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Private Debt: The opportunity for income and diversification with illiquid assets

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ALTERNATIVE CREDIT ADDRESSES LOW YIELDS AND INCREASING PUBLIC MARKET RISK

Private debt is a potential solution for institutional investors confronting low yields, heightened market volatility and rising interest rates. Investors are turning to alternative credit in search of high current income, low correlations with public markets and lower default risk than yield spreads would imply. Senior leveraged loans to middle market companies, in particular, are among the fastest-growing private debt alternatives as banks curtail their exposure to middle market borrowers. With floating-rate structures, leveraged loans offer the potential for increasing income with less price sensitivity as interest rates normalize.

EXECUTIVE SUMMARY

- Private debt is a potential solution for institutional investors searching for yield and low correlations with public market volatility and rising interest rates.
- Structural changes in fixed-income markets — decreased liquidity and rising asset correlations — are increasing investors' willingness to trade liquidity for income and diversification.
- Banks pulling back from the middle market have created opportunity for nonbank asset managers to issue direct loans to below-investment-grade companies at higher interest rates.
- Among private debt categories, middle market senior loans and mezzanine debt historically have offered particularly attractive risk-adjusted returns as potential substitutes for traditional assets, including high-yield bonds and equity.
- The private debt market's complexity requires due diligence in selecting experienced asset managers with a record of success in creating diversified private loan portfolios.

Investors are turning to alternative credit in search of higher yield, better diversification, and lower risk.

Nonetheless, institutional investors remain underinvested in private debt because they lack familiarity with its attractive risk-return profile compared to traditional fixed-income assets.

Powerful trends are driving demand for private debt overall, and middle market senior loans in particular. First, pension plans and insurance companies are struggling to achieve targeted rates of return amid historically low yields on traditional fixed-income investments. Their capacity to increase risk in search of returns is limited by their liabilities and, for insurance companies, by capital requirements.

Second, structural changes in bond markets, including decreased liquidity and rising asset correlations, are changing how investors think about liquidity and risk. Long-term investors who can buy and hold are more willing to trade liquidity for higher yield — the “illiquidity premium” — and lower volatility to improve asset-liability matching. There is also willingness to increase exposure to sub-investment grade private debt with strong covenants and other protections that help to reduce default and loss rates.

Third, banks have curtailed lending to middle market companies following decades of consolidation in the sector and in response to higher capital charges for middle market loans. The middle market — generating nearly \$14 trillion in combined revenue or about a third of U.S. private-sector GDP¹ — needs ready access to capital for growth, leveraged buyouts and other uses. Nonbank asset managers are filling the void with direct senior loans to middle market companies that have offered investors both higher yield and lower default risk in exchange for illiquidity.

Private debt offers attractive risk and return characteristics

Private debt’s track record of better risk-adjusted returns — and the range of yield and risk characteristics across different categories — make it an attractive alternative to traditional

fixed-income and equity investments. Potential advantages include:

- Yields significantly higher than offered by similarly rated public debt to compensate for illiquidity
- Lower default and loss rates historically, compared with public high-yield bonds due to strong covenants, management oversight and other safeguards
- Diversification benefits based on generally low correlations with traditional assets
- Lower interest-rate risk for leveraged loans using floating-rate structures with shorter duration

DEMAND FOR ALTERNATIVES IS DRIVING GROWTH OF PRIVATE DEBT AND DIRECT LENDING

Demand from institutional investors is driving rapid growth across private debt segments, with the largest increase by far in direct lending to the middle market. Global private debt investment in closed-end funds (excluding broadly syndicated bank loans) increased by 59% to \$637.3 billion in dry powder and unrealized value between 2013 and 2017.² (Dry powder represents committed capital not yet invested, and unrealized value represents invested capital — the sum is a proxy for assets under management.) Direct lending to middle market companies had the highest growth rate at 181% — more than doubling to \$178.2 billion³ — among five categories tracked by Preqin, including distressed debt and mezzanine.

MIDDLE MARKET DIRECT LOANS: THE SWEET SPOT FOR PRIVATE DEBT

The growth of middle market direct loans is expanding the availability of private debt with potential for both higher yields and lower risk to meet institutional investor demand. But investors should understand important distinctions between two broad categories of leveraged loans — broadly syndicated and direct — offering different levels of liquidity, risk and return.

First, we define the middle market⁴ broadly to include loans up to \$500 million, which represent \$180.8 billion, or nearly 20% of the \$927.3 billion in loans tracked by the S&P/LSTA Leveraged Loan Index.⁵ The vast majority are broadly syndicated loans issued by banks to larger companies with EBITDA⁶ greater than \$50 million. Senior in the capital structure with first claim on the borrower's assets, syndicated loans are distributed by banks to large groups of institutional investors. Since they are traded on secondary markets, syndicated loans are more liquid — resulting in lower yields and higher volatility, compared with direct loans. Syndicated loans also have experienced higher default and loss rates partly due to less rigorous due diligence and oversight by banks that sell the loans to investors, rather than hold them.

