

ANNUAL REPORT

City of San Jose Police and Fire Department Retirement Plan

Private Markets Program
December 31, 2018

P U B L I C



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Total Private Markets

	Inception Year	Committed Capital (\$ mm)	Market Value (\$ mm)	Total Contributions (\$ mm)	Total Distributions (\$ mm)	Total Value Multiple (x)	Net IRR (%)
Total Alternatives Account^{1,2}		1,346.9	510.1	917.4	653.3	1.3	8.1
Legacy Private Equity ¹	2005	361.2	181.7	300.4	259.3	1.5	9.2
NB Fund of One ¹	2017	200.6	36.9	32.7	0.0	1.1	18.8
Private Debt	2010	497.5	178.4	439.8	327.9	1.2	5.5
Real Estate	2007	216.7	86.9	117.5	65.9	1.3	14.0
Real Assets	2016	46.0	26.2	27.0	3.0	1.1	7.6

¹ Private Equity and Fund of One underlying data was provided by Neuberger Berman and does not include commitment amounts at this time.

² Does not include NB Fund-of-One performance.



Private Debt Program

As of December 31, 2018, the San Jose Police and Fire Department Retirement Plan had committed \$497.5 million to ten private debt partnerships and one separately managed co-investment. The reported fair value of the aggregate Private Debt Program was \$178.4 million at December 31, 2018, which equates to 5.2% of the overall Retirement Plan, versus a 4.0% policy target.

Aggregate Private Debt Program ¹	
Number of Partnerships	11
Committed Capital²	\$497.5 million
Capital Called³	\$439.8 million
Distributions	\$327.9 million
Reported Value	\$178.4 million
Total Value Multiple	1.2x
Net IRR	5.5%

¹ Throughout this report, numbers may not sum due to rounding.

² Some partnership commitments were made in foreign currency. This total reflects committed capital in U.S. dollars, adjusted for foreign currency exchange rates, as of the report date.

³ In certain instances, total contributions may exceed the commitment, as a Partnership may reserve the right to recycle capital and/or recall distributions depending upon the terms of its Limited Partnership Agreement.

During the fourth quarter of 2018, \$0.6 million in contributions was called from the Retirement Plan.

- Park Square Capital Credit Opportunities II called \$0.5 million during the fourth quarter to repay borrowings associated with the partnership's existing credit facilities.
- GSO SJ Partners called \$0.1 million during the fourth quarter to fund management fees in addition to partnership expenses.

An aggregate of \$15.8 million in distributions was received by the Retirement Plan during the fourth quarter of 2018.

- Cross Ocean USD ESS Fund I distributed \$5.7 million during the quarter in proceeds generated by various existing portfolio investments.
- White Oak Direct Lending distributed primarily from the realization of an underlying partnership, which returned a gross IRR of 12.6% and 1.4x multiple.
- GSO SJ Partners distributed \$4.6 million primarily from the realization of various underlying partnerships.

The Retirement Plan made no new commitments during the fourth quarter of 2018.

As of May 31, 2019



- White box: Current investment.
- Grey box: Liquidated investment.

Aggregate Program Performance Summary

			Total		Total		Reported			Benchmark	Benchmark
	Investment	Capital	Contributions	Unfunded	Distributions	Reported	Fair Value	Net	Inv.	Net	Net
	Strategy	Committed	Paid to Date ^{1,2}	Commitment ³	Received	Fair Value	Plus	IRR ⁵	Multiple ⁶	IRR ⁷	Multiple ⁷
		(\$ mm)	(\$ mm)	(\$ mm)	to Date ⁴	(\$ mm)	(\$ mm)	(%)	(x)	(%)	(%)
Total Program ⁸		497.5	439.8	107.5	327.9	178.4	506.3	5.5	1.2	NA	NA
Vintage Year 2010		150.0	184.5	5.8	165.6	44.4	210.0	4.2	1.1	9.9	1.4
GSO SJ Partners	Private Debt	50.0	44.2	5.8	46.5	8.5	55.0	7.6	1.2	9.9	1.4
Medley Opportunity Fund II, L.P.	Private Debt	50.0	55.1	0.0	40.6	25.1	65.6	4.1	1.2	9.9	1.4
White Oak Direct Lending	Private Debt	50.0	85.2	0.0	78.6	10.8	89.4	2.0	1.0	9.9	1.4
Vintage Year 2011		25.0	25.0	0.0	28.7	2.3	31.0	8.7	1.2	9.5	1.4
Marathon European Credit Opportunity Fund SPC	Private Debt	25.0	25.0	0.0	28.7	2.3	31.0	8.7	1.2	9.5	1.4
Vintage Year 2013		140.0	120.8	26.0	89.3	51.4	140.7	5.8	1.2	7.4	1.2
Cross Ocean USD ESS Fund I, L.P.	Private Debt	90.0	76.0	14.0	81.9	8.9	90.8	7.1	1.2	7.4	1.2
Park Square Capital Credit Opportunities II	Private Debt	50.0	44.8	11.9	7.4	42.5	50.0	3.7	1.1	7.4	1.2
Vintage Year 2014		22.5	22.0	1.4	12.3	13.0	25.3	5.5	1.1	10.5	1.3
Shoreline China Value III, L.P.	Private Debt	22.5	22.0	1.4	12.3	13.0	25.3	5.5	1.1	10.5	1.3
Vintage Year 2015		25.0	25.0	0.0	28.5	0.0	28.5	11.3	1.1	11.3	1.2
Octagon CLO Debt Fund II (US)	Private Debt	25.0	25.0	0.0	28.5	0.0	28.5	11.3	1.1	11.3	1.2
Vintage Year 2016		75.0	52.5	24.3	3.4	56.9	60.3	9.5	1.1	8.9	1.1
Cross Ocean USD ESS Fund II, L.P.	Private Debt	75.0	52.5	24.3	3.4	56.9	60.3	9.5	1.1	8.9	1.1

¹ In certain instances, Total Contributions Paid to Date may exceed Capital Committed as certain partnerships may call fees outside of commitment and most partnerships reserve a limited right to recycle capital and/or recall distributions.

² Total Contributions include management fees paid outside of capital commitment.

³ Unfunded Commitment amounts are an approximation due to the inclusion of recallable distributions.

⁴ Distributions may include capital that was recycled back into the Partnership.

⁵ The Net IRR calculation was performed by Meketa Investment Group. Total Program, Partnership, and Vintage Year IRRs are net of fees, expenses, and carried interest for each partnership.

⁶ The Inv. Multiple calculation was performed by Meketa Investment Group. Total Program, Partnership, and Vintage Year Inv. Multiples are net of partnership fees.

⁷ Benchmark drawn from Cambridge Associates | Credit Opportunities, Average.

⁸ "NM" indicates that a fund is early in its investment period; therefore, the return is not yet meaningful. A not meaningful return is generated by funds with less than 24 months of activity.

Aggregate Program Performance Summary

	Investment Strategy	Capital Committed (\$ mm)	Total Contributions Paid to Date ^{1,2} (\$ mm)	Unfunded Commitment ³ (\$ mm)	Total Distributions Received to Date ⁴ (\$ mm)	Reported Fair Value (\$ mm)	Reported Plus Distributions (\$ mm)	Net IRR ⁵ (%)	Inv. Multiple ⁶ (x)	Benchmark Net IRR ⁷ (%)	Benchmark Net Multiple ⁷ (%)	
Vintage Year 2017		10.0	10.0	0.0	0.0	10.3	10.3	NM	1.0	NM	1.3	
	ArrowMark Partners Separate Account	Private Debt	10.0	10.0	0.0	0.0	10.3	10.3	NM	1.0	NM	1.3
Vintage Year 2018		50.0	0.0	50.0	NA	NA	NA	NA	NA	NA	NA	
	Octagon CLO Opportunity Fund III, L.P.	Private Debt	50.0	0.0	50.0	NA	NA	NA	NA	NA	NA	

The IRR (internal rate of return) and investment multiple are the most meaningful measures of performance for a private equity fund. IRR measures how assets are performing in relation to time. Investment multiple shows the cash on cash return generated on the invested capital by the underlying assets.

The total program net IRR decreased by 50 basis points from 6.0% to 5.5% during the fourth quarter. The fair market value of the total program decreased by \$4.2 million, or 2.2%, after adjusting for capital calls and distributions during the quarter. The decline in net portfolio valuation was driven by decreases in the valuations of Park Square Capital Credit Opportunities II (\$1.5 million or 3.4%), White Oak Direct Lending (\$1.1 million or 8.2%), and Cross Ocean USD ESS Fund II (\$1.0 million or 1.8%).

Real Estate Program

As of December 31, 2018, the Plan had committed \$216.7 million to 13 closed-end real estate funds. The total reported fair value of the Real Estate Program's investments was \$86.9 million at December 31, 2018, which equates to 2.5% of the overall Retirement Plan, versus a 3.0% policy target.

Aggregate Real Estate Program ^{1,2}	
Number of Partnerships	13
Committed Capital³	\$216.7 million
Capital Called	\$117.5 million
Distributions	\$65.9 million
Reported Value	\$86.9 million
Total Value Multiple	1.3x
Net IRR	14.0%

¹ Throughout this report, numbers may not sum due to rounding.

² Aggregate Real Estate Program excludes one open-end vehicle (American Core Realty Fund) with an unrealized value of \$101.8 million.

³ Some partnership commitments were made in foreign currency. This total reflects committed capital in U.S. dollars, adjusted for foreign currency exchange rates, as of the report date.

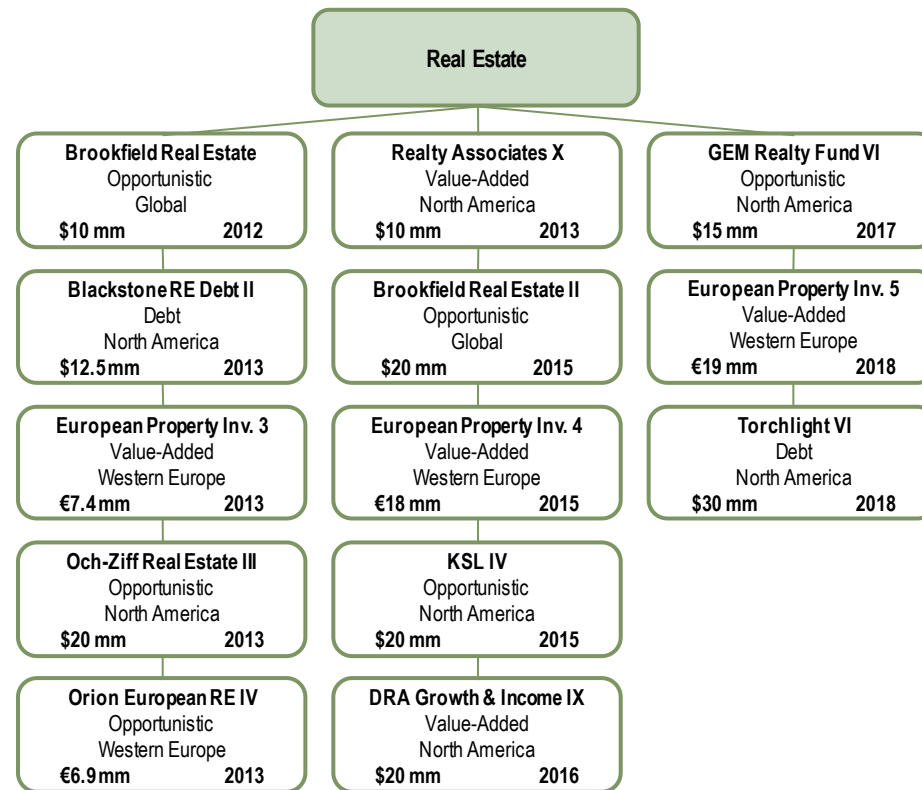
In aggregate, \$7.5 million was called from the Retirement Plan during the fourth quarter of 2018 by the underlying partnerships.

