

A photograph of a modern glass skyscraper at night, illuminated from within, with a grid of white lines overlaid on the image. The building is reflected in a dark surface below it.

April 2019 / Research Report

UNDERSTANDING U.S. REAL ESTATE DEBT

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Executive Summary

Private and Public Real Estate Debt

Investors in real estate debt can consider both the private and public markets, providing a wide range of property sectors, markets, loan types, liquidity, term, risk, and returns.

Private Debt: Private real estate debt is considered a “pure-play” option, offering access to a variety of return profiles within senior and subordinate tranches of the debt capital stack (such as senior mortgages, B-notes and mezzanine loans) to meet an investor’s risk appetite. Private real estate debt provides a yield premium to public real estate debt to compensate for the relative illiquidity.

Public Debt: Public real estate debt is publically traded, providing enhanced liquidity and transparency. The most popular forms of public real estate debt include commercial mortgage backed securities (“CMBS”) and mortgage REITs (“mREITs”). Since 2007, the CMBS market has experienced a transformation and now features stronger credit profiles, while offering the advantage of liquidity in addition to some of the benefits offered by private real estate debt.

Strategic Considerations

Stable Income Stream: A cornerstone feature of real estate debt is contractual, current interest payments which can produce consistent returns.

Low Volatility: Given the physical collateral of real estate and its position in the capital structure senior to an owner’s equity (the “Equity Cushion”), real estate debt provides reliable returns with lower volatility relative to other asset classes, as further discussed below. Furthermore, its historically lower volatility has led to real estate debt outperforming other asset classes on a risk-adjusted return basis.

Diversification: Historically, real estate debt returns are largely uncorrelated to core asset classes. As a result, real estate debt provides potential economic diversification benefits in a multi-asset portfolio. Additionally, diversification is achieved through portfolio construction via strategic allocations to unique markets, property types, and loan structures.

Commercial Real Estate Debt vs. Traditional Fixed Income Investments: Commercial real estate debt has historically offered a spread premium and an attractive credit profile compared to certain rated corporate debt. Further, differences in credit profile, transaction structure and liquidity also provide private real estate debt with potential for additional spread to other types of debt investments.

Tactical Considerations

Defensive Asset Class: The equity cushion protects a credit investor from reductions in the property value that is backing the loan, usually in the range of 25 – 35%. Additionally, downside protection is provided through the focus on loans with strong sponsors, as well as the creation of structural mitigants such as tests and covenants, loan-to-value (“LTV”), debt service coverage ratio (“DSCR”), call protection, and debt yields, among others. Case in point, since 1972, commercial real estate debt, measured by the Giliberto-Levy Commercial Mortgage Performance Index, has only had two calendar years of negative returns (1974 and 2008).

Regulatory Environment: Since the Global Financial Crisis, increased banking regulation has resulted in banks’ retrenchment from new lending and increased focus on disciplined underwriting at a time when direct real estate investment activity continues to realize strong demand. Non-traditional lenders are therefore being attracted to real estate debt, and have established themselves as a capital-efficient building block to long-term investors’ portfolios.

Other Considerations

Risks: Real estate assets can be exposed to a number of uncertainties, including interest rate, political, regulatory, market, and asset-level risk.

Mitigants: Sector and geographical diversification within a strategic asset allocation framework can help to mitigate these risks. Loans are senior to significant equity of the borrower; the structured nature of real estate debt investments can be unique and reflective of an investor’s risk appetite.

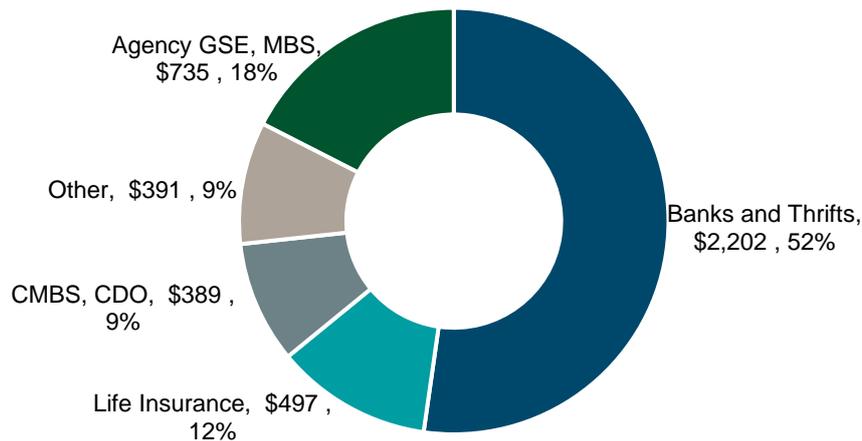
Introducing Real Estate Debt

Market Overview

Overview: Investing in real estate can take the form of equity investment or lending, both within the public and private markets. Traditionally, banks have provided the majority of financing for private real estate debt. However, since the recession the non-bank lending market has evolved rapidly, offering a wide set of debt opportunities to investors. Institutional investors see real estate debt as a way to diversify their portfolios by investing in real assets with the potential to provide long-term cash flow predictability, strong credit quality, and a yield premium over other fixed-income opportunities.

Market Structure: The commercial real estate debt market is a sizeable institutional asset class, with \$4.21 trillion in commercial mortgage debt outstanding as of September 2018.¹ Banks and Life Insurance companies make up the majority of the market holdings with over \$2.7 trillion in outstanding debt.² However, a more stringent regulatory environment, continued demand, perpetual maturities, and solid market fundamentals have resulted in the rise of non-traditional lenders. From 2013 to 2017, the “other” lending segment, which includes Mortgage REITs and private lenders, has grown by over 57%, now accounting for 9% of the market.³ The credit quality of property debt is driven by sponsors, borrowers, and guarantors, as well as the underlying real estate. The majority of outstanding private real estate debt (including bank loans) is unrated, while public real estate debt is typically rated.

EXHIBIT 1: U.S. COMMERCIAL REAL ESTATE DEBT OUTSTANDING (\$, BILLION)



Source: U.S. Board of Governors of the Federal Reserve System (FRB). As of September 2018.

Two Markets for Real Estate Debt: Private and Public

Investors in real estate debt can consider a variety of entry points via the public and private markets, providing a range of liquidity and risk/return profiles. In the United States, private real estate debt can offer institutional investors access to assets supported by strong credit quality, while also giving the possibility to capture an illiquidity premium. CMBS may offer some of the same benefits with greater liquidity, albeit with somewhat lower yields, as further discussed herein.

