

REAL ESTATE AS AN ASSET CLASS

Keynote Address
Autumn Seminar Inquire Europe
Oslo, Norway

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Agenda

- Objectives
- Gaining Exposure: Routes and Vehicles
- Size and Maturity of Markets
- Return, Risk and Diversification
- Current Research Themes
- Conclusions

Objectives

- Discuss what a real estate investment is and how to gain exposure to the real estate market;
- Highlight the size and maturity of markets;
- Show some risk-return figures and whether real estate should be included in a portfolio;
- Highlight some major areas of research in the field;
- Overall, real estate is an important asset class in a diversified portfolio.

What is Real Estate Investment?

- Investment in Buildings and Land
- Income - Rental Cashflow
- Growth
 - *Rental Growth*
 - *Capital Appreciation*
- Various Sectors
 - *Offices*
 - *Retail*
 - *Industrial*
 - *Residential*
 - *Housing?*
- Financial Engineering
 - *Leverage and Returns*

REAL ESTATE AS AN ASSET CLASS

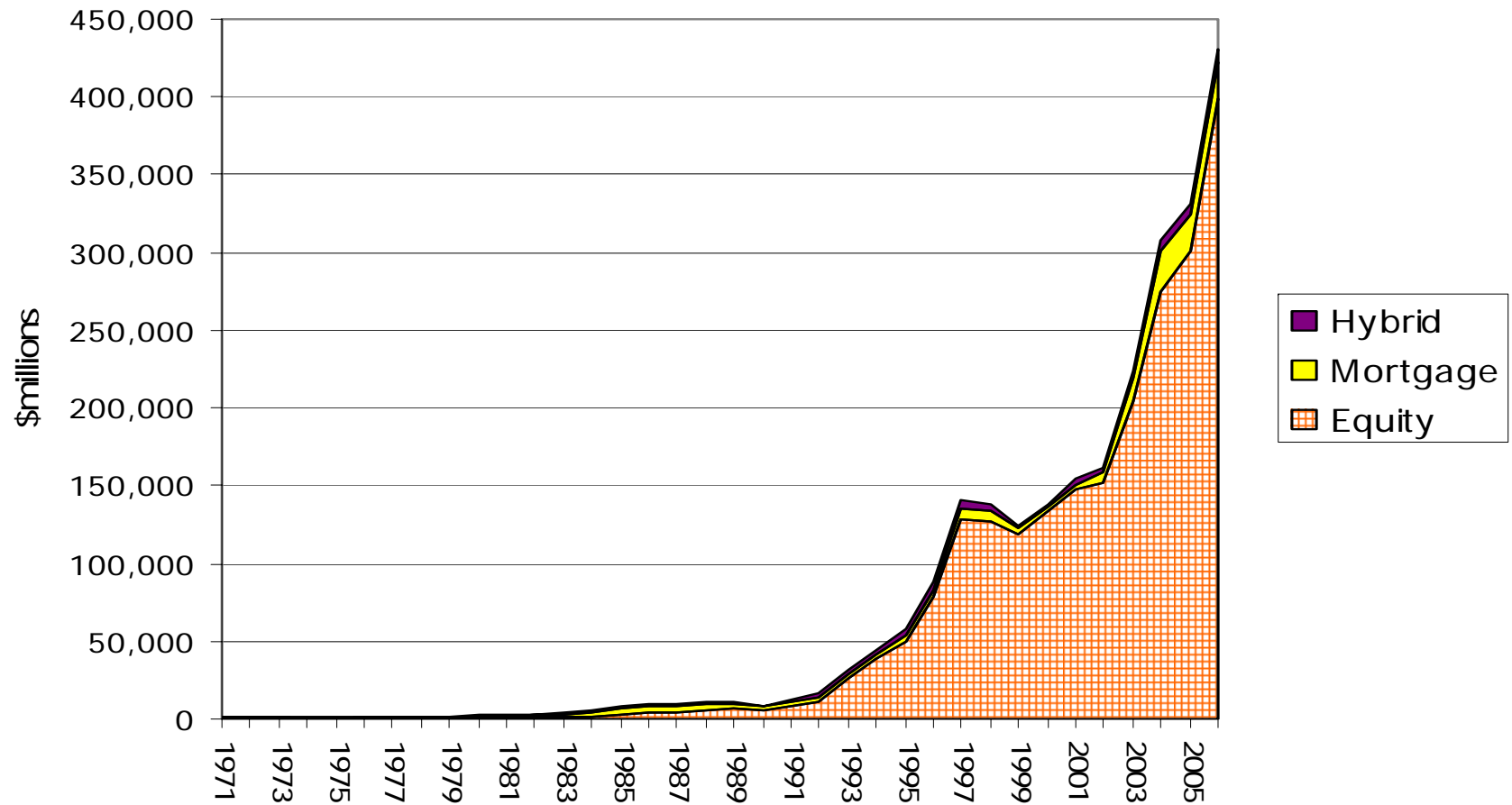
Gaining Exposure to Real Estate:
Vehicles and Funds

