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CalPERS

2018

CalPERS Investment Committee

Annual Real Estate Program Review
September 2018

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CalPERS Real Estate Snapshot

The Real Estate Portfolio had a market value of $31.8 billion at the period ended June 30, 2018.

Including Forestland and Infrastructure, the Real Assets Program currently comprises 10.8% of the Total Portfolio against a long-term target allocation of 13% (+/- 5%).

Real Estate Strategic Plan adopted in 2011 and reaffirmed in 2016 emphasized direct, separate account ownership of performing real estate with strategic, aligned managers, and CalPERS control.

The Real Estate Portfolio complies with all policy guidelines and delivering its proscribed role for the asset class, providing:

- stable cash flow, with which to pay benefits
- diversification of equity risk
- inflation protection

Responsible Contractor Policies and ESG best practices are established and in place at CalPERS' properties.

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CalPERS Real Estate performance moderating in line with market trends

	1-year	3-year	5-year	10-year	Since Inception
CalPERS Real Estate	6.8%	7.2%	9.8%	-0.9%	7.5%
Policy Benchmark	7.1%	9.0%	10.4%	7.1%	8.6%
Difference	-0.3%	-1.8%	-0.6%	-8.0%	-1.1%

- Returns are strong and moving lower
- Among core holdings, retail (malls and grocery anchored centers) showing marked slowdown, after years of strong performance
- Multifamily and office appreciation continued, but to a lesser degree
- Strong performance from industrial and data center investments, as well as Emerging Manager program
- Legacy investments, particularly higher risk and international assets, continue to be a drag on performance in all measurement periods; this segment is gradually being reduced through asset sales
- Diversification within the portfolio is key; no property type or geographic region outperforms over the long-term

Core Portfolio Performing Strongly

The Core Portfolio represents 77.5% of the Real Estate Portfolio– virtually all held directly in lower-cost separate accounts.

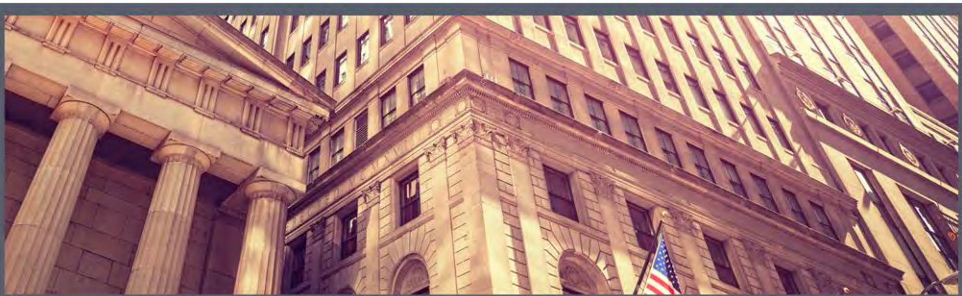
Risk Segment	Value (billions)	1-Year	3-Year	5-Year	10-Year
Core	$24.5	6.4%	9.6%	12.5%	3.9%
Value Add	$2.8	10.8%	7.0%	7.9%	2.7%
Opportunistic	$4.3	5.7%	1.2%	4.8%	-7.1%
ODCE Benchmark		7.1%	9.0%	10.4%	7.1%

	1-Year	3-Year	5-Year	10-Year
CalPERS Net Income Return	3.5%	3.8%	3.8%	1.8%
CalPERS Core Net Income Return	4.0%	4.3%	4.6%	4.3%
ODCE Benchmark Net Income Return	3.4%	3.5%	3.8%	4.3%

Investment Beliefs

Investment Beliefs integration increasing within Real Assets Program

1. Liabilities must influence the asset structure.
   CalPERS invests in real estate to generate income, provide diversification, and as an inflation hedge.
2. A long term investment horizon is a responsibility and an advantage.
   Real estate is a private, illiquid asset class; assets are generally held for longer periods of time.
3. CalPERS investment decisions may reflect wider stakeholder views.
   Targeted investment programs are being used effectively in the Real Estate Program, including emerging and transition manager programs and responsible contractor program.
4. Long-term value creation requires effective management of three forms of capital: financial, physical, and human.
   The Real Estate Portfolio continues to improve governance and engagement on ESG initiatives.
7. CalPERS will take risk only where we have a strong belief we will be rewarded.
   The RAU is focused on avoiding risks for which it is not likely to be adequately compensated.
8. Costs matter and need to be effectively managed.
   The Real Estate Portfolio invests primarily through separate accounts that offer lower fees than funds.
9. Risk is multi-faceted and not fully captured through measures such as volatility or tracking error.
   Staff continues to improve risk management in real estate through investment process, analysis, and reporting.