¹ U.S. Board of Governors of the Federal Reserve System. As of September 2018.

² U.S. Board of Governors of the Federal Reserve System. As of September 2018.

³ Federal Reserve Board of Governors; DWS. As of June 2018.

Private Debt

Commercial real estate (“CRE”) loans finance real estate acquisitions, refinancing and recapitalizations, from core properties to development projects, across many sectors and geographies. Private real estate debt provides access to a wider credit and sector spectrum than public real estate debt, and may also be a more “pure-play” option. Investors with a long-term strategy are able to access evergreen opportunities diversified by market, sector, size and seniority. Private real estate debt can also offer a yield premium over CMBS,⁴ particularly at origination, which could provide some compensation for the relative illiquidity.

Private real estate debt provides investors the opportunity to invest in debt that uniquely meets their risk/return appetites. Risk spectrums across core, value-add, opportunistic, and construction loans enable investors to manage through a variety of project and property risks. Additionally, different tranches within the properties’ capital stack provide investors a point of entry into loans with a wide range of credit risk/reward profiles.

Senior Debt: Senior Loans refer to debt that is most senior in the capital stack and secured by a first mortgage. The Senior Loan may be comprised of multiple notes and can be pari passu (all lenders on equal footing with regards to seniority) or arranged by seniority such as an A/B structure with a B-note. The Senior Loan is senior to the B-note, mezzanine loan, preferred equity, and common equity. The loan-to-value (“LTV”) ratio of Senior Loans is generally up to 60 – 65%.⁵ Senior Loans may be fixed or floating rate products. Senior private real estate debt is benchmarked by the Giliberto-Levy Commercial Mortgage Performance Index which provides data back to 1972.

B-Piece and B-Note: The B-piece or B-note is the debt made up of the junior tranche of a Senior Loan. These instruments are secured by the same first mortgage as the Senior Loan described above. Furthermore, they are junior to the Senior Loan, but senior to the mezzanine loan, preferred equity and common equity. While the B-note is secured by the same first mortgage as the senior loan, it is evidenced by its own promissory note.

Subordinated Debt: Subordinated debt loans such as mezzanine loans are originated at higher LTV (60%-85%) and reward investors with a yield premium over senior loans. Subordinated debt is issued as both fixed rate and floating (spread above LIBOR) with a majority today being issued as floating rate.⁶ Subordinated private real estate debt is benchmarked by the Giliberto-Levy High Yield Real Estate Debt Index, with data beginning in 2010.

A mezzanine loan is debt that is subordinate to the Senior Loan, B-note and B-piece but senior to the common equity and preferred equity. The mezzanine loan is secured by a pledge of 100% of the ownership interests in the owner of a mortgage borrower. This loan has its own promissory note and unique loan documents, which offers the mezzanine lender the right to take ownership of the property in the event of default.

Preferred Equity: Investors can also participate in preferred equity investments which act as a hybrid of debt and equity—usually providing both current coupon interest payments and a defined due date on maturity.

Lenders access the private real estate debt market via direct borrowing relationships, banks and insurance companies, co-lenders, brokers and other market participants.

⁴ There is no assurance that investment objectives can be achieved

⁵ Real Capital Analytics (RCA). Data as of November 2018.

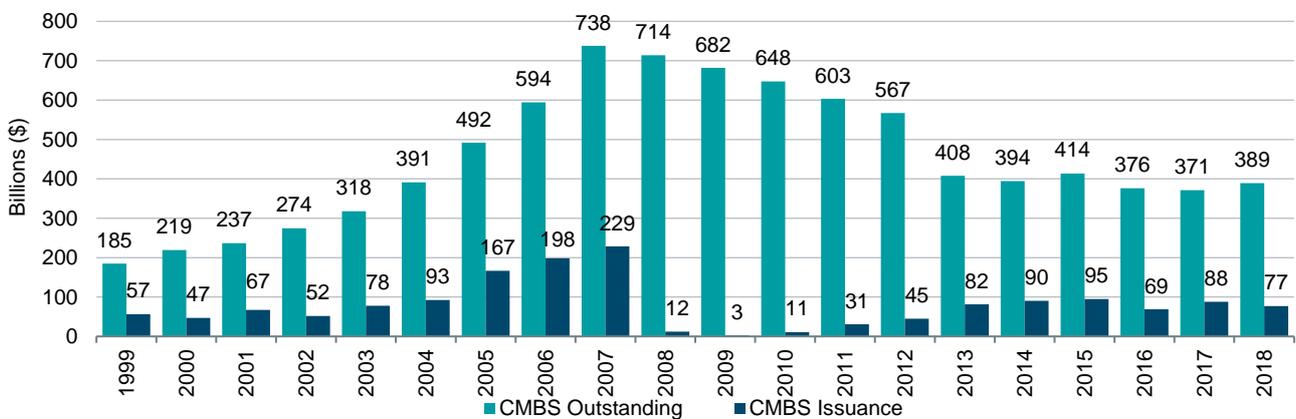
⁶ Giliberto-Levy High Yield Real Estate Debt. As of June 2018.

Public Debt

Capital markets play an important role in financing real estate. Public real estate debt is traded in the market providing liquidity and transparency relative to private debt. Such real estate bonds may offer investors exposure to large, diversified portfolios. CMBS represents the greatest opportunity in this subset, and while this market slowed during and following the Global Financial Crisis (“GFC”), CMBS has largely recovered to healthy pre-crisis levels.

Commercial Mortgage Backed Securities: CMBS are a popular public investment instrument, and after a strong 2016 and 2017, continue to gain momentum in originations and overall CMBS outstanding. With the exception of Single Asset, Single Borrower (“SASB”) CMBS, traditional CMBS offers credit investors the opportunity to diversify across a pool of real estate assets, helping to potentially mitigate both geographical risk as well as property subsector-specific risk. Following the GFC, the amount of outstanding CMBS debt slid from \$738 billion in 2007 to \$389 billion as of September 2018.⁷ With that being said, this level of outstanding CMBS has been fairly consistent over the past 5 years, and represents marked improvement from the pre-crisis 2003 levels of roughly \$318 billion in outstanding CMBS.⁸

EXHIBIT 2: U.S. CMBS OUTSTANDING AND ISSUANCE (1999 - 2018)



Source: U.S. Board of Governors of the Federal Reserve System (FRB). As of December 2018.
 Note: 2018 CMBS outstanding as of September 2018.

