Callan

County Employees' and Officers' Annuity and Benefit Fund of Cook County

Performance Summary

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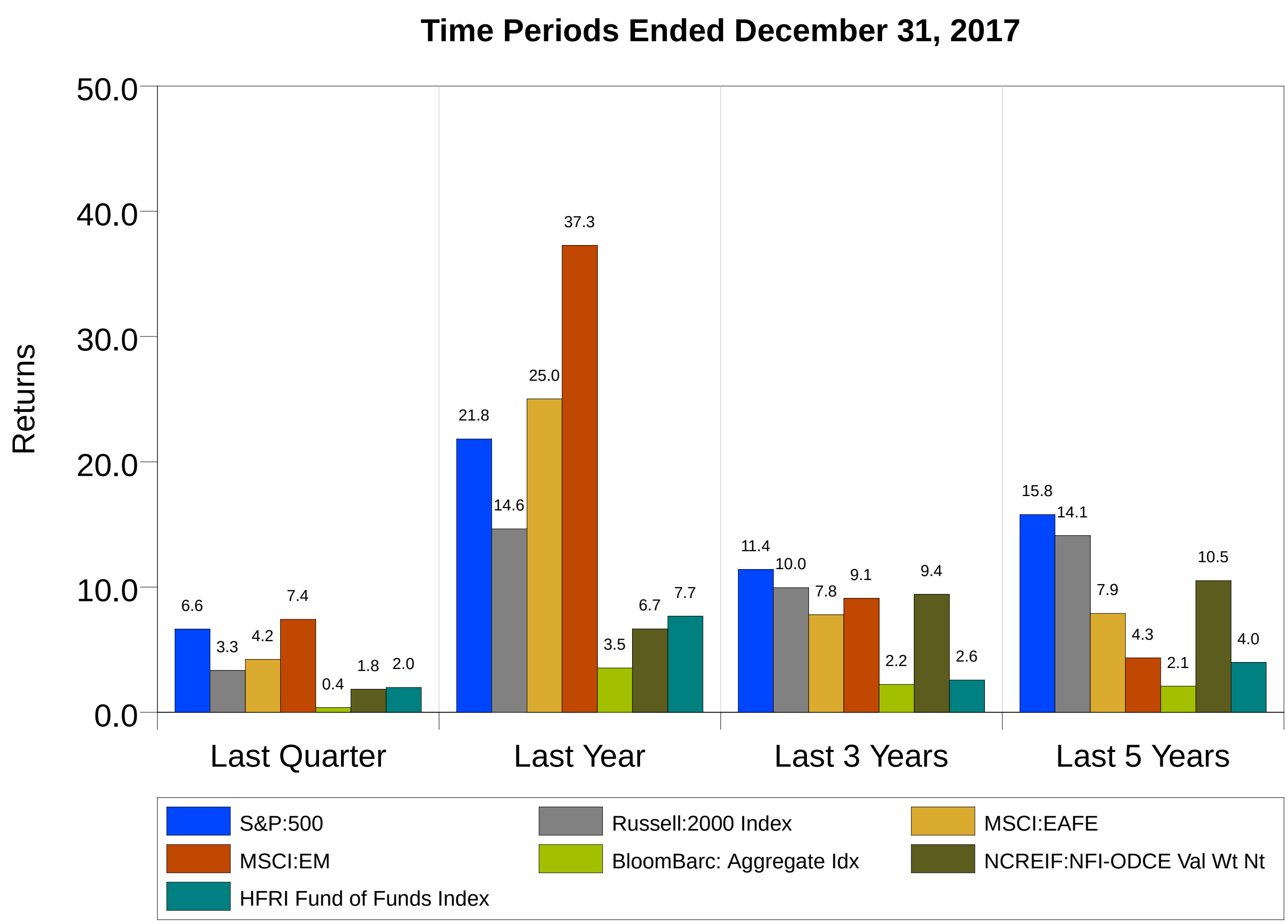
General Market and Economic Conditions