- European Property Investors Special Opportunities 4 called \$2.2 million during the quarter to fund three underlying investments in a number of projects.
- Brookfield Strategic Real Estate Partners II called \$1.7 million during the quarter to fund various existing portfolio investments and partnership expenses.
- DRA Growth and Income Fund IX called \$1.6 million during the quarter primarily to pay down the Fund's credit facility for the acquisitions of six underlying investments.

The Retirement Plan received an aggregate of \$9.8 million in distributions during the fourth quarter of 2018 from its underlying partnerships.

- Brookfield Strategic Real Estate Partners distributed \$3.7 million in proceeds generated from the sale of seven underlying partnerships.
- Och-Ziff Real Estate Fund III distributed \$2.6 million in realized gain, return of capital, and operating proceeds received in conjunction with several existing portfolio investments.
- Brookfield Strategic Real Estate Partners II distributed \$1.5 million during the quarter primarily in proceeds generated by two underlying partnerships.

The Retirement Plan did not make any new commitments during the fourth quarter of 2018.



- White box: Current investment.

Aggregate Program Performance Summary

	Investment Strategy	Capital Committed (\$ mm)	Total Contributions Paid to Date ¹ (\$ mm)	Unfunded Commitment ² (\$ mm)	Total Distributions Received to Date (\$ mm)	Reported Fair Value (\$ mm)	Reported Fair Value	Net IRR ³ (%)	Inv. Multiple ⁴ (x)	Benchmark	Benchmark
							Plus Distributions (\$ mm)			Net IRR ⁵ (%)	Net Multiple ⁵ (x)
Total Program ⁶		216.7	117.5	105.6	65.9	86.9	152.7	14.0	1.3	NA	NA
Vintage Year 2012		10.0	11.5	0.2	13.9	8.1	22.0	21.3	1.9	12.5	1.5
Brookfield Strategic Real Estate Partners	Opportunistic	10.0	11.5	0.2	13.9	8.1	22.0	21.3	1.9	12.5	1.5
Vintage Year 2013		59.5	48.2	14.7	40.5	23.1	63.6	12.0	1.3	11.0	1.3
Blackstone Real Estate Debt Strategies II	Debt	12.5	12.8	0.0	13.7	1.0	14.7	9.3	1.2	11.0	1.3
European Property Investors Special Opportunities 3, L.P. ⁷	Value-Added	8.8	8.5	0.3	5.6	5.7	11.3	11.1	1.3	11.0	1.3
Och-Ziff Real Estate Fund III	Opportunistic	20.0	10.9	10.5	8.7	7.8	16.5	25.3	1.5	11.0	1.3
Orion European Real Estate Fund IV, C.V. ⁸	Opportunistic	8.2	6.0	3.9	3.9	2.7	6.6	3.4	1.1	11.0	1.3
Realty Associates Fund X, L.P., The	Value-Added	10.0	10.0	0.0	8.7	5.8	14.5	10.9	1.4	11.0	1.3
Vintage Year 2015		60.4	43.0	17.5	7.4	43.2	50.6	12.3	1.2	9.9	1.2
Brookfield Strategic Real Estate Partners II	Opportunistic	20.0	16.4	3.6	2.4	17.1	19.5	10.7	1.2	9.9	1.2
European Property Investors Special Opportunities 4, L.P. ⁹	Value-Added	20.4	14.1	6.3	0.8	15.3	16.1	10.7	1.1	9.9	1.2
KSL Capital Partners IV, L.P.	Opportunistic	20.0	12.5	7.5	4.3	10.7	15.0	17.7	1.2	9.9	1.2
Vintage Year 2016		20.0	10.8	10.6	2.7	9.9	12.6	17.6	1.2	11.7	1.1
DRA Growth and Income Fund IX, LLC	Value-Added	20.0	10.8	10.6	2.7	9.9	12.6	17.6	1.2	11.7	1.1

¹ In certain instances, Total Contributions Paid to Date may exceed Capital Committed as certain partnerships may call fees outside of commitment and most partnerships reserve a limited right to recycle capital and/or recall distributions.

² Unfunded Commitment amounts are an approximation due to the inclusion of recallable distributions.

³ The Net IRR calculation was performed by Meketa Investment Group. Total Program, Partnership, and Vintage Year IRRs are net of fees, expenses, and carried interest for each partnership.

⁴ The Inv. Multiple calculation was performed by Meketa Investment Group. Total Program, Partnership, and Vintage Year Inv. Multiples are net of partnership fees.

⁵ Real Estate benchmarks drawn from Cambridge Associates | Real Estate, Average.

⁶ "NM" indicates that a fund is early in its investment period; therefore, the return is not yet meaningful. A not meaningful return is generated by funds with less than 24 months of activity.

⁷ In 2013, €7.4 million was committed to the Partnership. The \$8.8 million is the USD equivalent as of 12/31/2018.

⁸ In 2015, €6.9 million was committed to the Partnership. The \$8.2 million is the USD equivalent as of 12/31/2018.

⁹ In 2015, €18.0 million was committed to the Partnership. The \$20.4 million the USD equivalent as of 12/31/2018.

Aggregate Program Performance Summary

			Total		Total		Reported			Benchmark	Benchmark
	Investment	Capital	Contributions	Unfunded	Distributions	Reported	Fair Value	Net	Inv.	Net	Net
	Strategy	Committed	Paid to Date ¹	Commitment ²	Received	Fair Value	Plus	IRR ³	Multiple ⁴	IRR ⁵	Multiple ⁵
		(\$ mm)	(\$ mm)	(\$ mm)	to Date	(\$ mm)	Distributions	(%)	(x)	(%)	(x)
					(\$ mm)		(\$ mm)				
Vintage Year 2017		15.0	1.7	13.3	0.9	0.9	1.8	NM	1.0	NM	1.0
GEM Realty Fund VI, L.P.	Opportunistic	15.0	1.7	13.3	0.9	0.9	1.8	NM	1.0	NM	1.0
Vintage Year 2018		51.7	2.3	49.5	0.5	1.7	2.2	NM	0.9	NM	0.9
European Property Investors Special Opportunities 5, L.P. ¹⁰	Value-Added	21.7	0.0	21.7	0.0	NA	NA	NA	NA	NA	NA
Torchlight Debt Opportunity Fund VI, L.P.	Debt	30.0	2.3	27.7	0.5	1.7	2.2	NM	0.9	NM	0.9

¹⁰ In 2018, £19.0 million was committed to the Partnership. The \$21.7 million is the USD equivalent as of 12/31/2018.

The IRR (internal rate of return) and investment multiple are the most meaningful measures of performance for a private equity fund. IRR measures how assets are performing in relation to time. Investment multiple shows the cash on cash return generated on the invested capital by the underlying assets.

The Total Real Estate Program¹ net IRR was reduced by 100 basis points from 15.0% to 14.0% during the fourth quarter.² The reported fair value of the Real Estate Program increased by \$0.1 million, or 0.1%, after adjusting for capital calls and distributions during the quarter. Performance was driven primarily by an increase in the valuations of European Property Investors Special Opportunities 4 (\$0.7 million or 5.2%) and Brookfield Strategic Real Estate Partners II (\$0.4 million or 2.2%), which were partially offset by a decline in the valuations of Orion European Real Estate Fund IV (\$0.7 million or 19.8%) and Realty Associates Fund X (\$0.5 million or 8.2%).

¹ Total Real Estate Program includes all closed-end funds in the real estate program.

² May not sum due to rounding.



Real Assets Program

As of December 31, 2018, the Plan had committed \$46.0 million to three real assets funds. The total reported fair value of real assets investments was \$26.2 million at December 31, 2018, which equates to 0.8% of the overall Retirement Plan, versus a 3.0% policy target.

Aggregate Real Assets Program ¹	
Number of Partnerships	3
Committed Capital²	\$46.0 million
Capital Called³	\$27.0 million
Distributions	\$3.0 million
Reported Value	\$26.2 million
Total Value Multiple	1.1x
Net IRR	7.6%

¹ Throughout this report, numbers may not sum due to rounding.

² Some partnership commitments were made in foreign currency. This total reflects committed capital in U.S. dollars, adjusted for foreign currency exchange rates, as of the report date.

³ In certain instances, total contributions may exceed the commitment, as a Partnership may reserve the right to recycle capital and/or recall distributions depending upon the terms of its Limited Partnership Agreement.

In aggregate, \$1.8 million was called from the Retirement Plan during the fourth quarter of 2018 by the underlying partnerships.

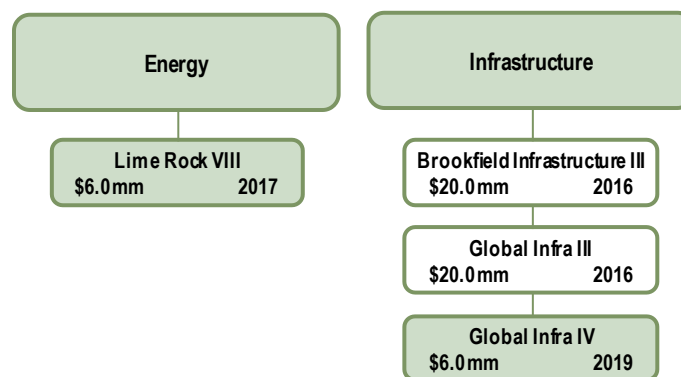
- Brookfield Infrastructure Fund III called \$2.3 million primarily to fund an underlying investment.
- Global Infrastructure Partners III returned \$0.5 million in excess funds from the contributions related to two underlying investments.

The Retirement Plan received an aggregate of \$0.3 million in distributions during the fourth quarter of 2018 from its underlying partnerships.

- Brookfield Infrastructure Fund III distributed \$0.2 million primarily from the Fund's investments in three underlying partnerships.

The Retirement Plan made a \$6.0 million commitment to an underlying partnership.

As of May 31, 2019



- White box: Current investment.
- Green box: Investment made subsequent to quarter end and, as such, is not included in any other section of this report.

Aggregate Program Performance Summary

Investment Strategy	Capital Committed (\$ mm)	Total Contributions Paid to Date ¹ (\$ mm)	Unfunded Commitment ² (\$ mm)	Total Distributions Received to Date (\$ mm)	Reported Fair Value (\$ mm)	Reported Fair Value Plus Distributions (\$ mm)	Net IRR ³ (%)	Inv. Multiple ⁴ (x)	Benchmark Net IRR ⁵ (%)	Benchmark Net Multiple ⁵ (x)
Total Program⁶	46.0	27.0	19.3	3.0	26.2	29.2	7.6	1.1	NA	NA
Vintage Year 2016	40.0	27.0	13.3	3.0	26.2	29.2	7.6	1.1	11.3	1.1
Brookfield Infrastructure Fund III, L.P. Infrastructure	20.0	12.3	7.7	2.2	12.2	14.4	14.9	1.2	11.3	1.1
Global Infrastructure Partners III, L.P. Infrastructure	20.0	14.6	5.6	0.8	14.0	14.8	0.9	1.0	11.3	1.1
Vintage Year 2017	6.0	0.0	6.0	0.0	NA	NA	NA	NA	NM	NM
Lime Rock Partners VIII, L.P. Energy	6.0	0.0	6.0	0.0	NA	NA	NA	NA	NM	NM

¹ In certain instances, Total Contributions Paid to Date may exceed Capital Committed as certain partnerships may call fees outside of commitment and most partnerships reserve a limited right to recycle capital and/or recall distributions.

² Unfunded Commitment amounts are an approximation due to the inclusion of recallable distributions.