CMBS often falls under three different classifications: conduit, agency, and single asset/single borrower:

EXHIBIT 3: COMMERCIAL MORTGAGE-BACKED SECURITY (CMBS) CLASSIFICATIONS:

<p>Conduit ~40% of Outstanding CMBS Loans⁹</p>	<ul style="list-style-type: none"> - 40 – 60 diversified commercial loans across property types and regions - Smaller properties frequently located in secondary markets - Collateral is typically first mortgage loan of five and ten year fixed rate loans
<p>Agency ~45% of Outstanding CMBS Loans</p>	<ul style="list-style-type: none"> - Issued and endorsed by Federal Housing Finance Agency (FHFA), Fannie Mae, or Freddie Mac - Senior bonds generally guaranteed - 40 – 60 diversified commercial loans across property types and regions - Smaller properties frequently located in secondary markets - Collateral is typically first mortgage loan of five and ten year fixed rate loans
<p>Single Asset / Single Borrower ~15% of Outstanding CMBS loans</p>	<ul style="list-style-type: none"> - Single Asset CMBS backed by a single property. Usually trophy assets: high quality, high profile, top-tier market

⁷ CRE Finance Council (CREFC). As of September 2018.

⁸ CRE Finance Council (CREFC). As of December 2018.

⁹ Trepp; Bloomberg. As of July 2018.

- Single Borrower CMBS – a single borrower takes out backed by a portfolio of properties, typically in the same segment. Typically cross collateralized and cross-defaulted
- Collateral is typically first mortgage loan of five and ten year fixed rate loans

Freddie K Program: The Federal Home Loan Mortgage Corporation (“Freddie Mac”) started the Freddie K program out of a desire to privatize multifamily loan holdings that were previously held on the balance sheet of the Government Sponsored Entity (“GSE”) that is funded with taxpayers’ dollars. The structure of Freddie K deals is similar to traditional CMBS, but features additional transparency via Freddie Mac and includes a guaranteed tranche on the most senior debt capital. In short, Freddie K purchases loans, assembles them into diversified pools, and sell them in securitized vehicles. These securitizations are backed by newly acquired mortgages underwritten to Freddie Mac’s industry-leading standards. Underwriting and credit reviews are completed by Freddie Mac, and securitized loans are held to the same standards as loans retained in its own investment portfolio. Since inception in 2009, Freddie K has completed 266 deals, backed by 15,109 loans, amounting to a combined \$292 billion in issuance.¹⁰

With several different tranches of each K-deal, there are a variety of ways to participate in the securitization that fits the required return profile for a multitude of investors. The senior tranche usually garners the largest portion of the securitization and is guaranteed by Freddie Mac. The senior portion of the capital structure is rated. Moving to the mezzanine bonds, this tranche is not guaranteed by Freddie Mac, garners a slightly higher coupon and are issued at a slight discount to par. Finally, the first loss position after the equity cushion, or the “B-piece”, may be a zero-coupon bond and offered at the highest discount to par. The B-Piece is the controlling class of the capital structure.

EXHIBIT 4: HYPOTHETICAL STRUCTURE SAMPLE FREDDIE K CAPITAL STACK

	Rating	Tranche	WAL	Last \$ Exposure	Attach – Detach Points	Est. Gross IRR	OID
Senior Guaranteed Bonds	AAA AA A	\$1,200M	6.5 – 10	\$63k/unit	0 – 63%	3.25 – 3.50%	102-103
Mezzanine Bonds	NR/BBB	\$33M	10	\$65k/unit	63 – 65%	5.10 – 5.40%	92-94
B-Piece	NR	\$100M	10	\$70k/unit	65 – 70%	8.50 – 10.00%	35-40
Sponsor Equity Cushion	NR	\$270M	10	\$100k/unit	70 – 100%	13.00 – 15.00% (Levered)	N/A

Note: “WAL” stands for Weighted Average Life. “OID” stands for Original Issue Discount. “IRR” stands for Internal Rate of Return. For illustrative purposes only.
Source: DWS; Freddie Mac. As of December 2018.

¹⁰ Freddie Mac. As of December 2018

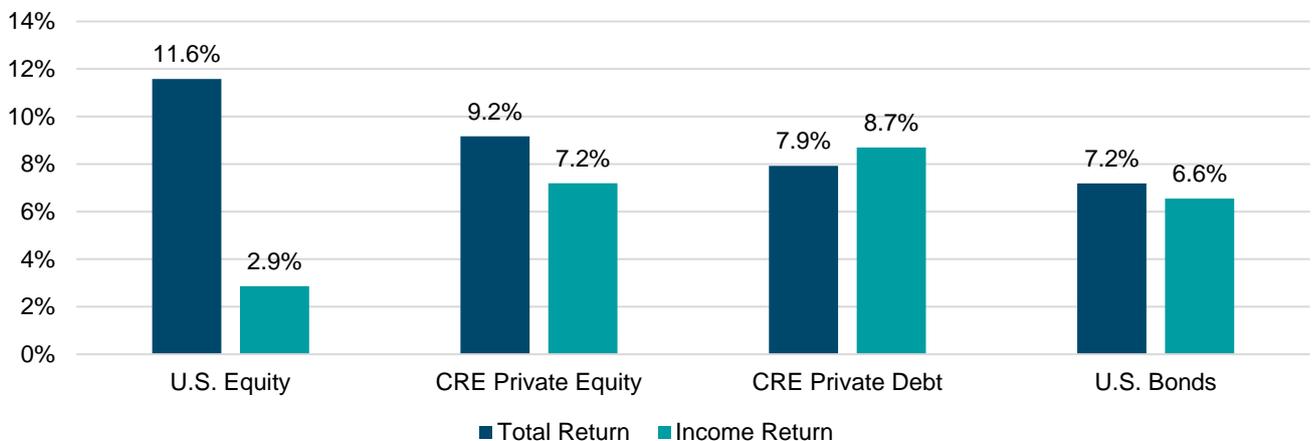
Strategic Considerations

Income Returns

A defining attribute of real estate debt investments is its current, income-driven returns. Commercial real estate loans offer historically reliable streams of income at rates that might be greater than equity, corporate rated bonds, BBB bonds, and high yield corporate bonds.

CRE debt returns come largely in the form of current income, and have been very reliable and stable relative to other forms of real estate investment. In the last 45 years, this type of debt has experienced only two years of negative total returns (1974, 2008) while income returns have remained relatively stable (see Exhibit 10).