Differences in how direct loans are structured and issued have made this market the sweet spot for investors. Direct loans generally serve smaller companies with EBITDA ranging between \$10 million and \$50 million and loan facilities up to \$250 million. Lenders in this market consist of small groups of generally up to 10 investors — known as “clubs” — that structure loan packages for a single borrower. Private “club” loans are generally held to maturity rather than traded, which has reduced their volatility. Like bank loans, direct loans are senior in the capital structure, but they also benefit from protections that help to reduce credit risk. Three interrelated factors account for the attractiveness of middle market direct loans:

1. The illiquidity premium

Direct loans have enjoyed a return advantage because of the illiquidity premium — typically 100 to 200 basis points over syndicated loans, and approaching parity with public high-yield bonds. The extra yield compensates investors for holding loans that are not publicly traded and cannot be sold quickly. In addition, direct loans have offered better default and loss protection than syndicated loans. Issuers generally conduct strict due diligence, work closely with borrowers, and structure loans conservatively with less leverage, higher interest coverage, and tighter covenants. As a result, pension plans and other

long-term investors may consider increasing exposure to illiquid assets as a reasonable tradeoff for higher yield and lower volatility.

2. Banks pulling back creates opportunity in direct lending

Structural changes are generating demand for nonbank loans offering attractive investment characteristics. Although banks still dominate corporate lending, they are pulling back from the lower end of the middle market, reducing their exposure to these loans in response to industry consolidation and increased regulation. Facing uncertain financing, middle market companies are willing to pay higher interest rates for access to capital, allowing nonbank lenders to offer higher investment yields. At the same time, banks have shifted toward larger syndicated loans that are heavily traded and subject to market volatility. In contrast, direct loans are generally held to maturity rather than traded, resulting in lower volatility.

3. Private equity dry powder suggests a backlog of demand for direct loans

Private equity deals and refinancing are expected to generate more than \$1 trillion in new loan demand over the next several years. U.S. private equity firms, which sponsor about half of middle market loans, have amassed \$970 billion⁷ of committed capital not yet invested. With a typical equity capitalization of 40%, the available dry powder implies even greater demand for loans to finance private equity deals. In addition, \$450 billion of maturing middle market loans will require refinancing between 2018 and 2021.⁸ Regulatory limits on leveraged lending will prevent many banks from refinancing existing loans, forcing borrowers to turn to nonbank lenders.

After declining due to slower global growth and lower oil prices, middle market loan demand rebounded in 2016 and 2017. Direct lending in the middle market increased 37% to nearly \$53 billion during the first three quarters of 2017.⁹

Private equity deals and refinancing are expected to generate more than \$1 trillion in new loan demand over the next several years.

PRIVATE DEBT'S POTENTIAL TO IMPROVE PORTFOLIO RISK-ADJUSTED RETURNS

Diversifying the sources of risk and return

Private debt offers institutional investors the potential to improve performance by diversifying the sources of return and risk associated with traditional asset classes. Returns for traditional public bonds, for example, are determined by the risk premiums related to credit quality, interest rates and inflation. Private debt can offer incremental returns by providing exposure to additional risk premiums: illiquidity, manager skill in less efficient markets, and structural changes, such as the decline in bank lending.¹⁰ Direct loans, for example, can diversify portfolios by providing exposure to the illiquidity premium, reducing reliance on risk factors associated with traditional fixed-income or equity assets. Private debt with floating-rate structures offers the potential to improve yield and reduce interest-rate risk as alternatives to fixed-rate corporate and high-yield debt. They can also help to manage portfolio volatility by reducing reliance on public or private equity assets in an expected low-return environment.

Portfolio analysis: Benefits of combining private debt with traditional assets

To assess the benefits of private debt, we compared returns, correlations and portfolio efficient frontiers for two categories of private debt — leveraged loans and mezzanine debt — versus traditional stocks and bonds, including

public high-yield debt. For leveraged loans, we consider two segments among syndicated bank loans — larger, broadly syndicated loans and middle market loans — both reported in the S&P/LSTA Leveraged Loan Index.¹¹ There is no publicly available index of returns for the most attractive segment, direct nonbank loans, although we have included comparisons of yield, default and loss rates. For mezzanine debt, we use a Cambridge Associates index representing quarterly internal rate of return (IRR) for mezzanine funds.¹² Our analysis starts with broadly syndicated and middle market loans.

Yield and credit risk

Smaller middle market loans offered distinct advantages over larger, broadly syndicated loans and high-yield bonds:

- Despite lower default risk, middle market loans offered a higher current yield than broadly syndicated loans, 6.54% vs. 4.84%, respectively, because they are relatively illiquid (Exhibit 1).¹³
- Middle market loans offered a significantly lower default rate of 3.42%, compared with broadly syndicated loans and high-yield bonds, 4.93% and 4.45%, respectively (Exhibit 1).¹⁴ In addition, middle market loans had lower loss rates and higher recovery rates than broadly syndicated loans due to more conservative structuring and other protections.

Middle market loans offered higher current yield than broadly syndicated loans and public high-yield bonds.

Exhibit 1. Middle market loans offered attractive yields and lower credit risk

Asset class	Yield		1998 – 2015		
	Recent ¹	Historical (01 July 2012 – 30 June 2017)	Default rate	Loss rate	Recovery rate
Middle market loans ²	6.54%	6.57%	3.42%	0.67%	80.39%
Broadly syndicated loans ²	4.84%	5.36%	4.93%	1.18%	76.05%
High-yield bonds ³	5.84%	6.49%	4.45%	2.84%	42.24%

1 Effective yield as of 29 Dec 2017.

2 Middle market loan and broadly syndicated loan historical yields are based on three-month average new-issue yields from 01 July 2012 through 30 June 2017. Yields reflect loans in the S&P/LSTA Leveraged Loan Index measuring performance of the U.S. leveraged loan market. Middle market loans represents loans to companies with EBITDA of \$50 million or less. Broadly syndicated loans represent loans to companies with EBITDA greater than \$50 million.