Another record low in volatility, more record highs in global stock markets, mixed records in global temperatures, a record number of natural disasters in the U.S., and many records associated with President Trump. The VIX Index, a widely used measure of expected stock market volatility, fell more than 20% in 2017, reaching an all-time low in November. Stock markets hit a number of record highs, adding trillions of dollars to global market capitalization. U.S. consumer confidence remained near a 17-year high and unemployment at a 17-year low. At the same time, geopolitical concerns, domestic political drama and other noteworthy news items littered the headlines but had little effect on investors' complacency. Risk appetite was robust, fueling returns for traditional and non-traditional assets. In the public realm, emerging market equities outperformed developed markets; within fixed income, high yield corporate bonds posted the best returns. Cash, returning less than 1%, was the worst place to be in 2017. Commodities fared well, bolstered by oil prices and by copper, which gained about 30% for the year on strong global growth and demand from China, the world's largest consumer. A "loser" for the year was the U.S. dollar. As economies overseas gained traction, the U.S. dollar depreciated roughly 10% versus developed market currencies, most notably the euro, after hitting a 14-year high at the outset of 2017. The year closed with the rushed passage of the largest tax reform bill in 30 years, lending further support to stocks given the significant cut in corporate tax rates. Estimates as to the likely effect of the package on U.S. annual GDP growth vary from "negligible" to upwards of 3%, and the package is expected to add $1.5 trillion to the budget deficit over 10 years.

The U.S. economy closed out 2017 with decent momentum, recording a solid 2.6% gain in GDP in the fourth quarter after growth above 3% in each of the prior two quarters. After-tax corporate profits rose 4.7% (9.8% year-over-year), consumer spending gained 2.2% and business equipment spending soared 10.8%, the fastest in three years. Labor markets remained tight with the unemployment rate at 4.1%; the lowest since 2000, but average hourly earnings growth continued to languish at 2.5% for the trailing year (as of November). Fueled by high consumer confidence and a robust job market, U.S. retail sales in the holiday period rose at their best pace since 2011, according to Mastercard SpendingPulse, which tracks online and in-store spending. Manufacturing continued to show strength; the ISM manufacturing sector index exceeded 50 (indicating expansion) for 15 consecutive months through November. Inflation remained benign with headline CPI at 2.2% in November (y-o-y) and Core CPI (ex-food and energy) at 1.7%. Headline CPI was fueled by a 16.5% y-o-y leap in the price of gasoline. Prices of goods, however, fell 0.9% y-o-y with declines broad-based. The Fed's favored measure, the Core PCE price deflator, gained 1.5% y-o-y, remaining below the 2% target. As expected, the Fed hiked the Fed Funds target by 25 bps at its December meeting to 1.25% - 1.50%. This move marked the third increase of 25 bps during the year. Markets are pricing in an additional three hikes in 2018, while Fed projections are for rates to end 2018 between 2.0% and 2.25%. President Trump nominated Jerome Powell to become the next Fed Chair, replacing Janet Yellen, whose term expires in February 2018.

Non-U.S. developed economies continued to gain momentum. Third quarter GDP growth in the euro zone was 2.6% (y-o-y) while inflation remained low (1.5% y-o-y as of November). The European Central Bank (ECB) upgraded its 2018 forecast for growth from 1.8% to 2.3%, though growth in the U.K. is expected to slow given the yet-undetermined effects of Brexit. As expected by markets, the ECB kept its interest rates on hold in the fourth quarter, but it confirmed that it plans to reduce asset purchases to €30bn a month in January 2018, down from the current rate of €60bn. Unemployment in the euro zone fell to 8.8%, below 9% for the first time since 2009. Unemployment in Germany fell to a record low of 3.6%. Outside of Europe, Japan's economy continued to grow and unemployment reached a 24-year low at 2.7%. The Bank of Japan is expected to continue its stimulus measures in an effort to stimulate inflation (Core CPI +0.9% y-o-y in November).

