Optimizing Risk and Return in Pension Fund Real Estate:

REITs & Private Equity Real Estate

PAPERS Spring Forum

Protecting Public Employee Benefits: What Lies Beneath?

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Real Estate Investment Trusts®

Commercial Real Estate Is A Large Part Of The Worldwide Market Portfolio

Region	Underlying Property Market ($bn)	Listed Property Market ($bn)	Listed as a Percent of Underlying	Stock Market	Listed Property as a Percent of Stock Market
Europe	8,792	264	3.0	12,580	2.1
North America	6,995	429	6.0	16,237	2.6
Asia-Pacific	4,877	475	9.8	16,546	2.9
Latin America	1,115	2	0.2	2,613	0.7
Africa/Middle East	170	27	15.7	776	3.5
Global	**$21,951**	**$1,196**	**5.5%**	**$48,753**	**2.5%**

- Commercial real estate investment is a large part of the worldwide market portfolio
- Efficient portfolios include meaningful allocations to global REITs and listed property companies
- Global listed real estate investment potentially increases returns and lowers risk in diversified portfolios across the risk spectrum

Note: Data as of December 31, 2010
Source: EPRA

Real Estate in the Institutional Portfolio

- Commercial real estate has been embraced as a core asset class by many institutional market segments
  - Defined benefit plans
  - Endowments and Foundations
  - Defined contribution plans
  - OPEB Structures

- Unique combination of investment attributes
  - Combines attributes of stock and bond returns
  - Real assets provide inflation hedging
  - Low correlation creates diversification

- Real estate can be accessed through both the private and publicly traded securities markets

What is a REIT?

- REIT structure in U.S. was established by Act of Congress in 1960
- A REIT must be a company in the real estate business
- REITs own and, in most cases, manage and lease investment-grade, income-producing real estate, including office buildings, apartments, shopping centers and warehouses. Some REITs engage in the financing of residential or commercial real estate
- For investors, a simple, liquid and efficient way to invest in commercial real estate

Listed Domestic Equity REIT Industry

- $478 billion All Equity REIT market capitalization
- REITs own approximately $500 billion of commercial real estate assets; 10 to 15 percent of total institutionally owned commercial real estate
- Broad diversification by property type and geography

Property Sector	Percent
Regional Malls	16
Residential	16
Office Buildings	11
Shopping Centers	8
Diversified	7
Industrial Facilities	4
Free Standing (Retail)	2
Mixed (Industrial/Office)	2
Core Property Types	66
Health Care	12
Self-Storage	6
Lodging/Resorts	6
Timber	5
Infrastructure	5
Total	100

Data as of March 31 2012
Source: NAREIT®

Global Expansion

- **First REITs outside the U.S. came about in 1969 – New Zealand and the Netherlands**
- **Most non-U.S. REITs are designed to a large extent on the U.S. model**
  - In general, collective investment faces a single level of tax in exchange for distributing annually most or all of the taxable “income” to shareholders
- **More rapid expansion of REIT regime since the early 1990s is consistent with the increasingly global nature of real estate investment**
  - Investors increasingly implement their real estate allocations on a global basis
  - Corporate structure also facilitates access to public market equity and debt financing
- **Approximately 40 nations with REIT regimes today**

Global Expansion of the REIT Model

Increasing Investment Opportunity

United States 1960	New Zealand 1969	Netherlands 1969	Australia 1971	Canada 1993
Belgium 1995	Turkey 1995	Singapore 1999	Japan 2000	South Korea 2001
France 2003	Hong Kong 2003	Taiwan 2003	Bulgaria 2005	Malaysia 2005
Thailand 2005	Israel 2006	Dubai 2006	United Kingdom 2007	Germany 2007
Italy 2007	Pakistan 2008	Finland 2009	Spain 2009	Mexico 2010
Philippines 2010	Hungary 2011			

Countries considering REIT-like structures

China	Egypt
India	Indonesia
Kenya	Nigeria
South Africa	Vietnam

REITs As A Way Of Obtaining Real Estate Exposure

Strong relative long-term performance	Moderate leverage	Market Liquidity
Transparency	Solid, investor-aligned governance	Capital markets agility and flexibility

Source: NAREIT®

Listed REITs and Property Companies Contribute Solid Portfolio Performance

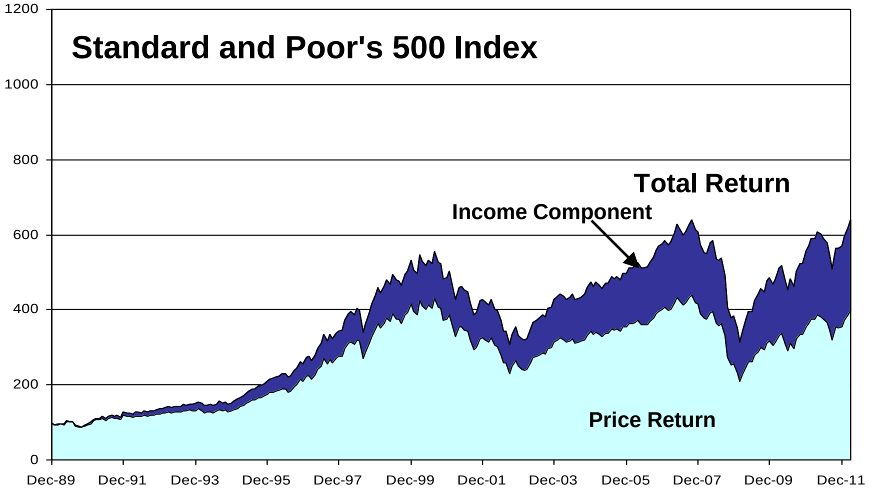
Historical Compound Annual Total Returns of Leading U.S. & Global Benchmarks (%)

