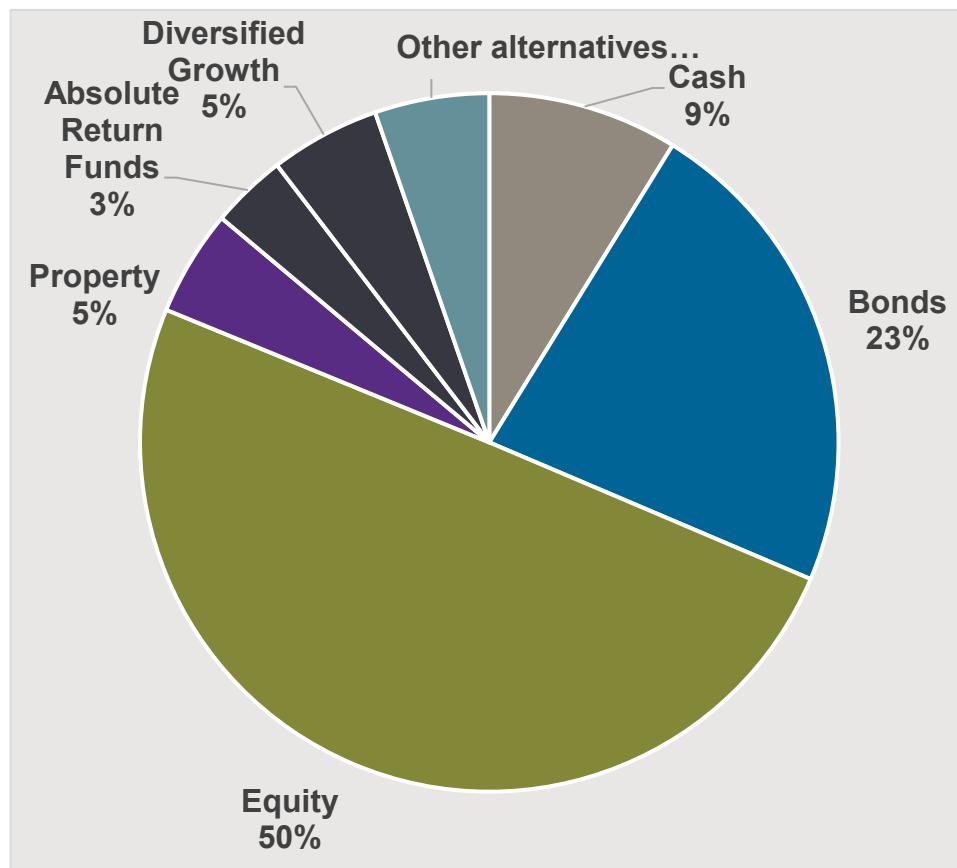

Alternatives in Defined Contribution

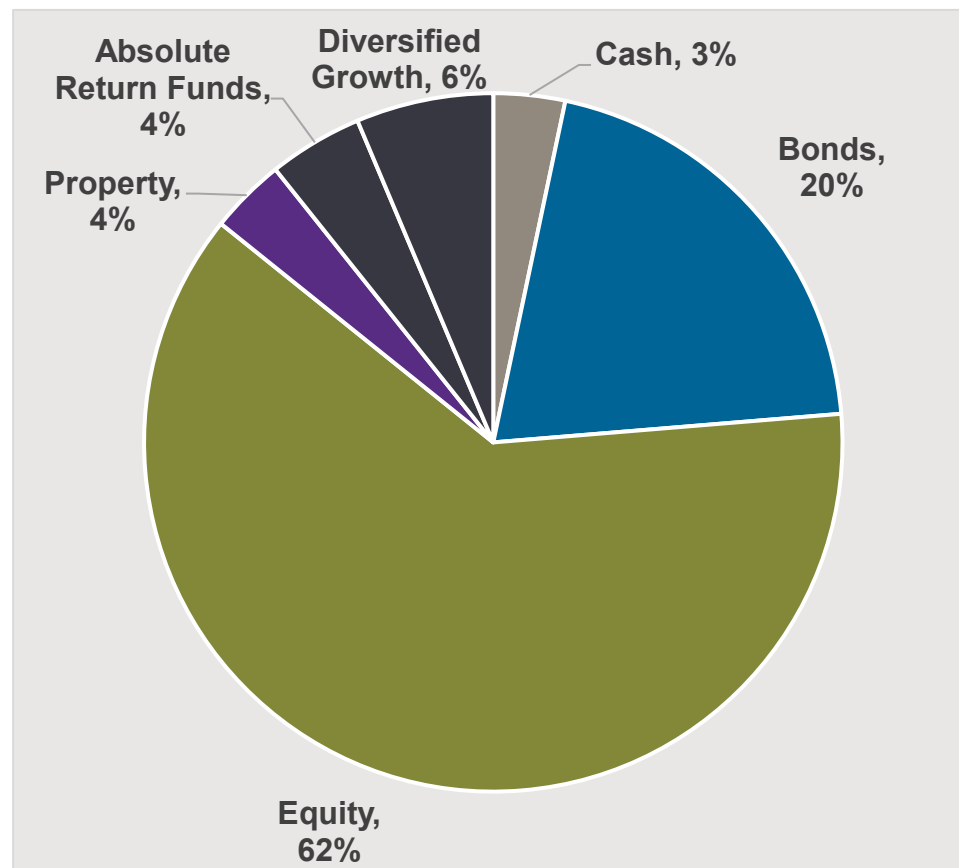
IAPF DC Conference 19 May 2021

Equity is the dominant asset class in Irish defined contribution

Irish Defined Contribution Asset Allocation