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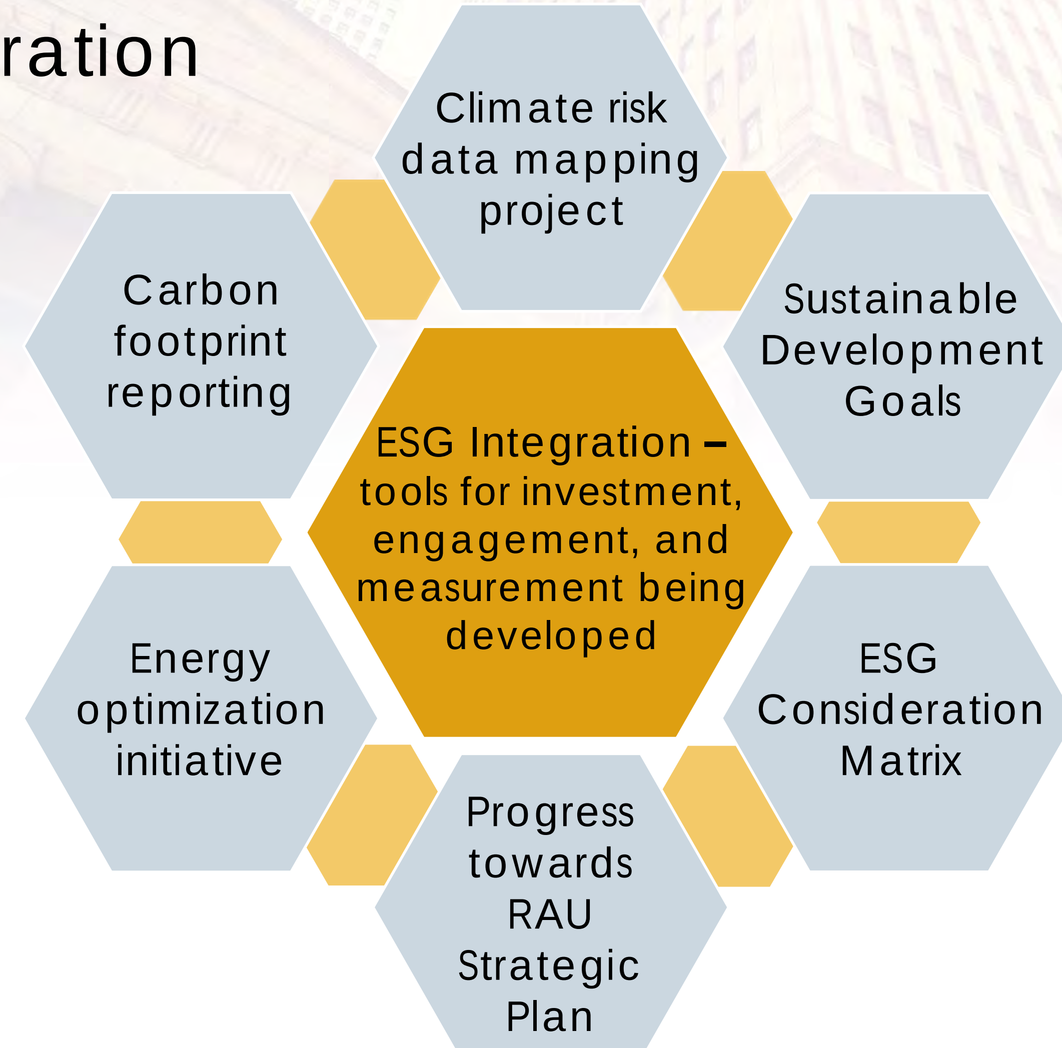
ESG Integration



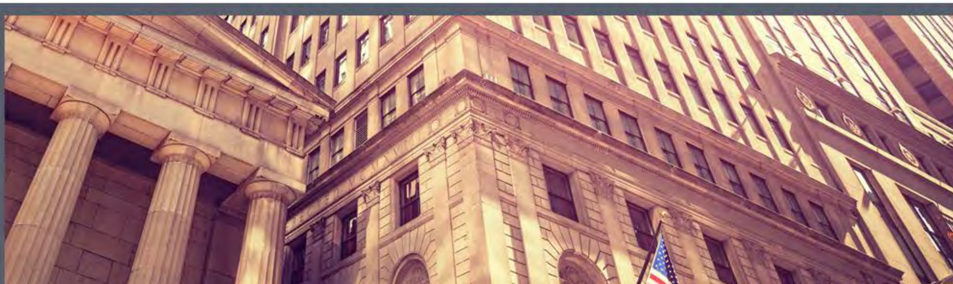
Sustainable Investment – ESG: Real Estate Market