Fourth Quarter 2017 Market Performance



The S&P 500 Index gained 6.6% in the fourth quarter and its 21.8% gain for the year was its best since 2013. The Index hit 62 record highs during the year and had only eight days of 1% or more fluctuations, the lowest number since 1964. The S&P 500 Price Index has nearly tripled (+295%) since its low in March 2009. Valuations are stretched by most measures, but estimates for future earnings are also strong. Markets were fanned by strong corporate earnings, expectations for tax cuts and deregulation, and share buybacks. Large growth stocks were the winners for the quarter and the year (R1000G: +7.9%, +30.2%) and small cap value pegged the lower end (R2000V: +2.0%, +7.8%). For both periods, value underperformed growth across the capitalization stack and small underperformed large across the style spectrum. Among the S&P 500 sectors, Technology was the clear leader for the year (+38.8%) but its 9.0% quarterly return was bested by Consumer Discretionary (+9.9%). All sectors posted positive results for the quarter, with Utilities eking out a 0.2% result. For the year, Energy (-1.0%) and Telecom (-1.3%) lost ground. Technology stocks now comprise 24% of the S&P 500 Index and 38% of the Russell 1000 Growth Index. The high flying quintet of tech stocks, better known as "FAAMG," continued to perform well in Q4.

Overseas, the MSCI EAFE Index returned 4.2% for the quarter and 25.0% for the year. Annual gains were broad-based and further bolstered by a weakening U.S. dollar. Within the MSCI EAFE, the U.K. notched a record high in the fourth quarter and was up 22.3% for the year. Europe ex-UK posted a modest +0.9% result for the quarter and gained 26.8% for the year. Japan returned +8.5% for the quarter and +24.0% in 2017. From a sector perspective for the quarter, Energy (+7%) and Materials (+8%) did the best while Health Care and Telecommunications were laggards with results of just over 1%. For the year, Technology was the clear leader at +51%. Emerging market equities outperformed developed in the quarter and for the year (MSCI EM USD: +7.4%; +37.3%). Latin America was the only weak spot in the quarter (-2.3%) but was up a robust 23.7% for the year. Emerging Asia performed the best for the quarter and the year (+8.4%; +42.8%) driven by strong results from China (+7.6%, +54.1%) and Korea (+11.4%, +47.3%).

The U.S. yield curve continued its flattening trend in the fourth quarter. The 2-year U.S. Treasury yield climbed 42 bps to close at 1.89%, up 69 bps from 12/31/2016. At the long end of the yield curve, the 30-year U.S. Treasury yield fell 12 bps during the quarter, ending the year at 2.74% and 32 bps lower than its close in 2016. This trend reflects the Fed's tightening bias as well as benign inflation. As a result, longer-term bonds sharply outperformed short-term and intermediate-maturity bonds for the quarter and the year. The Bloomberg Barclays Long U.S. Treasury Index gained 2.4% in the quarter and 8.5% in 2017 versus a -0.4% quarterly and +1.1% annual return for the Bloomberg Barclays Intermediate Treasury Index. Consistent with the low volatility theme evident in the equity markets, the U.S Treasury 10-year traded in a narrow 60 bps band for the year, the lowest since 2000. The Bloomberg Barclays U.S. Aggregate Bond Index was roughly flat (+0.4%) for the quarter. Its 3.5% full year return was generated largely from its coupon. Corporate bonds outperformed for the quarter and the year and yield spreads reached a post-crisis tight of 93 bps over Treasuries. High yield corporates fared even better, with the Bloomberg Barclays U.S. Corporate High Yield Index up 0.5% for the quarter and 7.5% for the year. Default rates remained below average, but prices are high, relative to historical averages, for the sector. TIPS outperformed nominal U.S. Treasuries as expectations for future inflation rose. The Bloomberg Barclays U.S. TIPS Index rose 1.3% for the quarter and 3.0% for the year and the 10-year breakeven spread (the difference between nominal and real yields) rose to 1.96% as of year-end.