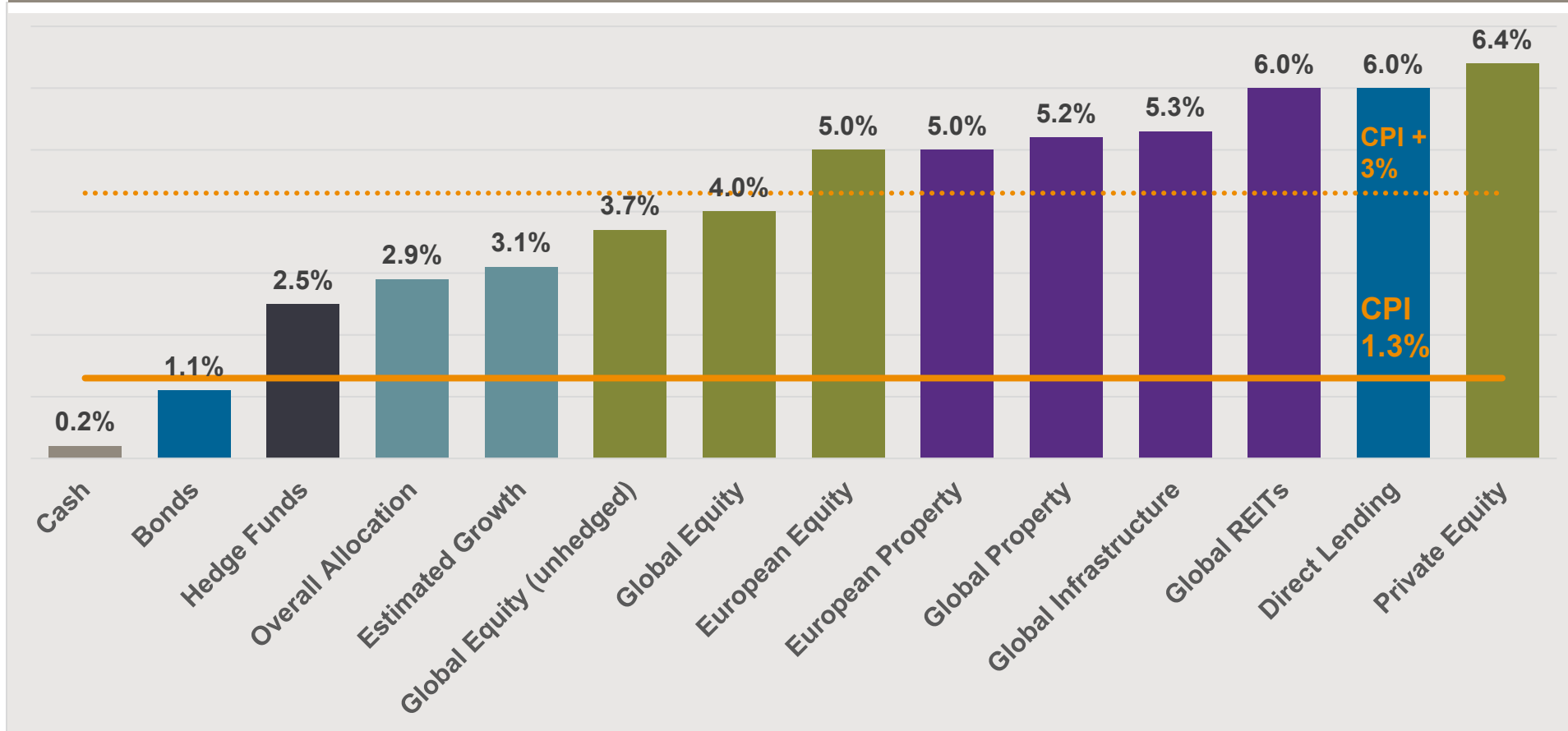
Estimated Growth Phase Asset Allocation



Source: J.P. Morgan Asset Management, for illustrative purposes only, based on IAPF Pension Investment Survey 2019. As at 31 December 2019.