Energy Optimization – Energy Efficiency and Energy Transition can add value

- Disproportionately positive impact on corporate financial performance of green real estate evident – for example -- Deutsche AM survey of 2,250 academic reports on ESG
- Buildings certified by Energy Star and/or LEED can attract about 10.1% more revenue than non-green certified buildings
- New financial models emerging – lease the inside and lease the roof to a solar company that sells the power— stable lease income for the property owner

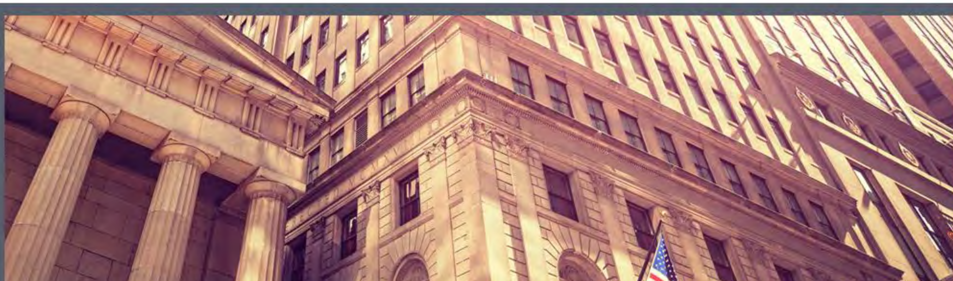
Physical Climate Risk – increasing now

- At $330 billion in cost, the 710 global weather related disasters in 2017 broke all previous records.
- Climate gentrification: homes exposed to sea level rise nationwide sell for approximately 7% less than unexposed properties that are the same distance from the beach.
- Senate Bill 964 was passed in August, pending Governor Brown's signature. It requires CalPERS and CalSTRS to identify climate risk in their portfolios and report on that risk to the public and to the legislature every three years.



Sustainable Investment – ESG: CalPERS Real Estate

1. CalPERS Global Real Estate Sustainability Benchmark (GRESB) Reporting – increased participation
   - For 2018, 11 CalPERS Real Estate managers reported (up from 9 managers last year), representing 81.9% of CalPERS Real Estate NAV in total (up from 77.6% last year). This includes all major real estate types.
2. Energy Optimization Initiative – Energy Efficiency and Energy Transition – off to a good start
   - 17 proposed projects across 8 managers an at expected total cost of $6.2 million
     - Expected annual savings of 9,222,409 M kWh/year or $1.0million with a combined expect net present value (NPV) of $19.7million.
     - Innovative pilot projects proposed, including:
       - exploring onsite renewable energy opportunities
       - utility automation
       - installation of more efficient lighting
       - green building certifications
3. Responsible Contractor Program (RCP) – is working
   - RCP meetings that bring together CalPERS' staff and all real estate managers add value. The recent meeting led by Carrie Douglas Fong focused on tight labor markets, impact on projects, and on how to continue compliance with the RCP.



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SWOT Analysis – CalPERS Real Estate Program

Strengths

- Strong purpose and board direction
- Long-term strategy
- Effective, diverse organization and engaged leadership
- Scale
- Notable and meaningful integration of ESG into decision making and portfolio management

Weaknesses

- Scale
- Innovation
- Leverage not accretive the way it has been in the past
- Costs of maintaining and improving assets are increasing
- Limited control over constraints that impact ability to deploy capital
- Required rates of return