³ The Net IRR calculation was performed by Meketa Investment Group. Total Program, Partnership, and Vintage Year IRRs are net of fees, expenses, and carried interest for each partnership.

⁴ The Inv. Multiple calculation was performed by Meketa Investment Group. Total Program, Partnership, and Vintage Year Inv. Multiples are net of partnership fees.

⁵ Benchmark drawn from Cambridge Associates | Infrastructure, Average.

⁶ "NM" indicates that a fund is early in its investment period; therefore, the return is not yet meaningful. A not meaningful return is generated by funds with less than 24 months of activity.

The IRR (internal rate of return) and investment multiple are the most meaningful measures of performance for a private real assets fund. IRR measures how assets are performing in relation to time. Investment multiple shows the cash on cash return generated on the invested capital by the underlying assets.

The total program net IRR was 7.6% at December 31, 2018. The reported fair value of the Real Asset Program decreased by \$1.2 million, or 4.5%, after adjusting for capital calls and distributions during the fourth quarter of 2018. The decline in performance was driven by a decrease in the valuation of Global Infrastructure Partners III (-\$1.3 million or -14.8%), which was partially offset by an increase in valuation of Brookfield Infrastructure Fund III (\$0.1 million or 1.1%).

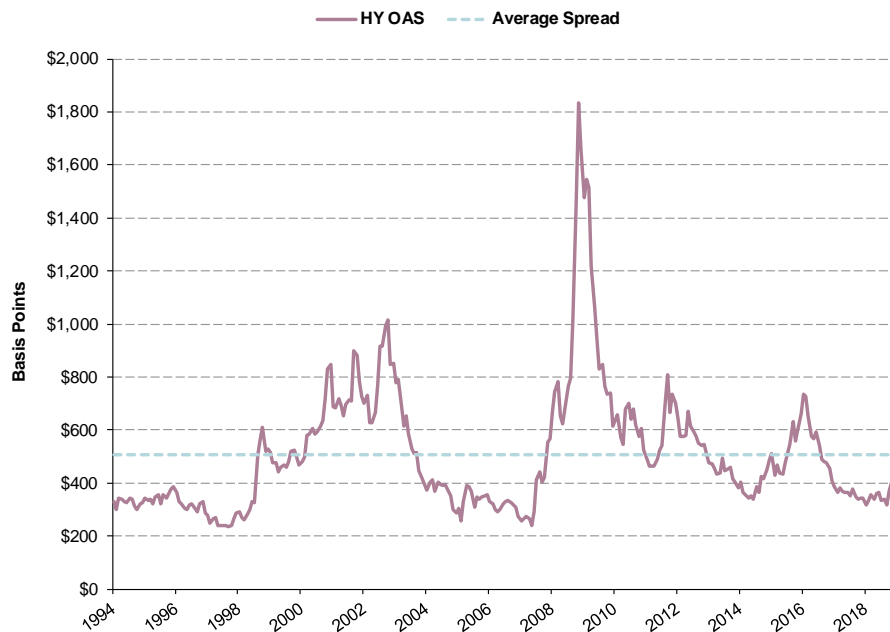
Appendices

Private Debt

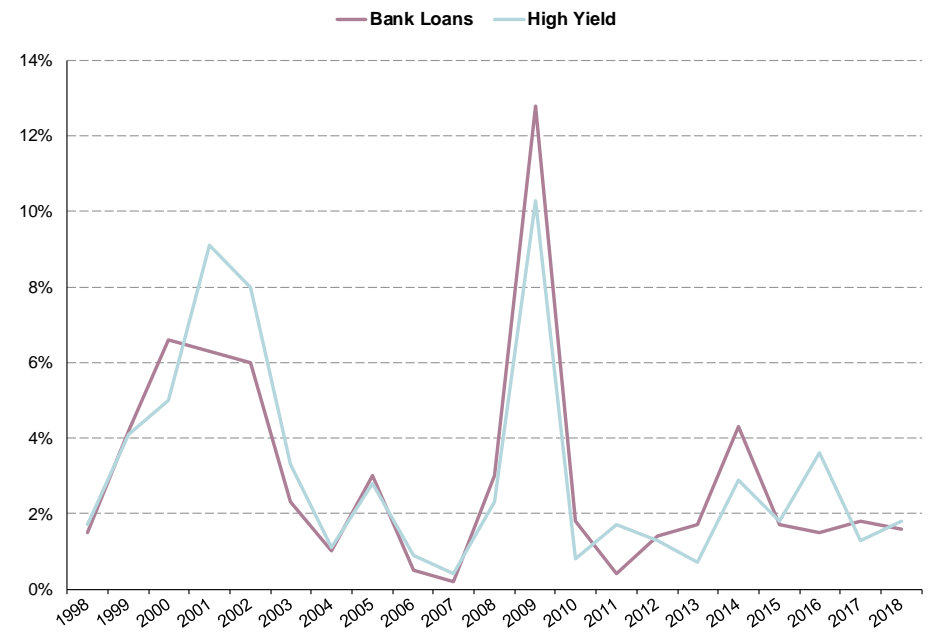
Credit markets sold off in the fourth quarter as sentiment changed from the prior three quarters and investors demanded greater compensation for taking credit risk. High yield spreads widened 210 basis points to finish the year at 526 basis points, just slightly wider than the historical long-term average. Bank loans also experienced a large sell off, though this appeared to be driven more by technical pressures related to changes in perception of the future path of interest rates rather than concerns over credit quality. Issuance ground to a halt by the end of the year with virtually no new high yield bond issuance in December.

Default rates remained below 2% for both high yield bonds and bank loans as there were no major defaults during the quarter. Recovery rates for first lien loans remained stable at around 60% in 2018, however they fell approximately 10% to 42% for high yield bonds.

U.S. Corporate High Yield Spread¹



U.S. Corporate Default Rate²



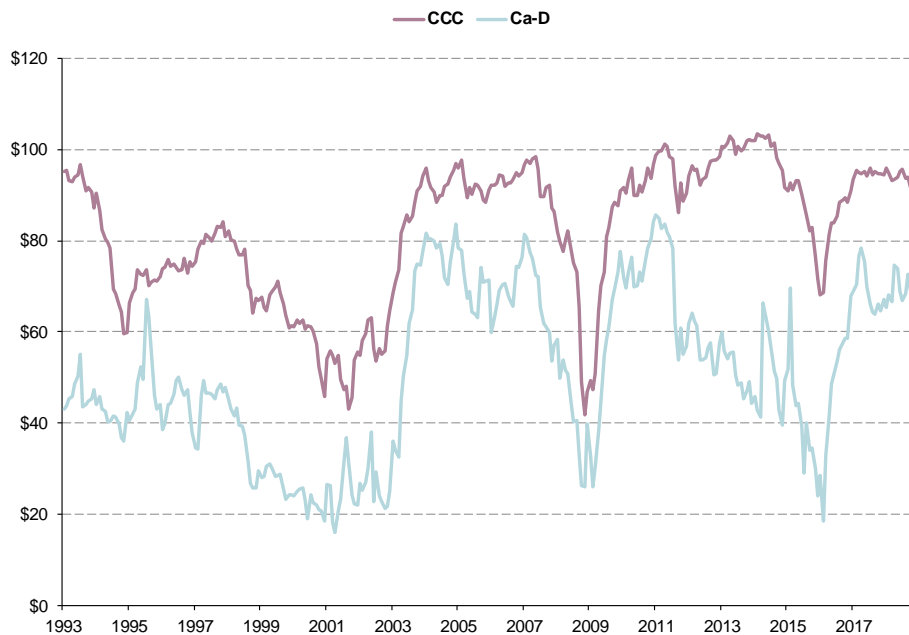
¹ Source: Barclays Capital

² Source: JP Morgan

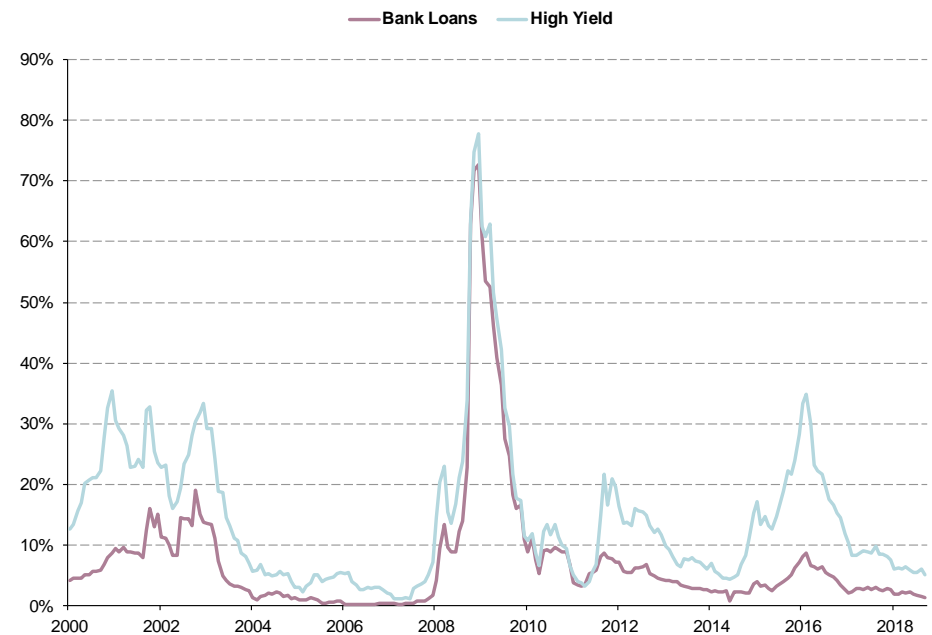
Distressed & Opportunistic Debt

The high yield distressed ratio more than doubled from the end of the third quarter to finish at 12.3% while the bank loan distressed ratio increased to 2.5%. While the average price of lower rated debt decreased, the supply of CCC and below CCC rated debt remained at the same levels during the fourth quarter. The opportunity for distressed managers remains most prevalent in the energy, retail, and media industries.

Lower Rated Debt Pricing¹



Distressed Ratio²



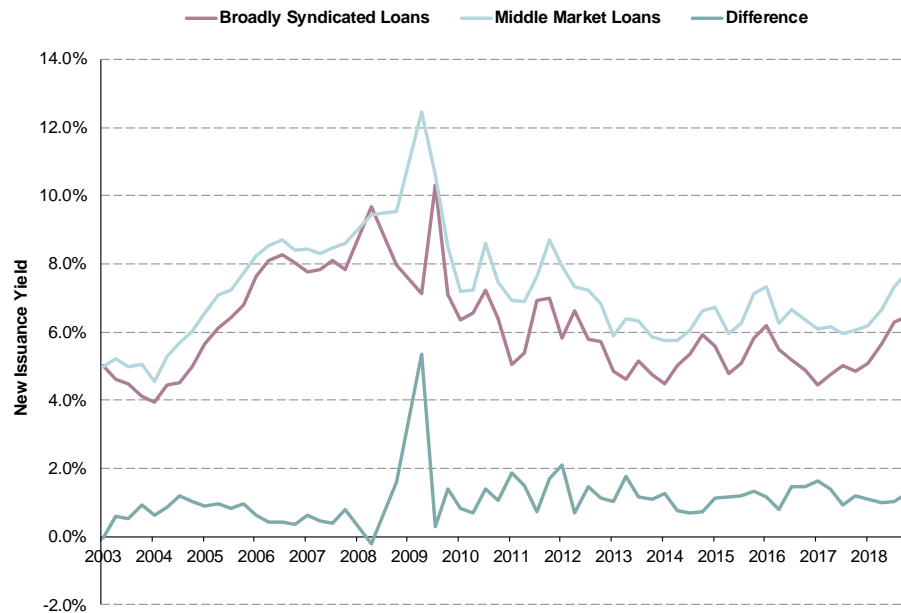
¹ Source: Barclays Capital

² Source: Bank Loans trading below \$80, Credit Suisse; High Yield trading at spread of more than 1,000bps, Deutsche Bank.