3 High-yield bond yield is month-end average yield to maturity. Based on BofA Merrill Lynch US High Yield Master II Index, which tracks the performance of USD-denominated below investment grade rated corporate debt publicly issued in the US domestic market. It is not possible to invest in an index. Performance for indexes does not reflect investment fees or transaction costs.

Sources: S&P Capital IQ LCD, S&P CreditPro, BoA Merrill Lynch, Churchill Asset Management, Nuveen, LLC.

Exhibit 2. Middle market loans offered higher risk-adjusted returns than other debt*

Annualized	Middle market loans ¹	Broadly syndicated loans ²	High-yield bonds	Global bonds	U.S. stocks	Non-U.S. stocks
Return	6.24%	4.90%	6.74%	4.55%	7.01%	5.57%
Standard deviation	6.98%	8.50%	10.12%	6.20%	17.24%	20.00%
Sharpe ratio	0.61	0.35	0.47	0.42	0.29	0.18

*Data reflect quarterly returns for the period 31 March 1998 – 30 June 2017.

1 Loans to companies with EBITDA of \$50 million or less within the S&P/LSTA Leveraged Loan Index.

2 Represented by the S&P/LSTA Leveraged Loan Index as a proxy for broadly syndicated loans.

Asset classes are represented by the following indexes: Broadly syndicated and middle market loans (S&P/LSTA Leveraged Loan Index), high-yield bonds (BoA Merrill Lynch US High Yield Index), global bonds (Bloomberg Barclays Global Aggregate Bond Index), U.S. stocks (Russell 3000 Index), Non-U.S. stocks (MSCI ACWI EX USA IMI Index). It is not possible to invest in an index. Performance for indexes does not reflect investment fees or transaction costs.

Sources: S&P Capital IQ LCD, Morningstar, Nuveen, LLC.

Risk-adjusted returns

- Middle market loans offered higher risk-adjusted returns based on Sharpe ratio than broadly syndicated loans and high-yield bonds (Exhibit 2). Their average returns of 6.24% were lower than high-yield bonds, but their significantly lower volatility resulted in higher risk-adjusted returns.

Diversification

- Leveraged loans offered strong diversification benefits — negative correlations with global bonds and moderate correlations with stocks (Exhibit 3). Correlations with high-yield bonds were higher because both categories are below investment grade.
- Middle market loans had lower correlations with traditional asset classes than broadly syndicated loans and high-yield bonds.

Leveraged loans offered diversification benefits based on negative correlations with global bonds and only moderate correlations with stocks.

Exhibit 3. Correlations of private debt and public assets: 1998 – 2017*

	Middle market loans ¹	Broadly syndicated loans ²	High-yield bonds	Global bonds	U.S. Stocks
Broadly syndicated loans ²	0.91				
High-yield bonds	0.75	0.85			
Global bonds	(-0.11)	(-0.05)	0.06		
U.S. stocks	0.52	0.55	0.68	(-0.12)	
Non-U.S. stocks	0.54	0.59	0.71	0.11	0.88

*Data reflect quarterly returns for the period 31 March 1998 – 30 June 2017.

1 Loans to companies with EBITDA of \$50 million or less within the S&P/LSTA Leveraged Loan Index.

2 Represented by the S&P/LSTA Leveraged Loan Index as a proxy for broadly syndicated loans.

Asset classes are represented by the following indexes: Broadly syndicated and middle market loans (S&P/LSTA Leveraged Loan Index), High-yield bonds (BoA Merrill Lynch US High Yield Index), global bonds (Bloomberg Barclays Global Aggregate Bond Index), U.S. stocks (Russell 3000 Index), non-U.S. stocks (MSCI ACWI EX USA IMI Index). It is not possible to invest in an index. Performance for indexes does not reflect investment fees or transaction costs.

Sources: S&P Capital IQ LCD, Morningstar, Nuveen, LLC.

PORTFOLIO ANALYSIS

Structuring a portfolio with private debt

We used mean-variance optimization (MVO) to show the potential impact of adding private debt to model portfolios of traditional stocks and bonds. Model portfolios compared the impact on returns, volatility and diversification for two categories of leveraged loans — broadly syndicated and middle market — and public high-yield bonds. Traditional portfolios used for comparison consisted of global stocks across capitalizations and global investment grade bonds. Portfolios in this analysis were designed as illustrations and should not be considered investment recommendations.

Observation 1: Private debt improved the risk-adjusted performance of a traditional portfolio of stocks and bonds

METHODOLOGY

We assessed the impact of private debt by adding broadly syndicated loans, middle market loans and high-yield bonds individually to a portfolio of traditional stocks and investment-grade bonds. The analysis included four distinct asset class combinations: One for traditional stocks and bonds and three more created by individually adding leveraged loans and high-yield bonds. For each of the four combinations, unconstrained MVO generated a series of portfolios representing different levels of risk and return along an efficient frontier. We compared results for the single portfolio in each series with the highest risk-adjusted return based on Sharpe ratio. The four portfolios representing the highest Sharpe ratio are shown in Exhibit 4 (page 7).