EXHIBIT 5: ASSET CLASS TOTAL RETURN AND INCOME RETURN (1978 – 2018)



Sources: S&P 500 (U.S. Equity); NCREIF Property Index (CRE Private Equity); Gilberto-Levy Commercial Mortgage Performance Index (CRE Private Debt); Bloomberg/Barclays U.S. Aggregate Index (U.S. Bonds). As of December 2018.

Lower Volatility

Another major benefit to investing in debt, especially real estate debt, is lower volatility. Physical collateral, stable income, the borrowers' equity cushion in the first loss position and structured mitigants such as a springing guaranty, call protection, various tests, covenants, and thresholds may be structured on a deal by deal basis help to lower the volatility of real estate debt. The Gilberto-Levy Commercial Mortgage Performance Index illustrates that private real estate debt has the potential to outperform other asset classes on a risk-adjusted basis.¹¹ On an absolute basis, real estate debt has underperformed equity markets over the past 20 years but outperformed traditional fixed income investments.¹² However, the asset class's lower volatility has boosted its performance on a risk-adjusted basis. Over the past 20 years, private real estate debt delivered a Sharpe ratio of 0.94, compared to 0.81 for U.S. bonds and 0.36 for U.S. equities.¹³ Additionally, when comparing the Sharpe ratio ranges (+/- 1 standard deviation in risk premium) to highlight the dispersion of risk premiums over time, private real estate

¹¹ Past performance is not indicative of future returns. There is no assurance that investment objective will be achieved

¹² Gilberto-Levy Commercial Mortgage Performance Index (CRE Private Debt); Bloomberg/Barclays U.S. Aggregate Bond Index (U.S. Bonds); S&P 500 (U.S. Equities). As of December 2018. Past performance is not a guide to future results

¹³ Gilberto Levy Commercial Mortgage Performance Index; Bloomberg/Barclays U.S. Aggregate Bond Index; S&P 500. As of December 2018.

debt appears to provide a higher risk premium with lower downside relative to these asset classes, as well as non-agency CMBS, global bonds, global equities, and REITs.

EXHIBIT 6: ANNUAL RETURNS, STANDARD DEVIATION AND SHARPE RATIO BY ASSET CLASS (1999 – 2018)

	CRE Private Debt	Non-Agency CMBS	BBB CMBS	CRE Private Equity	REITs	U.S. Bonds	Global Bonds	U.S. Equity	Global Equity
Total Return	6.0%	5.4%	3.3%	9.0%	9.9%	4.5%	3.8%	5.6%	2.6%
Std. Deviation	4.5%	9.1%	20.3%	8.2%	22.1%	3.6%	5.7%	17.0%	18.4%
Sharpe Ratio	0.94	0.45	0.19	0.95	0.46	0.81	0.45	0.36	0.19
<i>+/- 1 Std. Deviation Sharpe Ratio</i>	-0.15 – 2.03	-0.59 – 1.48	-0.81 – 1.20	0.01 – 1.88	-0.54 – 1.46	-0.31 – 1.94	-0.65 – 1.55	-0.64 – 1.37	-0.81 – 1.18

Sources: Giliberto-Levy Commercial Mortgage Performance Index (CRE Private Debt); Bloomberg/Barclays Non-Agency IG BBB CMBS (BBB CMBS); Bloomberg/Barclays Non-Agency IG CMBS (Non-Agency CMBS); NCREIF Property Index (CRE Private Equity); MSCI US REITs (REITs); Bloomberg/Barclays U.S. Aggregate Bond Index (U.S. Bonds); Bloomberg/Barclays Global Aggregate Index (Global Bonds); S&P 500 (U.S. Equities); MSCI All Country World Index (World Equities); DWS. As of December 2018. Past performance is not a guide to future results

Notes:

(1) Annualized Sharpe Ratio is based on quarterly data and is calculated as the average excess return over the risk-free rate divided by the annualized standard deviation of the returns. The benchmark risk-free rate used is the 3-month U.S. Treasury. Past performance is not an indicator of future results.

(2) The +/- 1 Std. Deviation Sharpe Ratio range listed in the chart uses the standard deviation of the risk premium (asset class less the 3-month U.S. Treasury) over the last 20 years. As risk premiums can vary, this range highlights the dispersion over time. As of December 2018.

Diversification

In addition to performance benefits, correlation analysis shows that private and public real estate debt provide diversification benefits as part of a multi-asset portfolio. Illustrated in the table below, real estate debt has a low-to-moderate correlation against all major asset classes and economic indicators. Correlations with real estate private equity, measured in the table below by the NCREIF Property Index, is nearly zero, suggesting that real estate equity and debt are complementary within an investor's portfolio.

EXHIBIT 7: ASSET CLASS CORRELATIONS (1999 – 2018)

	CRE Private Equity	CRE Private Debt	REITs	mREIT	Non- Agency CMBS	U.S. Bonds	World Bonds	U.S. Equity	World Equity	U.S. 10Y	U.S. GDP
CRE Pvt. Equity	1.00										
CRE Pvt. Debt	-0.01	1.00									
REITs	0.26	0.46	1.00								
mREITs	-0.17	0.44	0.53	1.00							
IG CMBS	-0.03	0.83	0.71	0.50	1.00						
U.S. Bonds	-0.18	0.73	0.15	0.38	0.52	1.00					
World Bonds	-0.13	0.46	0.14	0.27	0.38	0.59	1.00				
U.S. Stocks	0.27	-0.14	0.54	0.03	0.27	-0.47	-0.11	1.00			
World Stocks	0.25	-0.12	0.56	0.02	0.27	-0.44	0.00	0.96	1.00		
U.S. 10Y	-0.07	-0.28	0.14	-0.02	-0.02	-0.68	-0.36	0.56	0.60	1.00	
U.S. GDP	0.67	0.11	0.44	-0.07	0.22	-0.25	-0.12	0.58	0.57	0.22	1.00

Sources: Giliberto-Levy Commercial Mortgage Performance Index (CRE Private Debt); Bloomberg/Barclays Non-Agency IG CMBS (Non-Agency CMBS); FTSE NAREIT Mortgage REITs Index (mREITs); NCREIF Property Index (CRE Private Equity); FTSE/NAREIT All Equity REIT Index (REITs); Bloomberg/Barclays U.S. Aggregate Bond Index (U.S. Bonds); Bloomberg/Barclays Global Aggregate Index (World Bonds); S&P 500 (U.S. Equities); MSCI All Country World Index (World Equities); The Federal Reserve (U.S. 10-Year); U.S. Bureau of Economic Analysis (U.S. GDP); DWS. As of December 2018. Note: Correlations based on quarterly annualized returns as of December 2018. Past performance is not a guide to future results.