Outside of the U.S., quarterly returns were mostly flat in developed markets. The Bloomberg Barclays Global Aggregate Bond Index returned +1.8% (unhedged) versus +0.8% for the hedged version. Emerging market debt delivered more muted returns than in earlier quarters. The JPM EMBI Global Diversified Index ($ denominated) gained 1.2% in the quarter and 10.3% for the year. Returns were mixed, but beleaguered Venezuela was the outlier for the quarter (-29%) and the year (-34%). The local currency JPM GBI-EM Global Diversified Index returned +0.8% in the quarter and +15.2% for the year. In the quarter, Asian countries (+5%) performed best while Latin America sank nearly 5%. Argentina (-7%), Brazil (-3%), and Mexico (-9%) were underperformers for the quarter though Brazil and Mexico both posted double-digit returns for the year.

Brent crude oil prices closed the year at $64/barrel, the highest since 2014 and up roughly 12% for the year. Global growth, improving supply/demand dynamics and OPEC agreements contributed to its rise. The energy-heavy S&P GSCI Commodity Index gained 9.9% in Q4 while the more diversified Bloomberg Commodity Index was up 4.7%. The Alerian MLP Index lost 0.9% for the quarter and sank 6.5% for the year in response to dividend cuts by some of its constituents. Gold gained 1.9% for the quarter and 13.7% in 2017; REITs were up modestly for both periods (MSCI: U.S. REIT: +1.4%; +5.1%). U.S. TIPS outperformed nominal Treasuries; the Bloomberg Barclays U.S. TIPS Index returned +1.3% in Q4 and +3.0% for the year. The DJB Global Infrastructure Index gained 0.5% in the quarter and 15.8% in 2017.

Closing Thoughts

In spite of various simmering concerns, we ended 2017 the same way we started - with U.S. stock markets at record highs and volatility at historic lows. Meanwhile, there are no shortages of potential headwinds that we might encounter in 2018 and valuations across most asset classes remain stretched by many measures. It is impossible to predict what may spark volatility (bitcoin, Brexit, China, geopolitics, domestic politics, or, most likely a nebulous "other"). As a result, Callan still cautions investors to temper return expectations, to maintain a long-term perspective, and to adhere to prudent asset allocation with appropriate levels of diversification.

