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## Family Offices 2024: Adjusting to Post-Inflation Markets

The investment landscape has changed considerably over the past two years, and many family offices are reassessing their asset allocations. Can they sustain their 6 – 8% (CPI+3%) long-run annualized return profile, and what adjustments might be required to do so?

In this paper, we model hypothetical asset allocations for three typical family office profiles using our most recent capital market assumptions (CMAs). We believe these models offer an insight into the kind of strategies that might be required to sustain past rates of risk-adjusted return in the new environment—but they are also a testing ground for some of the key investment themes that we are hearing from family offices as we head into 2024.

We think our models show that the themes investors are focusing on are largely the right ones. We also believe that these investment themes and hypothetical model allocations suggest more sophisticated and complex investment programs, making the selection of trusted asset management partners increasingly important.

## Executive Summary

- We hear five consistent investment themes from family offices coming into 2024:
  1. Consolidation of equity market gains and holding high cash balances
  2. More fixed income and an expanded universe for credit
  3. Caution on U.S. large-cap equities and a preference for markets that have lagged recently
  4. A search for more genuinely uncorrelated liquid alternatives
  5. More private markets, with a focus on areas of capital and liquidity shortage
- We see many of these themes supported in our hypothetical portfolio optimizations based on our most recent CMAs:
  - For an aggressive “First Generation” asset allocation:
    - More ex-U.S. equities; more alternatives; more private markets within alternatives; a move from standard hedge funds to uncorrelated markets
  - For a balanced “Second Generation” asset allocation:
    - More fixed income, tilted to high yield and alternative lending; a move from standard hedge funds to uncorrelated markets
  - For a conservative “Third Generation” asset allocation:
    - More fixed income, tilted to investment grade; a move from standard hedge funds to real-asset and income-generating alternatives
- Our model portfolios add marginal risk-adjusted return to what the average family office has achieved historically, in our view.
- For First and Second Generation investors in particular, these model portfolios imply greater sophistication and complexity: across fixed income, equity and alternatives we see several ways in which asset management partners could add value with active management solutions, analytics and other forms of support.

## Family Offices at Neuberger Berman

We work with family offices in three ways:

- Investment Solutions:
  - Managing \$400bn+ for clients across traditional, alternative, public and private asset classes
  - Drawing on a broad suite of solutions for family offices wherever they are in their life cycle
  - Customizing solutions across both public and private markets
- Intellectual Capital & Analytics:
  - Supporting family office diligence exercises with our expertise across asset classes (e.g., by providing a third-party opinion on private equity managers)
  - Providing CIO access, market research, webinars and continuous education
  - Offering a range of analytical solutions, from portfolio-level alpha-detection solutions (Strategy Detective) to cash flow modelling (PRESTO)
- Family Office Network & Ecosystem:
  - Working with 1000+ single and multi-family offices across EMEA and North America, with deep knowledge of their investment objectives and portfolios
  - Plugging clients into an ecosystem where they can share deal flow, insights and investment opportunities

**\$4bn+**  
of family office assets  
under management

**1,000+**  
family office partners  
in our network

To paraphrase Leo Tolstoy, every happy family is alike, but every happy family invests in its own way.

Objectives differ: a family office may invest to pass on family wealth, to fund philanthropic giving, to diversify wealth from the family business, or a host of other reasons. Time horizons and risk appetite can vary significantly: one family office may look several generations ahead and be prepared to assume high risk, another may be disbursing a large amount of money today and be focused on income and capital preservation. And values are personal: one family office may seek out market signals for where there are shortages of capital and return opportunities, another may seek out shortages of capital caused by market failures; one may regard sustainability as a risk-management consideration and another as an impact strategy, while many others will see it as both.

While acknowledging that diversity, we do see some common themes in family office investing that make them stand out from other, more regulated institutions such as insurance companies and pension funds. Figure 1 shows the asset allocation of the typical family office, based on what we see among the 1,000-plus family offices that Neuberger Berman has a relationship with worldwide, alongside what we see reported in the sector literature.

**FIGURE 1. THE TYPICAL FAMILY OFFICE ASSET ALLOCATION: LEANING TO ALTERNATIVES**



Source: Neuberger Berman. For illustrative purposes only.

We can see that this asset allocation is split right down the middle between traditional and alternative investments. We think illiquid markets make up on average 30% of a typical portfolio explicitly, and would likely be implicit in the real-asset and hedge-fund allocations, too. For the typical family office, risk derived from manager skill is at least as important as risk derived from markets.

With a portfolio like this, the median family office among the 1,000+ covered by Neuberger Berman has achieved long-run annualized returns of around 7%, which has fit with the typical family office's target of around 3% real return.

The investment landscape has changed a lot over the past two years, however. Following a burst of high inflation, central bank policy rates and the yield on cash have risen substantially, after more than a decade in the doldrums. Bond yields have risen, too. Many equity markets have been on a remarkable roundtrip, dropping 20% or more through 2022, but now re-testing or surpassing their record highs. We believe the market in general is waiting to see how persistent the higher-rate environment will be, and how that might reverberate through the wider system—in terms of tightness of financial conditions, corporate cash flows and long-term asset valuations.

Many family offices are reassessing their asset allocations. Can they sustain their 6 – 8% long-run annualized return profile, and what adjustments might be required to do so?