In addition to economic diversification benefitting a portfolio, investing in both public and private real estate debt allows a lender to diversify within the asset class as well. This results in a diversified portfolio of private debt investments strategically allocated across a variety of property types, geographies, maturities, seniority, and loan structures. CMBS creates a similar subset of diversity through scale and the pooling of individual loans. As a result, lenders can strategically construct their overall portfolio potentially and improve their risk-adjusted returns.

Investment Profile

Spread Premium: Inherent to fixed income lending, differences in credit profile, transaction structure and liquidity also mean that private real estate debt may offer an additional spread premium. As such, over the last 20 years, private senior real estate debt spread to U.S. Treasuries has averaged 250 - 350 bps, more than double the spreads to U.S. corporate debt (125 bps).¹⁴ Subordinate debt has provided an even larger spread over U.S. Treasuries during that time.

Default Rates and Credit Loss: Data for the period 1983-2016 shows that annual default rates for corporate real estate bonds were just 1.1%, compared to 1.6% for non-financial corporate bonds.¹⁵ In addition, the cumulative ten-year default rate for real estate debt has been 6.3%¹⁶ historically, compared to 14.5%¹⁷ for non-financial corporates. The credit loss over the past 20 years for private real estate debt as tracked by Giliberto-Levy was just 26 bps¹⁸. As of December 2018, credit loss for the senior loans, measured by Giliberto-Levy is at just 2 bps.¹⁹

Delinquency Rates: Delinquency rates are at or near pre-crisis levels. Seasonally-adjusted delinquency rates on bank- and insurer-held commercial real estate loans (about two-thirds of outstanding mortgages) remained near their lowest levels on record as of December 2018 experiencing 70 bps and 4 bps, respectively.²⁰ CMBS delinquencies have continued the downward trend since peaking in 2012. As of December 2018, CMBS delinquencies were 3.9%, their lowest point since September 2009.²¹ This compares to the 10-year average delinquency rate of 6.6%, while the delinquency rate since the inception of Moody's tracking (June 2001) is 4.1%.²²

Recovery Rates: Debt secured by real assets also tends to benefit from higher recovery rates than corporate debt, due to the downside protection from the equity cushion and structural mitigants, as well as the value retained in the tangible underlying assets. Compared to other debt instruments, real estate denominated credit has exhibited favorable yield, credit, and duration qualities (Exhibit 8).

¹⁴ Real Estate Debt measured by the Giliberto-Levy Commercial Mortgage Performance Index and U.S. Corporate Debt measured by the Bloomberg/Barclays U.S. IG Corporate Aggregate. As of June 2018.

¹⁵ Moody's Infrastructure Default and Recovery Rate Survey (1983-2016). As of July 2017.

¹⁶ Moody's Infrastructure Default and Recovery Rate Survey (1983-2016). As of July 2017. Over the period 1970-2016.

¹⁷ Moody's Infrastructure Default and Recovery Rate Survey (1983-2016). As of July 2017. Over the period 1983-2016.

¹⁸ Giliberto-Levy Commercial Mortgage Performance Index. As of December 2018.

¹⁹ Giliberto-Levy Commercial Mortgage Performance Index. As of December 2018.

²⁰ U.S. Board of Governors of the Federal Reserve System (FRB). As of December 2018.

²¹ Moody's Investor Services. As of December 2018.

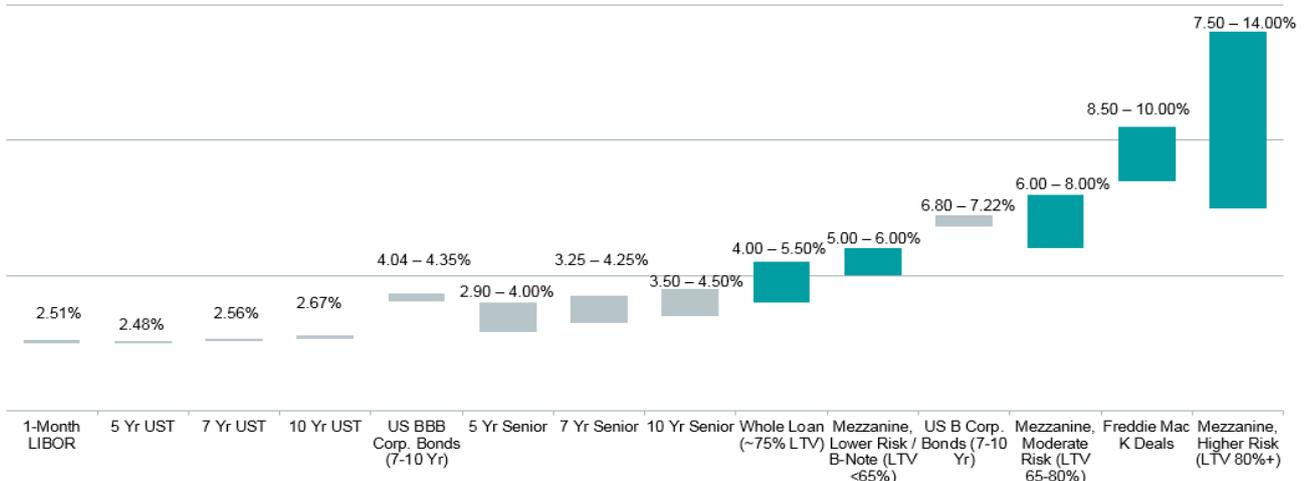
²² Moody's Investor Services. As of December 2018.