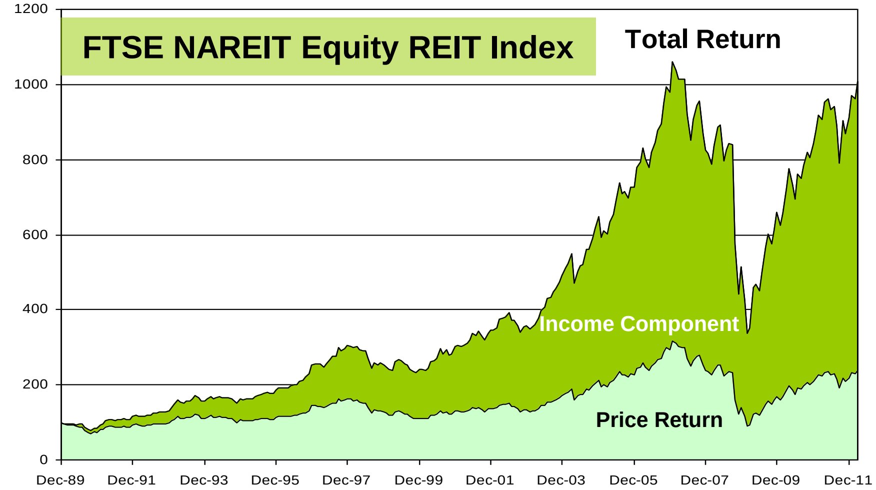
	FTSE NAREIT U.S. Equity REITs TR	FTSE EPRA/NAREIT Developed TR	S&P 500 TR	MSCI EAFE TR	Barclays Capital U.S. Aggregate Bond[1]	Barclays Capital Global Aggregate Bond[1]
1-Year	11.29	3.19	8.54	-5.77	7.71	5.26
3-Year	42.21	31.46	23.42	17.13	6.83	7.52
5-Year	-0.12	-4.12	2.01	-3.51	6.25	6.38
10-Year	10.43	10.36	4.12	5.65	5.80	7.34
15-Year	9.59	7.40	6.10	4.22	6.39	6.11
20-Year	11.43	9.58	8.59	5.77	6.59	6.58
25-Year	10.04	NA	8.96	4.93	7.12	NA
30-Year	12.47	NA	11.70	9.69	8.85	NA
35-Year	13.06	NA	11.18	9.92	8.14	NA
40-Year	12.16	NA	10.01	8.93	NA	NA

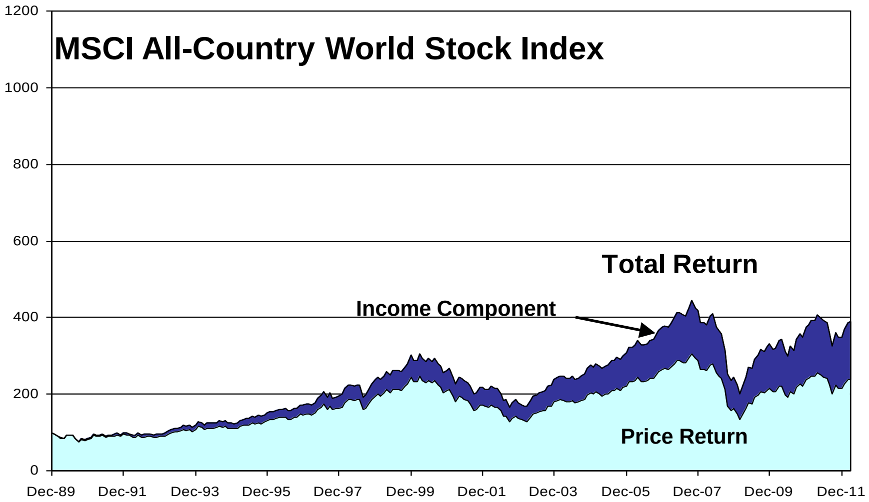
Note: Data as of March 31, 2011
1. Formerly Lehman Brothers U.S. Aggregate and Global Aggregate Bond Indexes
Sources: NAREIT® analysis of data from Interactive Data Pricing accessed through FactSet.

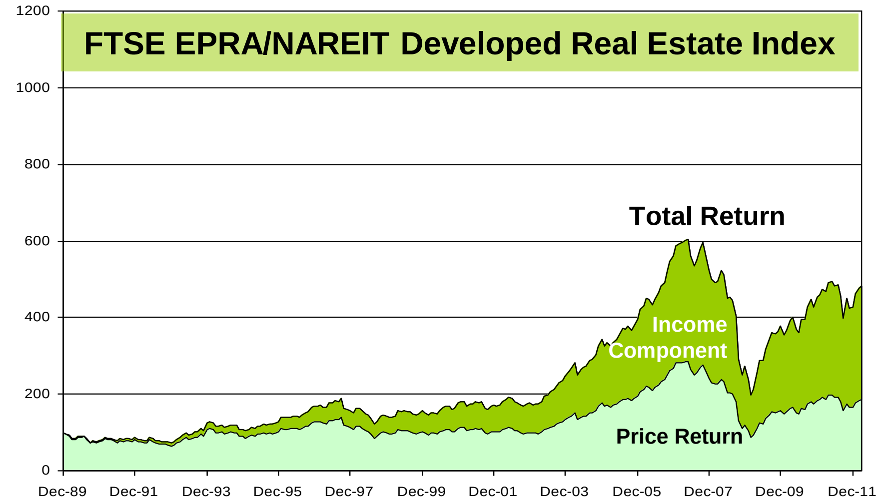
Dividends are an Important Component of Total Returns