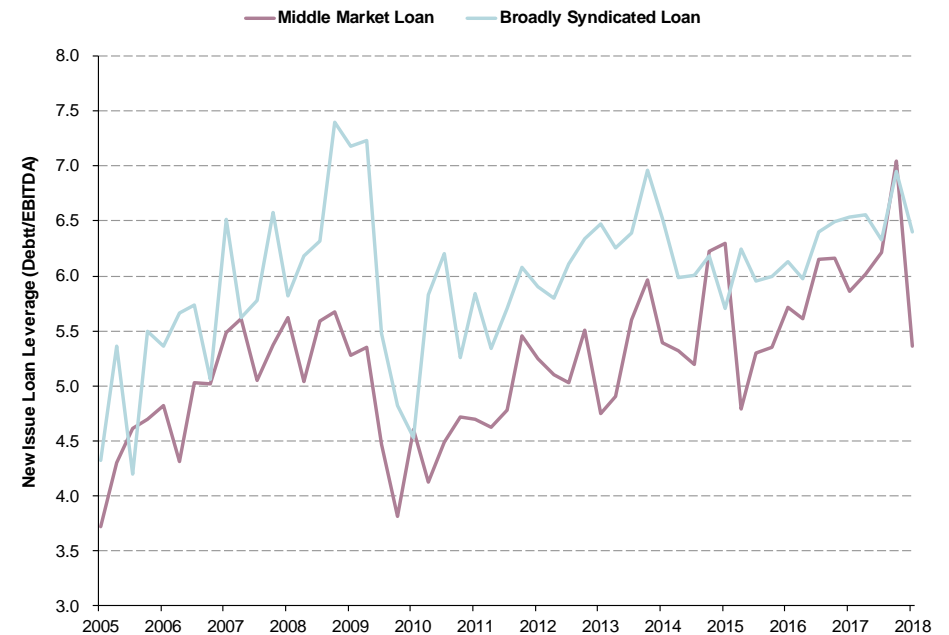
Private Senior & Subordinated Debt

New issuance volumes across private debt (senior and subordinated) finished 2018 slightly below recent calendar years. Yields in the direct lending market remained consistent in the fourth quarter and the “illiquidity premium” over the broadly syndicated market stayed range bound. New deal quality appeared to improve in the fourth quarter though as the average leverage in new deals decreased significantly in the middle market while there was only marginal improvement in the broadly syndicated market.

Senior Loan Pricing¹



New Deal Leverage Multiples



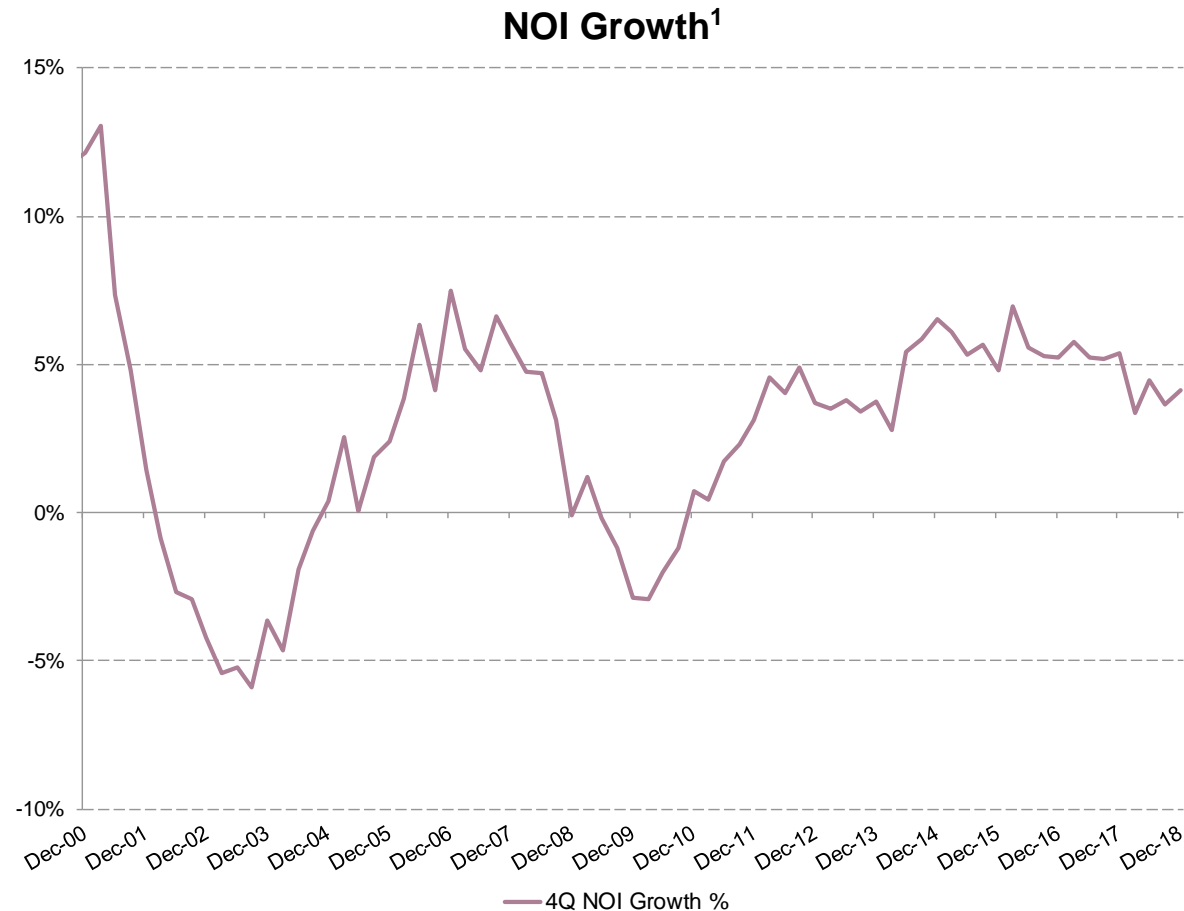
¹ Source: Thomson Reuters LPC

Real Estate Fundamentals Vacancy by Property Type¹



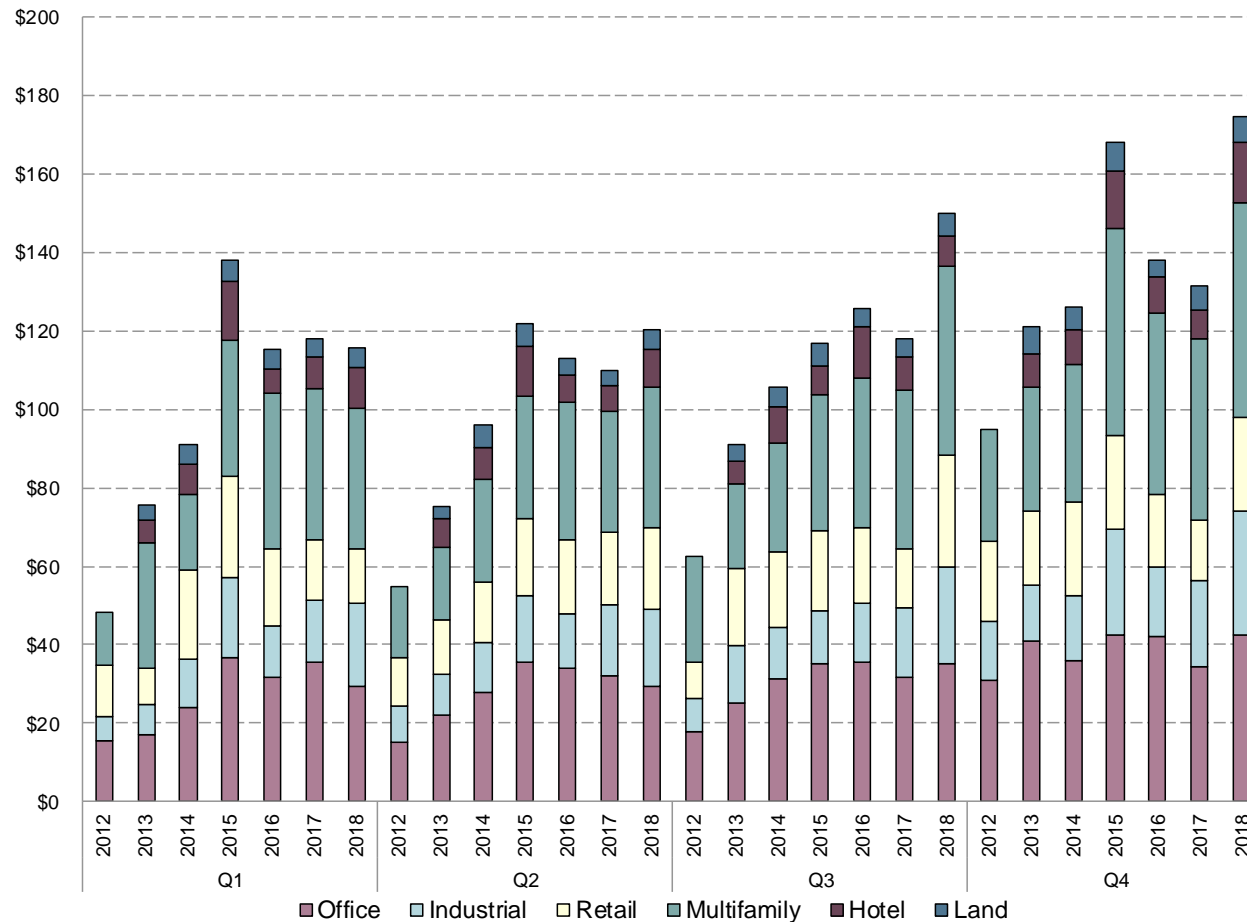
In the fourth quarter of 2018, vacancy rates increased for all property types except office. Multifamily vacancies have been irregular, but in a slight upward trend since 2011. Retail vacancies flattened over the last three years, and office and industrial vacancies continue a downward trend. Compared to one year ago, vacancy rates in multifamily decreased 34 basis points, office decreased 65 basis points, industrial decreased 45 basis points, and retail decreased 3 basis points. Overall, the vacancy rate across all properties decreased 45 basis points from Q4 2017.

¹ Source: NCREIF



The trailing twelve month rate of NOI continued to hover around 4.0% in the fourth quarter of 2018. Continued growth of the U.S. economy coupled with only moderate new construction allowed property owners to increase rents and lease vacant space. However, growth moderated in 2018 to a range of 3.5% to 4.5%. The strongest NOI growth continues to be within the industrial sector, which grew to 9.6% year-over-year ending Q4 2018. Office NOI growth decreased to 2.1%, while apartment and retail NOI growth increased to 5.4% and 2.2%, respectively.