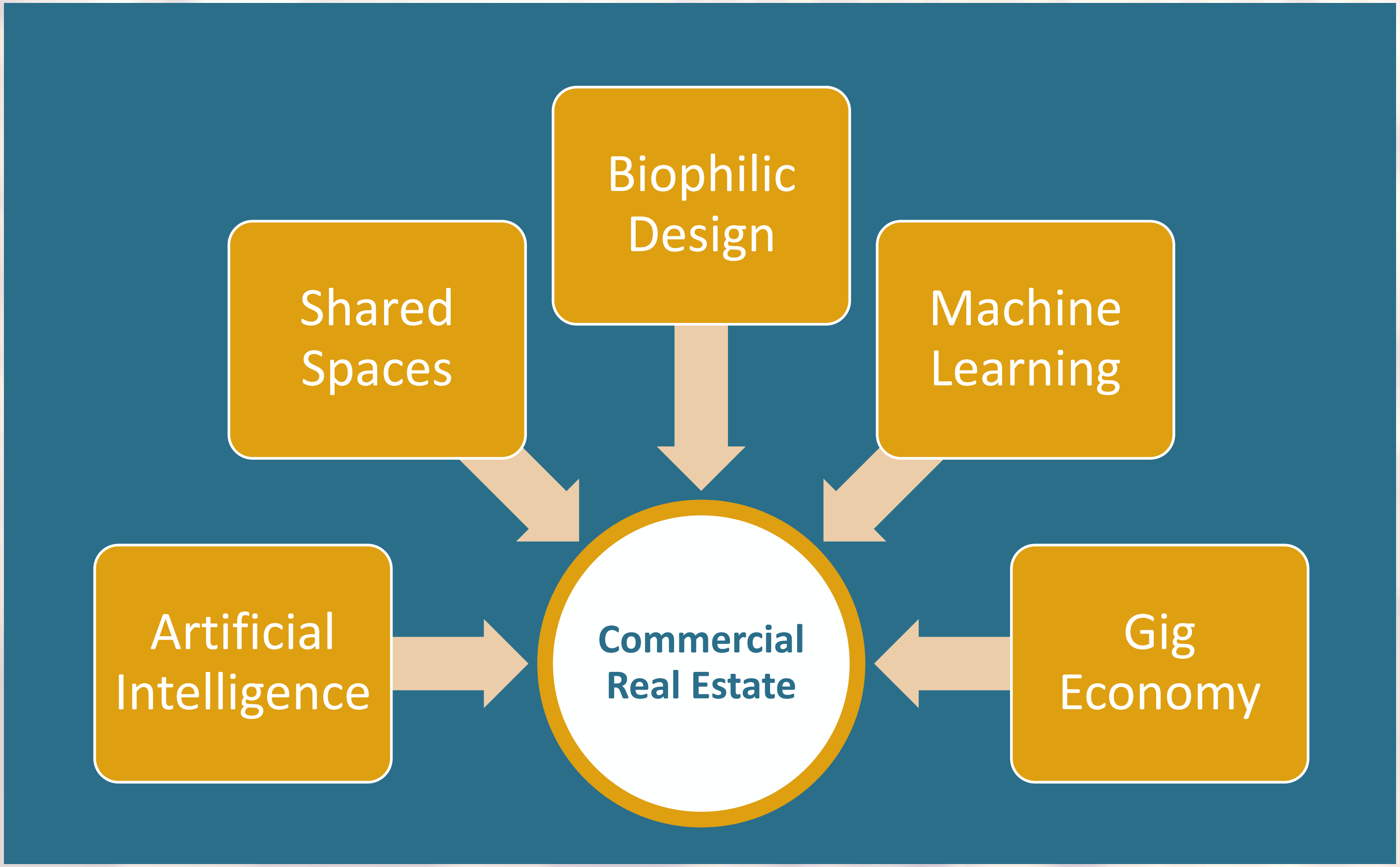
Opportunities

- Placing capital with partners who can add value at the operational level
- Creating core at better pricing than acquisition
- Influences changing the way people interact with the built environment
- Increased use of data analytics in portfolio management
- ESG initiatives
- Current position at lower end of target allocation