## Five Consistent Investment Themes

As they look into 2024, the family offices we speak to tend to be considering one or more of the following investment themes, all of which tally with the changed market environment described above.

1

Some are consolidating gains made during the equity market recovery of the past year and are content to hold the proceeds in cash while it yields around 5%. We understand the sentiment, especially given valuations in certain parts of the equity market as we move through a period of high economic uncertainty. We would note, however, that there has historically been very little correlation between market valuation and subsequent near-term returns. Indeed, 2023 stands as a good example of how market momentum can persist in the face of apparently high valuations, rising rates and a sluggish economy. Moreover, it now looks very likely that we are at peak policy and cash rates, and we think investors should consider locking in government and corporate bond yields at current levels while they are still available.

2

Many investors have bonds back on the radar and there is growing appetite to take risk across the credit spectrum and seek out yield and spread across all types of securities, from investment grade corporate bonds to high yield loans, securitized products and private lending.<sup>1</sup> At Neuberger Berman, we see the justification for this focus in our own capital market assumptions (CMAs), which suggest that today's yields, outside of investment grade bonds, are competitive against long-term estimated returns for public-market equities.

3

In equities, we see wariness of the valuations and concentration in mega-cap technology that now characterize the U.S. large-cap market and a focus on specific niches that have underperformed recently or over the longer term—small caps and Japan stand out. We also see a general migration from active to passive management, even as these macro, country, style and size risks are added; this often goes hand-in-hand with many family offices opting to manage their public equity portfolios in house.

4

Disappointment with the recent performance of hedge funds is widespread. Many have been found to be carrying a lot of market exposure and that is leading to a rethink of the strategy mix, away from long/short equity and toward macro, special situations and a range of uncorrelated asset classes and strategies.

5

Finally, we see many family offices wanting to take a more active approach in private markets, driven by growing recognition of the opportunities associated with capital and liquidity shortages in the broad economy and in the private markets ecosystem itself. Tighter financing conditions are creating opportunities in areas such as direct lending, residential mortgages, private company preferred stock and other capital solutions, for example. And the "denominator effect" that has left many institutional investors over-committed to private equity following the public equity market losses of 2022, together with the closure of traditional exit routes, is generating opportunities in secondaries and co-investments for those able to step in with capital.<sup>2</sup>

<sup>1</sup> Louay Mikdashi, Susan Kasser, David Lyon, et al, "Private Credit: An All-Weather Asset Class" (March 2023) at <https://www.nb.com/en/link?type=article&ame=whitepaper-private-credit-an-all-weather-asset-class>.

<sup>2</sup> Peter Bock, Philipp Patschkowski and Ben Perl, "Three Notable Trends in the World of Secondaries" (November 2023), at <https://www.nb.com/en/link?type=article&name=insights-three-notable-trends-in-the-world-of-secondaries>.

Alongside an increasing focus on sustainability, environmental, social and governance (ESG) and the climate and energy transition, we believe these themes summarize priorities for the family offices we speak to for 2024: building and diversifying fixed income allocations; a contrarian focus on recent laggards; and seeking out stresses and dislocations in private markets.

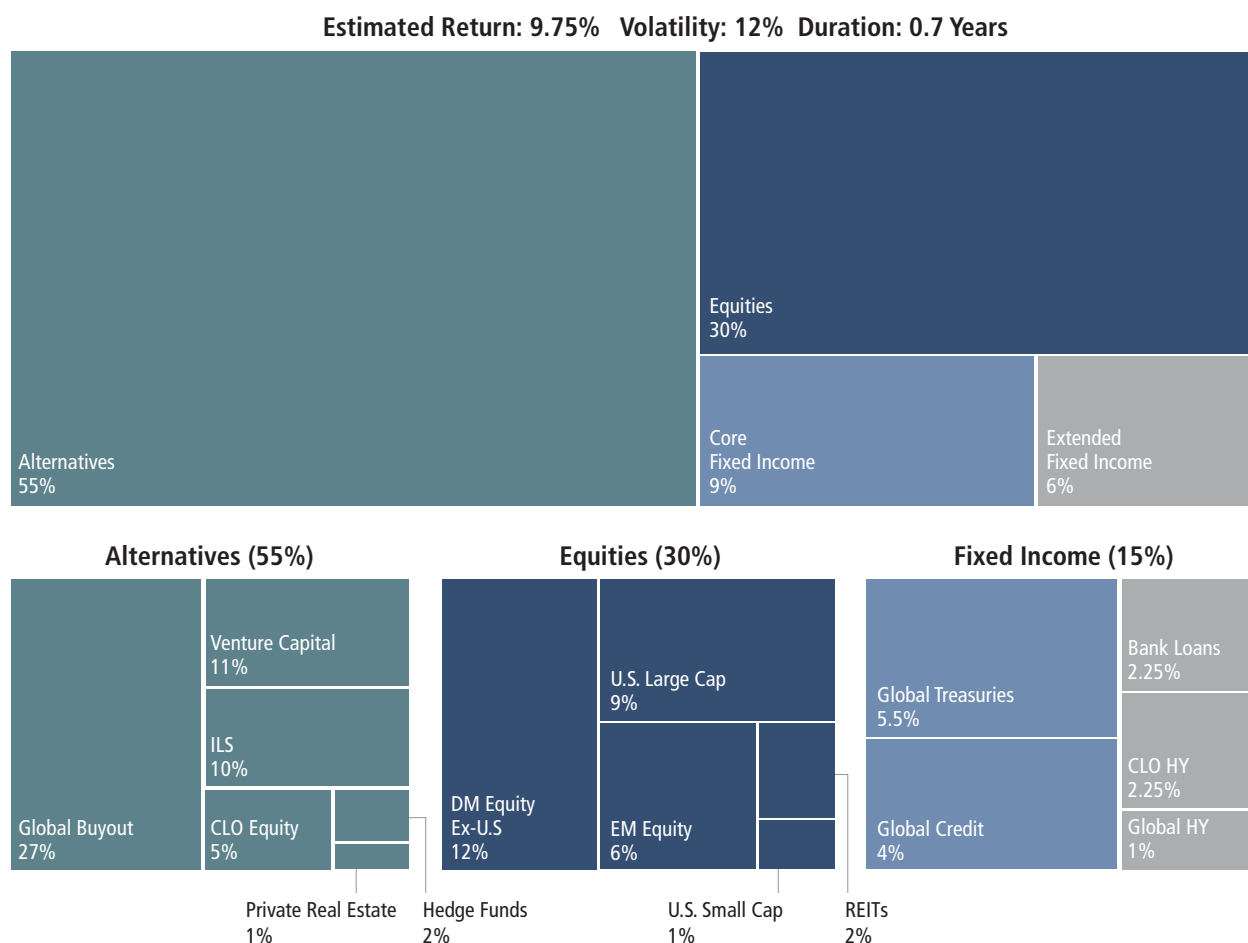
## Optimizing Portfolios for Three Typical Family Office Profiles

