

IOSCO Investment Funds Statistics Report



OICU-IOSCO

**The Board
OF THE
INTERNATIONAL ORGANIZATION OF SECURITIES COMMISSIONS**

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Executive Summary

This second edition of the Investment Funds Statistics Report summarises the outcomes of IOSCO's survey to members, to which 45 members / jurisdictions contributed data *as of 2021*. This represents over \$US 73 trillion in assets under management. The second edition is another step forward for IOSCO towards better understanding issues related to the asset management industry. Data coverage in terms of the number of funds, and the total net asset value has increased for this edition. When compared to the first exercise, several new jurisdictions have taken part in the exercise. IOSCO expects participation to further increase over time.

The report contains information on hedge funds as well as early-stage analysis on open-ended and closed-ended funds. However, the data available to regulators on these latter two types of funds (and thus to IOSCO) is limited in certain jurisdictions. The report also contains information on leverage, aggregate liquidity profiles, counterparty risk, borrowing risk, and collateral needs.

Leverage across the asset management industry remains low. Hedge funds' gross leverage, as measured on a gross notional basis, stands at 10.8x net asset value, a decrease from last year's exercise. Their net leverage stands at 1.0x. Open-ended funds' gross leverage stands at 1.85x net asset value, marking a limited increase from last year's report, while their net leverage stands at 1.13x. Closed-ended funds' gross leverage stands at 1.05x, the same level as for last year's exercise, and net leverage stands at 0.96x.

These figures may obscure higher levels of actual leverage, for example, the leverage placed on the balance sheet of the corporates in which private equity funds are invested. In addition, net leverage figures in this report are estimates subject to constraints on the granularity of data reported to IOSCO. For instance, net leverage calculations in this report do not take account of interest rates and foreign exchange derivative exposures. They also allow for the offsetting of long and short positions across the relevant fund-type population under consideration.

Based on the data collection conducted for this report, hedge funds appear, in aggregate, to have sufficient portfolio liquidity to meet potential investor redemptions in normal conditions. There are certain caveats to this preliminary observation due to certain data limitations. Notably, that it is difficult to provide a full picture of potential risks, including risks related to the funds' liquidity profiles, counterparty risks, and their ability to meet margin calls.

Chapter 1 – Introduction

Since 2009, IOSCO has undertaken a biennial data collection exercise, the Hedge Funds Survey, to provide insight into the hedge funds industry and the risks it may generate at a global level.¹ Last year's report was the first time IOSCO collected and published global supervisory data on all fund-types in the asset management industry by expanding the data collection to cover open-ended funds (OEFs) and closed-ended funds (CEFs). This year's report builds upon that progress, while noting that data on some of these types of funds is limited in certain jurisdictions.²

As noted in last year's report, beyond hedge funds, collection of investment funds data remains uneven across jurisdictions due to varying national reporting requirements. However, compared to last year's data collection exercise, the number of participating IOSCO members has increased. For example, Canada, Chile, Colombia, Costa Rica, Jersey, Kuwait, Switzerland, and Thailand all took part for the first time.³ This strengthens the impact of the report and contributes to providing a more complete global picture of the asset management industry.

The second edition contains a synthesis of data received from 31 jurisdictions that participated in the survey's full data collection exercise for one or more fund types, to the extent permitted by their reporting frameworks and local data availability. This information reflects a combined total of assets under management (AuM) of \$US63.6 trillion.⁴

Local asset management industries differ in their levels of maturity, size and footprint. Consequently, some IOSCO members consider that their domestic industry may not be globally systemic. As such, some jurisdiction instead chose to participate in the survey by providing the AuM of their domestic industry only. This was the case for 14 jurisdictions, representing a combined total AuM of \$US9.26 trillion.⁵

IOSCO and its members have the ambition to expand reporting over time, by including more data, from more jurisdictions in future reports.

Structure of the Report

The report presents IOSCO's initial analysis of the data received, with specific sections for each fund category, namely hedge funds, OEFs and CEFs. The remainder of the report is structured as follows: Chapter 2 presents the results of the global hedge funds industry, while Chapters 3 and 4 present the results on OEFs and CEFs, respectively. Chapter 5 offers a

¹ This IOSCO work was the result of a G20 request and jurisdictions' response for increased regulatory oversight of hedge funds and their managers. The IOSCO Hedge Funds Survey built on the UK FSA and the FCA's existing Hedge Fund Survey. A link to the 2009 G20 communique can be found here: https://www.imf.org/external/np/sec/pr/2009/pdf/g20_040209.pdf

² Very few jurisdictions at this stage collect data on open-ended mutual funds. For example, there is currently not yet a European wide data collection on UCITS funds.

³ Canada and Switzerland participated in the Hedge Fund Survey.

⁴ The list of participating jurisdictions can be found in the relevant chapters.

⁵ A list of those jurisdictions can be found in the appendix B.

summary of recent regulatory developments in IOSCO members jurisdictions. Chapter 6 concludes with the main findings. The appendices includes the information on the methodology of this report, data of jurisdictions with NAV provided only, and fund-type leverage metrics by jurisdiction.

Selected highlights from the report include:

Hedge Funds

- **For this reporting exercise (2021), the number of participating jurisdictions has increased from 13 to 15 compared to the last one (2020);**
- **The number of qualifying hedge funds captured in this exercise has increased, since 2020, by 8.9% to 2,773;⁶**
- **Since 2020, net asset value (NAV), as captured by the survey, increased by 19.2% to \$US4.85 trillion;**
- **Equity-based strategies, such as equity long/short, remain the most common investment strategies of qualifying hedge funds;**
- **For both cash securities and derivatives on a long/short basis, the largest exposures held by qualifying hedge funds are in sovereign bonds and cash equities;**
- **On a gross notional basis, however, interest rate and foreign exchange derivatives positions are the largest in terms of fund exposures;**
- **Leverage, as measured on a gross notional basis, stands at 10.8x net asset value. Net leverage stands at 1.0x; and ⁷**
- **Qualifying hedge funds seem to have sufficient portfolio liquidity to meet potential investor liquidity demands in normal times.**

Open-ended Funds (OEFs)

- **The number of participating jurisdictions has increased from 23 to 29 since 2020;**
- **73,905 OEFs have been captured by this exercise with an increase of 21% from last year's report, representing a total NAV of \$US55.1 trillion – an increase of 28% from last year;**
- **Equity funds are the predominant fund-type, with cash equities the largest asset holding across the whole OEF population. There are also few aggregate short positions in OEFs across all asset classes;**
- **In terms of derivatives exposures, on a gross notional basis, interest rate derivatives are the largest exposures; however, they are traditionally used for hedging purposes;**
- **Overall, OEFs do not have large aggregate exposures through derivatives positions, and consequently, are not leveraged by any meaningful metric.**

⁶ For a definition of “Qualifying hedge fund”, please see the methodology section in Appendix A.

⁷ Definitions for leverage metrics used in this report can be found in individual leverage subsections to follow. In this regard, due to constraints on granularity of data reported to IOSCO, net leverage figures may be computed lower, as net leverage figures do not take exposures of interest rates and foreign exchange derivatives into account, and compensation between long and short positions across different funds is allowed in this report. For further discussion, please see Chapter 2.5.

Measured on a gross notional basis, leverage stands at 1.85x net asset value. Net leverage stands at 1.13x.⁸

Closed-ended Funds (CEFs)

- The number of participating jurisdictions has increased from 17 to 23 since 2020;
- CEFs captured by the exercise totalled 24,010 with an increase of 26% from last year, representing a total NAV of \$US 3.7 trillion – an increase of 42% from last year;
- Physical holdings of assets predominate in CEFs, with the largest holdings in equities, ahead of corporate bonds;
- CEFs exhibit little to no leverage as measured by the metrics in the report. As measured on a gross notional basis, leverage stands at 1.05x net asset value. Net leverage stands at 0.96x.⁹

⁸ For further discussion, including caveats, please see Chapter 3.

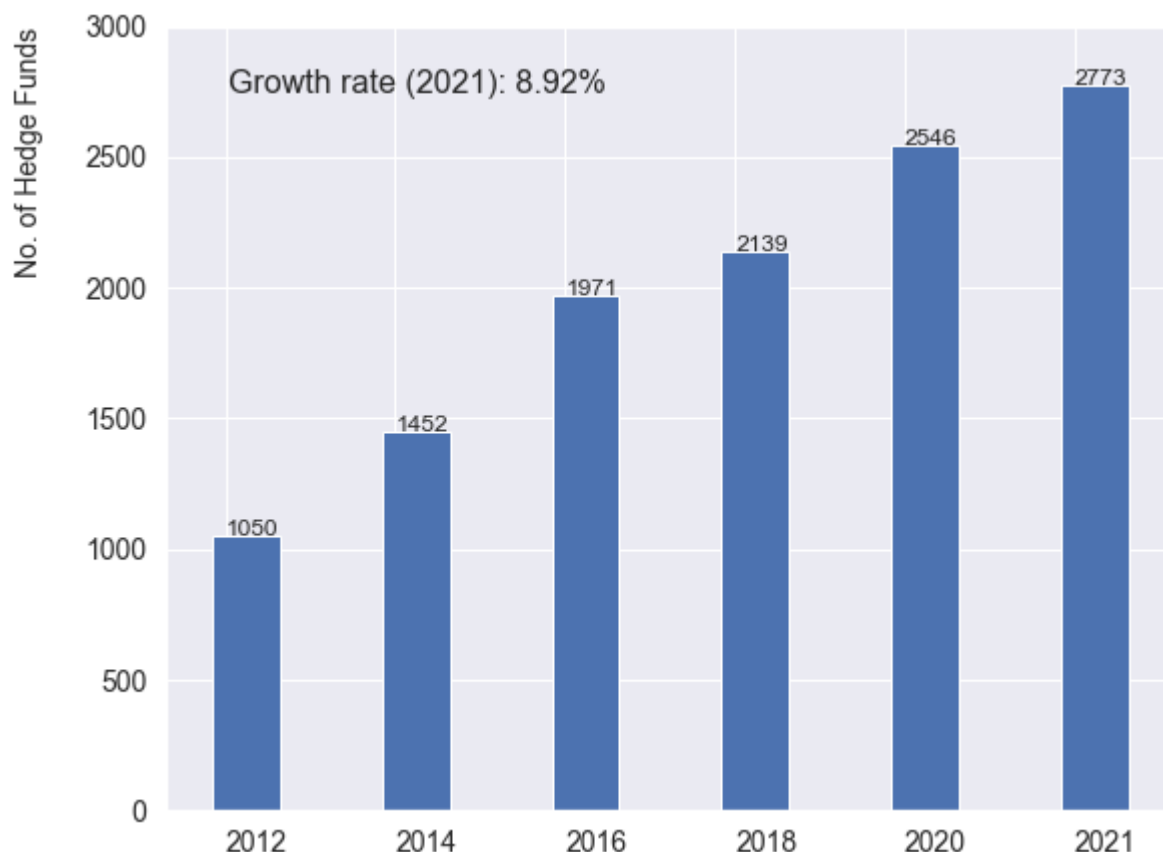
⁹ For further discussion, including caveats, please see Chapter 4.

Chapter 2 – Hedge Funds Industry Analysis¹⁰

2.1 The Global Hedge Funds Industry

This section presents the results of the survey data gathered for 2,773 qualifying hedge funds as of 31 December 2021. Figure 1 highlights the growth in the number of qualifying hedge funds captured compared to previous editions of IOSCO’s Investment Funds Statistics Report and Hedge Funds Survey. It shows a steady increase in the number of funds between 2012 to 2021. Comparing the 2021 figure to the previous survey, this increase represents an 8.9% growth from 2020.

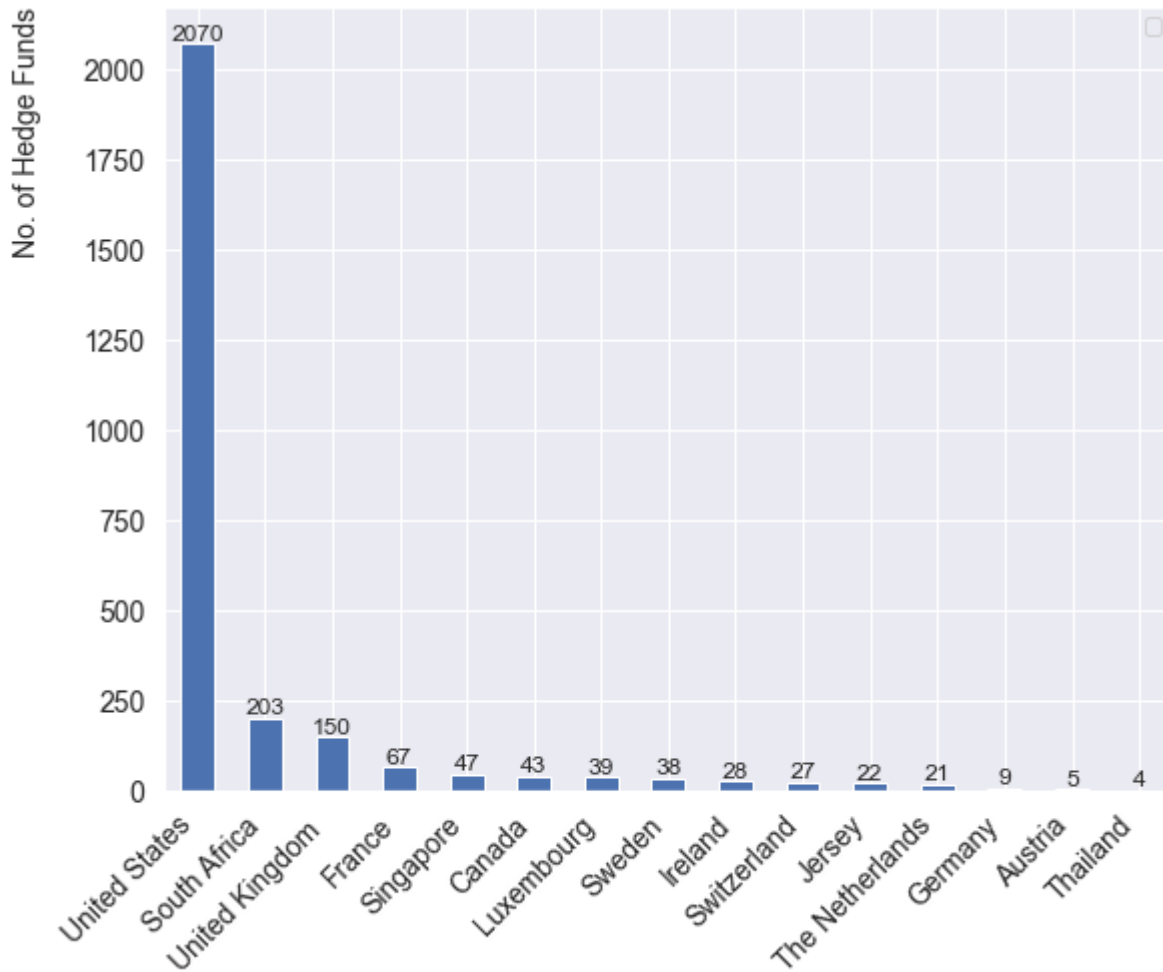
Figure 1: Hedge Funds - Number of Qualifying Hedge Funds (2012-2021)



Source: IOSCO Investment Funds Statistics Survey, 2021

¹⁰ For this chapter, unless mentioned with a specific caveat, the data underpinning the analysis in this chapter is sourced from the following jurisdictions: USA (SEC), South Africa, UK, France, Singapore, Canada, Luxembourg, Sweden, Ireland, Switzerland, Jersey, the Netherlands, Germany, Austria and Thailand. All data are captured as of year-end 2021.

Figure 2: Hedge Funds - Number of Qualifying Hedge Funds by Jurisdiction (2021)



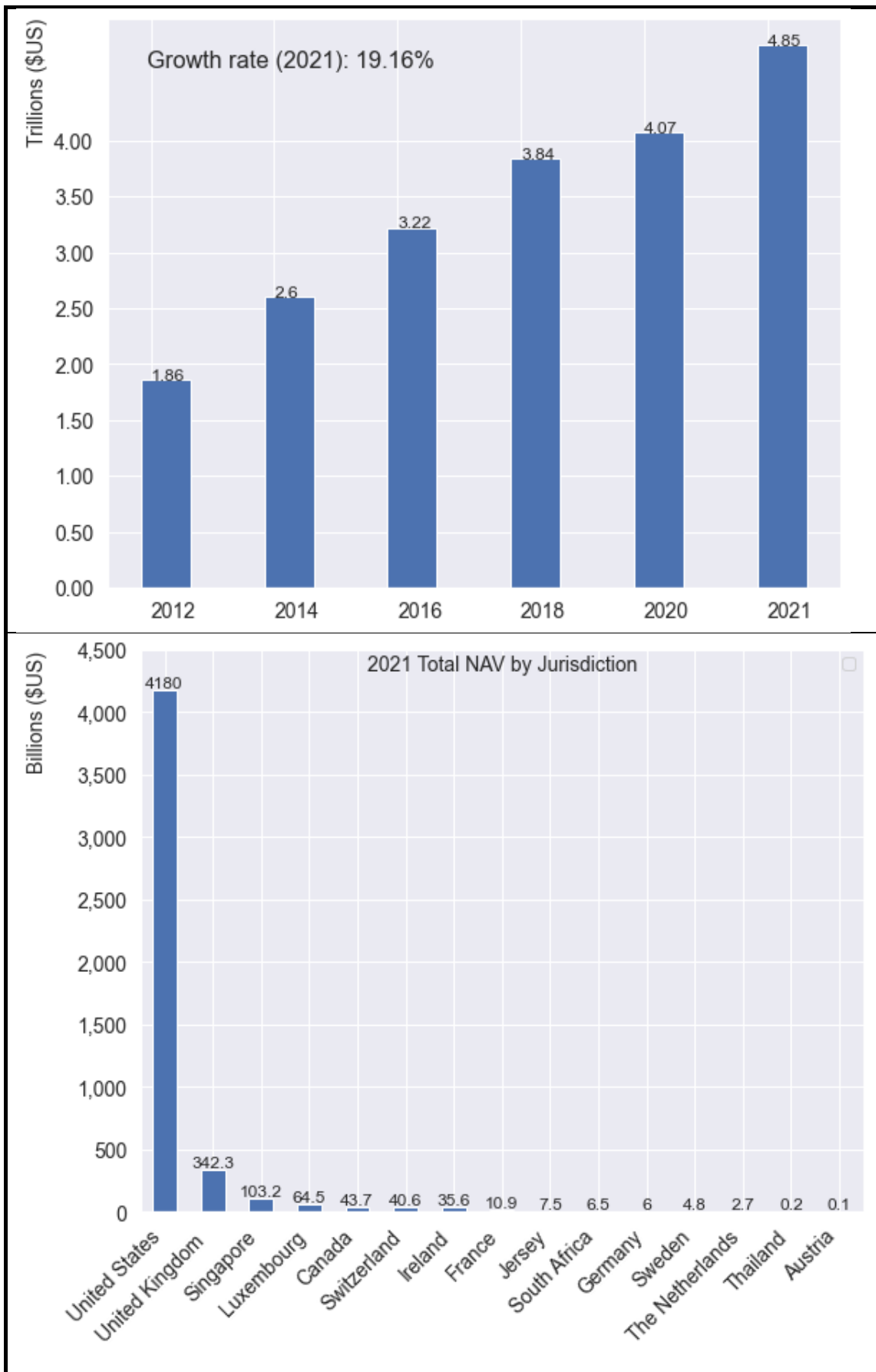
Source: IOSCO Investment Funds Statistics Survey, 2021

Note: French figure includes hedge funds managing less than US\$ 500millions. Among the reported data for French hedge funds, 4 out of the 67 are qualifying hedge funds, which represent 63% of the total NAV reported.

2.2 Net Asset Value

Total NAV for the qualifying hedge funds sample captured by the survey, i.e., those funds above a minimum size threshold of over \$US500 million, is \$US4.85 trillion, as shown in Figure 3. When compared to the 2020 result of \$US4.07 trillion, this represents a 19.2% increase in NAV. The United States remains the largest jurisdiction for hedge funds both in terms of the number of funds and NAV.