Expected returns on listed assets may fall short over the next 10-15 years

Long-Term Expected Return, Selected Asset Classes



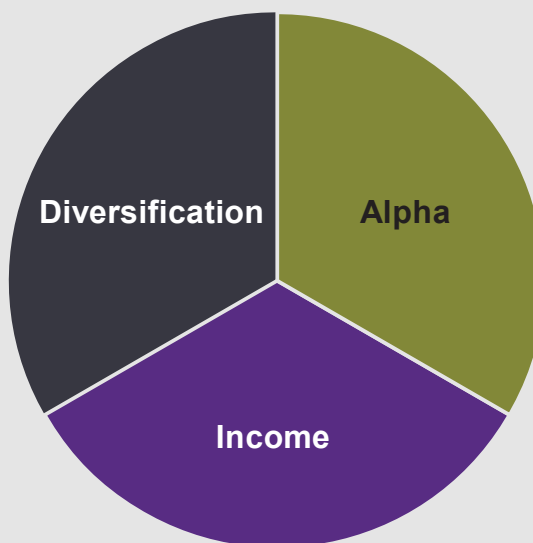
Source: J.P. Morgan Asset Management. Expected return based on J.P. Morgan Asset Management 2021 Long-Term Capital Market Assumptions as at 30 September 2020. Forecasts are not a reliable indicator of future performance.

Alternative and traditional assets share the same set of functions within a portfolio

Alpha, income and diversification

DIVERSIFICATION

Hedge funds
are expected to deliver
0.2x–0.6x beta
to global equity



ALPHA

Private equity
is expected to deliver
2%+ premium
over public equity

INCOME

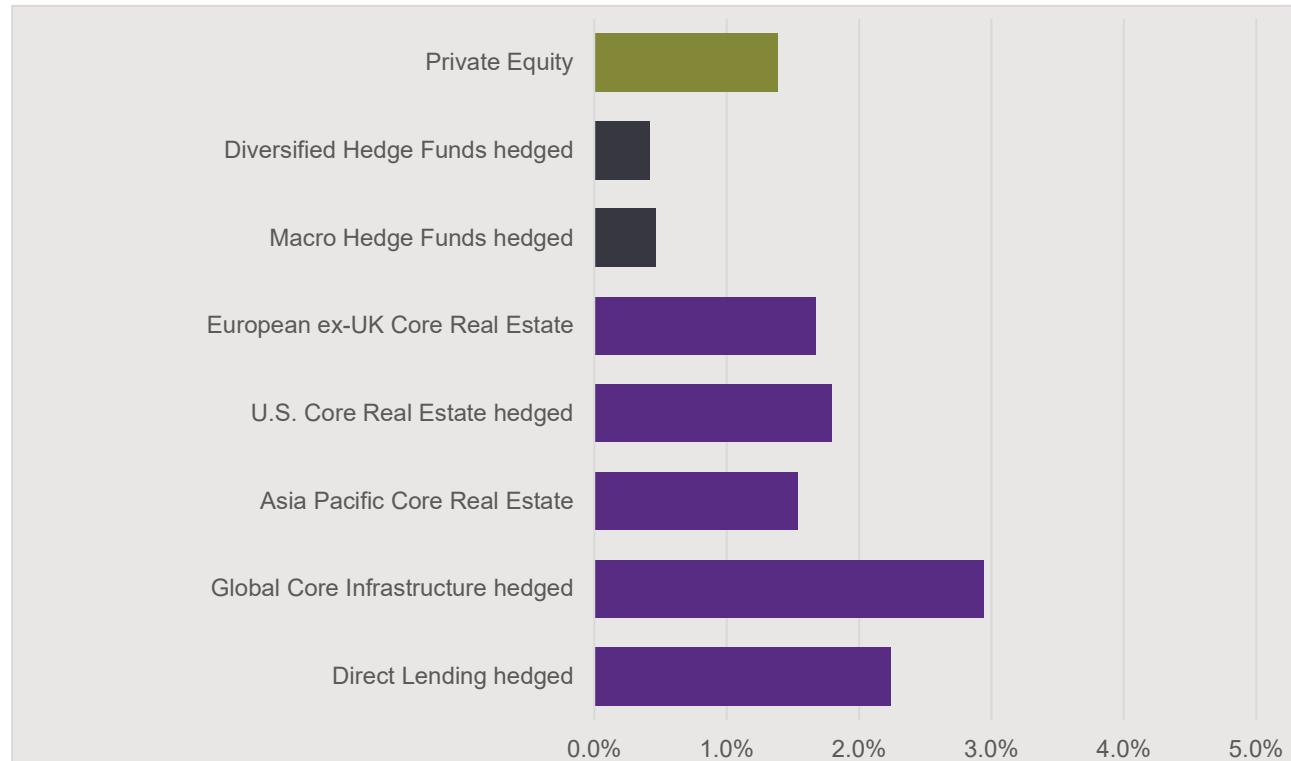
Core real assets
are expected to deliver
2x+ yield
of Global Aggregate

Source: J.P. Morgan Asset Management. Estimates are based on the 2021 Long-Term Capital Market Assumptions (LTCMAs); data as of September 30, 2020. Core real assets yield is calculated based on a weighted average starting NOI (after capex and depreciation) yield on a well-diversified portfolio of core real assets. Global Aggregate yield refers to the Bloomberg Barclays Global Aggregate current yield. Hedge fund beta range is calculated based on the range of hedge fund strategies covered by the LTCMAs.