LIMITATIONS OF MEAN-VARIANCE OPTIMIZATION METHODOLOGY

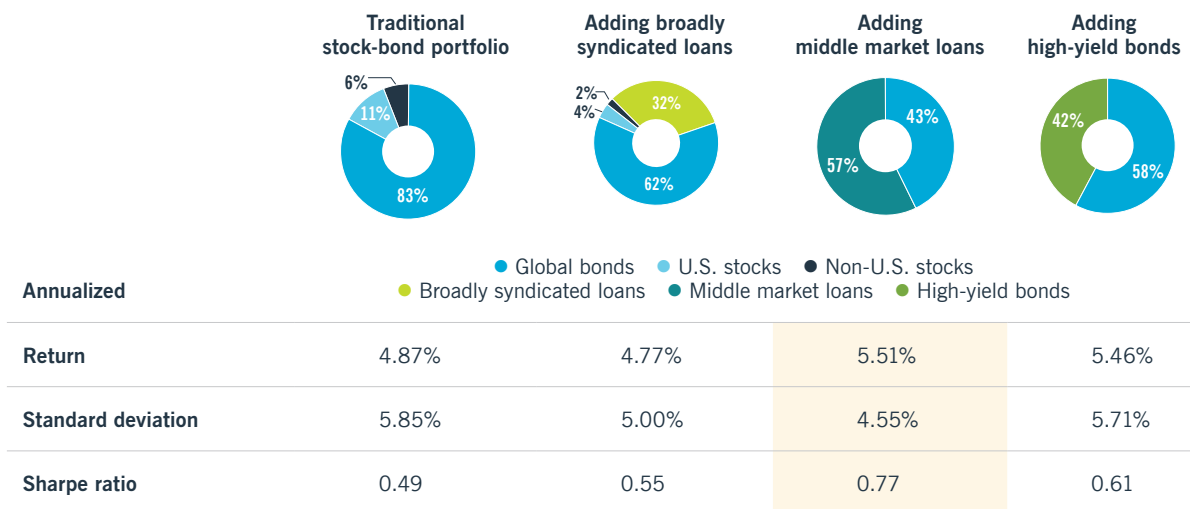
Mean-variance optimization (MVO) is a technique for determining the set of asset allocations designed to provide the maximum return for a given level of risk. Our analysis is based on historical performance for indexes representing private and public asset classes for the nearly 20-year period, 01 Jan 1998 – 30 June 2017. Reliance on historical returns requires tempering conclusions because MVO is highly sensitive to data inputs for the time period selected. As a result, our optimization results should be considered broadly illustrative and directional, rather than predictive or precise.

Results supported diversifying portfolios with middle market loans, which have potential to improve returns and reduce risk relative to other asset classes.

RESULTS

- Middle market loans produced higher portfolio risk-adjusted returns than broadly syndicated loans or high-yield bonds. Adding middle market loans produced returns similar to high-yield bonds, or about 5.5%, but their lower volatility resulted in a higher Sharpe ratio, 0.77 vs. 0.61, respectively.
- Unconstrained mean-variance optimization resulted in unrealistically high allocations for fixed-income assets — reflecting their more attractive risk-return profiles compared to equities. However, the exercise illustrated the potential *relative* attractiveness of middle market loans, compared with other fixed-income categories.
- Overall, results supported diversifying stock-bond portfolios with middle market loans, based on their yield premium and lower volatility — benefits of their illiquidity.

Exhibit 4. Unconstrained optimization comparing private and public debt in traditional portfolios*



* Performance is based on quarterly returns for the period 31 March 1998 – 30 June 2017.

Mean-variance optimization (MVO) generated a range of portfolios representing an efficient frontier for four combinations of asset classes. The optimization was unconstrained, resulting in larger allocations for asset classes with more favorable risk-return characteristics. Pie charts shown represent portfolio allocations with the highest risk-adjusted returns (Sharpe ratio) on the efficient frontier.

Asset classes are represented by the following indexes: Global bonds (Bloomberg Barclays Global Aggregate Bond Index), U.S. stocks (Russell 3000 Index), non-U.S. stocks (MSCI ACWI EX USA IMI Index), broadly syndicated and middle market loans (S&P/LSTA Leveraged Loan Index), high-yield bonds (BoA Merrill Lynch US High Yield Index). It is not possible to invest in an index. Performance for indexes does not reflect investment fees or transaction costs.

Sources: S&P Capital IQ LCD, Morningstar, Nuveen, LLC.

A 20% fixed allocation to middle market loans produced the biggest improvement in risk-adjusted performance.

Observation 2: Limiting private debt to more practical fixed allocations still improved risk-adjusted performance

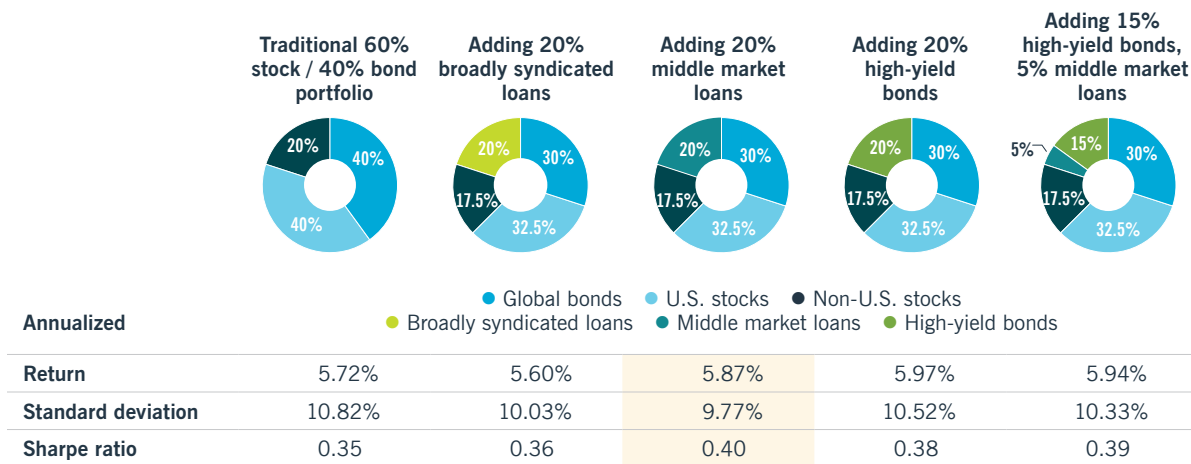
Mean-variance optimization may suggest extreme allocations to individual asset classes based on returns for the particular time period selected. Our next analysis used fixed allocations within more practical limits defined by real-world portfolios. We considered portfolios with the following fixed allocations:

- 60% stocks and 40% bonds.
- Adding 20% allocations individually to broadly syndicated loans, middle market loans and high-yield bonds, reducing allocations in each scenario to 50% stock and 30% bonds.
- Adding a fixed allocation of 15% high-yield bonds combined with 5% middle market loans.