Figure 3: Hedge Funds - Qualifying Hedge Funds Total Net Assets Value (2012-2021)



Source: IOSCO Investment Funds Statistics Survey, 2021

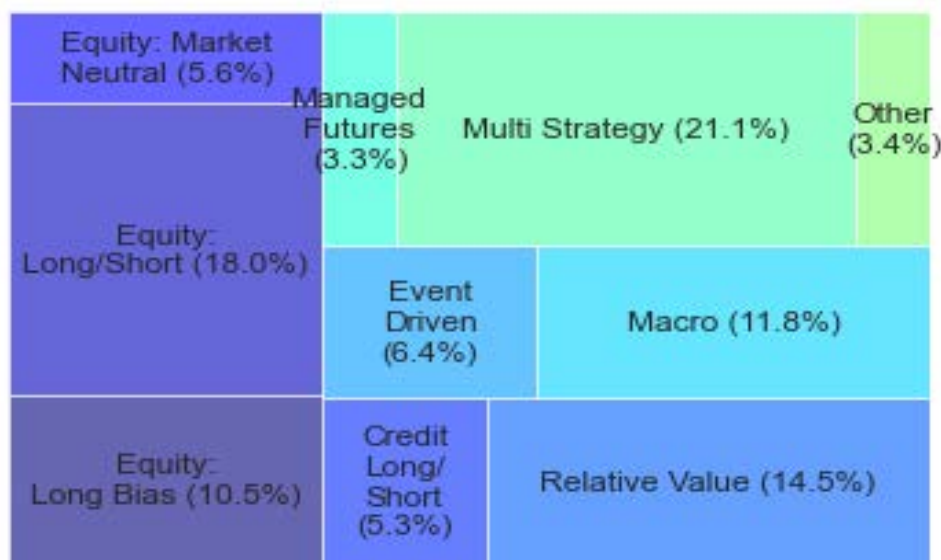
Note: French figure includes NAV of hedge funds managing less than US\$ 500millions. Among the reported data for French hedge funds, 63% of the total AUM reported represents qualifying hedge funds.

2.3 Investment Strategy

Figure 4 provides a breakdown of the most common investment strategies implemented by qualifying hedge funds. It shows that equity-based strategies (such as long bias, long/short and market neutral) and multi strategies account for over half of global NAV.

When comparing the investment strategy allocation over time, Figure 5 highlights that, in general, the breakdown of hedge fund strategies, as a percentage of NAV, has not changed significantly from 2016 to 2021. However, a limited number of developments do emerge from the data. First, the relative importance of macro strategies has been steadily declining over time from (from 16% in 2016 to 11.8% in 2021). Second, after the drop in 2020 the fraction of the total NAV invested through event-driven strategies has more than doubled from 2020 to 2021 (from 3% to 6.4%, respectively). Third, after an increase to 17% in 2020, the importance of relative value strategies has decreased to 14.5% again.

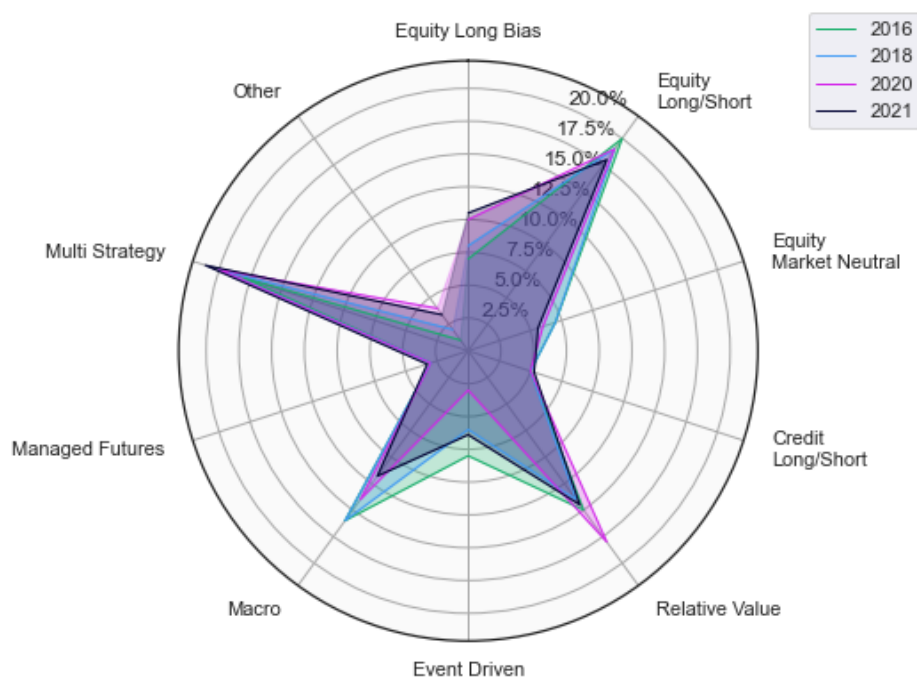
Figure 4: Hedge Funds - Top investment strategies as a percentage of overall NAV



Source: IOSCO Investment Funds Statistics Survey, 2021

Note: May not add to 100% due to rounding

Figure 5: Hedge Funds - Comparing Hedge Fund Strategies across survey years



Sources: IOSCO Investment Funds Statistics Survey, 2020 & 2021; IOSCO Hedge Funds Survey 2016 & 2018 Data Collection Exercises.

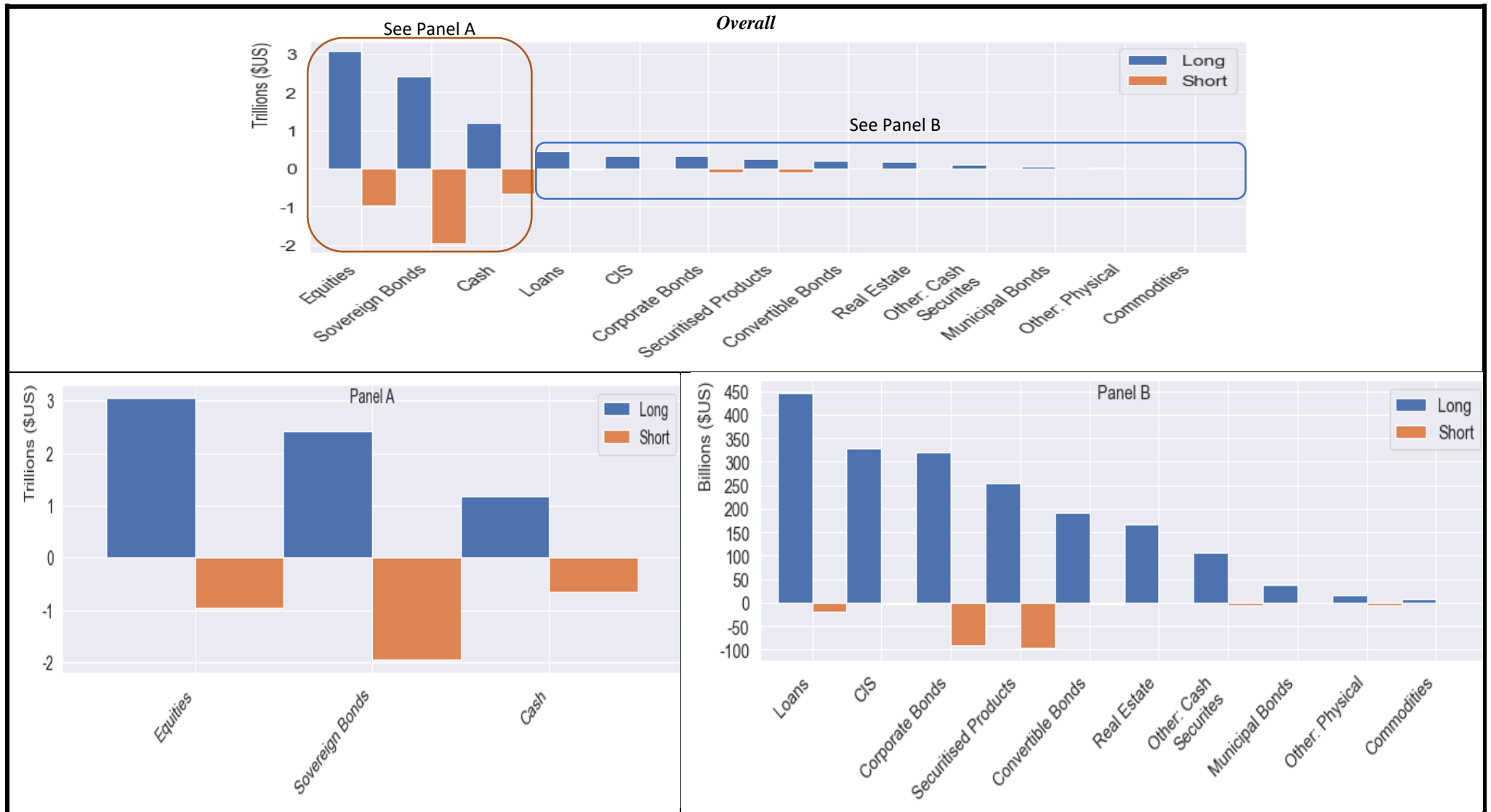
2.4 Investment Exposures

Aggregate data on fund exposures to specific asset classes, for both long and short positions, are also collected to identify which asset classes may be more at risk from the use of leverage by hedge funds. Figure 6 through Figure 9, below, highlight the aggregate figures for both cash securities and derivatives positions. While most asset classes are presented in the charts as long and short exposures, due to current data collection requirements in several jurisdictions, this delineation is not possible for interest rate (IR) and foreign exchange (FX) derivatives, for which the figure refers to only the gross exposures.

Overall – excluding IR and FX derivatives – the largest long and short exposures in cash securities are held in sovereign bonds and cash equities (see Figure 6), while equity derivatives, which show the largest increase in both long and short positions from last year, are the largest derivatives exposures held by funds (see Figure 8). This is consistent with the survey results on the investment strategies followed by most hedge funds. On a gross basis, IR and FX derivatives are notably the largest derivatives exposures held by qualifying hedge funds globally (see Figure 9).¹¹

¹¹ While data from the US reports interest rate derivatives in terms of 10-year bond equivalents, other jurisdictions report them based on the notional values of the contracts, which may far outweigh the amount at risk in these transactions.

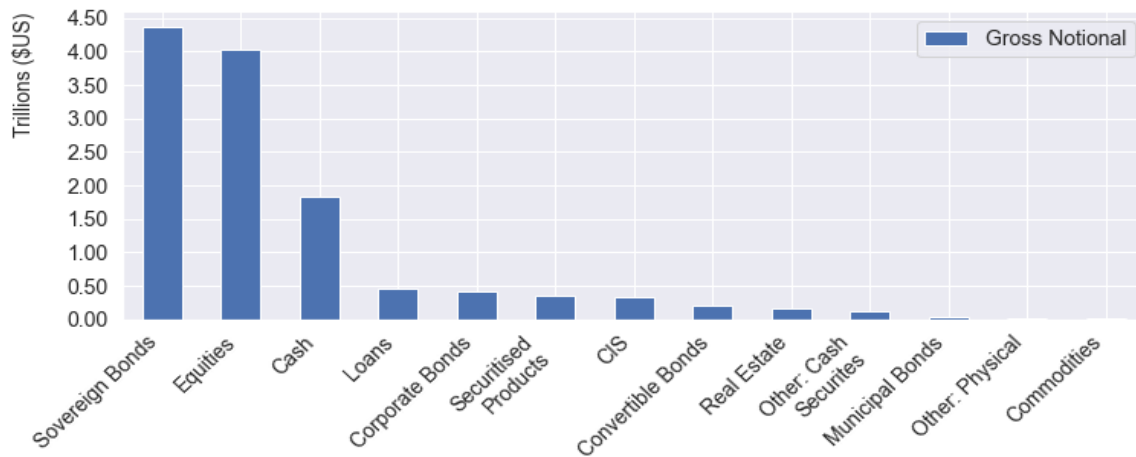
Figure 6: Hedge Funds - Cash/Physical Securities – Long and Short Notional



Source: IOSCO Investment Funds Statistics Survey, 2021

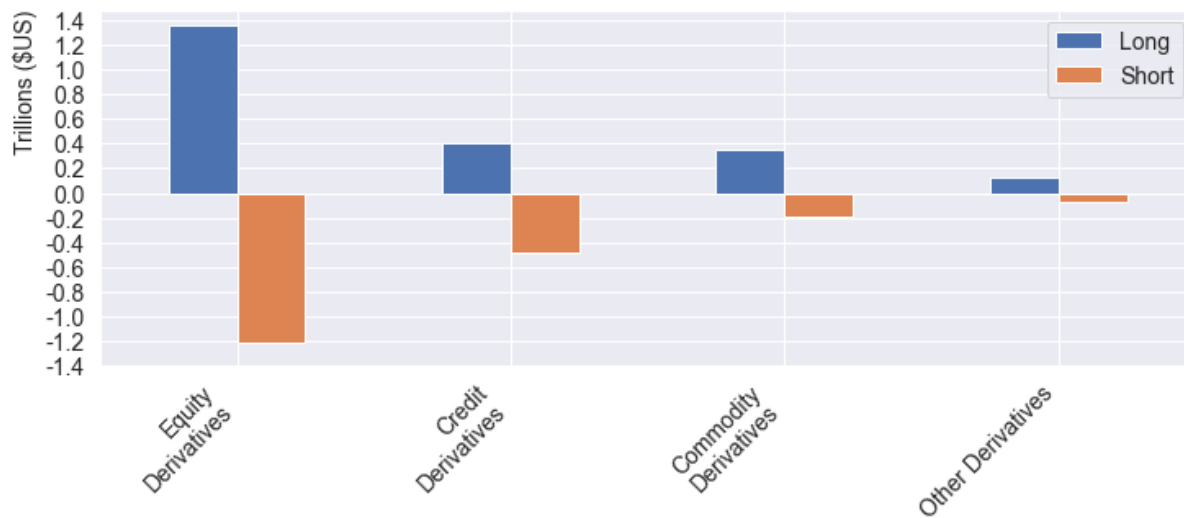
Notes: This figure should be interpreted as follows: The top chart presents aggregate cash securities and physical asset exposures held by hedge funds. This figure is further broken down into Panel A and Panel B. Panel A delineates asset class exposure by the three largest asset class exposures, while Panel B drills down into the remaining asset classes.

Figure 7: Hedge Funds - Cash Securities – Gross Notional Exposure



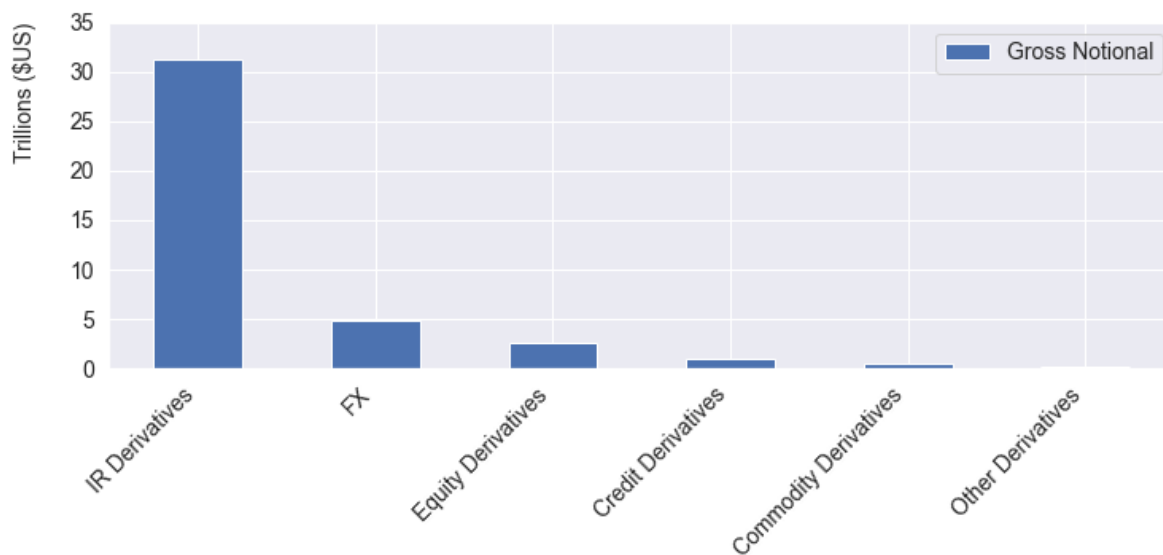
Source: IOSCO Investment Funds Statistics Survey, 2021

Figure 8: Hedge Funds – Derivatives excluding IR and FX – Long and Short Notional



Source: IOSCO Investment Funds Statistics Survey, 2021

Figure 9: Hedge Funds - Derivatives – Gross Notional Exposures



Source: IOSCO Investment Funds Statistics Survey, 2021

Asset Class Breakdown

Leverage metrics, which are presented in the next section, may not, in isolation, provide a better understanding of where exposures are building up. IOSCO's Leverage Framework seeks to address these limitations by expressing the metrics by asset class.¹² An asset class breakdown provides the percentage of a core set of investment exposures of an investment fund. Consistent with the data shown in Figures 6 to 9, Table 1 presents this breakdown and highlights that qualifying hedge funds are mostly long on cash equities and sovereign bonds, with large gross notional exposures to FX derivatives and IR derivatives.

¹² IOSCO (2019): Recommendations for a Framework Assessing Leverage in Investment Funds. Refer to: <https://www.iosco.org/library/pubdocs/pdf/IOSCOPD645.pdf>.

Table 1: Hedge Funds - Qualifying Hedge Fund Notional Exposure, broken down by asset class on a long/short basis

Asset Class	Long	Short	GNE without adj.*	Long (%NAV)	Short (%NAV)
Cash	\$ 1,186,319,240,895	\$ 654,996,256,529	\$ 1,841,315,497,424	24.50%	13.53%
Equities	\$ 3,071,759,351,760	\$ 964,498,490,100	\$ 4,036,257,841,859	63.44%	19.92%
Corporate Bonds	\$ 320,066,120,466	\$ 91,660,490,625	\$ 411,726,611,091	6.61%	1.89%
Sovereign Bonds	\$ 2,418,536,478,704	\$ 1,955,807,805,302	\$ 4,374,344,284,006	49.95%	40.39%
Municipal Bonds	\$ 39,171,217,127	\$ 1,399,543,965	\$ 40,570,761,092	0.81%	0.03%
Convertible Bonds	\$ 192,436,584,880	\$ 4,226,344,209	\$ 196,662,929,090	3.97%	0.09%
Securitised Bonds	\$ 255,017,174,705	\$ 95,910,052,581	\$ 350,927,227,286	5.27%	1.98%
Loans	\$ 445,930,458,983	\$ 19,646,078,529	\$ 465,576,537,512	9.21%	0.41%
Other Cash Securities	\$ 107,279,471,020	\$ 5,824,000,000	\$ 113,103,471,020	2.22%	0.12%
Real Estate	\$ 166,039,568,495		\$ 166,039,568,495	3.43%	
Commodities	\$ 9,195,107,724		\$ 9,195,107,724	0.19%	
CIS	\$ 329,516,121,469	\$ 2,083,388,365	\$ 331,599,509,834	6.81%	0.04%
Other Physical	\$ 17,095,912,223	\$ 5,165,324,872	\$ 22,261,237,095	0.35%	0.11%
Equity Derivatives	\$ 1,355,277,781,553	\$ 1,208,437,383,180	\$ 2,563,715,164,734	27.99%	24.96%
Credit Derivatives	\$ 406,019,871,273	\$ 489,150,384,173	\$ 895,170,255,447	8.39%	10.10%
Commodity Derivatives	\$ 347,361,925,517	\$ 185,075,322,588	\$ 532,437,248,105	7.17%	3.82%
Other Derivatives	\$ 123,127,375,812	\$ 69,436,971,752	\$ 192,564,347,564	2.54%	1.43%
Foreign Exchange Derivatives**			\$ 4,758,662,795,976		
IR Derivatives**			\$ 31,157,454,111,336		

Source: IOSCO Investment Funds Statistics Survey, 2021

Notes: * GNE without adjustment: This metric represents the gross market exposure of a fund calculated by the absolute values of the notional amounts of a fund's derivatives and the value of the fund's other investments; ** indicates that data was collected on a gross notional basis only. Long short split is not available.