Threats

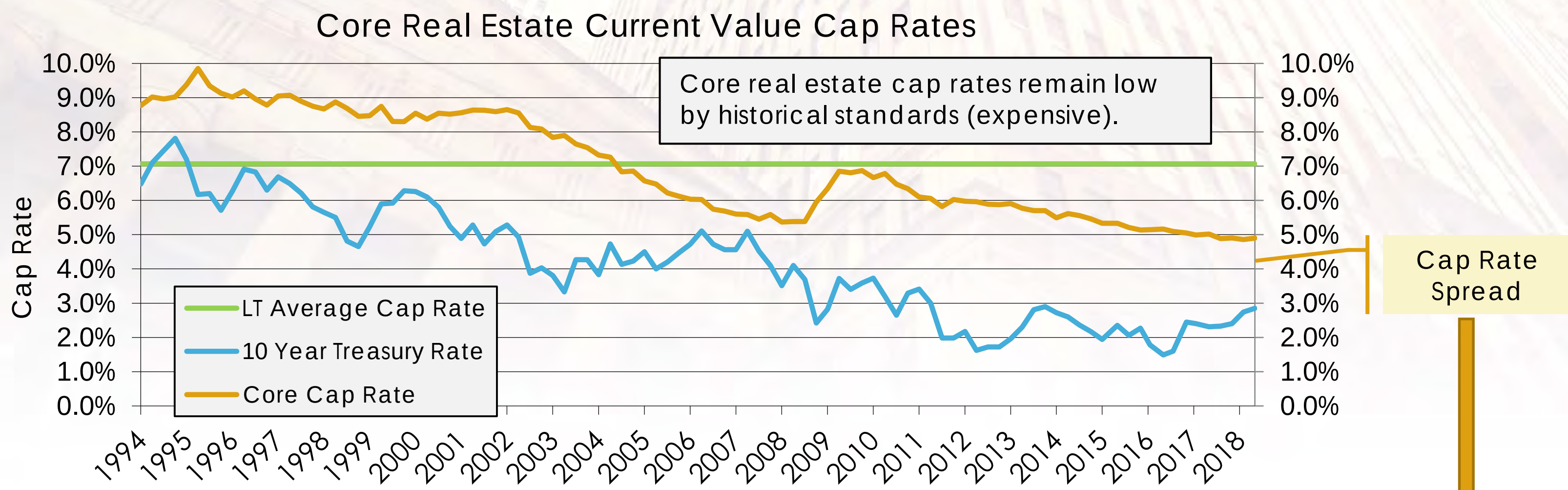
- Organizational change
- Technology changes, space use disruption/innovation, and obsolescence
- Retention of professionals
- Downturn in market growth rates and demand
- Proliferation of new non-bank lenders, less regulation
- Higher leverage and more speculative supply– historic harbingers of real estate downturn

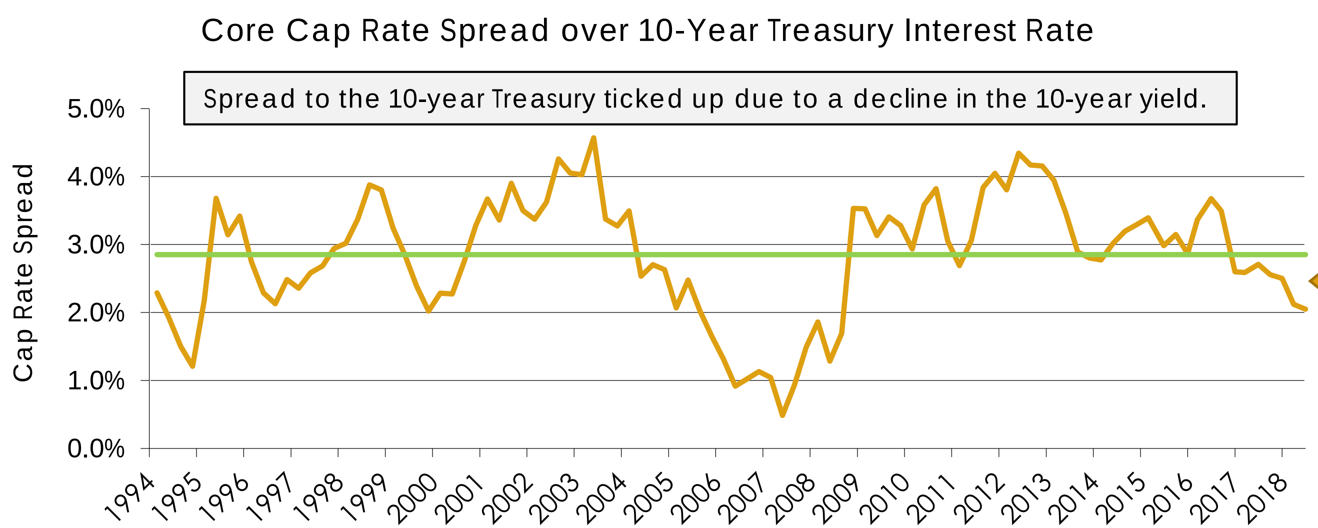
Technology changes, space-use disruption, and innovation are influencing commercial real estate