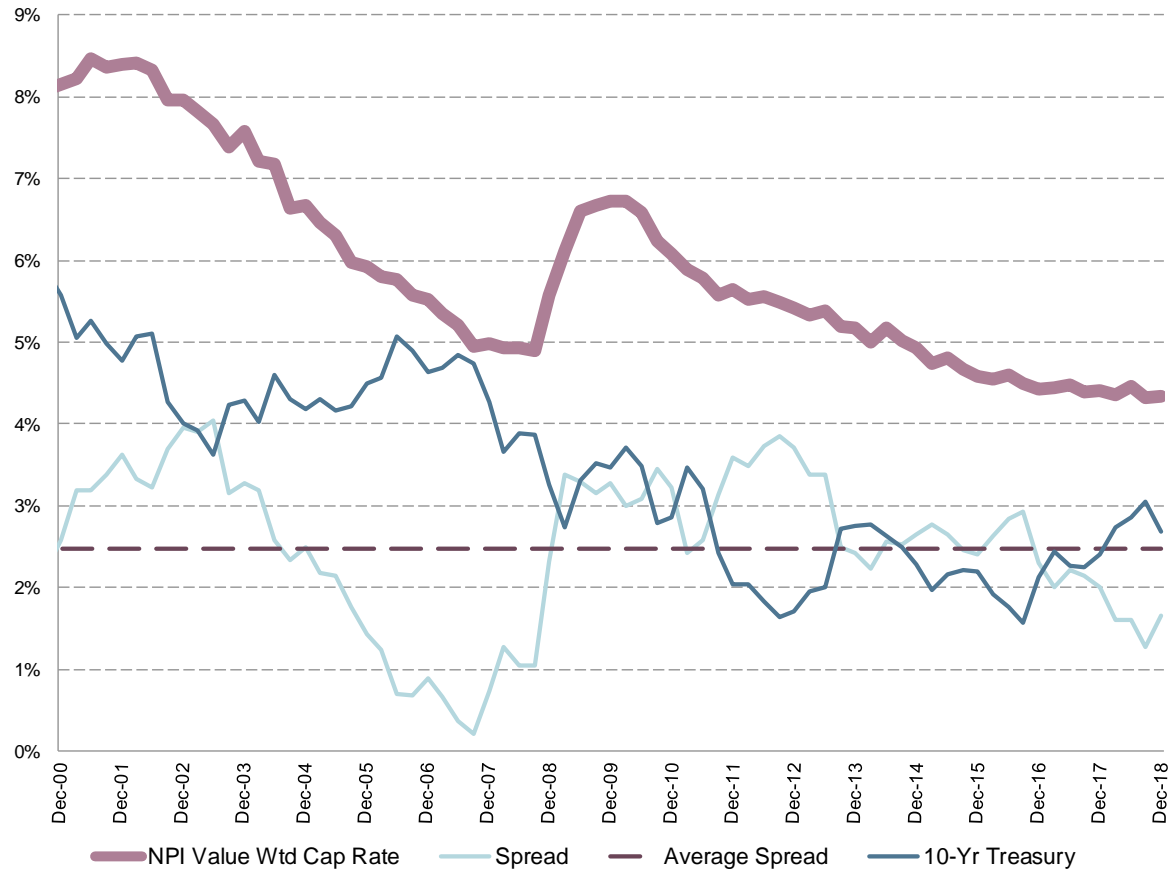
¹ Source: NCREIF

Transaction Volume (\$bn)¹

Private real estate transaction volume for properties valued over \$2.5 million hit the highest level in any quarter since 2012, at over \$170 billion. Hotel volumes were up 97% compared to last quarter, while retail volumes were down 16%. Office, industrial and multifamily volumes increased 21%, 30%, and 14% respectively. Multifamily and office properties made up the largest percentages of total transaction volume during the quarter, at 37% and 28%, respectively.

¹ Source: PREA

Real Estate Capital Markets Cap Rates vs. 10-Year Treasury¹



The NPI Value Weighted Cap Rate continues to hover just below 4.5%. The 10-year Treasury yield peaked above 3.0% in Q3 2018, but returned down to 2.7% at the end of the year. The spread between cap rates and treasury yields increased to 165 basis points, which is 83 basis points below the long term average spread.

¹ Source: NCREIF and U.S. Department of the Treasury

Trailing Period Returns¹

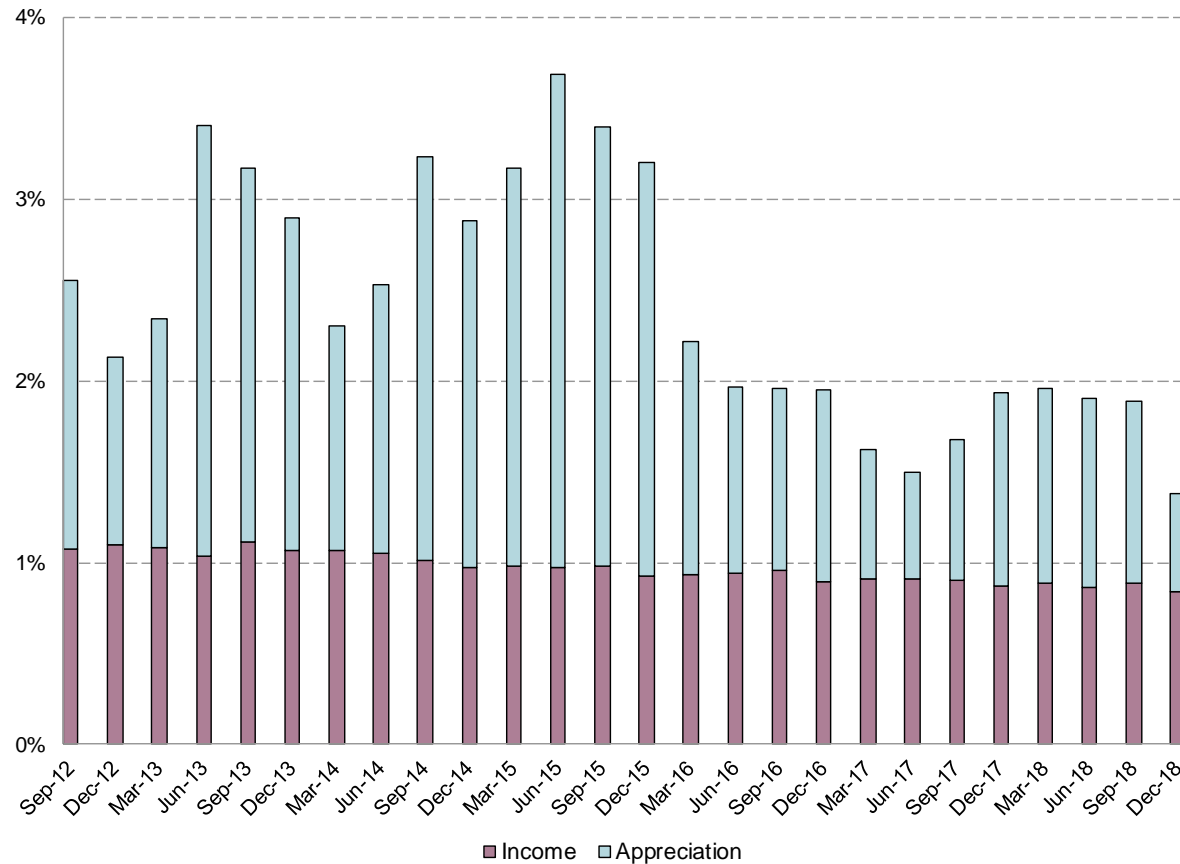
<i>As of December 31, 2018</i>	1 Year	3 Years	5 Years	10 Years
NFI-ODCE (EW, net)	7.3%	7.5%	9.6%	5.9%
NCREIF Property Index	6.7	7.2	9.3	7.5
NAREIT Equity REIT Index	-4.4	4.1	8.2	12.5

Private real estate indices have continued to post positive returns, driven by strong property-level fundamentals and a low interest rate environment. Recent public real estate performance has experienced more volatility with negative returns in both Q1 and Q4 2018, dragging down overall performance for the year.

¹ Source: NCREIF

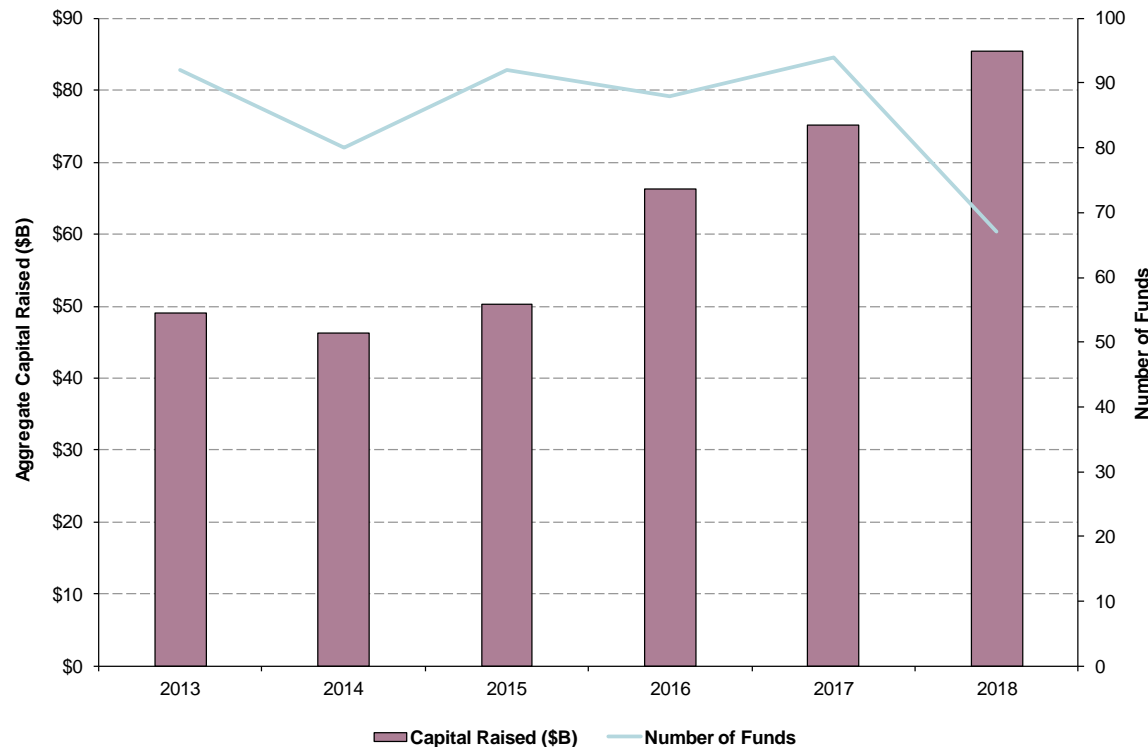


ODCE Return Components¹ (Equal Weight, Net)



The NFI-ODCE Equal Weight return for Q4 2018 was 1.4%, about 50 basis points lower than the previous three quarters and the lowest returning quarter since March 2010. The compression in the quarterly return was driven largely by a decrease in the appreciation component, down approximately 50% compared to the first three quarters of 2018. The income return has continued to fall, down to 84 basis points in Q4 2018.