2.5 Leverage

Notional Analysis

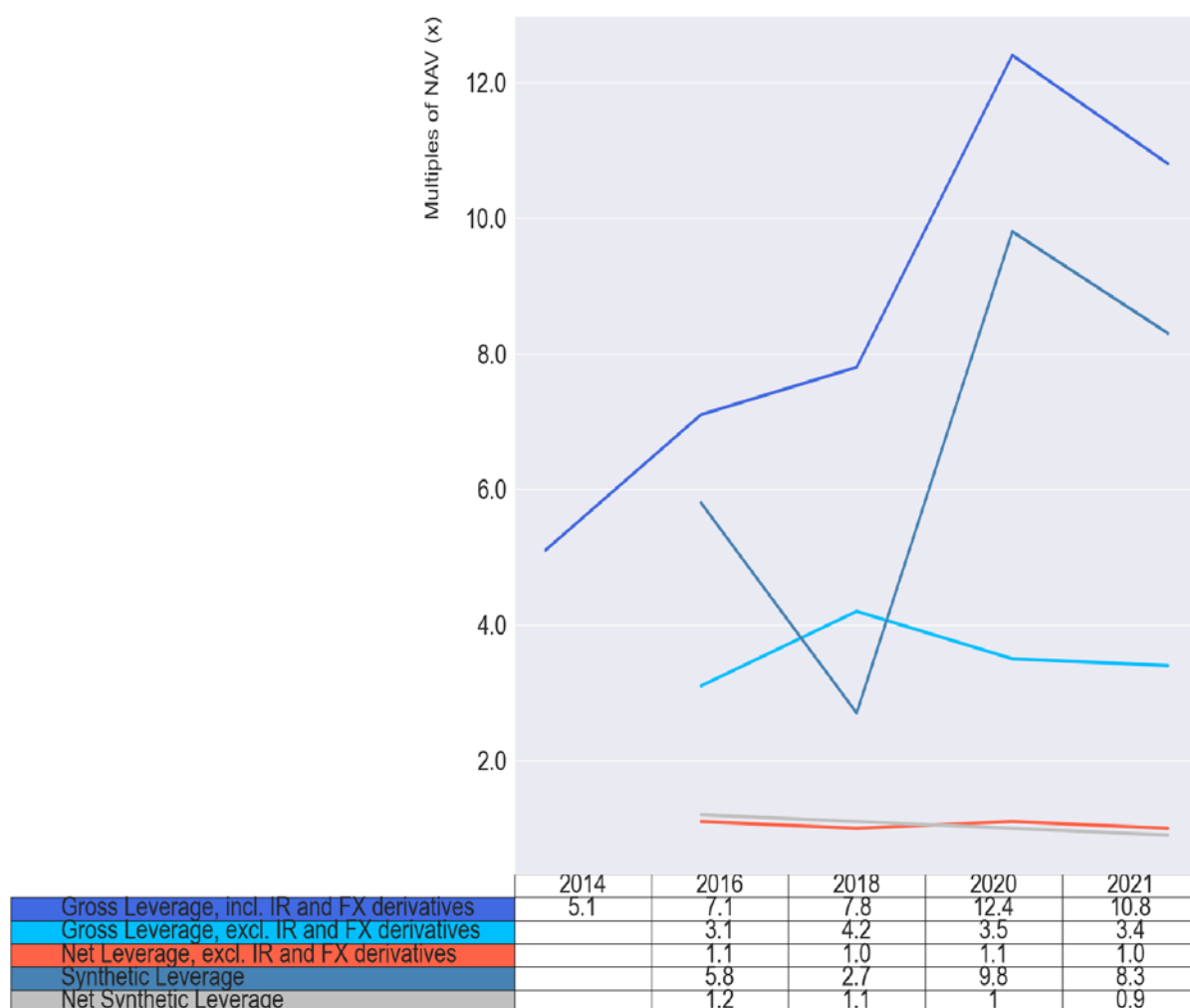
By aggregating the total of long and short positions across the sample of funds, the total leverage employed can be estimated.

- First, by adding the absolute value of all positions, leverage can be estimated on a gross basis.
- Second, under the assumption of fully offsetting positions within asset classes, by subtracting the short positions from the long positions for the same asset class, leverage can be roughly estimated on a net basis.
- Lastly, by using the estimate of the gross notional exposure of outstanding derivatives only, as a proportion of the NAV, synthetic leverage can be estimated. Figure 10, below, presents the results of these selected metrics.

For 2021, gross leverage employed by qualifying hedge funds is estimated as 10.8x NAV. This represents a decrease in leverage, as measured by the metric, when compared to the result of last year's report (2020). However, interpreting this trend in isolation can be misleading for several reasons. First, this survey exercise represents a repeated cross-section, with the sample of qualifying hedge funds changing over time, as the population of qualifying hedge funds has grown, as well as the number of jurisdictions taking part. Second, each data point represents a point-in-time estimate, with portfolio exposures being a function of macro-economic factors at that time – factors that do not remain constant. Third, the nature of these leverage metrics is such that they do not provide a meaningful measure of the actual risk of the funds.¹³ Fourth, the gross leverage figure is significantly skewed by the inclusion of large notional amounts from IR and FX derivatives transactions. Hence, by excluding those asset classes from the calculation, gross leverage is 3.4x NAV, which is a similar result to 2020. In fact, when comparing this metric over time (from 2016 to 2021), a relatively stable pattern emerges.

¹³ Section 2.4 provides more meaningful data to assess leverage, in particular exposures by asset class and further broken down by long and short exposures. Please see IOSCO's Recommendations for a Framework Assessing Leverage in Investment Funds (2019) for more information.

Figure 10: Hedge Funds - Notional leverage figures by selected metrics (2014-2021)¹⁴



Sources: IOSCO Investment Funds Statistics Survey, 2020 & 2021; IOSCO Hedge Funds Survey 2014, 2016 & 2018 Data Collection Exercises

Note: blank cells indicate data was not collected for that data point

Although IR and FX derivatives can be used by hedge funds for hedging purposes, they can also be used for a number of other reasons,¹⁵ such as taking leveraged directional views or

¹⁴ Definitions:

- Gross leverage is estimated as the absolute sum of all positions (both cash and derivatives positions) (GNE), divided by NAV;
- Net leverage offsets long and short in the same asset class, allowing compensations even among different funds, and then sums the remaining position. The final summation (including cash positions) is divided by NAV;
- Synthetic Leverage is the absolute sum of the notional amounts of the fund’s derivatives positions only (including IR and FX derivatives), divided by NAV;
- Net Synthetic Leverage excludes IR and FX derivatives and offsets positions in the same derivatives asset class, even among different funds, before summing the remaining positions. The final summation is divided by NAV.

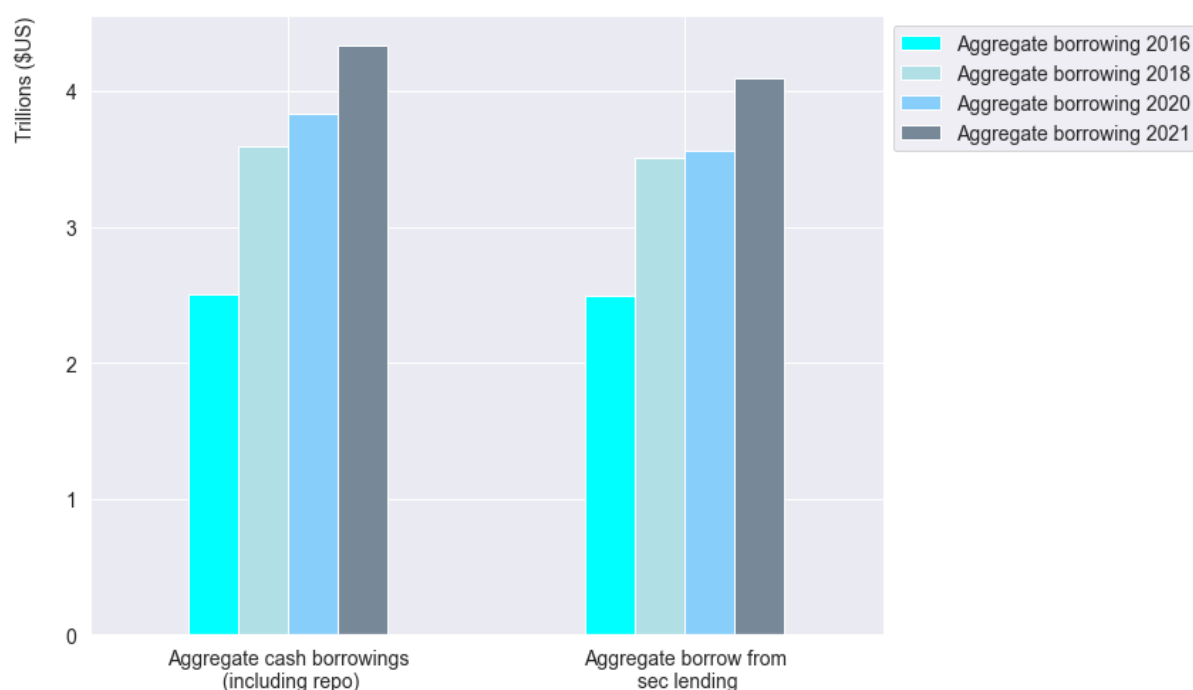
¹⁵ For example, to engineer a “structured trade” comprising many offsetting trades that capture short-term, small discrepancies between assets that are tightly tied such as relative value, to isolate and gain exposure to specific risks along the yield curve, and to reduce transactions costs are another possible reasons for the use of derivatives.

relative value positions.¹⁶ One way to account for such practices, although not a perfect measure, is to calculate the net leverage measure, which, among different funds, offsets long and short positions in the same asset class. This metric for 2021 is calculated at 1.0x NAV, which: 1) indicates qualifying hedge funds are not leveraged according to this measure; and 2) is not materially different from previous results. However, this indicator is based on aggregated long and short GNE data, and therefore the offsetting of long and short positions across the relevant fund-type population is allowed. As a consequence, this indicator underestimates leverage risk and is different from the one that would have been calculated by adding net leverage calculated individually by each fund. In addition, exposures of interest rates and foreign exchange derivatives are not considered in calculating net leverage figures.

Financial Leverage

Financial leverage is measured as the amount of cash borrowed (secured or unsecured) as a proportion of investors' capital; it is a type of leverage that uses debt. It shows the increase in exposure via cash borrowing and, as such, is analogous to the classic accounting definition of debt-to-equity. Figure 11, below, represents the amount of cash borrowing (secured and unsecured) by qualifying hedge funds in the sample.

Figure 11: Hedge Funds - Borrowing (2016-2021)



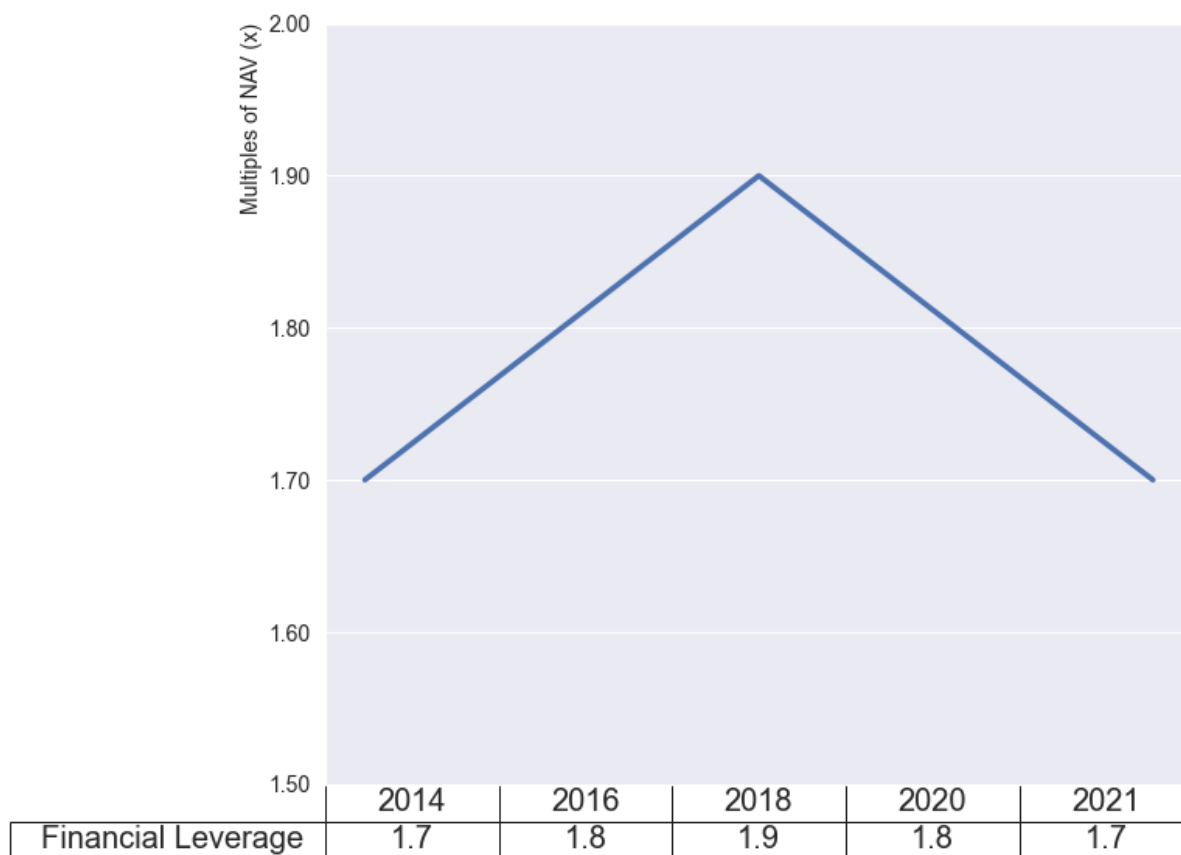
Sources: IOSCO Investment Funds Statistics Survey, 2020 & 2021; IOSCO Hedge Funds Survey 2016 & 2018 Data Collection Exercises

Overall, the amount of secured and unsecured borrowing by qualifying hedge funds totalled \$US4.3 trillion, with \$US4.1 trillion of aggregate value of securities lending (see Collateral

¹⁶ Relative value positions are generally low risk and low reward strategies. In order to generate a meaningful risk / reward profile, such positions need to be substantially leveraged. The gross leverage of such positions is not representative of the actual risks of the position, except in case they are forced to unwind during liquidity stress episodes.

section below for a discussion on collateral posted). This observation implies a financial leverage ratio of 1.7x NAV, which is a marginal decrease on the figure reported in the last survey, and is within the range between 1.7 and 1.9 from 2014 (See Figure 12). In aggregate, hedge funds are therefore not meaningfully leveraged through debt borrowings.

Figure 12: Hedge Funds - Financial leverage (2014-2021)



Sources: IOSCO Investment Funds Statistics Survey, 2020 & 2021; IOSCO Hedge Funds Survey 2014, 2016 & 2018 Data Collection Exercises.

2.6 Collateral, Unencumbered Cash and Cleared trades

The survey collected information on the aggregate amount of collateral posted by hedge funds to counterparties, which could take the form of cash (or cash equivalents) and other assets (including securities).

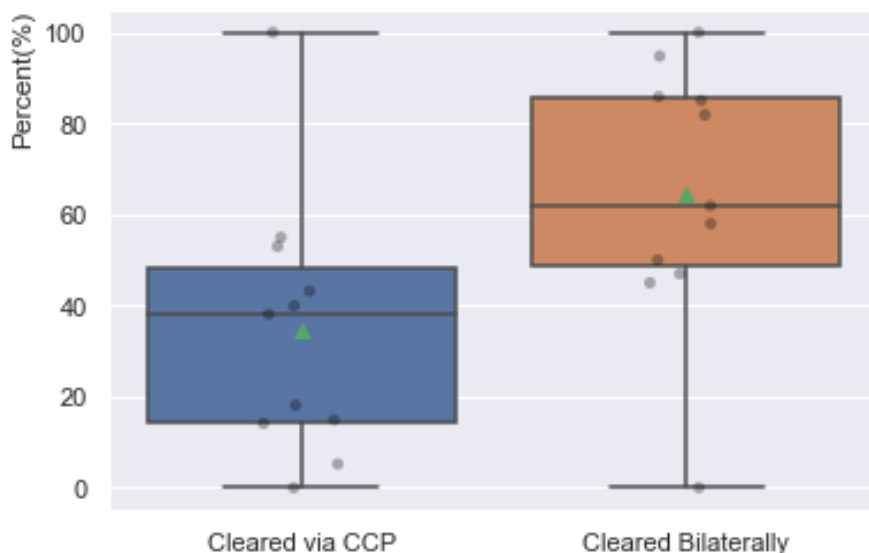
Overall, qualifying hedge funds across the sample indicated that they had posted a total of \$US5.0 trillion as collateral. Reported unencumbered cash of hedge funds was \$US1.3 trillion, which implies a cash ratio of 0.26.¹⁷ In the future, as other data points are collected and provided by IOSCO members, IOSCO hopes to look at the ratio of unencumbered cash to margin posted.

Contrast this with the figures for secured borrowing presented in the financial leverage section, and the sample of qualifying hedge funds indicates that aggregate borrowings were \$US4.3

¹⁷ The cash ratio is a simple fund liquidity ratio, analogous to the accounting “Acid test” ratio. It is calculated by dividing unencumbered cash by NAV and a broader measure encompassing cash equivalents that can be easily liquidated within a short period of time.

trillion, compared to collateral posted of \$US5.0 trillion. In short, secured borrowings undertaken by qualifying hedge funds seem, on aggregate, to be over collateralised. However, this interpretation needs to be qualified. Collateral, as captured, accounts for all collateral posted by qualifying hedge funds, including for margin (both initial and variation margin). Hence, the figure presented is an upper-bound estimate of the amount of collateral used to secure funding. The lack of data on margins means it is difficult to identify and quantify risks.

Figure 13: Hedge Funds - Distribution of trades cleared by CCP and Bilaterally (2021)



Sources: IOSCO Investment Funds Statistics Survey, 2021

Note: 1) The above figure is interpreted similar to a traditional “box and whiskers plot” style chart, in that it highlights the following information: a) the high and low data points represented by the two horizontal lines at the end of the “whiskers”; b) the 25%, 50% and 75% quartiles, which are the bottom, middle and top lines in the coloured areas, respectively; c) the actual data captured (the shaded dots); and d) the mean as the green triangle
 2) Distributions presented are based on jurisdictional-level data.

Figure 13, above, highlights the distribution of cleared trades (both centrally and bilaterally cleared). Overall, more trades are cleared bilaterally by hedge funds in the sample, with the median around 65% of trades. On average, around 35% of trades are centrally cleared.

2.7 Liquidity

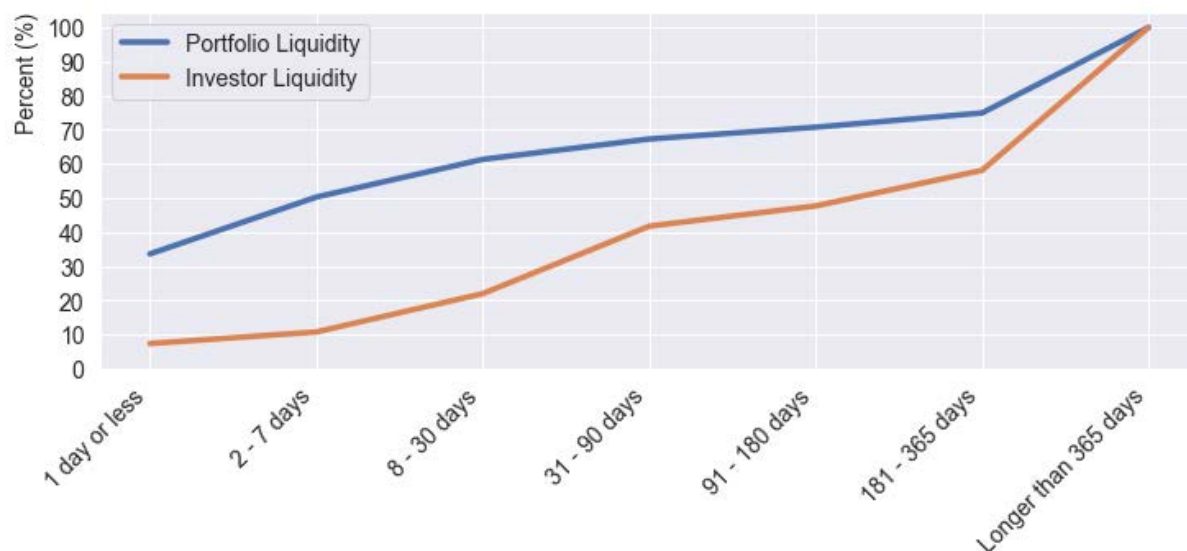
The liquidity profile looks at the fund’s ability to meet investors’ potential redemption demands with the underlying liquidity of the portfolio. Figure 14, below, highlights this relationship between portfolio liquidity and the liquidity offered to investors.

The blue line represents the cumulative amount of the funds’ portfolios, on average, that could be liquidated within each time period. The orange line represents the percentage of the funds’ equity that could be redeemed by investors within each time period. To ensure that portfolio liquidity is sufficient to provide the liquidity offered to investors, the blue line should be above the orange line.

On aggregate, across each time period, portfolio liquidity is sufficient to meet investor’s offered liquidity under normal market conditions. However, Figure 14 only represents the portfolio and investor liquidity in normal times and does not consider other liquidity demands (such as

margin calls) that may be placed on hedge funds.¹⁸ The calculation methodology pools all assets and all liabilities in one global balance sheet and assumes that funds with excess liquidity are able to compensate for funds with liquidity mismatches. Some caution is therefore required when interpreting this figure because, in practice, there are other liquidity demands on hedge funds and there is no transfer of liquidity between funds.¹⁹

Figure 14: Hedge Funds - Average Cumulative Portfolio and Investor Liquidity Profile for Qualifying Hedge Funds



Source: IOSCO Investment Funds Statistics Survey, 2021

¹⁸ While portfolio liquidity does in principle represent normal market conditions, the IOSCO guidelines (and in Europe the AIFMD) highlight that with respect to investor liquidity, funds should take into account “the shortest period within which the invested funds could be withdrawn or investors could receive redemption payments, as applicable”.

¹⁹ However, one could avoid some of the aggregation across all funds by calculating, for each fund, the difference between investor and portfolio liquidity at each time category, then plotting the distribution of difference at each bucket level. The overlap at the tails is important as much as the aggregate.

