How can adding less liquid investments to an investment portfolio increase risk adjusted returns?

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Liquidity and Risk in an Investment Portfolio

A lack of liquidity has the tendency to be equated to a higher risk investment, however taking a deliberate and measured approach to constructing an investment portfolio with tiered liquidity can improve risk adjusted returns. Portfolio risk is a chance that the combination of assets fail to meet its financial objectives. Assets can either under deliver on income or have a capital drawdown reducing the portfolio size, where both failures are not based on the liquidity of the investment but the merits of the investment itself. Having liquid investments that are subject to the volatility of public markets can even be a detriment to a portfolio's ability to mitigate risk by participating in market capitulation in extreme selloffs. The acceptance of illiquidity in a portfolio may create an opportunity for an investor to achieve higher risk adjusted returns, without modifying their investment timeline.

Investment liquidity can range from one day to several years and investment products have been developed across the spectrum to match the varying liquidity needs of investors. Institutions have increasingly adopted less liquid investments to capitalize on reduced volatility and illiquidity premiums. Unfortunately, many high net worth investors have lagged their institutional counterparts, despite having longer time horizons that can benefit from these opportunities.

The Liquidity Spectrum Within Asset Classes

Equity	Large-cap stocks	Mid-cap stocks	Small-cap/ emerging market stocks	Preferred stock	Private equity real estate	Private equity venture capital
Fixed Income	U.S. Treasuries	Investment grade corporate debt	High yield Emerging market debt	Structured products Distressed debt	Private real estate debt	Private corporate debt

Source: FS Investments Liquidity Paradox.

In this paper, we will begin by defining liquidity and risk as it applies to investment portfolios, then demonstrate how adding illiquid or less liquid strategies to a portfolio improves the risk-return profile and finally, provide some examples of less liquid investments available to investors today.

What is Liquidity?

Liquidity refers to the length of time it takes and the cost to convert an investment into cash. A liquid asset in a portfolio allows the portfolio to handle sudden, unexpected cash requirements or to easily rebalance the allocations.

It is worth noting that liquidity is a feature that is most easily accessed in normal market conditions. Sudden cash needs for an individual investor can easily be handled by a normal market with most liquid investments. The asset owner is able to reduce their exposure at a moment's notice, should they change their view or need cash. Unfortunately, if all investors change their outlook, liquidity can dry up very quickly—leaving investors exposed to material risk.

What is Risk?

The risk in an investment is the possibility of it declining in value. Investment returns are driven by the compensation an investor needs in order to take on an implied level of risk.

Included in investment risk is liquidity risk, which is the risk of not being able to sell your investment at a fair price when you want to. To sell the investment, you may need to accept a lower price and realize a loss on the investment. This risk can provide valuable upside to an investor with a longer time horizon or planned liquidity needs, who do not need to access their capital.

Liquidity as a Feature

Liquidity is often an investment feature that is taken for granted when investors evaluate a new allocation. With the rise of passive investing and large allocations to public market indices, portfolios with long time horizons are holding some of the most liquid investments available. What many investors do not realize is that liquidity is an investment feature, much like cash distributions or a redemption option, that is designed to match the investment objectives of the buyer and that these features have an inherent cost to them.

The benefits of a liquid portfolio are easy to understand. Being able to get cash out of an investment in a timely manner creates a nimble portfolio that can be re-balanced to match changing market conditions, change in circumstances for the investor, or cover unexpected costs. If an investor were to abruptly lose their source of income, a liquid portfolio could be sold to fund the investors ongoing expenses—this type of scenario is where liquidity shows its value. However, liquidity costs money and the question that one needs to ask is: Does one hundred percent of the investment portfolio need to be liquid?

The cost of liquidity is usually discussed in terms of its opposite—the "illiquidity premium". This is the market phenomenon that shows investments with longer lock ups or maturities performing better over time. This phenomenon follows from Keynes' Liquidity Preference Theory that an investor should demand a premium on securities with a long-term maturity. This is intuitive as the investor is essentially forgoing their opportunity to invest in a new asset while they are invested in the long-term security, and therefore must be compensated for that opportunity cost. The same concept can be applied to investments with a longer-term structure, lockup or trading difficulties. A liquid asset gives the investor access to cash, which, in the case of a market downturn or change in environment, allows for rebalance of the portfolio with minimal effort.

