FSAP, they did not take effect until October 2016.

MMFs that qualify as "government MMFs" and "retail MMFs" are still permitted to use the amortized cost method and/or penny rounding method of pricing to seek to maintain a stable share price. A government MMF is defined as any MMF that invests 99.5 percent or more of its total assets in cash, government securities, and/or repurchase agreements that are collateralized fully by government securities or cash and meet certain other regulatory requirements with respect to value and custody. A retail MMF is defined as a MMF that has policies and procedures reasonably designed to limit all beneficial owners of the MMF to natural persons. The broad reasoning behind this approach is that, for government MMFs, the safety of the eligible portfolio securities is such that a stable NAV is justified, while for retail MMFs the more patient holding strategy of the investors (who, according to historical holding patterns, are less likely to "run" during periods of stress) means that a stable NAV continues to be appropriate.

Investor holdings adapted to the new reforms (see chart below) such that by far the largest holdings of MMFs are now in government CNAV funds.

United States: MMF Assets by Type



Sources: OFR and IMF.

Box 1. United States: Money Market Funds (concluded)

IOSCO issued its Policy Recommendations for MMFs in 2012. Recommendation 10 states the following: "MMFs that offer a stable NAV should be subject to measures designed to reduce the specific risks associated with their stable NAV feature and to internalize the costs arising from these risks. Regulators should require, where workable, a conversion to floating/ variable NAV. Alternatively, safeguards should be introduced to reinforce stable NAV MMFs' resilience and ability to face significant redemptions."

While the reforms introduced by the SEC in 2010 and 2014 have introduced safeguards of the kind envisaged by IOSCO, US$3.2 trillion of US$3.9 trillion (i.e., 82 percent) invested in U.S. MMFs are held in funds with a stable NAV (as at September 30, 2019). This situation continues to pose risks to financial stability in the U.S. and further ensuring the transition of CNAV funds to VNAV is desirable[3]. In particular:

- There remains a risk that retail investors do not have a good understanding of the characteristics of stable NAV MMFs. Given the amount of assets held in these funds and the importance they play in U.S. households' savings, the SEC should assess the comprehension of investors of the particular features of stable NAV MMFs now that the reforms have bedded down.

- The large amount of assets held in CNAV MMFs requires careful monitoring by the SEC. Contingency planning should be done for another situation where one or more of these funds breaks the buck. This should include stress testing[4] by the SEC using the extensive MMF reporting data it receives.

[1] This refers to the situation where the NAV of a MMF drops below $1 per share.

[2] Peak outflows of around US$350 billion from non-government CNAV funds within the space of one week were witnessed.

[3] The FSOC 2019 Annual Report refers to run risk in relation to CNAV MMFs (see section 6.2.3 on page 117).

[4] Issues related to stress testing of investment funds will be covered in more detail in the Risk Analysis technical note.

Composition of CIS Portfolio

SEC

34. Managed CIS are generally divided into open-end and closed-end CIS, and can be further subdivided into two categories, diversified and non-diversified. Section 5(b)(1) of the ICA generally provides that a diversified CIS must have at least 75 percent of its total assets represented by cash and cash items, government securities, securities of other investment companies, and "other securities."[48] A non-diversified CIS is anything other than a diversified CIS and is not subject to these restrictions. Diversified CIS are generally prohibited from changing to a non-diversified CIS without the approval by a majority of CIS shareholders. There is no such requirement, however, where a CIS seeks to change from being a non-diversified to a diversified CIS.

35. Rules on the composition of CIS portfolios are based on diversification and concentration requirements rather than detailed rules on eligible assets. With respect to a diversified CIS, the "other securities" in which it may invest are limited in respect of any one issuer to no more than 5 percent of the value of the CIS's total assets and not more than 10 percent of the outstanding voting securities of such issuer. Section 8(b)(1) of the ICA, meanwhile, generally requires every CIS to disclose in its registration statement whether it reserves the freedom to concentrate investments in a particular industry or group of industries, indicating, insofar as is practicable, the extent to which the CIS intends to concentrate its investments. A CIS is concentrated if it invests 25 percent or more of the value of its assets in any one industry or group of industries. Under section 13(a)(3) of the ICA, a CIS must obtain approval by the majority of the CIS's shareholders to deviate from its concentration policy.

CFTC

36. Neither the CEA nor the CFTC's regulations impose any requirements or limitations as to the types of asset that can be held by CPs. However, CPOs are required to provide a detailed description of the CP's investment program, including the types of commodity interests and other investments the pool will trade, the trading programs of any CTAs the CPO will employ, and the trading programs of funds or commodity pools in which the CPO plans to invest pool assets. Compliance with these disclosures is supervised by the CFTC (and the NFA by virtue of its SRO role). This approach derives from the relatively narrow regulatory mandate of the CFTC set out in the CEA, which focuses on registration and disclosure obligations.

[48] The legislation does not define "other securities" but concentration requirements do apply in respect of these assets (see the following paragraph).

Segregation and Custody of Assets

SEC

37. CIS must place their securities and similar investments in the custody of certain eligible custodians. For open-end and closed-end CIS, eligible custodians include:

- banks subject to federal or state regulation and that generally have capital of at least US$500,000;
- members of a national securities exchange (i.e., certain broker-dealers);
- securities depositories;
- futures commission merchants (FCMs) and commodity clearing organizations; and
- certain foreign entities subject to certain conditions.

In certain circumstances, an eligible custodian may deposit CIS assets with another eligible custodian, such as a registered clearing agency acting as a securities depository.

38. There is no requirement that a CIS's custodian be legally or functionally independent from the CIS's operator. If a CIS operator or its affiliate acts as a CIS's custodian, however, the CIS is deemed to have "self-custody" of its assets. If a CIS is deemed to have self-custody, Rule 17f-2 under the Investment Company Act requires several safeguards, including that the securities and similar investments be physically segregated from those of any other person, and that the board of directors of the CIS designate which employees (not more than five persons) are authorized to have access to the assets. In addition, the CIS must employ an independent public accountant to verify, by actual examination, the CIS's assets at least three times during the year (twice without prior notice). A certificate of such accountant, stating that the examination has been made, and describing the nature and extent of the examination, must be sent to the SEC after each examination. In addition, during examinations SEC staff may conduct asset verification, which involves independently verifying the existence of client assets at custodians.

39. The SEC has adopted a number of rules that govern the custody of open-end and closed-end CIS assets. One general objective of the rules is to separate the assets of a CIS from the assets of any other person, including its operator. The requirements that apply to specific eligible custodians are discussed below.

CFTC

40. CFTC rules require that all funds, securities and property received by a CPO must be received in the name of the commodity pool. CPOs may not commingle the property of any CP with the property of any other person. NFA's rules also generally prohibit loans between a commodity pool and a registered CPO and its affiliates, although such lending can be permissible for CPs with sophisticated investors for cash management purposes and in line with disclosures made to CP participants. CPOs are required to disclose to CP participants the identity of the custodian or other entity (e.g., bank or broker-dealer) which will hold the pool's assets and the manner in which the pool's assets will be held in segregation.

41. Appropriate safeguards on independence of custody are in place for CIS but not for CPs. The current legal and regulatory framework does not require additional safeguards to deal with the risks arising where the CPO (or a related entity) performs the custodian or depositary function. In the case of CIS, the requirement that, where assets are held by the IA itself or its affiliate, an independent public accountant must examine the fund's assets at least three times during the year (twice in a surprise examination), is an important safeguard.

42. Recommendation: The legislative and regulatory framework should be amended to require additional safeguards where a CPO or a related entity has possession of pool assets. While industry practice is *de facto* to use separate custodians, *de jure* custodians can be a related party. Implementing these safeguards would bring the regulatory framework into line with the IOSCO Principles.

Valuation of Assets

Principles for Valuation (SEC)

43. CIS are generally required to value securities for which market quotations are readily available at their current market value, and other securities and assets at fair value as determined in good faith by the board of directors of the CIS. Requirements on valuation are set out in the ICA and related SEC rules. In addition, the SEC has addressed many of the issues relating to CIS valuation and pricing in its Accounting Series Releases (ASRs). Financial statements filed with the SEC generally must be prepared in accordance with U.S. generally accepted accounting principles (GAAP). The Financial Accounting Standards Board (FASB) Accounting Standards Codification (ASC), which is the source of GAAP, requires investment companies to report investments at fair value. Shares in an open-end CIS may generally be purchased and redeemed only at a price based on the current NAV of such security. The NAV is next computed after receipt of a tender of such security for redemption or of an order to purchase or sell such security. An open-end CIS is typically obligated to compute its NAV at least once daily from Monday through Friday.

44. The board of directors of the CIS is responsible for overseeing the valuation of the fund's portfolio securities. CIS boards must approve the valuation criteria and are responsible for continuously reviewing valuation methods to assure that the valuations of portfolio securities are fair and accurate. ICA Rule 38a-1 requires a fund to adopt written policies and procedures reasonably designed to prevent violations of the federal securities laws, which include requirements relating to the valuation of securities and other assets. As part of the annual audit, PCAOB-registered independent auditors review and evaluate the processes used by funds to value their portfolio securities. This includes processes for the valuation of securities for which market quotations are readily available, as well as the processes used by the board in arriving at fair value for other securities.

45. The procedures for redemption of shares in an open-end CIS must be disclosed in the prospectus and the Statement of Additional Information (SAI).[49] While the federal securities laws do not require that the prices of a CIS be disclosed or published on a regular basis to investors other than in semi-annual reports, the price of a CIS is generally available in financial publications and websites, and it may also be available on the CIS's or CIS operator's website. Financial publications generally publish pricing information for open-end CISs on a daily basis and for closed-end CISs on a weekly basis.

Principles for Valuation (CFTC)

46. CFTC regulations specifically require the use of generally accepted accounting principles in calculating the net asset value of a CP. These principles include FASB ASC 820, Fair Value Measurements, which establishes a framework for measuring fair value and requires disclosure about fair value measurements. Valuations are to be reported in the Statement of Changes in Net Assets included in the periodic and Annual Reports of the CP. CPOs are also required to provide a detailed Disclosure Document to prospective pool participants before accepting their subscriptions for interests in a CP. This Disclosure Document must be written using plain English principles. Performance information must be in a prescribed capsule format, the performance of the offered pool must be presented prior to any other performance disclosures, and any information that is not specifically required to be disclosed generally must appear after required information.

Pricing Errors – SEC

47. The SEC explained that it may bring an enforcement action against a CIS or a CIS operator if a pricing error violates, or results in violation of, the federal securities laws. The SEC has brought enforcement actions against entities alleging that they did not have adequate oversight or review procedures to determine pricing deviations. In addition, there are industry practices, e.g., rules of practice, which exist for addressing pricing errors. Some open-end and closed-end CIS boards of directors have adopted these rules of practice. The standards are voluntary, and other CIS boards have adopted different standards that they consider to be reasonable. These rules of practice generally provide for financial adjustments to be made if the per share NAV error is greater than US$0.01. In addition, if the NAV error is less than or equal to 0.5 percent of the current CIS NAV, then the CIS should determine its net loss or benefit during the error period. If the CIS incurred a net loss, the responsible party should reimburse the CIS. If the CIS had a net benefit, no action needs to be taken.

48. The valuation procedures of a CIS generally provide for the reporting of any material pricing errors to the board of directors and may call for the board to review or approve any

[49] Mutual funds and closed-end funds (but not UITs) are required to provide SAIs to investors free of charge on request.

corrective action that was taken. Pricing errors that are not considered material should be corrected on a going-forward basis. In addition, since June 2018 open-end CIS have been required to submit Form N-CEN to the SEC. This requires, among other things, that an open-end CIS indicate whether, during the reporting period, it made any payments, regardless of the source of the payment, to shareholders or reprocessed shareholder accounts as a result of a NAV error. If a shareholder has a dispute with a CIS about pricing errors, that shareholder may institute an action against the CIS in state or federal court, or, depending on applicable law, privately arbitrate the dispute.

CFTC

49. As was the case in the 2015 FSAP, there are no regulatory requirements, rules of practice and/or rules addressing pricing errors in CPs. While it appears that there are few cases of such pricing errors (including those arising from customer complaints), this continues to be a gap in the regulatory framework. The CFTC noted that the most likely source of a pricing error was in relation to an illiquid asset that was hard to value, and that material errors (or even fraud) in such circumstances could be a basis for civil litigation.

50. Recommendation: The CFTC should introduce rules to address situations where investors are adversely impacted by errors in the pricing of their interests in a CP.

Suspension/Deferral of Valuations/Redemptions (SEC)

51. Generally, a CIS (other than an MMF in specified circumstances) cannot suspend the right of redemption or postpone the date of payment more than seven days after the tender of the security to the fund or its redemption agent. Limited exceptions exist, such as any period during which the NYSE is closed or an emergency exists. If one of those limited exceptions were to apply, a CIS would be allowed to suspend redemptions and would have to attach a sticker to its prospectus that discusses any suspension or deferral of redemption rights. Such an update would be filed with the SEC. If a CIS would like to suspend redemptions for any other reason, however, it must submit a request for an order from the SEC. The SEC may grant such an order for the protection of the CIS's shareholders.

Suspension/Deferral of Valuations/Redemptions (CFTC)

52. A CP's Disclosure Document must explain the circumstances under which redemptions can be suspended. If a CPO were to suspend or defer redemptions in a manner inconsistent with its Disclosure Document, it would need to update the Disclosure Document and provide a copy of the amended document to the NFA. In appropriate circumstances, such an action may also trigger an enforcement action by NFA or the CFTC. A CPO's quarterly report on Form CPO-PQR is required to disclose any halt or any other material limitation on redemptions during the reporting period.

Leverage

SEC

53. The ICA limits a CIS's ability to obtain leverage or incur obligations to persons other than the CIS's common shareholders through the issuance of "senior securities." There is also a requirement that an open-end CIS maintain 300 percent asset coverage for bank borrowings. The SEC has also stated that reverse repurchase agreements, firm commitment agreements, and standby commitment agreements fall within the meaning of "evidence of indebtedness" for the purposes of the ICA. CIS may also have temporary borrowings (defined as up to 60 days) of no more than 5 percent of their total assets.

Calculation/Limits on Leverage

54. In 2015 the SEC issued a proposed rulemaking on Use of Derivatives by Registered Investment Companies and Business Development Companies. The rule was designed to enhance the regulation of the use of derivatives by these funds by limiting their use of derivatives and requiring them to put risk management measures in place with the aim of enhancing investor protection. Under the proposed rule, a CIS would have been required to comply with one of two alternative portfolio limitations designed to limit the amount of leverage the fund may obtain through derivatives and certain other transactions. A fund would also have had to manage the risks associated with its derivatives transactions by segregating certain assets in an amount designed to enable the fund to meet its obligations, including under stressed conditions. Funds engaging in more than a limited amount of derivatives transactions or that uses complex derivatives would be required to establish a formalized derivatives risk management program. The proposed reforms were generally not received favorably by commenters.

55. In November 2019 the SEC proposed a new rule on use of derivatives by mutual funds.[50] The proposal is designed to provide an updated and more comprehensive approach to the regulation of funds' use of derivatives. Under the proposed rule, funds that use derivatives would be required to comply with certain conditions. These conditions include adopting a written derivatives risk management program and complying with a limit on the amount of leverage-related risk that the fund may obtain, based on Value-at-Risk (VaR). The derivatives risk management program would include establishing risk guidelines, stress testing, back testing, internal reporting and escalation, and program review elements. A derivatives risk manager approved by the fund's board of directors would administer the program. The proposed rule would provide an exception from the derivatives risk management program requirement and the VaR-based limit on fund leverage risk for funds that limit derivatives exposure to 10 percent of net assets or use derivatives solely to hedge currency risk and, in either case, that also adopt and implement policies and procedures reasonably designed to manage the fund's derivatives risks. The proposed rule also includes a set of

[50] *Use of Derivatives by Registered Investment Companies and Business Development Companies; Required Due Diligence by Broker-Dealers and Registered Investment Advisers Regarding Retail Customers' Transactions in Certain Leveraged/Inverse Investment Vehicles*, available at https://www.sec.gov/rules/proposed/2019/34-87607.pdf

alternative conditions for certain leveraged or inverse funds that, among other things, limit the investment results sought by the fund to 300 percent of the return (or inverse of the return) of the underlying index and would impose new sales practice rules. The sales practice rules would establish a set of due diligence and approval requirements for broker-dealers and SEC-registered investment advisers with respect to trading by retail customers or client accounts in such funds.

56. The SEC's recent proposal distinguishes between a relative VaR test and an absolute VaR test. The relative VaR test compares the fund's VaR to the VaR of a "designated reference index" for that fund. The fund's VaR would not be permitted to exceed 150 percent of the VaR of the fund's designated reference index. In cases where the fund's derivatives risk manager is unable to identify an appropriate designated reference index, the fund would be required to comply with an absolute VaR test, under which the VaR of its portfolio would not be permitted to exceed 15 percent of the value of the fund's net assets (i.e., the largest 99 percent losses over one month need to be less than 15 percent of the net asset value of the fund). Although most funds would be subject to the relative VaR test under the proposed rule, in theory a diversified fund subject to the absolute VaR test with a VaR of 3 percent could increase the risk of its portfolio up to 5 times and remain within the 15 percent limit. Funds' borrowing, including repos, would be subject to the statute's asset coverage requirements.

57. IOSCO has recently finalized its own work on developing consistent calculation methodologies for leverage,[51] in line with the FSB Recommendations on Structural Vulnerabilities in Asset Management issued in January 2017.[52] The FSB document emphasized the importance of achieving a consistent approach to calculation of leverage within and across jurisdictions in order to provide insights into potential financial stability implications. The SEC already gathers information on leverage in a manner that is consistent with the IOSCO Recommendations (see sub-section below on Reporting for more detail).

58. Recommendation: In taking forward its recent proposal on use of derivatives, the SEC should have specific regard to the potential shortcomings of risk metrics such as VaR in limiting leverage. Under the proposal, it would be possible for portfolio management techniques to be used to employ levels of synthetic leverage significantly higher than what was foreseen in the 2015 proposal. In order to provide safeguards and help detect possible abuses, such as a choice of reference index aimed at allowing for higher leverage, the SEC should ensure (if necessary through additional reporting requirements) that it has information on the gross leverage of all funds covered by the new rule as well as, if possible, data showing leverage under a method that takes into

[51] IOSCO issued its *Recommendations for a Framework Assessing Leverage in Investment Funds* in December 2019: https://www.iosco.org/library/pubdocs/pdf/IOSCOPD645.pdf

[52] https://www.fsb.org/wp-content/uploads/FSB-Policy-Recommendations-on-Asset-Management-Structural-Vulnerabilities.pdf.

account the absolute value of all of a fund's derivative positions while permitting netting and hedging under certain conditions.[53]

Reporting

59. The information collected on Form N-PORT[54] is designed to assist the SEC in understanding whether and to what extent a CIS's exposure to price movements is leveraged, either through borrowings or the use of derivatives. In this regard, Form N-PORT requires that CIS report the amounts of certain liabilities, in particular: (1) borrowings attributable to amounts payable for notes payable, bonds, and similar debt; (2) payables for investments purchased either (i) on a delayed delivery, when delivered, or other firm commitment basis, or (ii) on a standby commitment basis; and (3) liquidation preference of outstanding preferred stock issued by the CIS. It also requires the reporting of information related to securities lending and derivatives. This information is intended to help SEC staff better understand a CIS's borrowing activities, payment obligations, and potential leverage associated with these transactions. The SEC also receives information (through Form N-CEN) on credit lines of CIS, including: the size of the credit line; whether it is committed or uncommitted; the name of the institution providing the line of credit; whether the line of credit is shared with other funds; and whether the line of credit was used during the reporting period. The SEC's recent rule proposal regarding funds' use of derivatives would also amend Forms N-PORT and N-CEN to require funds to provide information regarding their derivatives exposures and value-at-risk ("VaR"). In addition, the proposed rule would require a fund to report to the SEC on a current basis on Form N-LIQUID (to be renamed "Form N-RN") if the fund is out of compliance with the VaR-based limit on fund leverage risk for more than three consecutive business days.

CFTC

60. Neither the CEA nor the CFTC's regulations impose any restrictions on the use of leverage by CPs. Use of leverage is required to be disclosed to prospective and current pool participants under CFTC regulation 4.24 but there are no rules on how leverage is to be calculated.

61. Recommendation: The CFTC and SEC should work together to develop common methodologies for calculation of leverage, taking into account the final output of IOSCO. A joint initiative by the CFTC and SEC would allow best use of expertise at each agency and create the conditions for a clearer overview of use of leverage across the investment fund sector in the U.S, which would in turn be useful as input to FSOC discussions and analysis. Once a common methodology (or methodologies) has been developed, the CFTC should then gather data on leverage employed by CPs with a view to identifying trends and possible risks.

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[53] Possible methodologies to take into account in this regard are the commitment approach foreseen in the context of the EU Directive on Undertakings for Collective Investment in Transferable Securities, as well as the commitment method prescribed in the EU Directive on Alternative Investment Fund Managers.

[54] For more on Form N-PORT, see paragraphs 25, 29, 59, and 74.

Operational/Conduct of Business Requirements

SEC

62. CIS operators have a broad fiduciary duty to their clients, including the CIS itself. The fiduciary duty has been interpreted by the U.S. Supreme Court as establishing a federal fiduciary standard governing the conduct of CIS operators. Included in the fiduciary standard are the duties of loyalty and care. The duty of loyalty requires a CIS operator to serve the best interests of its clients, which includes an obligation not to subordinate the clients' interests to its own. An operator's duty of care requires it to make a reasonable investigation to determine that it is not basing its recommendations on materially inaccurate or incomplete information. The fiduciary duty is made enforceable by the anti-fraud provisions of Section 206 of the IAA. An operator's duty of care requires it make a reasonable investigation to determine that it is not basing its recommendations on materially inaccurate or incomplete information.

63. In June 2019 the SEC issued an Interpretation Regarding Standard of Conduct for Investment Advisers.[55] The Interpretation reaffirms and in some cases clarifies certain aspects of a CIS operator's fiduciary duties to its clients, including providing the SEC's view regarding the CIS operator's duty of care, which includes duties to (i) provide advice that is suitable for and in the best interest of its clients, (ii) seek best execution of client transactions, and (iii) provide advice and monitoring over the course of the CIS operator's provision of advisory services to its clients. In order to provide best interest advice, an adviser must have a reasonable understanding of the client's objectives, which would include, for institutional clients, an understanding of the investment mandate.

64. A CIS operator's fiduciary duty encompasses obligations on best execution, appropriate trading and timely allocation of transactions, churning, related party transactions, underwriting arrangements and due diligence in the selection of investments. The 2019 Interpretation clarifies that, when seeking best execution of a CIS's transactions, a CIS operator should consider the full range and quality of a broker's services in placing brokerage including, among other things, the value of research provided as well as execution capability, commission rate, financial responsibility, and responsiveness to the CIS operator and should periodically and systematically evaluate the execution it is receiving. The 2019 Interpretation also clarifies that a CIS operator, when allocating investment opportunities among eligible clients (which could include CIS), must eliminate or at least expose through full and fair disclosure the conflicts associated with its allocation policies, including how the CIS operator will allocate investment opportunities, such that a client can provide informed consent. The CIS operator's allocation practices must not prevent it from providing advice that is in the best interest of its clients.

[55] https://www.sec.gov/rules/interp/2019/ia-5248.pdf.