Hypothetical performance results have many inherent limitations. No representation is being made that an asset class will or is likely to achieve profits or losses similar to those shown. In fact, there are frequently sharp differences between hypothetical performance results and the actual results subsequently achieved by any particular trading program. One of the limitations of hypothetical performance results is that they are generally prepared with the benefit of hindsight. In addition, hypothetical trading does not involve financial risk, and no hypothetical trading record can completely account for the impact of financial risk in actual trading.

Objectives-based alternative allocations can help improve portfolio outcomes for a range of investors

Impact on estimated Irish DC growth portfolio efficiency for 5% allocation to:

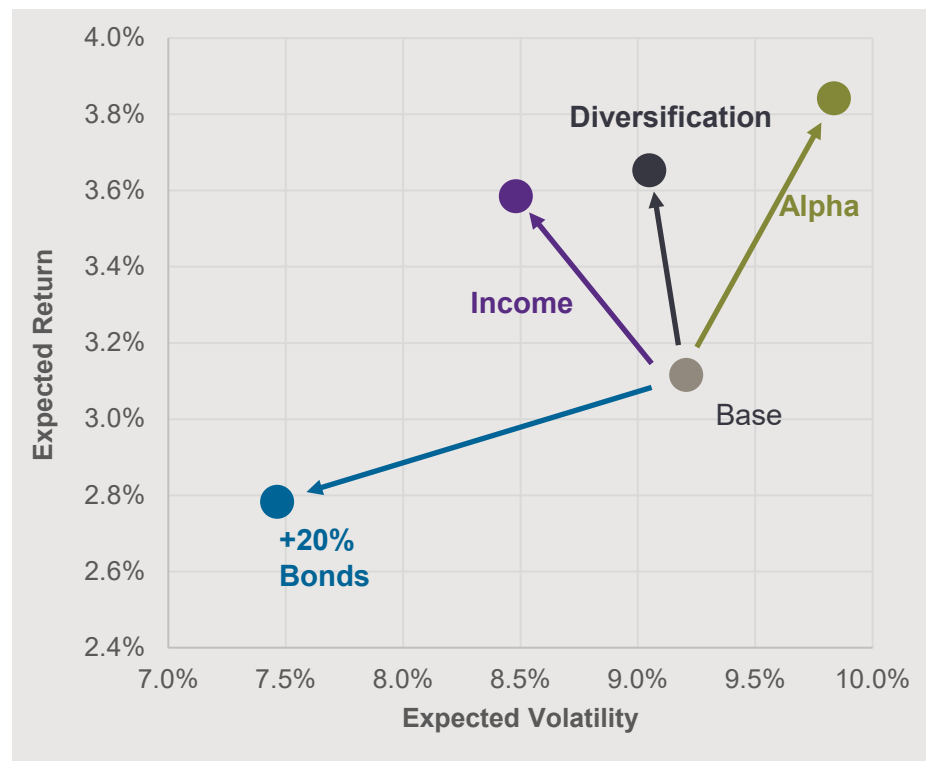


Sharpe	Return	Vol
1.38%	0.21%	0.21%
0.42%	-0.04%	-0.21%
0.47%	-0.09%	-0.35%
1.67%	0.10%	-0.13%
1.79%	0.11%	-0.13%
1.54%	0.12%	-0.05%
2.94%	0.10%	-0.41%
2.24%	0.15%	-0.14%

Source: J.P. Morgan Asset Management, for illustrative purposes only, base allocation derived from IAPF Pension Investment Survey 2019. Expected return and volatility statistics based on J.P. Morgan Asset Management 2021 Long-Term Capital Market Assumptions as at 30 September 2020. Forecasts are not a reliable indicator of future performance.

Different alternative allocations for different phases of the lifestyle journey

Alternatives allocation along the lifecycle for Irish defined contribution, and impact on estimated growth portfolio risk & return