According to Amihud, Hameed, Kang, and Zhang (Pricing of Illiquidity as a Characteristic and as Risk) there is a positive correlation between expected return and illiquidity. By analyzing data from 45 countries (26 developed, 19 emerging), they conclude that illiquid stocks outperform liquid stocks in nearly all countries. In their study, the risk-adjusted illiquidity monthly premium alpha, for portfolio returns that are return weighted are 0.82%, value weighted are 0.45%, and volume weighted are 0.73%.

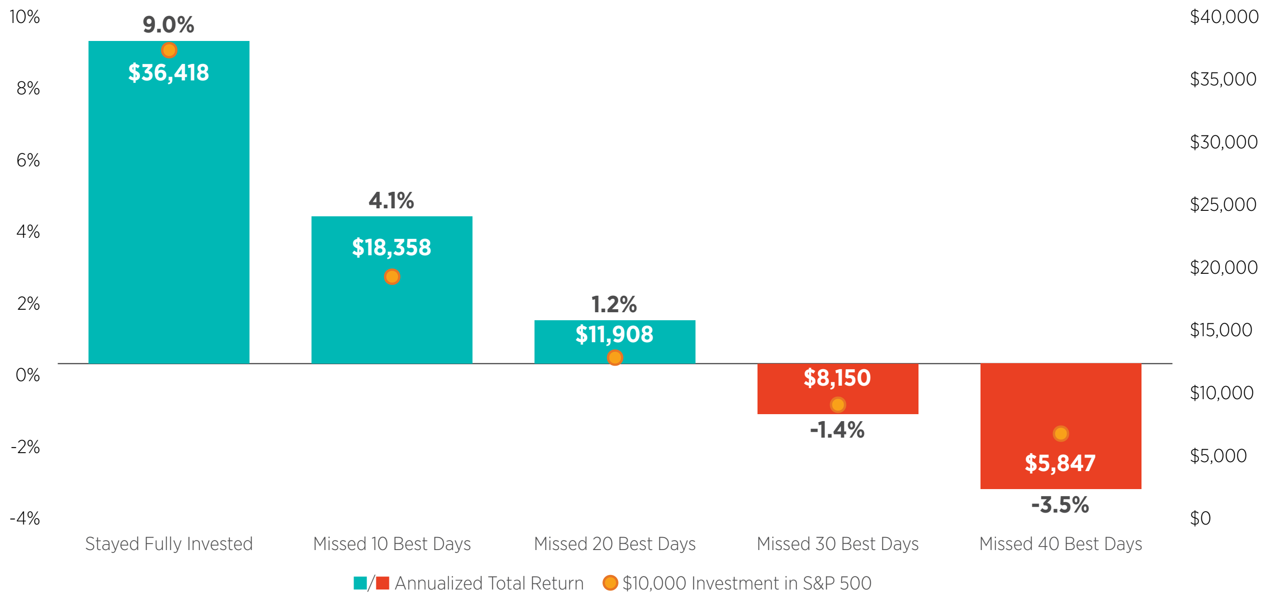
The value of liquidity can also be demonstrated in the bid-ask spread of an asset, the difference in prices as which a market maker is willing to buy or sell at the will of other market participants. For example, the typical bid-ask spread on the largest 10 stocks in the S&P 500 is 0.05% of its price, while the typical spread on the smallest stocks in the Russell 2000 is 5.14% (Avg spread December 10-21, 2018, Source: Bloomberg). These bid-ask spreads are the costs associated with transacting a given security.

Market volatility can add to the cost of liquidity, where the option to sell your investment inherently means that anyone else holding that investment also has that option. By holding a liquid security, the investor exposes their portfolio to the will of other market participants. This will, driven by market participants (the "herd"), is often irrational, which can be seen through the massive market surges and selloffs through time. The volatility (standard deviation) of an investment is frequently used as a proxy for the risk of the investment and liquidity allows for these securities to trade far outside the range of a fundamentally based value.