RESULTS

- Middle market loans produced the biggest improvement in risk-adjusted performance among the three sub-investment grade asset classes, including broadly syndicated loans and high-yield bonds. Adding a 20% allocation increased returns 15 basis points and reduced volatility by 105 basis points, compared to the traditional portfolio of stocks and bonds.
- Compared to adding high-yield bonds, middle market loans reduced volatility by 75 basis points — resulting in a higher Sharpe ratio.
- Diversifying a high-yield portfolio with middle market loans improved results. Combining 5% middle market loans and 15% high-yield bonds produced similar returns with lower volatility, resulting in a higher Sharpe ratio, compared to adding 20% high yield.
- Overall, results support using private debt, particularly middle market loans, to diversify the risk of more volatile asset classes, such as stocks and high-yield bonds.

Exhibit 5. Middle market loans provided the largest improvement in portfolio risk-adjusted returns*



*Data reflect quarterly returns for the period 31 March 1998 – 30 June 2017. Asset classes are represented by the following indexes: Global bonds (Bloomberg Barclays Global Aggregate Bond Index), U.S. stocks (Russell 3000 Index), non-U.S. stocks (MSCI ACWI EX USA IMI Index), broadly syndicated and middle market loans (S&P/LSTA Leveraged Loan Index), high-yield bonds (BoA Merrill Lynch US High Yield Index). It is not possible to invest in an index. Performance for indexes does not reflect investment fees or transaction costs. Sources: S&P Capital IQ LCD, Morningstar, Nuveen, LLC.

MEZZANINE LOANS: HIGHER YIELD FOR JUNIOR DEBT

Mezzanine loans — a more specialized form of private debt usually invested as unsecured subordinated debt or second lien term debt — have unique advantages over other fixed income sectors. These loans typically are used in leveraged buyout transactions to fill the financing need between the sponsor’s equity capitalization and optimal senior debt levels. Mezzanine loans have offered higher yields reflecting their junior debt position, but their performance has implied less risk than spreads would suggest. To promote successful outcomes, private equity sponsors historically have provided financial, operational and governance support to their portfolio companies issuing debt. As a result, mezzanine debt has demonstrated better risk-adjusted returns than other forms of private and public debt.

Mezzanine loans globally represented \$146 billion in assets as of 30 June 2017, ranking third after distressed debt and direct lending among five private debt categories tracked by Preqin.¹⁵ These specialized loans are more difficult to access and had the slowest growth rate at 26% between 2013 and 2017.

Mezzanine debt offered higher absolute and risk-adjusted returns with moderate volatility, compared to other asset classes.

Mezzanine debt demonstrated the highest absolute and risk-adjusted returns among private debt categories, and low to moderate correlations with other asset classes (Exhibits 6 and 7). Average annual returns of 9.08% exceeded both equity and high-yield bonds by more than 200 basis points, with significantly lower volatility. Mezzanine loans typically are accessed through closed-end debt funds with

Exhibit 6. Mezzanine performance vs. other private debt and public assets: 1998 – 2017*

Annualized	Mezzanine debt ¹	Broadly syndicated loans ²	Middle market loans ³	High-yield bonds	Reference indexes		
					Global bonds	U.S. stocks	Non-U.S. stocks
Return	9.08%	4.90%	6.24%	6.74%	4.55%	7.01%	5.57%
Standard deviation	6.99%	8.50%	6.98%	10.12%	6.20%	17.24%	20.00%
Sharpe ratio	1.02	0.35	0.61	0.47	0.42	0.29	0.18

*Data reflect quarterly returns for the period 31 March 1998 – 30 June 2017.

1 Mezzanine debt reflects internal rate of return (IRR) for mezzanine funds tracked by Cambridge Associates.

2 Represented by the S&P/LSTA Leveraged Loan Index as a proxy for broadly syndicated loans.

3 Loans to companies with EBITDA of \$50 million or less within the S&P/LSTA Leveraged Loan Index.

Asset classes are represented by the following indexes: Mezzanine debt (mezzanine fund returns tracked by Cambridge Associates), broadly syndicated and middle market loans (S&P/LSTA Leveraged Loan Index), high-yield bonds (BoA Merrill Lynch US High Yield Index), global bonds (Bloomberg Barclays Global Aggregate Bond Index), U.S. stocks (Russell 3000 Index), non-U.S. stocks (MSCI ACWI EX USA IMI Index). It is not possible to invest in an index. Performance for indexes does not reflect investment fees or transaction costs.

Sources: Cambridge Associates, S&P Capital IQ LCD, Morningstar, Nuveen, LLC.

Exhibit 7. Mezzanine debt correlations with other asset classes: 1998 – 2017*

	Broadly syndicated loans ²	Middle market loans ³	High-yield bonds	Global bonds	U.S. stocks	Non-U.S. stocks
Mezzanine debt ¹	0.46	0.45	0.44	0.01	0.63	0.63

*Data reflect quarterly returns for the period 31 March 1998 – 30 June 2017.