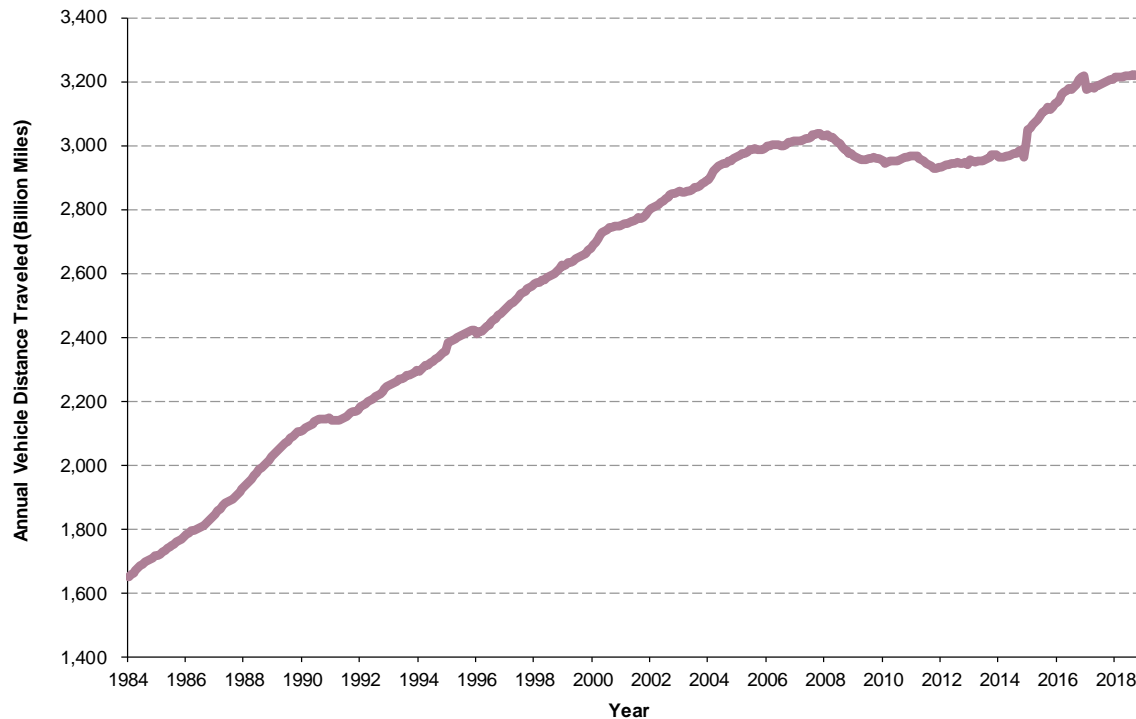
¹ Source: NCREIF

Global Quarterly Unlisted Infrastructure Fundraising¹

Capital raised in 2018 exceeded 2017. However, the market continues to trend toward fewer funds at higher target sizes. This year, the average fund size raised has exceeded \$1 billion, with Q4 posting a \$0.9 billion average sized fund. As of December 31, 2018, a total of 208 unlisted infrastructure funds were in market, according to Preqin, with a combined fundraising target of approximately \$193 billion.

The majority of infrastructure capital continues to focus on the developed markets of North America and Europe, accounting for nearly 93% of the capital raised in 2018 and 55 of the 67 funds closed this year. There were only four funds consisting of \$4.1 billion raised in Asia and eight funds consisting of \$2.2 billion in the rest of the world. Notable final closes held in Q4 2018 included Alinda Infrastructure Fund III's (\$5.0 billion), Fondi Italiani Per Le Infrastrutture III's (€2.5 billion), and Copenhagen Infrastructure III's (€3.5 billion).

¹ Source: Preqin Private Capital Fundraising Update, Q4 2018.

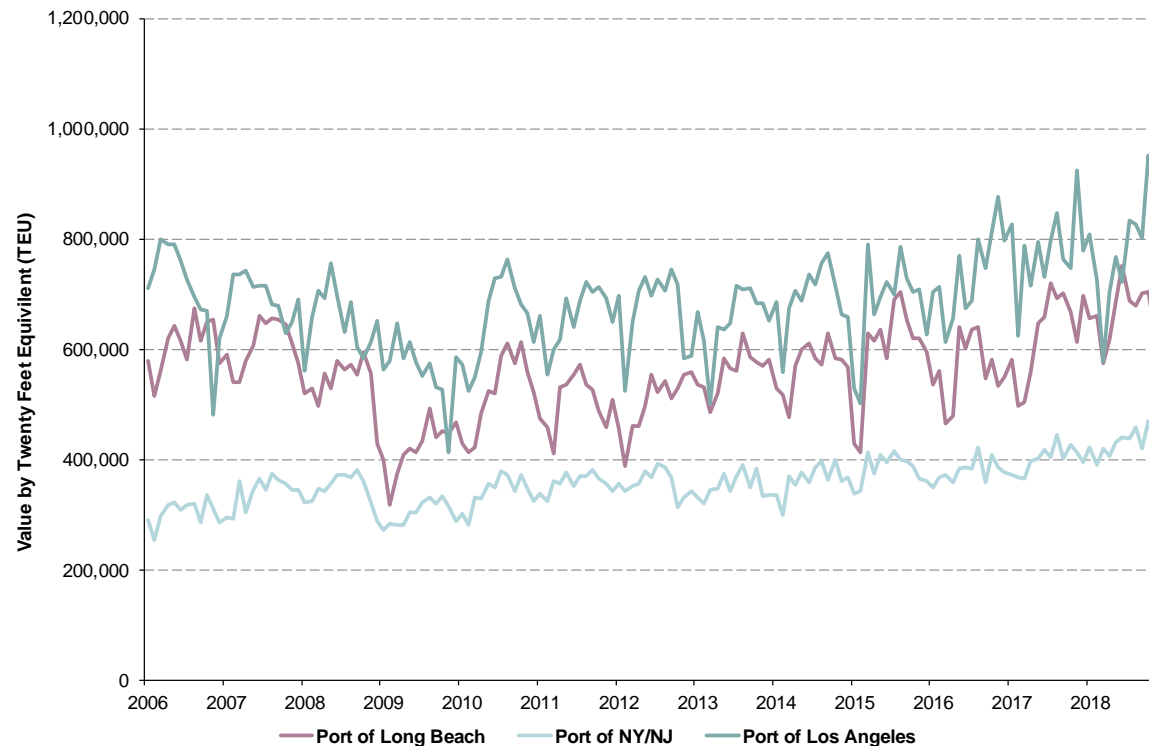
Moving 12-month Total on All U.S. Roads¹

During the fourth quarter of 2018, travel on U.S. roads totaled approximately 809 billion miles. This represented an increase of 1.4% over the same period in 2017. For the Year to Date, Federal Highway Administration data showed vehicle miles traveled increased by 16,360 million miles, up 0.5% over the Year to Date of Q4 2017.

In Q4 2018, the average U.S. price of a gallon of gas came down to a monthly average of \$2.82 per gallon, with a peak of \$2.99. This compares to \$2.53 and \$2.76 seen in 2017. According to INRIX, Boston, Washington, D.C., and Chicago rank as the top three cities in the U.S. in which drivers spend the most hours in traffic.

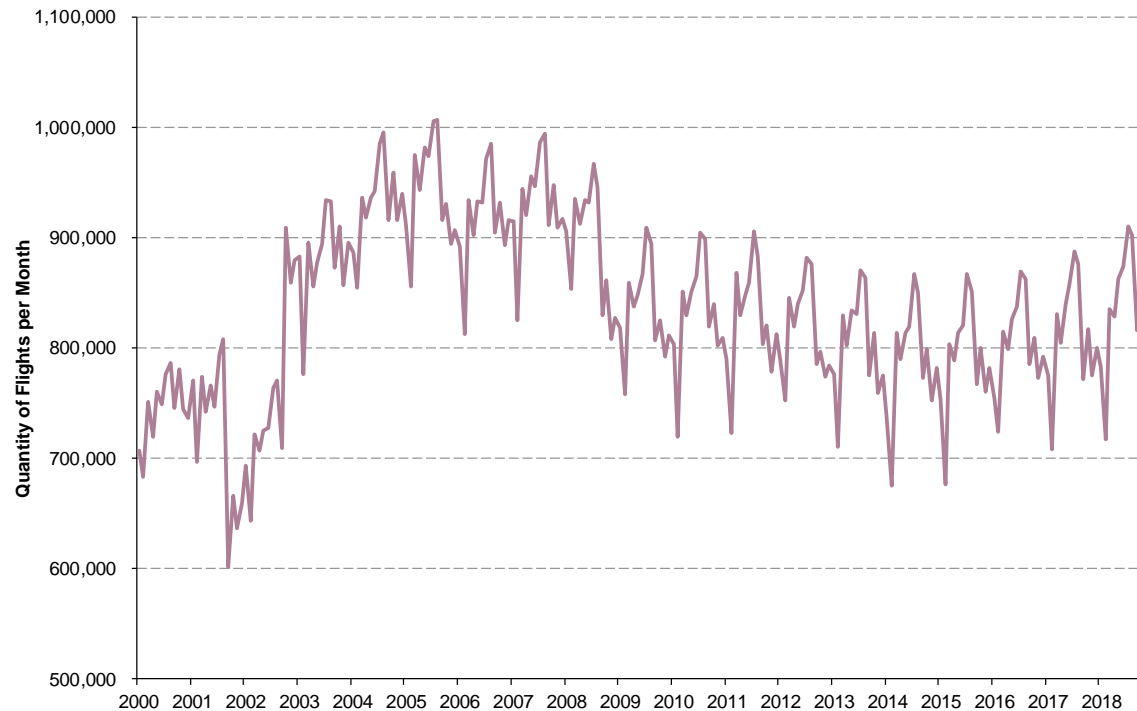
¹ Source: U.S. Department of Transportation, Federal Highway Administration: Office of Highway Policy Information.

U.S. Port Activity – Container Trade in TEUs



The chart represents the top three U.S. ports by container volume, as measured by twenty-foot equivalent units (TEU). Activity at the three ports provides a high-level representation of the volume of imports received into the U.S. more broadly.

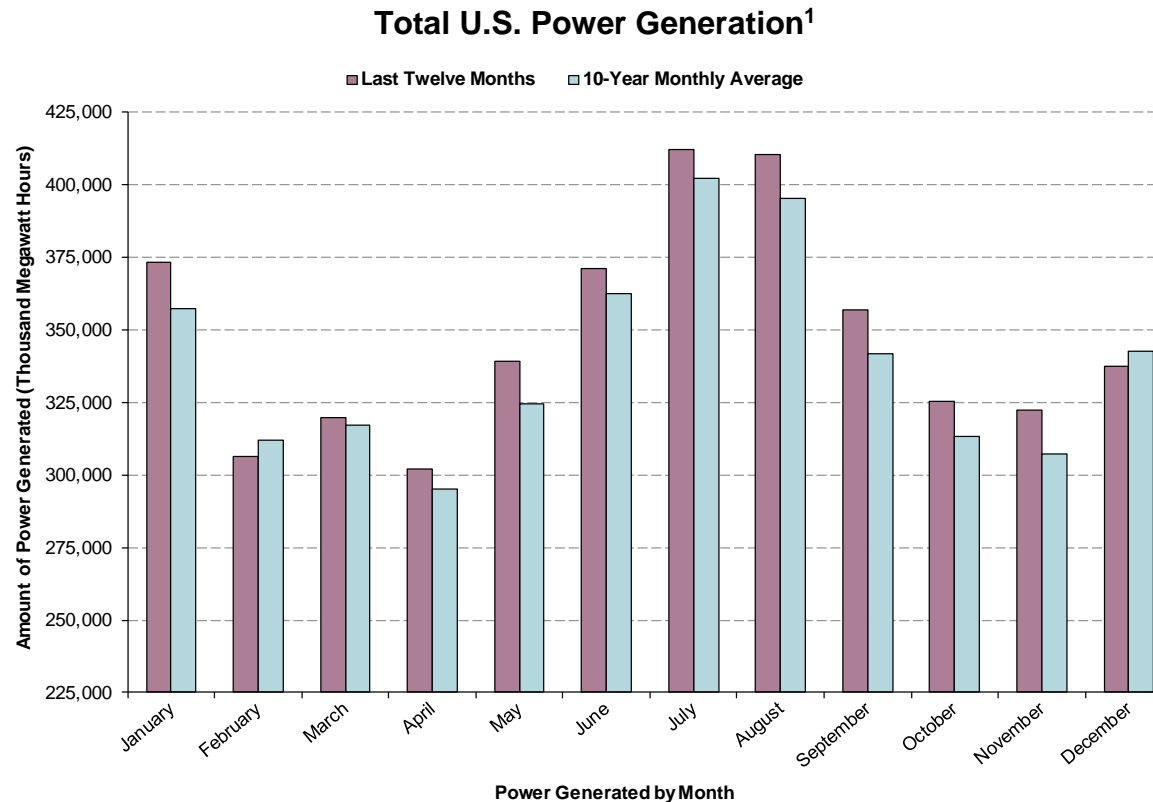
During the fourth quarter of 2018, volumes at the three ports increased by approximately 410,600 TEU, or 7.3% over same period in 2017. On a year-over-year basis, the combined port volumes increased by 1,003,067 TEU, or 4.6%, over the prior 12 month period. All three ports saw an increase in year-over-year activity. The Port of Long Beach recorded an increase of 7.2% (546,000 TEU), the Port of NY/NJ reported an increase of 7.1% (341,000 TEU) and the Port of Los Angeles recorded an increase of 1.2% (115,000 TEU) from the prior 12 months.