Illiquidity as a Feature

Despite all the benefits of liquidity, an illiquid asset can prevent investors from running with the "herd", particularly during times of extreme market volatility. In the midst of market corrections, the most common investor reaction is flight to quality. Investors normally re-enter the market once conditions have stabilized. By doing so, the investors are trying to time the market. Typically, market corrections occur during times of economic stress and uncertainty which makes it extremely difficult to know when the optimal time to buy or sell. Figure 1 displays the consequences of missing the best days during market corrections. An investor who missed the 10 best days in the equity market would have earned 4.9% less than if they would have stayed fully invested during the same time period. Although public assets are liquid, exiting during a market correction would typically mean you would be forced to sell below an investment's intrinsic value.

Figure 1: Performance During Market Corrections December 2004-December 2019



Source: Putnam Investments.

Like the famous saying, "anything can be sold and bought for a price", even less liquid investments could be sold quickly to generate liquidity when it is priced below its intrinsic value. But, it is important to remember that selling an asset that was designed to be held for the long term to generate cash in the short term completely misses the point of why less liquid investments were bought in the first place. Long-term investment strategies are typically run by managers who have the experience of managing "thru-cycle" investments and know how to maximize investment value.

Example:

A 3-year, $10 million senior secured loan at 10% interest is made to a commercial blinds and drapes manufacturer (the "Borrower") with first lien over the accounts receivable, inventory, equipment and real estate, totaling a net orderly liquidation value of $15 million and a forced liquidation value of $10 million. This company has been in operations for over 50 years and has built strong relationships with home builders in the region.

The Borrower has recently defaulted on the loan in Year 2 due to its underperformance during the winter months (its slow season). If investors need liquidity, they may request to redeem their investment to mitigate losses. This redemption could potentially cause the manager to force liquidation of the Borrower's assets. In this scenario, the loan would be paid from proceeds of liquidation and investors in a best case would get 100% of the principal back, but lose out on the potential upside this investment would have generated if the loan had not been called prior to maturity.

If investors remain in the transaction, the lender will not be forced to liquidate the collateral and will have the opportunity to evaluate several exit plans and choose the one that maximizes the return on investment. In this case, the borrower fails to make its interest payment in Year 2 and the lender remains invested. By the end of Year 3, the borrower performs better than expected, cures its default and catches up on payments which generates 9.7% Internal Rate of Return (IRR) vs. 5.1% in the forced liquidation scenario—adding 4.6% to its IRR before accounting for other penalties such as default interest or additional fees. It is crucial for the lender to evaluate all the available options in a workout scenario and develop an appropriate strategic plan to maximize its return on investment.

	Year 0	Year 1	Year 2	Year 3
Forced Liquidation Scenario				
Principal	($10mm)		$10mm	
Interest & Fees		$1mm		
Net Cash Flow	**($10mm)**	**$1mm**	**$10mm**	
IRR	**5.1%**			
Remain Invested Scenario				
Principal	($10mm)			$10mm
Interest & Fees		$1mm		$2mm
Net Cash Flow	**($10mm)**	**$1mm**		**$12mm**
IRR	**9.7%**			