Real Estate Market Data

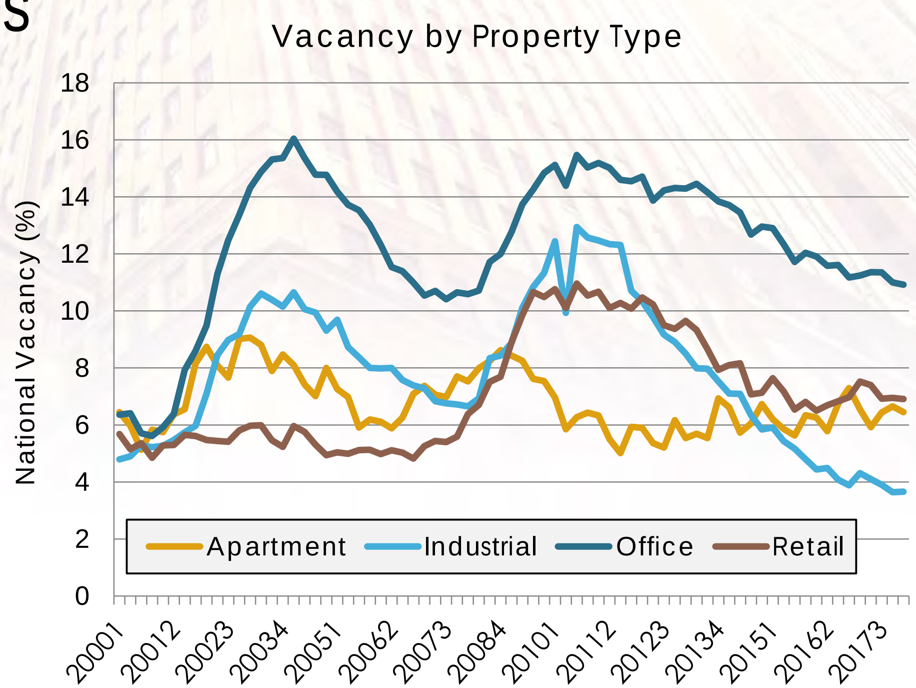
Real Estate Cap Rates

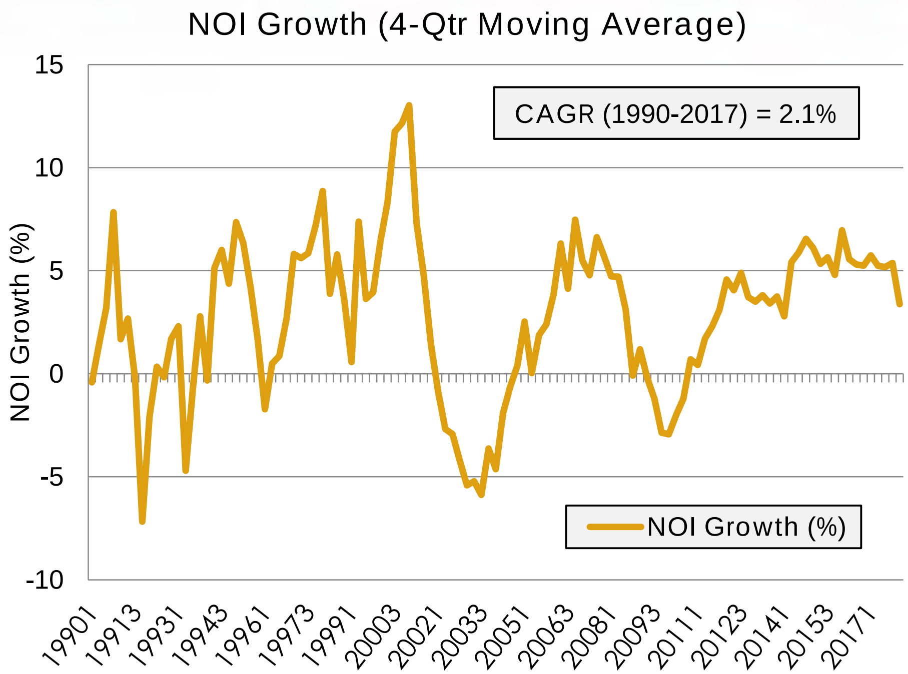




Source: NCRIEF