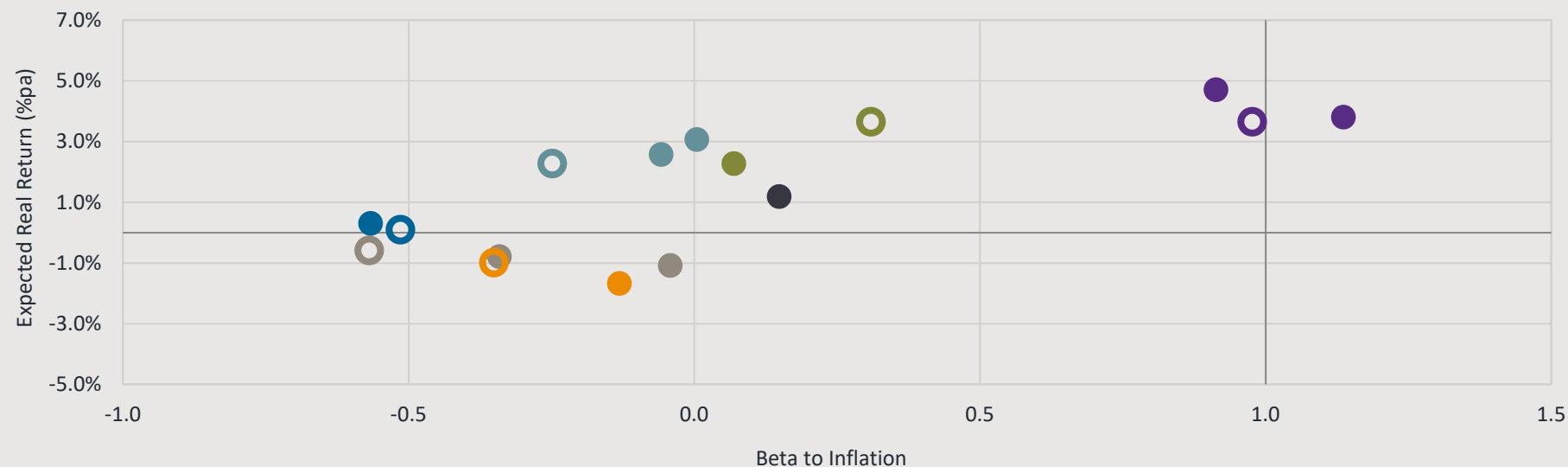
Source: J.P. Morgan Asset Management, for illustrative purposes only, base allocation based on IAPF Pension Investment Survey 2019. Expected return and volatility statistics based on J.P. Morgan Asset Management 2021 Long-Term Capital Market Assumptions as at 30 September 2020. Forecasts are not a reliable indicator of future performance.

Globalising real assets does not compromise beta to inflation

BETA TO INFLATION, SELECTED ASSET CLASSES, EUR

Beta to Inflation (EUR)

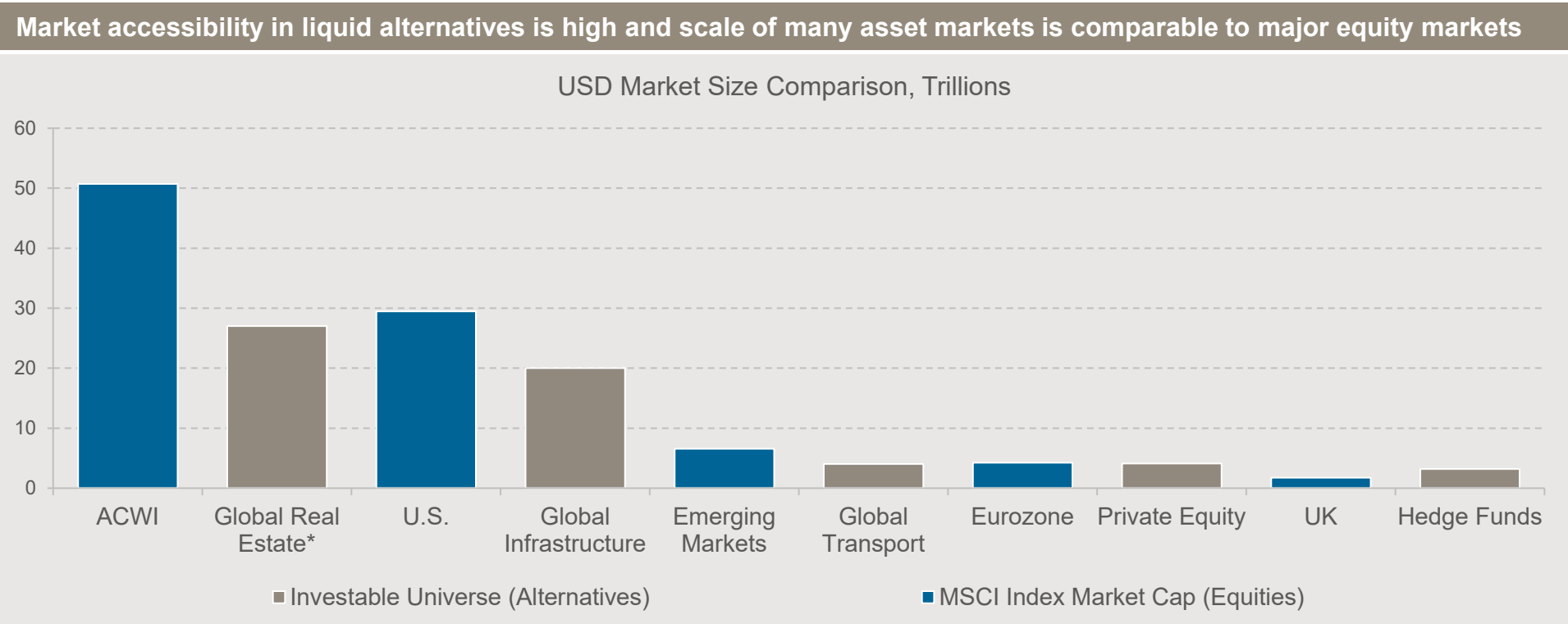
● Core Gvt ● Index-Linked ● Core Credit ● Extended Credit ● Hedge Funds ● Equities ● Real Assets