Product Structuring

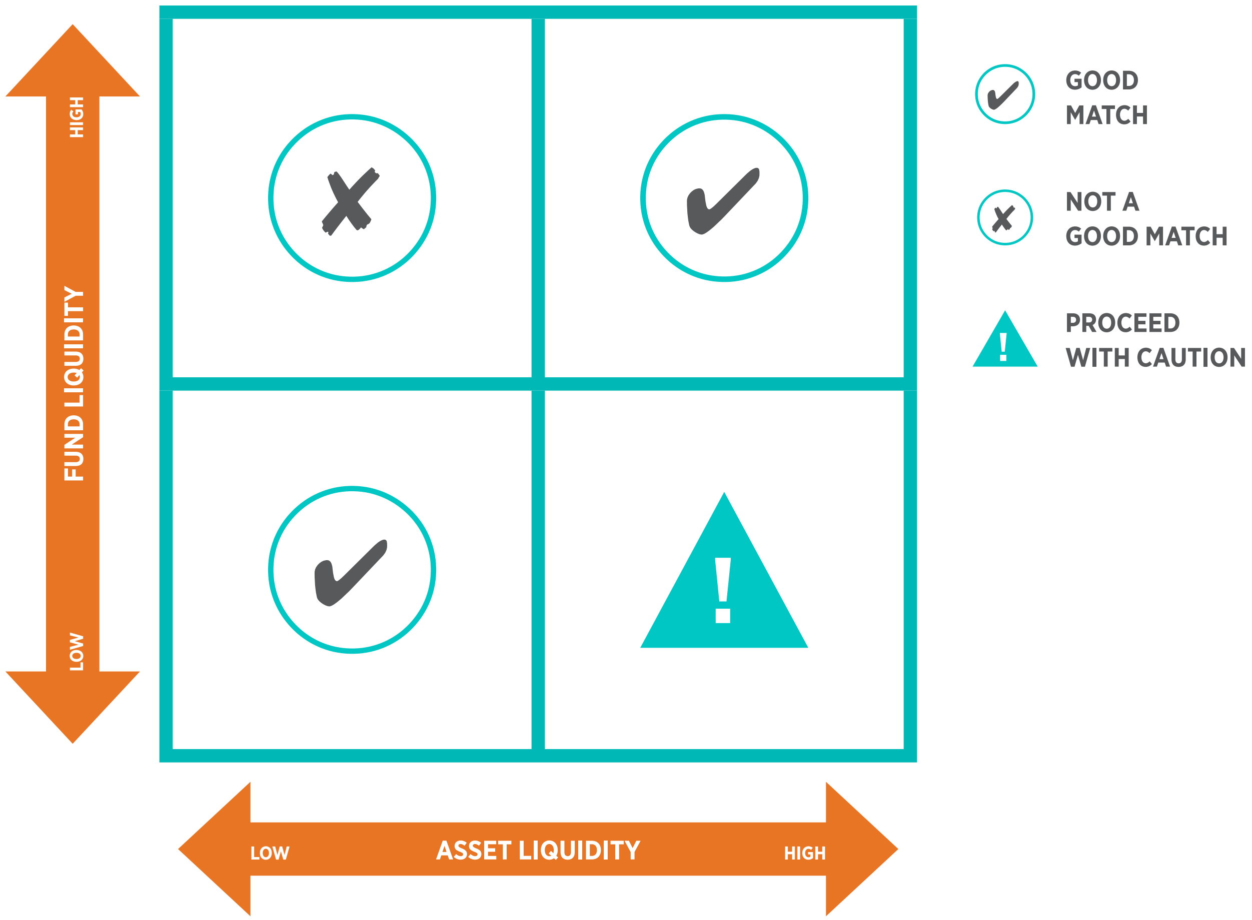
Prospectus Based Funds (Mutual funds) versus Offering Memorandum Funds (Private Funds)

Product features, such as liquidity are taken into account when asset management firms structure a new product. For example, contrast a typical open-ended mutual fund that trades in public equity securities versus a private equity or a private debt fund that invests in private companies. These are both investment vehicles with the goal of investing in a company, but have vastly different structures and return profiles.

Mutual funds are generally traded daily, with all subscription and redemption orders taking place at the end of a trading day. Investors that wish to liquidate receive their money back within two business days of their trade date and investors that want to subscribe can gain exposure to the market in one day. This is possible because the underlying investments are broadly traded, resulting in higher degree of liquidity that private investments cannot provide. The typical mutual fund is designed to exist in perpetuity.

Private Equity and Private Debt funds are structured very differently, with long lock-ups and an investment timeline of several years being the norm. A typical Closed-End Private Debt Fund would have a lifespan of about 5 years, with options for the manager to extend that lifespan, while a venture capital fund would have a lifespan of about 7 years with extension options. An investor in this structure has no way to access their cash invested, unless distributions are made by the manager. In order to liquidate the investment, they would need to sell their stake in the fund to another investor in a secondary transaction, which is difficult to broker and is very often at a heavy discount to Net Asset Value (NAV).

The structure of the fund must match the underlying investments. A fund which invests in long term equity in private companies could not possibly provide liquidity to investors with one day's notice, as they are simply unable to get the cash out of their investment in such a short time period. An investor must be cognizant of the difference between product structure and the underlying asset to catch potential red flags.



Source: FS Investments Liquidity Paradox.