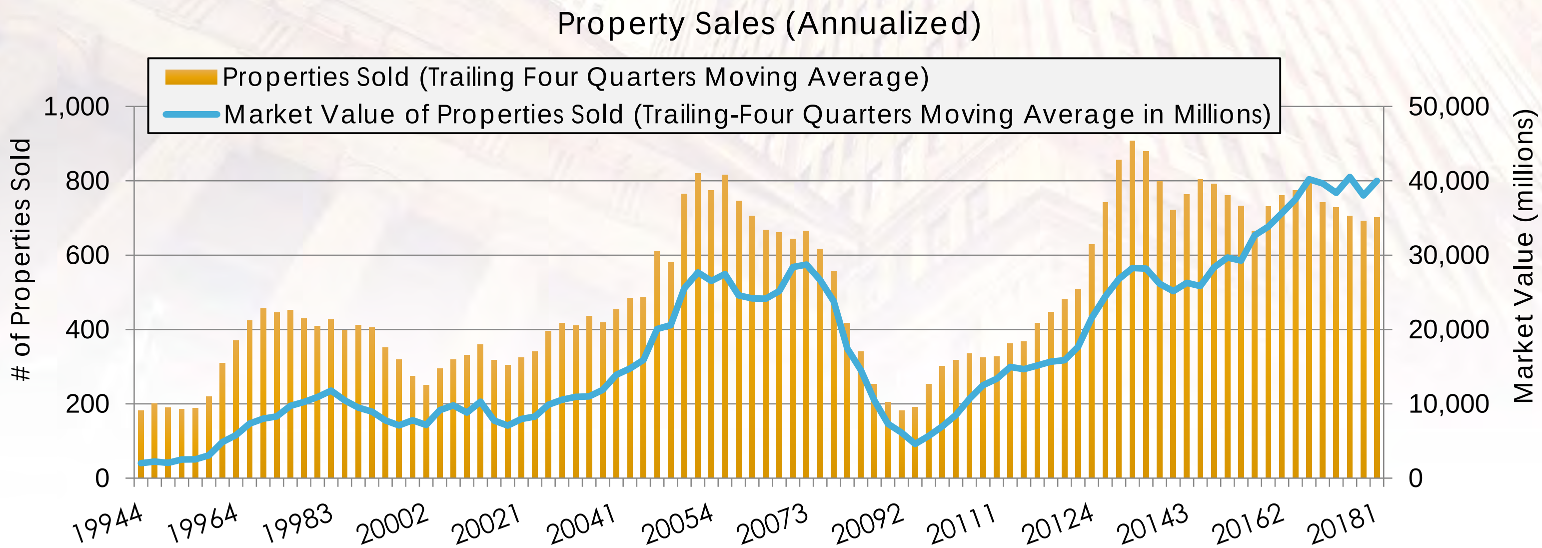
Real Estate Fundamentals

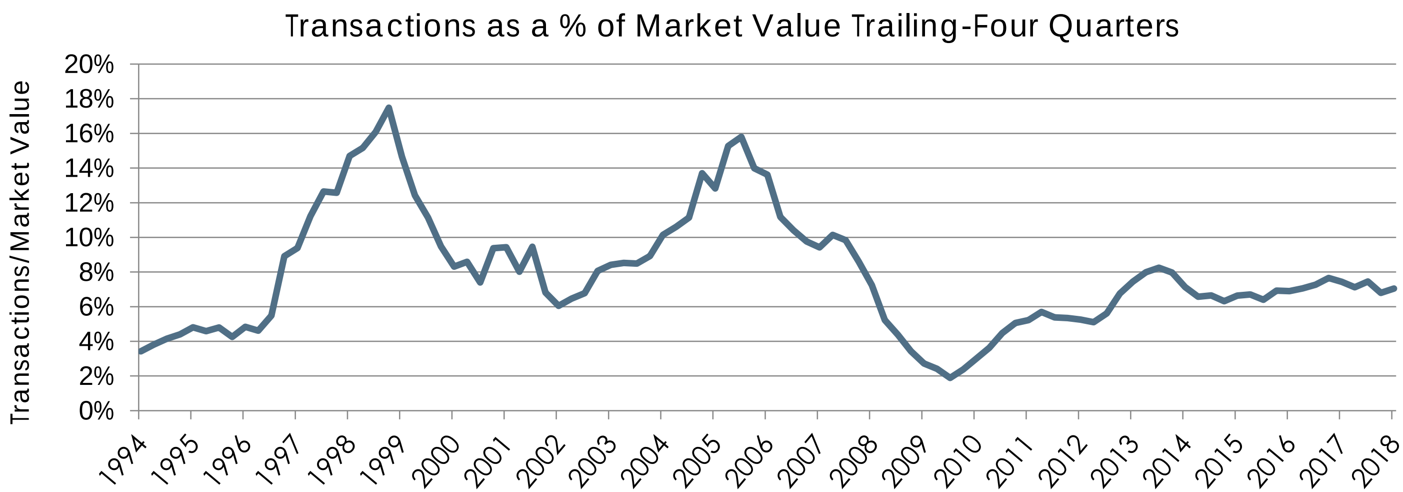




Source: NCRIEF

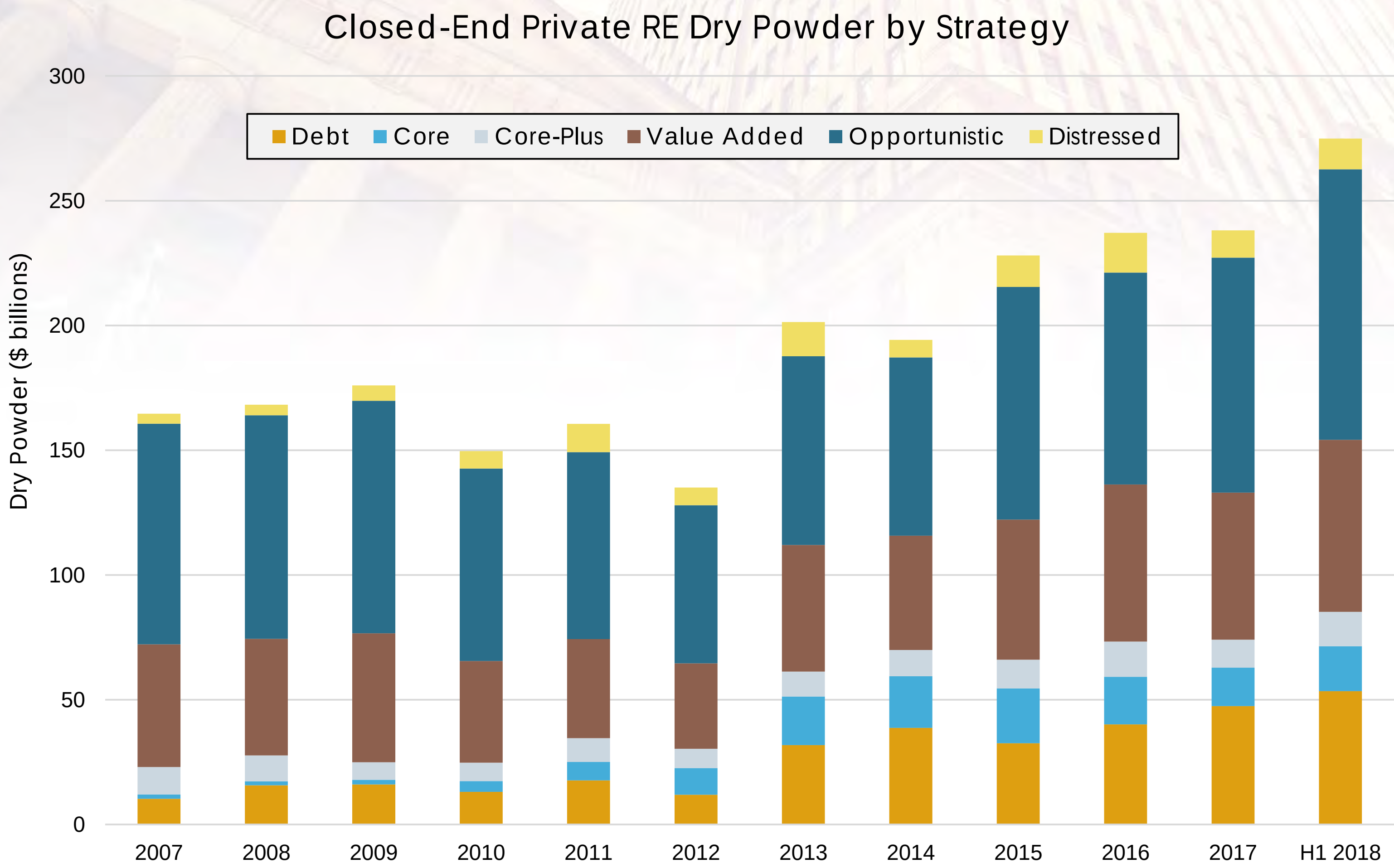
Real Estate Transactions





Sources: NCRIEF, PCA calculation

Real Estate Dry Powder



Sources: Preqin

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