Source: J.P. Morgan Asset Management 2021 Long-Term Capital Market Assumptions; data as of 30 of September 2020. White centre = domestic only, Solid colour = global. Beta calculations do not allow for any potential time lag in correlation of illiquid assets to inflation. Forecasts are not a reliable indicator of future performance.



Accessibility is improving as markets deepen in size and reach

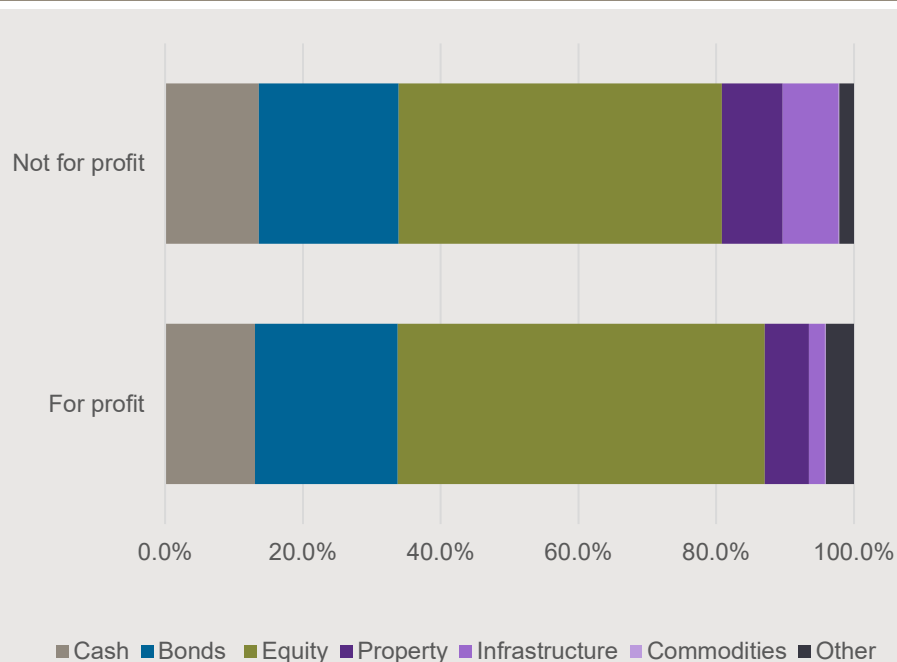


Source: J.P.Morgan Asset Management Multi-Asset Solutions; data as of November 2020. **"Global Real Estate" (Source: CBRE; other reputable surveys including MSCI capture smaller samples), Global Infrastructure (Source: U.S. BEA, OECD), Global Transport (Source: JP Morgan Asset Management Transport Group), Private Equity (Source: Preqin), Hedge Funds (Source: HFR)

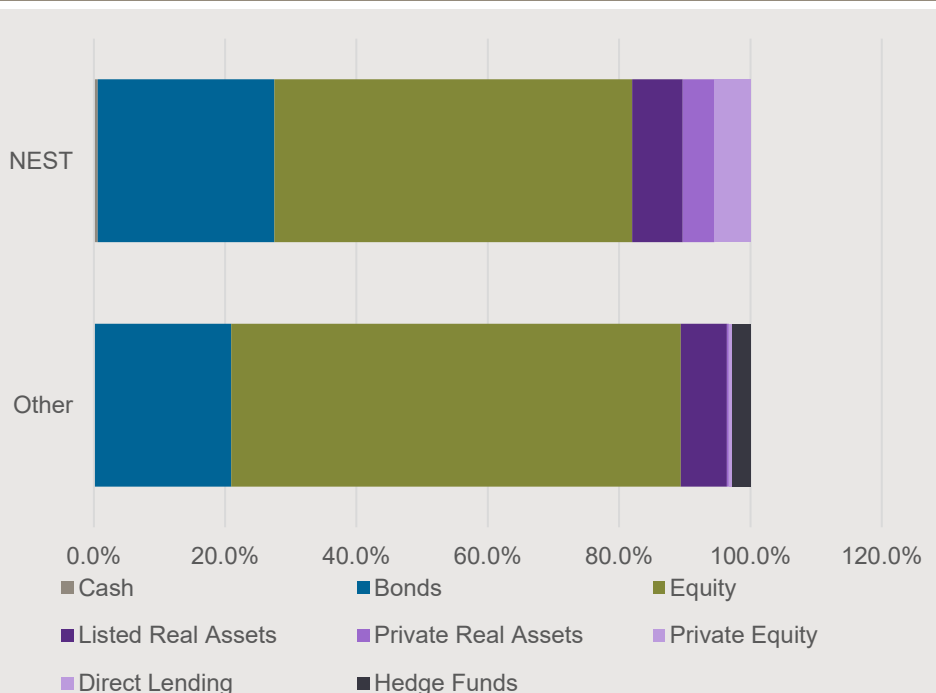
Alternatives in defined contribution – a function of scale and structure