EXHIBIT 8: FIXED INCOME CHARACTERISTICS (AS OF DECEMBER 2018)

	Yield	Modified Duration	Maturity (Yrs.)	Credit Rating	Yield / Duration	
Real Estate Debt	CRE Private Debt	4.25%	5.56	7.76	N/A	0.76
	Office Sector	4.32%	5.10	7.05	N/A	0.85
	Apartment Sector	4.15%	6.19	8.48	N/A	0.67
	Retail Sector	4.36%	5.31	7.58	N/A	0.82
	Industrial Sector	4.03%	5.08	7.09	N/A	0.79
	High Yield CRE Debt ¹	8.36%	N/A	3.58	N/A	N/A
	Non-Agency CMBS	3.53%	5.17	5.87	AAA/AA1	0.68
Traditional Debt	U.S. Corporate Debt	4.20%	7.10	10.71	A3/BAA1	0.59
	U.S. High Yield	7.95%	3.96	5.83	B1/B2	2.01
	U.S. Treasury Debt	2.61%	6.10	7.64	AAA/AAA	0.43
	Global Corporate Debt	3.37%	6.33	8.89	A3/BAA1	0.53
	Global Treasury Debt	1.33%	8.00	9.60	AA2/AA3	0.17

(1) High Yield CRE Debt as of June 2018.
 Sources: Giliberto-Levy Commercial Mortgage Performance Index (CRE Private Debt, Office, Apartment, Retail, Industrial); Giliberto Levy High Yield Commercial Real Estate Index (High Yield CRE Debt); Bloomberg/Barclays Non-Agency IG CMBS (Non-Agency CMBS); Bloomberg/Barclays U.S. Corporate Bond Index (U.S. Corporate Debt); Bloomberg/Barclays U.S. High Yield Index (U.S. High Yield); Bloomberg/Barclays U.S. Treasury Index (U.S. Treasury Debt); Bloomberg/Barclays Global Corporate Index (Global Corporate Debt); Bloomberg/Barclays Global Treasury Index (Global Treasury Debt); DWS. As of December 2018.
 Note: Past performance is not a guide to future results

EXHIBIT 9: INTEREST RATE RANGES BY FIXED INCOME INVESTMENTS (FEBRUARY 2019)



Note: The above interest rate ranges are for illustrative purposes only and represent current market pricing. Actual interest rates for individual investments may be higher or lower. Interest rates are not warranted and past performance is not indicative of future results. Interest rate ranges cover the main real estate sectors across a range of quality levels and locations.
 Sources: Cushman & Wakefield, MarkIt, Bloomberg, Moody's, Chatham Financial and DWS. As of February 7, 2019.

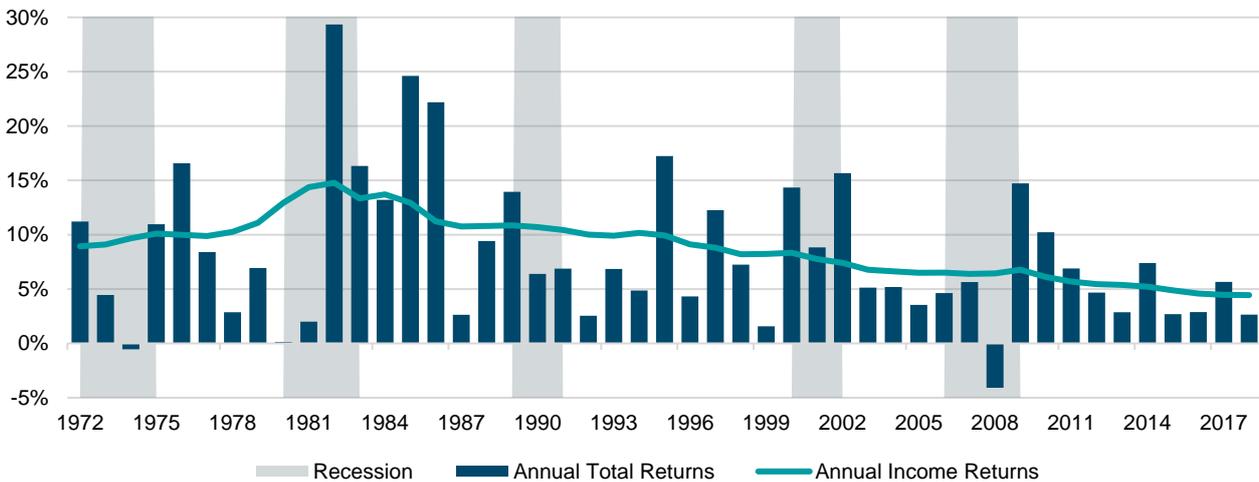
Tactical Considerations

Defensive Asset Class

The defensive nature of real estate debt provides potential downside protection and diversification benefits within a multi-asset portfolio. Key defensive characteristics—seniority to the equity first loss position within the capital structure, lower long-term volatility, low correlations to core asset classes and income-driven returns—define real estate debt as a defensive investment when used as a component of a multi-asset portfolio. We are approaching the 10th year of economic expansion since the Global Financial Crisis, making the current cycle the second longest in U.S. history. Investors may increasingly value the defensive qualities of real estate debt as the real estate cycle continues.

Since inception, the Giliberto-Levy Commercial Mortgage Performance Index has realized positive returns in every calendar year aside from 1974 and 2008. Strong, income-driven returns have enabled private real estate debt investors to weather recessions with a durable investment that is uncorrelated to other core asset classes.

EXHIBIT 10: COMMERCIAL MORTGAGE PERFORMANCE INDEX ANNUAL RETURNS (1972 – 2018)

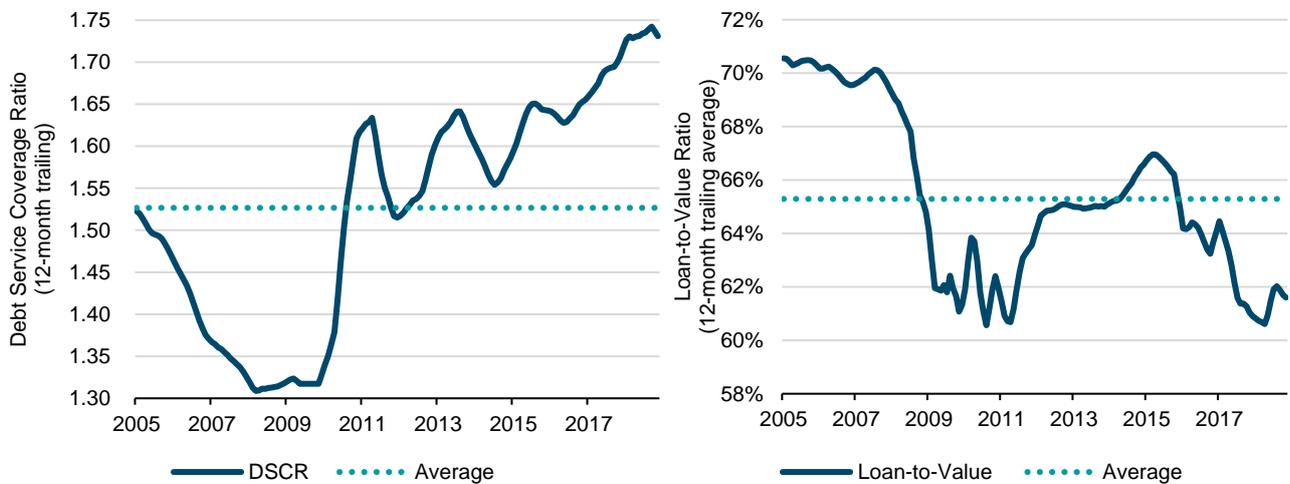


Source: Giliberto-Levy Commercial Mortgage Performance Index; National Bureau of Economic Research (NBER). As of December 2018.