When we use our latest CMAs to optimize hypothetical family office portfolios, based on estimated return targets in line with what family offices are used to, do we see asset allocations that express some or all of these investment themes?

To answer that question, we split the family office world into a three-level taxonomy. Our “First Generation” family office is focused on building wealth and has the most aggressive estimated return target. Our “Second Generation” family office is balanced between wealth creation and wealth preservation, and has a lower volatility threshold. Our “Third Generation” investor prioritizes capital preservation and low volatility over estimated return.

The optimized asset allocations are shown below.

**FIGURE 2. FIRST GENERATION FAMILY OFFICE: AGGRESSIVE ASSET ALLOCATION**



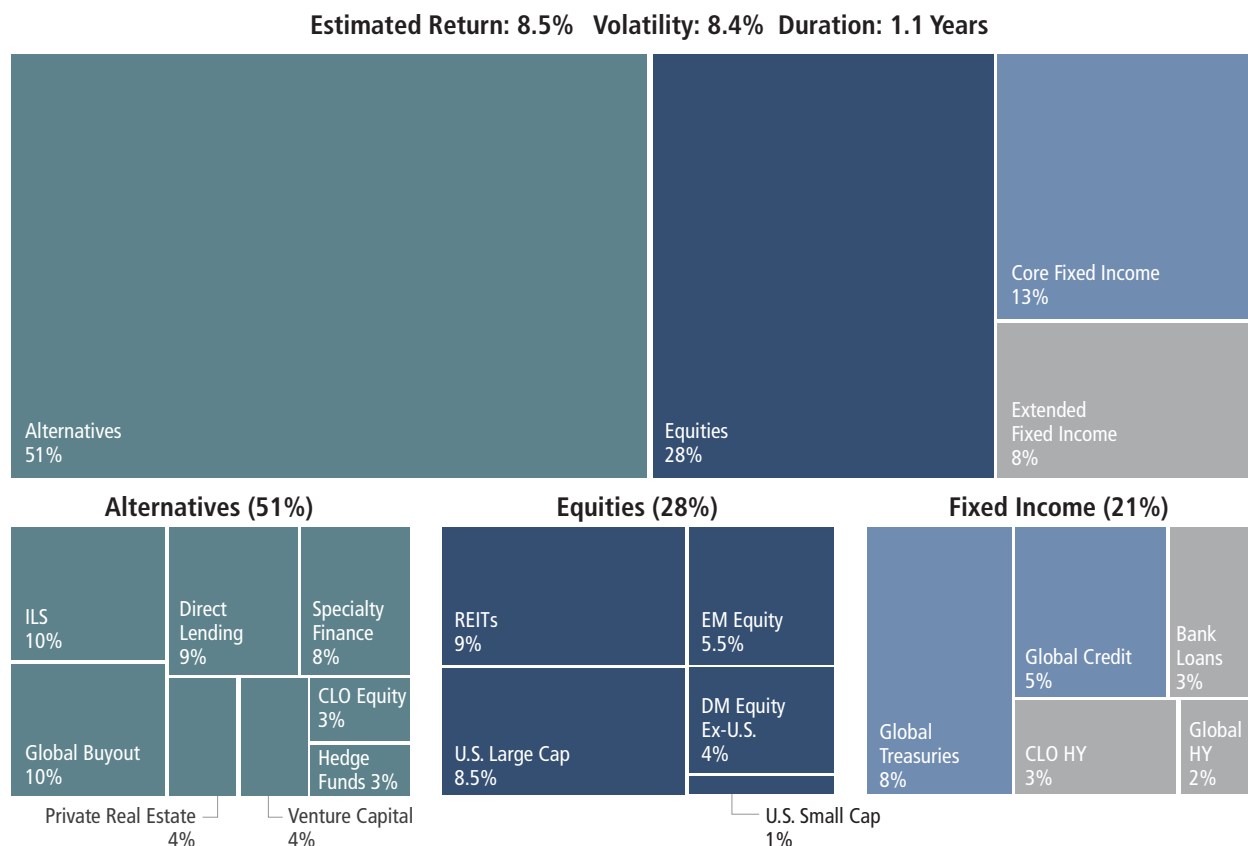
Source: Neuberger Berman, Bloomberg, Cambridge Associates, FactSet. Analytics as of December 31, 2023. Asset classes are represented by benchmarks and do not represent any Neuberger Berman investment product or service. Please see Additional Disclosures at the end of the presentation for asset class and index definitions and Neuberger Berman Capital Market Assumptions. Investing entails risks, including possible loss of principal.