CFTC

65. Neither CPOs nor CTAs have fiduciary obligations stemming from the CEA, and the relationship between them and CP participants and CTA customers is governed largely by disclosure obligations and by some specified rules of conduct. A CPO must include in its Disclosure Document a full description of any actual or potential conflicts of interest regarding any aspect of the pool on the part of the CPO, the trading manager (if any), any major CTA, the CPO of any major investee pool, any principal of the foregoing entities, and any other persons providing services to the commodity pool. The CPO also must describe any other material conflict of interest with respect to the pool. CFTC regulations do not mandate that a CPO take any actions to minimize conflicts of interest.

66. Recommendation: The CFTC should determine whether legal changes are needed with a view to subjecting CPOs to a similar standard of care as IAs to mutual funds and to a more comprehensive framework to address conflicts of interest. The absence of specific safeguards around conflicts of interest for CPOs, for which there was already a recommendation in the 2015 FSAP, continues to undermine the degree of protection afforded to retail investors in CPs.

Delegation

SEC

67. There is no statutory prohibition on delegation of CIS operator functions, including advisory responsibilities, to other persons if the contract between the CIS operator and the CIS (advisory contract) permits the delegation. If the contract permits delegation and advisory responsibilities are delegated, the delegate would be considered to be an operator of the CIS, and it may perform services for the CIS only pursuant to a written contract (sub-advisory contract) that is approved in the same manner as the advisory contract, i.e., by a majority of the CIS's shareholders and a majority of the CIS's independent directors. In addition, the delegate must be registered with the SEC as an investment adviser under the Advisers Act. As an investment adviser, the delegate would have a fiduciary duty to the CIS and, in the event that the delegate fails to perform its duties satisfactorily, the CIS operator and the delegate may both be liable.

68. Whether the CIS operator is responsible for the actions of the delegate depends on the advisory and sub-advisory contracts. Typically, the advisory contract will provide that the CIS operator is responsible for all aspects of the advisory relationship, and the sub-advisory contract will provide that the CIS operator is responsible for supervising the delegate. In that case, if the delegate fails to perform its duties satisfactorily, the CIS operator and the delegate both may be liable to the CIS and its shareholders. The same principles apply to delegations of administrative functions from CIS operators to administrators.

69. There are no direct requirements that a CIS operator supervise a sub-adviser but the SEC can bring an enforcement action against a CIS operator for failure to reasonably supervise a delegate if the delegate violates the federal securities laws and is subject to the

CIS operator's supervision. Furthermore, the board of directors, when annually renewing the advisory contract with the delegate, examines the effectiveness of the delegate's internal controls. If the delegate is a sub-adviser, Section 15 of the ICA provides that the CIS operator cannot terminate the contract without approval by either a majority of the CIS directors or a majority of its shareholders.

70. A CIS may seek exemptive relief from the SEC to permit IAs, subject to board approval, to retain sub-advisers (and materially amend existing sub-advisory agreements) without obtaining shareholder approval. In the event that a new sub-adviser is retained, the identity of the new sub-advisers must be disclosed in the CIS's registration statement. Additionally, this relief is contingent, among other things, upon appropriate disclosure being provided to CIS shareholders. The relief requires that the prospectus for each sub-advised CIS disclose the existence, substance, and effect of any order granted pursuant to an application for relief. Each prospectus must also prominently disclose that the CIS operator has the ultimate responsibility, subject to oversight by the Board, to oversee the sub-advisers and recommend their hiring, termination and replacement. Finally, each sub-advised CIS must disclose certain aggregate fee disclosure in its registration statement.

CFTC

71. Neither the CEA nor CFTC regulations prohibit a CPO from delegating functions to another person or entity. Although the CPO may delegate its functions to another person or entity, the CPO remains legally responsible for its obligations under the CEA and CFTC regulations. Through CFTC staff letters allowing for such delegation, the person or entity to whom the CPO delegates its functions is required to register with the CFTC as a CPO (the registration status of which is publicly available via the NFA website) with regard to the CP in question. CPOs may also rely on third-party recordkeepers. The books and records maintained by the third party must be kept in accordance with CFTC regulations, and made available for inspection by the CFTC, generally within 24 hours of a request.

72. Regulatory oversight of delegation is maintained through periodic audits of CPOs by NFA, with oversight of reviews of NFA by the CFTC. Generally speaking, delegation by a CPO is performed through a contractual arrangement, and the CPO's ability to terminate that arrangement would be dependent upon the terms of the contract between the CPO and the person or entity to whom the CPO is delegating its functions. Moreover, the CPO is required under CFTC regulation 4.24 to disclose information about entities and individuals who provide services to the CP as well as any conflicts of interest that may arise and any related party transactions, i.e., transactions between the CPO or CP and any person affiliated with a person or entity providing services to the CP.

Use of Securities Financing Transactions

SEC

73. CIS that wish to pursue securities financing transactions (SFTs), such as engaging in secured or unsecured borrowings, are subject to the leverage restrictions set out in paragraph 53 above. CIS may engage in securities lending if it is permitted by their investment objectives, policies and restrictions. SEC staff has issued a statement on CIS that wish to engage in securities lending.[56] CIS that act consistently with the guidance engage in securities lending pursuant to a program and policies approved by their board of directors. Under such securities lending programs, a CIS receives a reasonable return on the loan, does not have on loan at any one time more than one-third of its total assets, receives collateral that is at least 100 percent of the value of the securities on loan, and that collateral is marked to market daily. In addition, a CIS is generally limited to receiving collateral that is cash, U.S. government or agency securities, and is generally limited to reinvesting cash collateral in short-term instruments that provide maximum liquidity to pay back the borrower when the loan is terminated. A CIS should also be able to terminate the loan at any time and recall loaned securities within the ordinary settlement period. Finally, CISs are required to disclose to both investors and to the SEC certain information about their securities lending activities.

74. CIS that wish to pursue SFTs are subject to reporting requirements to the SEC and disclosure obligations to investors. Open-end CIS disclose information regarding their securities lending activities, such as the dollar amounts of income and fees and/or compensation related to such activities, in their prospectuses on Form N-1A. Closed-end CISs report similar information on Form N-CSR, a report filed semi-annually with the SEC, which is publicly available. In addition, open- and closed-end CISs report annually to the SEC on Form N-CEN, which is publicly available, information that discloses whether the CIS engaged in securities lending transactions during that filing period and if so, whether there were any instances in which the CIS was adversely impacted as a result of such transaction. With the exception of money market funds, open- and closed-end CIS also report to the SEC information specific to their securities lending transactions on Form N-PORT and such information is publicly available. Such information includes the name of the borrower for each transaction, the aggregate value of all securities on loan to the borrower, and information pertaining to the type and aggregate value of the collateral received for the loaned securities.

CFTC

75. Neither the CEA nor the CFTC's regulations place any limitations on the permissible transactions for CPs. CFTC regulations require both periodic and Annual Reports to cover SFTs engaged in by CPs.

[56] See, e.g., Securities Lending by U.S. Open-End and Closed-End Investment Companies, available at https://www.sec.gov/divisions/investment/securities-lending-open-closed-end-investment-companies.htm.

CIS Fees, Charges, and Expenses

SEC

76. The offering document of a CIS must include the fees and charges in a way that enables investors to understand their nature, structure, and impact on the CIS's performance. Most CIS disclose fees and expenses in a table format that covers such elements as the maximum sales charge, the redemption fee and the management fee, and also include a fee example. In addition, the SAI sets out more detailed information such as the aggregate dollar amount of fees paid to the CIS operator for the past three fiscal years, as well as income and fees from securities lending in the prior fiscal year. The prospectus for the primary offering of closed-end CIS discloses similar information as is required for open-end CIS. However, since in practice most closed-end CIS investors acquire their shares in the secondary market, the primary source of information on fees and expenses will typically be the annual and semi-annual reports, which include the financial statements. Closed-end CIS are also under an obligation to provide a SAI to investors on request.

CFTC

77. Disclosure Documents provided by CPOs must set out extensive information on fees and expenses. This includes a complete description of each fee, commission, and other expense which the CPO knows or should know has been incurred by the CP for its preceding fiscal year and is expected to be incurred by the pool in its current fiscal year, including fees or other expenses incurred in connection with the pool's participation in investee commodity pools and funds. The Disclosure Document also includes the break-even point, where profits exceed fees and expenses, per unit of initial investment (detailed rules issued by the NFA govern how the break-even point is to be calculated)

D. Authorization

CIS Operators/Investment Advisers

SEC

78. An entity wishing to operate or market a CIS must seek registration from the SEC. Generally, the shares of any CIS may be marketed by the CIS itself or a broker-dealer. The IAA and the ICA set out the criteria for a person's eligibility to serve as an operator of a CIS. The criteria for eligibility to market CIS shares is set out in a combination of legislation, regulatory requirements and rules adopted by FINRA. These include requirements on honesty and integrity.

79. The ability of the SEC to deny an investment adviser's registration application is constrained by statute. If the SEC does not issue an order granting the registration application, Section 203(c)(2) of the Advisers Act requires the SEC to institute proceedings to determine whether the application should be denied. These proceedings need to be instituted within 45 days. Section 203(c)(2) of the Advisers Act provides that the proceedings will include the provision of public notice of the grounds under consideration for denial and will provide an opportunity for hearing. The proceedings generally will be concluded within 120 days of the date of the filing of the investment adviser's application to register. At the conclusion of the proceedings, the SEC by public order will grant or deny the application.

80. The CIS's board of directors, particularly the independent directors, and the CIS's shareholders bear primary responsibility for assessing the fitness and competence of a CIS's operator. Under Sections 15(a) and (c) of the ICA, the terms of a CIS operator's contract must be approved by a vote of a majority of the CIS's independent directors and by a vote of a majority of the holders of the CIS's outstanding voting securities. Any renewal of the CIS operator's contract must be approved by a vote of a majority of the CIS's independent directors.

81. CIS operators must register with the SEC and, as part of registration, make certain public disclosures. For example, an operator must disclose in Part 2 of its Form ADV (the SEC's registration form for operators) the educational and business background of its employees who provide investment advice. Form ADV Part 2 also requires disclosure of specified financial information about an operator under certain circumstances. The item requires an operator to disclose any financial condition reasonably likely to impair its ability to meet contractual commitments to clients if the operator has discretionary authority over client assets (such as a CIS), among other things. Form ADV Part 2 also requires an operator that has been the subject of a bankruptcy petition during the past 10 years to disclose that fact to clients. In the case of a CIS, an operator generally provides the CIS's board of directors with a copy of the operator's Form ADV. A CIS also must disclose in its registration statement certain information regarding the operator, including the operator's experience as an operator, the operator services that it provides to the CIS, and a description of the compensation that the CIS operator receives.

82. Under the Investment Company Act and the Advisers Act, the SEC does not assess the qualifications of persons or firms seeking to become CIS operators, except as noted above. The fact that an entity is registered with the SEC as an operator does not represent a determination by the SEC as to the criteria for eligibility to operate CISs. The SEC does not make registration determinations based on those factors, except to the extent noted above. The SEC uses a disclosure-based approach to investment adviser registration. A primarily disclosure-based approach is similar to the approach in other federal securities laws (e.g., the Securities Act). This approach provides prospective clients with information to assess the adequacy of an adviser's background and experience.

CFTC

83. The CEA specifies certain factors that would disqualify an applicant from registering with the CFTC. These encompass prior proceedings in which the applicant was found to have violated the law or in which the applicant was formally enjoined from engaging in certain activities. The CFTC has authorized NFA to receive and review registration applications and grant or deny registrations, subject to appeal by the applicant to the CFTC and the courts. NFA performs an extensive background check to determine whether a disqualification exists. No subjective inquiry is performed with respect to the business model or management capabilities of the applicant for registration. With regard to associated persons (APs),[57] however, each AP applicant must take and pass proficiency tests before being able to market commodity interest investments to potential customers.

84. There are no specific requirements in the CEA or CFTC regulations mandating specific human and technical resources to register as a CPO. However, as explained in section E below on Supervision, the CFTC and NFA monitor CPOs on an ongoing basis to determine their compliance with various obligations such as audited financial statements and Disclosure Documents, and entities intending to register as CPOs and operate commodity pools are *implicitly* required to have the human and technical resources necessary to meet these compliance obligations.

85. Both the SEC's and CFTC's approaches to registration of new IAs and CPOs are based largely on verifying the absence of certain negative criteria that would exclude a prospective registrant, as opposed to a positive assessment of capacity and expertise. Reliance on disclosure at the stage of registration of a new CIS operator necessarily shifts the burden of risk mitigation to the ongoing supervision and enforcement phases. While it is appropriate and necessary that CIS boards and shareholders play a key role in assessing the eligibility of the prospective CIS operator, the size and importance of the investment fund industry in the U.S.—and the active participation of retail investors in that market—militate in favor of increased scrutiny of new registrants by the SEC and CFTC (the latter via the NFA). This is particularly important in the case of the SEC given the issue highlighted in section E below on coverage of examinations.

86. Recommendation: Both the SEC and the CFTC should increase the scrutiny they apply to entities that wish to operate an investment fund. This could take the form of meetings with the key personnel of the entity and/or targeted inspections. To make this recommendation workable, it is likely that legislative changes would be needed to give the agencies more flexibility in the timing of their assessment of applications and to clarify at what moment in the registration process prospective registrants fall under the agencies' purview.

E. Supervision

Ongoing Supervision

SEC

87. The SEC has extensive statutory authority to supervise CIS and their service providers. Section 204(a) of the Advisers Act authorizes SEC staff to examine the books and records maintained by IAs, while Sections 31(a) and 31(b) of the ICA authorize SEC staff to examine the books and records of registered investment companies, as well as certain brokers, dealers and investment advisers described in the statute. The staff may exercise its authority to conduct examinations at any

[57] An AP is an individual who solicits orders, customers, or customer funds (or who supervises persons so engaged) on behalf of a CTA or CPO.

time without prior notice, and the statutory grants of authority contained in IAA, ICA and the Exchange Act require only that examinations be reasonable.

88. **The SEC's ongoing supervision activities are concentrated within the Office of Compliance and Inspection Examinations (OCIE).** OCIE uses a risk-based approach in selecting firms, areas, and issues to examine and draws on a variety of resources, including its staff's specialized knowledge, risk analytics, and advanced technology, to target its resources most efficiently on the areas that pose the highest risk to investors, the markets, or capital formation. This means that OCIE does not conduct routine or cycle examinations. OCIE examines entities involved in operating CISs by performing onsite examinations or inspections of CIS and their operators. In many cases, examinations are conducted in conjunction with an examination of the CIS's operator, because CIS operators often perform recordkeeping and operational duties, and may perform custodial services for the CIS. The scope of examinations of CIS is tailored to the activities of the CIS and its compliance risks. In formulating the observations of the examination, the examiners may consult with other staff, including supervisory staff and staff in relevant Offices and Divisions, to ensure that their observations are consistent with SEC rules, regulations, and interpretations.

89. **Since 2014, the SEC has continued to work to increase examination coverage of registered investment advisers.** For example, in FY16, OCIE transitioned some resources from other parts of the examination program to the investment adviser/investment company program with a goal of increasing the size of the investment adviser/investment company program. SEC staff examined 11 percent of investment advisers in FY 2016 and 15 percent of investment advisers in FY17. In FY18, SEC staff examined 17 percent of investment advisers while the number of registered investment advisers increased by approximately 5 percent from the previous fiscal year.

90. **The chart below reflects OCIE's examinations of investment advisers in fiscal years 2016, 2017, and 2018:**

	FY16	FY17	FY18
Number of exams	1,447	2,114	2,312
Percentage of investment advisers examined	11 percent	15 percent	17 percent

91. **As part of its compliance oversight, OCIE may also conduct risk-targeted initiatives, in which OCIE typically focuses on a particular practice area among a number of CISs and operators.** Recent thematic initiatives have focused on CIS and/or operators that fall into one or more of the following categories:

- Index funds that track custom-built indexes;
- Smaller ETFs and/or ETFs with little secondary market trading volume;
- Mutual funds with higher allocations to certain securitized assets;
- Funds with aberrational underperformance relative to their peer groups;

- Advisers relatively new to managing mutual funds; and
- Advisers with practices or business models that may create increased risks of inadequately disclosed fees, expenses, or other charges.[58]

92. The SEC has made material progress in improving the coverage of its examinations of IAs since the last FSAP, moving from a little over 10 percent of the IA universe to 17 percent in FY2018. This was achieved at the same time as an increase in the number of IAs. The risk-based methodology used by the SEC also appears to help target resources appropriately.[59] Nevertheless, in light of the important role that CIS play in the U.S. financial sector, and that total AUM of CIS is approximately US$24 trillion, the current rate of examinations continues to be too low.

93. Recommendation: The SEC should continue to increase the coverage of IAs in its examinations program. Giving the SEC more autonomy to determine its resources[60] would put the agency in a better position to implement this recommendation.

CFTC

94. NFA conducts regular on-site inspections of registered CPOs as part of its ongoing monitoring of their operations. A risk-based analysis is used to determine the frequency of the examinations. This analysis considers many different business factors, as well as information such as customer complaints or concerns that arise during NFA's review of a firm's Disclosure Document, financial statement or promotional material. NFA generally conducts examinations of registered CPOs within the first year after becoming active and then every 3 to 4 years thereafter.

Reporting

SEC

95. The SEC receives a significant range of different types of reports relating to fund management. SEC rules require investment companies and registered investment advisers to provide data that facilitate the SEC's monitoring of the asset management industry in several key areas. Key examples of these disclosures are set out below:

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[58] OCIE Risk Alert, Risk-Based Examination Initiatives Focused on Registered Investment Companies (Nov. 8, 2018), available at https://www.sec.gov/files/OCIE%20Risk%20Alert%20-%20RIC%20Initiatives_0.pdf; National Examination Program Examination Priorities for 2019, available at https://www.sec.gov/files/OCIE%202019%20Priorities.pdf.

[59] Limitations on the SEC's ability to share non-public information with the FSAP team meant that it was not possible to review the effectiveness of individual examinations as part of the development of this technical note.

[60] See section B above on Legislative and regulatory framework.

- Form "Uniform Application for Investment Adviser Registration and Report by Exempt Reporting Advisers" (Form ADV).[61]

- Form PF. SEC-registered investment advisers with at least US$150 million in private fund assets under management must report certain data about their private funds confidentially.

- Form "Monthly Portfolio Investments Report" (Form N-PORT).[62] In 2016, the SEC adopted rules and a form that require most registered investment companies, including mutual funds other than money market funds, ETFs, and closed-end funds, to report quarterly public and monthly non-public portfolio holdings and other information, each quarter, such as the fund's assets and liabilities, risk metrics, information regarding monthly returns, and flow information; and

- Form "Annual Report for Registered Investment Companies" (Form N-CEN).[63] In 2016, the SEC adopted rules and a form that require most registered investment companies, including mutual funds, closed-end funds, unit investment trusts (UITs), and ETFs, to report certain census-like information on an annual basis, including information about their securities lending activities and any provision of financial support and, for ETFs, information about their authorized participants and creation/redemption activities.

96. Specialized staff within the Analytics Office of the SEC's Division of Investment Management analyze the data collected from fund management firms. The Analytics Office includes quantitative analysis experts who manage, monitor, and analyze data collected from registrants together with other industry and market data. The Analytics Office also includes examination staff and industry experts who work together with these quantitative analysts to provide ongoing financial and risk analysis of the asset management industry, gather and analyze operational information directly from asset management industry participants, and otherwise maintain industry knowledge and technical expertise relating to the asset management industry. These activities inform the SEC's perspective on the asset management industry, the role of registered investment companies and private funds in broader financial markets, and how markets and geopolitical events may affect the asset management industry.

97. The Analytics Office has developed various analytical tools to use the data the SEC collects. These tools enhance SEC staff's ability to assess large volumes of data and streamline analysis of the data by automating certain analytical processes. Relevant to monitoring and assessing systemic risk, these analytical tools have enhanced SEC staff's ability to gather and analyze operational information directly from participants in the asset management industry, to gain insight into developing market risks, understand the effects of macroeconomic developments, and identify particular funds or advisers that may require additional monitoring.

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[61] See paragraph 78 above for more details.

[62] The section on Liquidity management above (starting at paragraph 23) discusses the liquidity-related aspects of Form N-PORT.

[63] See also paragraphs 48, 59, and 74.

CFTC

98. The CEA and CFTC regulations form a regulatory system for CPOs that is primarily disclosure-based. This requires CPOs to, among other things, evaluate the materiality of events and transactions; to include material information in their periodic Account Statements, Disclosure Documents, and Annual Reports containing financial statements certified by an independent accountant; and to adequately disclose the risks of commodity interest investments, the educational and business background of the CPOs' principals and senior management staff, and any potential or actual conflicts of interest involving the CPO or its staff to potential CIS participants.

99. CPOs must file with NFA any amendments to their Disclosure Documents, including those changes made to the rights of commodity pool participants. The NFA systematically reviews all Disclosure Documents, and checks them again as part of its examinations. If a CPO knows or should know that the Disclosure Document is materially inaccurate or incomplete, with limited exceptions, it must correct that defect and distribute the correction within 21 calendar days. Further requirements apply to periodic and Annual Reports. The latter, which also must be filed with NFA, must contain certain information, including, but not limited to the pool's Net Asset Value and Statements of Financial Condition, Operations, and Changes in Net Assets.

Cooperation

100. Feedback from stakeholders suggests that there is good day-to-day cooperation at working level between the SEC and CFTC. The staff of each agency (and, where relevant, NFA) contact each other proactively when matters of common interest arise and share information using the extensive MOUs that are in place. There is also evidence of parallel investigations taking place with respect to entities that are registered with both agencies.

101. Recommendation: There is scope for SEC and CFTC to work together more extensively on issues of relevance to both agencies. In addition to the example of developing common calculation methodologies for leverage mentioned above, there would be merit in the agencies, together with other U.S. financial regulators, continuing to combine their efforts to address issues around leveraged loans.[64] Consideration should also be given to carrying out joint inspections of fund managers that fall under both SEC and CFTC oversight. This would be an opportunity for the staff of the agencies to learn from each other's practices and leverage on expertise.

F. Enforcement

SEC

102. Enforcement of the regulatory framework remains a key priority for the SEC, as reflected in its internal organization. Approximately 1300 FTEs work in the Division of

[64] SEC Chairman Jay Clayton has spoken publicly about interagency coordination on corporate debt markets: https://www.sec.gov/news/speech/speech-clayton-2019-09-09

Enforcement (DOE), representing almost one third of the agency's 4,200 employees. The SEC has continued to be very active on the enforcement front: during the past three years, the agency has imposed sanctions on more than thirty occasions in cases involving breaches of regulatory requirements by CIS, their fund managers, investment managers, depositaries, and any other relevant entities. The non-monetary sanctions imposed include industry bars, revocations of SEC registration, censures, cease and desist orders, and injunctions. The total value of the monetary sanctions exceeds US$200 million, with the imposed civil penalties ranging from US$0 to US$21,000,000 and the imposed disgorgement ranging from US$0 to US$24,599,896.[65]

103. Staff relies on a range of sources in identifying potential breaches. Among the most important sources are whistleblowers[66] and referrals from OCIE. Information is assigned to a particular team within DOE first, then a decision is made on whether to open a Matter under Inquiry. The next step is the issuance of a formal order of investigation, for which responsibility has been delegated by the Commission to the co-Directors of DOE. There follows a period of investigative work which typically includes gathering testimony and documents. The final outcome of the enforcement action will often take the form of a settlement; this approach allows full remedies to be imposed immediately.[67]

104. The IAA and ICA authorize the SEC to institute administrative proceedings against CIS operators and their associated persons or to sue any person in federal court for violations of those acts. The decision whether to pursue a matter via administrative or civil proceedings will depend on a number of factors including the remedies available in each case. The SEC also works extensively with the criminal authorities depending on the type of misconduct under investigation.