The Callan Periodic Table of Investment Returns
Fourth Quarter 2017

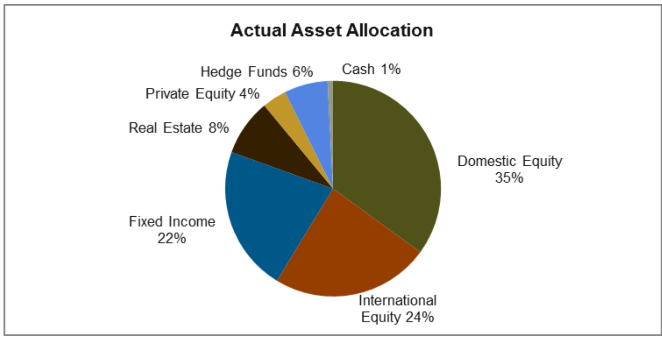
2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
BC Aggregate 5.2%	MSCI:EM 78.5%	Russell:2000 Index 26.9%	NCREIF:NFI-ODCE Val Wt Nt 15.0%	MSCI:EM 18.2%	Russell:2000 Index 38.8%	S&P:500 13.7%	NCREIF:NFI-ODCE Val Wt Nt 14.0%	Russell:2000 Index 21.3%	MSCI:EM 37.3%
NCREIF:NFI-ODCE Val Wt Nt (10.7%)	MSCI:EAFE 31.8%	Cambridge:PE Index 19.3%	BC Aggregate 7.8%	MSCI:EAFE 17.3%	S&P:500 32.4%	Cambridge:PE Index 11.8%	Cambridge:PE Index 8.7%	S&P:500 12.0%	MSCI:EAFE 25.0%
HFRI Fund of Funds Index (21.4%)	Russell:2000 Index 27.2%	MSCI:EM 18.9%	Cambridge:PE Index 7.1%	Russell:2000 Index 16.3%	MSCI:EAFE 22.8%	NCREIF:NFI-ODCE Val Wt Nt 11.5%	S&P:500 1.4%	MSCI:EM 11.2%	S&P:500 21.8%
Cambridge:PE Index (26.6%)	S&P:500 26.5%	NCREIF:NFI-ODCE Val Wt Nt 15.3%	S&P:500 2.1%	S&P:500 16.0%	Cambridge:PE Index 21.0%	BC Aggregate 6.0%	BC Aggregate 0.5%	Cambridge:PE Index 9.2%	Russell:2000 Index 14.6%
Russell:2000 Index (33.8%)	Cambridge:PE Index 17.2%	S&P:500 15.1%	Russell:2000 Index (4.2%)	Cambridge:PE Index 13.5%	NCREIF:NFI-ODCE Val Wt Nt 12.9%	Russell:2000 Index 4.9%	HFRI Fund of Funds Index (0.3%)	NCREIF:NFI-ODCE Val Wt Nt 7.8%	HFRI Fund of Funds Index 7.7%
S&P:500 (37.0%)	HFRI Fund of Funds Index 11.5%	MSCI:EAFE 7.8%	HFRI Fund of Funds Index (5.7%)	NCREIF:NFI-ODCE Val Wt Nt 9.8%	HFRI Fund of Funds Index 9.0%	HFRI Fund of Funds Index 3.4%	MSCI:EAFE (0.8%)	BC Aggregate 2.6%	NCREIF:NFI-ODCE Val Wt Nt 6.7%
MSCI:EAFE (43.4%)	BC Aggregate 5.9%	BC Aggregate 6.5%	MSCI:EAFE (12.1%)	HFRI Fund of Funds Index 4.8%	BC Aggregate (2.0%)	MSCI:EM (2.2%)	Russell:2000 Index (4.4%)	MSCI:EAFE 1.0%	BC Aggregate 3.5%
MSCI:EM (53.3%)	NCREIF:NFI-ODCE Val Wt Nt (30.4%)	HFRI Fund of Funds Index 5.7%	MSCI:EM (18.4%)	BC Aggregate 4.2%	MSCI:EM (2.6%)	MSCI:EAFE (4.9%)	MSCI:EM (14.9%)	HFRI Fund of Funds Index 0.5%	Private Equity Not yet available

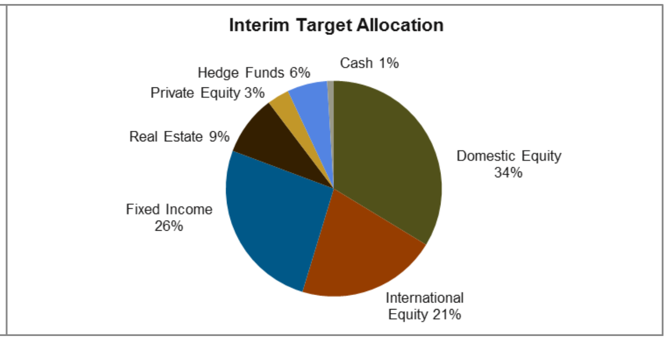
In 2017, Non-U.S. emerging markets led the way with a strong 37.3% return as illustrated by the MSCI EM Index. Emerging markets have exceeded developed non-U.S. equity markets (EAFE index) for the last two calendar years. U.S. equities (S&P 500 Index and Russell 2000 Index) trailed foreign stocks. In a reversal from 2016, the U.S. large cap equity index (S&P 500) outperformed the U.S. small cap equity index (Russell 2000) last year.

Cook County Pension Fund Commentary

Asset Allocation

The Cook County Fund ("Fund") increased in value during the fourth quarter from $9.85 billion to $10.1 billion. During the quarter, the Fund generated $369.1 million from investment returns and experienced net withdrawals of $69.2 million.