When we compare our “First Generation” asset allocation with our typical family office allocation in figure 1, we see that while we think of this as an aggressive program, the public market equities allocation is very similar. The marked difference is a lower allocation to cash and public market fixed income and a higher allocation to alternatives—and it is the alternatives sleeve where the risk is being added. Hedge funds are less prominent and private equity accounts for 28% of the total allocation.

This fits with three of our five investment themes:

- 3 There is no big bet on equities for wealth creation here. Moreover, within the allocation, twice as much is allocated to non-U.S. markets than to U.S. large caps.
- 4 While hedge funds account for only 2% of this allocation, the liquid alternatives allocation is actually slightly bigger than it was for our typical family office: the fact that most of it goes to insurance-linked strategies emphasizes the theme of uncorrelated asset classes versus “beta in disguise.”<sup>3</sup>
- 5 The sizable allocation to private equity would give this investor a lot of scope to explore a range of strategies, from straightforward buyout limited partnerships to secondaries, GP-led secondaries, co-investments and mid-life co-investments. We believe about half of a family office’s buyout allocation should be in secondaries and co-investments.

**FIGURE 3. SECOND GENERATION FAMILY OFFICE: BALANCED ASSET ALLOCATION**



Source: Neuberger Berman, Bloomberg, Cambridge Associates, FactSet. Analytics as of December 31, 2023. Asset classes are represented by benchmarks and do not represent any Neuberger Berman investment product or service. Please see Additional Disclosures at the end of the presentation for asset class and index definitions and Neuberger Berman Capital Market Assumptions. Investing entails risks, including possible loss of principal.

<sup>3</sup> For a primer on insurance-linked strategies and how they can diversify an investment portfolio, see Peter DiFiore, Cedric Drui and Sophie Ware, “Catastrophe Bonds: Natural Diversification” (January 2021) at <https://www.nb.com/en/link?type=article&name=white-paper-catastrophe-bonds-natural-diversification>.

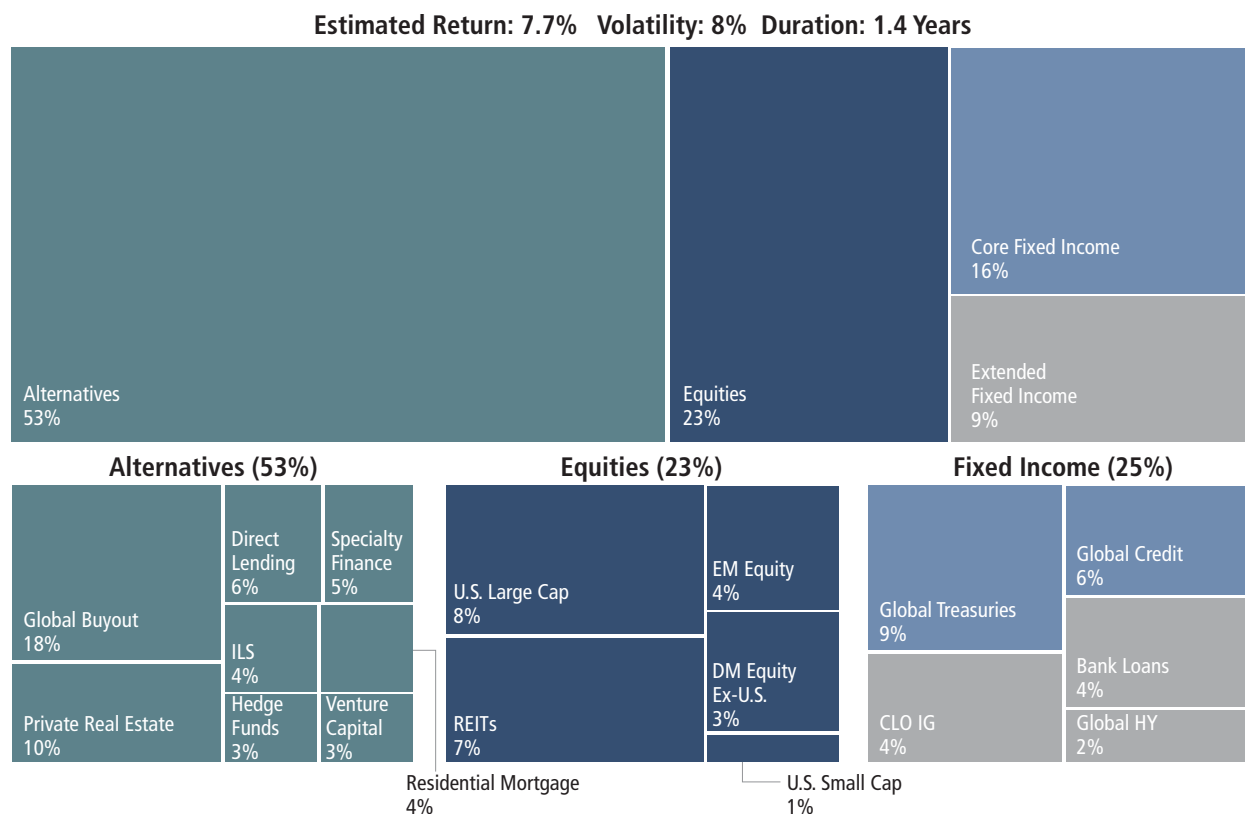
At the headline level, our “Second Generation” portfolio doesn’t look too different from that of our “First Generation” investor. The distinction is in the detail.