CFTC

105. Although the CFTC retains authority to conduct inspections, NFA has primary responsibility for inspections of CPOs, and is the main instigator of enforcement actions arising out of the inspection process. Enforcement of NFA rules is a key component of the effectiveness of the self-regulatory process. If an NFA examination uncovers deficiencies, the NFA's Business Conduct Committee (made up of industry representatives and public directors) votes on whether to issue a complaint, which is then served on the relevant firm (at this point there is coordination between the NFA and the CFTC). For particularly serious breaches, the NFA typically contacts the CFTC immediately so that the CFTC can go to court to freeze the assets of the CPO and/or the CP. The NFA also has the ability to ask a FCM to freeze the assets of a CPO. The CFTC, through its Division of Enforcement, may file enforcement actions either in federal court or administratively and is also able to impose or obtain sanctions for violations of the CEA and CFTC

[65] The U.S. Supreme Court is due to rule on whether the SEC has any possibility of using disgorgement under equitable principles, and not subject to the constraints of sanctions (Liu and Xin Wang A/K/A Lisa Wang v. SEC).

[66] See Box 2.

[67] The SEC's Enforcement Manual is publicly available: https://www.sec.gov/divisions/enforce/enforcementmanual.pdf

regulations relating to CPOs which include cease and desist orders, injunctions, restitution to customers, disgorgement of gains, civil monetary penalties, and trading and registration related bans. The CFTC also has robust cooperative enforcement programs and investigates and litigates in parallel with other civil regulators and criminal authorities, both domestic and foreign.[68]

Box 2. United States: Whistleblower Schemes

Both the SEC and the CFTC benefit in the pursuit of their objectives from whistleblower programs put in place by the DFA. The SEC already had an award program in place before the DFA that was limited to insider trade cases. The new legislation provided a firmer basis for the program and broadened its applicability. The programs are generally similar in both agencies, but the description below focuses on the SEC.

The Office of the Whistleblower (OWB) administers the SEC's whistleblower program, while the Office of Market Intelligence within the Enforcement Division Enforcement receives whistleblower tips, conducts the initial review, and determines whether to refer the tip to investigative staff for follow up. Assistance and information from whistleblowers can help the SEC identify possible fraud and other violations much earlier than might otherwise have been possible.

The whistleblower program enables the SEC to pay an award, under regulations prescribed by the SEC and subject to certain limitations, to eligible whistleblowers who voluntarily provide the SEC with original information about a potential violation of the federal securities laws that leads to the successful enforcement of a covered judicial or administrative action, or a related action, as defined by the DFA. The SEC may provide monetary awards to eligible individuals who come forward with high-quality, original information that leads to an enforcement action in which over $1,000,000 in sanctions is ordered. The range for awards is between 10 percent and 30 percent of the money collected. Various factors are taken into account in determining the precise amount of the award, which is within the discretion of the SEC. These factors include the significance of the whistleblower's information, the degree of assistance provided by the whistleblower, the law enforcement interest in the matter, and whether the whistleblower was culpable in the violations or unreasonably delayed reporting them.

The DFA also provides important confidentiality protections to whistleblowers and expressly prohibits retaliation by employers against individuals who become whistleblowers.

Since its inception the SEC's program has resulted in total payments of around US$387 million to whistleblowers, and over 5,000 tips have been received via the program in 2019 alone.

In the case of both agencies, the programs have proved to be an effective additional means of gathering information on possible violations.

[68] The CFTC's Enforcement Manual is publicly available: https://www.cftc.gov/LawRegulation/Enforcement/EnforcementManual.pdf.

G. Systemic Risk Monitoring

106. The chairs of both the CFTC and SEC are members of the FSOC, which is responsible for facilitating coordination among financial regulators to monitor systemic risk and promote financial stability across the U.S. financial system. The agencies' staff participate in and contribute to various Committees led by FSOC staff, including the Systemic Risk Committee and the Regulation and Resolution Committee. FSOC has the ability to subject certain nonbank financial companies to oversight by the FRB and additional prudential standards if it determines that they could pose a threat to the financial stability of the U.S. To date, FSOC has not determined that any investment funds or their managers should be subject to FRB oversight or additional prudential standards. Additionally, FSOC recently adopted interpretative guidance[69] that implements an activities-based approach to its monitoring activities, including leveraging the expertise of existing regulators in pursuing the implementation of actions to address potential risks. The guidance took effect on January 1, 2020.[70]

EQUITY AND DERIVATIVES TRADING

A. Equity Market Structure

Equity Market Structure and Market Participants

107. The U.S. has the largest equity market in the world by market capitalization. Although some other markets have similar or greater numbers of companies listed, the market capitalization of companies listed on the two major U.S. listing exchanges, Nasdaq and NYSE, at US$30.1 trillion at the end of 2018, comfortably exceeds any other domestic market (Figure 2).[71]

108. U.S. companies have also traditionally raised more finance through equity and other capital markets than through bank lending, and so capital markets are of greater structural significance in the U.S. than in some other jurisdictions. SIFMA estimates that in 2017 nearly 70 percent of U.S. corporate capital was raised through capital markets, with over 50 percent coming from equity, which is higher than either the euro area or Japan, and compares with around 30 percent in China.[72]

[69] Authority to Require Supervision and Regulation of Certain Nonbank Financial Companies, 84 FR 71740 (December. 30, 2019).

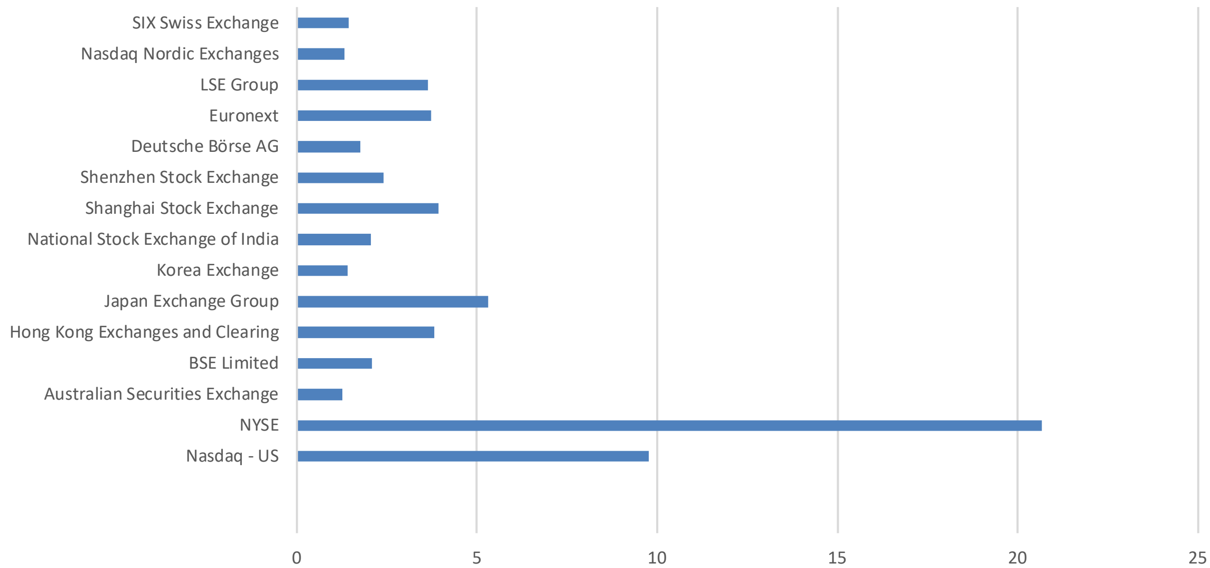
[70] This technical note does not assess the role of FSOC, nor the SEC's and CFTC's contributions to it. This will be covered by a separate technical note on the systemic risk oversight macroprudential framework.

[71] World Federation of Exchanges Annual Statistics Guide 2018, equity tables 1.1 and 1.3.

[72] SIFMA U.S. Capital Markets Deck 2018, slide 8, available at https://www.sifma.org/resources/research/us-capital-markets-deck-2018/.

Figure 2. United States: Domestic Market Capitalization, Selected Exchanges

Domestic Market Capitalization, selected exchanges, USD trillion, end 2018

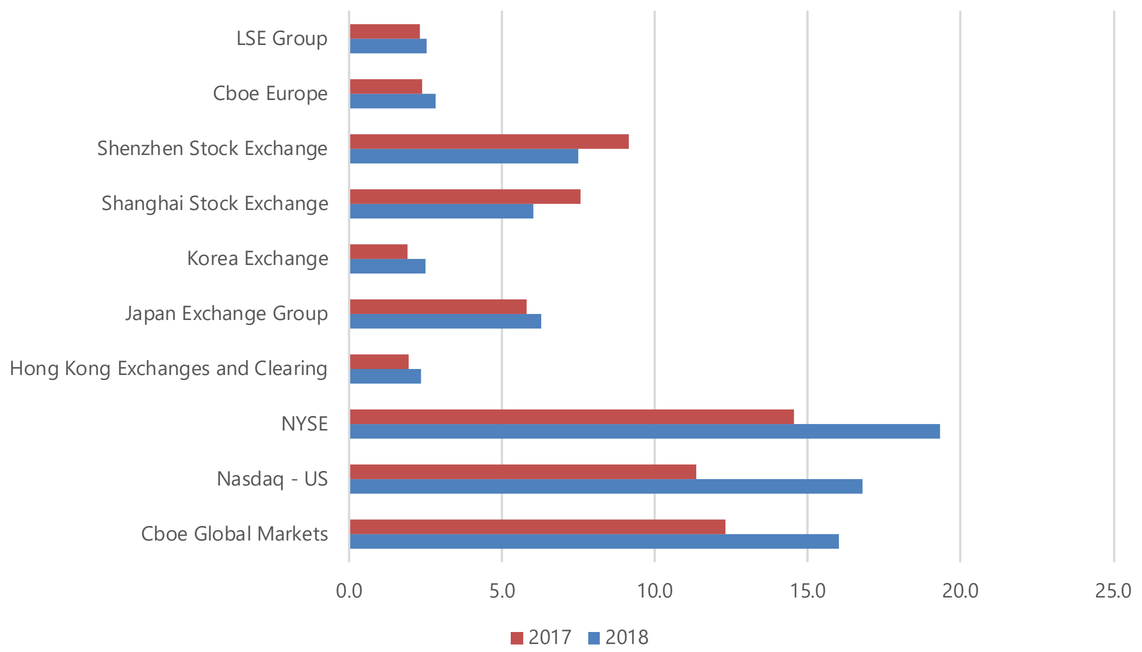


Source: World Federation of Exchanges Annual Statistics Guide 2018.

109. The volume and value of equity trading in the U.S. is also high by international standards, with a significant proportion taking place through a range of alternative trading systems (ATS) and over-the-counter (OTC). The three largest equity exchanges globally by value traded are in the U.S. and, unlike some others, saw a large increase in 2018 relative to the previous year (Figure 3). However, a significant proportion of equity trading in the U.S. takes place outside exchanges (Figure 5). In 2018, of the average 3,635 million NYSE-listed shares traded daily, 1,670 million changed hands on NYSE itself; for the average 2,252 million NASDAQ-listed shares traded daily, on average 1,428 million were traded daily on NASDAQ.[73] A significant proportion of trading by value is carried out 'purely' OTC, outside either exchanges or ATS (Figure 4).

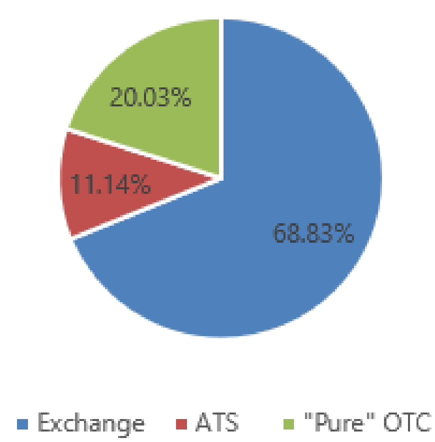
[73] Source: BATS Global Markets, CBOE Exchange Inc, SIFMA U.S. Equity Daily Trading Data.

Figure 3. United States: Value of Share Trading, Top 10 Global Exchanges, US$ Trillion



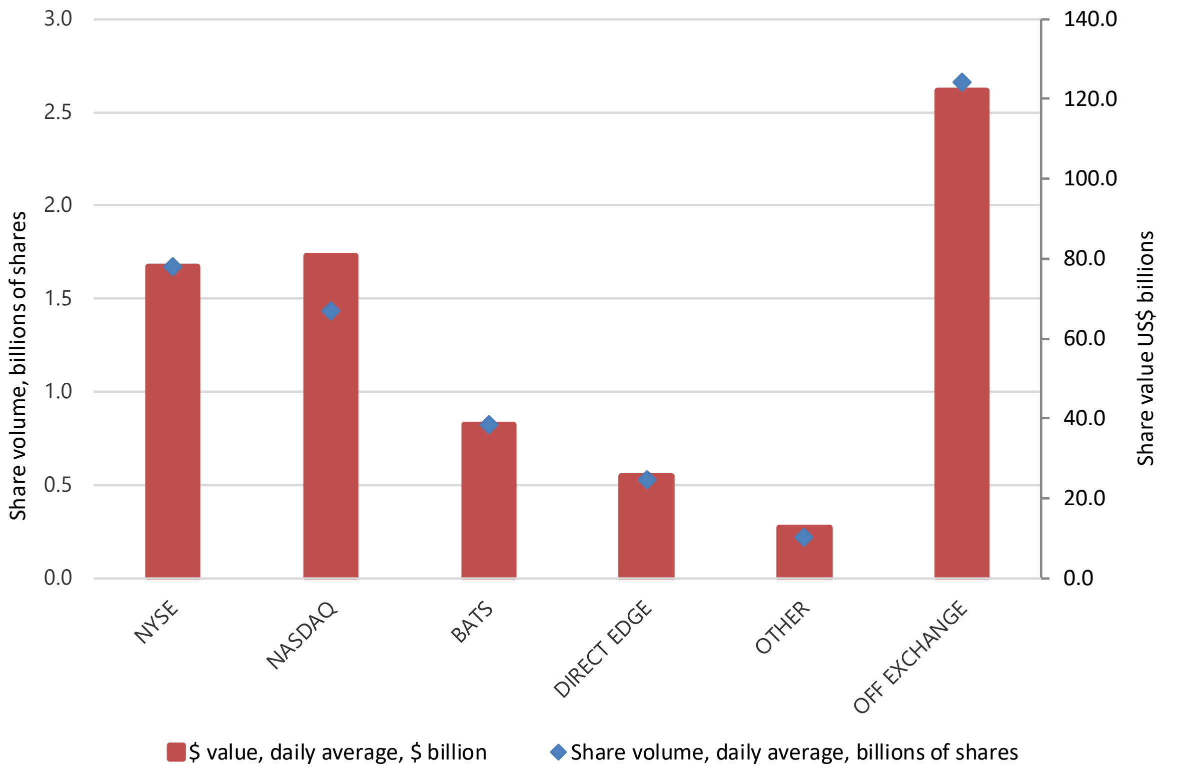
Sources: WFE Annual Statistics Guide 1.5.1 Electronic Order Book Trading.

Figure 4. United States: Proportion of Average Daily Value of Equity Trading in U.S., by Execution Venue Type, 2018



Sources: SEC, and FINRA.

Figure 5. United States: U.S. Equity Trading 2018 by Venue



Sources: CBOE, and SIFMA.

110. There continue to be around fifty national securities exchanges and ATSs, collectively, that trade equities, though there have been both market entrants and exits since 2014. At the end of December 2014, there were 11 national securities exchanges trading equities and 39 ATS operating equity trading systems.[74] At the end of December 2018, there were 14 national securities exchanges and 36 ATS operating equity trading systems.

111. There have also been changes in the time at which trading takes place, with an increased proportion of trading concentrated in closing auctions, and the few minutes before. Analysis for 2018 shows that, although the concentration of activity in the closing auctions is less marked in the U.S. than in some other jurisdictions, particularly in the EU[75], it increased significantly in 2017 and first quarter of 2018. The same analysis also points to an increase during that period, relative to Q2 2016, of activity during the final few minutes of trading before the closing auction,

[74] U.S. FSAP Detailed Assessment of the Implementation of the IOSCO Objectives and Principles of Securities Regulation, IMF Country Report 15/91, April 2015, page 13.

[75] See for example the comparative analysis of developments in French and US markets carried out by the Autorité des Marchés Financiers at https://www.amf-france.org/en_US/Publications/Lettres-et-cahiers/Risques-et-tendances/Archives?docId=workspace%3A%2F%2FSpacesStore%2Fa16f34e9-6cae-4bd3-adc6-0fb96a559b9e

although it is less clear whether that marks a more general trend.[76] There has also been interest in recent years from non-primary listing U.S. exchanges in holding competing closing auctions.[77]

112. Evolutions in equity market structure highlight the importance of both on- and off-exchange execution, including 'pure OTC', and for on-exchange trading the increasing importance of the closing auction as a focal point for trading. The closing auction is significant because many indices and other instruments are based and priced on it. Given these market characteristics and the scale of US equity markets, the consideration in this technical note of how equity trading is regulated focuses in particular on key aspects which could affect the continuity and predictability of operation of markets or the likelihood of other extreme events which could have wider implications for market integrity and stability, taking into account the evolution of market conditions and the regulatory framework since the last FSAP.[78]

B. Equity Markets Regulation and Supervision

Regulation of Equity Markets

113. Multilateral trading venues are required to register as either national securities exchanges or broker-dealers that act as ATSs,[79] but there is no specific regulatory regime governing the matching of trades bilaterally or systematic internalization of trades. Multilateral trading venues must be registered as a national securities exchange unless an exemption applies. National securities exchanges are subject to oversight by the SEC, and are themselves SROs, setting and enforcing rules for their participants. An important exemption to the requirement to register as a NSE, first introduced in 1998, is for ATS operators who register as broker-dealers and undertake to comply with Regulation ATS.[80] Such broker-dealers are overseen by the SEC and by FINRA which, as discussed above, is itself overseen by the SEC. Since the last FSAP, Regulation ATS has been amended to require ATSs that trade national market system (NMS) stocks[81] to file detailed public disclosures (Form ATS-N) with the SEC on matters relating to the ATS's manner of operating, including order types, execution and priority rules, segmentation of order flow and trading functionalities, plus the ATS-related activities of the broker-dealer, including

[76] See https://www.thetradenews.com/thought-leadership/liquidity-is-for-closers/.

[77] See SEC analysis of the relationship with price formation: https://www.sec.gov/files/bats_moc_analysis.pdf.

[78] For a full assessment of the regulation of US equity markets in relation to the IOSCO principles, see U.S. FSAP Detailed Assessment of the Implementation of the IOSCO Objectives and Principles of Securities Regulation, IMF Country Report 15/91, April 2015

[79] ATSs are SEC-regulated electronic trading systems that match orders for buyers and sellers of securities. A national securities exchange (NSE) is a securities exchange that has registered with the SEC under Section 6 of the Securities Exchange Act of 1934.

[80] Regulation of Exchanges and Alternative Trading Systems, Exchange Act Release No. 40760 (December 8, 1998), 63 Fed. Reg. 70843, 70881 (December 22, 1998) ("Regulation ATS Release").

[81] NMS stocks are securities (other than options) for which transaction reports are collected, processed, and made available pursuant to transaction reporting plans overseen by the SEC.

information about trading in the ATS by the broker-dealer and its affiliates, and measures in place to protect confidential subscriber information. The rules include a procedure for the SEC under certain conditions to declare such Form ATS-N filings ineffective.[82]

114. Reg NMS[83] was designed to support price formation and market access across the 'national market system.' All execution in relation to 'NMS stocks', including non-ATS broker-dealer trades, remain subject to this regulation. Among the key requirements of Reg NMS is the order protection rule, Rule 611, which, unless an exception applies, requires all national securities exchanges, ATSs and non-ATS broker-dealers to avoid trading at a price worse than the national best bid or offer, supported by consolidated tapes of pre-trade and post-trade information for all NMS participants.

115. Broker-dealers are also required to be registered, and to be a member of an SRO. Approximately 3,700 broker-dealers were registered with the SEC as of December 31, 2018. The majority of these are FINRA members, but a small portion are registered with other SROs such as CBOE. In order to be registered, broker-dealers must, among other conditions, meet minimum capital requirements. In June 2019, the SEC adopted rules[84] increasing the minimum net capital requirements for those broker-dealers that use internal models to compute net capital ('ANC broker-dealers'). As a result of the change, an ANC broker-dealer will be required to hold a minimum of US$5 billion tentative net capital,[85] and provide the SEC with 'early warning' notification if its tentative net capital falls below US$6 billion, and it will also have a minimum capital requirement of the greater of US$1 billion or 2 percent of its exposures to security-based swaps (SBS) customers plus the existing ratio-based minimum net capital requirements.[86] In addition, portfolio concentration charges for ANC broker-dealers have been changed so that firms must take a capital charge equal to the aggregate amount of uncollateralized current exposures across all counterparties arising from derivatives transactions that exceed 10 percent of the firm's tentative net capital, a reduction from the previous 50 percent of tentative net capital. This change is intended to

[82] See Regulation of NMS Stock Alternative Trading Systems, Release No. 34-83663 (Jul. 18, 2018), https://www.sec.gov/rules/final/2018/34-83663.pdf (adopting release). See also Regulation of NMS Stock Alternative Trading Systems, Release No. 34-84541 (Nov. 6, 2018), available at https://www.sec.gov/rules/final/2018/34-84541.pdf (making certain technical corrections to the adopting release).

[83] https://www.sec.gov/rules/final/34-51808.pdf.

[84] See https://www.sec.gov/news/press-release/2019-105 for a summary of requirements and final rules at https://www.sec.gov/rules/final/2019/34-86175.pdf. Although not the focus of this technical note, the SEC also adopted 'Regulation Best Interest' on June 5, 2019, which requires broker-dealers to act in the best interest of a retail customer when recommending any securities transaction or investment strategy involving securities to a retail customer. See: https://www.sec.gov/rules/final/2019/34-86031.pdf.

[85] Tentative net capital for ANC broker-dealers is net capital before deducting market and credit risk charges.

[86] Under Rule 15c3–1 either a 15–1 aggregate indebtedness ratio or 2 percent of customer debit items ratio.

address the risk of unsecured assets being illiquid and not readily convertible into cash in times of market stress. Broker-dealers will not be required to comply with the rules until October 6, 2021.[87]

116. Over the last decade, a range of additional measures have been introduced to adapt to markets in which high-frequency trading, driven by algorithms, is increasingly common, and in which the resilience of technology employed by trading venues and trading firms is increasingly important to ensure the orderly functioning of markets. These additional measures include the SEC's Market Access Rule, which sets out requirements for risk management controls for broker-dealers accessing NSEs or ATSs, or operating an ATS with non-broker-dealer subscribers,[88] including requirements for broker-dealers providing direct market access to clients to establish risk management controls in relation to the first tier of direct access clients. The rules do not place any responsibility on trading venues to set or supervise requirements in relation to the provision of direct electronic access by members, or for first tier direct electronic access clients themselves to be regulated: the responsibility is placed on the broker-dealer except where an ATS has non-broker-dealer members in which case the ATS itself has the responsibility.