Larger funds and those that wrap asset allocation into single vehicles better placed to incorporate alternatives

Australian Super Asset Allocation



UK Mastertrust Asset Allocation

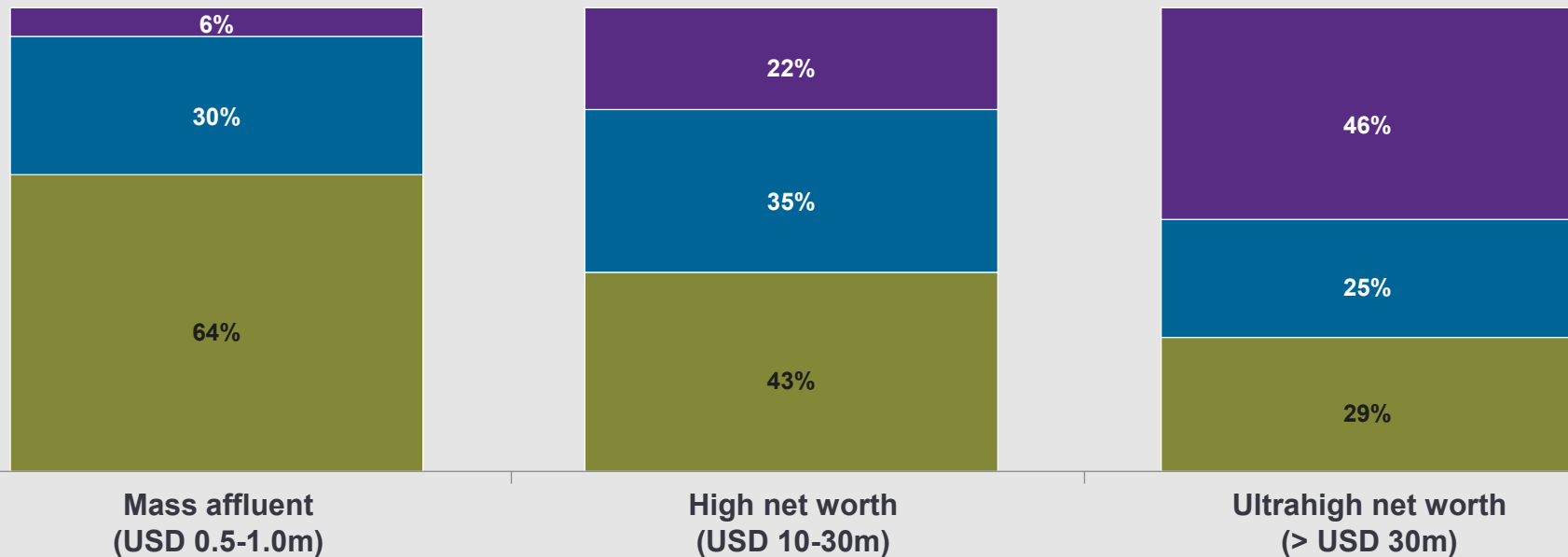


Source: J.P. Morgan Asset Management based on APRA June 2020 Annual Fund-Level Superannuation Statistics (LHS) and individual UK Mastertrust literature (RHS), for illustrative purposes only. As of 30 April 2021.

Alternatives included in individual portfolios of comparative size to DC plans – and smaller

WHERE INDIVIDUAL INVESTORS PUT THEIR MONEY

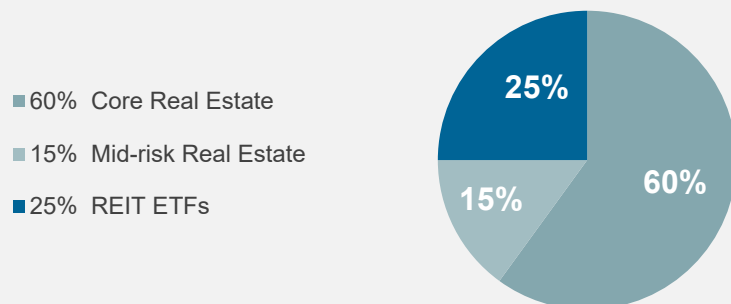
■ Fixed income ■ Equity ■ Alternatives



Source: *Institutional Investor*, KKR, J.P. Morgan Asset Management; data as of August 31, 2020. High net worth and ultrahigh net worth data are as of 2017. Mass affluent data are as of 2018.