The overall fixed income allocation is slightly bigger, but that is balanced by a heavier tilt to high yield over investment grade, in the form of bonds, loans and securitized products. Moreover, the similarly sized alternatives portfolio has 17% allocated to credit in the form of direct lending and specialty finance, which includes things like consumer lending, small-business lending (including distressed debt), receivables finance and bridge loans.

Here we can again detect three of our five investment themes:

- 2 Fixed income, credit and lending make up 38% of the asset allocation, when we look across the traditional/alternative, public/private and liquid/illiquid boundaries.
- 4 Hedge funds are again lowered in the allocation relative to insurance-linked strategies: an investor looking for a balanced asset allocation would want to add genuine diversification, not hidden market risk.
- 5 The private markets allocation has a sizable share in areas where opportunities are being generated by capital and liquidity shortages, such as speciality finance and direct lending.

**FIGURE 4. THIRD GENERATION FAMILY OFFICE: CONSERVATIVE ASSET ALLOCATION**



Source: Neuberger Berman, Bloomberg, Cambridge Associates, FactSet. Analytics as of December 31, 2023. Asset classes are represented by benchmarks and do not represent any Neuberger Berman investment product or service. Please see Additional Disclosures at the end of the presentation for asset class and index definitions and Neuberger Berman Capital Market Assumptions. Investing entails risks, including possible loss of principal.

As one might expect, our more conservative, “Third Generation” family office portfolio eases back from equities and alternatives and leans more into fixed income. In addition, the fixed income allocation is slightly less tilted to high yield sectors.

For this hypothetical family office, two of our investment themes loom large:

2

Two years ago, this investor would have struggled to generate a 7% estimated return with as much as 16% in core government and investment grade corporate bonds. It would likely have been forced into holding more high-yielding and illiquid fixed income. As our most conservative investor, it is arguably the one most affected by the recent change in the market environment.

4

Hedge funds are again lowered in the allocation relative to insurance-linked strategies, but we also see a tilt within alternatives to real and income-generating asset classes such as real estate (which reaches our cap of a 10% allocation, in addition to a REITs allocation within equities), mortgages, direct lending and specialty finance.

### Greater Sophistication and Complexity

Overall, our CMAs and the resulting optimized asset allocations suggest good reasons for the investment themes being expressed by family offices as we head into 2024. In general, they do indeed favor increased allocations to credit, to equities outside of U.S. large caps, to private markets (facilitating a more active and diversified approach) and to genuinely uncorrelated diversifiers. The only theme left out is the temptation to hang on to cash holdings—and that is because our long-term CMAs indicate low cash returns in both absolute and real terms, as one would expect.

With these asset allocations, our hypothetical family offices can achieve estimated annualized returns marginally ahead of their historical averages, at 9.75%, 8.5% and 7.7%, respectively.

These are not simple investment strategies, however.

There is more yield available in fixed income today, especially in investment grade sectors, but the breadth of exposure in these allocations—from government bonds to specialty finance—suggests that this level of risk-adjusted return may not be achieved by simply sitting on high grade bonds. Managing these portfolios in house would be a major challenge, and even selecting specialist managers presents difficulties—particularly in less-liquid markets. At Neuberger Berman, we have long been advocates of multi-asset fixed income and credit mandates, in which an asset management partner, preferably one with capabilities in less-liquid and private markets, is given some leeway to allocate flexibly across the fixed income universe. The ability to pick points on yield curves, to harvest illiquidity premia, to rotate between fixed and floating rates and among different levels of the capital structure (sometimes of the same issuer) can add a substantial amount of risk-adjusted return over time.