Mutual funds and private funds have similar goals but look very different in structure and return profiles. As of September 30, 2019, the S&P 500 Index, a public market benchmark, returned 9.04% annually over 25 years. Over the same period, the Cambridge Associates US Private Equity Index returned 13.35% annually. Compounding that difference over the 25 years would make a $10,000 original investment worth approximately $142,345 more in a Private Equity investment versus public.

	S&P 500	CA US Private Equity Index
Original Investment	10,000	10,000
Average Annual Return	9.04%	13.35%
Value After 25 Years	$87,025.41	$229,370.79

Source: Cambridge Associates PE Benchmark Data Q3 2019.

Similarly, contrast a Public Debt index such as the Bloomberg Barclays 1-5 year High Yield, and a private debt benchmark created by Cliffwater. As of December 31, 2019 over a 15.5 year period, the Bloomberg Barclays 1-5 year High Yield Index, a public market benchmark, returned 7.38% annually. Over the same period, the Cliffwater Direct Lending Index had a 9.39%. Compounding that difference over the 25 years would make a $10,000 original investment worth approximately $10,066 more in a Private Debt investment versus public.

	Bloomberg Barclays 1-5 year High Yield	Cliffwater Direct Lending Index Total Return
Original Investment	10,000	10,000
Average Annual Return	7.38%	9.39%
Value After 15.5 Years	$30,152.00	$40,217.77

Source: Bloomberg.

The stark contrast between investment values over the time period has a variety of contributing factors. Private equity and private debt often requires a higher minimum investment, have greater complexity and require the investor to commit to the length of the fund. These factors are seen as features that the investment must compensate the investor for and therefore include a return premium.

Retail Focused Private Investing

When a typical retail investor is looking to invest in private markets their options are limited. Most private funds were designed to cater to institutional investor needs, with very long lock up periods and minimum investments that are prohibitive to portfolios with time horizons shorter than 10-15 years. This is beginning to change; many new private equity and private debt funds are being structured to meet some retail investor requirements without sacrificing the integrity of the investment strategy.

These products have lower minimum investments, shorter time horizons and more liquidity features. While some of the benefits of long-term investments are compromised, these more liquid private investments can give access to the private markets and offer some of the benefits previously unavailable.

These products have attempted to bridge the gap between retail investors and institutional investors, democratizing the access to private investments. In order to shorten the investment time horizon, the investment portfolio can add what is called a liquidity sleeve. This would be a portion of the portfolio invested in public markets to provide a buffer of liquidity to the private investment. Another way of shortening the portfolio's overall time horizon would be a layering approach to the investments. This is often seen in fund-of-fund or multi-strategy funds, that layers investment vintages, allowing the underlying investments to mature in a waterfall to provide consistent liquidity to the investor.

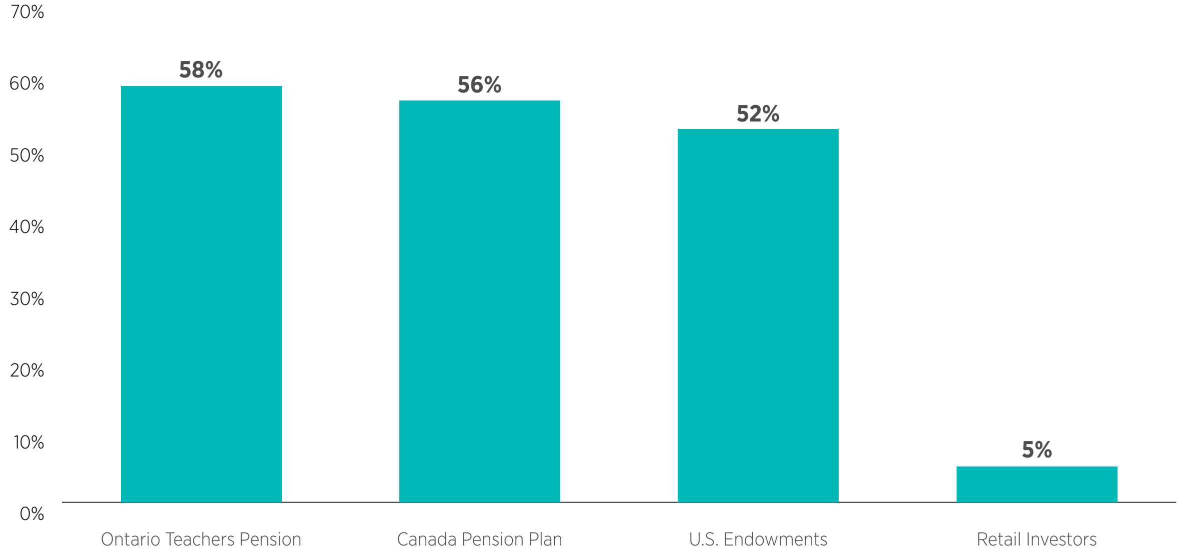
Outside of the portfolio investments, a product can be structured to manage the liquidity of the underlying fund. Including a redemption notice period and an initial investment lock up in open ended structures align investor behavior to the portfolio objectives. Generally, long-term investments, such as private debt or private equity, require time to season the portfolio and exit transactions. By having this language in the offering memorandum, General Partners can manage the portfolio to the liquidity demands of the client well ahead of when cash is required.