Case Study: two layers of liquidity to facilitate investor trading needs

Strategic Property Allocation



Routine Liquidity (Smaller more frequent)

Frequency: Daily (T+1)

Intended uses:

- Participant flows
- Rebalancing
- Minor changes to allocation

Guidelines:

- Aggregate trades up to **5%** of a client's assets/NAV over any rolling **10-day trading period**

Non-Routine Liquidity (Larger less frequent)

Frequency: Monthly commitments & Quarterly redemptions

Intended uses:

- Initial funding
- Liquidation
- Spin offs and plan mergers

Guidelines:

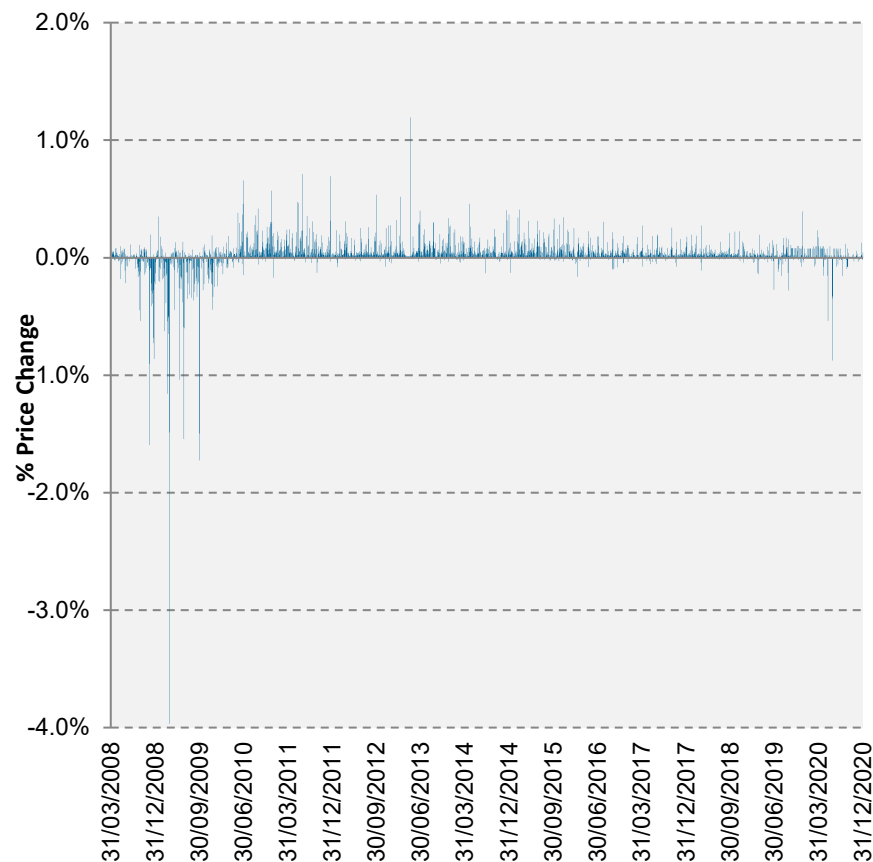
- Subject to a waiting/notification period:
- **Contributions:** Contributions accepted monthly.
- **Withdrawals:** Quarterly withdrawals accepted not less than 30 days prior to the last day of each calendar quarter 2

For illustrative purposes only.

Source: J.P. Morgan Asset Management as of December 31, 2020.

Valuation: daily pricing private real estate for DC plans

Daily pricing of private real estate blend to support liquidity requirements



- **Third party valuation**

- **Components:**

- Income: Direct portfolio's average daily income for prior two months is accrued daily and trued-up on a monthly basis
- Appreciation: Valuations are completed throughout the quarter and distributed as evenly as possible during the trading days of the quarter
- Daily Fair Value: Full appreciation or depreciation impact from asset valuations is recognized immediately/daily

- **Rigorous:**

- No predictability of returns
- Unscheduled valuations may occur due to the receipt of credible bids, changes in a property's circumstances and capital markets trends
- During periods of market inflection or dislocation, asset valuations may be conducted more frequently than quarterly

Source: J.P. Morgan Asset Management. Data from March 31, 2008 to December 31, 2020.
For illustrative purposes only. Past performance is not a reliable indicator of current and future results.

Summary

Attractive Return

Attractive return versus
listed markets from
current valuations

Range of Uses

Alpha
Income
Diversification

Increasingly Accessible

Large scale,
diverse markets and
expanding range of products

Growing Allocations

Increased usage by
large scale DC investors

Opinions, estimates, forecasts, projections and statements of financial market trends are based on market conditions at the date of the publication, constitute our judgment and are subject to change without notice. There can be no guarantee they will be met.



Disclosures

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