117. Since the last FSAP some NSEs have sought and gained SEC approval to introduce 'speed bumps', or small delays, in trading.[89] For example, the Commission has approved exchange proposals to delay updates to the prices of resting pegged orders (i.e., liquidity providing orders whose resting price is pegged in reference to the national best bid and offer, which price is continually updated by the exchange as the market prices move) in response to changes in the national best bid and offer as quickly as an exchange is able to receive data and calculate it before incoming messages, including incoming orders seeking to execute against pegged orders, reach the matching engine. The access delay does not provide any protection or benefits for displayed orders or non-displayed orders at fixed prices. The SEC staff has issued a statement on where delays are sufficiently small to avoid frustrating the order protection rule.[90]

118. In 2014, Regulation Systems Compliance and Integrity (SCI)[91] was introduced to reduce the occurrence of systems issues, improve resiliency when systems problems occur, and enhance the SEC's oversight and enforcement of securities market technology infrastructure. Regulation SCI applies to, among other entities, stock and options exchanges, clearing agencies, disseminators of consolidated market data (known as plan processors), and the largest ATSs (together referred to as "SCI entities"). The rule requires these SCI entities to have

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[87] See: https://www.sec.gov/page/key-dates-registration-security-based-swap-dealers-and-major-security-based-swap-participants. This date was triggered after the fieldwork by the SEC's adoption of further rules on December 18, 2019; see https://www.sec.gov/news/press-release/2019-263.

[88] Risk Management Controls for Brokers or Dealers with Market Access, Release No. 34–63241 (Nov. 3, 2010), available at https://www.sec.gov/rules/final/2010/34-63241.pdf.

[89] See e.g., Release No. 34–78474 (Aug. 3, 2016), available at https://www.sec.gov/rules/other/2016/34-78474.pdf; and Release No. 34–80700 (May 16, 2017), available at https://www.sec.gov/rules/sro/nysemkt/2017/34-80700.pdf.

[90] See https://www.sec.gov/divisions/marketreg/automated-quotations-under-regulation-nms.htm.

[91] See 17 C.F.R. §242.1000–1007. See also Regulation Systems Compliance and Integrity, Release No. 34–73639 (Nov. 19, 2014), available at https://www.sec.gov/rules/final/2014/34-73639.pdf.

written policies and procedures reasonably designed to ensure that their systems have levels of capacity, integrity, resiliency, availability, and security adequate to maintain their operational capability and promote the maintenance of fair and orderly markets, and that they operate in a manner that complies with the Exchange Act. It also requires these entities to take corrective action with respect to SCI events (defined to include systems disruptions, systems compliance issues, and systems intrusions), notify the SEC of such events, and disseminate information about certain SCI events to affected members or participants (and, for certain major SCI events, to all members or participants of the SCI entity). SCI entities are also required to conduct a review of their systems by objective, qualified personnel at least annually, submit quarterly reports regarding completed, ongoing, and planned material changes to their SCI systems to the SEC, maintain certain books and records, and to mandate participation by designated members or participants in scheduled testing of the operation of their business continuity and disaster recovery plans, including backup systems, and to coordinate such testing on an industry- or sector-wide basis with other SCI entities.

119. At the time of the last FSAP, various further reforms were being considered, assisted by an Equity Market Structure Advisory Committee (EMSAC) since disbanded; various changes have since been piloted or are planned. These include:

- A market-wide 'limit up-limit down' (LULD) plan to address extraordinary volatility in individual securities[92] which, following a pilot, the SEC approved in 2019 on a permanent basis.[93] It provides for market-wide, single-stock price bands designed to prevent trades in individual NMS stocks from occurring outside of specified price bands while allowing trading to continue if a price move is only temporary and establishes processes for the resumption of trading following a halt.

- SRO rules establishing a pilot of market-wide circuit breakers providing for brief, coordinated, cross-market halts of all trading in equities and options markets during a severe market decline as measured by a single-day decline in the S&P 500 Index. There are three tiers, with a Level 1 (7 percent fall) or Level 2 (13 percent fall) halting trading for 15 minutes if it occurs after 9:30 a.m. and before 3:25 p.m. ET. A Level 3 (20 percent fall) at any time would halt market-wide trading until the primary listing market opens the next trading day.[94]

- A proposed pilot on transaction fees to test the impact of exchange transaction fee models, including rebates, on routing behavior, market quality and execution quality and assess the case

[92] See Joint Industry Plans; Order Approving, on a Pilot Basis, the National Market System Plan to Address Extraordinary Market Volatility by BATS Exchange, Inc., BATS Y-Exchange, Inc., Chicago Board Options Exchange, Incorporated, Chicago Stock Exchange, Inc., EDGA Exchange, Inc., EDGX Exchange, Inc., Financial Industry Regulatory Authority, Inc., NASDAQ OMX BX, Inc., NASDAQ OMX PHLX LLC, The Nasdaq Stock Market LLC, National Stock Exchange, Inc., New York Stock Exchange LLC, NYSE MKT LLC, and NYSE Arca, Inc., Release No. 34–67091 (May 31, 2012), available at https://www.sec.gov/rules/sro/nms/2012/34-67091.pdf.

[93] https://www.sec.gov/rules/sro/nms/2019/34-85623.pdf.

[94] At the time of the fieldwork for this Technical Note, the SROs had proposed extending the pilot to October 28, 2020. See, for example, https://www.sec.gov/rules/sro/nasdaq/2019/34-86944.pdf.

for changes in current requirements.[95] At the time of fieldwork, this pilot had been partly stayed pending conclusion of a legal challenge by certain exchanges, although preparatory data gathering was underway.[96]

120. Since the flash crash of 2010,[97] a number of similar incidents and other operational challenges on major trading venues have arisen. The vulnerability of the market to failed closing auctions on the major exchanges has also been commented on. Events since the last FSAP include a three-hour trading suspension by NYSE on July 8, 2015, and issues for the pricing of certain ETFs and 'flash crashes' for certain stocks (not market-wide) on August 24, 2015.[98] On March 20, 2017, the NYSE ARCA exchange experienced difficulties at the close, impacting ETFs in particular, and prompting the EMSAC to note that there was "a single point of failure" in the current market structure, which was "the closing auction process for securities where the listing venue can neither conduct nor process closing auction orders at the end of the trading day."[99]

Supervision of Equity Trading Venues and Intermediaries

121. The SEC has established a dedicated Technology Controls Program to supervise SCI entities. The program is staffed by a dedicated team including IT specialists, and carries out risk-based proactive examinations each year, as well as targeted 'for cause' examinations. These include review of firms' IT governance, policies, and procedures, including vendor management and capacity planning.[100] In 2018, the SEC also finalized its first enforcement action under Reg SCI, relating to various events at NYSE-group exchanges.[101]

122. Supervision of NSEs is carried out by the SEC; NSEs are themselves SROs and not subject to oversight by FINRA. However, all NSEs trading NMS stocks contract with FINRA to carry out market surveillance, enabling cross-market surveillance. NSEs oversee compliance by their members with their rules. SEC provides oversight of the NSEs' rules, their policies and procedures and evidence to test their application in practice. Where violations of federal securities laws or material control weakness are found a 'deficiency letter' will typically be issued, which in serious cases may be accompanied by a referral to SEC enforcement. Within SEC, examination of NSEs is carried out by the OCIE's Broker-Dealer Exchange Group (BDX).[102] On the basis of the evidence

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[95] https://www.sec.gov/rules/final/2018/34-84875.pdf.

[96] https://www.sec.gov/rules/other/2019/34-85447.pdf.

[97] https://www.sec.gov/news/studies/2010/marketevents-report.pdf.

[98] See: https://www.sec.gov/news/testimony/testimony-regulatory-reforms-to-improve-equity-market-structure.html.

[99] https://www.sec.gov/spotlight/emsac/emsac-market-quality-subcommittee-status-report-040317.pdf.

[100] The TCP has already been the subject of an SEC internal audit: https://www.sec.gov/TCP-Established-Method-to-Effectively-Oversee-Entity-Compliance-with-Reg-SCI--But-Could-Improve.pdf.

[101] https://www.sec.gov/news/press-release/2018-31.

[102] OCIE's published priorities for 2019 specify that for NSEs, priorities are to examine internal audit and surveillance programs and funding for regulatory programs. See: https://www.sec.gov/files/OCIE%202019%20Priorities.pdf, p10.

presented during the fieldwork it was difficult to identify a coherent, risk-based approach to the prioritization of areas for examination, a clear rationale for the scope and focus of examinations, or a clear hypothesis of how the work carried out would contribute to market integrity or other regulatory objectives. As all NSEs are SCI entities, they are also subject to dedicated examinations under the Technology Control Program (TCP) established to supervise Reg SCI.

123. Supervision of broker-dealers, including those operating ATSs, is primarily carried out by FINRA, although the SEC does some examinations of its own as well as reviewing some examinations carried out by FINRA. Broker-dealers, including those which operate ATSs, are supervised by their SRO, typically FINRA, and by the SEC.[103] The SRO is then subject to oversight by the SEC, which includes the SEC carrying out its own review of examinations carried out by FINRA and also undertaking a number of examinations itself. In addition, a subset of ATSs (those meeting certain trading value thresholds specified in Reg SCI) are SCI entities and so are subject to TCP examinations by the SEC.

124. FINRA has developed a risk-based approach to supervision which addresses, among other areas, key drivers of risk to orderly markets, such as market access controls, and key duties to clients, such as best execution. At the time of the fieldwork, FINRA was part way through an organizational change program.[104] Among other changes, this involved grouping registrants into clusters of similar business models, publishing observations from the previous year's examination findings, and conveying staff 'observations' from examinations orally and in writing only on request, which had previously been recorded as 'recommendations' in their examination reports. FINRA also has practical experience of identifying and, where necessary, seeking reconciliation of differences between the execution methods ATSs undertake to clients they will provide, and what they do in practice. In this regard, Form ATS-N disclosures may provide assistance in providing a clearer articulation than was previously available of each ATS's policies and procedures. Although the SEC and FINRA exchange examination reports, Form ATS-N is filed with the SEC; FINRA has no role in the SEC's review of Form ATS-N submissions and does not receive the submission as a matter of course under SEC rules until the submissions become public.

125. FINRA registers individuals who, among other things, are principals of broker-dealer firms. FINRA takes into account a range of factors in determining whether an individual is fit and proper, including competence examinations, prior criminal convictions and regulatory findings, customer complaints, pending arbitrations and private civil actions, unpaid arbitrations, direct or related experience of supervisory personnel and whether an individual is subject to heightened supervision. However, it is unclear whether FINRA has access to intelligence from other bodies about persons of interest who may not themselves have been convicted but are known associates of those with criminal convictions or regulatory findings.

[103] A few broker-dealers are supervised by CBOE. SEC has conducted reviews of the consistency of oversight of broker-dealers between SROs.

[104] https://www.finra.org/about/finra-360/progress-report.

Conclusions and Recommendations

126. Since the last FSAP, progress has been made in implementing regulations, plans and supervisory oversight of areas which contribute to orderly trading and market resilience. These include the implementation of LULD,[105] pilot of market-wide circuit-breakers extended to October 2020, full entry into effect of Reg SCI, continued supervision of Reg Market Access[106], and Form ATS-N for NMS stock ATSs. In addition, since the last FSAP, equities settlement times have reduced from T+3 to T+2.[107]

127. Recommendation: The SEC should ensure that other ongoing initiatives are brought to fruition in a timely manner, and their impact monitored, including:

- Implementation of the new capital rules for broker-dealers[108];
- Completion of the market-wide circuit-breaker pilot;
- Implementation of a final approach and delivery of the Consolidated Audit Trail[109]; and
- In relation to the new Form ATS-N for NMS stock ATSs, an evaluation of the extent to which ATS participants are able to validate whether ATSs are actually operating in line with the disclosed policies and ensure that timely interventions are made by the SEC itself or by FINRA where discrepancies, or other examples of conflicts of interest not being correctly identified or managed, are found.

128. Recommendation: Given the scale and economic significance of U.S. equity markets it is right that the SEC continue to seek incremental enhancements to the national market system; this should consider not only the trading and other activities of NSEs but also trading on ATSs and 'pure' OTC. This is important because, as noted in paragraph 112 above, a significant proportion of trading activity already takes place off-exchange.

129. Recommendation: The SEC should put in place structural mechanisms to ensure that 'big picture' changes in market structure or business trends are examined strategically and inform a holistic approach to risk mitigation across the various SEC offices. In particular:

- The SEC should carry out a strategic review of its overall approach to the supervision of exchanges, including examinations by OCIE, to ensure that resource is targeted as effectively as

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105 See paragraph 119.

106 SEC Rule 15c3-5 Risk Management Controls for Brokers or Dealers with Market Access.

107 https://www.sec.gov/rules/final/2017/34-80295.pdf.

108 See paragraph 115 for more details.

109 The Consolidated Audit Trail is an initiative which will enable tracking of orders throughout their whole lifecycle and identification of the broker-dealers handling them. This will enable easier monitoring and reconstruction of market activity.

possible in examination of the NSEs' exchange operations and their activities as SROs, including their responsibilities under various Reg NMS plans. This review should also explicitly consider how to ensure comparable oversight of trading taking place on ATSs or elsewhere.

- The SEC should capitalize on its Large Firm Monitoring Program to address material issues on a preventative basis where possible, drawing on different strands of activity across the agency.
- The SEC should ensure that there is an explicit, structural linkage between current and predicted future market trends and its assessment of Reg SCI plans in relation to matters such as capacity planning. This should include continued vigilance about key potential 'points of failure', such as market opening and closing auctions.

130. FINRA has made important organizational changes related to its supervisory approach, but a wider range of factors should be used in determining the fitness and propriety of individual registrants, and deletion of written observations from examination reports should be reconsidered. The organizational changes appear positive in enabling FINRA to tailor its supervisory approach to the different risks relevant to different business models, but deletion of written observations from examination reports seems a retrograde step likely to remove a useful tool for managing risk proactively for which publication of thematic observations or providing observations orally, and in writing, upon request, to the registrant, will not fully substitute. Meanwhile, in determining the fitness and propriety of individual registrants, particularly those who are principals of firms, the authorities should consider whether there is scope for FINRA to take account of a wider range of factors and whether such a broader approach would be useful in other areas. Other relevant factors include appropriate conduct towards colleagues, current intelligence and close association with persons whose previous actions demonstrate they are not fit and proper, which may indicate an individual is unsuitable for such a role even in the absence of a criminal conviction or regulatory findings. This is particularly important given the impact of the 'tone from the top' on a firm's ethical and compliance culture, and given the potential for harm arising from insider intrusion

131. Recommendation: FINRA should find an improved mechanism for transmitting written observations without this needing to be explicitly requested by firms. In addition, the authorities should consider whether there is scope for FINRA to take into account a wider range of factors when determining individuals' fitness and propriety.

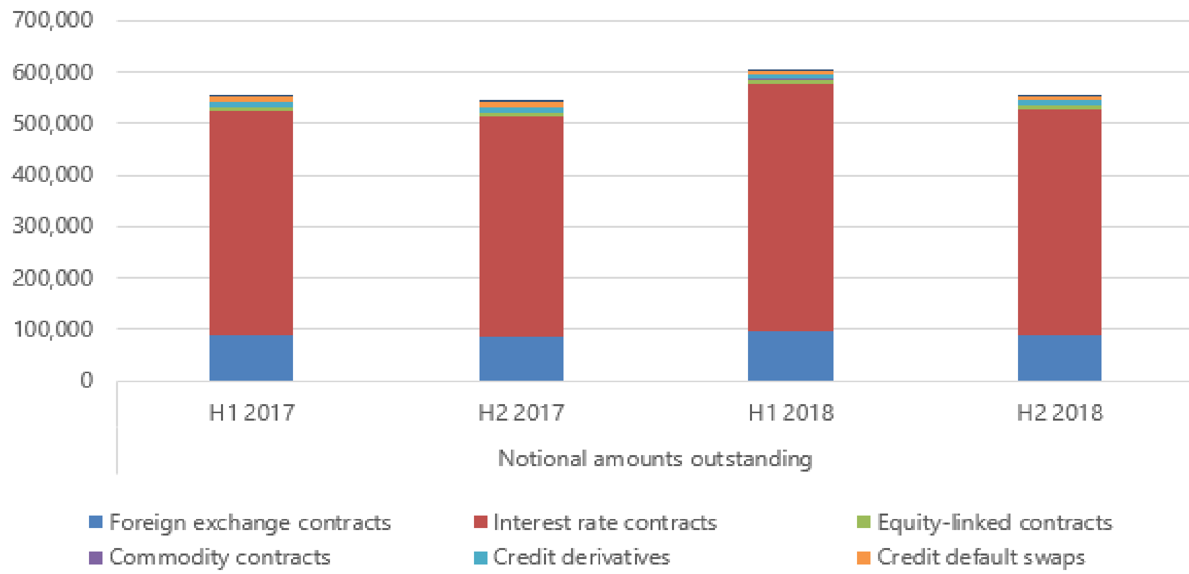
C. Derivatives Market Structure

132. The U.S. hosts a large OTC derivatives (swaps) market, with interest rate derivatives of particular significance domestically and globally. OTC derivatives with the largest notional open interest globally are interest rate derivatives and in 2016 the highest turnover of such derivatives took place in the U.S. (Figures 6 and 7).

133. Because many interest rate derivatives rely on a reference rate and have a multi-year duration, the transition away from LIBOR and other 'IBORs' to alternative reference rates has

a potentially significant impact.[110] Of a total global notional outstanding in interest rate swaps and futures of US$437 trillion at end 2018, only US$201 trillion had a duration of one year or less, with US$147 trillion having a duration of one to five years, and US$88 trillion a duration of over five years (Figure 8). This means that over half of the current swaps and futures by global notional outstanding could still be in existence after the cessation of LIBOR.

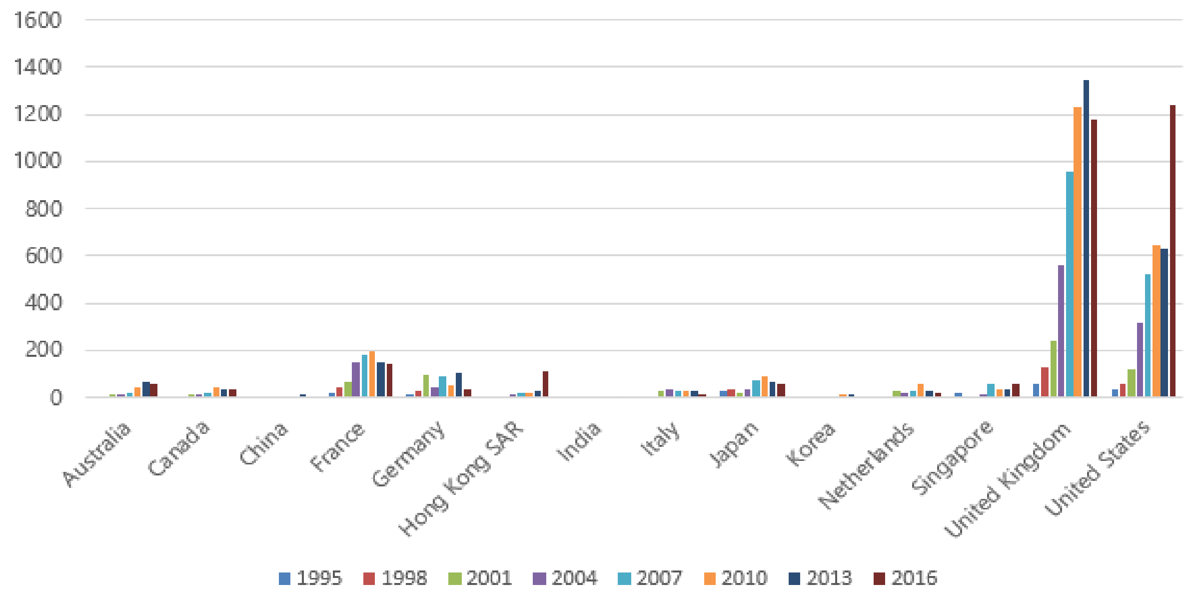
Figure 6. United States: Global OTC Derivatives Notional Outstanding
US$ Billion 2017–2018



Source: BIS, https://stats.bis.org/statx/srs/table/d5.1 and https://stats.bis.org/statx/srs/table/d5.2.

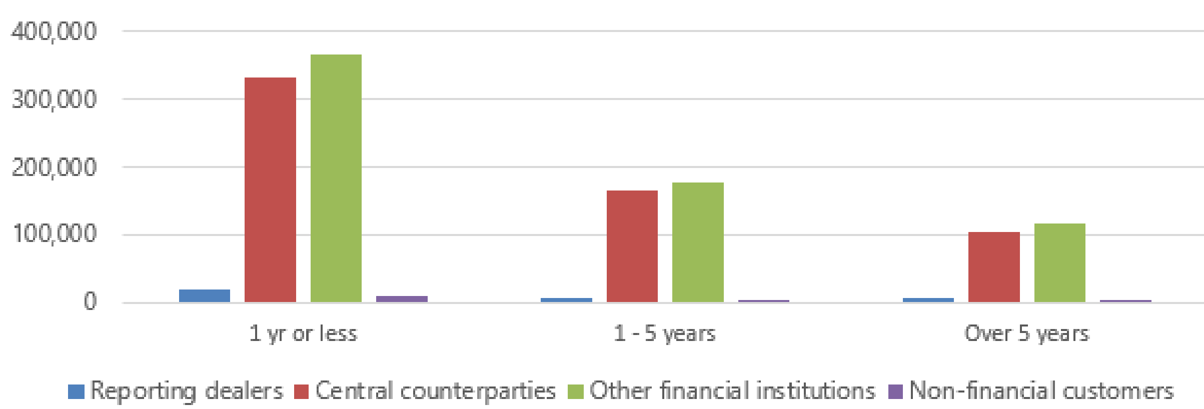
[110] LIBOR and other 'inter-bank offered rates' based on notional rather than actual transactions are being replaced with alternative reference rates, with LIBOR not guaranteed to be available beyond 2021. Further background is given in section F below.

Figure 7. United States: OTC Interest Rate Derivatives Daily Turnover by Country US$ Billion, Selected Countries



Source: BIS, https://stats.bis.org/statx/srs/table/d12.2.