Having access to private market investments can complement investors public investments resulting in institutional type returns for the given levels of risk. With the democratization of private market opportunities, asset management firms have begun to bridge the gap in access to private markets between institutional investors and retail investors.

Constructing Your Portfolio to Meet Investment Objectives

Portfolios of the world's leading pensions, endowments and other institutional investors hold approximately 52%-56% in alternatives. This generally consists of private and illiquid strategies. Institutions have increasingly moved towards alternatives given the changes in the public markets. As public markets become more efficient with the improvements in technology arbitrage opportunities become less and less. Prices reflect all available information and it is increasingly difficult for active managers to generate alpha in the public markets. Looking at Figure 3, traditional assets classes no longer provide the same level of diversification and have progressively become more correlated to one another, especially during market selloffs when investors flee to safe assets. Institutions are well aware of these changes in the market and have adapted their portfolio allocation model.

Figure 2: Alternative Asset Allocation for Pensions, Endowments and Individuals



Source: Blackstone: "Seeking an Alternative", Willis Tower Watson: "Global Pension Assets Study 2019", Ontario Teachers' Pension Plan: 2019 Annual Report, OMERS: 2019 Annual Report, CPP Investment Board: 2019 Annual Report.

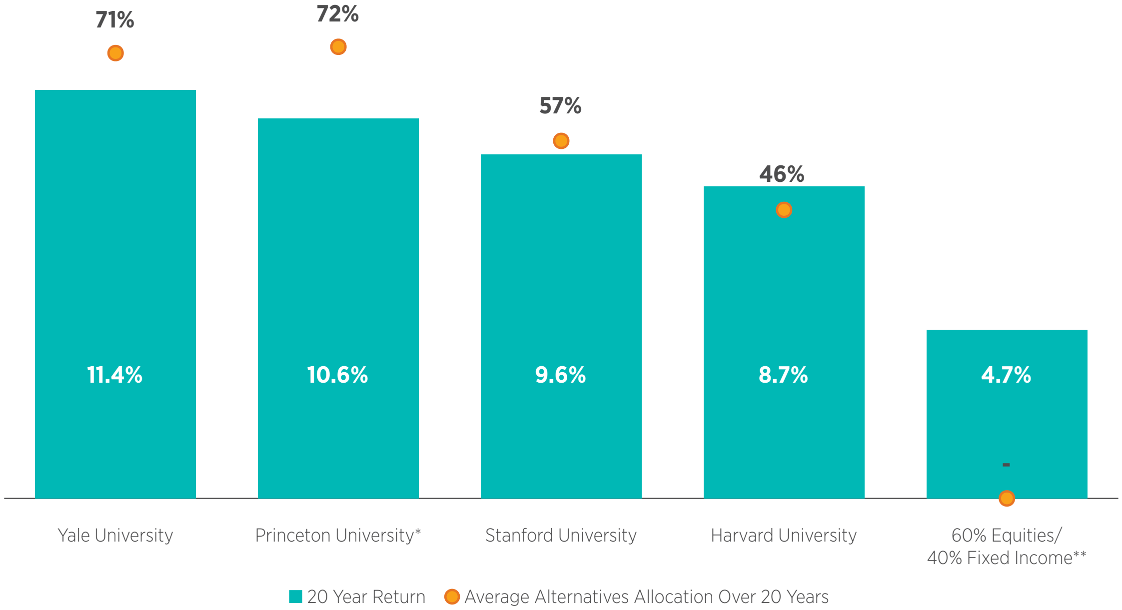
Figure 3: Correlation of Traditional Asset Classes to Global Equities

Source: Thomson Reuters Eikon, Morningstar.