Asset Class	Mkt Value ($000s)	Percent of Total (%)	Interim Target*	Strategic Target
Domestic Equity	3,552,073	35.0%	33.7%	33.0%
International Equity	2,404,431	23.7%	21.0%	21.0%
Fixed Income	2,210,461	21.8%	26.0%	26.0%
Real Estate	862,259	8.5%	9.0%	9.0%
Private Equity	370,545	3.7%	3.3%	4.0%
Hedge Funds	662,367	6.5%	6.0%	6.0%
Cash	82,840	0.8%	1.0%	1.0%
Miscellaneous Assets	0	0.0%	0.0%	0.0%
Total	10,144,977	100.0%	100.0%	100.0%

*Interim target reflect modifications for non-public asset classes such as private equity that cannot be funded or rebalanced as regularly as public market strategies due to the illiquid nature of the investments.

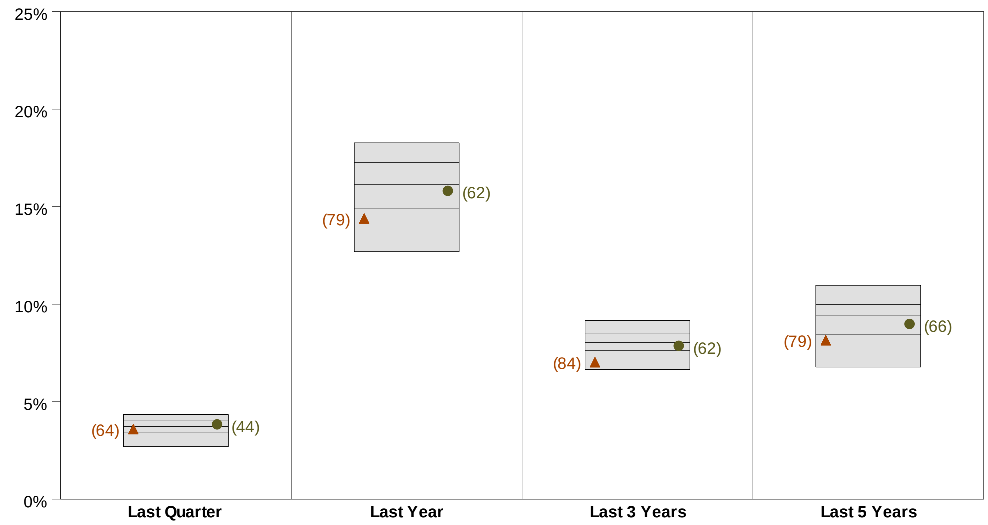
Cook County Performance vs. Target

The Cook County Pension Fund generated a 3.77% return in the fourth quarter, outperforming its custom benchmark with strong relative contributions from International Equity, Fixed Income, and Real Estate. In 2017, the Fund generated a 15.76% return and outpaced its benchmark return of 14.40%. Relative outperformance has been driven by asset allocation and active management.

The Fund has exceeded its custom benchmark over the last three- and five-year periods with annualized returns of 7.81% and 8.93%, respectively. Active management in International Equity and Fixed Income provided the strongest contribution to the outperformance while an underweight to fixed income also contributed to positive relative performance.

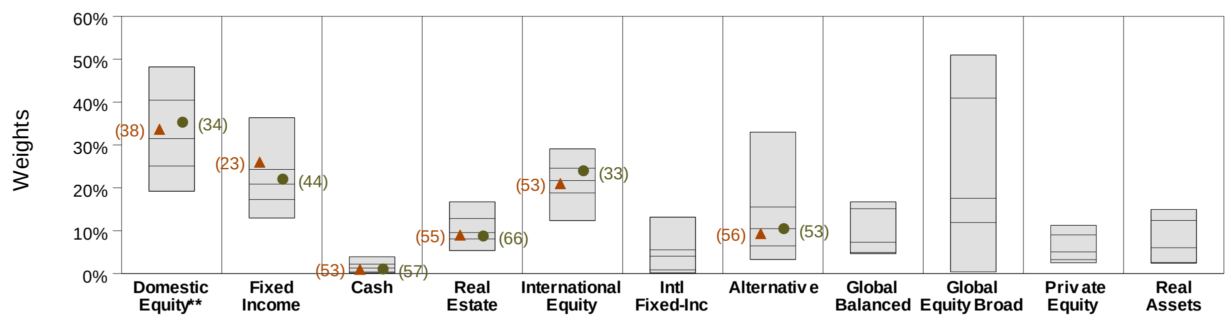
Table 1.0

Performance vs Callan Public Fund Sponsor - Large (>1B) (Gross)