Total U.S. Domestic and International Flights¹

The chart above represents all U.S. domestic and international flights, excluding foreign point-to-point flights by month. Air traffic is cyclical with peaks in the summer months and declines in the winter months.

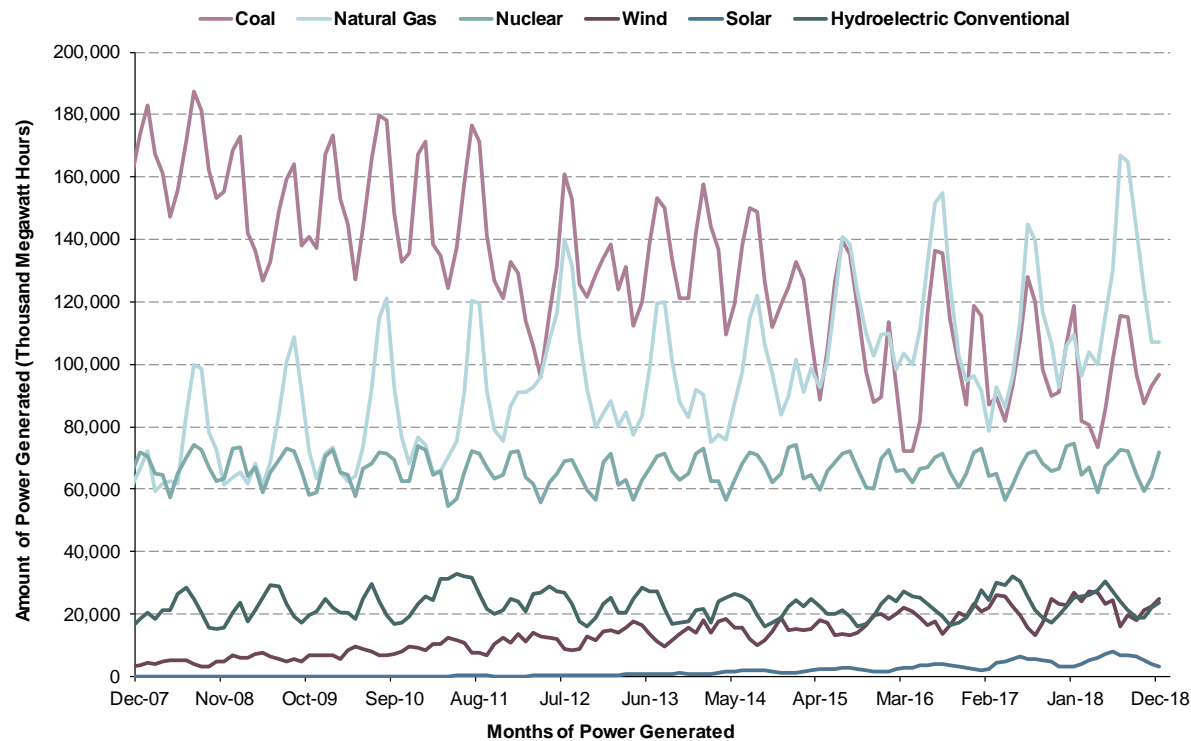
There were over 87,700 more flights during the fourth quarter of 2018, representing a 3.7% increase, compared to the same period in 2017. Air traffic activity also increased by 2.7% for the 12 months ending December 31, 2018 over the previous period. In addition to the number of flights during the fourth quarter increasing year-over-year, the total number of passengers travelling on U.S. and international airlines increased by 4.8% from 2017 to 2018, which indicates higher capacity factors among airlines compared to the prior period.

¹ Source: Bureau of Transportation Statistics: Flights, All U.S., and Foreign Carriers.



The graph above represents the total net generation for the past 12 months compared to the 10-year average for each month. Over the past year, power generation exceeded the 10-year average in 10 out of the 12 months. Net energy generation in the U.S. increased by 1.5% during the fourth quarter, compared to the same period in 2017. For the 12 months ended December 31, 2018, net energy generation increased by 4.2% over the previous 12 months.

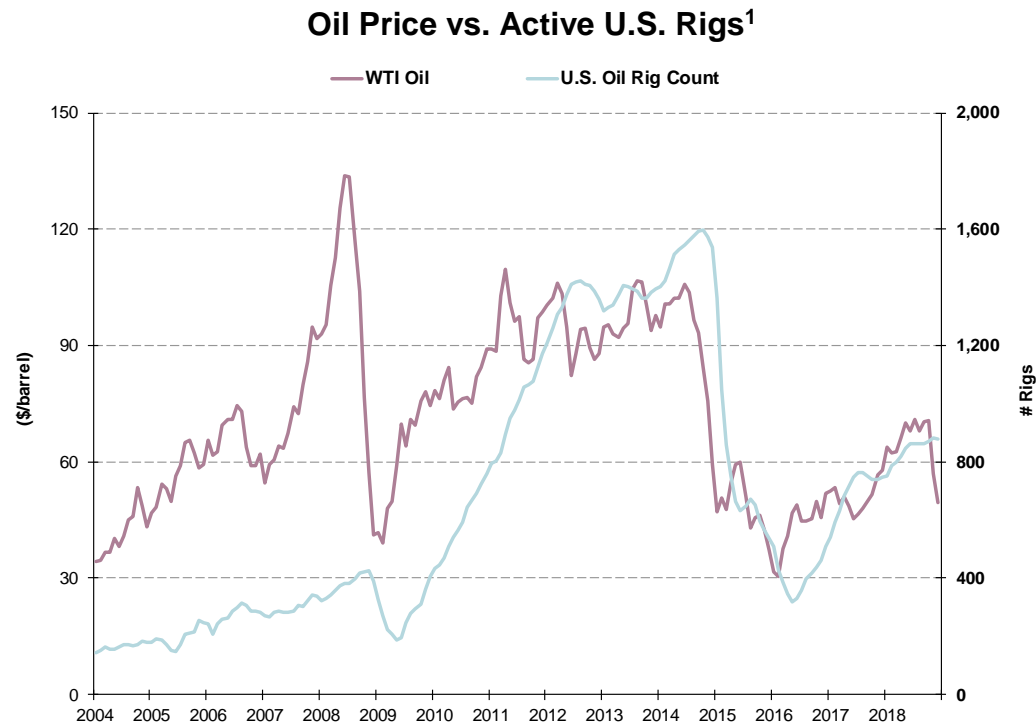
¹ Source: U.S. Energy Information Administration: Electric Power Monthly, December 2018.

U.S. Power Generation by Source¹

When comparing individual generation sources in the U.S., natural gas, solar, and hydroelectric conventional increased 10.7%, 12.3%, and 8.6%, respectively in the fourth quarter of 2018 as compared to the same period in the previous year, while generation from coal, nuclear, and wind dropped by 3.7%, 5.5%, and 3.5%, respectively, during the same period. Wind and utility scale solar continue to make up a small portion of total net energy generation in the U.S., accounting for only 6.9% and 1.3% of energy generation in the fourth quarter, while coal, natural gas, and nuclear accounted for 28.1%, 34.3%, and 19.8%, respectively. However, the growth of wind and solar as sources of energy generation continues to increase at a faster rate than coal and natural gas, especially over the last couple of years.

¹ Source: U.S. Energy Information Administration: Electric Power Monthly, December 2018.

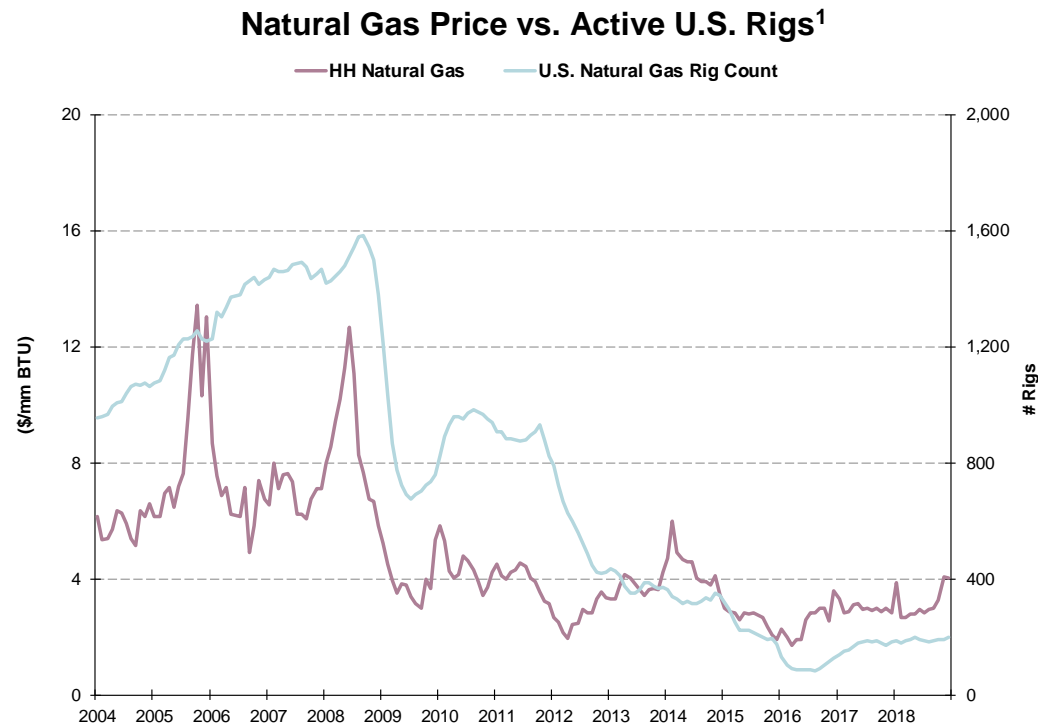
Extracted Resources



Oil prices for West Texas Intermediate (“WTI”) and Brent experienced significant volatility during the fourth quarter due to concerns of weakening global demand, oil export waivers issued for Iranian oil, and high production from the U.S., Saudi Arabia, and Russia. WTI prices fell from a high of \$75 to a low of \$46 during the quarter, while Brent decreased from a high of \$86 to a low of \$51. An agreement in December among OPEC and Russia resulted in a production cut which helped lead to a recovery in oil prices in early 2019. There were 880 oil rigs in operation in the U.S. at year end, an increase of 16 from the prior quarter. U.S. oil production remained strong during the year averaging almost 11.0 million barrels of oil equivalent per day (“boepd”) with record production in December of approximately 12.0 million boepd. Midstream constraints between certain producing regions and key trading hubs have resulted in pricing differentials but should improve as the pipelines under development become commissioned. U.S. gasoline prices for regular blend decreased to \$2.58 representing a 13% decrease from the previous quarter and a 3% decrease from one year prior.

¹ Source: EIA and Baker Hughes.