Indexes used for Figure 3 is as follows: S&P/TSX60, S&P 500 Index, Merrill Lynch Global Corporate Index, BBgBarc Canadian Issues 300MM TR USD, Dow Jones Commodity Index, MSCI World IMI Core Real Estate NR (CAD), MSCI World Core Infrastructure NR (CAD), Bloomberg Barclays 1-5 Year High Yield. Time period used for correlation to Equities and Fixed Income is January 2000-February 2020.

To date, a large number of pensions, foundations and endowments allocate using the Endowment Model. This model allocates a large part of the portfolio into alternative investments to generate strong risk-adjusted returns and given that these strategies are generally long-term investments, ensure there will be sufficient liquidity to meet its obligations and liabilities. The nature of private markets allows managers to thrive with active investing and generate consistent alpha. These assets are a great source of strong risk-adjusted return when liquidity is not a high priority. As shown in Figure 4, the top U.S. endowments have outperformed the traditional 60/40 portfolios by a minimum of 3.9% annualized over the past 20 years.

Figure 4: U.S. Endowment Annualized Performance Over 20 Years: 2000FY-2019FY



Source: Yale University Financial Report, Princeton Reports of the Treasurer, Harvard University Financial Report, Stanford University Financial Report.

* Princeton Alternatives allocation does not include the years 2000-2004 as the financial report did not provide breakdowns of the assets.

** The indexes used to mimic the Equity and Fixed Income portfolios are S&P 500 Index and Merrill Lynch Global Corporate Index. Returns are based on June Fiscal Year.

Time period: June 1999-June 2019.

Yet retail investors only hold 5% in alternatives. Why is there such a huge discrepancy between the two types of investors? To answer this, we have to consider the investment objectives of the portfolio.

If we look at an endowment, the objective is to provide sufficient income to meet its annual spending. The endowment must maintain sufficient returns and liquidity in order to meet its spending rate to support its activities, with a secondary objective of growing the assets over time. Looking at the liquidity requirements of the portfolio, the amount of liquidity this portfolio requires is the monthly spending. Cash allocation in the portfolio will depend on a number of factors such as number of donations, student enrollments and spending budgets. Generally, this does not make up a substantial amount of the endowment's portfolio given it has a perpetual time horizon. This gives the manager increased flexibility to invest in less liquid assets and potentially generate additional return.

If we look at retail investors, the portfolio objective will be based on the specific individual goals, requirements and constraints. Some of the key considerations include the risk tolerance, time horizon of the investment and the cash flow requirement. This will be used to determine the optimal liquidity of the investor's portfolio. If a retired individual only expects to generate 5% in income from its portfolio for spending with no additional budgeted cash requirements, then there isn't a large liquidity constraint. Even when considering the shorter time horizon and risk tolerance of the individual, the investor still has the ability to invest a small portion of the portfolio into longer term investments and reap the benefits of these investments. They may not invest 50% similarly to institutions, but they may have the ability to allocate anywhere from 5%-30% depending on their objectives.

When constructing a portfolio, there are many factors to consider, with liquidity being one of the key areas. However, **illiquidity should not be confused with increased risks** in a portfolio. By definition, liquidity risk is the risk of not meeting short-term obligations. This is mitigated by matching the portfolio liquidity to future liabilities. The investor must conduct a thorough analysis on its own cash requirements and include a safe margin for unexpected expenses that may arise. Optimally allocating to liquid and illiquid or long-term strategies will not drastically increase liquidity risk. With this addition, the investor will be able to take advantage of the typical benefits of these strategies including lack of correlation to the public markets, portfolio diversification and strong risk adjusted returns.

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