Chapter 3 – Open-ended Funds Industry Analysis

3.1 The Global Open-ended Funds Industry²⁰

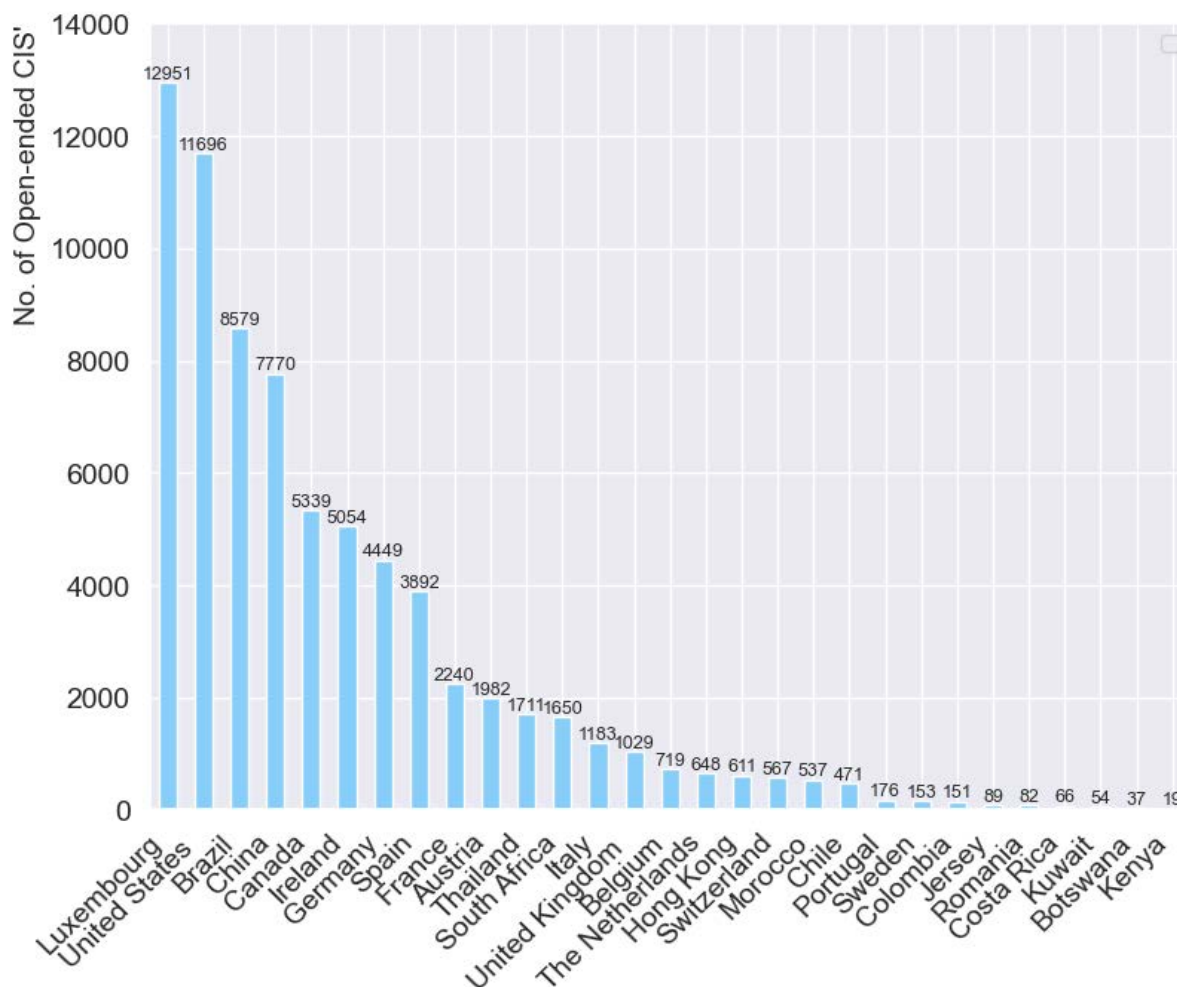
This chapter presents selected metrics related to the global OEFs industry. As of 31st December 2021, the number of OEFs captured by this exercise is 73,905 funds with an increase from 61,120 funds in last year's report. The US and Luxembourg account for over 40% of the funds captured for this exercise, noting that many other jurisdictions with large funds industries do not currently have reporting requirements in place that would facilitate jurisdictions participation in the exercise. For European countries, most jurisdictions currently only have reporting requirements for OEFs that would fall within the scope of the AIFMD reporting.²¹ Few European jurisdictions, thus far, have implemented reporting requirements for UCITS funds.²² As a result, Figure 15 reflects a partial picture of jurisdictions' OEFs industry and is not representative of the full number of funds in the regulatory purview of European regulators. Hence, in what follows, much of the European data presented below does not include UCITS data, unless explicitly stated.

²⁰ Unless mentioned with a specific caveat, the data underpinning the analysis in this chapter are sourced from the following jurisdictions: Luxembourg, USA (SEC), Brazil, China, Canada, Ireland, Germany, Spain, France, Austria, Thailand, South Africa, Italy, UK, Belgium, the Netherlands, Hong Kong, Switzerland, Morocco, Chile, Portugal, Sweden, Colombia, Jersey, Romania, Costa Rica, Kuwait, Botswana and Kenya.

²¹ The AIFMD is the Alternative Investment Funds Managers Directive, or Directive 2011/61/EU of the European Parliament and of the Council of 8 June 2011 on Alternative Investment Fund Managers and amending Directives 2003/41/EC and 2009/65/EC and Regulations (EC) No 1060/2009 and (EU) No 1095/2010. See Chapter 5 and Appendix A for more details on the EU fund reporting regimes.

²² UCITS are Undertakings for Collective Investment in Transferable Securities, authorized pursuant to Directive 2009/65/EC of the European Parliament and of the Council of 13 July 2009 on the coordination of laws, regulations and administrative provisions relating to undertakings for collective investment in transferable securities (UCITS). See Chapter 5 and Appendix A for more details on the EU fund reporting regimes.

Figure 15: Open-ended Funds - Number of open-ended CIS reported by Jurisdiction 2021



Source: IOSCO Investment Funds Statistics Survey, 2021

Notes: 1) Figures for Belgium, Italy, Luxembourg, and Spain include both UCITS and AIFs funds registered in their respective jurisdictions. Italy UCITS funds represent 1,163 funds while the remainder, 20 are reporting AIF's. Luxembourg UCITS funds represent 10,481 funds, while the remainder, 2,470 are reporting AIF's; 2) The currently available statistics/reporting for UCITS (other than Belgium and Spain) does not have the same data collection structure as AIFMD report requirements. Hence, more generally, reporting by European jurisdiction reflects data captured under AIFMD reporting requirements and therefore does not provide for a representative picture of the actual existing number of OEFs in the respective European jurisdictions. To be noted that the UCITS Directive is currently under revision. This revision includes, inter alia, the creation of a harmonised reporting framework for UCITS. Hence it is likely that in the coming years more data on UCITS will be available.

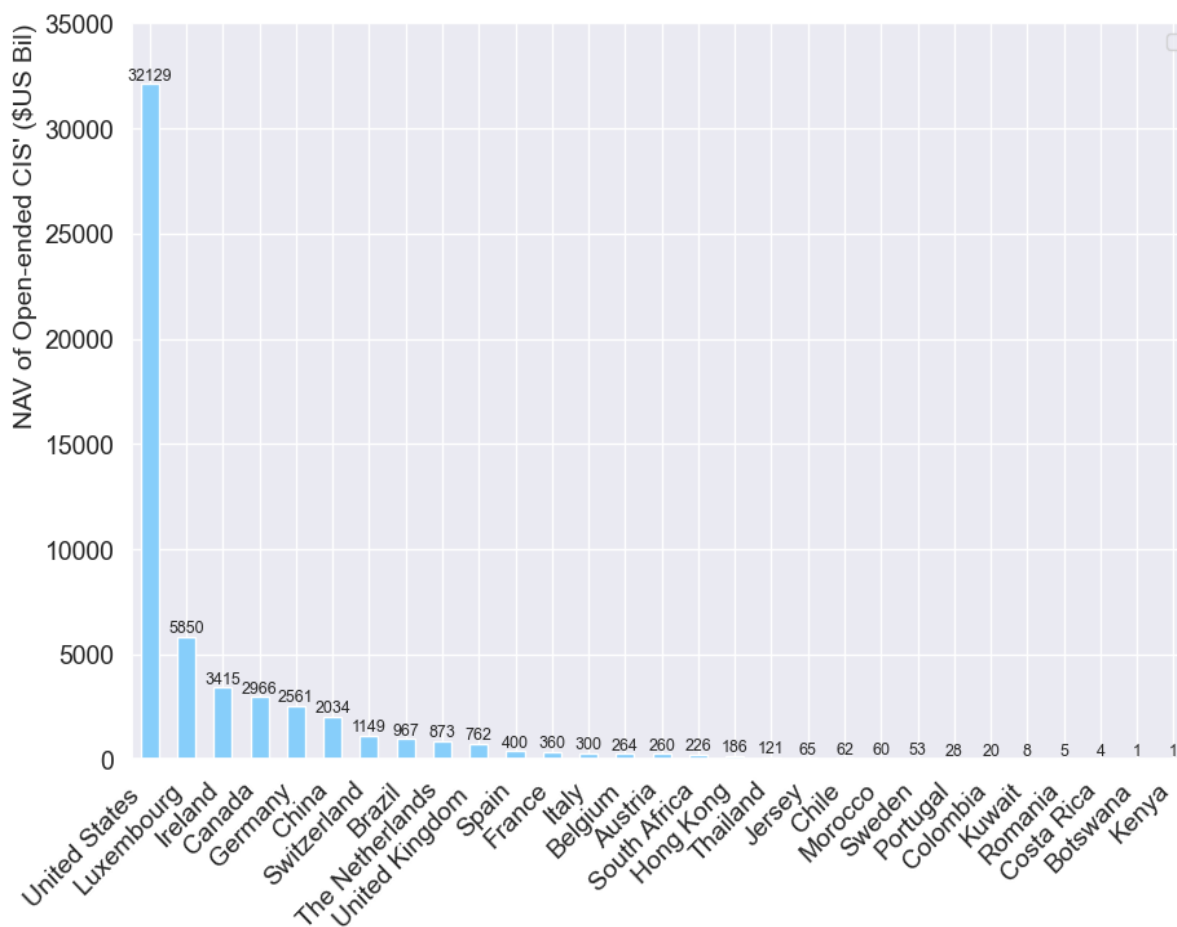
3.2 Net Asset Value and Investment Strategy

Total NAV for the OEFs captured by the survey is \$US55.1 trillion, which represents a 28% increase from last year's exercise. This figure is still lower than other data sources (*for example, data from the IIFA suggests global NAV of OEFs at \$US 71.1trillion*). This result is expected due to the evolving nature of the data collection for OEFs at national level.²³ As some jurisdictions undertake domestic legislative changes to collect data on their domestic industries, either for the first time, or to extend for missing coverage (e.g., a potential extension to UCITS

²³ IIFA figures as Q4 2021.

in European jurisdictions²⁴), we expect this number to increase in the coming years and be more representative of the global industry.

Figure 16: Open ended funds – Net Asset Value by jurisdiction



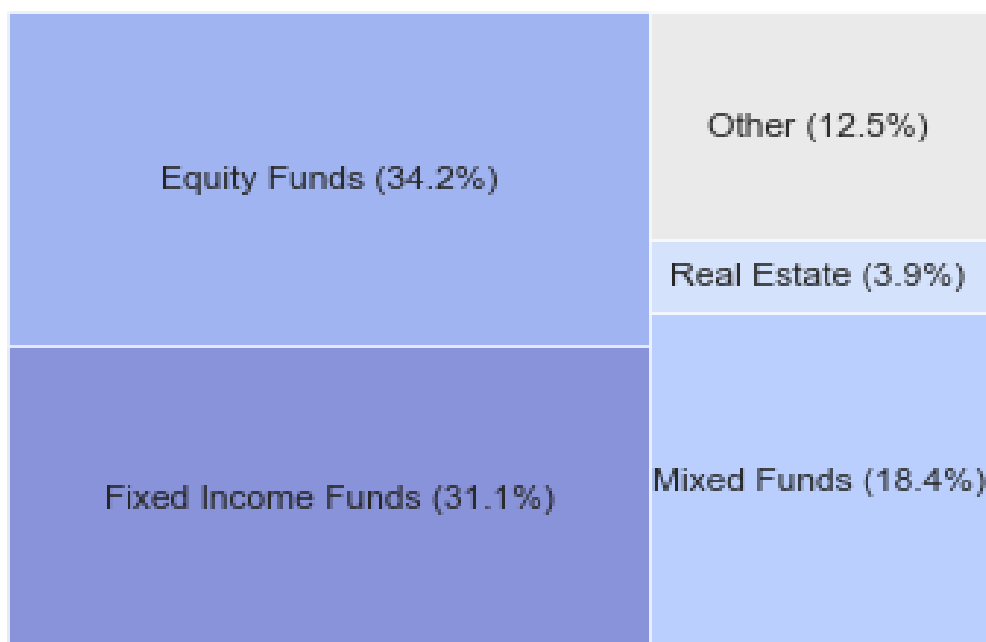
Source: IOSCO Investment Funds Statistics Survey, 2021

Notes: 1) Figures for Belgium, Italy, Luxembourg and Spain include both UCITS and AIFs funds registered in their respective jurisdictions. Italy UCITS funds represent 1,163 funds while the remainder, 20 are reporting AIF's. Luxembourg UCITS funds represent 10,481 funds, while the remainder, 2,470 are reporting AIF's; 2) The currently available statistics/reporting for UCITS (other than Belgium and Spain) does not have the same data collection structure as AIFMD report requirements. Hence, more generally, reporting by European jurisdiction reflects data captured under AIFMD reporting requirements and therefore does not provide for a representative picture of the actual existing number of OEFs in the respective European jurisdictions. To be noted that the UCITS Directive is currently under revision. This revision includes, inter alia, the creation of a harmonised reporting framework for UCITS. Hence it is likely that in the coming years more data on UCITS will be available.

Figure 17 provides a breakdown of the most common investment strategies utilised by OEFs. Overall, equity and fixed income funds make up around two thirds of global NAV, which is perhaps unsurprising as, in many jurisdictions, OEFs are subject to eligible asset rules and/or liquidity management requirements preventing them from investing significant amounts of their portfolio into more illiquid asset classes. Equity funds are the largest category of OEFs, with 34.2% of OEF total NAV invested in those funds at the end of 2021, while in last year's report fixed income funds were the largest category. The share of OEF NAV invested in fixed income funds declined from 34% in 2020 to 31.1% in 2021.

²⁴ See Chapter 5 for more information.

Figure 17: Open-ended Funds - Top investment strategies as a percentage of overall NAV



Source: IOSCO Investment Funds Statistics Survey, 2021

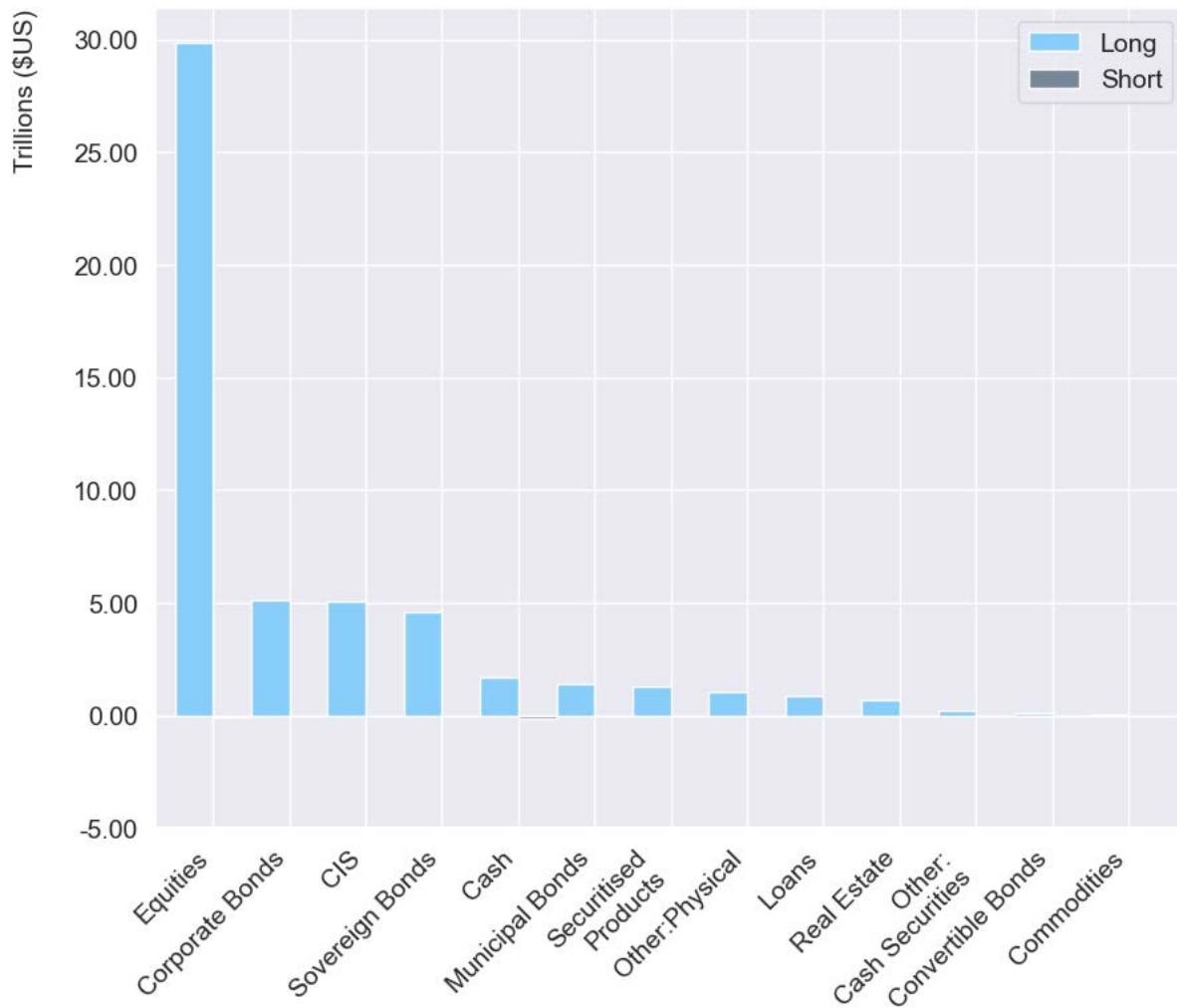
Notes: The above figure does not include US OEF data and most European UCITS data (except for Luxembourg, Belgium and Spain).

3.3 Investment Exposure

Equity holdings, both cash and derivatives, represent the largest holdings by OEFs. Figure 18 and Figure 20 highlight that the majority of NAV is physically held as cash securities. Few short positions in cash securities are held by OEFs. Additionally, Figure 19 and Figure 21 highlight the use of derivatives by OEFs, which is limited, as many OEFs are subject to leverage limits.²⁵ However, compared to last year, a large increase in gross notional exposure of IR derivatives is observed.

²⁵ In the EU, leverage limits depend on whether the fund is authorised as a UCITS or whether it is an AIF.

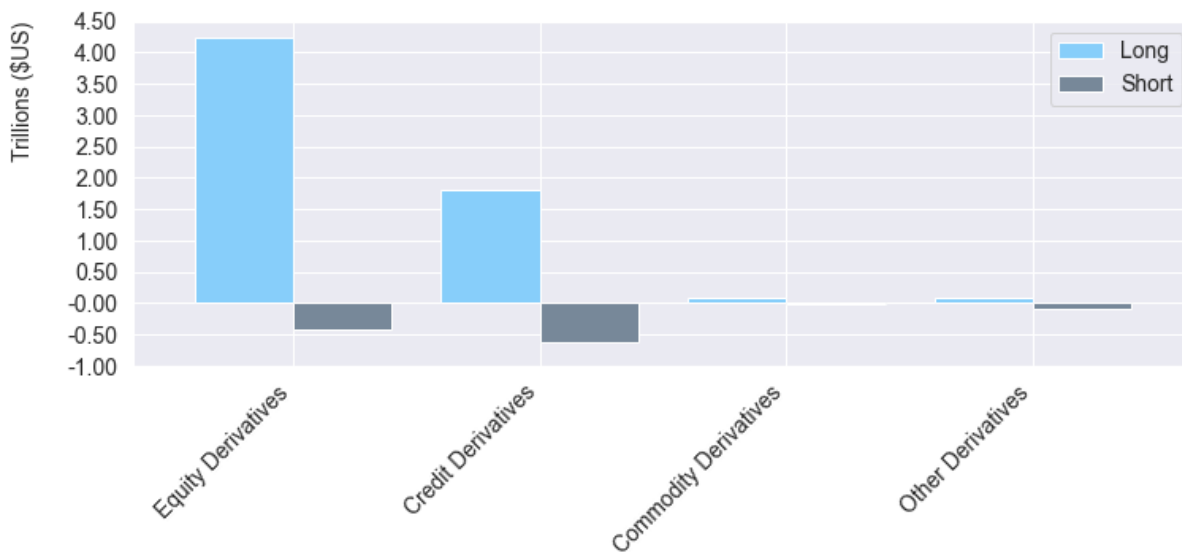
Figure 18: Open-ended Funds - Cash/Physical Securities - Long and Short Notional



Source: IOSCO Investment Funds Statistics Survey, 2021

Notes: 1) EU data used in the compilation of this figure are based on data collected under the AIFMD reporting requirement only, except for Belgian and Spanish data which also captures UCITS.