We agree with the current focus on equity market laggards and the catch-up potential in small caps and in ex-U.S. markets such as Japan, but we also think the importance of active management rises as investors move into those markets. U.S. large caps bring their own challenges to passive strategies, such as the benchmark indices’ extreme concentration in growth stocks and particularly mega-cap technology stocks; but markets like small caps and Japan introduce issues around patchy quality and governance, which have



historically resulted in wide dispersion of performance. A lot of family offices manage equities passively in-house, but we think the case for a re-think is building. At the very least, we believe investors should consider working with an asset management or analytics partner to regularly survey the underlying risk factors in their equity portfolios, to ensure ongoing diversification and to avoid unwitting concentration and unwanted exposures or to tilt toward their desired themes (Neuberger Berman’s “Strategy Detective” suite is designed for these tasks).<sup>4</sup>

Expanding private markets allocations into more debt, secondaries and co-investments is likely to put a lot more pressure on family office research, due diligence, manager-selection and cash flow-management resources. In addition, sourcing opportunities in co-investments requires an extensive network of General Partner relationships that is beyond most family offices to maintain. We think a partner that has these networks and can advise and support on manager due diligence can add considerable value to a family office’s private markets program. Long experience managing the administrative demands of complex capital calls within a multi-asset portfolio context is also a major advantage. We think sophisticated cash-flow projection capabilities, such as those provided via Neuberger Berman’s “PRivate markets STOchastic” model (“PRESTO”), are key to addressing these challenges.

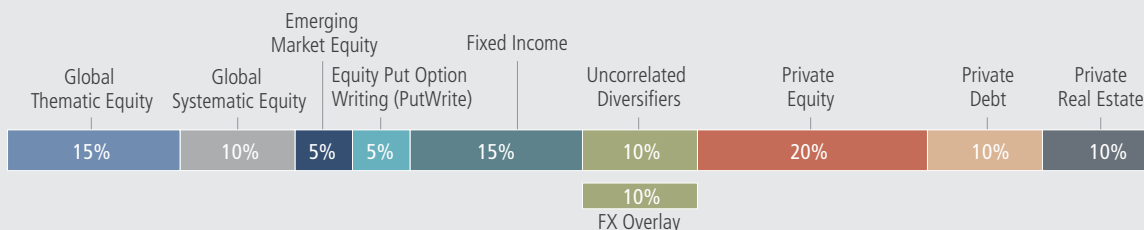
Finally, we would add that a family office potentially can do a lot to increase the tax efficiency of its investments. Available measures will vary depending on tax jurisdiction, but might include tax-loss harvesting strategies in public markets, wrapping tax-inefficient alternatives such as hedge funds and private markets in a Private Placement Life Insurance wrapper, and swapping out some U.S. Treasuries exposure for U.S. municipal bonds.<sup>5</sup>

## PUTTING IT INTO PRACTICE: A CASE STUDY

### Mandate awarded 2021

Fully integrated multi-asset long-term growth solution with broad latitude to invest across private equity, private credit and real estate

### STRATEGIC ASSET ALLOCATION: Investment Objective: 6 – 8% annualized, net of fees, over a market cycle



### Value-Add Proposition

- Access to a variety of traditional and specialist funds across the public and private market teams at Neuberger Berman
- A diversified liquid portfolio allocation on Day One, building up to Steady State Strategic Asset Allocation
- Active management implementation on a sub-strategy basis
- Private markets proposed commitment program and pacing analysis
- Potential to build up to a larger private markets allocation over time
- Cost-efficient, whole-solution integrated fee



Multigenerational  
Wealth Preservation



Capital Growth

<sup>4</sup> For an introduction to “Strategy Detective”, listen to our podcast, “The Portfolio Doctor Is In” (January 2023), at <https://www.nb.com/en/link?type=article&name=disruptive-forces-podcast-the-portfolio-doctor-is-in>.

<sup>5</sup> Ram Ramaswamy and David Waugh, “Tax Alpha: Managing Equity Portfolios for Tax Efficiency,” at <https://www.nb.com/en/us/insights/tax-alpha-managing-equity-portfolios-for-tax-efficiency>.

## Additional Disclosures

### Indices Used

Asset Class	Index Name
Global Treasuries	Bloomberg Global Treasury Index
Global Credit	Bloomberg Global Aggregate Credit Index
Global HY	Bloomberg Global High Yield Index
Bank Loans	60% Morningstar LSTA U.S. BB Ratings Loan Index / 40% Morningstar LSTA U.S. B Ratings Loan Index
CLO Equity	Dow Jones U.S. Select Regional Banks
U.S. Large Cap	S&P 500
U.S. Small Cap	Russell 2000
DM Equity ex-U.S.	MSCI EAFE
EM Equity	MSCI EM
REITs	FTSE Nareit U.S. Real Estate Index - Equity REITs
Global Buyout	Burgiss Global Buyout Funds Index
Venture Capital	Burgiss Venture Capital
Specialty Finance	Bloomberg U.S. Corporate BB High Yield (1-3 years) Index
Direct Lending	Burgiss U.S. Private Debt Fund Index
Commodities	Bloomberg Commodity Index
Hedge Funds	HFRI Composite Index
Insurance-Linked Securities	Eurekahedge ILS Advisers Index
Private Real Estate	NCREIF Fund Index ODCE

### Neuberger Berman Capital Market Assumptions Framework

Asset Class	Return Estimate	Risk Estimate
Fixed Income	Market yields of public indices adjusted for default cost <sup>1</sup>	
Equity	"Building Block" approach <sup>2</sup>	Historical volatility of monthly return series from 2007
Liquid Alternatives	Factor regression	
Illiquid Alternatives	"Building Block" approach <sup>2</sup>	Historical volatility of quarterly series from 2007 with de-smoothing

Source: Neuberger Berman. For illustrative purposes only.