	Last Quarter	Last Year	Last 3 Years	Last 5 Years
10th Percentile	4.34	18.27	9.16	10.97
25th Percentile	4.05	17.27	8.52	9.99
Median	3.72	16.14	8.04	9.40
75th Percentile	3.44	14.89	7.61	8.46
90th Percentile	2.69	12.69	6.65	6.77
Total Cook County Fund ●	3.77	15.76	7.81	8.93
Total Fund Benchmark ▲	3.60	14.40	7.03	8.15

Asset Class Weights vs Callan Public Fund Sponsor - Large (>1B)



	Domestic Equity**	Fixed Income	Cash	Real Estate	International Equity	Intl Fixed-Inc	Alternative	Global Balanced	Global Equity Broad	Private Equity	Real Assets
10th Percentile	48.20	36.36	3.93	16.73	29.09	13.15	33.00	16.73	50.98	11.24	14.95
25th Percentile	40.45	24.29	2.22	12.85	24.58	5.54	15.52	15.14	40.94	9.02	12.38
Median	31.49	20.87	1.29	9.57	21.68	4.06	10.48	7.32	17.55	5.05	6.02
75th Percentile	25.10	17.26	0.39	8.09	18.80	0.86	6.46	4.93	11.91	3.25	2.56
90th Percentile	19.23	12.97	0.13	5.37	12.36	0.15	3.30	4.66	0.41	2.52	2.44
Fund ●	35.01	21.79	0.82	8.50	23.70	-	10.18	-	-	-	-
Target ▲	33.67	26.00	1.00	9.00	21.00	-	9.33	-	-	-	-

** Adjusted to reflect actual investments in PE.

County Employees' and Officers' Annuity & Benefit Fund of Cook County
Performance Evaluation Executive Summary
Fourth Quarter 2017

Table 1.1
Asset Class Performance vs. Target

	Market Value $(Dollars)	Ending Weight	Last Quarter	Last Year	Last 3 Years	Last 5 Years
Domestic Equity	**$3,552,073,171**	**35.01%**	**5.79%**	**20.07%**	**10.82%**	**15.19%**
Domestic Equity Benchmark (2)	-	-	6.34%	21.13%	11.12%	15.58%
International Equity	**$2,404,431,400**	**23.70%**	**5.28%**	**29.13%**	**9.71%**	**8.49%**
International Equity Benchmark (3)	-	-	5.00%	27.19%	7.83%	6.80%
Fixed Income	**$2,210,461,200**	**21.79%**	**0.24%**	**4.33%**	**2.71%**	**2.37%**
Fixed Income Benchmark (4)	-	-	0.39%	3.54%	2.24%	2.10%
REITS	**$247,455,170**	**2.44%**	**2.24%**	**8.08%**	**5.23%**	**8.46%**
NAREIT Equity Index	-	-	1.51%	5.23%	5.62%	9.46%
****Private Real Estate**	**$614,803,828**	**6.06%**	**3.33%**	**6.31%**	**10.67%**	**11.20%**
NFI-ODCE Value Weight Net	-	-	1.85%	6.66%	9.42%	10.52%
****Private Equity**	**$370,544,839**	**3.65%**	**2.61%**	**13.71%**	**9.75%**	**9.59%**
****Hedge Funds**	**$662,366,639**	**6.53%**	**1.51%**	**8.06%**	**4.77%**	**6.20%**
LIBOR + 4%	-	-	1.34%	5.26%	4.77%	4.56%
HFRI Fund of Funds Index	-	-	1.98%	7.69%	2.58%	3.99%
Cash Equivalents	**$82,840,095**	**0.82%**	**0.44%**	**1.30%**	**0.67%**	**0.46%**
3-month Treasury Bill	-	-	0.28%	0.86%	0.41%	0.27%
Total Cook County Fund	**$10,144,976,749**	**100.00%**	**3.77%**	**15.76%**	**7.81%**	**8.93%**
Total Fund Benchmark (1)	-	-	3.60%	14.40%	7.03%	8.15%