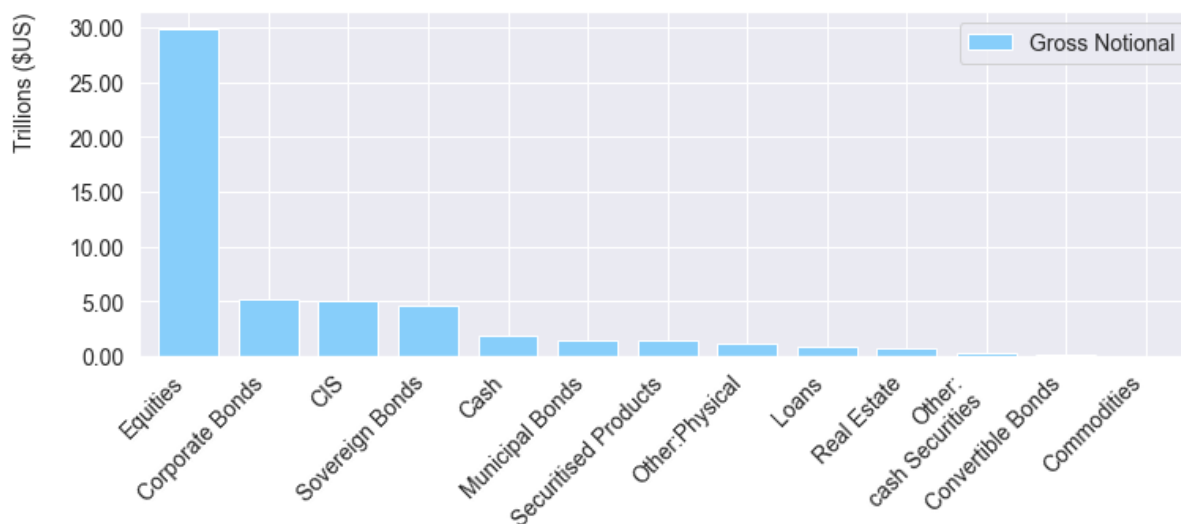
Figure 19: Open-ended Funds - Derivatives - Long and Short Notional



Source: IOSCO Investment Funds Statistics Survey, 2021

Notes: 1) EU data used in the compilation of this figure are based on data collected under the AIFMD reporting requirement only, except for Belgian and Spanish data which also captures UCITS.

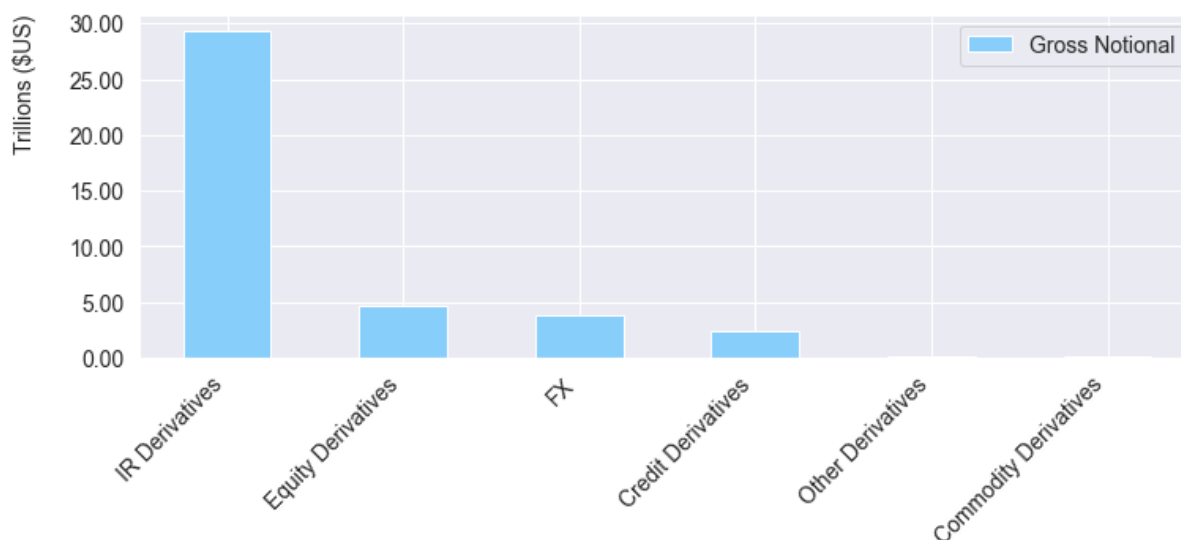
Figure 20: Open-ended Funds - Cash Securities - Gross Notional



Source: IOSCO Investment Funds Statistics Survey, 2021

Notes: 1) EU data used in the compilation of this figure are based on data collected under the AIFMD reporting requirement only, except for Belgian and Spanish data which also captures UCITS.

Figure 21: Open-ended Funds - Derivatives - Gross Notional



Source: IOSCO Investment Funds Statistics Survey, 2021

Notes: 1) EU data used in the compilation of this figure are based on data collected under the AIFMD reporting requirement only, except for Belgian and Spanish data which also captures UCITS.

Asset Class Breakdown

An asset class breakdown provides the percentage of a core set of investment exposures of an investment fund. Table 2 presents this breakdown using the data collected for this exercise for OEFs. These funds are mostly long only in cash equities. They also exhibit positive long only balances in bonds (both corporate and sovereign) and other collective investment schemes. There are few short positions, in aggregate, held by reporting OEFs. OEFs also have a sizeable gross notional exposure to IR derivatives.

Table 2: Open-ended Funds - Market Exposure, broken down by asset class on a long/short basis

Asset Class	Long	Short	GNE without adj.*	Long (%NAV)	Short (%NAV)
Cash	\$ 1,705,557,000,000	\$ 122,863,000,000	\$ 1,828,420,000,000	3.39%	0.24%
Equities	\$ 29,872,356,000,000	\$ 47,138,000,000	\$ 29,919,494,000,000	59.38%	0.09%
Corporate Bonds	\$ 5,122,998,000,000	\$ 10,717,000,000	\$ 5,133,716,000,000	10.18%	0.02%
Sovereign Bonds	\$ 4,576,303,000,000	\$ 25,086,000,000	\$ 4,601,389,000,000	9.10%	0.05%
Municipal Bonds	\$ 1,379,970,000,000	\$ 1,698,000,000	\$ 1,381,669,000,000	2.74%	0.00%
Convertible Bonds	\$ 113,111,000,000	\$ 36,000,000	\$ 113,147,000,000	0.22%	0.00%
Securitised Bonds	\$ 1,303,755,000,000	\$ 41,448,000,000	\$ 1,345,203,000,000	2.59%	0.08%
Loans	\$ 862,072,000,000	\$ 5,269,000,000	\$ 867,341,000,000	1.71%	0.01%
Other Cash Securities	\$ 240,899,000,000	\$ 30,826,000,000	\$ 271,725,000,000	0.48%	0.06%
Real Estate	\$ 712,176,000,000	\$ 46,000,000	\$ 712,222,000,000	1.42%	0.00%
Commodities	\$ 37,130,000,000	-	\$ 37,130,000,000	0.07%	0.00%
CIS	\$ 5,076,930,000,000	\$ 2,317,000,000	\$ 5,079,247,000,000	10.09%	0.00%
Other Physical	\$ 1,054,979,000,000	\$ 36,806,000,000	\$ 1,091,785,000,000	2.10%	0.07%
Equity Derivatives	\$ 4,237,166,000,000	\$ 413,353,000,000	\$ 4,650,519,000,000	8.42%	0.82%
Credit Derivatives	\$ 1,819,100,000,000	\$ 631,461,000,000	\$ 2,450,561,000,000	3.62%	1.26%
Commodity Derivatives	\$ 87,102,000,000	\$ 9,832,000,000	\$ 96,935,000,000	0.17%	0.02%
Other Derivatives	\$ 83,970,000,000	\$ 82,624,000,000	\$ 166,593,000,000	0.17%	0.16%
Foreign Exchange Derivatives **			\$ 3,865,609,000,000		
IR Derivatives**			\$ 29,351,708,000,000		

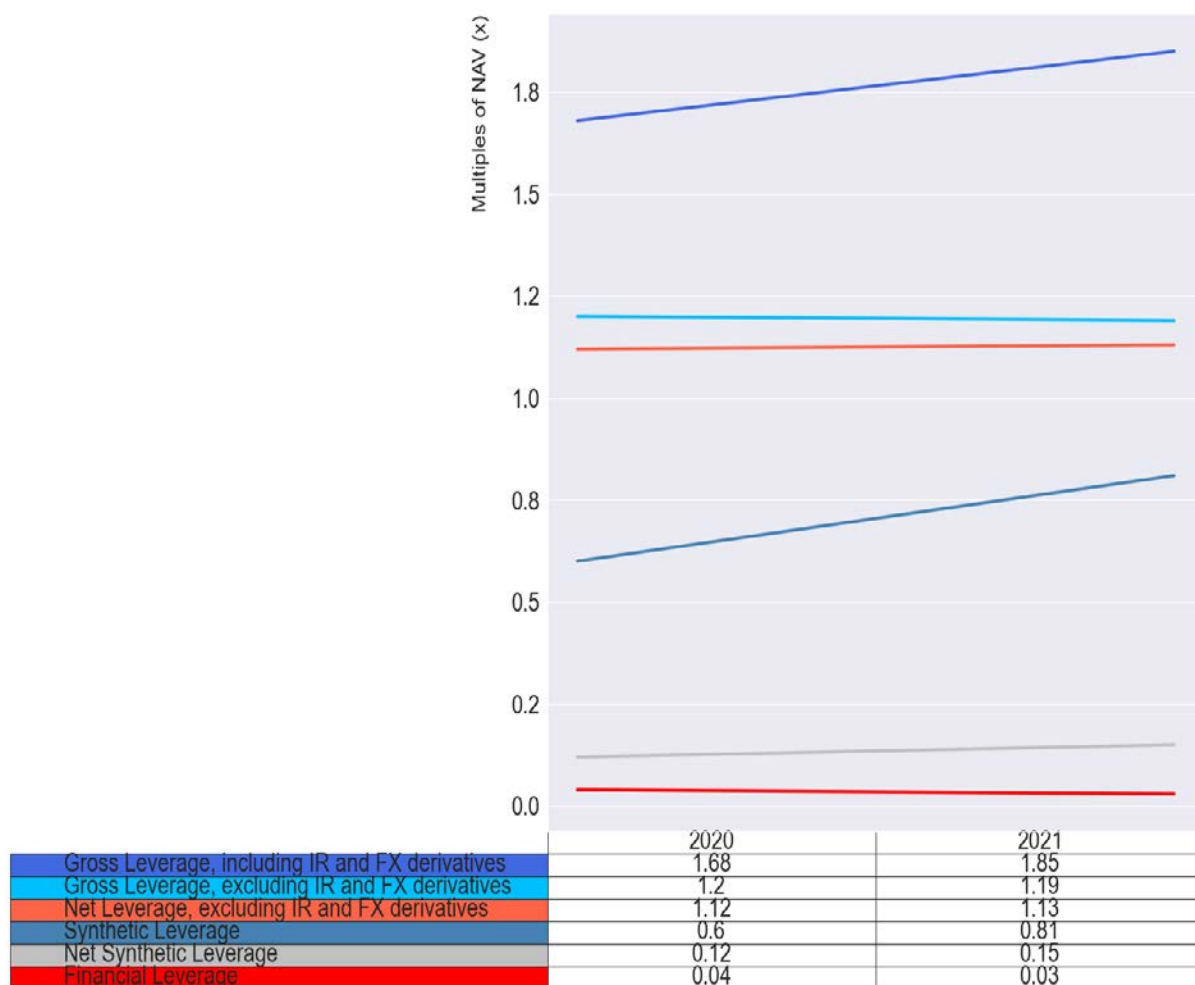
Source: IOSCO Investment Funds Statistics Survey, 2021

Notes: 1) * GNE without adjustment: This metric represents the gross market exposure of a fund calculated by the absolute values of the notional amounts of a fund's derivatives and the value of the fund's other investments; 2) ** indicates that data was collected on a gross notional basis only. Long short split is not available. 3) EU data used in the compilation of this table are based on data collected under the AIFMD reporting requirement only, except for Belgian and Spanish data which also captures UCITS.

3.4 Leverage²⁶

Figure 22 presents the selected leverage metrics, in line with those used in the previous chapter. Overall, it echoes the messages from last year’s report. First, by any leverage metric, OEFs are not highly leveraged. For example, gross leverage, with or without FX and IR derivatives, is respectively 1.85x NAV and 1.19x NAV. On a net basis, where long positions are offset against short positions within the same asset class, the level of leverage is 1.13x NAV, which is a slight increase from last year’s finding.²⁷ Second, the small difference between gross leverage and net leverage implies that OEFs mainly have long exposures to cash securities assets, so it cannot be interpreted as anything close to leverage.

Figure 22: Leverage in Open-ended Funds – Selected metrics²⁸



Source: IOSCO Investment Funds Statistics Survey, 2020 & 2021

Note: 1) The NAV denominator has been adjusted downwards to reflect AIFs NAV reported by participating European jurisdictions. The NAV of Belgian and Spanish UCITS funds are included as part of this denominator; 2) * The Financial Leverage figure attributed to OEFs is calculated by excluding the NAV of those jurisdictions that did not report aggregate secured or unsecured borrowings. As such, for this metric, the denominator (i.e., the NAV) is adjusted to exclude US, Jersey, Thailand, South Africa Kenya, Austria, Kuwait, Chile, Brazil, Sweden, and Botswana.

²⁶ For more information on leverage calculations, see Chapter 2.5.

²⁷ For the limitations of the net leverage calculation, see Chapter 2.5.

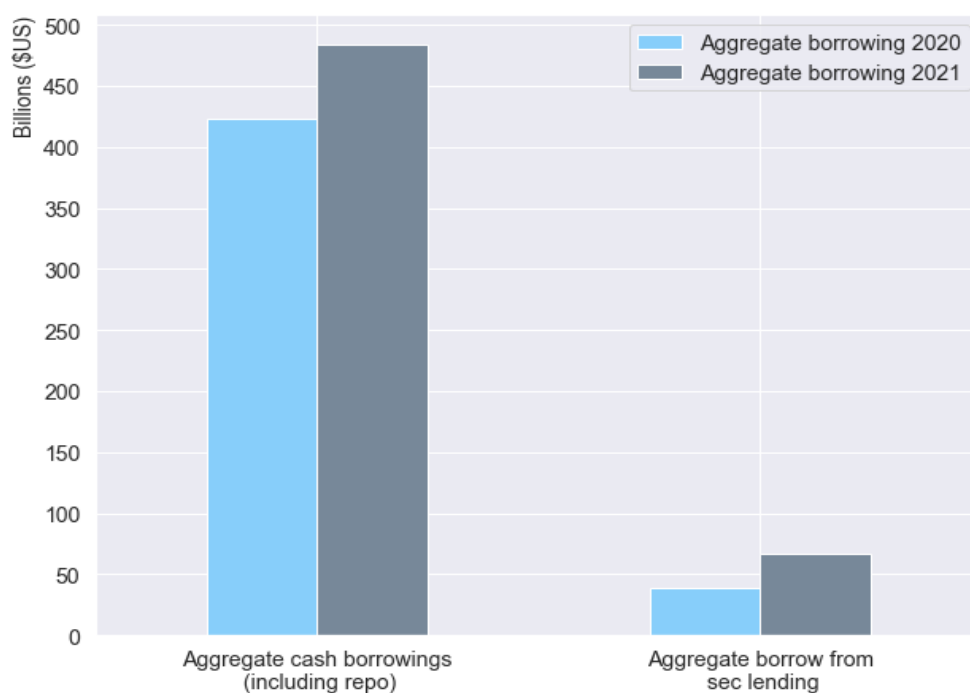
²⁸ For definitions, see footnote 14.

Financial Leverage

In many jurisdictions, OEFs are allowed to borrow, but usually limited to a small multiple of NAV. For example, in Europe, UCITS may be authorised to borrow up to 10% of the funds’ assets or 10% of the value of the fund.²⁹ In the U.S., Section 18, under the Investment Company Act of 1940, prohibits an OEF from issuing or selling a “senior security,” other than borrowing from a bank (subject to a 300% asset coverage ratio requirement, which functionally limits a fund from borrowing more than 50% of its NAV from a bank).³⁰

When considering all types of OEFs, the “Financial Leverage” metric in Figure 22 above, in conjunction with Figure 23 below, shows the level of borrowing by OEFs. Overall, OEFs cannot be considered users of secured or unsecured credit, as their aggregate financial leverage ratio is 0.03. As such, total borrowings represent a trivial amount in terms of the total NAV of OEFs. Of the amount that OEFs do borrow, only a small amount of borrowing is from securities lending, as shown in Figure 23.

Figure 23: Open-ended Funds - Borrowing (2020-2021)



Source: IOSCO Investment Funds Statistics Survey, 2020 & 2021

Notes: 1) The above figure does not include data from the US, Jersey, Thailand, South Africa, Kenya, Austria, Kuwait, Chile, Brazil, Sweden and Botswana. 2) Other EU data used in the compilation of this figure are based on data collected under the AIFMD reporting requirement only, with the exception of Belgian and Spanish data which also captures UCITS.

²⁹ See: <https://www.esma.europa.eu/databases-library/interactive-single-rulebook/clone-ucits/article-83>

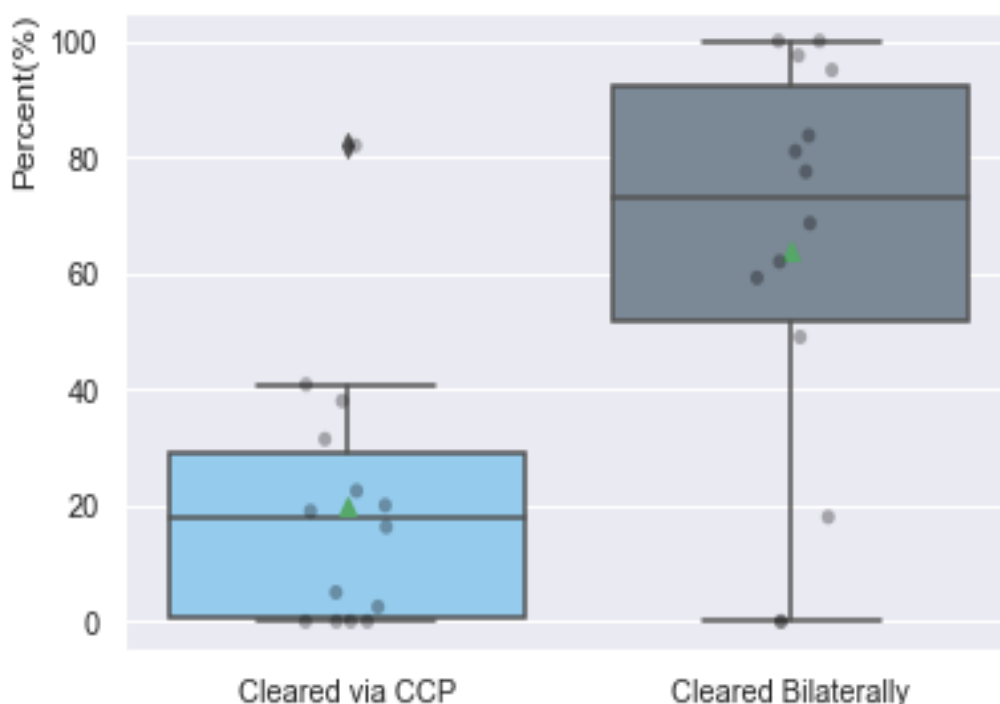
³⁰ “Asset coverage” of a class of senior securities representing indebtedness of an issuer generally is defined in section 18(h) of the Investment Company Act as “the ratio which the value of the total assets of such issuer, less all liabilities and indebtedness not represented by senior securities, bears to the aggregate amount of senior securities representing indebtedness of such issuer.” Take, for example, an open-end fund with \$100 in assets and with no liabilities or senior securities outstanding. The fund could, while maintaining the required coverage of 300% of the value of its assets, borrow an additional \$50 from a bank. The \$50 in borrowings would represent one-third of the fund’s \$150 in total assets, measured after the borrowing (or 50% of the fund’s \$100 net assets)

3.5 Collateral, Unencumbered Cash and Cleared trades

Overall, OEFs across the sample had posted a total of \$US88.7 billion as collateral. This figure, when viewed in conjunction with the amount of borrowings from securities lending presented in Figure 23 (\$US66.7 billion), suggests that OEFs, in aggregate, may be over-collateralised. However, the same caveats that are mentioned in the hedge funds chapter apply here. “Collateral”, in this context, includes collateral posted for initial and variation margin. Additionally, reported unencumbered cash was \$US519 billion, which implies a cash ratio of 0.07. More granular data is required to understand the potential risks posed by liquidity preparation for margin calls; an area where data is likely to improve in future iterations of the report as national jurisdictions review their national frameworks.