<sup>1</sup> For certain asset classes where a standard public index may not be readily available, Neuberger Berman will create a proxy index using a combination of similar asset classes. Default costs are estimated at the CUSIP level, then aggregated to the index level; where CUSIP-level data is unavailable, Neuberger Berman will estimate default costs at the index level.

<sup>2</sup> Separate estimates are made for different sources of return (income yield, valuation change, earnings growth), and these "blocks" are aggregated to establish an asset class-level estimated return.

Asset Class	Estimated Return	Option-Adjusted Spread Duration	Option-Adjusted Duration	Annualized Volatility
Global Treasuries	4.63%	0.00	7.45	3.52%
Global Credit	4.91%	6.11	6.04	4.97%
Global HY	6.00%	3.22	3.09	7.33%
Bank Loans	6.68%	3.50	0.25	4.76%
CLO Equity	15.00%	–	–	25.23%
U.S. Large Cap	6.25%	–	–	14.82%
U.S. Small Cap	7.05%	–	–	19.90%
DM Equity ex-U.S.	6.82%	–	–	16.03%
EM Equity	7.26%	–	–	17.80%
REITs	6.86%	–	–	17.90%
Global Buyout	12.26%	–	–	15.79%
Venture Capital	14.86%	–	–	22.89%
Specialty Finance	9.58%	1.63	1.47	3.81%
Direct Lending	9.15%	3.50	0.25	8.08%
Commodities	6.83%	–	–	14.79%
Hedge Funds	5.53%	–	–	6.21%
Insurance-Linked Securities	10.00%	–	–	3.81%
Private Real Estate	6.55%	-	-	11.92%

Source: Neuberger Berman, Bloomberg, Cambridge Associates, FactSet. Analytics as of December 31, 2023. The performance and risk projections/estimates are hypothetical in nature and reflect the Neuberger Berman's Capital Market Assumptions. The estimates do not reflect actual investment results and are not guarantees of future results. Actual returns and volatility may vary significantly. Asset classes are represented by benchmarks and do not represent any Neuberger Berman investment product or service. Investing entails risks, including possible loss of principal.

#### Index Definitions

The **Bloomberg Global Treasury Index** tracks fixed-rate, local currency government debt of investment grade countries, including both developed and emerging markets. The index represents the treasury sector of the Global Aggregate Index. The index was created in 1992, with history available from January 1, 1987.

The **Bloomberg Barclays Global Aggregate Credit Index** measures the global investment grade local currency corporate and government-related bond markets. This multi-currency benchmark includes fixed-rate bonds from both developed and emerging markets issuers. It is a component of the Global Aggregate Index, and was created in 2001, with index history backfilled to September 1, 2000.

The **Bloomberg Global High Yield Index** is a multi-currency flagship measure of the global high yield debt market. The index represents the union of the U.S. High Yield, the Pan-European High Yield, and Emerging Markets (EM) Hard Currency High Yield Indices. The high yield and emerging markets sub-components are mutually exclusive. Until January 1, 2011, the index also included CMBS high yield securities. The Global High Yield Index is a component of the Multiverse Index, along with the Global Aggregate, Euro Treasury High Yield, and EM Local Currency Government indices. It was created in December 1998, with history backfilled to January 1, 1990.

The **JPM EMBI Global Diversified Index** includes U.S. dollar-denominated Brady bonds, Eurobonds, and traded loans issued by sovereign and quasi-sovereign entities. EMBI Global Diversified expand upon the composition of their predecessor, the Emerging Markets Bond Index Plus (EMBI+), by using a different country selection process and instrument selection process.

The **JPM CEMBI Index** is market-capitalization weighted index of corporate bonds issued by companies in emerging markets.

The **Morningstar LSTA U.S. BB Ratings Loan Index** is a market-value weighted index designed to measure the performance of the U.S. leveraged loan market for loans with BB- to BB+ ratings as rated by S&P Global Ratings.

The **Morningstar LSTA U.S. B Ratings Loan Index** is a market-value weighted index designed to measure the performance of the U.S. leveraged loan market for loans with B- to B+ Ratings as rated by S&P Global Ratings.

The **J.P. Morgan Collateralized Loan Obligation Index** is the first rules-based benchmark for broadly syndicated, arbitrage U.S. dollar-denominated CLO debt. Representing the entire debt capital structure, the index covers 1,700+ deals and 10,000+ tranches managed by 140+ CLO managers.

The **Dow Jones U.S. Select Regional Banks Total Return Index** measures regional banks providing a broad range of financial services, including retail banking, loans and money transmissions. The index is quoted in U.S. dollars.

The **S&P 500 Index** measures the performance of the 500 largest U.S. companies, and captures approximately 80% coverage of available market capitalization.

The **Russell 2000 Index** measures the performance of the small cap segment of the U.S. equity universe and includes the 2,000 smallest securities of the Russell 3000 Index based on a combination of their market cap and current index membership.

The **MSCI EAFE Index** is a free float-adjusted market capitalization index that is designed to measure developed market equity performance, excluding the U.S. and Canada.

The **MSCI Emerging Markets Index** is a market-value weighted index designed to represent the performance of large- and mid-cap securities in 26 emerging markets.