Figure 8. United States: Breakdown of Global Interest Rate Swaps and Futures by Duration and Counterparty Type, US$ Billion, 2018



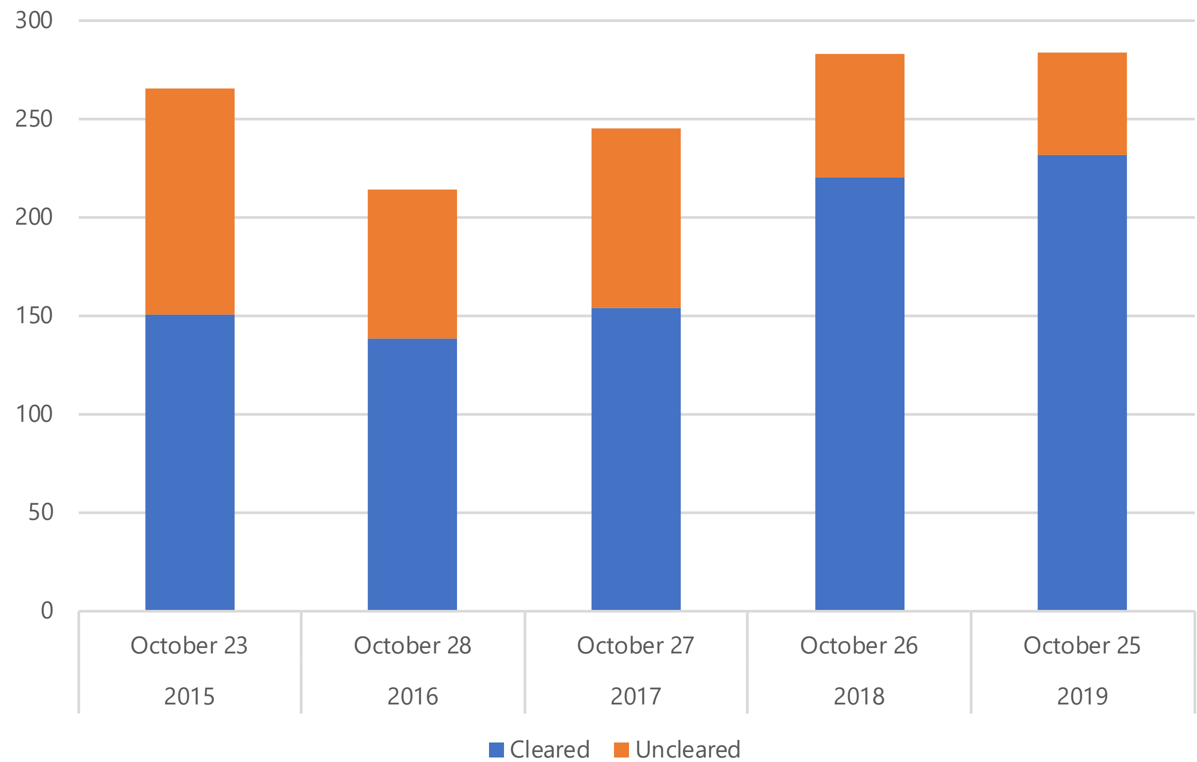
Source: BIS, https://stats.bis.org/statx/srs/table/d9.

134. Data shows that the extent of central clearing has increased in the U.S. in recent years. Given netting practices this should reduce counterparties' exposures provided CCPs themselves are financially sound.[111] The gross notional amount and proportion of total open interest in swaps

[111] See FSAP Technical Note on Financial Market Infrastructures for further consideration of CCPs.

reported to U.S. swap data repositories have both risen since 2015 (Figure 9). The process of netting is described in a research paper by CFTC economists; they argue that 'entity netted notionals' (ENN) are a better measure of the size of the market and associated transfer of market risk.[112] They indicate that for U.S. reporting entities as of December 15, 2017, notional amounts for key interest rate swaps were US$109 trillion, but the ENN would be only 8 percent of that amount, or US$15 trillion.

Figure 9. United States: Interest Rate Swaps: Gross Notional Outstanding by Clearing Status, US$ Trillion, Reported to CFTC-Registered Swap Data Repositories



Source: CFTC Weekly Swaps Report.

135. The evolution of OTC derivatives markets shows that both the nominal value and proportion of interest rate swaps being centrally cleared has risen over the last five years and that over half of interest rate swap transactions reportable in the U.S. are now executed on SEFs.[113] The data also underline the global significance of interest rate swap markets, and the importance of facilitating a smooth transition from LIBOR to alternative reference rates. Given the scale and significance of U.S. OTC derivatives markets, the consideration in this technical note of how these markets are regulated focuses on the extent to which the internationally agreed post-

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112 https://www.cftc.gov/sites/default/files/About/Economic%20Analysis/Introducing%20ENNs%20v4.pdf.

113 See ISDA SwapsInfo, at http://analysis.swapsinfo.org/2019/11/interest-rate-and-credit-derivatives-weekly-trading-volume-week-ending-november-8-2019/.

crisis reforms have been implemented in these markets as a mitigant to risks to financial stability that crystallized during the global financial crisis.

D. Derivatives Markets Regulation and Supervision

Reforms to Derivative Markets Regulation

136. Since the last FSAP, key parts of the reforms to OTC derivatives markets envisaged in the post-crisis international reform agenda[114] and legislated in the DFA have been implemented, supplementing those already in effect. Title VII of DFA set a framework for the mandatory central clearing of specified swaps through a derivatives clearing organization and security-based swaps through a clearing agency; for mandatory trading of a subset of instruments subject to the clearing obligation on organized trading venues; for the registration and supervision of a new type of trading venue ('swap execution facilities' and 'security-based swap execution facilities'), dealers in swaps and security-based swaps ('swap dealers' and 'security-based swap dealers') and other significant swap and security-based swap position holders ('major swap participants' and 'major security-based swap participants'),[115] and for the reporting of trade data to repositories ('swap data repositories' and 'security-based swap data repositories'). However, to give effect to the reforms, detailed rulemaking was needed by both CFTC and SEC, given that the latter is responsible for security-based swaps, in addition to implementation and transition periods. In some cases that rule-making has been completed and implemented, and reflection has started in the light of several years' experience as to whether refinements of the regime are needed. In other cases, implementation of the initial DFA regime is still underway.

137. In 2016, the CFTC extended the obligation to centrally-clear several classes of interest rate swap and credit default swaps, to cover a wider range of instruments. CFTC is required to consider whether swaps or classes of swap under its jurisdiction should be required to be centrally cleared, and has powers to impose such a requirement.[116] In 2012 the CFTC required four classes of interest rate swap denominated in certain key currencies and two classes of credit default swap to be centrally cleared. In 2016 the requirement in relation to the same four classes of interest rate swap (fixed-to-floating rate, basis, forward rate agreements, and overnight interest swaps) was extended to swaps denominated in a wider range of currencies.[117] These requirements were phased in gradually to align with implementation of equivalent requirements in other jurisdictions. The SEC also has powers to require central clearing of security-based swaps, although it has chosen not to use them until after security-based swap dealers and major security-based swap participants are

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[114] See https://www.oecd.org/g20/summits/pittsburgh/G20-Pittsburgh-Leaders-Declaration.pdf p9.

[115] Regulation of clearing houses is addressed in a separate technical note on Financial Market Infrastructure and is not considered further here.

[116] CEA Section 2(h); CFTC Regulation 39.5.

[117] https://www.cftc.gov/sites/default/files/idc/groups/public/@lrfederalregister/documents/file/2016-23983a.pdf.

required to register with the SEC in the second half of 2021, and after market participants begin to report transactions to security-based swap data repositories.[118]

138. Margin requirements for swap dealers and major swap market participants (MSPs) in relation to uncleared swaps have been finalized, though not yet fully applied. Swap dealers and major swap participants are required under the CEA to meet capital and margin requirements. Where the SD or MSP has a prudential regulator, the standards set by that regulator are applicable. In other cases, standards set by the CFTC (or SEC for SBSD and SBMSPs) apply.[119] CFTC margin standards, broadly aligned to BCBS/IOSCO standards[120] and to those adopted by the prudential regulators, became effective in April 2016, with their application spread over six phases.[121] The requirements applicable to SDs/MSPs were differentiated according to whether the counterparty was (i) a SD or MSP, (ii) financial end users, or (iii) non-financial end users. SDs and MSPs were deemed not to need margin for transactions with non-financial end users on the basis that they were deemed generally to be using the transaction to hedge risk. The SEC finalized its margin requirements for SBSDs and MSBSPs in June 2019. These will require calculation of initial margin (through standardized haircuts or a model) and variation margin (by marking to market) in each account of a counterparty at the close of business each day, but also contain a range of situations in which initial and/or variation margin will not need to be collected. Compliance with the margin rules for SBSDs and MSBSPs will be required when those entities begin to register with the SEC in the second half of 2021.[122]

139. Capital requirements for swap dealers and major swap participants without a prudential regulator are still in progress. As with margin requirements, where the SD or MSP has a prudential regulator, the capital standards set by that regulator are applicable. The SEC's capital requirements for SBSDs and MSBSPs were finalized alongside its margin requirements in June 2019 and compliance will be required when SBSDs and MSBSPs begin to register with the SEC in the second half of 2021. The SEC's rules will apply to nonbank SBSDs (i.e., SBSDs for which there is not a prudential regulator) and MSBSPs. SBSDs who are also registered as broker-dealers will be subject to the broker-dealer capital requirements which have been amended to account for security-based swap and swap activities of broker-dealers.[123] Proposed CFTC capital requirements were published in December 2016 and the CFTC reopened the comment period on December 19, 2019 with

[118] See Section 3C(a) of the Exchange Act, 15 USC 78c-3(a)-(b), the exemption for non-financial end-users at Section 3C(g) USC 78c-3(g); and SEC final rules available at https://www.sec.gov/rules/final/2012/34-67286.pdf.

[119] CEA Section 4s(e).

[120] BCBS/IOSCO, Margin requirements for non-centrally cleared derivatives (September 2013).

[121] See *Margin Rule*, 81 FR 636, codified in CFTC regulations 23.150–159 and 23.161 for compliance dates.

[122] *Capital, Margin, and Segregation Requirements for Security-Based Swap Dealers and Major Security-Based Swap Participants and Capital and Segregation Requirements for Broker-Dealers*, Release No. 34-86175 (Jun. 21, 2019), available at https://www.sec.gov/rules/final/2019/34-86175.pdf; ; *Cross-Border Application of Certain Security-Based Swap Requirements*, Release No. 34-87780 (Dec. 18, 2019), available at https://www.sec.gov/rules/final/2019/34-87780.pdf.

[123] See discussion in paragraph 115 above, and previous footnote for details for the final rule.

comments due no later than March 3, 2020.[124] The CFTC proposed a differentiated approach to the requirements for swap dealers, which took into account the swap dealers' other activities as a SBSD or a bank subsidiary. At the time of the fieldwork, the capital rules had not been finalized, creating an opportunity for the CFTC to take account of the SEC's final rules before finalizing its own requirements and in recognition that some SDs will also be registered with the SEC as SBSDs and therefore will be subject to both the CFTC and SEC capital rules.

140. A process is in place to require certain swap instruments to be traded only on organized venues; however, since an initial round of instruments were designated as subject to such mandatory trading, the process has been little used. In line with the post-crisis reform commitment to incentivize trading of standardized OTC derivatives on organized venues, DFA introduced provisions for the registration and regulation of a new type of trading venue, the swap execution facility (SEF), and an obligation for those instruments subject to mandatory clearing to be executed on such SEFs or on DCMs, unless no such venue 'made the instrument available to trade' on such a venue.[125] In theory, therefore, under DFA once a swap instrument is subject to mandatory clearing, it is also subject to mandatory trading on organized venues if any such venue makes the instrument 'available to trade'. In order to implement this requirement, the CFTC adopted a process for SEFs and DCMs to determine that an instrument is made 'available to trade' and therefore subject to the trade execution requirement. Where an instrument traded on a SEF is subject to the trade execution requirement, the SEF must provide trade execution through an order book, or through a request-for-quote system that enables participants to execute following a request for a quote distributed to at least three distinct counterparties and that is offered in conjunction with an order book.[126] SEFs are permitted to trade a wider range of instruments than those subject to the trade execution requirement, and to use a wider range of execution methods to do so.[127]

141. The CFTC adopted a process for establishing whether a swap instrument subject to mandatory clearing is 'made available to trade', which relies on a determination by a trading venue.[128] It is important to note that a SEF or DCM may list or offer a swap instrument for trading without that meaning that it is 'made available to trade'. In order for a swap instrument to be 'made available for trading', a SEF or DCM which offers that instrument for trading must make a determination taking into account a range of factors, to which the CFTC may object.[129] If an

[124] See *Capital Requirements for Swap Dealers and Major Swap Participants*, 81 FR 91252 (Dec. 16, 2016.)

[125] DFA, Title VII, Sec. 723 (8) Trade Execution.

[126] CFTC Rule 37.9, see https://www.ecfr.gov/cgi-bin/text-idx?SID=8837845730ec3d3911916956b26b3fd2&mc=true&node=se17.1.37_19&rgn=div8.

[127] *Ibid.*

[128] CFTC Rules 37.10 and 38.12 (corresponding requirements for DCMs): https://www.ecfr.gov/cgi-bin/text-idx?SID=8837845730ec3d3911916956b26b3fd2&mc=true&node=se17.1.37_110&rgn=div8

https://www.ecfr.gov/cgi-bin/text-idx?SID=cbefb1856d682e2ab8288116593c59fe&mc=true&node=se17.1.38_112&rgn=div8

[129] DFA, Title VII, Sec. 723 (3) Mandatory Clearing of Swaps, and CFTC Rules 37.10 and 38.12.

instrument is found to be 'made available for trading' as a result of this process, it must be executed on a SEF or DCM that offers the instrument for trading.[130] As the CFTC has noted,[131] there have been very few such determinations, and during the fieldwork stakeholders were generally skeptical about the likelihood of any SEF making further such determinations, for reasons ranging from their lack of visibility of liquidity across venues, to the resultant restriction on available trading functionality, to the reactions of clients for whom such a move might be unwelcome. Following reflections from former CFTC Chairman Giancarlo in 2015 and in 2018,[132] the CFTC proposed rule changes in November 2018 which envisaged, among other things, that any swap instruments subject to the clearing requirement would also be subject to mandatory trade execution if the swap was listed on a SEF or DCM, as a result ending the 'made available to trade' process, and broadening the execution methods permitted for such instruments.[133] At the time of the fieldwork, the CFTC had not adopted any final rule changes in the areas consulted on.

142. Since the last FSAP, the CFTC has permanently registered SEFs and is starting to roll out structured supervisory examinations, although a formal oversight program has not yet been established; by contrast the SEC has yet to implement a registration requirement for SB SEFs. Following the grant of temporary SEF registrations by the CFTC in 2013, permanent registrations were granted where applicable in 2016; since then there have been a few further registrations but also SEFs which have ceased to operate. As of September 28, 2019, 19 SEFs were registered with the CFTC, with a further 5 SEFs having a registration identified as 'dormant' during 2019, and 1 having vacated its registration at the end of 2018. Although there has been supervisory engagement in the meantime, including system safeguards examinations, the CFTC indicated in its 2019 supervisory priorities that it planned to gather information through 2019 to inform the design of its ongoing supervisory program.[134] The SEC has prioritized finalization of rules relating to SBSDs and MSBSPs above the SB SEF regime so there are as yet no SB SEFs.

143. A further development since the last FSAP has been the adoption of various determinations of equivalence between aspects of the U.S. and other jurisdictions' regimes. These cover a range of jurisdictions with major markets, including the EU, Japan, and Singapore.[135] Stakeholders welcomed these agreements, but some considered there was still a lack of clarity

[130] *Ibid.*, 37.10.c There is a similar requirement for DCMs in CFTC Rule 38.12(c).

[131] Swap Execution Facilities and Trade Execution Requirement Proposed Rules, https://www.cftc.gov/sites/default/files/2018-11/2018-24642a.pdf, p5.

[132] White Papers at https://www.cftc.gov/sites/default/files/idc/groups/public/@newsroom/documents/file/sefwhitepaper012915.pdf and https://www.cftc.gov/sites/default/files/2018-10/Whitepaper_CBSR100118_0.pdf respectively.

[133] Swap Execution Facilities and Trade Execution Requirement Proposed Rules, https://www.cftc.gov/sites/default/files/2018-11/2018-24642a.pdf.

[134] https://www.cftc.gov/sites/default/files/2019-02/DMO2019ExaminationPriorities.pdf.

[135] See for example https://www.cftc.gov/PressRoom/PressReleases/pr7656-17. The regime relating to clearing houses is discussed in the FSAP technical note on FMIs.

about the precise interaction between the regimes and extent of the substituted compliance, and that other obstacles remained.[136]

144. Although dealers of swaps and security-based swaps are required under Dodd Frank to register with the CFTC and SEC respectively, compliance with the SEC's registration requirements will only begin in the second half of 2021, and swap dealers are only 'provisionally' registered with the CFTC, pending finalization of the applicable requirements, including those relating to capital. Broadly speaking, any person who deals, makes markets in, trades on own account, or holds himself out to be or is widely understood to be a dealer in swaps, or security-based swaps, must register as a swap dealer (SD) or security-based swap dealer (SBSD) unless an exemption applies. The exemptions include a *de minimis* exemption for those whose activity is under an aggregate gross notional amount of no more than US$8 billion of swaps and certain security-based swaps or US$150 million of other security-based swaps over the preceding 12 months, for the calculation of which inter-affiliate trading and swap or security-based swap transactions hedging commercial risks are excluded.[137] The CFTC had originally envisaged lowering the US$8 billion threshold to US$3 billion, but subsequently determined to maintain it at US$8 billion. At the time of the fieldwork, the SEC had adopted rules which established a registration process for SBSDs and MSBSPs but had deferred the entry into effect of the registration requirement to 18 months after the effective date of final rules on the cross-border application of certain security-based swap requirements, which had not been confirmed. Subsequently, the rules on cross-border application have been finalized and SBSDs and MSBSPs required to begin registering with the SEC in the second half of 2021; until registration, such entities are not required to comply with capital, margin or segregation requirements.

145. In principle, the regime also requires major participants in swap markets that are not dealers to register; in practice no entity was registered as such at the time of the fieldwork for this note. At the time of the previous FSAP there were two MSPs. However, it would be possible for a registered entity's positions to fall beneath the registration threshold and so no longer need to register.

146. Registration of swap dealers is carried out by the NFA, on a provisional basis until the capital requirements and financial reporting rules are finalized, and the assessment relies to a large extent on self-certification. For the provisional registration, NFA assessed policies and procedures, often through requiring formal attestations from senior staff that policies and procedures were in place to ensure compliance. Prior to 'definitive' registration, swap dealers will also need to meet capital requirements including, where applicable, having their use of internal capital models in lieu of standardized capital charges validated.

147. Supervision of swap dealers is also carried out by the NFA. The CFTC carries out oversight reviews of NFA's supervisory activities, but it has not directly examined swap dealers. The

[136] For a full discussion of barriers and issues, see https://www.cftc.gov/sites/default/files/2018-10/Whitepaper_CBSR100118_0.pdf.

[137] CFTC regulations 1.3 (definitions) and 3.10 (registration requirements); Exchange Act Rule 3a71-2.

NFA has built up and rolled out a modular approach to supervision but at the time of the fieldwork had not rolled out all the core modules. Although at the inception of the regime, the CFTC had not carried out any direct examinations of swap dealers, it had carried out desk-based reviews of assessments carried out by NFA. At the time of the fieldwork, the CFTC had decided to initiate its own program of direct examinations, which was planned to begin in early 2020.

Conclusions and Recommendations

148. Given their early implementation of key aspects of the post-crisis reforms, U.S. authorities and market participants are now well-placed to reflect on experience from implementation. In particular, the CFTC's early implementation of a mechanism for determining instruments required to be centrally cleared, and executed on organized trading venues, alongside the creation of the SEF and swap dealer regimes mean that there are several years' experience of implementation to draw on.

149. Nevertheless, there are important aspects of the regime which are yet to be implemented; in completing or changing the regime, the recent efforts at reinforced collaboration between SEC and CFTC should be maintained.[138] These include application of the swap dealer capital requirements and transition from provisional to definitive registration, and all aspects of the security-based swap regime.

150. Recommendation: Given the close interactions between the regimes and populations involved, the CFTC and SEC should consider arrangements for joint or, subject to appropriate legislative empowerment, delegated supervision. In addition, the NFA needs to accelerate the roll-out of its remaining swap dealer supervisory modules and ensure that swap dealers are subject to robust scrutiny, beyond self-attestations of compliance, before applications for definitive registration are determined. The CFTC should initiate direct examinations of swap dealers by CFTC staff, as had recently been proposed at the time of the fieldwork.

151. Data suggests the regime overall has been successful in incentivizing central clearing, although there may be more potential to mandate it for certain instruments. CFTC has not made any additional clearing determinations since 2016 and some stakeholders were surprised at this, considering that there were other instruments they considered clearly to meet the criteria.

152. Recommendation: CFTC and SEC should both continue to keep the scope for extending the central clearing requirement under active review.

153. Experience also suggests that, while there has been movement towards trading on SEFs, take-up of the regime has been hampered through a combination of factors. It is unclear

[138] Close collaboration between the CFTC and SEC was recommended by the U.S. Treasury in its 2017 report on capital markets; see https://home.treasury.gov/system/files/136/A-Financial-System-Capital-Markets-FINAL-FINAL.pdf, p9. Among other subsequent steps to enhance collaboration, the SEC and CFTC Chairs issued a joint statement in June 2019 on the possibility of harmonizing portfolio margining requirements. https://www.sec.gov/news/public-statement/joint-statement-cftc-sec-portfolio-margining-harmonization-efforts.

whether there are sufficient incentives in place for trading venues to submit further 'made available to trade' determinations. This is exacerbated by the restricted execution methods available for required transactions.

154. Recommendation: The MAT process (i.e., the process for a trading venue to make a swap "available to trade") should be changed in such a way that that there is more of an onus on the authorities to assess liquidity across venues than on individual trading venues to propose instruments for mandatory trade execution. The changes should play close attention to cross-border alignment and seek to reduce drivers of liquidity fragmentation in venues operating across borders including through further enhancements to cross-border equivalence through substituted compliance.

CROSS-CUTTING ISSUES

A. Resilience to Extreme Events

155. Management of extreme events is key to maintaining orderly markets and confidence in them which, if lost, can create challenges for liquidity and hence access to funding and risk management. Extreme events may occur due to a technological or other operational failure, including those triggered by a cyber-incident; or to an event in the market, such as failure of a major participant, extreme volatility such as that observed during 'flash crash' events, terrorist attack or major geopolitical event. This technical note therefore considers the measures in place to reduce the risk of such events occurring, and to facilitate recovery and mitigate impact where they do, including business continuity and other emergency procedures in place among market participants and the regulators themselves, and the triggers and processes for activating them. The importance of resilience to cyber-related threats has been noted by the FSOC in its 2018 and 2019 Annual Reports[140] and by the U.S. Government Accountability Office.[141]

156. Both CFTC and SEC have systematically incorporated cyber-specific issues, and technological resilience more broadly, into their supervisory programs. CFTC has requirements in relation to 'systems safeguards'.[142] As discussed above, SEC has particular requirements for SCI entities, reflecting their wider market impact, and these include particularly stringent requirements for key 'critical SCI systems' which deliver the core functionality needed to route, execute, clear,

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140 https://home.treasury.gov/system/files/261/FSOC2018AnnualReport.pdf; https://home.treasury.gov/system/files/261/FSOC2019AnnualReport.pdf.

141 See https://www.gao.gov/key_issues/ensuring_security_federal_information_systems/issue_summary.

142 See for example CFTC Rule 23.600, and Rules 37.1400 and 37.1401, available at https://www.ecfr.gov/cgi-bin/text-idx?SID=17a8a6fc0f7831b2df354235368ee5c0&mc=true&tpl=/ecfrbrowse/Title17/17cfrv1_02.tpl#0 . See also NFA Compliance Rule 2-38 and Interpretive Notice 9052: Business Continuity and Disaster Recovery Plan: https://www.nfa.futures.org/rulebook/rules.aspx?RuleID=RULE%202-38&Section=4 , and https://www.nfa.futures.org/rulebook/rules.aspx?RuleID=9052&Section=9 . NFA Compliance Rules 2–9, 2-36 and 2–46 and Interpretive Notice 9070: Information Systems Security Programs: https://www.nfa.futures.org/rulebook/rules.aspx?RuleID=9070&Section=9

settle, surveil and provide data on trades.[143] SEC also imposes specific requirements on registrants in relation to the protection of customer data.[144] SEC has also had protection against cyber-intrusion as a supervisory priority more broadly for several years and issued several risk alerts in the light of examination findings.[145] Both agencies set regulatory requirements in relation to a benchmark of industry best practices which allows them to remain relevant as tools, technologies and the associated standards evolve. In addition to work on cyber specifically,[146] part of FINRA's examination of broker-dealers and ATSs with non-broker-dealer members focuses on the market access controls they have in place to reduce the likelihood of disruptive trading.