Total and Price Returns, January 1990–March 2012







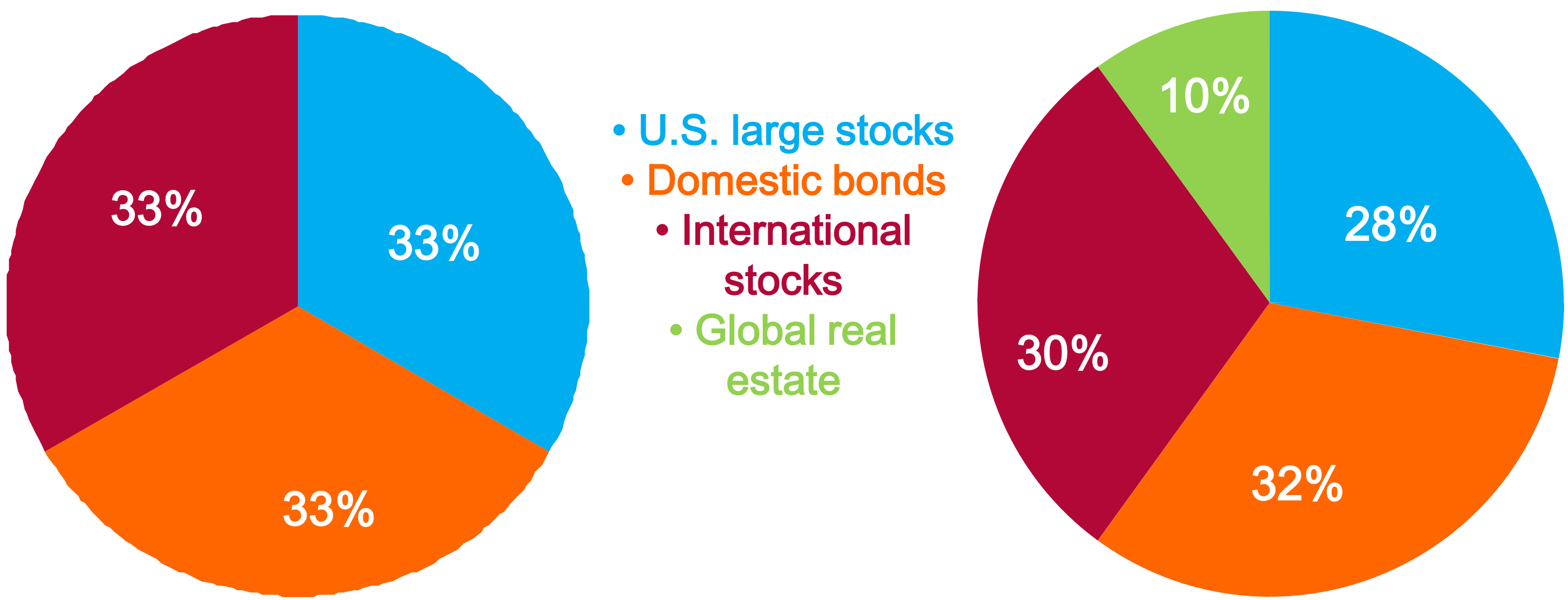


Sources: NAREIT® analysis of data from FTSE, and from IDP accessed through FactSet.

Potential to Increase Return Without Increasing Risk

Sample portfolios with and without global real estate: 1990–2010

Portfolio Without Real Estate | **Portfolio With 10% Global Real Estate**



	Portfolio Without Real Estate	Portfolio With 10% Global Real Estate
Return	8.1%	8.7%
Risk	12.8%	12.8%
Sharpe Ratio	0.35	0.39

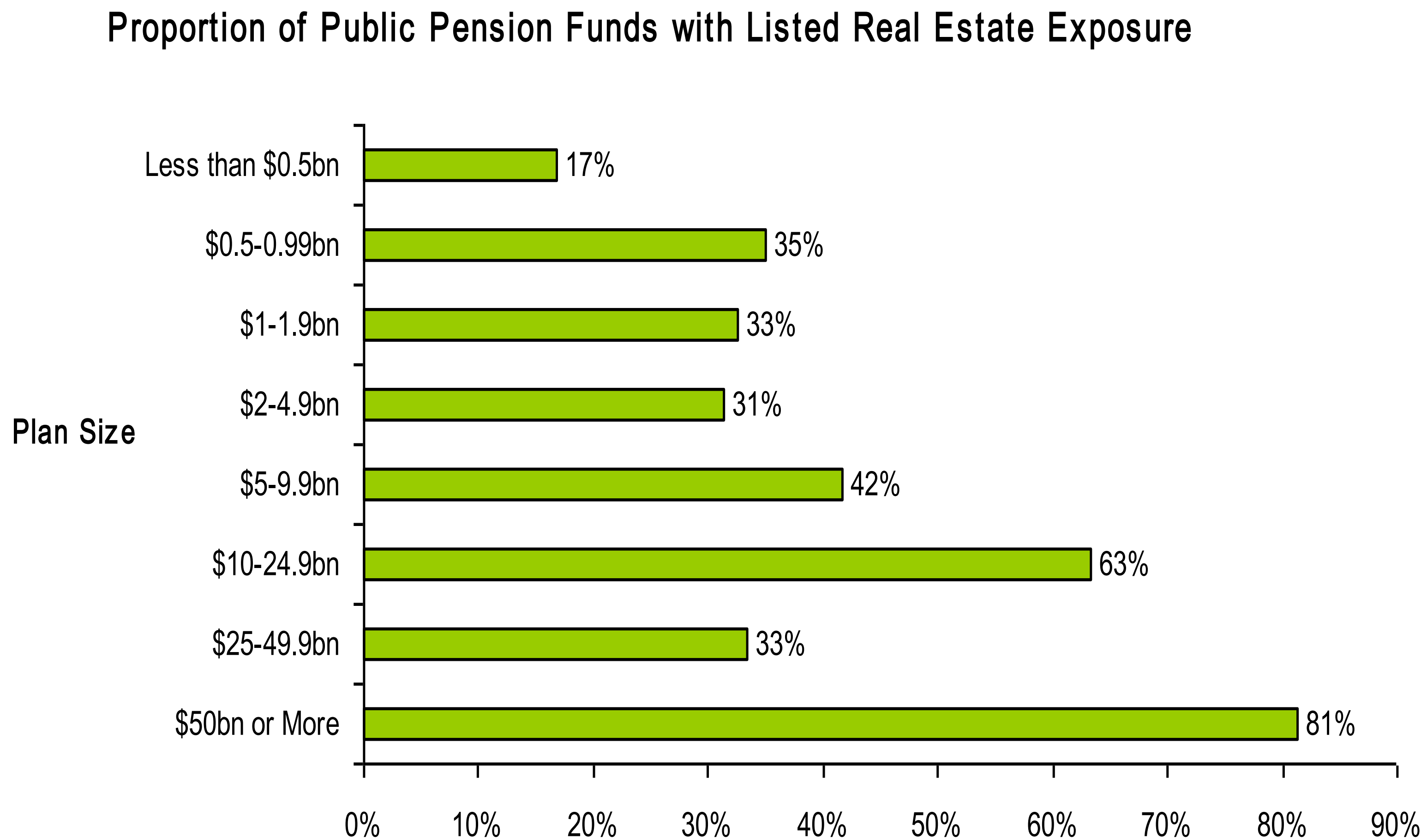
Past performance is no guarantee of future results. This is for illustrative purposes only and not indicative of any investment. An investment cannot be made directly in an index. Global real estate allocation is made up of 8% North American real estate, 1% European real estate, and 1% Asian real estate. Portfolio asset allocation may not add up to 100% due to rounding. 10/1/2011

A High Utility Asset in Institutional Investment Portfolios

REITs have strategic and tactical portfolio management applications

- A proxy for direct real estate investment
- A means for making tactical adjustments to strategic allocations
- An efficient way to gain global real estate exposure
- A complement to the private real estate allocation

REITs Play a Role In Public Pension Funds of All Sizes



Source: Preqin

Source: Preqin Monthly Spotlight, May 2011

Case Study:

Benefits of a Blended Portfolio of Listed and Private Real Estate Investments

Public Sector Pension Fund Allocations to Listed REITs

Organization	CRE Target	Public Market Real Estate Target Allocation as a % of Total CRE
Idaho Public Employees Retirement System	7.9%	39% (actual)
San Diego City Employees Retirement System	11%	25%
Virginia Retirement System	7%	22% (actual)
MA Pension Reserve Investment Management Trust	10%	20%
National Railroad Retirement Trust	10%	20%
Oregon Public Employees Retirement Fund	11%	20%
Ohio State Teachers Retirement System	10%	15%
Los Angeles Fire & Police Pension System	9%	15%
Los Angeles County Employees Retirement System	10%	15%
New York State Teachers Retirement System	10%	15% (actual)
Florida Retirement System	7%	10%

Source: Publicly available information

The Listed Real Estate Market Leads the Private Real Estate Market

- Commercial real estate cycles are typically about 17½ to 18 years

- Cycle leads on listed side because of liquidity and transparency
  - Public markets are efficient and anticipatory

- Cycle lags on private side because of illiquidity and opacity
  - Marketing lag, transaction lag, reporting lag, appraisal lag

- Downturns happen more quickly on public side

- Bull markets more extended on public side

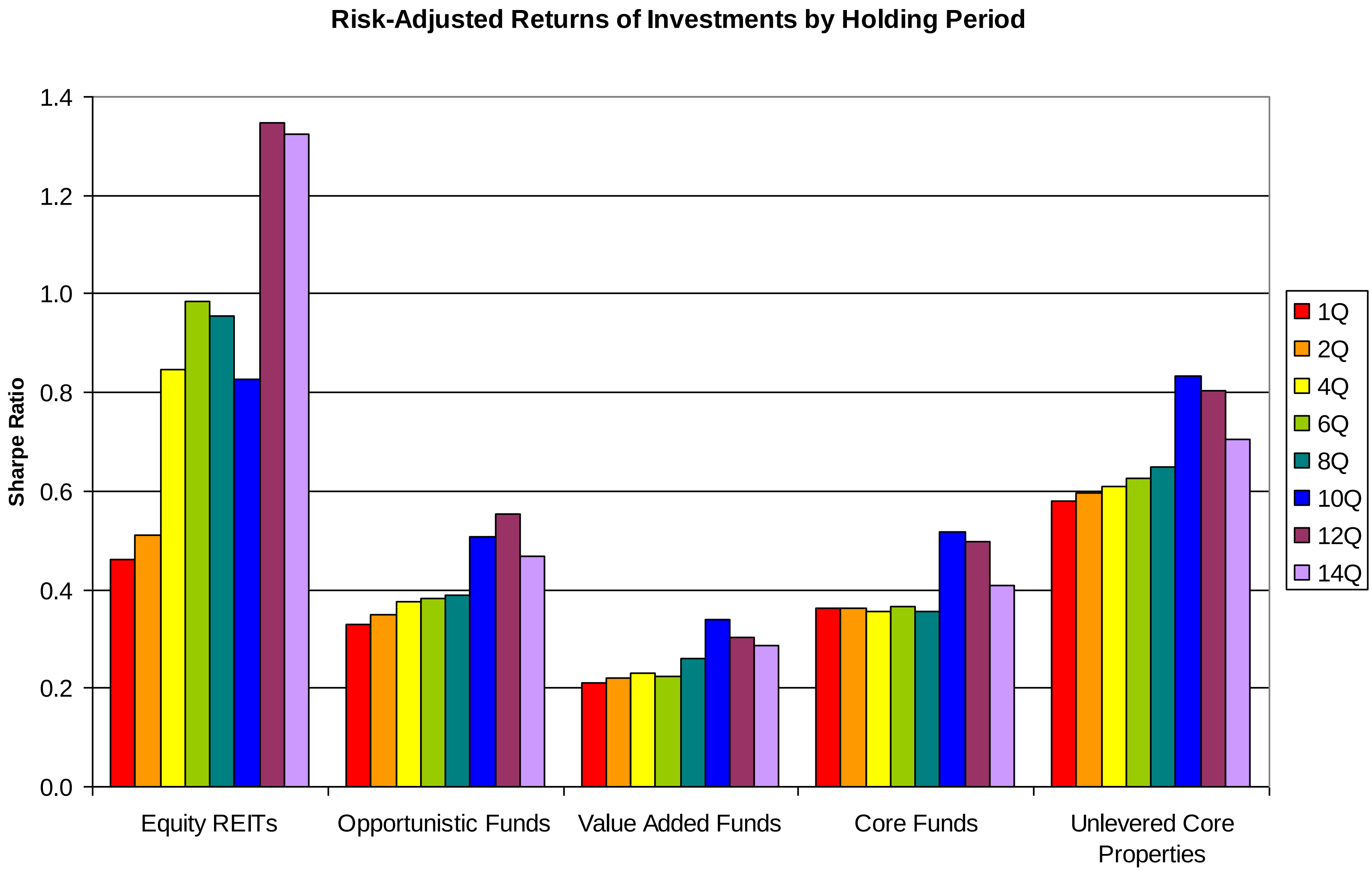
REIT and Private Equity Real Estate Investment Returns
Compound Annual Net Total Returns In Percent

	FTSE NAREIT Equity REITs	Unlevered Core Properties (NPI)	Core Private Equity Funds (ODCE)	Value-Added Funds (NCREIF/ Townsend)	Opportunistic Funds (NCREIF/ Townsend)
1-Year	10.74	12.99	14.96	18.84	17.25
3-Year	**41.52**	1.26	-2.66	-15.19	-11.92
5-Year	-0.62	1.92	-1.11	-6.15	-4.13
10-Year	**9.88**	6.85	5.21	3.05	6.97
15-Year	9.05	8.19	7.35	6.24	10.16
20-Year	**10.88**	6.86	6.18	4.87	8.08
25-Year	**9.50**	6.09	5.33	4.71	NA
30-Year	**11.91**	6.72	5.92	NA	NA
35-Year	**12.51**	NA	NA	NA	NA

Note: Data as of March 31, 2012 for publicly traded REITs; 2011Q4 for unlevered core properties (NCREIF NPI) and core private equity real estate funds (NCREIF ODCE); and 2011Q3 for value-added and opportunistic private equity real estate funds (NCREIF/Townsend Fund Indices). Fees and expenses are assumed to average 50 bps per year for an actively managed U.S. publicly traded REIT portfolio and 115 bps per year for unlevered core property investments; fees for private equity real estate fund investments are as reported by NCREIF.