1 Mezzanine debt reflects internal rate of return (IRR) for mezzanine funds tracked by Cambridge Associates.

2 Represented by the S&P/LSTA Leveraged Loan Index as a proxy for broadly syndicated loans.

3 Loans to companies with EBITDA of \$50 million or less within the S&P/LSTA Leveraged Loan Index.

Asset classes are represented by the following indexes: Mezzanine debt (mezzanine fund returns tracked by Cambridge Associates), broadly syndicated and middle market loans (S&P/LSTA Leveraged Loan Index), high-yield bonds (BoA Merrill Lynch US High Yield Index), global bonds (Bloomberg Barclays Global Aggregate Bond Index), U.S. stocks (Russell 3000 Index), non-U.S. stocks (MSCI ACWI EX USA IMI Index). It is not possible to invest in an index. Performance for indexes does not reflect investment fees or transaction costs.

Sources: Cambridge Associates, S&P Capital IQ LCD, Morningstar, Nuveen, LLC.

performance measured as internal rates of return (IRRs), representing cumulative cash flows over the duration of the investment. We compared quarterly IRRs for mezzanine funds tracked by Cambridge Associates with total returns for leveraged loans and public stocks and bonds.

Accounting for mezzanine debt’s attractive risk-return profile

Several distinct factors are commonly cited as contributors to mezzanine debt’s attractive risk-return profile: support from private equity sponsors, a liquidity premium and performance enhancers that offset its higher default risk. Private equity sponsors are deeply involved in optimizing a borrower’s capital structure in their efforts to grow equity value and enhance credit quality over time. In addition, lender participation in board-level management provides early warning of distress and enables negotiations with private equity sponsors, helping to reduce defaults and improve recovery rates. Playing a critical role in buyout deals, mezzanine debt is generally held to maturity and rarely traded, which makes it illiquid and accounts for its relatively low volatility. As a result of its subordinate position, mezzanine debt may experience a low recovery rate in the event of default. To offset higher risk, loans often are structured with higher yields and an

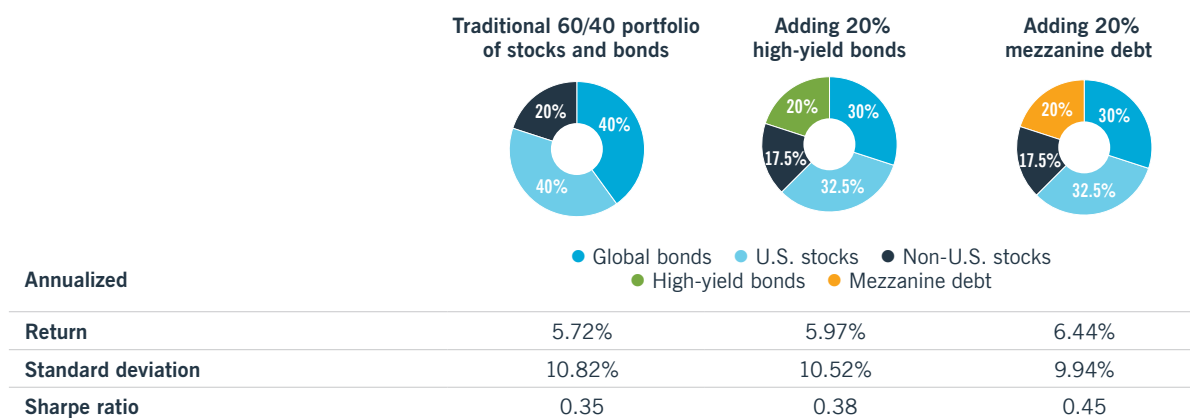
equity ownership stake to participate in the borrowing company’s growth, contributing to higher returns.

Mezzanine debt demonstrated the highest absolute and risk-adjusted returns with moderate volatility, compared with other asset classes.

Mezzanine debt enhanced portfolio returns and diversified risk

Mezzanine debt is a powerful diversifier with potential to improve portfolio returns and reduce overall risk. In Exhibit 8, we compared the impact of mezzanine debt and high-yield bonds, based on adding 20% allocations individually to a traditional portfolio of 60% stock and 40% bonds. In this example, mezzanine and high yield substituted for 10% of the equity and 10% of the global bond allocations. The mezzanine debt allocation increased returns by 47 basis points and reduced volatility by 58 basis points. Compared to high-yield bonds, mezzanine debt contributed more to portfolio returns and less to volatility, improving portfolio risk-adjusted returns.

Exhibit 8. Comparing mezzanine debt vs. high-yield bonds in a portfolio*



*Data reflect quarterly returns for the period 31 March 1998 - 30 June 2017.

Asset classes are represented by the following indexes: Global bonds (Bloomberg Barclays Global Aggregate Bond Index), U.S. stocks (Russell 3000 Index), non-U.S. stocks (MSCI ACWI EX USA IMI Index), mezzanine debt (mezzanine funds tracked by Cambridge Associates), broadly syndicated and middle market loans (S&P/LSTA Leveraged Loan Index), high-yield bonds (BoA Merrill Lynch US High Yield Index). It is not possible to invest in an index. Performance for indexes does not reflect investment fees or transaction costs.

Sources: Cambridge Associates, S&P LCD, Morningstar, Nuveen, LLC.

Less liquid private debt can offer lower credit risk than yield spreads would suggest due to tighter loan covenants and oversight that reduce default risk and improve recovery rates.