157. The authorities have demonstrated a mature response to their own cyber-related challenges. The SEC experienced a successful penetration of its EDGAR[147] system in 2016, leading to SEC's identification of material weaknesses in its own cyber-security defenses in its 2017 and 2018 accounts.[148] It has been transparent about the event itself, invested in remedial measures and been prudent in its assessment of the extent to which vulnerabilities have been mitigated and desire to get robust assurance in that regard.

158. The authorities also routinely assess business continuity arrangements in regulated entities and have well-developed arrangements in place for their own operations, some of which were activated during the shutdown of the U.S. government in 2018. Stakeholders were very complimentary about the efforts the authorities made in preparation for the shutdown and, within the applicable legal constraints, efforts to minimize disruption while it was in progress.

159. While the authorities contribute to preparations for extreme events, including testing, much of the effort is coordinated by the private sector. These include regular market-wide tests coordinated by SIFMA and the FIA, as well as Reg SCI system back-up tests coordinated by SCI entities such as the various SROs. The SEC, the CFTC and NFA have formalized plans to respond to different types of extreme scenario in the market, beyond continuity of operations events.

Conclusions and Recommendations

160. The CFTC and SEC have 'mainstreamed' technological and cyber-resilience in their supervisory oversight. This includes requirements for testing and adoption of industry best

[143] https://www.govinfo.gov/content/pkg/FR-2014-12-05/pdf/2014-27767.pdf.

[144] Reg S-P and Reg S-ID, available at https://www.law.cornell.edu/cfr/text/17/part-248.

[145] See, for example, OCIE Risk Alert, "Observations from Cybersecurity Examinations" (Aug, 7, 2017), available at https://www.sec.gov/files/observations-from-cybersecurity-examinations.pdf.

[146] See, for example, FINRA's *2019 Report on Examination Findings and Observations* https://www.finra.org/rules-guidance/guidance/reports/2019-report-exam-findings-and-observations.

[147] The Electronic Data Gathering, Analysis, and Retrieval (EDGAR) system is the SEC's system for the collection of submissions from companies and others who are required to make filings to the SEC, and provides a database of material for public inspection.

[148] https://www.gao.gov/assets/700/695529.pdf. See also April 2019 update on priority open recommendations: https://www.gao.gov/assets/700/698417.pdf.

practices as they evolve. However, as market conditions, technologies and threats evolve, a continued focus on planning for extreme but reasonably foreseeable events will be needed.

161. Recommendation: Given the wider range of financial institutions and regulators for whom cyber-issues are relevant, and the tendency for affiliated entities to deploy an enterprise-wide approach to managing such risks, it may be helpful to consider whether there are synergies that could be captured through a financial-sector-wide framework for penetration and other intrusion testing. This could also help provide a useful degree of consistency in levels of assurance obtained. With respect to extreme scenarios in the market, beyond continuity of operations, FINRA should formalize and document its plan for responding to significant market disruption.

162. Recommendation: SEC should ensure a continued regulatory and supervisory focus on closing auctions, and run a table-top exercise with the participation of CFTC, other regulators and SROs, to practice and work through the full implications of an extreme scenario where neither NASDAQ nor NYSE's markets are able to conduct a closing auction.

B. After LIBOR: Preparations for Reference Rate Transition

163. While markets and regulators globally are preparing for the likely cessation of the LIBOR reference rate from 2021,[149] the potential impact on U.S. markets is acute.[150] US$ LIBOR is the most widely-referenced rate; total gross exposure to US$ LIBOR was estimated at US$200 trillion at the end of 2016, of which an estimated US$145 trillion in OTC derivatives, US$45 trillion in ETDs and a relatively modest US$8.3 trillion in loans, bonds and securitizations.[151] Of US$39 trillion global open interest in exchange traded derivatives in December 2018, almost US$27 trillion was traded in North America.[152] Of a total US$437 trillion notional OTC interest rate derivatives outstanding at the end of 2018, US$169 trillion was denominated in U.S. dollars.[153] As noted in paragraph 133 above, at the end of 2018 over half of global interest rate derivatives outstanding had a duration of over a year, meaning that there is a significant lead time to prepare fully for the potential cessation of LIBOR from 2021.

[149] ICE LIBOR is an interest reference rate currently produced in five currencies and multiple tenors, which is referenced in a wide range of financial services products and contracts internationally, including derivatives. It is based on submissions from panel banks to a benchmark administrator which are not expected to continue beyond 2021. Alternative rates based on transaction data have been developed to replace it. See: https://www.fca.org.uk/news/speeches/the-future-of-libor; *Statement on Communication and Outreach to Inform Relevant Stakeholders Regarding Benchmarks Transition*, IOSCO, July 2019.

[150] This technical note addresses only the potential impact of transition on interest rate derivatives markets and the role of the SEC and CFTC in preparing for transition in those markets. The potential impact of transition on other aspects of the financial system is considered in the systemic liquidity part of the risks and vulnerabilities workstream.

[151] *SOFR Primer: the transition away from LIBOR*, July 2019, SIFMA, page 8.

[152] https://stats.bis.org/statx/srs/table/d1.

[153] https://stats.bis.org/statx/srs/table/d7. Not all US$-denominated derivatives are held by counterparties in the U.S.

164. Preparations in the U.S. are coordinated by the Alternative Reference Rate Committee (ARRC), which has prepared a staged transition plan, in which securities regulators and entities they regulate have an important role.[154] The ARRC is private sector-led, convened by the Federal Reserve Board and Federal Reserve Bank of New York, with SEC and CFTC among the public sector *ex-officio* members.[155] Preparations have included identification of alternative reference rates, notably the Secured Overnight Financing Rate (SOFR) as the preferred US$-denominated rate, launch of instruments referencing this rate and preparation of fallback wording for contracts referencing LIBOR, both by ARRC for certain instruments and, at the request of the FSB,[156] internationally for interest rate derivatives by ISDA.[157] At the time of the fieldwork, ISDA had completed consultations on pre-cessation triggers and enhanced fallback terms, and was expected to prepare a protocol to which counterparties could adhere to indicate their acceptance of the finalized terms.[158]

165. Both CFTC and SEC are actively engaged in preparations, including outreach to their regulated populations, and CFTC has issued no-action letters in response to specific requests from ARRC for regulatory relief, in co-ordination with domestic and international counterparts.[159] SEC staff has published a statement flagging issues for registrants and corporate issuers.[160] CFTC staff has published three no-action letters providing relief requested by ARRC from compliance with certain CFTC requirements in connection with amending swaps to either (i) change the fallback provisions for a referenced IBOR in the event of its cessation or impairment, or (ii) change the reference rate from an IBOR to an alternative, risk-free reference rate.[161]

166. Authorities and stakeholders shared a view that, notwithstanding high notional amounts outstanding in interest rate derivatives, risks of disorderly transition were greater in cash markets. This is in part because infrastructure to co-ordinate transition arrangements (e.g., devising and adopting enhanced fallback arrangements) is less developed, and in some markets the process for adopting such arrangements could require individual negotiation with parties.[162] At the time of the fieldwork the Chicago Mercantile Exchange (CME) had announced a consultation on

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[154] https://www.newyorkfed.org/arrc/sofr-transition#progress.

[155] https://www.newyorkfed.org/arrc/about.

[156] https://www.fsb.org/wp-content/uploads/P150319.pdf.

[157] https://www.newyorkfed.org/arrc/sofr-transition#aboutsofr.

[158] On February 25, 2020, ISDA launched a supplemental consultation on pre-cessation triggers following a lack of market consensus in the first consultation and new information provided by the U.K. Financial Conduct Authority, ICE Benchmark Administration, and LCH. See https://www.isda.org/2020/02/25/isda-launches-new-consultation-on-pre-cessation-fallbacks/.

[159] https://www.newyorkfed.org/medialibrary/Microsites/arrc/files/2019/ARRC_Letter_CFTC_Regulatory_Derivatives_Treatment_05132019.pdf.

[160] https://www.sec.gov/news/public-statement/libor-transition.

[161] https://www.cftc.gov/csl/19-26/download; https://www.cftc.gov/csl/19-27/download; https://www.cftc.gov/csl/19-28/download.

[162] Wider aspects of reference rate transition beyond interest rate derivatives are being considered as part of the FSAP's systemic liquidity workstream.

aligning the timing of its change with LCH on transition of protocols to replacement rates from October 2020, which was subsequently confirmed; stakeholders indicated this would mark an important milestone in the transition.

167. Nevertheless, it is not self-evident that an orderly transition in derivatives markets will be achieved. New instruments referencing SOFR have been made available and some liquidity has started to develop. However, the content of the ISDA pre-cessation triggers and fallback terms has still not been finalized, and the level and pace of adoption of the planned protocol is unclear. The willingness and ability of counterparties holding legacy instruments, particularly those which are uncleared, to amend fallback terms is also unclear.

Conclusions and Recommendations

168. The CFTC and SEC have been involved in U.S. and international efforts to prepare for LIBOR transition, through facilitating market-led solutions. This has involved outreach and consideration of particularly regulatory barriers to the adoption of solutions proposed by ARRC, ISDA and others.

169. Recommendation: As transition progresses, the authorities and relevant SROs should use additional supervisory tools to achieve an orderly transition, particularly in cases where market participants fall behind in the adoption of the market-led solutions. The aim of this is not necessarily to prescribe a particular end point, but rather to consider whether there are opportunities to prompt action in order to reduce the risk of market disruption in the run-up to or following the cessation of LIBOR.[163]

170. Recommendation: Given the experience of preparing for LIBOR transition, the authorities should consider the question of whether a regulatory framework, with appropriate legislative empowerment, would be beneficial in the oversight of other potentially systemic benchmarks in the US, particularly in relation to the potential need for management of a transition. While other tools may be available to address issues in relation to potential market manipulation in relation to the benchmark, consideration should be given to whether there are circumstances in which, for example, powers to require a benchmark administrator to take particular action in relation to transition would be a useful supplemental tool to manage risk.

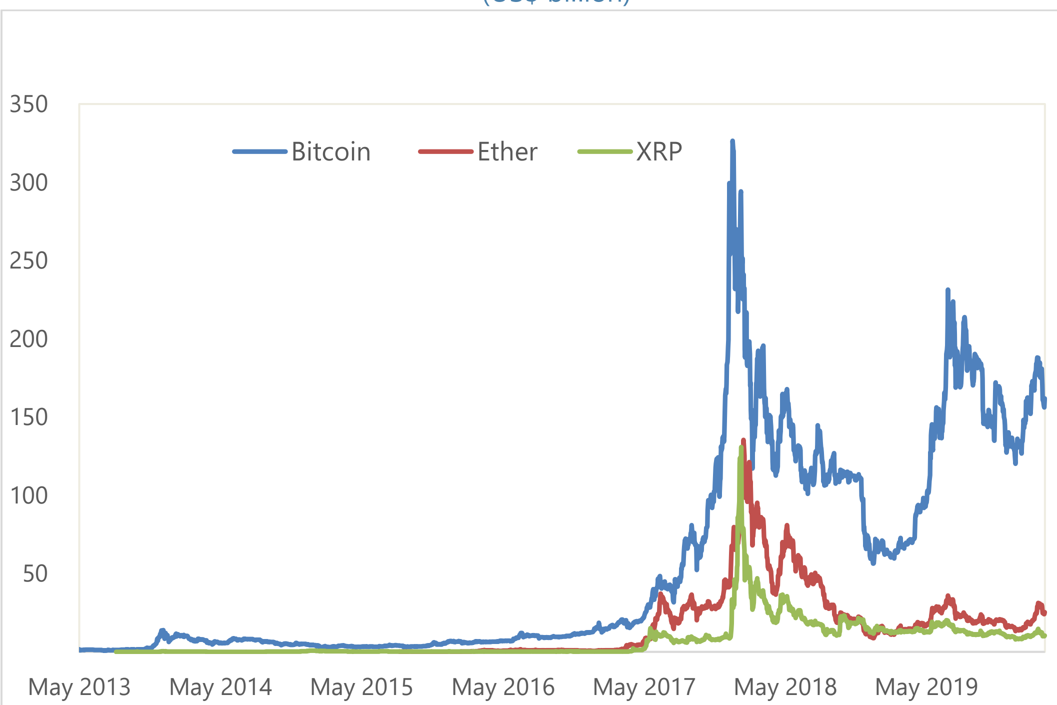
[163] The FSOC 2019 Annual Report highlights the importance of efforts to achieve a smooth transition to the post-LIBOR environment (see section 3.3 on page 13)

VIRTUAL ASSETS AND ASSET SERVICE PROVIDERS

A. Background

171. The virtual assets[164] (VAs) sector in the U.S. is currently small as a proportion of the overall financial system but has grown rapidly in recent years. Virtual asset service providers (VASPs)[165] are engaged in a broad range of activities, including offering, operation of trading platforms, and custody, and serve a diverse customer base. Many of the VAs for which there is the largest amount of trading activity have continued to demonstrate significant volatility (Figure 10), while issuance of VAs through initial coin offerings (ICOs) has declined from its peak in early 2018 (Figure 11).

Figure 10. United States: Market Capitalization of Top Three Virtual Assets
(US$ billion)

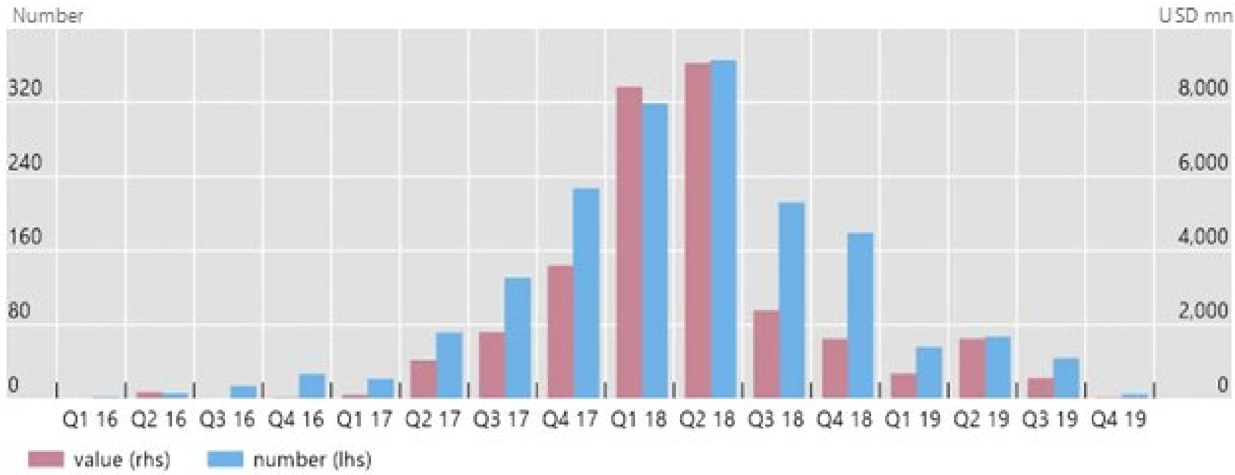


Sources: CoinMarketCap, and IMF staff calculations.

[164] A virtual asset is a digital representation of value that can be digitally traded, or transferred, and can be used for payment or investment purposes. For the purposes of this technical note the term includes virtual assets that are securities, commodities, derivatives, currencies and any other type of token. Crypto-assets and digital assets, which are both commonly used terms, should be understood as falling within this broader heading of virtual assets.

[165] Virtual asset service provider means any natural or legal person who as a business conducts one or more of the following activities or operations for or on behalf of another natural or legal person: (i) exchange between virtual assets and fiat currencies; (ii) exchange between one or more forms of virtual assets; (iii) transfer of virtual assets; (iv) safekeeping and/or administration of virtual assets or instruments enabling control over virtual assets; and (v) participation in and provision of financial services related to an issuer's offer and/or sale of a virtual asset.

Figure 11. United States: Initial Coin Offerings—Total Amounts Raised



Source: Coinschedule.com

172. The FSAP took stock of the regulatory framework for VAs and VASPs. This included offering, trading and custody rules, as well as the regulatory treatment of exposures of other financial institutions to these assets. As there are currently no bespoke international standards in this area (beyond the FATF standards for AML/CFT), the work aimed principally at identifying the key elements of the regulatory framework, the split of responsibilities between the different federal and state authorities, and key insights from the experience of those authorities in recent years.

173. Work is underway in numerous international fora to take stock of approaches and develop recommendations aimed at advancing consistent and effective regulation of VAs and VASPs. IOSCO warned about the risks of crypto-asset offers in January 2018, created an ICO Network for its members to exchange information and issued a report on crypto-asset trading platforms in February 2020.[166] In May 2019 the Financial Stability Board (FSB) issued a report on "Crypto-assets: Work underway, regulatory approaches and potential gaps", while in December 2019 the Basel Committee on Banking Supervision (BCBS) published a Discussion Paper entitled "Designing a prudential treatment for crypto-assets". A specific working group has also been set up within the FSB to assess regulatory issues in stablecoins. This international work progresses against a background of various national initiatives aimed at designing new frameworks for VAs or providing guidance on how existing laws apply to activities on these assets.

[166] IOSCO Final Report: Issues, Risks and Regulatory Considerations Relating to Crypto-Asset Trading Platforms.

REGULATORY AND MARKET STRUCTURE

A. Regulatory Structure

174. There is no bespoke regulatory framework in the U.S. at the federal level for VAs and VASPs, and the applicable rules depend on the characteristics of the VA. If a VA is a "security"[167], then the U.S. federal securities laws will apply with respect to the VA itself, as well as to VASPs engaging in activities relating to the VA. The 1946 Supreme Court case *SEC v. W.J. Howey Co* is often a key element in the determination of whether a VA is an investment contract, and therefore a security. As set out in the Commission's July 2017 *Report of Investigation Pursuant to Section 21(a) of the Securities Exchange Act of 1934: The DAO* [168], an investment contract (which is one type of security) exists when there is the investment of money in a common enterprise with a reasonable expectation of profits to be derived from the efforts of others. Each offering of a VA must be examined on its facts and circumstances to determine whether the VA meets the definition of "security" under the federal securities laws, including whether it is an investment contract under the so-called "Howey test". The U.S. federal securities laws also apply with respect to any derivatives on or based on the value of a VA that is a security, as well as to VASPs engaging in activities relating to those derivatives.

175. Regulatory oversight of the VA sector is notable for the large number of agencies and SROs both at state and federal level. Supervision of the VA industry is shared by the SEC and the CFTC, their respective self-regulatory organizations (e.g., FINRA and NFA/CME), and state-level authorities. The SEC and CFTC have made substantial efforts to clarify in which circumstances a particular VA-related activity falls within their respective jurisdictions. In April 2019 SEC staff issued a "Framework for "Investment Contract" Analysis of Digital Assets."[169] However, this does not have the status of a formal rule or agency guidance. Entities wishing to seek the staff's views on whether their VA activities would constitute a violation of the federal securities laws or the Commodity Exchange Act can seek clarification from SEC or CFTC staff, as applicable (for example, by requesting a "no-action letter"). Market participants are closely monitoring regulatory enforcement action and speeches by individual Commissioners as a means of better understanding the agencies' approach to perimeter issues. The situation continues to evolve, reflecting the varied nature of VAs themselves, and, in some cases, market participants have challenged the regulatory agencies' views in litigated actions. Discussions are also underway in the private sector on the creation of one or more new SROs.

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[167] The definition of a security under Section 2(a)(1) of the Securities Act and Section 3(a)(10) of the Exchange Act includes "an investment contract".

[168] Available at https://www.sec.gov/litigation/investreport/34-81207.pdf.

[169] Available at https://www.sec.gov/corpfin/framework-investment-contract-analysis-digital-assets.

176. The scope of the CFTC's powers with respect to VAs vary depending on whether there is a derivative transaction involved. CFTC maintains broad anti-fraud and anti-manipulation authority under the CEA over commodity transactions in interstate commerce. This authority applies to VAs to the extent that such assets are commodities and not securities.[170] To the extent that a VA constitutes a derivatives transaction (i.e., futures, options, or swaps) that is not otherwise a security, or a VA (that is a commodity) underlies a derivatives transaction, the CFTC generally has exclusive jurisdiction and asserts its regulatory regime over the derivatives transaction. The CFTC can also bring actions pertaining to retail leveraged trades where there is a failure to deliver the commodity within 28 days.

177. Regulation of VA activity, with certain exceptions for pre-empted activities, is concurrent among federal[171] and state regulators. For example, the SEC and CFTC regulate activities that they have determined involve the category of a security or a derivative on a commodity. In some cases, such as in New York and Wyoming, bespoke regulatory frameworks have been developed for VAs within their states, while in others, laws on money transmitters have been interpreted or changed explicitly to include virtual currencies. As a result, the largest virtual currency transmitters are licensed in most states. Regulatory sandboxes have also been created in a number of states, including one for fintech providers in Arizona.

178. No federal regulator currently oversees the spot market for VAs that are commodities and not securities, beyond the broad anti-fraud and anti-manipulation powers of the CFTC. A notable consequence of this is that buying and selling of Bitcoin—which is currently the most active area of the VA sector in terms of volume and number of transactions—is broadly outside the federal regulatory framework.[172] As noted above, this gap at the federal level has led some states to introduce their own regimes, such as the New York State BitLicense.[173] However, the absence of a comprehensive federal regulatory framework, accompanied by oversight by a federal agency, raises several issues. For example, the ability of the CFTC to exercise its powers effectively in relation to derivatives on VAs that are commodities and not securities (as to which the SEC has oversight) could be hampered by its more limited authority on the underlying VA. There is arguably a stronger case for federal oversight of the spot market for VAs that are commodities and not securities (as to which

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[170] The CFTC first found that Bitcoin and other virtual currencies are properly defined as commodities in 2015. See, *In the Matter of: Coinflip, Inc., d/b/a Derivabit, and Francisco Riordan, CFTC Docket No. 15–29*. (http://www.cftc.gov/idc/groups/public/@lrenforcementactions/documents/legalpleading/enfcoinfliprorder09172015.pdf).

[171] Federal regulators include FinCEN. For more information on the role of FinCEN in the U.S. regulatory framework, see the FATF's *Follow-Up Report on the United States* published in March 2020 (http://www.fatf-gafi.org/media/fatf/documents/reports/fur/Follow-Up-Report-United-States-March-2020.pdf).

[172] The CFTC asserts its regulatory regime if such transactions are done on a leveraged, margin or financed basis. For more on the role of FinCEN in this context, see the report cited in the previous footnote.

[173] https://www.dfs.ny.gov/apps_and_licensing/virtual_currency_businesses and Box 3 below.

the SEC has oversight) than there is for oversight of other commodities given that VAs are generally considered to be financial assets and are often used for investment purposes.