Sources: NAREIT® analysis of data from NCREIF and from FTSE NAREIT Equity REITs Index

Risk-Adjusted Returns: Listed Equity REITs and Private Equity Real Estate Funds



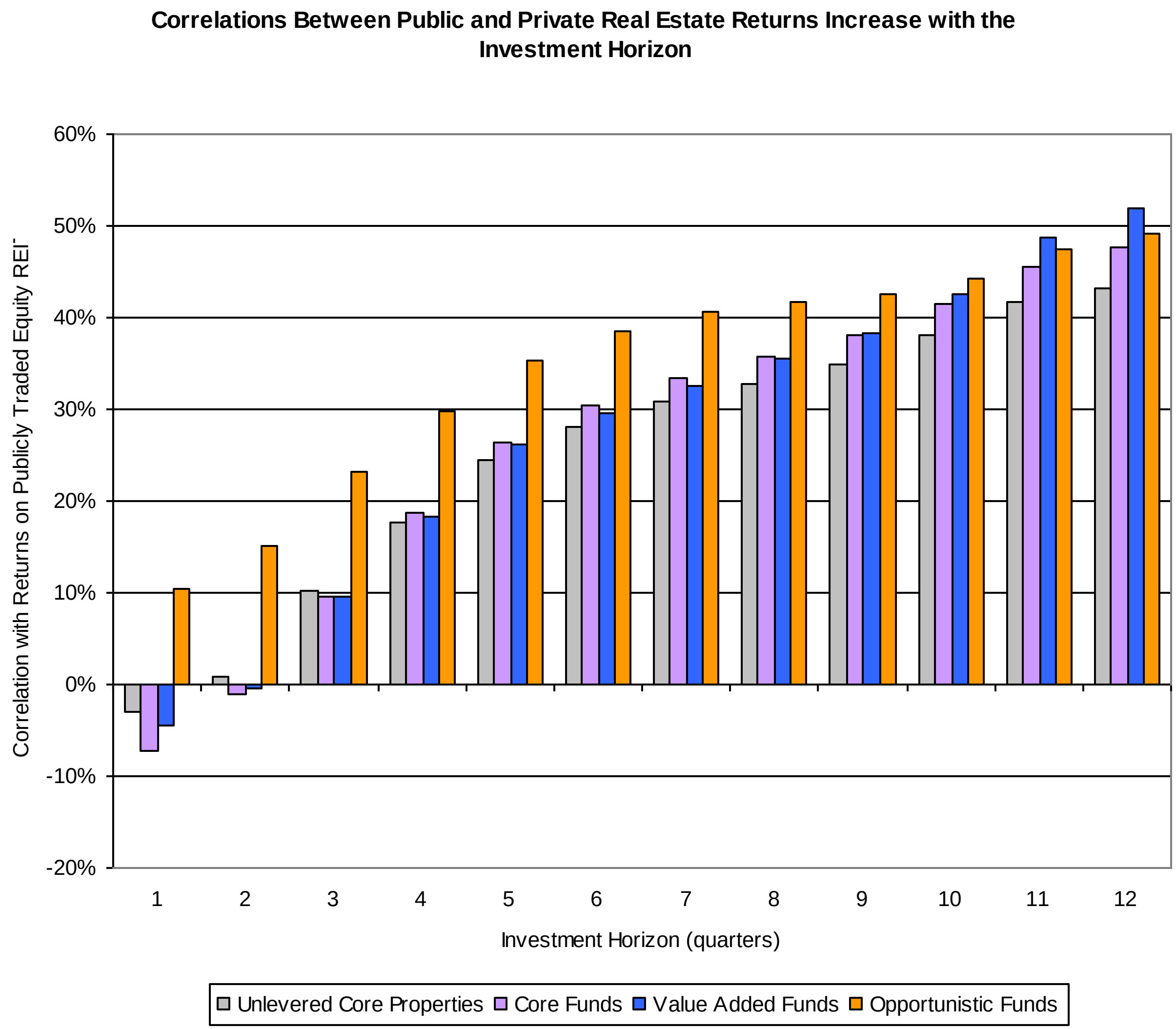
Note: Based on quarterly net returns over the available historical period: 1978Q1-2011Q3 for equity REITs, core funds (ODCE), and unlevered core properties (NCREIF Property Index); 1983Q2-2011Q3 for value added funds (NCREIF/Townsend Fund Indices); and 1988Q4-2011Q3 for opportunistic funds (NCREIF/Townsend). Fees are assumed to total 50 basis points per year for publicly traded equity REITs and 115 basis points per year for unlevered core properties; fees for other investments are as given. Risk-adjusted rate is Citigroup 1-mo U.S. Treasury TR. Source: NAREIT analysis of data from NCREIF and FTSE NAREIT Equity REITs Index.

Correlation of REIT Returns with Private Equity Real Estate Fund Investment Returns

- Correlations increase as the investment horizon lengthens as REIT mispricing and appraisal errors are corrected

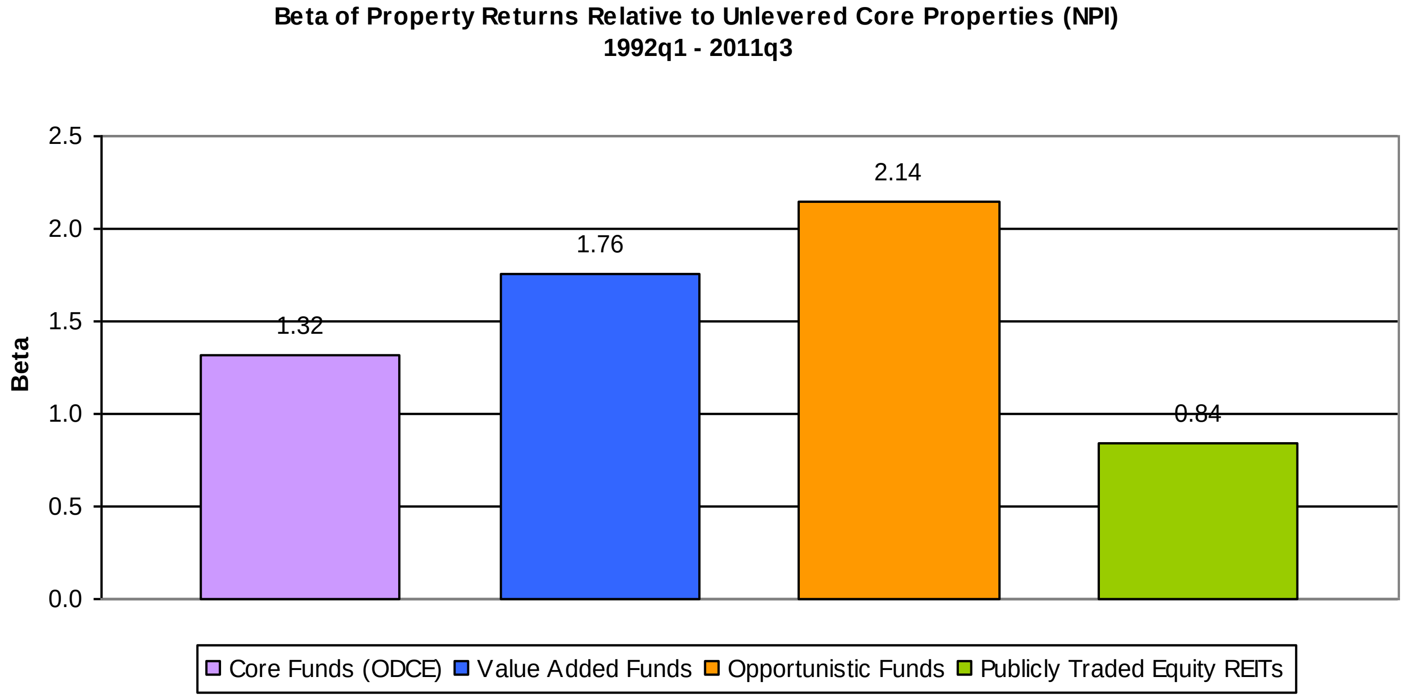
- This correlation pattern is characteristic of indexes in the same asset class that are measured with "error"