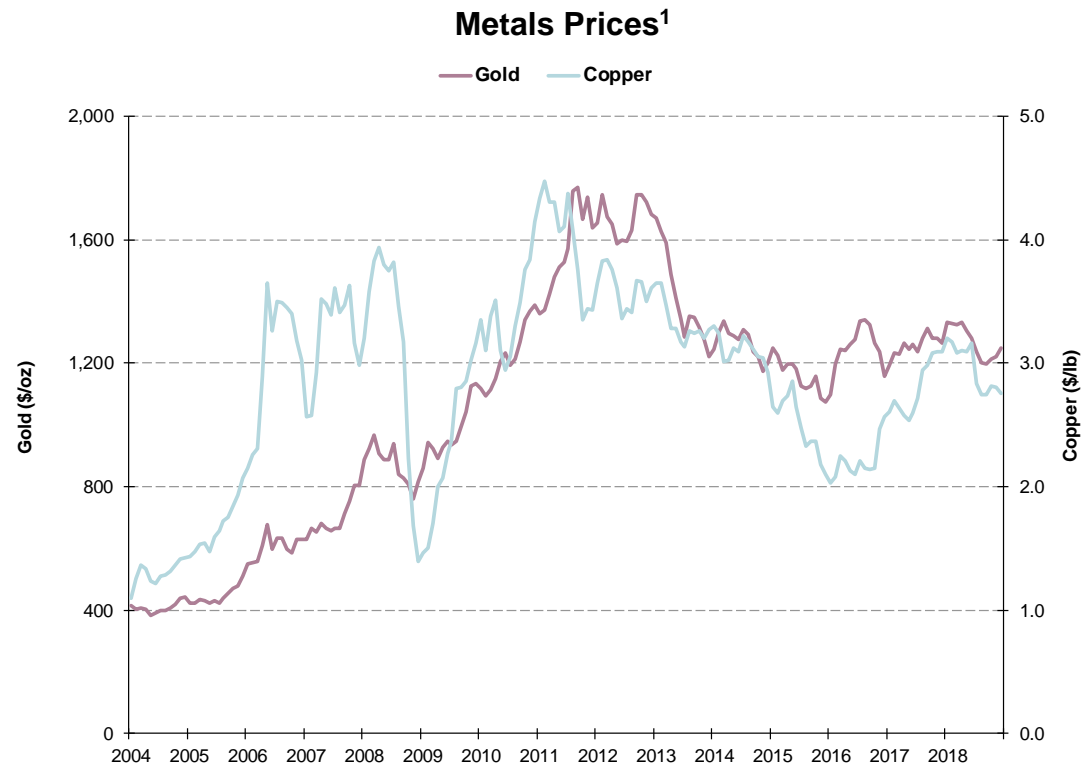
Extracted Resources



Henry Hub natural gas spot prices ended the quarter at approximately \$4.0/MM BTU representing a 35% increase from the prior quarter that can largely be attributed to an increase in demand from seasonal cold weather, particularly in November, which experienced a daily high of \$4.7/mm BTU. Relative to one year prior, natural gas prices were up by 43%. The natural gas rig count in the U.S. ended the year at 198, an increase of 11 from the prior quarter. The U.S. continues to produce high levels of natural gas as a result of lower costs, improved operational efficiencies, and increased associated natural gas production from oil activities. During 2018, the U.S. averaged approximately 88.9 billion cubic feet (“bcf”) of natural gas production per day with December producing over 98.5 bcf per day. Natural gas consumption in the U.S. is expected to increase over the coming decades led by the industrial and electric power generation sectors.

¹ Source: EIA and Baker Hughes.

Extracted Resources

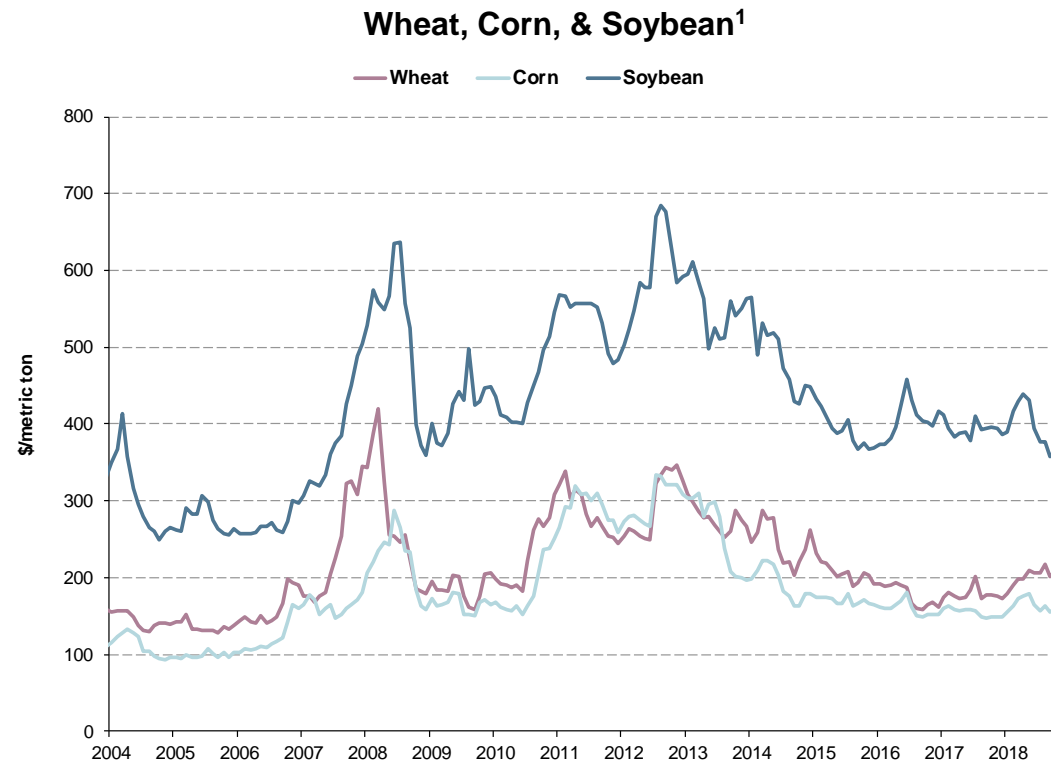


Volatility in the equity markets and a less-hawkish Fed helped prices for safe-haven assets, such as precious metals prices, at the end of the year. During the quarter, the price of gold increased to \$1,250 per ounce representing an increase of 4% from the prior quarter. Relative to one year prior, gold prices were down by approximately 1%.

Base metals were challenged in part due to concerns of trade and tariff wars between the U.S. and China and a slower growing China economy. While copper prices were flat for the quarter, they were down by approximately 11% relative to one year prior.

¹ Source: World Bank

Harvested Resources



Concerns of tariffs and trade wars between the U.S. and China continued into the fourth quarter. In what is perceived as a gesture toward easing tensions, China's Sinograin and Cofco began purchasing several million tons of U.S. soybeans ahead of an upcoming trade meeting between the U.S. and China. While the purchases were material, they only represent a fraction of the typical purchases China makes in a typical year. During the quarter, wheat, corn, and soybean prices were up 8%, 8%, and 7%, respectively. Relative to one year prior, wheat and corn were up 26% and 12%, respectively, while soybeans were down by 2%.

¹ Source: World Bank

Harvested Resources

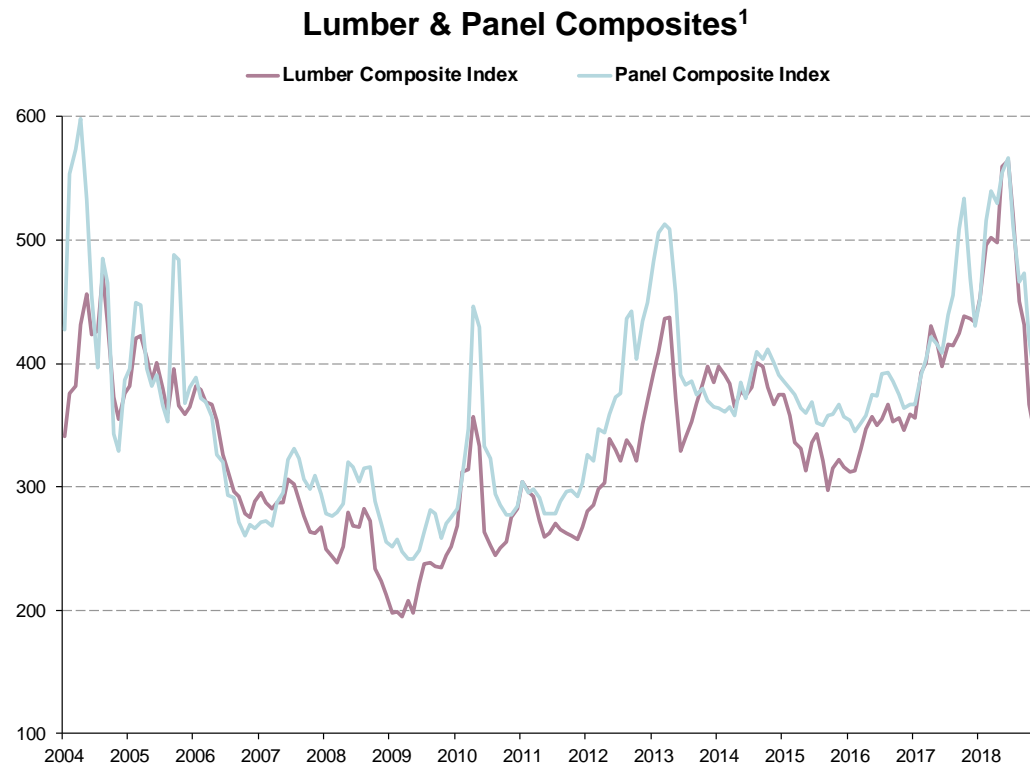
	Trailing Period Returns¹			
<i>As of December 31, 2018</i>	Q4 18	1 Year	5 Years	10 Years
NCREIF Farmland	2.8%	6.7%	8.6%	11.2%
NCREIF Timberland	0.8	3.2	4.9	3.8
S&P 500	-13.5	-4.4	8.5	13.1
Barclays Aggregate	1.6	0.0	2.5	3.5

The NCREIF Farmland index experienced a 2.8% increase during the quarter with income accounting for 2.2% and appreciation generating 0.7%. The Pacific West region generated the strongest regional returns of 5.2% while the Pacific Northwest produced the weakest returns of -0.3%. Row crop returns were driven by 0.9% income and 0.6% appreciation. Permanent crop returns of 5.1% were driven by 4.3% of income and 0.8% appreciation.

The NCREIF Timberland index increased 0.8% during the quarter primarily as a result of income gains of 0.8%. For its one-year returns, the index generated 3.2% largely from an income return of 3.2% with appreciation flat. The Northeast and Northwest regions generated the strongest regional returns of 2.7% and 2.1%, respectively. The South region generated total returns of 0.1% with income returns of 0.7% largely offsetting asset depreciation of 0.6%.

¹ Source: National Council of Real Estate Investment Fiduciaries (NCREIF).

Harvested Resources



Prices for U.S. timber products, such as lumber and panel, decreased significantly during the quarter generally due to softer demand, logistical challenges from inclement weather, and destocking of inventory. Hurricane Michael in Florida and heavy rain fall in Texas helped slow construction activity and demand for wood products. As a result, lumber and panel prices decreased by 22% and 23%, respectively, during the quarter. Relative to one year prior, lumber and panel prices were down by 23% and 15%, respectively.

¹ Source: Random Lengths

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The values of companies and partnerships in this review are based on audited reports for December 31, 2018, provided by the General Partners, unless otherwise noted.

Because there is no readily accessible market for private markets assets (companies and partnerships), the values placed on private markets assets are calculated by General Partners using conservative and industry standard pricing procedures. Annually, an independent auditor reviews the pricing procedures employed by the General Partner of each partnership.

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