Figure 24 highlights the distribution of the percentage of derivatives that were traded by OEFs and centrally cleared, as well as those that were bilaterally cleared. Overall, more trades are cleared bilaterally than through CCPs, with 80% being the median level of trading cleared bilaterally across jurisdictions. This may in part be explained by the fact FX, which is used for hedging purposes by OEFs, is not subject to the obligation of central clearing.

Figure 24: Open-ended Funds - Distribution of trades cleared by CCP and Bilaterally (2021)



Source: IOSCO Investment Funds Statistics Survey, 2021

Notes: 1) The above figure is interpreted similar to a traditional “box and whiskers plot” style chart, in that it highlights the following information: a) the high and low data points represented by the two horizontal lines at the end of the “whiskers”; b) the 25%, 50% and 75% quartiles, which are the bottom, middle and top lines in the coloured areas, respectively; c) the actual data captured (the shaded dots); and d) the mean as the green triangle 2) Distributions presented are based on jurisdictional-level data; 3) The above figure does not include data from the US, Ireland, Austria, Romania, Morocco, Kenya, South Africa, China, Kuwait, Chile, Brazil, Costa Rica, Thailand, Jersey, Portugal, Botswana and Canada ; 4) Other EU data (except for Belgium and Spain whose UCITS funds are also captured) used in the compilation of this figure are based on data collected under the AIFMD reporting requirement only.

3.6 Liquidity

Effective liquidity risk management is important to safeguard the interests of investors in OEFs, maintain the orderliness and robustness of such funds and markets, and helps reduce systemic risk, all of which support financial stability.

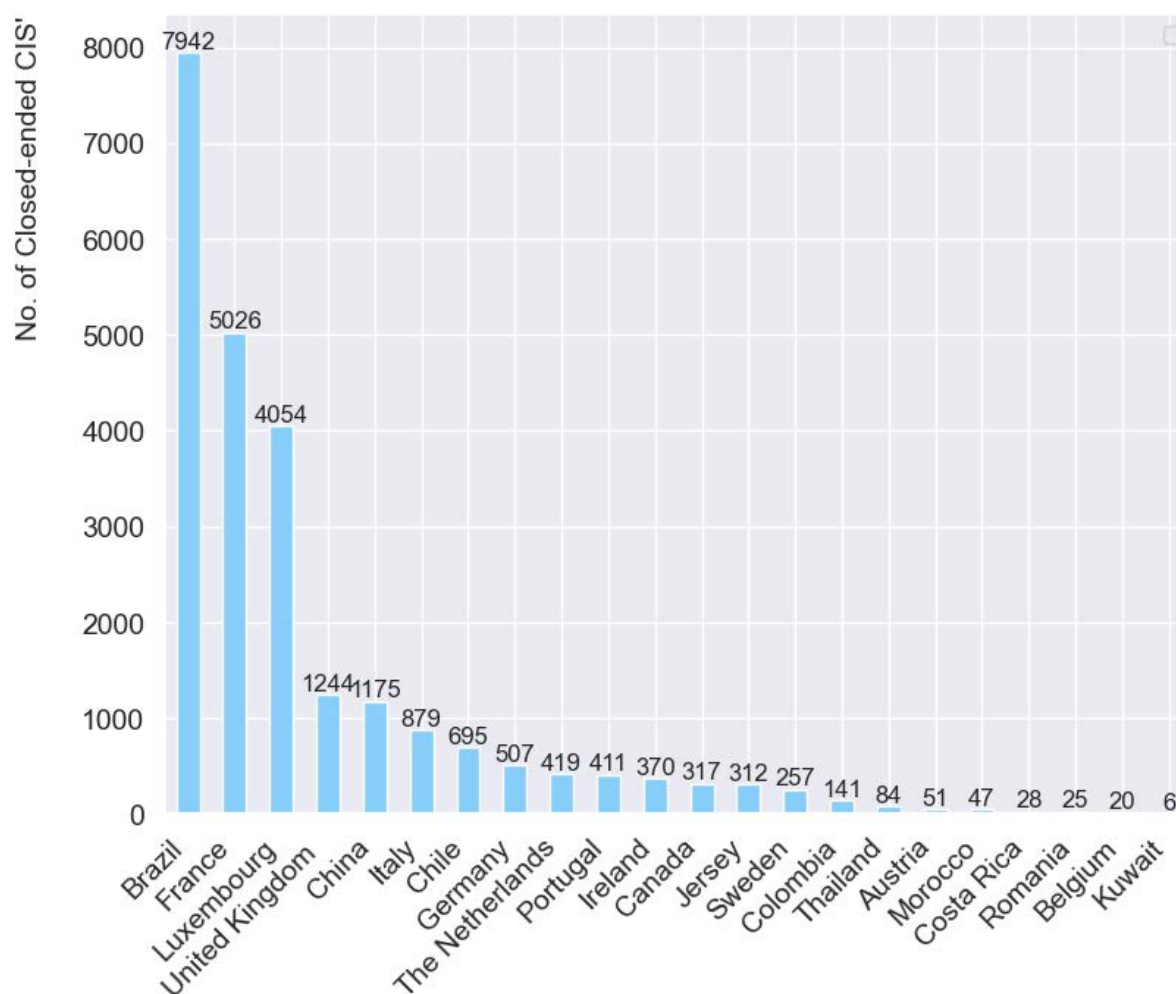
As pointed out earlier in this report, there are data collection areas that IOSCO expects will improve over time. One such area is the liquidity profiles of OEFs. At this juncture, a large proportion of the OEFs universe is not adequately captured by this report. As jurisdictions implement changes to their reporting framework, IOSCO expects to be able to conduct a more thorough analysis of liquidity across the OEF industry in the future.

Chapter 4 – Closed-ended Funds Industry Analysis³¹

4.1 The Global Closed-ended Funds Industry

The chapter presents selected metrics related to the global CEFs industry. As of 31st December 2021, the number of CEFs captured by this exercise was 24,010 funds compared with 19,072 funds captured last year. Brazil, France and Luxembourg account for over 50% of the total. The data collection does not comprehensively cover of all fund jurisdictions, hence the descriptions below do not provide for the full picture across all jurisdictions (only the reported scope). Similar to the data on OEFs, it is expected that the coverage will rise over time as more jurisdictions develop their reporting requirements.

Figure 25: Closed-ended Funds - Number of closed-ended CIS' by Jurisdiction (2021)



Source: IOSCO Investment Funds Statistics Survey, 2021

³¹ Unless mentioned with a specific caveat, the data underpinning the analysis in this chapter are sourced from the following jurisdictions: Brazil, France, Luxembourg, China, Italy, Chile, Germany, the Netherlands, Portugal, Ireland, Canada, Jersey, Sweden, Colombia, Thailand, Austria, Morocco, Costa Rica, Romania, Belgium, and Kuwait. Data reported by Switzerland is not included in this chapter due to small number of reported samples though Switzerland fully participates in the data collection exercise on CEFs.

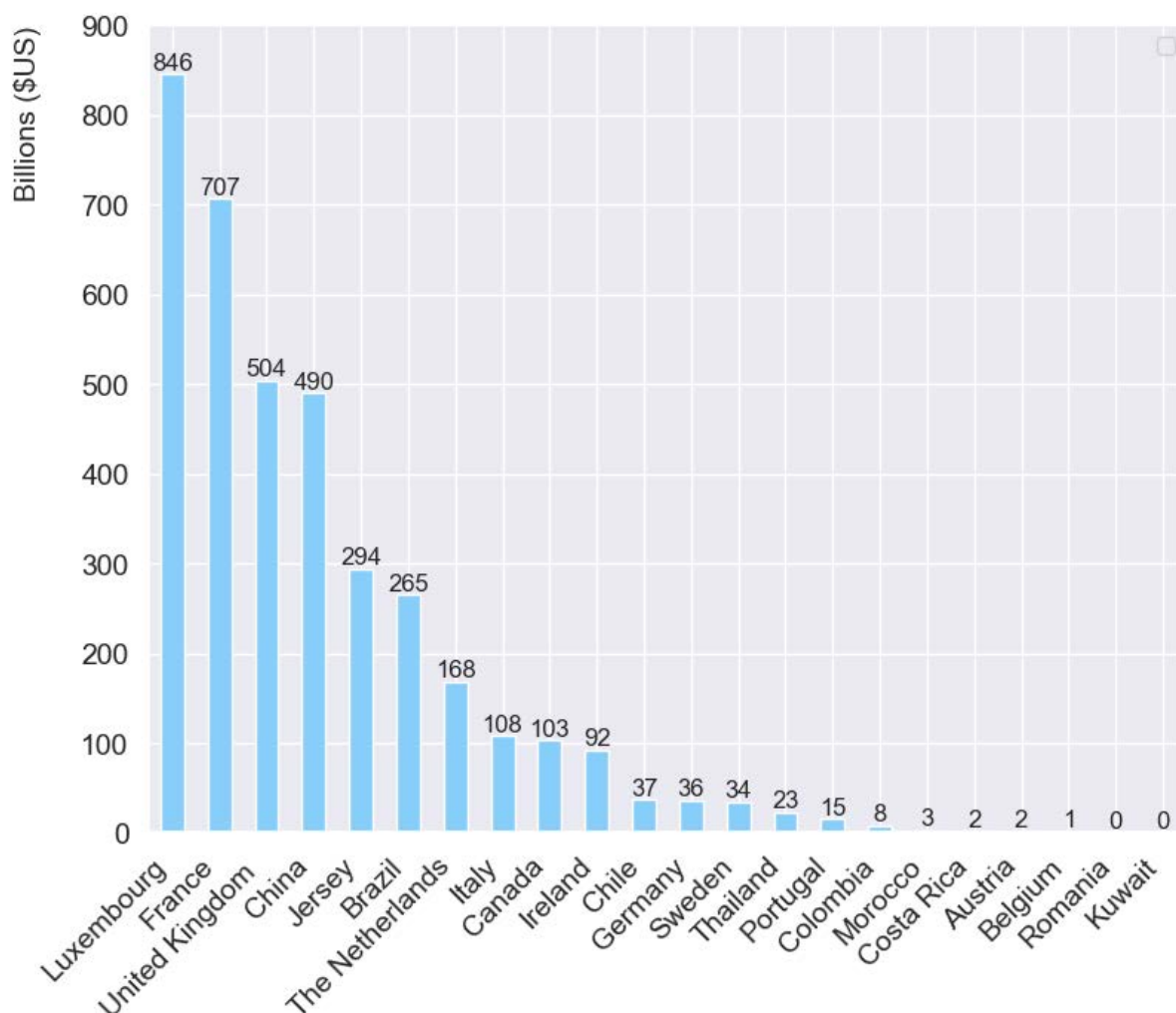
4.2 Net Asset Value and Investment Strategy

The total NAV for the CEFs sample captured by the survey is \$US3.7 trillion with \$US2.6 trillion captured in last year’s report.

Figure 27 provides a breakdown of the most common investment strategies utilised by CEFs. Private equity and real estate funds represent around half of the global NAV, while the other half covers “other” strategies. Given the current limitations associated with reporting requirements, it is difficult to identify in greater detail what the “other category” includes. Overtime, as reporting requirements in some national jurisdictions will develop further, IOSCO should be able to draw a more precise picture of the CEF sector.

It is worth noting that real estate funds account for 13.5% of this sector, an 8.5 % point drop from last year’s report. Private equity funds account for 31.4% of the data received, a 7.4 % point increase.

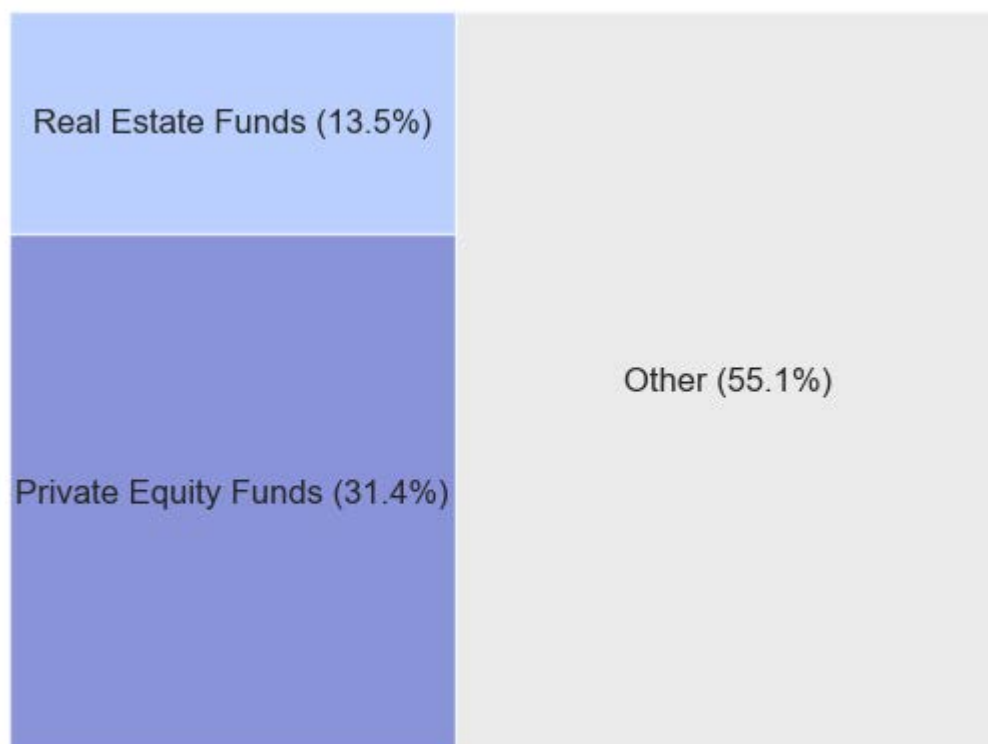
Figure 26: Closed-ended Funds –Net Asset Value by jurisdiction



Source: IOSCO Investment Funds Statistics Survey, 2021

Notes: 1) Figures for Romania and Kuwait show zero due to rounding. Results are Romania \$US0.4bil; Kuwait \$US0.3bil.

Figure 27: Closed-ended Funds - Top investment strategies as a percentage of all NAV

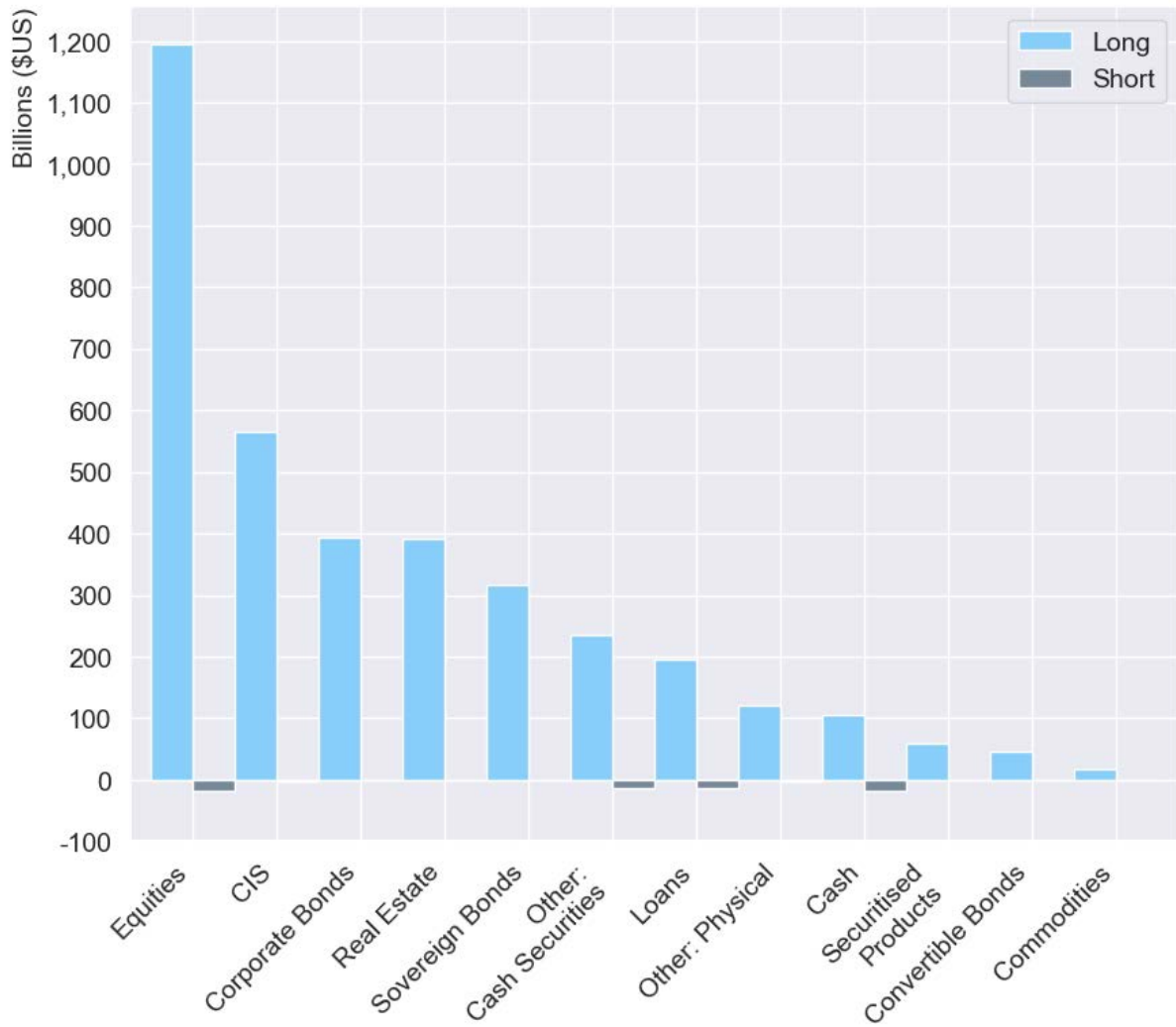


Source: IOSCO Investment Funds Statistics Survey, 2021

4.3 Investment Exposure

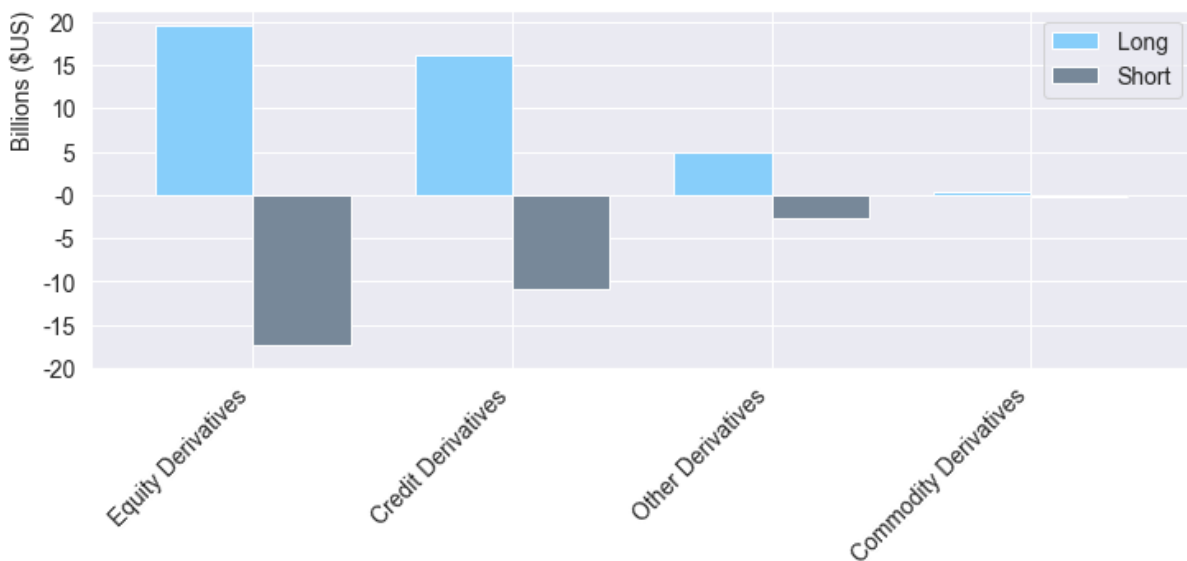
Equities, units in collective investment schemes, corporate bonds and real estate are the largest asset class exposure for CEFs while investment exposure to equities has increased most and that to corporate bonds has decreased most in gross notional basis since 2020. Figure 29 and Figure 31 highlight the use of derivatives by CEFs. Overall, CEFs, in aggregate do not have extensive exposures to derivatives, beyond the gross notional exposure to foreign exchange contracts, which are traditionally used to hedge FX risk. Exposures due to short positions are, in aggregate, limited.