179. The lack of a bespoke framework for VAs has not gone unnoticed by federal or state lawmakers, and several legislative initiatives have been launched with a view to creating a more comprehensive and coherent set of rules. One example is the Crypto-Currency Act of 2020, one of the stated purposes of which is "to clarify which Federal agencies regulate digital assets." The draft bill would create three categories of VA: (i) crypto-currencies, to be overseen by FinCEN; (ii) crypto-commodities, to be overseen by the CFTC; and (iii) crypto-securities, which would fall under the responsibility of the SEC. The category of crypto-commodities, as defined in the draft bill, would be likely to capture the most widely-used VAs such as Bitcoin and Ether. Another notable intervention in this context was a recent speech by SEC Commissioner Peirce[174] that outlined the development of a possible safe harbor for the development of decentralized networks in which a token serves as a means of exchange on, or provides access to a function of the network. The speech was given in the Commissioner's personal capacity and a series of further steps (including adoption of a formal proposal by the Commission as a whole, followed by a public comment period) would be needed before any of the proposals it envisages could be put in place.

B. Market Structure

180. VAs cover a broad universe that can be described as covering securities tokens, payment tokens and utility tokens. Securities tokens are those that fall within the statutory definition of a security (e.g., see discussion above of the Howey test), while payment tokens are those used as a means of payment. Finally, utility tokens provide digital access to an application or service. While it is important to recognize the different categories of VA when describing the sector, the terminology used is not necessarily helpful in assessing the characteristics of the asset. For example, virtual currencies falling under the heading of payment tokens (e.g., Bitcoin) may not in fact be used primarily as a means of payment. The picture is further complicated by the fact that a VA may be determined as being a security at one point during its lifespan but fall into a different category at a later stage. Therefore, it is necessary to look behind the label to the economic reality in order to determine what the VA is.

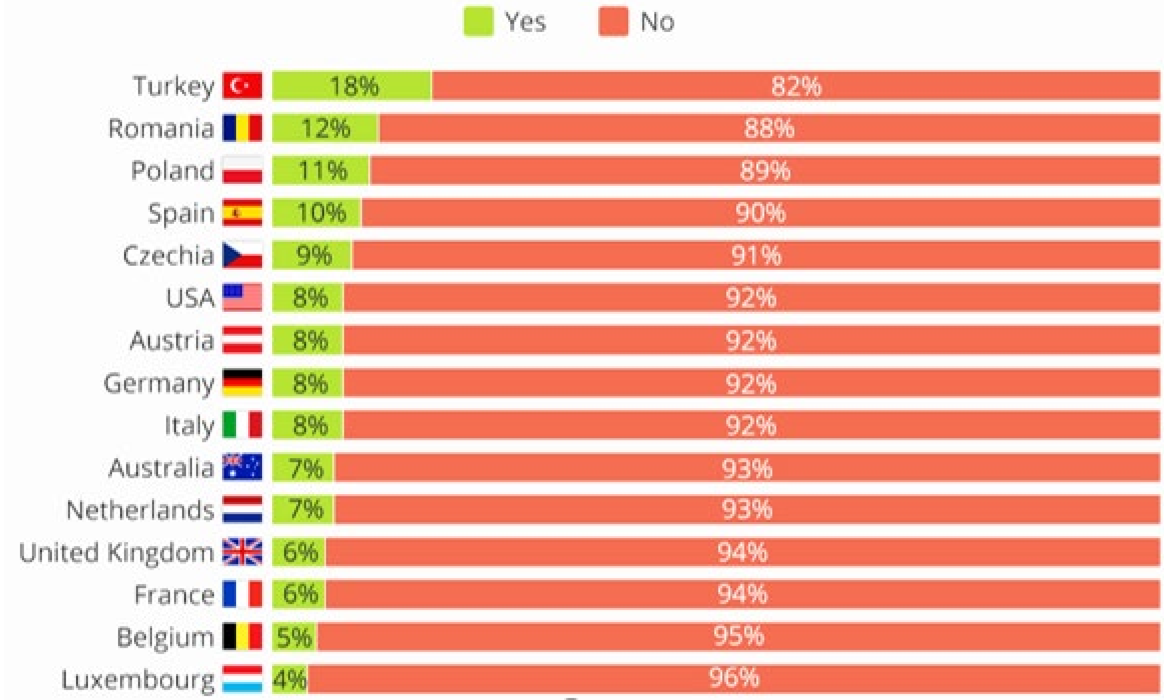
[174] Running on Empty: A Proposal to Fill the Gap Between Regulation and Decentralization, Commissioner Hester M. Peirce (https://www.sec.gov/news/speech/peirce-remarks-blockress-2020-02-06#_ftnref5).

Table 3. United States: Regulatory Responsibility by Virtual Asset Type		
Type of VA	**Regulator (federal and/or state)**	**SRO**
Security	SEC; State regulators (concurrent jurisdiction)	FINRA and others
Commodity non-VA security	CFTC (broad anti-fraud and anti-manipulation authority over spot market) State regulators of Money Services Businesses	N/A
Retail commodity non-VA securities transactions	State regulators; CFTC has regulatory authority over retail commodity transactions (a transaction in a commodity that is offered to or entered into with a retail customer) when done on a margined, leveraged, or financed basis. Retail commodity transactions that do not involve delivery within 28 days are subject to regulation as a futures contract.	N/A
Derivative on Commodity non-VA security	CFTC	NFA and others, and relevant derivatives exchange(s)
Future with underlying VA security	SEC and CFTC	FINRA and others, and NFA, CME, and relevant derivatives exchange(s)
Swap or Option on underlying VA security	SEC	
Derivative	CFTC	NFA, CME, and relevant derivatives exchange(s)
VAs as currency payment (neither a security nor a commodity)	FinCEN and State regulators of Money Transmitter Licenses	N/A

181. Comprehensive data on the sector is currently not available, although private sector data providers do produce statistics on different segments of the market. The spot market appears to account for the largest share of the sector by transaction volume. In addition, there are currently five U.S. derivatives exchanges offering listed derivatives products on bitcoin that are available for trade: CME, ICE, LedgerX, NADEX, and ErisX. Activity on CME Bitcoin Futures has continued to increase since they were launched in 2017, with approximately 2.5 million contracts traded with a notional value of US$92 billion. There is a lack of comprehensive data on who holds VAs although survey evidence suggests that take-up by members of the public remains limited, while varying significantly across jurisdictions (Figure 12).

Figure 12. United States: Ownership of Crypto-Assets

(Share of respondents who own Bitcoin or a similar virtual currency in selected countries in 2018)



Source: ING International Survey-Mobile Banking Cryptocurrency, June 2018.

C. Regulation

Offering

182. Distribution of VAs to investors raises several issues that can be addressed through a well-designed regulatory framework. As for any financial asset, quality disclosures are essential if an investor is to make an informed decision, and are arguably of particular importance for VAs given the complexity and (in some cases) opacity of these assets. Preparing such disclosures is particularly challenging in the case of VAs given the proliferation of different categories of asset and the complexities of the underlying technology. Developing adequate financial and technology literacy programs appears to be a foundational element of any regulatory initiative for fintech in general, including VAs. Periodic disclosures are not only a pre-requisite for the protection of investors, but also to ensure that the correct regulatory treatment continues to be applied by the relevant authorities.

CFTC

183. The offering or acceptance of funds for derivatives transactions on VAs trigger registration requirements with the CFTC. Derivatives intermediaries subject to the CEA are required to provide certain customer disclosures. Separately, a set of Core Principles applies to all U.S. derivatives exchanges. Specifically, in regard to rules that promote "fair and equitable" treatment of market participants, U.S. derivatives exchanges are subject to requirements surrounding impartial access, financial integrity, and system safeguards, among others. In addition to the NFA, which serves as an SRO for derivatives market intermediaries, U.S. derivatives exchanges under the CEA also act as SROs for their market participants. The NFA primarily serves as the front-line registration and a regulatory review body of CFTC-registered intermediaries. All other regulatory functions involving CFTC regulated entities fall within the CFTC's purview for U.S. derivatives transactions.

SEC

184. **Any offer and sale of a VA that is a security is subject to the same registration requirements as any other security.** This means that a registration statement must be filed with the SEC, unless the offer is conducted pursuant to an available exemption from registration under the Securities Act. Offerings of derivatives on VAs that are securities (VA security) are similarly subject to the relevant registration and exemption provisions under the Securities Act. The registration requirements apply to any primary offer or sale of a VA security by the issuer, an underwriter or other participant in the offering, and to any subsequent resale of such securities, including transactions on trading platforms. Exemptions from the registration requirements of the Securities Act are available for primary offerings of VA securities and for resales of such VAs under certain conditions.

185. **The registration to be filed with the SEC must include a prospectus.** A prospectus included in the registration statement must include disclosure about the material terms of the transaction and the business of the issuer, including financial statements. In offerings conducted in reliance on exemptions from the registration requirements of the Securities Act, the disclosures available to investors vary depending on the specific exemption being relied upon. Certain exemptions provide issuers with discretion in determining what to disclose to investors, while other exemptions require specific disclosures.

186. **The issuer of a VA that is a security may become subject to the periodic and current reporting requirements of the Securities Exchange Act of 1934 (Exchange Act).** These reporting requirements arise either because, depending on the characteristics of the VA security, the issuer (i) is required to register the VA as a class of security under the Exchange Act or (ii) has registered the offering of the VA under the Securities Act and certain obligations are triggered. In these cases, an entity must file certain reports with the SEC, including annual, periodic, and current reports. These reports are available to the public through the SEC's EDGAR database. Some of these entities also may be subject to other Exchange Act disclosure requirements, such as those relating to proxy solicitations and tender offers.

187. **All securities offerings and transactions, whether registered or exempt, are subject to the antifraud provisions of the U.S. federal securities laws.** The SEC enforces the U.S. federal securities laws through civil and administrative proceedings. Private parties can also bring actions under certain provisions of the U.S. federal securities laws. Also, there are remedies for investors if the offerings are not registered with the SEC under the Securities Act or made pursuant to an available exemption from such requirements. For example, if an investor were sold a VA security in

violation of the registration provisions of the Securities Act, the investor may be entitled to recover the amount paid plus interest (minus income received thereon) or damages if the investor no longer owns the VA security.

188. The SEC has the same authority to intervene in relation to the offering of a VA security as with any other security offering. This includes the authority to seek relief from a federal district court to restrain or enjoin the offering. Various such enforcement actions have been undertaken by the SEC in recent years (see section F below).

189. Depending on the particular services provided by a VASP with respect to VA securities, the VASP may be required to register with the SEC in some capacity, unless there is an available exemption from the applicable registration requirements. For example, it may be required to register under the Exchange Act as a national securities exchange or broker-dealer, or under the Investment Advisers Act of 1940 (Advisers Act) as an investment adviser.

190. VASPs engaging in broker-dealer activities with respect to VA securities fall within the jurisdiction of the Financial Industry Regulatory Authority (FINRA). An entity has to register as a broker-dealer if it engages in securities transactions on behalf of others. FINRA's rules are geared towards VA securities but some general standards, such as the just and equitable principles of trade, apply also to other types of VA to the extent that a broker-dealer is required to register with FINRA due to activities on securities. This means that there may be a difference in the regulatory requirements applicable to an entity depending on whether it engages in transactions on both VA securities and other VAs, or only on VAs that are not securities.

Trading

191. Once a VA has been issued, it is typically traded on one or more trading platforms in the secondary market. The regulatory framework in the U.S. for the operation of such trading platforms, as for the regulatory requirements in general, depends on the type of VA. For trading activities involving VAs that fall outside of the jurisdiction of the SEC and CFTC, state regulators and FinCEN (for AML/CFT matters) may have jurisdiction. A notable example of a bespoke regulatory framework for this activity (and for VAs in general) is the New York State BitLicense (Box 3).

Box 3. United States: New York State's BitLicense

In 2015 New York State (NYS) became one of the first states to introduce a bespoke regulatory framework for virtual currencies (VCs). The framework is overseen by the NYS Department of Financial Services (NYSDFS). Subject to certain exceptions, VCs are defined in the New York Codes, Rules and Regulations (NYCRR) as "any type of digital unit that is used as a medium of exchange or a form of digitally stored value" and any entity wishing to carry out one or more of the following activities involving New York or a New York resident in relation to VCs must first obtain a license from the NYSDFS (commonly known as a "BitLicense"):

(1) receiving virtual currency for transmission or transmitting virtual currency, except where the transaction is undertaken for non-financial purposes and does not involve the transfer of more than a nominal amount of virtual currency;
(2) storing, holding, or maintaining custody or control of virtual currency on behalf of others;
(3) buying and selling virtual currency as a customer business;
(4) performing exchange services as a customer business; or
(5) controlling, administering, or issuing a virtual currency.

Entities that are chartered under the New York Banking Law, e.g., as a trust company, and have been approved by the NYSDFS to engage in VC business activity are not required to seek a separate BitLicense. Whether an entity is engaging in VC business activity as a chartered entity or a BitLicensee, regulatory requirements are similar.

The BitLicense framework sets out conditions to be satisfied by applicants before they can be granted a license, and also sets requirements for their ongoing activity. These conditions and requirements include establishing a compliance function and written compliance policies that are reviewed and approved by the licensee's board of directors or an equivalent governing body. There are also capital requirements determined on a case-by-case basis by the NYSDFS taking into account such factors as the licensee's total assets and liabilities, the actual and expected volume of the VC business activity, and the amount of leverage employed. Rules on custody and protection of customer assets provide that, where a licensee holds VC in custody on behalf of another person, the licensee must hold VC of the same type and amount as that which is owed. Further requirements cover areas such as books and records, changes of control, AML and cybersecurity.

Currently more than 20 entities have been authorized by NYSDFS to engage VC business activity; generally, they fall into two broad categories: (i) chartered limited purpose trust companies providing custodial, exchange and other services; and (ii) BitLicensees, the majority of which operate VC trading platforms (including the well-known platform, Coinbase). Among the authorized entities there are also Bitcoin ATM operators and a payment processor. All these entities are subject to quarterly and annual reporting requirements to NYSDFS, and their annual financial statements must be audited.

Numerous NYSDFS staff oversee the BitLicense framework, covering the application process, ongoing supervision, examination and enforcement. Experts on cybersecurity at NYSDFS regularly participate in all aspects of this framework. NYSDFS has cooperation arrangements in place with federal, state, and foreign regulators.

CFTC

192. The CFTC's regulatory regime applies to derivatives transactions involving VAs or VAs that are derivatives (VA derivatives) that are subject to its exclusive jurisdiction under the CEA. In such cases, the CFTC's regulatory regime, as it applies to exchange-traded derivatives, addresses governance requirements, access, market integrity, transparency, custody, and clearing, among other issues. With regard to governance, U.S. derivatives exchanges are required to establish and enforce appropriate fitness standards for directors, members of any disciplinary committee, members of contract market and any other persons with direct access to the facility. Further, such exchanges must enforce rules to minimize conflicts of interest in the decision-making process of the exchange and establish a process for resolving such conflicts of interest. Regarding access, U.S. derivatives exchanges are required to establish and enforce rules to provide market participants with impartial access to the market and to capture information that may be used in establishing whether rule violations have occurred.

193. Rules to safeguard market integrity apply to U.S. derivatives exchanges. These include a requirement to maintain adequate financial resources and establish and enforce rules regarding the financial integrity of all transactions occurring on or in accordance with the rules of the exchange. Regarding transparency, U.S. derivatives exchanges are subject to requirements surrounding open, competitive trading and reporting obligations. U.S. derivatives exchanges are required to offer products that are not readily susceptible to manipulation. Collateral used to margin, guarantee, or secure VA derivative contracts cleared by a futures commission merchant (FCM) on behalf of customers are subject to the same customer protection and segregation requirements as all other contracts cleared for FCM clients. Notably, the assets must be segregated from the FCM or DCO's assets and must be held at a bank, trust company, FCM, or DCO. These requirements would apply to VAs used to margin, guarantee, or secure a derivative contract.

194. VA derivatives are subject to the same clearing rules and requirements as other contracts. The requirements are set out in the 18 Core Principles included in the CEA[175] and the regulations issued to implement them[176]. Currently, three DCOs have listed or are registered to list physically settled VA contracts and one DCO currently lists cash settled VA contracts. In 2018, CFTC staff issued a guidance document that specified staff would review a DCO's proposed margin methodology and its governance process, including clearing member outreach, as part of a heightened review for virtual currency derivative contracts. As CFTC staff reviewed each DCO's proposal for a VA contract, certain issues posed unique challenges in the context of clearing VA derivatives. These challenges included protecting the guarantee fund contributions of clearing members that do not clear VAs from a VA default and obtaining accurate pricing data as the input for a margin model or to serve as a settlement price. These issues did not require new regulations

[175] 7 U.S.C. § 7a-1(c)

[176] 17 C.F.R. §§ 39.1 – 39.42

but did require additional attention during the review. In this context, the CFTC itself has noted[177] that the self-certification process for VA derivatives does not provide for public input[178], the creation of separate guaranty funds for clearing, or value judgments about the underlying spot market, and that there are limited grounds for the CFTC to "stay" self-certification.

SEC

195. U.S. federal securities laws apply to platforms that trade VA securities and any derivatives on such VA securities. This would also trigger the application of the SEC's regulatory framework. For example, a trading platform for a VA security that meets the Exchange Act's definition of an "exchange" must register as a national securities exchange or operate pursuant to an exemption from registration (for example, as an alternative trading system (ATS) pursuant to the exemption under Regulation ATS[179]). An SEC-registered national securities exchange must, among other things, have rules designed to prevent fraudulent and manipulative acts and practices. Additionally, as an SRO, an SEC-registered national securities exchange must have rules and procedures governing the discipline of its members and persons associated with its members, and enforce compliance by its members and persons associated with its members with the federal securities laws and the rules of the exchange. Further, a national securities exchange must itself comply with the federal securities laws and must file its rules with the SEC.

196. A trading platform seeking to operate as an ATS is also subject to regulatory requirements. These include registering with the SEC as a broker-dealer and becoming a member of an SRO, typically FINRA. Registration as a broker-dealer subjects the ATS to a host of regulatory requirements, such as the requirement to have reasonable policies and procedures to prevent the misuse of material non-public information, books and records requirements, and financial responsibility rules, including, as applicable, requirements concerning the safeguarding and custody of customer funds and securities. The overlay of SRO membership imposes further regulatory requirements and oversight. An ATS must comply with the federal securities laws and its SRO's rules, and file a Form ATS with the SEC.

197. Entities performing the functions of a clearing agency in connection with the clearance and settlement of transactions in a VA security are required to register with the SEC or obtain an exemption from registration as a clearing agency. Also, if an entity generally is performing the functions of a transfer agent for a VA security, the entity would be required to register as a transfer agent and would be subject to applicable SEC rules. Regardless of the form of security, the Commission's regulatory framework for the clearance and settlement of securities would apply.

[177] CFTC Backgrounder on Oversight of and Approach to Virtual Currency Futures Markets, January 2018.

[178] The CEA provides for public input for rule self-certifications, not product self-certifications (see Section 5c(c)(3)(C) of the CEA, 7 U.S.C. 7a-2(c)(3)(C), and 17 C.F.R. 40.6(c)(2)).

[179] See footnote 4.

Custody

198. Custody of VAs typically takes place via wallets. A wallet is an electronic file (or the software used to manage it), in which a unique private key, akin to a password, and the public key, the user's "address" in the form of an alpha-numeric string, are stored for the crypto assets owned by a user. Important characteristics of wallets include custodianship and type of storage and security of private keys. In terms of custodianship, a wallet can be managed by the users themselves or delegated to a third-party custodian (that is, a "wallet provider"), which is often a VA trading platform, but can also be a third-party service provider. In terms of storage, wallets can be classified, for example, as "hot" or "cold"; those that are kept online and connected and those that are kept offline, respectively.

CFTC

199. No specific standards or regulations have been developed in relation to VA custody. However, the CFTC has reviewed custody solutions by applying existing laws and regulations when reviewing applications for registration that would require a DCO or a custodian to hold VAs on behalf of clearing members. One of the 18 Core Principles that DCOs must comply with (Core Principle F) requires a DCO to: (i) establish standards and procedures that are designed to protect and ensure the safety of member and participant funds and assets and (ii) hold such funds and assets in a manner that would minimize the risk of loss or of delay in the DCO's access to the funds and assets. Additionally, DCOs must establish and maintain a program of risk analysis and oversight to identify and minimize sources of operational risk through appropriate controls, procedures, and automated systems, that are reliable, secure, and have adequate scalable capacity.[180] Based on these requirements, CFTC staff conducted in-depth reviews of a DCO's proposed custody solution before the DCO began clearing VA derivatives. The CFTC has not required use of any specific type of wallet, i.e. either hot or cold. Rather, each wallet solution was reviewed to determine whether it meets the requirements discussed above. CFTC staff paid particular attention to whether the wallet infrastructure was properly configured from an IT perspective and whether the design requires multiple people and processes in order to initiate a transfer of VAs.

200. There are currently no FCMs posting VAs belonging to their customers as collateral with a DCO. If a FCM were to do so, it would need to comply with the segregation and customer protection requirements described above. However, as part of its review of DCO applications or rule changes, CFTC staff has sought to ensure that the VAs belonging to clearing members are not held in the same wallet as the DCO's/custodian's assets. For new applicants, the CFTC has required that the new DCO maintain funds of its clearing members separate and distinct from its own funds. The NFA does not have the power to oversee custody directly but, as part of its examination program, does verify the existence and valuation of assets held in custody.

201. There is no specific requirement that sets out a wallet provider's ability to reuse VAs belonging to a direct clearing member. The issue is, however, discussed as part of the CFTC staff

[180] Core Principle I.

review and none of the relevant custodians are currently able to reuse collateral. Under CFTC Regulations, any collateral belonging to a customer of a FCM, including VAs, is not permitted to be rehypothecated.

SEC

202. The SEC's capital requirements for broker-dealers cover situations in which the broker-dealer has proprietary positions in VA securities or holds such VAs in custody on behalf of clients. The rules require broker-dealers to maintain a minimum amount of net liquid assets that is greater than all non-subordinated liabilities (i.e., net capital). The SEC recently adopted new Rule 18a-1 governing capital requirements for security-based swap dealers for which there is no prudential regulator (i.e., nonbank security-based swap dealers). The compliance date for Rule 18a-1 will be in the second half of 2021. Broker-dealers must also segregate customer cash and securities away from proprietary assets, and are required to physically possess or control all fully paid and excess margin securities in a "good control" location.[181]

203. The Advisers Act requires registered investment advisers to comply with the Advisers Act Custody Rule. This rule prohibits registered investment advisers from having custody of client funds or securities unless they are maintained in accordance with certain requirements, including the use of a qualified custodian (typically a bank or broker-dealer) and the segregation of client assets. In March 2019, the staff of the Division of Investment Management at the SEC issued a public letter seeking input relating to VA custodial practices by investment advisers under the Advisers Act.[182] The feedback to the letter will help inform SEC staff consideration of how characteristics of VAs impact the application of the Advisers Act Custody Rule.[183]

204. Examinations of broker-dealers and investment advisers examine for compliance with the custody requirements. For a broker-dealer, examinations carried out by FINRA and the SEC would include compliance with rules designed to safeguard customer securities and funds held by a broker-dealer, to prevent investor loss or harm in the event of a broker-dealer's failure, and to enhance the SEC's ability to monitor and prevent unsound business practices. For investment advisers, meanwhile, those with assets under management of at least US$100 million or more generally register with and are examined—including for compliance with the Advisers Act Custody Rule—by the SEC.