- Contemporaneous correlations stabilize after eight quarters in the 43%-52% range, consistent with the existence of a lead-lag relationship



Source: NAREIT® analysis of data from FTSE NAREIT All Equity REITs Index, NCREIF Property Index, and NCREIF Open-End Diversified Core Equity (ODCE) Fund Index, 1978Q1-2010Q4; from NCREIF/Townsend Value-Add Fund Index, 1983Q2-2010Q3; and from NCREIF/Townsend Opportunistic Fund Index, 1988Q4-2010Q3.

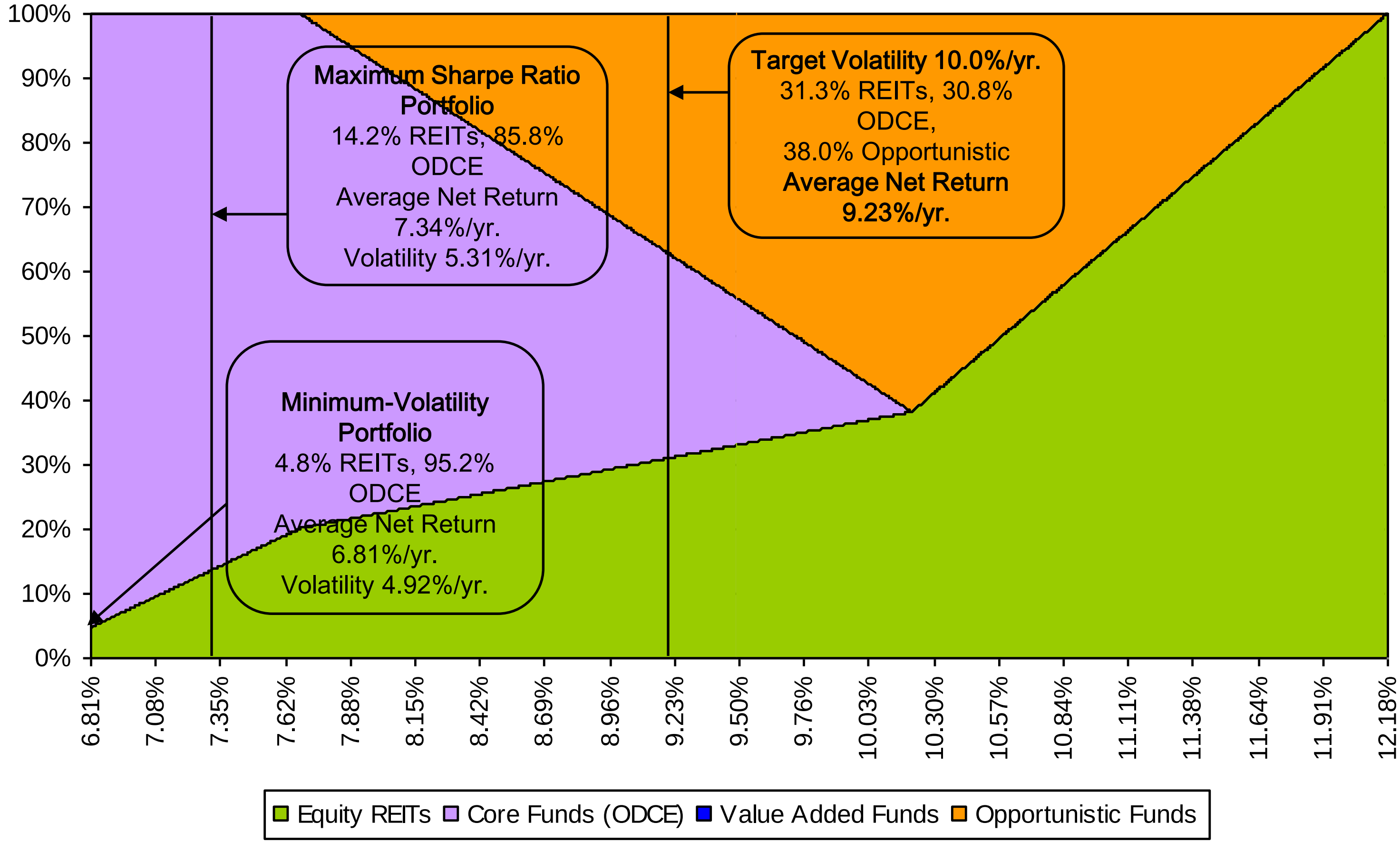
Listed REITs Diversify a Private Equity Real Estate Portfolio



- The low beta of REITs means that combining them with unlevered core property reduces portfolio volatility
- The high beta of other private real estate investments means that combining them with unlevered core property increases portfolio volatility
- REIT returns lead private real estate returns, providing temporal diversification that reduces risk

Note: Based on quarterly data, 1988q4-2011q3. Fees and expenses are assumed to be 115 bps per year for unlevered core properties (NPI and TBI) and 50 bps per year for publicly traded equity REITs; fees and expenses for core, value-added, and opportunistic funds are as reported.
Source: NAREIT® analysis of data from NCREIF and FTSE NAREIT All Equity REITs Index