Lending Standards / Disciplined Underwriting

After 2007, banks and other property lenders became significantly more cautious. Observed in the Federal Reserve Board’s Loan Officer Survey, following the GFC banks tightened their lending standards at historic levels. A study of key lending credit metrics loan-to-value (“LTV”) and the debt service coverage ratio (“DSCR”) illustrates the industry’s disciplined underwriting practices.

EXHIBIT 11: SENIOR DEBT SERVICE COVERAGE RATIO (DSCR) AND LOAN-TO-VALUE (LTV)



Source: Real Capital Analytics (RCA). As of November 2018.

Before the crisis, it was possible to obtain a senior loan for a prime stabilized U.S. office building at an LTV of more than 80% and spreads of 100 basis points.²³ However, between 2007 and 2012 maximum LTVs dropped closer to 60% and spreads tripled as banks retrenched and lending from other sources remained limited.²⁴ Currently, senior LTVs range generally from 55% to 65%, and while spreads have compressed in recent years with stiffer competition from alternative lending sources, they are still generally above pre-crisis levels. Moreover, although maximum LTVs for senior loans are generally under 65%, it is often possible to obtain additional financing through a mezzanine loan for up to around 80 - 85%.²⁵ While the spread on a senior loan is currently at 250 - 350 basis points or less, mezzanine spreads are generally higher.²⁶

Real estate debt can benefit from a range of contractual arrangements designed to manage and allocate transaction risks. These can be divided into three main categories, including seniority, security and covenants. Each transaction can employ a unique combination of these contractual terms, supporting investors in achieving different risk/return combinations.

Seniority: Lenders and providers of preferred equity are senior to the borrowers' common equity which is in the first loss position. This means that borrowers receive the remaining cash flows from properties after operating costs used to service debt payments to lenders and preferred equity investors.

Much of real estate financing is in the form of senior loans, which ranks in priority to all other financial obligations of the borrower. However, the market offers the opportunity to move down in seniority; investing in subordinated debt such as mezzanine loans, and receiving a yield premium in compensation for the increased risk.

Mezzanine debt sits between senior debt and equity. It can be fully repaid at maturity (bullet) and tends to have a higher interest rate than senior debt, due to subordination to the senior loan. Structurally, mezzanine debt is subordinate in priority of payment to senior debt, but ranks senior to preferred equity and the common stock or equity, and is popular among real estate debt investors due to the risk/return uplift it can provide.

Security: Senior mortgage loans are secured by a first priority mortgage or lien on the real estate securing the transaction. B-notes and B-pieces are also secured by a first mortgage, although subordinate to the A-tranche in such instances. Mezzanine loans are secured by a first priority pledge of 100% of the interests in the entity owning the real estate securing the transaction.

²³ DMU. As of May 2017.

²⁴ Real Capital Analytics. As of November 2018.

²⁵ Cushman & Wakefield; MarkIt; Bloomberg; Moody's; DWS. As of December 2018.

²⁶ Cushman & Wakefield; MarkIt; Bloomberg; Moody's; DWS. As of December 2018.

An intercreditor agreement governs the relationship between the senior mortgage lender and the mezzanine lender, granting each lender certain rights throughout the term of the loan.

Covenants: Real estate debt includes agreements on terms and conditions between the borrower and lenders in the form of a mortgage pledge, loan agreement, or guaranty among other agreements. These are agreed as a condition of borrowing, with the purpose of supporting the condition of the lender, mitigating the risk of incurring losses and acting as an early warning mechanism for lenders. A breach of covenant usually allows lenders to take action or exercise their remedies. Covenants are typically based on cash-flow metrics, such as interest coverage ratio, debt service coverage ratio (“DSCR”), loan-to-value (“LTV”), prepayment clauses, cash sweeps (cash traps), reserves, escrows, earn-outs, guarantees, etc.

Regulatory Environment

Following the Global Financial Crisis (“GFC”), the U.S. government overhauled the U.S. financial regulatory system to promote financial stability and improve accountability and transparency. The increase in the number of alternative lenders entering the real estate lending market has largely been due in part to two sets of new financial regulations: the Basel Accords and Dodd-Frank.

The Basel Accords: The Basel Accords, most recently Basel III, has reduced deal flow for banks by making it more difficult to refinance existing loans or to approve new loans. Implementation of risk-weighted assets rules has reduced bank appetite for real estate debt and resulted in tighter lending standards. Stringent regulation has disadvantaged traditional banks and enabled non-bank lenders, who may not experience this regulatory burden, to grow market share. Further implementation of Basel will continue through 2019.

The High Volatility Commercial Real Estate Rules (“HVCRE”), within Basel III, resulted in a significant pullback in construction lending, as well as other higher risk CRE activity. The HVCRE mandates that borrowers who originate commercial acquisition, development and construction (“ADC”) loans must meet a 15% equity requirement, and a maximum leverage 80% of the estimated completed value of the project.²⁷ If these conditions are not met, the loans will be subject to a 150% risk weight requirement – an increase of 50% from the previous 100% requirement.²⁸

Dodd-Frank Wall Street Reform and Consumer Protection Act: Dodd-Frank was passed in 2010 to promote financial stability following the GFC. The act overhauled the U.S. financial system by reforming federal financial regulatory agencies and nearly every part of the financial services industry. Two key provisions impact the commercial mortgage market: the Volcker Rule and Credit Risk Retention.

The Volcker Rule enacted in 2015, was a measure taken to prohibit banks from engaging in proprietary trading in order to limit risk taking. The Volcker Rule resulted in the sharp decline in secondary market liquidity for CMBS and other structured products.