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[181] For more on the SEC's approach, see the *Joint Staff Statement on Broker-Dealer Custody of Digital Asset Securities*, available at: https://www.sec.gov/news/public-statement/joint-staff-statement-broker-dealer-custody-digital-asset-securities.

[182] *See Engaging on Non-DVP Custodial Practices and Digital Assets* (Mar. 12, 2019) (https://www.sec.gov/investment/engaging-non-dvp-custodial-practices-and-digital-assets).

[183] Public responses to the March 12, 2019 letter are available at https://www.sec.gov/investment/engaging-non-dvp-custodial-practices-and-digital-assets.

Exposures to VAs

205. Regulatory frameworks for VAs should address how financial institutions' exposures to these assets are to be treated. Such treatment should ideally take into account the characteristics of each type of VA, such as whether the value of the asset is backed by collateral. Currently, there is no global standard for the prudential treatment of exposures to VAs for banks or other regulated entities. However, in December 2019 the BCBS issued a Discussion Paper that sets out a conservative approach to banks' holdings of VAs, including by underlining the importance of heightened due diligence and risk management.

CFTC

206. Futures contracts referencing VA commodities under the CEA subject to the CFTC's exclusive jurisdiction are relatively new products in the CFTC's regulated markets. Consistent with the current regulatory framework, FCMs and DCOs guarantee financial performance on cleared futures contracts, including those futures contracts on VAs that are subject to CFTC jurisdiction. To the extent that there is a default on such a VA futures contract, an FCM or DCO may be called upon to remedy that default using its own financial resources. FCMs and DCOs, however, are not required to make physical delivery of any type of commodity underlying futures contracts in the event of a default.

207. Staff of the CFTC and SEC have discussed issues associated with the capital implications of FCMs and BDs holding proprietary positions in VAs. The discussions have also included staff of FINRA, CME, and NFA. Although it is permitted by the current framework, FCMs and DCOs currently do not hold proprietary positions in VAs. Evidence suggests that the larger financial institutions in the sector are not currently seeking to hold such positions.

208. Commodity pools (CPs) are permitted to hold VAs in their portfolios but exposures are currently not material. CPOs are required to disclose their trading strategies to potential investors in their pools. This disclosure would have to include, where relevant, the intention to engage in transactions in the spot market. The NFA gathers precise figures on the exposures held in CPs; currently only 14 CPOs (out of an entire universe of approximately 800) are investing in VAs and there is no evidence to suggest that these exposures are increasing to any material extent.

SEC

209. Holdings of VAs are subject to the general requirements that apply to an investment company's assets rather than VA-specific rules. This includes requirements on valuation, liquidity and custody. In January 2018 the staff of the Division of Investment Management at the SEC issued a public letter[184] seeking feedback on five substantive issues under the 1940 Act implicated by registered investment companies' proposed investment in VAs: valuation, liquidity, custody,

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[184] *See Engaging on Fund Innovation and Cryptocurrency-related Holdings* (Jan. 18, 2018) (available at https://www.sec.gov/investment/fund-innovation-cryptocurrency-related-holdings).

arbitrage (for ETFs), and potential manipulation in underlying markets. The staff posed a series of questions with respect to these topics and said that until these questions can be addressed satisfactorily, the staff did not believe it was appropriate to initiate registration of funds that intend to invest substantially in cryptocurrency and related products. To date only one such fund has registered under the 1940 Act.[185]

FRB

210. The FRB, which supervises bank holding companies (BHCs), savings and loan holding companies, and state member banks, has not adopted specific rules on prudential treatment of exposures to VAs. BHCs are permitted to conduct trust (i.e. custodial) activities through state-chartered trust companies. Trust activities are conducted on behalf of customers and do not generally result in VAs being held on the company's balance sheet. Although U.S. federal banking regulators have not issued guidance permitting banks to hold VAs directly, the key consideration from the FRB's perspective would be the nature of the VA as a potential investment. In that regard, it would take into account any determination of the VA as a security by the SEC but would also carry out its own analysis.

D. Supervision[186]

211. The large number of regulatory agencies in the VA sector, and the challenges around categorization of these assets, render supervisory cooperation particularly important. Both the SEC and CFTC are signatories to the IOSCO Enhanced MMoU and have generally been able to obtain information from non-U.S. counterparts on VA-related cases, even in situations where the counterpart's powers do not precisely match those of the SEC or CFTC. Within the U.S., SEC and CFTC cooperate extensively at all levels. Both agencies work closely with the respective SROs, FINRA and NFA, and others. Cooperation between the federal agencies and the state regulators tends to occur in step with examinations. For example, a state will provide FinCEN with a report of an examination after it is completed, which will include AML/CFT findings. As a result, most coordination occurs between federal agencies and the states that most actively perform examinations (for example, NYSDFS is in regular contact with both the SEC and the CFTC). Dialogue with the North American Securities Administrators Association (NASAA) and the Conference of State Bank Supervisors (CSBS) also facilitates coordination with state regulators.

212. Both SEC and CFTC have set up dedicated internal units to deal with fintech issues, including VAs and VASPs. The SEC's Strategic Hub for Innovation and Financial Technology (FinHub), which was formalized in October 2018, overlays the entire agency and can draw on resources from across Divisions and Offices. Its work is organized around four pillars: i) Blockchain/Distributed Ledger; ii) Digital Marketplace Financing; iii) Automated Investment Advice;

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[185] Stone Ridge NYDIG Bitcoin Strategy Fund, which is a closed-end fund.

[186] The material in this technical note on VAs and VASPs focuses on the regulatory framework and does not therefore discuss in detail the supervisory approach of the various agencies and SROs to this sector. However, some points that are of relevance to the description of the regulatory framework are mentioned in this section.

and iv) Artificial Intelligence/Machine Learning. FinHub serves as a first port of call for entrepreneurs looking to discuss upcoming projects. The SEC has also recognized the need for additional expertise in this area and has brought in new staff with profiles that better reflect the specificities of the VA sector. The CFTC, meanwhile, has a similar initiative called LabCFTC which serves as the agency's innovation arm. As a reflection of the growing importance of the fintech sector and CFTC's focus on it, LabCFTC became a separate Office reporting directly to the CFTC Chair in October 2019. Both FinHub and LabCFTC coordinate the respective agency's input to international work on fintech e.g., through IOSCO and FSB. To date, neither of the agencies has carried out formal testing of consumer understanding of VAs.

E. Enforcement

213. Enforcement action is a key tool for the SEC and CFTC in achieving their respective objectives. In recent years the SEC has taken multiple actions in the context of VA activity, notably against a number of issuers of VAs for allegedly engaging in fraud and for violating the registration provisions of the federal securities laws; some cases involved both violations.[187] In 2018 the SEC filed its first charges for unlawful promotion of ICOs, with cases against a pair of celebrities who "touted" VAs without disclosing that they were paid to do so and, in 2019, against a supposed ICO research and rating service that did not disclose that it was compensated by some issuers whose offerings it rated. The SEC also brought a settled action against the founder of a VA trading platform, which found that the platform unlawfully operated as a national securities exchange without being registered. As the SEC staff stated in the Division of Enforcement's Annual Report for 2019, "these actions send the clear message that, if a product is a security, regardless of the label attached to it, those who issue, promote, or provide a platform for buying and selling that security must comply with the investor protection requirements of the federal securities laws."

214. The CFTC has been similarly active on the enforcement front, targeting misconduct involving VA commodities. Among other cases, the CFTC charged the principal of a cryptocurrency escrow fund with a multi-million-dollar Bitcoin fraud.[188] The CFTC also charged a Bitcoin trading firm and its principal with a US$147 million-dollar fraud.[189]

215. Market participants are closely monitoring regulatory enforcement action and speeches by individual Commissioners as a means of better understanding the agencies' approach to perimeter issues. Numerous court cases involving the CFTC provide useful insights on

[187] A list of the SEC's VA-related enforcement actions can be found here: https://www.sec.gov/spotlight/cybersecurity-enforcement-actions.

[188] *CFTC v. Jon Barry Thompson*, No. 1:19-cv-09052 (S.D.N.Y. filed Sept. 30, 2019); https://www.cftc.gov/PressRoom/PressReleases/8023-19.

[189] *CFTC v. Control-Finance Ltd., and Benjamin Reynolds*, No. 1:19-cv-05631 (S.D.N.Y. filed Jun. 17, 2019); https://www.cftc.gov/PressRoom/PressReleases/7938-19.

its approach to the regulatory perimeter,[190] while ongoing litigation between the SEC and market participants considers the key issue of the circumstances in which a VA should be considered a security. The outcome of the cases could have a major impact on future assessments of VAs by the SEC. In one such case, SEC v. Telegram Group Inc. and TON issuer Inc., the defendant suggested that the CFTC was the appropriate regulator, not the SEC. The CFTC became involved when the presiding judge invited the CFTC's Office of the General Counsel to express its views. In that case, the judge then issued a ruling granting the SEC's request for a preliminary injunction preventing the delivery of the VAs, called Grams, to purchasers on the basis that the SEC had shown a substantial likelihood of success in proving that Telegram's plan to distribute the Grams is an offering of securities under the Howey test to which no exemption applies.

F. Systemic Risk Monitoring

216. Risks to financial stability from VAs appear low at present given the small size of the sector. However, there is currently a lack of reliable, comprehensive data on VAs, rendering a definitive assessment of the potential systemic relevance of the sector more challenging. Agencies have generally not put in place specific reporting requirements for VA-related activity and rely instead on individual engagement with regulated entities and input from third-party data providers. The FRB, for example, conducts a bi-annual survey of the banks it supervises to determine the exposures they have to VAs. The output of the survey is fed into the BCBS' Quantitative Impact Survey. The lack of dedicated reporting may be explained in part by VASPs operating in non-compliance with registration and reporting requirements, but may also be due to issues of categorization and fragmentation, given that there are so many different types of VA and, as noted above, determining the responsible regulatory agency may not be straightforward. Under the current regulatory architecture, it is more feasible to expect individual agencies to introduce their own reporting requirements. For example, in addition to the SEC's ongoing project to gather data directly from various blockchains, the SEC and CFTC could update Form PF so that it specifically identifies private funds' and commodity pools' exposures to VAs.

217. FSOC's coordination role is particularly important in relation to the VA sector.[191] While the Chairs of the SEC and CFTC are full voting members of FSOC and contribute directly to the deliberations of the Council, state regulators have only indirect representation through the non-

[190] CFTC v. Gelfman Blueprint, Inc., No. 17-CV-07181 (PKC), 2018 WL 6320653, at *4 (S.D.N.Y. Oct. 2, 2018) (consent order) ("Virtual currencies such as Bitcoin are encompassed in the definition of "commodity" under Section la(9) of the Act."); CFTC v. My Big Coin Pay, Inc., 334 F. Supp. 3d 492, 495-98 (D. Mass. 2018) (applying a categorical approach to interpreting "commodity" under the Act and determining that a non-bitcoin virtual currency is a "commodity" under the Act); CFTC v. McDonnell, 287 F. Supp. 3d 213, 228 (E.D.N.Y. 2018) ("Virtual currencies can be regulated by CFTC as a commodity."); In re BFXNA Inc. d/b/a Bitfinex, CFTC No. 16-19, 2016 WL 3137612, at *5 (June 2, 2016) (consent order) ("Bitcoin and other virtual currencies are … properly defined as commodities."); In re Coinflip, Inc., CFTC No. 15-29, 2015 WL 5535736, at *2 (Sept. 17, 2015) (consent order) ("Bitcoin and other virtual currencies are encompassed in the definition and properly defined as commodities.")

[191] As explained in footnote 71 above, this technical note does not assess in detail the role of FSOC, nor the SEC's and CFTC's contributions to it. This is covered by a separate technical note on the systemic risk oversight macroprudential framework.

voting participation of the CSBS and NASAA. The FSOC Annual Report 2019 highlighted risks arising from VAs and recommended that "federal and state regulators continue to examine risks to the financial system posed by new and emerging uses of digital assets and distributed ledger technologies." It may be more challenging for the FSOC to monitor the follow-up of this recommendation across the various state regulators, but CSBS and NASAA representatives can facilitate.

Appendix I. IOSCO Principles and Other International Standards

The authors had regard to the following in preparing this technical note:

- Statement on Communication and Outreach to Inform Relevant Stakeholders Regarding Benchmarks Transition, IOSCO, July 2019;
- Cyber Incident Response and Recovery: Progress Report to the G20 Finance Ministers and Central Bank Governors meeting in Fukuoka, June 8-9, 2019;
- Mechanisms Used By Trading Venues To Manage Extreme Volatility And Preserve Orderly Trading, FR13, IOSCO, 2018;
- Mechanisms for Trading Venues to Effectively Manage Electronic Trading Risks and Plans for Business Continuity, IOSCO December 2015;
- Risk Mitigation Standards for Non-Centrally Cleared OTC Derivatives, Report of IOSCO, January 2015;
- Regulatory Issues Raised by Changes in Market Structure, December 2013;
- *Principles for Financial Benchmarks*, Report of the Board of IOSCO, July 2013;
- Technological Challenges to Effective Market Surveillance: Issues and Regulatory Tools, Final Report, Report of the Board of IOSCO, April 2013;
- Regulatory Issues Raised by the Impact of Technological Changes on Market Integrity and Efficiency, Report of the Technical Committee of IOSCO, October 2011;
- Principles for the Regulation and Supervision of Commodity Derivatives Markets, IOSCO, September 2011;
- *Principles for Dark Liquidity*, Final Report, Report of the Technical Committee of IOSCO, May 2011;
- Implementing OTC Derivatives Market Reforms, Financial Stability Board, October 2010;
- *Principles for Direct Electronic Access to Markets*, Final Report, Report of the Technical Committee of IOSCO, August 2010;
- *Regulation of Short Selling*, Final Report, Report of the Technical Committee of IOSCO, June 2009;

- Principles on Outsourcing by Markets, Final Report, Report of the Technical Committee of IOSCO, July 2009;
- IOSCO Policy Recommendations for Money Market Funds, 201;
- IOSCO Principles for the Valuation of Collective Investment Schemes (May 2013);
- IOSCO Good Practice for Fees and Expenses of Collective Investment Schemes (August 2016);
- *IOSCO* Good Practices for the Termination of Investment Funds (November 2017);
- IOSCO Recommendations for Liquidity Risk Management for Collective Investment Schemes (2018); and
- FSB Policy Recommendations to Address Structural Vulnerabilities from Asset Management Activities, 2017.

Appendix II. Progress Against 2015 FSAP Recommendations

This table sets out the status of the 2015 FSAP recommendations relevant to fund management and equities and derivatives trading.

Principle	Recommendation	Status
Principle 1	SEC and CFTC to continue co-ordination efforts through e.g., substituted compliance	SEC and CFTC staff note that work has continued to further harmonize the regulatory regimes for swaps and security-based swaps, including an updating of the SEC and CFTC Memorandum of Understanding in 2018 to address the SBS and swaps regime.[1]
	All regulatory authorities with mandates impacting securities and derivatives to enhance co-operation	All authorities recently approved changes to the Volcker rule.
Principle 2	More stable funding for SEC and CFTC	This has not been implemented.
Principle 3	Additional resources for SEC and CFTC commensurate with increase in mandate	This has not been implemented.
Principle 6	CFTC to work on improving quality of swaps data and swaps market monitoring	The CFTC has proposed updated requirements for swap data repositories (SDRs) to verify the accuracy of swap data, as well as updated requirements for SDRs, reporting counterparties and other market participants to correct errors and omissions in reported swap data.[2] CFTC has expanded the coverage of its weekly swaps report.
	SEC should continue to work on improving data availability and automated tools to identify risks, in particular in connection with asset managers	SEC has adopted new reporting requirements that will provide SEC staff with additional data from registered investment companies that may be used for, among other purposes, monitoring and identifying risks that could be systemic (i.e., Forms N-PORT and N-CEN). Various analytical tools have also been developed to use the data collected.
Principle 24	The SEC should increase the intensity of its examination coverage of IAs	The SEC has continued to work to increase examination coverage of registered investment advisers. SEC staff examined 11 percent of investment advisers in fiscal year 2016 and 15 percent of investment advisers in fiscal year 2017. In fiscal year 2018, SEC staff examined 17 percent of investment advisers while the number of registered investment advisers increased by approximately 5 percent from the previous fiscal year.
	The authorities should consider to explicitly require IAs to MFs and CPOs to implement internal controls and risk management	In 2016, the SEC adopted liquidity risk management requirements for Collective Investment Schemes (CIS). Rule 22e-4 under the Investment Company Act requires open-end CISs, including open-end ETFs but not including money market funds, to establish a written liquidity risk management program. No changes have been made by the CFTC to address the recommendation on internal controls and risk management.

Principle 28	As the authorities continue to analyze the risks posed by hedge funds (HFs), they are encouraged to review whether a comprehensive risk management framework is warranted	The SEC has noted that a number of safeguards are in place to reduce risks arising from HF activity, including: restrictions on eligible investors in HFs; the fiduciary duty of HF managers; data collection; restrictions on redemptions; and on-site examinations. The CFTC also gathers information on HFs that qualify as commodity pools.
Principle 30	The SEC is encouraged to continue its review of the capital and liquidity framework for ANC firms. More broadly, the SEC is encouraged to continue reviewing the adequacy of liquidity requirements for the larger BDs	SEC staff notes that, on June 21, 2019, the Commission adopted rules that, among other things, increase the minimum net capital requirements for broker-dealers that use internal models to compute net capital (ANC broker-dealers).[3] For example, under these rules, ANC broker-dealers will be subject to: (i) minimum tentative net capital requirements (tentative net capital equals net capital before deducting market and credit risk charges) of $5 billion and (ii) a minimum net capital requirement that is the greater of a fixed-dollar amount of $1 billion and an amount equal to 2 percent of the firm's exposures to its SBS customers plus, the existing ratio-based minimum net capital requirements in Rule 15c3-1 (either the 15-to-1 aggregate indebtedness ratio or the 2 percent of customer debit items ratio). The SEC also increased the early warning notification requirement that requires an ANC broker-dealer to provide notification to the SEC if the firm's tentative net capital falls below $6 billion. With respect to applying credit risk charges, the SEC also modified the existing portfolio concentration charge for ANC broker-dealers so that firms must take a capital charge equal to the aggregate amount of uncollateralized current exposures across all counterparties arising from derivatives transactions that exceed 10 percent of the firm's tentative net capital (a reduction from 50 percent of the firm's tentative net capital). The 10 percent cap was designed to limit the amount of a firm's capital base that is comprised of unsecured receivables. These assets generally are illiquid and cannot be readily converted to cash, particularly in a time of market stress. Permitting additional unsecured receivables to be allowable assets for capital purposes could substantially impair the firm's liquidity and ability to withstand a financial shock. In 2015, FINRA also published Regulatory Notice 15–33 http://www.finra.org/sites/default/files/Regulatory-Notice_15-33.pdf) which provides guidance on liquidity risk management practices directed to firms that hold inventory positions or clear and carry customer transactions. In the notice, FINRA noted that it expects that each firm would, among other things, rigorously evaluate its liquidity needs related to both market wide stress and idiosyncratic stresses; develop contingency plans for addressing those risks so that the firm will have sufficient liquidity to operate after the stress occurs while continuing to protect all customer assets; and conduct stress tests and other reviews to evaluate the effectiveness of the contingency plans.

Principle 33	The SEC should continue to follow the development of bilateral trading systems and, if needed, adjust the regulatory framework as appropriate. The SEC should require the ATSs to disclose their order execution rules and procedures The SEC should ensure that the regulatory framework enhances the requirement for fair access to ATS, including by removing or at least lowering the current five percent threshold The SEC and FINRA are encouraged to further ensure that their respective processes provide a sufficiently in-depth analysis of the order execution procedures of a new ATS, in particular for fairness, and provide specific evidence of a BD's operational and other competence to operate an ATS	SEC staff notes that: Amendments to Regulation ATS adopted on July 2018[4] require ATSs that trade NMS stocks to file detailed disclosures, made public on the SEC website, of information including order types, execution and priority rules segmentation of order flow, trading functionalities, fees, market data, and procedures related to the protection of subscriber confidentiality and fair access, as applicable. In addition, the Form ATS-N requires information about the ATS-related activities of the broker-dealer operator and its affiliates, including their trading on the ATS. The amendments also provide a process for the SEC to review Form ATS-N filings and, after notice and opportunity for hearing and upon certain findings, declare Form ATS-N filings ineffective. Further, additional data concerning ATS trading activity is available as a result of FINRA rules. Under FINRA Rules 6110 and 6610, FINRA publishes aggregate trade data for OTC transactions in equity securities, including aggregate data for transactions executed on ATSs and aggregate data for transactions executed outside of ATSs.[5]
	The SEC is encouraged to consider whether additional requirements could be applied to exchanges themselves to further enhance their ability to manage the risks arising from direct electronic access	This is unchanged.
Principle 35	CFTC should promptly finalize its block trade rules to provide a regulatory basis for assessing pre-trade transparency waivers for block trades	CFTC finalized its block trade rules in 2013. It notes that these do not contain pre-trade transparency waivers, but that alongside the SEF requirements such as RFQ-3 have the same effect.
	The SEC is encouraged to continue to deepen its analysis of the pre-trade transparency impact of various order types and the reference prices dark order types are permitted to use to ensure that current derogations do not adversely impact the price discovery process	SEC notes that staff held a Roundtable on Market Data and Market Access in October 2018 to examine the infrastructure for distributing market data, including pre- and post-trade information to U.S. investors.

Principle 37	The authorities are encouraged to review whether the current mechanisms are sufficient to provide them with a comprehensive view of total exposures of market participants that are active across various markets (equity, fixed income, commodity futures and options)	SEC notes that: - New rule 17Ad-22e contains provisions on how CCPs must measure and assess liquidity and credit exposures to each clearing member and any CCPs with which it has established a link; - An updated MoU has been agreed between the SEC and CFTC in 2018 which specifically addresses the swaps and security-based swaps regime.

[1] See SEC and CFTC Announce Approval of New MOU, available at https://www.sec.gov/news/press-release/2018-114.

[2] *See* Certain Swap Data Repository and Data Reporting Requirements, 84 FR 21044 (May 13, 2019).

[3] See Capital, Margin, and Segregation Requirements for Security-Based Swap Dealers and Major Security-Based Swap Participants and Capital and Segregation Requirements for Broker-Dealers, Release No. 34-86175 (June 21, 2019), available at https://www.sec.gov/rules/final/2019/34-86175.pdf.

[4] See Regulation of NMS Stock Alternative Trading Systems, Release No. 34-83663 (July. 18, 2018), https://www.sec.gov/rules/final/2018/34-83663.pdf (adopting release). See also Regulation of NMS Stock Alternative Trading Systems, Release No. 34-84541 (November 6, 2018), available at https://www.sec.gov/rules/final/2018/34-84541.pdf (making certain technical corrections to the adopting release).

[5] See FINRA Rules 6110 and 6610. Aggregate weekly data concerning trades executed on ATSs in NMS stocks in Tier 1 of the NMS Plan to Address Extraordinary Market Volatility is published on a two-week delayed basis, and aggregate information on trades executed on ATSs in all other NMS stocks and all OTC Equity Securities subject to FINRA trade reporting requirements on a four-week delayed basis. Aggregate weekly data concerning trades executed outside of ATSs is published on a similar schedule, along with aggregate monthly data published on a one-month delay. In addition, FINRA publishes monthly aggregate ATS block trading statistics for transactions in NMS stocks on a one-month delay. See FINRA Rule 6110(c)(2).