Figure 28: Closed-ended Funds - Cash/Physical Securities - Long and Short Notional



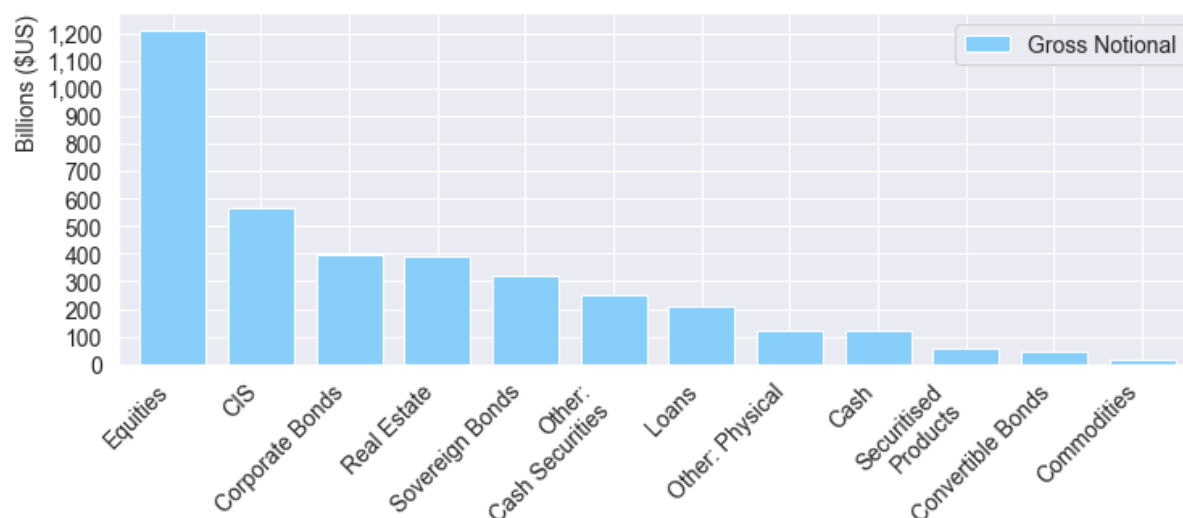
Source: IOSCO Investment Funds Statistics Survey, 2021

Figure 29: Closed-ended Funds - Derivatives - Long and Short Notional



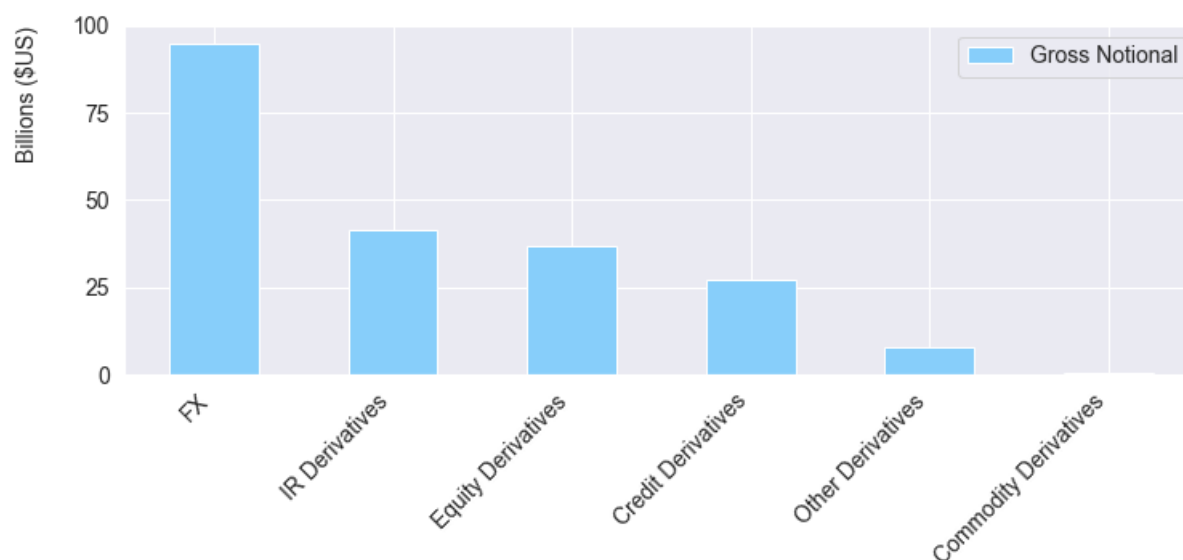
Source: IOSCO Investment Funds Statistics Survey, 2021

Figure 30: Closed-ended Funds - Cash Securities - Gross Notional Exposure



Source: IOSCO Investment Funds Statistics Survey, 2021

Figure 31: Closed-ended Funds - Derivatives - Gross Notional



Source: IOSCO Investment Funds Statistics Survey, 2021

Asset Class Breakdown

As mentioned before, these metrics may not, in isolation, provide a thorough understanding of where the exposures are being built up. An asset class breakdown provides the percentage of a core set of investment exposures of an investment fund. Table 3 presents such a breakdown for data collected for CEFs. The main exposures of CEFs are long positions in cash securities such as equities, physical assets such as real estate and other collective investment schemes. There are limited short positions in most non-derivatives asset classes held by CEFs. When compared to hedge funds and OEFs, gross notional exposure to IR derivatives is more limited. Gross notional exposures to FX derivatives exceed gross notional exposures to IR derivatives.

Table 3: Closed-ended Funds - Market Exposure, broken down by asset class on a long/short basis

Asset Class	Long	Short	GNE without adj.*	Long (%NAV)	Short (%NAV)
Cash	\$ 104,863,000,000	\$ 17,483,000,000	\$ 122,346,000,000	2.81%	0.47%
Equities	\$ 1,194,898,000,000	\$ 16,725,000,000	\$ 1,211,623,000,000	31.96%	0.45%
Corporate Bonds	\$ 394,157,000,000	\$ 767,000,000	\$ 394,924,000,000	10.54%	0.02%
Sovereign Bonds	\$ 317,180,000,000	\$ 235,000,000	\$ 317,415,000,000	8.48%	0.01%
Municipal Bonds	\$ 1,939,000,000	\$ 3,000,000	\$ 1,942,000,000	0.05%	0.00%
Convertible Bonds	\$ 45,843,000,000	\$ 48,000,000	\$ 45,891,000,000	1.23%	0.00%
Securitised Bonds	\$ 59,558,000,000	-	\$ 59,558,000,000	1.59%	0.00%
Loans	\$ 196,527,000,000	\$ 12,432,000,000	\$ 208,959,000,000	5.26%	0.33%
Other Cash Securities	\$ 234,861,000,000	\$ 12,914,000,000	\$ 247,775,000,000	6.28%	0.35%
Real Estate	\$ 391,937,000,000	\$ 126,000,000	\$ 392,064,000,000	10.48%	0.00%
Commodities	\$ 17,977,000,000	-	\$ 17,977,000,000	0.48%	0.00%
CIS	\$ 565,270,000,000	\$ 1,467,000,000	\$ 566,737,000,000	15.12%	0.04%
Other Physical	\$ 120,899,000,000	\$ 2,167,000,000	\$ 123,067,000,000	3.23%	0.06%
Equity Derivatives	\$ 19,523,000,000	\$ 17,396,000,000	\$ 36,919,000,000	0.52%	0.47%
Credit Derivatives	\$ 16,220,000,000	\$ 10,906,000,000	\$ 27,126,000,000	0.43%	0.29%
Commodity Derivatives	\$ 365,000,000	\$ 194,000,000	\$ 559,000,000	0.01%	0.01%
Other Derivatives	\$ 4,948,000,000	\$ 2,697,000,000	\$ 7,645,000,000	0.13%	0.07%
Foreign Exchange Derivatives **			\$ 94,660,000,000		
IR Derivatives**			\$ 41,207,000,000		

Source: IOSCO Investment Funds Statistics Survey, 2021

Notes: * GNE Without Adjustment: This metric represents the gross market exposure of a fund calculated by the absolute values of the notional amounts of a fund's derivatives and the value of the fund's other investments; ** indicates that data was collected on a gross notional basis only. Long short split is not available.

4.4 Leverage³²

Table 4 presents the selected leverage metrics, in line with those used in the previous chapters. As with OEFs, overall, by any leverage metric, CEFs are not highly leveraged. The level of gross leverage including IR and FX derivatives is slightly above 1x NAV (1.05x NAV) while it was 1.12x in last year's report. On a net basis, where long positions are offset against short positions within the same asset class, the level of leverage is below 1x NAV (0.96x NAV). Although private equity funds typically use leverage, notably in leveraged buy-outs, however that leverage appears on the balance sheet of the portfolio companies and not on the balance sheet of the fund. This level of detail is not currently available within jurisdictions' reporting requirements, but could, depending on the level of debt, impact the underlying company itself which may not be able to service the debt. This type of leverage is not currently captured by these metrics.

Table 4: Leverage in Closed-ended Funds – Selected metrics³³

Leverage Metrics	
Gross Leverage <i>(including interest rate and FX derivatives)</i>	1.05
Gross Leverage <i>(excluding interest rate and FX derivatives)</i>	1.01
Net Leverage <i>(excluding interest rate and FX derivatives)</i>	0.96
Synthetic Leverage	0.06
Net Synthetic Leverage	0.02
Financial Leverage	0.02

Source: IOSCO Investment Funds Statistics Survey, 2021

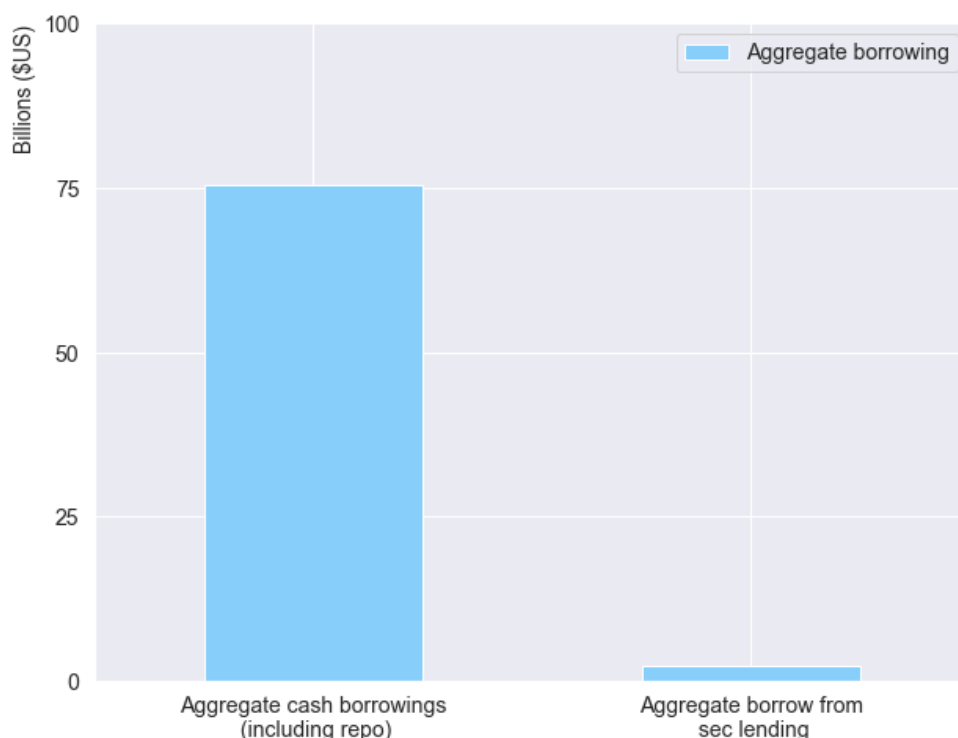
Financial Leverage

The “Financial Leverage” metric in Table 4 above, in conjunction with Figure 32, shows the level of borrowings by CEFs. Overall, CEFs do not borrow heavily, with a financial leverage ratio of 0.02. Total borrowings represent a trivial amount in terms of the total NAV of CEFs.

³² For more information on leverage calculation (especially net leverage calculation), see chapter 2.5.

³³ For definitions, see footnote 14

Figure 32: Closed-ended Funds - Borrowing (2021)



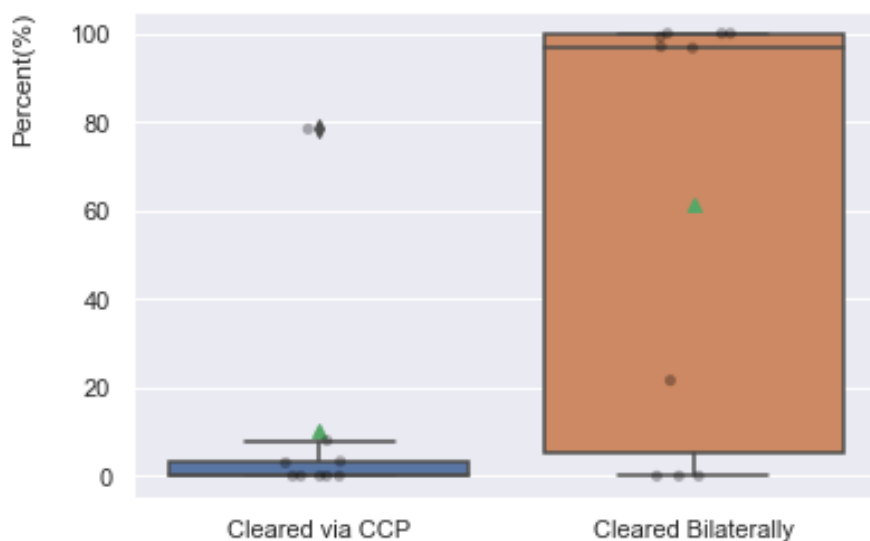
Source: IOSCO Investment Funds Statistics Survey, 2021

4.5 Collateral, Unencumbered Cash and Cleared trades

Overall, CEFs across the sample indicated that they had posted a total of \$US59.5 billion as collateral. Additionally, reported unencumbered cash amounted to \$US143 billion, representing a cash ratio of 0.04.

Figure 33 highlights the distribution of the percentage of derivatives that were traded by CEFs and centrally and bilaterally cleared. Overall, the percentage of trades cleared bilaterally exceeds the percentage of trades cleared through CCPs. However, the sample size is small for this selected metric.

Figure 33: Closed-ended Funds - Distribution of trades cleared by CCP and Bilaterally (2021)



Source: IOSCO Investment Funds Statistics Survey, 2021

Notes: 1) Distributions presented are based on jurisdictional-level data

Chapter 5 – Regulatory developments at national/jurisdictional level with regards to data on investment funds

European Union

In Europe, the European Commission launched a consultation in late-2020 on the review of the alternative investment fund manager directive (“AIFMD”, Directive 2011/61/EU).³⁴ As part of this consultation, the European Commission included questions on potential changes of the AIFMD reporting (e.g., collect data on an asset-by-asset class basis in order to assess leverage in AIFs pursuant to the IOSCO framework, harmonisation of the leverage calculation methods) as well as on the potential implementation of an EU supervisory reporting for UCITS by their managers. The latter is a response by the European Commission to a related ESRB recommendation to introduce such harmonised UCITS reporting within Europe.³⁵

Additionally, ESMA has published guidelines applying to national competent authorities to ensure the common, uniform, and consistent application of Article 25 of the AIFMD.³⁶ In particular, those guidelines relate to the assessment of leverage-related systemic risk and aim to ensure that competent authorities adopt a consistent approach when assessing whether the condition for imposing leverage-related measures are met. They have been established to ensure consistent, efficient, and effective supervisory practices within the European System for Financial Supervision and are deemed to be consistent with IOSCO’s 2019 Leverage Framework recommendations. The AIFMD/UCITS review is currently still ongoing at European Level.³⁷

United States

The SEC has recently issued two proposals that seek to improve fund data reporting. First, on August 10, 2022, the SEC proposed amendments to Form PF, the confidential reporting form for certain SEC-registered investment advisers to private funds.³⁸ The proposal would improve reporting by large hedge fund advisers about the funds they manage by enhancing reporting on information such as investment exposures, borrowing and counterparty exposure and market factor effects. This proposal would also require additional reporting of basic information about

³⁴ Financial services – review of EU rules on alternative investment fund managers (europa.eu)

³⁵ [Recommendation on leverage and liquidity in investment funds \(europa.eu\)](#)

³⁶ Article 25(1) of the AIFMD provides that Member States shall “ensure that the competent authorities of the home Member State of the AIFM use the information to be gathered under Article 24 for the purposes of identifying the extent to which the use of leverage contributes to the build-up of systemic risk in the financial system, risks of disorderly markets or risks to the long-term growth of the economy”.

³⁷ For the current proposal by the European Council on this review, please refer to: [Capital Markets Union: Council agrees its position on updated rules for hedge funds, private debt funds, and other alternative investment funds - Consilium \(europa.eu\)](#)

³⁸ See Amendments to Form PF to Amend Reporting Requirements for All Filers and Large Hedge Fund Advisers, Investment Advisers Act of 1940 (the “Advisers Act”) Release No. 6083 (Aug. 10, 2022), available at <https://www.sec.gov/rules/proposed/2022/ia-6083.pdf>.

advisers and the private funds they advise including withdrawal and redemption rights, gross asset value and net asset value.

In addition, on November 2, 2022, the SEC proposed amendments that would require registered funds that report on Form N-PORT, to provide timelier portfolio information.³⁹ Currently, such funds prepare monthly reports and file them at the end of every quarter. Only the report for the third month of the quarter is made public. The proposal would instead require funds to file each month's report within 30 days after month-end, with the report becoming public 60 days after month end. In addition, the proposal would require funds that are required to classify the liquidity of their portfolio to, for the first time, publically report the aggregate liquidity of their holdings. The Commission is currently evaluating comments received on both of these proposals.

Ontario (Canada)

Starting in 2021, the Ontario Securities Commission (OSC) launched an annual investment fund survey to collect data from investment fund managers registered in Ontario that manage investment funds with net assets of at least \$10 million (Canadian\$) as of December 31. This fund-level data collection will allow the OSC to compile detailed insights into the capital markets that the OSC oversees and regulates. In addition, the data gathered will allow for meaningful information sharing and interactions with regulatory partners, both domestically and internationally. The survey focuses on several areas, including leverage, liquidity and asset class exposures of investment funds. In particular, this survey seeks data points including, but not limited to: fund size, type of holdings (by geography and asset class), leverage, and liquidity profiles.

³⁹ See Amendments to Open-End Fund Liquidity Risk Management Programs and Swing Pricing; Form N-PORT Reporting, Release Nos. 33-11130; IC-34746 (Nov. 2, 2022), available at <https://www.sec.gov/rules/proposed/2022/33-11130.pdf>.

Chapter 6 – Conclusion

This chapter summarises some of the key highlights from each chapter and considers areas for further development.

Hedge funds

The Hedge Funds chapter indicates that the global hedge fund industry continues to grow in terms of the number of funds and assets under management. The strategies most employed by hedge funds globally are equity-based and equity long/short strategies. The exposures of hedge funds are consistent with this finding, with equities exposures (both cash securities and derivatives) being the largest positions held, on a long basis, while on a short basis, exposures to sovereign bonds are the largest. However, on a gross basis, interest rate and FX derivatives remain the largest exposures of hedge funds.

Depending on the metric, the level of leverage appears to have declined. At an aggregate level, and in normal market conditions, hedge funds' portfolio liquidity considerably exceeds the liquidity offered to investors, meaning that they should be able to meet investor redemptions. However, based on the data collected for this report, it is difficult to anticipate whether this would remain the case under stressed conditions, including risks related to the funds' liquidity profiles, counterparty risks and funds' ability to meet margin calls. Additionally, idiosyncratic, fund-level liquidity mismatches cannot be ruled out. An assessment of fund-level liquidity mismatches would require more granular data. Notably, hedge funds have a broad range of liquidity management tools, including some that may be less available to OEFs such as side pockets, to deal with liquidity pressures on the fund.

Open-ended funds

Similar to the results from last year's exercise, especially when compared to hedge funds, OEFs are not highly leveraged in terms of both derivatives use and financial leverage. This reflects the fact that there are generally regulatory requirements and limitations on some OEFs, which prevent them from using leverage above certain limits. As other data will become available and provided by IOSCO members, future iterations of this report will look to develop further metrics of leverage, such as the ratio of unencumbered cash to margin posted.

In terms of liquidity risk, future iterations of this report will present data when it becomes available. However, it will be some time before this is available.

Closed-ended funds

Similar to last year's report, CEFs hold large portions of their asset allocation in cash securities and physical assets. They are also not highly leveraged. However, this picture can mask the role of leverage as undertaken through private equity, where the leverage is added to the balance sheet of the investee company. Depending on the level of leverage in those instances, further consideration could be given to its potential impact on the real economy in times of crisis.