**Represents trailing data.

Footnotes found on the back page

Table 1.1 illustrates the Cook County Fund's asset class performance versus associated benchmarks. The Cook County Fund's Domestic Equity allocation provided the highest absolute return for the last quarter, gaining 5.79%, followed closely by International Equity which rose 5.28%. Private Real Estate posted the strongest relative performance. In addition, during the longer-term periods appearing above, active management in International Equity has been a key contributor to outperformance.

During the fourth quarter, the Fixed Income allocation added only 0.24% relative to the 0.39% return of the Bloomberg Barclays Aggregate Index; however, for longer periods, active management in Fixed Income has been additive. The Fixed Income allocation has exceeded the benchmark over the trailing three- and five-year periods by an annualized 0.47% and 0.27%, respectively.

The real estate allocation is comprised of investments in public real estate securities (REITS) and private real estate. Private Real Estate has been one of the stronger performing asset classes over the last three and five years with returns in excess of 10.6% annualized for each respective period. The Private Real Estate allocation contains primarily core investments (income producing real estate), and a small allocation to non-core, closed-end funds. Private Real Estate posted a 3.33% return for the quarter which outperformed its benchmark by 1.48%. In the last year, this allocation returned 6.31% and trailed its benchmark by 0.35%.

The REIT allocation represents less than 2.5% of the Fund. It returned 2.24% during the fourth quarter versus the1.51% return of the NAREIT Equity Index. The REIT allocation has a 2.85% advantage over the benchmark over the trailing year, but has lagged for the last three and five years.

Presently, the Private Equity program is pursuing a fund-of-funds approach. Funds committed, but waiting investment have been invested in public equities as the program continues to be implemented. Private Equity received an additional investment during the quarter as it approached its strategic target.

The Hedge Fund allocation outperformed its absolute return benchmark for the quarter by 0.17%. In the last year, it has returned 8.06%, well ahead of its benchmark. In addition to exceeding its absolute return benchmark, the Hedge Fund allocation has also outperformed its industry peers as measured by the HFRI Fund-of-Funds Index and the Callan peer universe over the last one-, three- and five-year periods.

Notes and Observations

Notes

1. **Total Fund Benchmark (Target):** Blend of asset class benchmarks at policy weights. The Domestic Equity and Private Equity target weights are adjusted each month such that the Private Equity Interim benchmark weight is set to approximate the invested capital. The uninvested capital is allocated to Domestic Equity. This process reflects the practical implementation of non-publicly traded investments.

	Strategic Target	Interim Target
Russell 3000	33.0%	33.7%
MSCI ACWI ex US	21.0	21.0
BloomBarc Aggregate	26.0	26.0
Libor 3 Month + 4.0%	6.0	6.0
Real Estate	9.0	9.0
Private Equity	4.0	3.3
Cash	1.0	1.0
Total Target	100.0%	100.0%

2. **Domestic Equity Benchmark:** Blend of 17% S&P 500, 7% Russell 2000 Value, 7% Russell Mid Cap Growth, 6% Russell 1000 Growth, and 6% Russell 1000 Value through 9/31/2011; Russell 3000 thereafter.
3. **International Benchmark**: 12% MSCI ACWI ex-US, 3% Global ex US under $2 billion through 9/30/2011; then 17% MSCI ACWI ex-US, 3% Global ex US under $2 billion through 12/31/12; MSCI ACWI ex-US thereafter.
4. **Fixed Income Benchmark:** Blend of 25% BloomBarc Aggregate Index, 5% BloomBarc US TIPs Index, 10% BloomBarc Gov/Credit Intermediate Index through 12/31/2012; BloomBarc Aggregate Index thereafter.