The **FTSE NAREIT REIT Index** measures the performance of all publicly traded equity real estate investment trusts traded on U.S. exchanges.

The **Burgiss Global Buyout Funds Index** tracks the performance of closed-ended private equity buyout funds in the Burgiss Manager Universe, converted to U.S. dollars.

The **Burgiss Venture Capital Index** tracks equity investments in small to medium private companies that are early in their development and are in need of capital to grow their business.

The **Bloomberg Barclays U.S. Corporate High Yield Bond Index** measures the USD-denominated, high yield, fixed-rate corporate bond market. Securities are classified as high yield if the middle rating of Moody's, Fitch and S&P is Ba1/BB+/BB+ or below. Bonds from issuers with an emerging markets country of risk, based on the indices' EM country definition, are excluded.

The **Bloomberg U.S. Corporate BB High Yield (1-3yrs) Index** measures securities with maturity 1-3yrs with a BB rating.

The **Burgiss U.S. Private Debt Funds Index** tracks the performance of U.S. closed-ended private debt funds in the Burgiss Manager Universe.

The **Bloomberg Commodity Index** is a broadly diversified commodity price index.

The **HFRI Institutional Fund Weighted Composite Index** is a global, equal-weighted index of hedge funds with minimum assets under management of USD \$500MM which report to the HFR Database and are open to new investments. The index constituents are classified into Equity Hedge, Event-Driven, Macro or Relative Value strategies. The index is rebalanced on an annual basis.

The **Eurekahedge ILS Advisers Index** is an equally weighted index of 29 constituent funds that explicitly allocate to insurance-linked investments and have at least 70% of their portfolio invested in non-life risk. The index is base weighted at 100 at December 2005, does not contain duplicate funds and is denominated in local currencies.

The **NFI-ODCE** is a capitalization-weighted, gross of fee, time-weighted return index of real estate funds with an inception date of December 31, 1977. Open-end funds are generally defined as infinite-life vehicles consisting of multiple investors who have the ability to enter or exit the fund on a periodic basis, subject to contribution and/or redemption requests, thereby providing a degree of potential investment liquidity. The term Diversified Core Equity style typically reflects lower risk investment strategies utilizing low leverage and generally represented by equity ownership positions in stable U.S. operating properties diversified across regions and property types.

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**Rate of Return Estimate:** Rate of return or geometric return is a measure of average returns of an investment over a period of time. Geometric rate of returns are typically referred to as annualized compound rate of returns and are always less than or equal to the arithmetic mean return of the same time series. Geometric rate of returns are used for straight-line calculations within the analysis, for example, the cash flow calculations. In straight-line calculations, each year is represented as a gain, so the compound (geometric mean) rate of return is used to adjust for the amount needed to make up for a loss in a given year. For example, if you lose 5% in one year, and gain 5% the year after, you still have less than you started with at the beginning of year one.

**Arithmetic Mean Estimate:** Arithmetic mean or average return is calculated by dividing the sum of a series of numbers by the number of overall items. This is more typically thought of as an “average” of the data set. Arithmetic mean or average return ignores the impact of compounding in the context of analyzing investment returns and is the simple average of returns observed over a period of time. Arithmetic mean returns are used in this material and, if applicable, the Efficient Frontier, because, through randomization, losses and gains are being accounted for each year.

**Standard Deviation:** A statistical measure of the volatility based on the distribution of a set of data from its mean (average value). For example, a portfolio with an average return of 10% and a standard deviation of 15% would return a result between -5% and +25% the majority of the time (68% probability or 1 standard deviation), almost all of the time the return would be between -20% and +40% (95% probability or 2 standard deviations). If there were 0 standard deviation then the result would always be 10%. Generally, more aggressive portfolios have a higher standard deviation and more conservative portfolios have a lower standard deviation.

#### **Hypothetical Backtested Performance Disclosures**

The returns presented reflect hypothetical performance an investor would have obtained had it invested in the manner shown and do not represent returns that any investor actually attained. Neuberger Berman calculated the hypothetical results by running a model portfolio on a backtested basis using the methodology described below. Certain of the assumptions have been made for modeling purposes and are unlikely to be realized. No representation or warranty is made as to the reasonableness of the assumptions made or that all assumptions used in achieving the returns have been stated or fully considered. Changes in the assumptions may have a material impact on the hypothetical returns presented. Hypothetical backtested returns have many inherent limitations. Unlike actual performance, it does not represent actual trading. Since trades have not actually been executed, results may have under- or over-compensated for the impact, if any, of certain market factors, such as lack of liquidity, and may not reflect the impact that certain economic or market factors may have had on the decision-making process. Hypothetical backtested performance also is developed with the benefit of hindsight. Other periods selected may have different results, including losses. There can be no assurance that the Neuberger Berman will achieve profits or avoid incurring substantial losses. Neuberger Berman managed accounts in the manner reflected in the models during a portion of the backtested time periods shown. Unless otherwise indicated, results shown reflect reinvestment of any dividends and distributions. Unless otherwise indicated, the hypothetical performance figures are shown gross of fees, which do not reflect the deduction of investment advisory fees, transaction costs and other expenses. Indexes are unmanaged and are not available for direct investment. The use of tools cannot guarantee performance. Investing entails risks, including possible loss of principal. **Past performance is no guarantee of future results.**

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