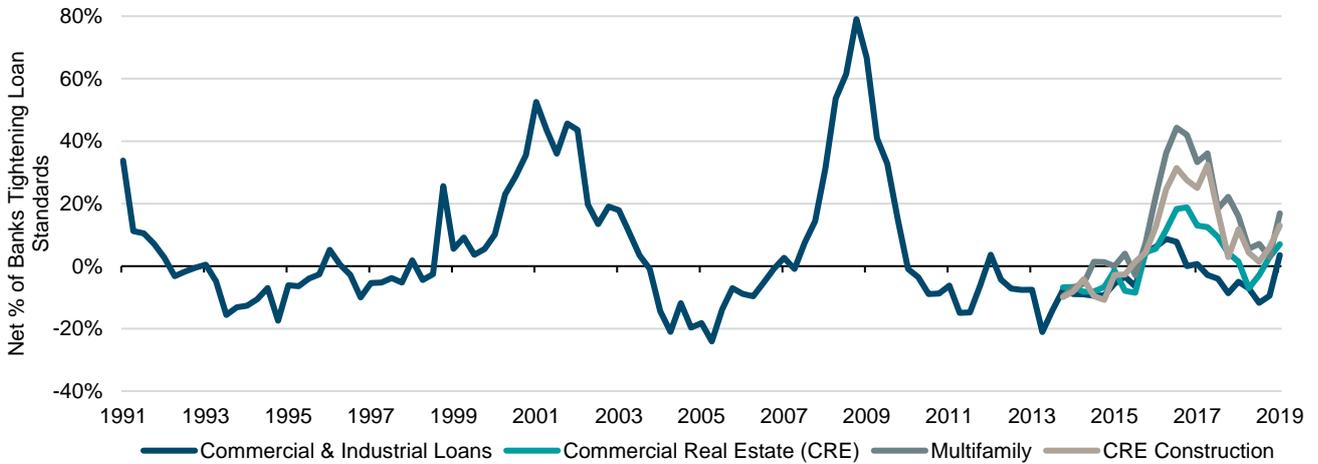
Credit Risk Retention (Section 941) requires sponsors of asset-backed securities to retain at least 5% of the credit risk of the assets underlying the securities and does not permit sponsors to transfer or hedge that credit risk during a specified period.²⁹ Section 941 requires that both public and private securitizers generally have “skin in the game” with respect to securitized loans and other assets.

²⁷ Federal Deposit Insurance Corporation (FDIC). As of December 2018.

²⁸ Federal Deposit Insurance Corporation (FDIC). As of December 2018.

²⁹ Office of the Comptroller of the Currency (OCC); U.S. Department of the Treasury. As of December 2018.

EXHIBIT 12: FEDERAL RESERVE U.S. BANK LENDING STANDARDS SURVEY (1991 - 2019)



Source: Federal Reserve. As of February 2019.

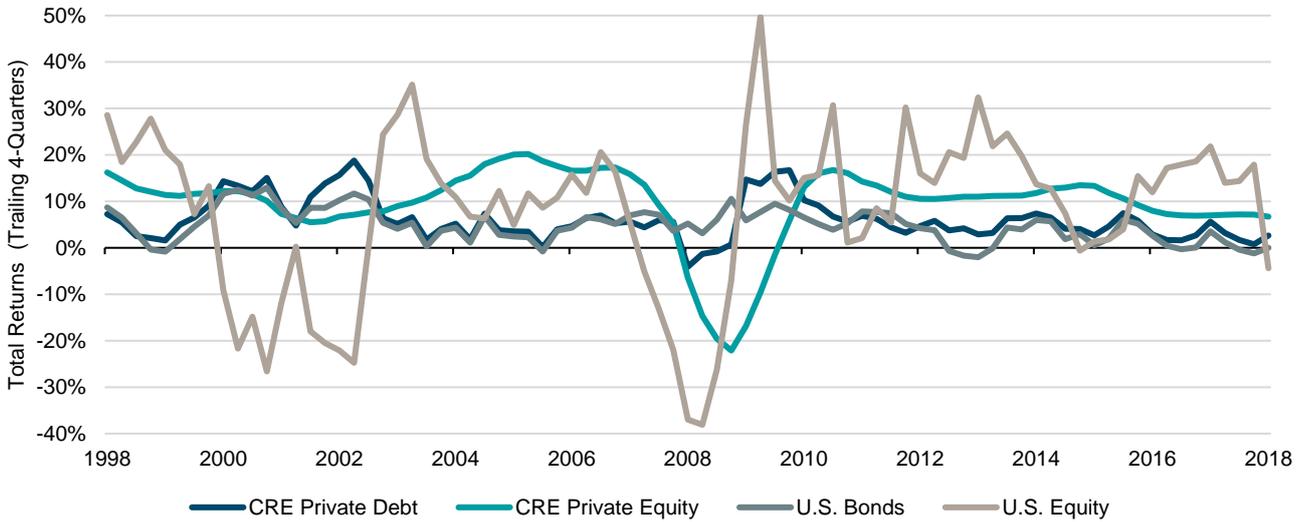
In 2018, legislation was passed to roll-back elements of Dodd-Frank. The bill eased financial regulation and oversight for banks with under \$250 billion in deposits, as opposed to the prior \$50 billion in deposits.³⁰ Additionally, legislation was signed to re-define “high-volatility activity”, partially relieving some of the constraints centered on the HVCRE rule. The new legislation allows borrowers to count the appreciated value of their land toward the capital contribution as opposed to the purchase price (which is often much lower). Furthermore, it allows the owner to begin withdrawing cash from a project assuming the 15% equity level is maintained.

This legislation may have demonstrated a shift away from the post-GFC norm of more stringent regulation. Still, financial regulations are not anticipated to return to their pre-crisis standards.

³⁰ U.S. House of Representatives Financial Services Committee. As of May 2018.

Appendix

EXHIBIT 13: ROLLING 12 MONTH RETURNS FOR PUBLIC AND PRIVATE EQUITY AND DEBT



Source: S&P 500 (U.S. Equity); NCREIF Property Index (CRE Private Equity); Giliberto-Levy Commercial Mortgage Performance Index (CRE Private Debt); Bloomberg/Barclays U.S. Aggregate Index (U.S. Bonds). As of December 2018.

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- Environmental claims arising in respect of real estate acquired with undisclosed or unknown environmental problems or as to which inadequate reserves have been established;
- Changes in the relative popularity of property types and locations;
- Risks and operating problems arising out of the presence of certain construction materials; and

- Currency / exchange rate risks where the investments are denominated in a currency other than the investor's home currency.

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