RISKS OF INVESTING IN PRIVATE DEBT

Private debt involves a range of risks that can vary widely depending on the category, the structure of a particular loan, and the asset manager's experience in selecting less-risky deals. Credit risk is important considering that most private debt categories are below investment grade, although the risk of a credit event can be lower than yield spreads would suggest. Default and loss rates can vary widely depending on the category and deal structure. Some risks, such as illiquidity, may be less important to buy-and-hold investors. Private debt's complexity and diversity require thorough due diligence to understand risks relative to investment objectives.

Credit risk

Depending on the category, private debt's credit risk can be lower than similarly rated public debt. While default rates have been lower for middle market loans, loss and recovery rates have tended to be significantly better for leveraged loans overall, compared to high-yield bonds (Exhibit 1 on page 5). In general, we

believe credit risks tend to be even lower for middle market and mezzanine loans arranged through the "club" loan market, benefiting from tighter covenants and continuing credit monitoring. Private equity sponsorship also tends to reduce default and loss risks, given the sponsor's incentive to provide financial and management support.

Illiquidity

Illiquidity — the inability to sell a loan quickly — varies among private debt categories. Among leveraged loans, broadly syndicated loans are frequently traded and more liquid. Illiquidity increases for middle market loans, direct "club" loans and mezzanine debt because they are infrequently traded. Less liquid loans offer higher yields in the form of an "illiquidity premium" attractive to investors for whom liquidity is a lower priority.

Interest-rate risk

Risks related to changes in prevailing interest rates vary depending on loan category. Leveraged loans have floating rates that vary based on changes in the underlying base rate, such as LIBOR,¹⁶ allowing investors to earn higher coupons as rates rise. Their floating rates imply a lower duration and less risk of loan values being hurt by rising rates. In contrast, mezzanine debt carries fixed rates that subject the loan's value to greater risk if rates rise.

CONCLUSION

- Private debt offers the potential to improve portfolio risk-adjusted returns by offering higher yields in exchange for illiquidity, better diversification and lower volatility. Institutional investors who are less concerned about liquidity have the potential to earn above-market returns with lower risk.
- Several categories of private debt historically have offered particularly attractive risk-return characteristics, including middle market direct loans and mezzanine debt. With track records offering higher yields and lower default and loss rates, they can serve as alternatives for traditional asset classes, including corporate bonds and equity.
- Investing in private debt — a complex market lacking transparency — requires due diligence in selecting managers with specialized expertise, a network of industry relationships and a track record of success in developing diversified private loan portfolios.

For more information, contact your Global Investment Advisory Services representative, or visit us at nuveen.com/infrastructure.

**APPENDIX A:
WHAT IS PRIVATE DEBT?**

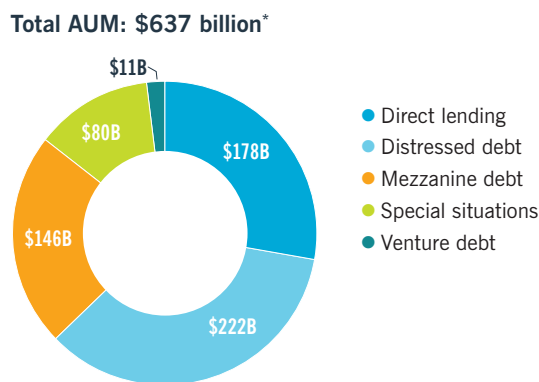
Private debt encompasses mostly non-investment grade loans ranging across the capital structure and credit risk spectrum. Categories include leveraged loans, which can be syndicated by banks or issued directly by small investor groups or “clubs,” distressed debt, mezzanine debt/second liens, special situations and venture debt. Borrowers are mostly private companies or small- to mid-sized public companies requiring capital for leveraged buyouts, acquisitions, balance sheet recapitalization and organic growth.

A growing niche in fixed income

Private debt is a small but growing niche in fixed income, compared to the \$28.1 trillion in publicly traded U.S. bond market debt outstanding, including \$8.8 trillion in corporate bonds.¹⁷ Although there are no reliable estimates of overall market size, figures are available for different segments. Private debt assets in closed-end funds spanning five categories, including direct lending and mezzanine, totaled \$637 billion as of 30 June 2017¹⁸ (Exhibit A1). Leveraged loans syndicated by banks are a separate category — the portion tracked in the S&P/LSTA Leveraged Loan Index totaled \$927.3 billion as of 30 June 2017. However, the total

size of the leveraged loan market is likely much larger. Thomson Reuters LPC estimated that more than \$800 billion in institutional leveraged loans were issued in the 12 months ended 30 Sep 2017, including more than \$150 billion in the middle market.¹⁹ Leveraged loan issuance more than doubled during the period, mostly to fund mergers, acquisitions and leveraged buyout transactions.