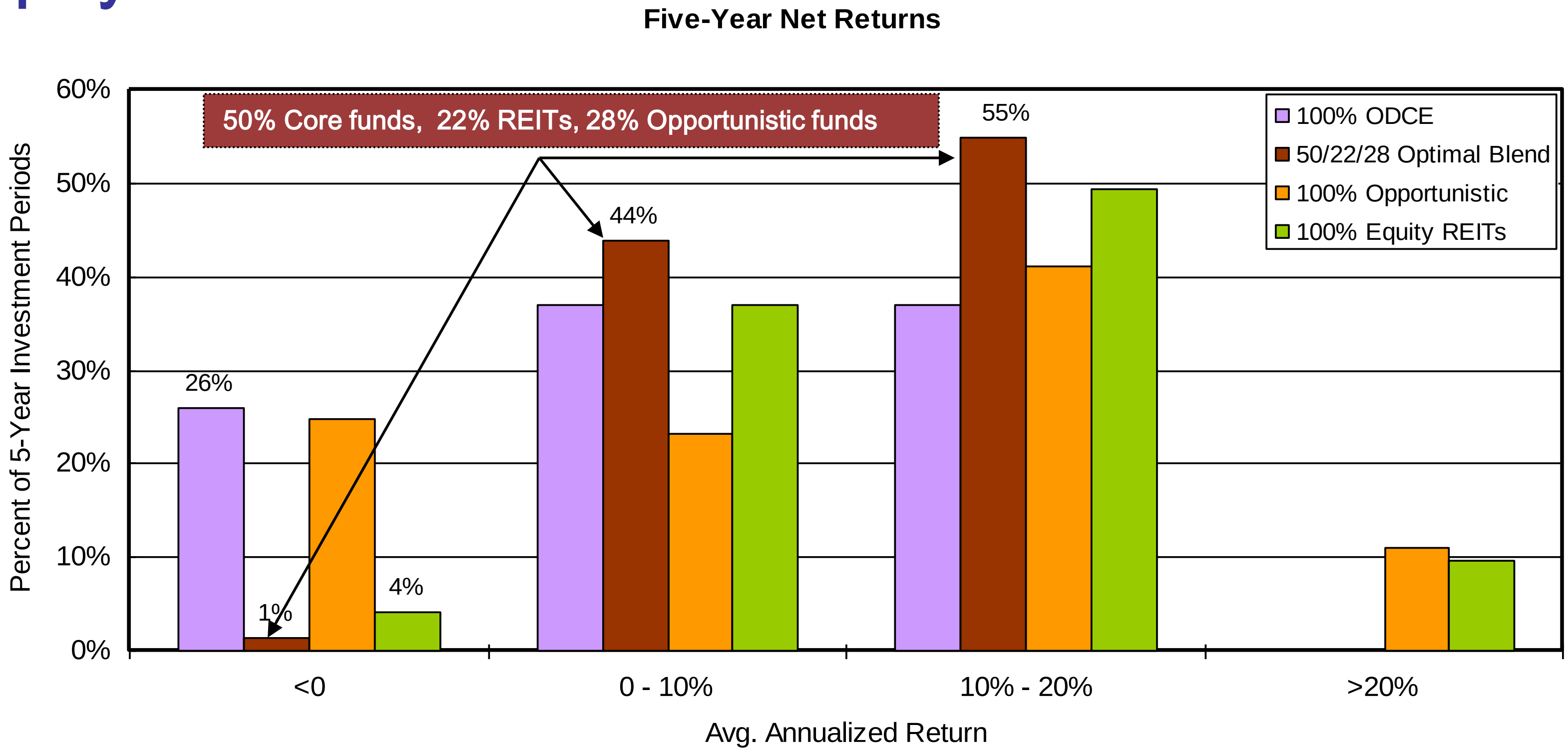
REITs and Private Real Estate Funds in a Blended Portfolio
Optimal Allocations



- Optimally blended portfolios of both REITs and private equity real estate funds take full advantage of the diversification between the public and private sides of the real estate market
- Optimized portfolios have produced better risk-adjusted returns than either REITs or private equity real estate funds alone

Note: Based on quarterly net total returns for NCREIF/Townsend Fund Indices (ODCE, Value Added, and Opportunistic) and FTSE NAREIT Equity REITs Index for 1992q1–2011q3. Fees and expenses are assumed to be 50 bps per year for publicly traded equity REITs; fees and expenses for core, value added, and opportunistic funds are as reported by NCREIF. Source: NAREIT® analysis of data from NCREIF and FTSE NAREIT Equity REITs Index