Appendix A – Methodology of the IOSCO Investment Funds Statistics Report

A.1 Scope

All funds (except Money Market Funds) continue to be within scope for the data collection exercise, unless specifically excluded by participating jurisdictions.

National Competent Authorities (NCAs) may, at their discretion, exclude fund types from this exercise if they believe that such investment funds do not exhibit significant leverage or financial stability risk. Where funds are excluded from the exercise by NCAs, the total NAV of those funds is asked to be provided to IOSCO or otherwise made available publicly, on a best-efforts basis.

Table 5: Summary statistics: Number of funds and total NAV captured by this exercise.⁴⁰

Fund Type	No. of Funds	Total NAV (\$US Billions)
Hedge Funds	2 773	\$ 4 849
Open-Ended Funds	73 905	\$ 55 130
Closed-Ended Funds	24 010	\$3 738

Source: IOSCO Investment Funds Statistics Survey, 2021

A.2 Methodology

Data collection is a multi-stage process, which relies on IOSCO members collating and then aggregating their domestic industry data in line with a pro-forma template developed by IOSCO. National-level data are provided to IOSCO where various checks for data consistency and cleaning take place before analysis begins.

The data collection has previously been conducted following the same methodology and using a similar template to that used for the IOSCO Hedge Funds Survey. To the extent possible, it leverages on the existing reporting requirements already in place in many jurisdictions (such as the Form PF and N-PORT in the United States and AIFMD reporting requirements and (ad-hoc, jurisdictional-level) UCITS reporting requirements in Europe).⁴¹

Structure of the data template used for collection

The data template contains three separate sheets. The first sheet refers to the collection of information related to hedge funds. It is consistent with the definitions, data collection and

⁴⁰ For further discussion on the breakdown of these figures, please consult the relevant chapters in the report.

⁴¹ Since October 2015, the US Securities Exchange Commission's staff has released quarterly *Private Fund Statistics* reports which provide a summary of recent private fund industry statistics and trends by aggregating data reported to the Commission by private fund advisers on Form ADV and Form PF. Form PF information provided in this report is aggregated, rounded, and/or masked to avoid potential disclosure of proprietary information of individual Form PF filers. ESMA publishes data on AIF since early 2019 as well on an annual basis
<https://www.esma.europa.eu/file/50580/download?token=REKCzQAz>

interpretation of data presented in previous IOSCO Hedge Funds Survey reports. More specifically, the firms and funds captured in the survey meet the following conditions:

For hedge funds, they must:

- Qualify as a hedge fund, (i) either based on criteria defined in its local jurisdiction, (ii) based on its own declaration to its regulator or (iii) based on a combination of criteria, such as the use of leverage, the complexity of strategies, and the application of performance fees;
- Be at least partially managed by a regulated entity within their jurisdiction or marketed in that jurisdiction;
- Be managed by a single manager, which means fund of funds (or multi-manager funds) are excluded; and
- Be able to demonstrate that it manages at least \$US500 million of total global net assets (NAV). This includes the sum of all accounts managed under the same strategy (for example including pooled funds and separately managed accounts), to ensure the product is fully captured.
- As with previous hedge funds survey exercises, to help avoid double-counting, “qualifying hedge funds” that are managed outside the US but are likely to have reported to the SEC were removed from the other participating jurisdictions’ data.⁴²

For funds other than hedge funds, NCA reporting is based on the domicile of the fund. However, in some circumstances, data from funds whose asset managers are domiciled in other jurisdictions is not available to the NCA responding to IOSCO. In that case, a NCA does not need to provide data from these funds but has been encouraged, where possible, to provide an estimate of the total NAV of these funds.

The second and third sheets relate to information for OEFs and CEFs; seeking the same type of information as the one collected for hedge funds, where currently available in individual jurisdictions.

Overall, each sheet of the data template covers the following sections:

⁴² One of the elements of data collection that has proved challenging in the past is the issue of double-counting, where the same underlying hedge fund may have reported data in more than one jurisdiction. For example, data collected in the US as part of Form PF pertains to hedge funds managed by those firms that are registered or required to register with the SEC. The SEC reporting thresholds are such that if hedge fund firms are large (more than \$1.5 billion in hedge fund assets) and have at least one qualifying hedge fund (more than \$500 million NAV), then any qualifying hedge funds the firm manages will be included within the US data. As a result, this requirement may pull in some funds that are managed outside the US. For the purposes of avoiding double counting in these cases, the survey has removed from the data of all other participating countries any funds managed by firms that are likely to have reported to the SEC. Because this methodology may skew the geographic distribution of fund manager location somewhat towards the US and under-represent other countries, this survey avoids showing a detailed breakdown of funds per jurisdiction of manager.

Section 1 – Universe information. This section includes general information on the number of funds in a jurisdiction, the total net asset value of those funds, the strategies employed by those funds and their geographical exposure.

Section 2 – Asset Class Exposure information. This section collects the aggregated asset class exposures of the funds in each jurisdiction, broken down by long and short position, where available.

Section 3 – Borrowing Risk Profile. This section collects information on the secured and unsecured borrowings of funds.

Section 4 – Counterparty risk information. This section collects information on collateral details, information about trading and clearing mechanisms and unencumbered cash levels.

Section 5 – Liquidity profile. This section collects data on the percentage of fund portfolios capable of being liquidated within given period and the periods within which investors could receive their redemption payments.⁴³

A.3 Survey comparability and interpretation

To help ensure consistency of data collection, definitions have been aligned with those used in the previous hedge funds survey. This should aid the interpretation of results across fund types and across jurisdictions.

Hedge Funds

For hedge funds, while the definitions have remained consistent, the survey samples across different time periods are not, for a variety of reasons.

Firstly, hedge funds open and close regularly meaning the samples across time exhibit some level of survivorship bias. Additionally, in some jurisdictions, as is the case within IOSCO's own reporting request, reporting is voluntarily and subject to a threshold criterion for reporting, meaning that the number of hedge funds surpassing the threshold may differ from one year to another, as their individual NAV grows or decreases.

Finally, the number of IOSCO member jurisdictions participating in the exercise has also changed over time. For this exercise, jurisdictions such as Jersey and Thailand have taken part for the first time in reporting their domestic hedge funds industries.

Open-ended and closed-ended investment funds

One challenge associated with funds other than hedge funds is that there currently are very few national-level data collection regimes that require the same level of granular reporting when compared to that of hedge/alternative funds. This means there are important caveats in the analysis of the data received under those sections.

Collection of UCITS funds data

There is currently no standardised reporting framework for UCITS funds, meaning only a few European jurisdictions receive UCITS data, based on their own national regulatory reporting requirements. As such, most European jurisdictions taking part in this exercise have not

⁴³ This section is not part of the data collection template for closed-ended funds.

provided granular-level data for UCITS funds. Therefore, unless specifically noted in the report, the European data presented in this analysis is based solely on data submitted through the AIFMD reporting framework.

AIFMD applies to asset managers managing all types of funds that are not covered by the UCITS Directive (Directive 2009/65/EC) regardless of whether the alternative investment fund (AIF) is of an open-ended or a closed-ended type, whatever the legal form of the AIF, independently from whether the AIF is marketable to retail investors or not, and whether or not the AIF is listed. Those AIFs that are open-ended may not be subject to the same type of limitations on eligible assets or leverage as those required under UCITS.

Finally, where available, extra data points have been supplied through other supervisory means (for example, central bank supervisory data). Individual caveats to this effect are also included in the relevant figures and tables below. In the future, when and if the European legislative framework implements a reporting framework for UCITS funds, IOSCO expects the data set for European OEFs to grow.⁴⁴

Collection of US Form N-PORT Data

US data on open-ended mutual funds were collected through publicly available N-PORT filings located on the SEC's EDGAR database. The data used in this analysis are obtained from all NPORT filings made to the SEC with a reporting date of either October 31st, November 30th or December 31st 2021 as registered funds may select different fiscal year-end reporting dates.

To allow for data comparability, fund-level data obtained through this process are aggregated, in accordance with a pre-defined template developed by IOSCO. However, some end-user discretion and interpretation has been used when mapping some fund-level data points to specific asset classes. In some instances, the N-PORT data fields do not map, or do not map directly, with the pre-defined template developed by IOSCO (for example, fund and investor liquidity profiles). Some of the data points may be obtainable after further delineation work (for example, providing a breakdown of financial and non-financial bond holdings) and cross-referencing with external databases (for example, providing a breakdown of investment grade and high-yield corporate bond holdings). Future iterations of this work will explore more granular presentation of the aggregated N-PORT data.

IOSCO believes that this exercise may be helpful to identify whether and to what extent there are potential risks to financial stability that may emerge from the investment funds industry.

⁴⁴ See, for example, potential considerations within the European framework – available at https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12648-Financial-services-review-of-EU-rules-on-alternative-investment-fund-managers_en

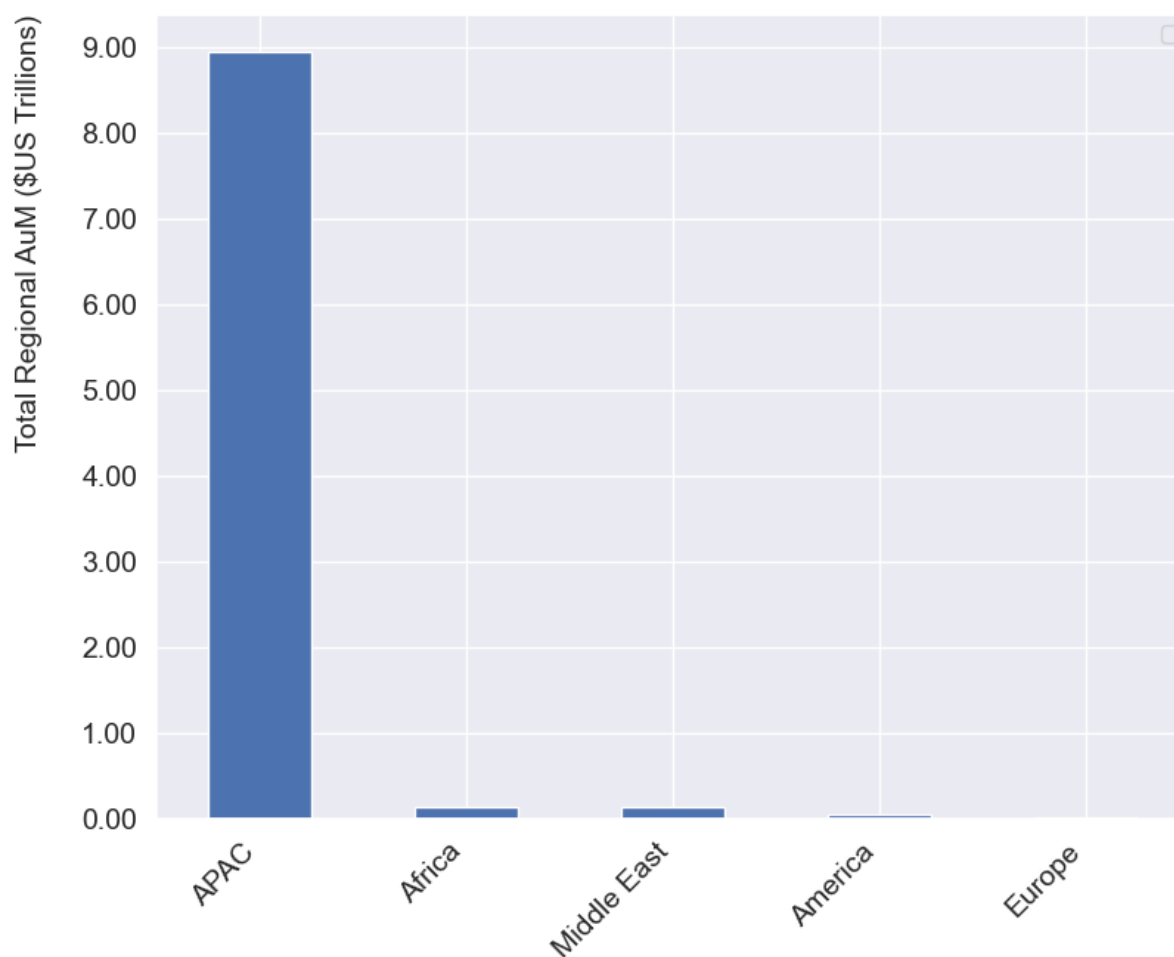
Appendix B – Jurisdictions with NAV provided only⁴⁵

Table 6: List of Jurisdictions not participating in full data collection.

Jurisdictions		
Australia	Israel	Peru
Bulgaria	Japan	Serbia
Cyprus	Lebanon	Uruguay
Dominican Republic	Malaysia	Zambia
India	Mauritius	

Source: IOSCO Investment Funds Statistics Survey, 2021

Figure 34: Breakdown of AuM of non-participating jurisdictions, grouped by region



Source: IOSCO Investment Funds Statistics Survey, 2021

⁴⁵ Jurisdictions choosing to not participate in the survey's full data collection exercise have provided to IOSCO or otherwise made publicly available the total AuM of their domestic industry.

Appendix C – Fund-type Leverage Metrics by Jurisdiction⁴⁶

Table 7: Hedge Funds - Selected leverage metrics

Jurisdiction	No. of funds reported	NAV (\$US Millions)	Gross Leverage, including interest rate and FX derivatives	Gross Leverage, excluding interest rate and FX derivatives	Net Leverage, excluding interest rate and FX derivatives	Synthetic Leverage	Net Synthetic Leverage
Austria	5	99.00	3.55	3.55	1.61	2.55	0.61
Canada	43	43 672.43	8.82	4.99	1.20	5.50	0.20
France	67	10 877.05	4.00	4.00	0.75	3.20	0.15
Germany	9	6 048.00	1.00	1.00	1.00	-	-
Ireland	28	35 592.00	4.06	2.73	0.34	2.55	0.82
Jersey	22	7 450.61	-	-	-	-	-
Luxembourg	39	64 538.00	1.96	1.39	1.00	0.76	0.06
Singapore	47	103 187.97	17.91	6.52	0.98	13.88	0.02
South Africa	203	6 473.61	-	-	-	-	-
Sweden	38	4 843.55	3.98	3.48	1.08	1.09	0.07
Switzerland	27	40 605.02	16.12	5.11	0.91	11.89	0.05
Thailand	4	181.50	3.21	1.01	1.01	2.19	-
The Netherlands	21	2 681.67	15.68	7.90	1.06	12.96	0.02
United Kingdom	150	342 271.52	73.80	6.93	1.43	68.94	0.44
United States	2 013	4 161 000	6.38	3.63	0.99	3.46	0.04

Source: IOSCO Investment Funds Statistics Survey, 2021; IOSCO Calculations

Note: 1) Jersey and South Africa provided total NAV figures and number of funds only for hedge funds; 2) Participating jurisdictions apply different definitions of what constitutes a Hedge Fund. While some participating jurisdictions focused on "pure" hedge funds (i.e. those with no leverage restrictions), based on the declaration by the Asset Managers with no corrections. Other jurisdictions may have applied a different methodology. Hence, the figures are not necessarily comparable between jurisdictions; 3) among the reported data for French hedge funds, 4 out of the 67 are qualifying hedge funds, which represent 63% of the total NAV reported.

⁴⁶ All data presented is sourced from the IOSCO Investment Funds Statistics Survey, 2021.

Table 8: Open-ended Funds – Selected leverage metrics

Jurisdiction	No. of funds reported	NAV (\$US Billions)	Gross Leverage, including interest rate and FX derivatives	Gross Leverage, excluding interest rate and FX derivatives	Net Leverage, excluding interest rate and FX derivatives	Synthetic Leverage	Net Synthetic Leverage
Austria	1 982	259.99	-	-	-	-	-
Belgium	719	263.72	1.08	1.03	1.01	0.08	0.01
Botswana	37	1.26	1.04	1.04	1.04	-	-
Brazil	8 579	966.56	1.92	1.25	1.08	0.74	0.01
Canada	5 339	2 965.69	1.23	1.01	0.95	0.24	0.01
Chile	471	62.34	0.99	0.99	0.68	-	-
China	7 770	2 034.25	1.04	1.04	1.04	-	-
Colombia	151	19.86	1.02	1.00	1.00	0.02	0.00
Costa Rica	66	3.61	1.01	1.01	1.01	0.00	0.00
France	2 240	360.10	1.23	1.20	0.97	0.17	0.06
Germany	4 449	2 561.39	1.39	1.09	1.01	0.36	0.01
Hong Kong	611	186.06	1.16	1.04	1.01	0.15	0.01
Ireland	5 054	3 415.45	1.80	1.23	1.14	0.67	0.03
Italy	1 183	300.19	1.20	0.95	0.86	0.29	0.02
Jersey	89	65.46	-	-	-	-	-
Kenya	19	1.19	0.60	0.60	0.60	-	-
Kuwait	54	7.60	1.00	1.00	1.00	-	-
Luxembourg	12 951	5850.30	1.38	1.16	1.09	0.28	0.01
Morocco	537	59.86	1.09	1.09	1.09	-	-
Portugal	176	27.59	1.08	1.05	1.00	0.04	0.00
Romania	82	5.16	1.75	1.75	1.75	0.00	0.00
South Africa	1 650	226.35	-	-	-	-	-
Spain	3 892	400.04	1.22	1.09	1.04	0.23	0.04
Sweden	153	52.66	1.45	1.45	1.35	0.05	0.00
Switzerland	567	1 148.95	1.36	1.09	1.02	0.29	0.01
Thailand	1 711	120.77	-	-	-	-	-
The Netherlands	648	872.89	1.26	1.09	1.04	0.21	0.01
United Kingdom	1 029	762.45	1.25	1.04	0.98	0.27	0.00
United States	11 696	32 128.63	2.17	1.29	1.24	1.08	0.16

Source: IOSCO Investment Funds Statistics Survey, 2021; IOSCO Calculations

Notes: 1) Austria, Jersey, Thailand and South Africa provided total NAV figures and number of funds only for open-ended funds; 2) Underlying data for other European jurisdictions captures only those open-ended funds that are required to report via the AIFMD framework (except for Belgium and Spain, which includes both UCITS and AIF funds). As such, figures for European jurisdictions (excl. Belgium and Spain) do not reflect UCITS funds. 3) No. of funds and NAV for Luxembourg and Italy reflect both UCITS and AIF funds in their respective jurisdictions, while leverage figures only reflect their respective open-ended AIFs.

Table 9: Closed-ended Funds - Selected leverage metrics

Jurisdiction	No. of funds reported	NAV (\$US Billions)	Gross Leverage, including interest rate and FX derivatives	Gross Leverage, excluding interest rate and FX derivatives	Net Leverage, excluding interest rate and FX derivatives	Synthetic Leverage	Net Synthetic Leverage
Austria	51	1.65	-	-	-	-	-
Belgium	20	1.25	1.36	1.36	1.36	0.00	0.00
Brazil	7 942	264.79	1.05	1.00	0.98	0.06	0.00
Canada	317	102.61	1.22	1.08	1.02	0.14	0.00
Chile	695	36.57	0.93	0.93	0.64	0.00	0.00
China	1 175	490.14	1.29	1.29	1.29	0.00	0.00
Colombia	141	8.34	1.02	1.01	1.01	0.00	0.00
Costa Rica	28	2.30	1.30	1.30	1.30	0.00	0.00
France	5 026	707.47	1.07	1.04	0.96	0.06	0.00
Germany	507	36.40	1.27	1.27	1.19	0.00	0.00
Ireland	370	92.01	1.41	1.37	1.19	0.30	0.08
Italy	879	108.02	1.13	1.08	1.07	0.05	0.01
Jersey	312	293.77	-	-	-	-	-
Kuwait	6	0.32	1.02	1.02	1.02	0.00	0.00
Luxembourg	4 054	845.92	1.16	1.09	1.07	0.07	0.00
Morocco	47	3.45	-	-	-	-	-
Portugal	411	15.13	1.42	1.42	1.02	0.02	0.02
Romania	25	0.37	0.93	0.93	0.93	-	-
Sweden	257	34.34	1.12	1.12	1.12	0.01	0.01
Thailand	84	22.68	-	-	-	-	-
The Netherlands	419	168.42	1.05	1.04	1.03	0.01	0.00
United Kingdom	1 244	503.93	1.14	1.10	1.03	0.09	0.01

Source: IOSCO Investment Funds Statistics Survey, 2021; IOSCO Calculations

Notes: 1) Austria, Jersey, Morocco and Thailand provided total NAV figures only for closed-ended funds; 2) Underlying data for European jurisdictions captures only those closed-ended funds that are required to report via the AIFMD framework. As such, figures in this table do not reflect UCITS funds; 3) Participating jurisdictions apply different definitions of what constitutes a closed-ended funds. As such, the figures are not necessarily comparable between jurisdictions. 4) Data reported by Switzerland is not included in this table due to small number of reported samples though Switzerland fully participates in the data collection exercise on CEFs.