Exhibit A1. Private debt assets under management by category*



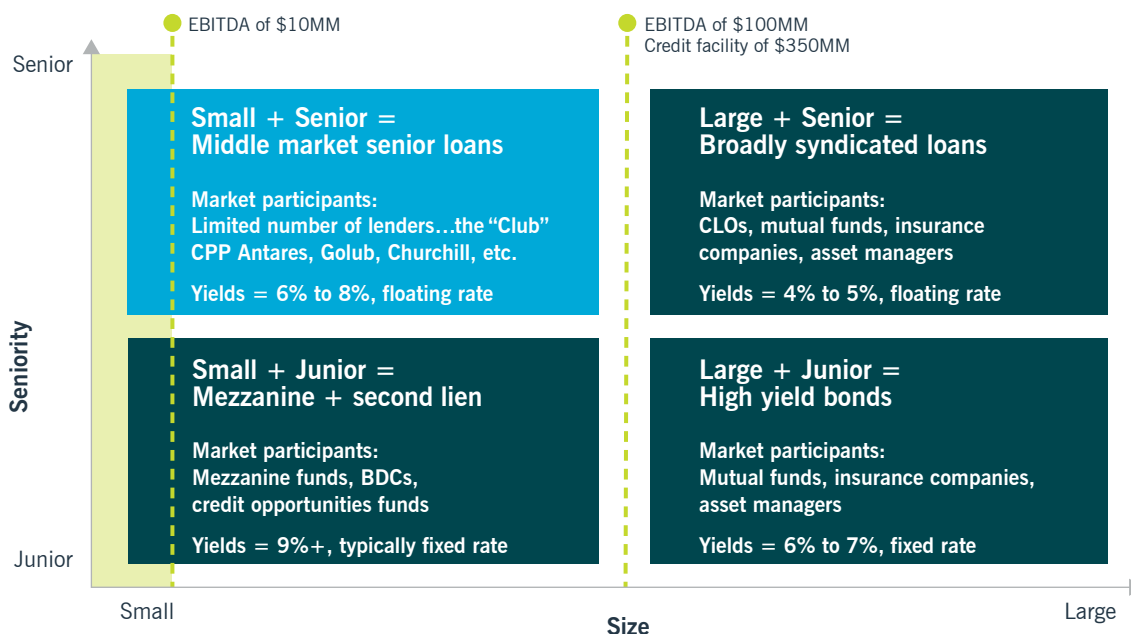
* Data as of 30 June 2017. Includes only closed-end fund assets tracked by Prequin. Source: Prequin.

Understanding different private debt market segments

The private debt market can be divided into broad segments based on liquidity, seniority in the capital structure, loan size and floating or fixed rates. Exhibit A2 divides the market into

three quadrants, with public high-yield bonds in the fourth. Yields vary depending on liquidity and credit risk: 4% to 5% for broadly syndicated bank loans, 6% to 8% for middle market senior loans, and 9% or more for mezzanine, compared to 6% to 7% for public high-yield bonds.

Exhibit A2. U.S. non-investment grade corporate debt market



Sources: Nuveen, LLC, and Churchill Asset Management.

About Nuveen

Nuveen, the investment manager of TIAA, offers a comprehensive range of outcome-focused investment solutions designed to secure the long-term financial goals of institutional and individual investors. Nuveen has \$970 billion in assets under management as of 29 Dec 2017 and operations in 16 countries. Its affiliates offer deep expertise across a comprehensive range of traditional and alternative investments through a wide array of vehicles and customized strategies.

- 1 National Center for the Middle Market, February 2018.
- 2 Data reflect the period 31 Dec 2012 – 30 June 2017. Source: 2018 Preqin Global Private Debt Report.
- 3 Data reflect the period 31 Dec 2012 – 30 June 2017. Source: 2018 Preqin Global Private Debt Report.
- 4 Definitions of the “middle market” vary. Thomson Reuters LPC uses a broader definition including loans of up to \$500 million. S&P Capital IQ uses a narrower definition including loans to companies with EBITDA of \$50 million or less. This lower end of the middle market represented \$7.1 billion in loans outstanding within the S&P/LSTA Leveraged Loan Index as of 30 June 2017.
- 5 S&P/LSTA Leveraged Loan Index as of 30 June 2017.
- 6 Earnings before interest, tax, depreciation and amortization (EBITDA) is a measure of a company’s operating performance.
- 7 Source: Preqin, 2018.
- 8 Thomson Reuters LPC, 3Q17 Middle Market Sponsored Private/Club Deal Analysis, October 2017.
- 9 Ibid.
- 10 Towers Watson, Perspectives: “Alternative Credit: Credit for the Modern Investor, 2015.”
- 11 S&P/LSTA Leveraged Loan Index includes broadly syndicated loans — mostly large loans greater than or equal to \$200 million and a smaller portion of syndicated middle market loans less than \$200 million. The index was used as a proxy for larger, broadly syndicated loans, while middle market loan data represents only smaller loans in the index.
- 12 Cambridge Associates, Private Investment Benchmarks: Mezzanine debt index representing quarterly internal rate of return (IRR) for funds tracked by CA.
- 13 The comparison is based on three-month average new-issue yields from 01 July 2012 through 30 June 2017. Middle market loans in the S&P/LSTA Leveraged Loan Index represent loans to companies with EBITDA of less than \$50 million.
- 14 Sources: S&P Capital IQ LCD, S&P CreditPro. This data set defines middle market as loans of less than \$200 million, and broadly syndicated as loans greater than or equal to \$200 million.
- 15 2018 Preqin Global Private Debt Report.
- 16 The London Interbank Offered Rate (LIBOR) is the average estimated rate that leading banks in London would charge for short-term inter-bank loans. It is a primary benchmark for short-term interest rates globally.
- 17 The Securities Industry and Financial Markets Association (SIFMA), U.S. Bond Market Issuance and Outstanding, 06 Feb 2018.
- 18 2018 Preqin Global Private Debt Report.
- 19 Thomson Reuters LPC, Leveraged Loan Monthly, October 2017.

Risks and other important considerations

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Economic and market forecasts are subject to uncertainty and may change based on varying market conditions, political and economic developments.

Please note investments in private debt, including leveraged loans, middle market loans, and mezzanine debt, are subject to various risk factors, including credit risk, liquidity risk and interest rate risk.

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