Blended Portfolio Case Study: Listed REITs and Private Equity Real Estate Funds

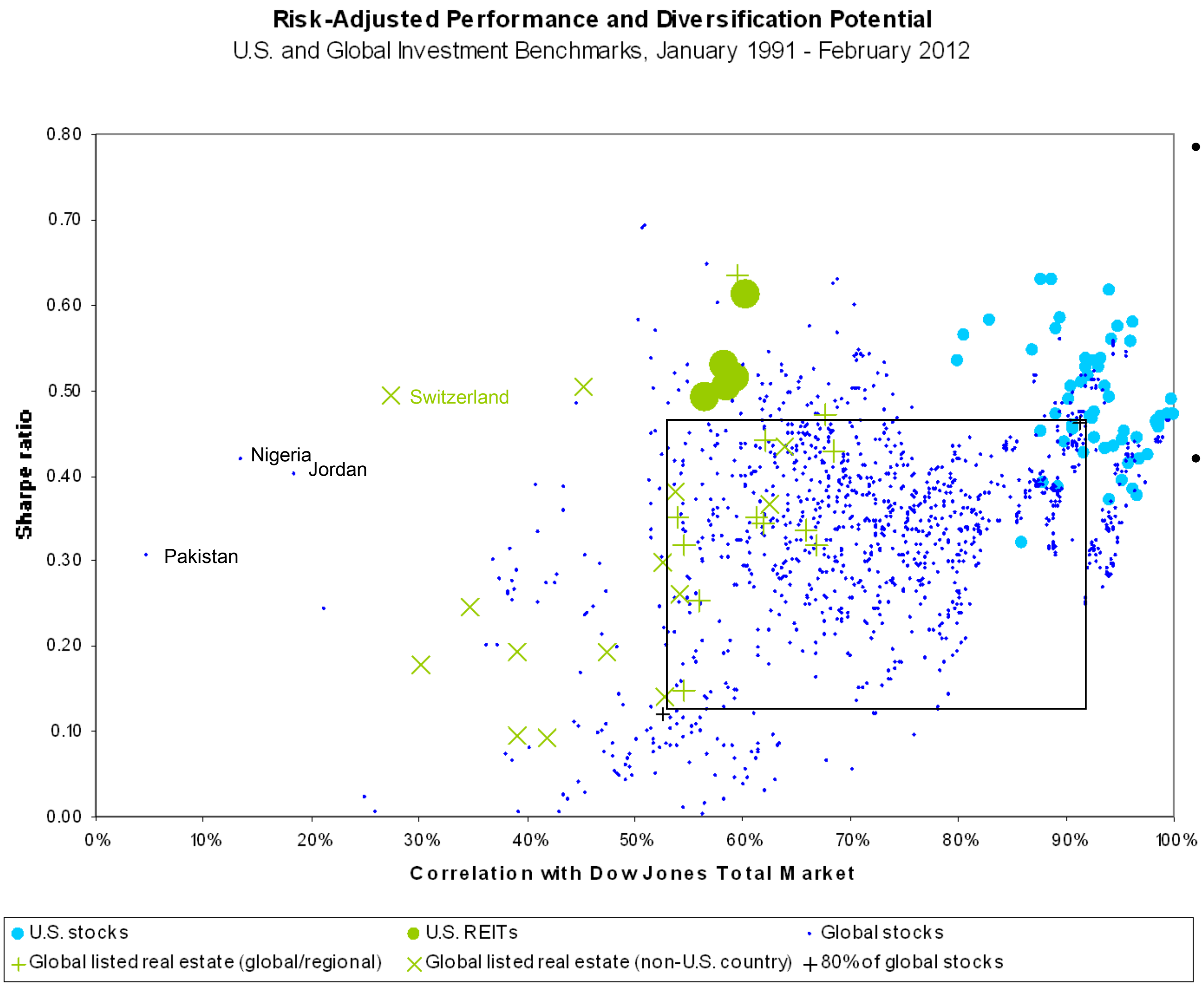


- REITs, core funds, and opportunistic funds have similar, but not identical, long-term investment characteristics creating diversification within the asset class when combined
- This diversification creates the opportunity for the blended portfolio to earn higher returns while reducing the potential for negative or low returns
- Since 1988Q3 there has been only one five-year investment period during which a 50/22/28 blend of core funds, opportunistic funds, and public equity REITs experienced negative net returns (2006Q3-2011Q3)

Note: Based on quarterly net total returns of FTSE NAREIT Equity REIT Index, NCREIF Open-End Diversified Core Equity Fund Index (ODCE), and NCREIF/Townsend Opportunistic Fund Index, 1988Q4-2011Q3.
Source: NAREIT analysis of data from NCREIF and Interactive Data Pricing and Reference Data accessed through FactSet.

Case Study:
Global Real Estate Investment

Real Estate in a Global Equity Portfolio
Risk-Adjusted Performance and Diversification

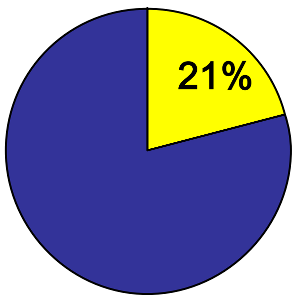


- Listed real estate contributes strong risk adjusted returns and diversification to a global equity portfolio
- Low correlation between domestic and global / regional REIT indexes creates additional diversification benefit within the real estate asset class

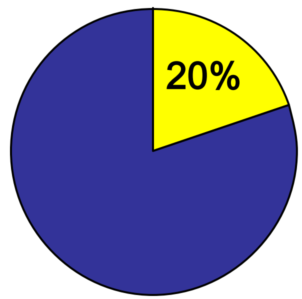
Note: Based on monthly returns. Benchmarks with negative Sharpe ratios are not shown. The top and bottom of the box encompass the middle 80% of stock benchmarks by Sharpe ratio; the sides of the box encompass the middle 80% of stock benchmarks by correlation coefficient.
Source: NAREIT® analysis of data from Interactive Data Pricing accessed through FactSet.

Portfolio Construction
Optimal Portfolio Research

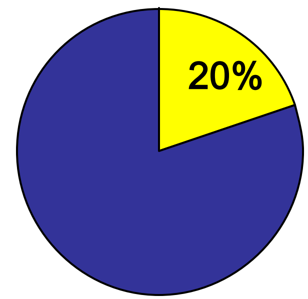
Morningstar Analysis
Mean Variance Optimization
1990-2007



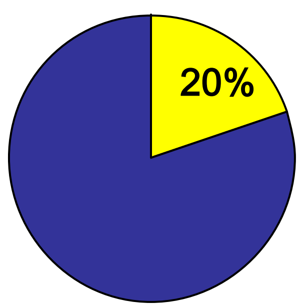
Morningstar Analysis
Mean Variance Optimization
1990-2010



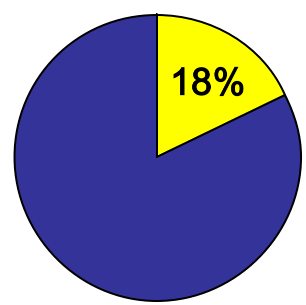
Morningstar Analysis
Fat Tail Optimization
1990-2009



Morningstar Analysis
Liability Relative Investing
1990-2009



Wilshire Analysis
Surplus Optimization
1990-2010



Note: Complete analyses available from NAREIT

Efficient Portfolio Allocations
Mean-variance optimization: 1990-2007 and 1990-2010

Major Asset Allocation Conclusions

- Global real estate allocations remained relatively stable based on investment performance both before and after the financial crisis
  - lower allocations to global equities
  - higher allocations to global bonds
  - slightly lower allocations to global real estate

	Data period	
Asset Class	1990 - 2007	1990 - 2010
Global stocks*	18% - 43%	10% - 29%
Global bonds*	25% - 45%	33% - 65%
Global real estate	18% - 38%	16% - 20%
Cash	0% - 15%	0% - 8%

*Note: Data available beginning January 1990. Global stocks for the period 1990-2010 include emerging-market stocks which was not included in the 1990-2007 analysis. Global bonds for the period 1990-2010 include TIPS and Global High-yield bonds which were not included in the 1990-2007 analysis.

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Findings & Summary

- REITs are a high utility portfolio asset for pension funds and retirement plans, endowments and foundations
- Publicly traded U.S. equity REITs continue to produce stronger long-term returns than other domestic and global assets, including stock market and fixed-income investments
- Publicly traded REITs and private real estate funds are complements within a real estate portfolio
- The public markets are positioned to capitalize on opportunities in commercial real estate investment as the global economy and financial markets stabilize and recover

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