Gaining Exposure: Routes and Vehicles

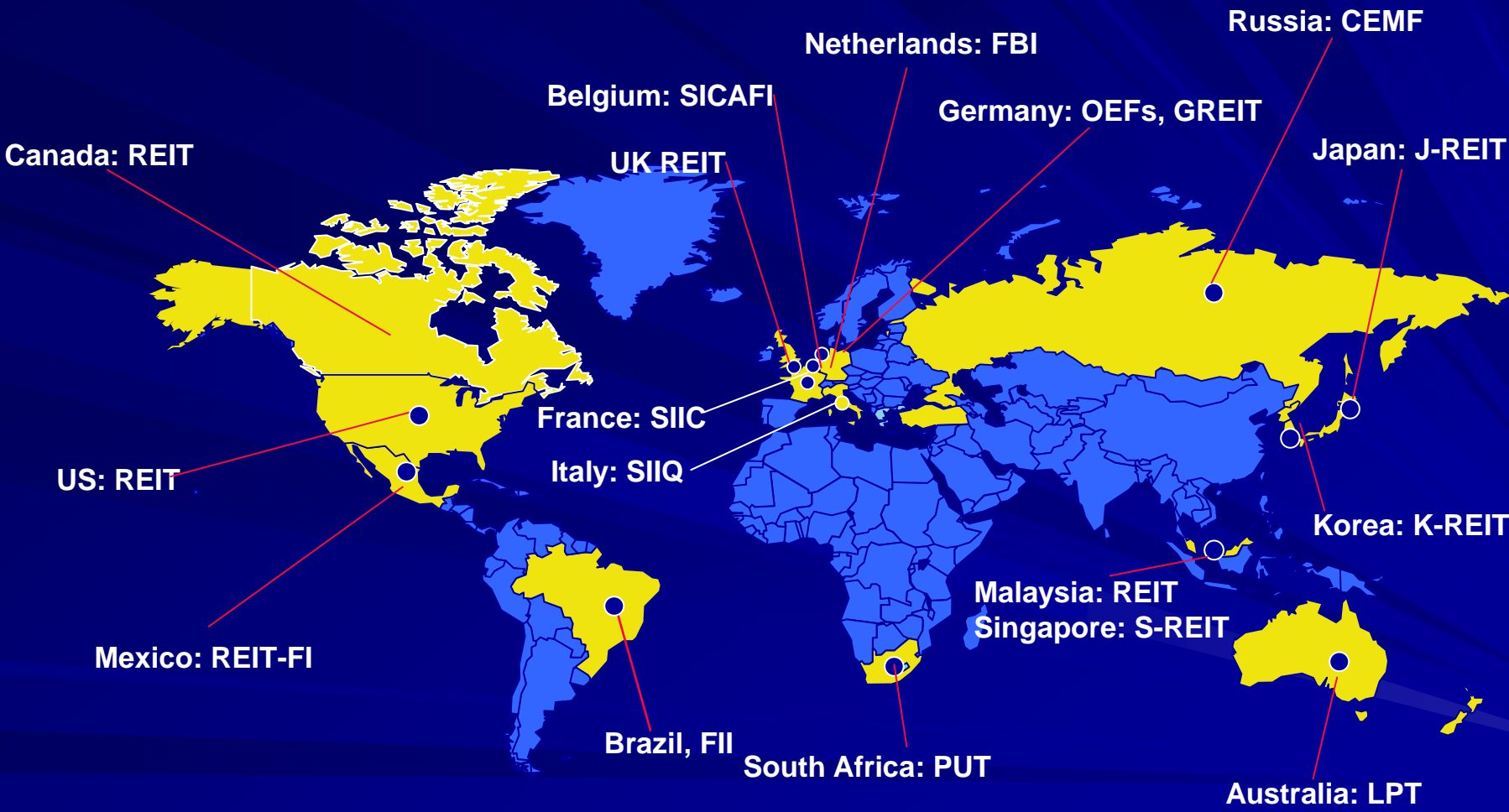
- **Direct holdings of private real estate**
- **Private collective vehicles and funds**
 - *Open ended, closed ended funds*
 - *Core, Value Added and Opportunity Funds*
- **Public real estate vehicles**
 - *Corporate structures*
 - *REITs*
- **Property derivatives**
- **Debt instruments - CMBS, CDOs**

The Growth of U.S. REITs

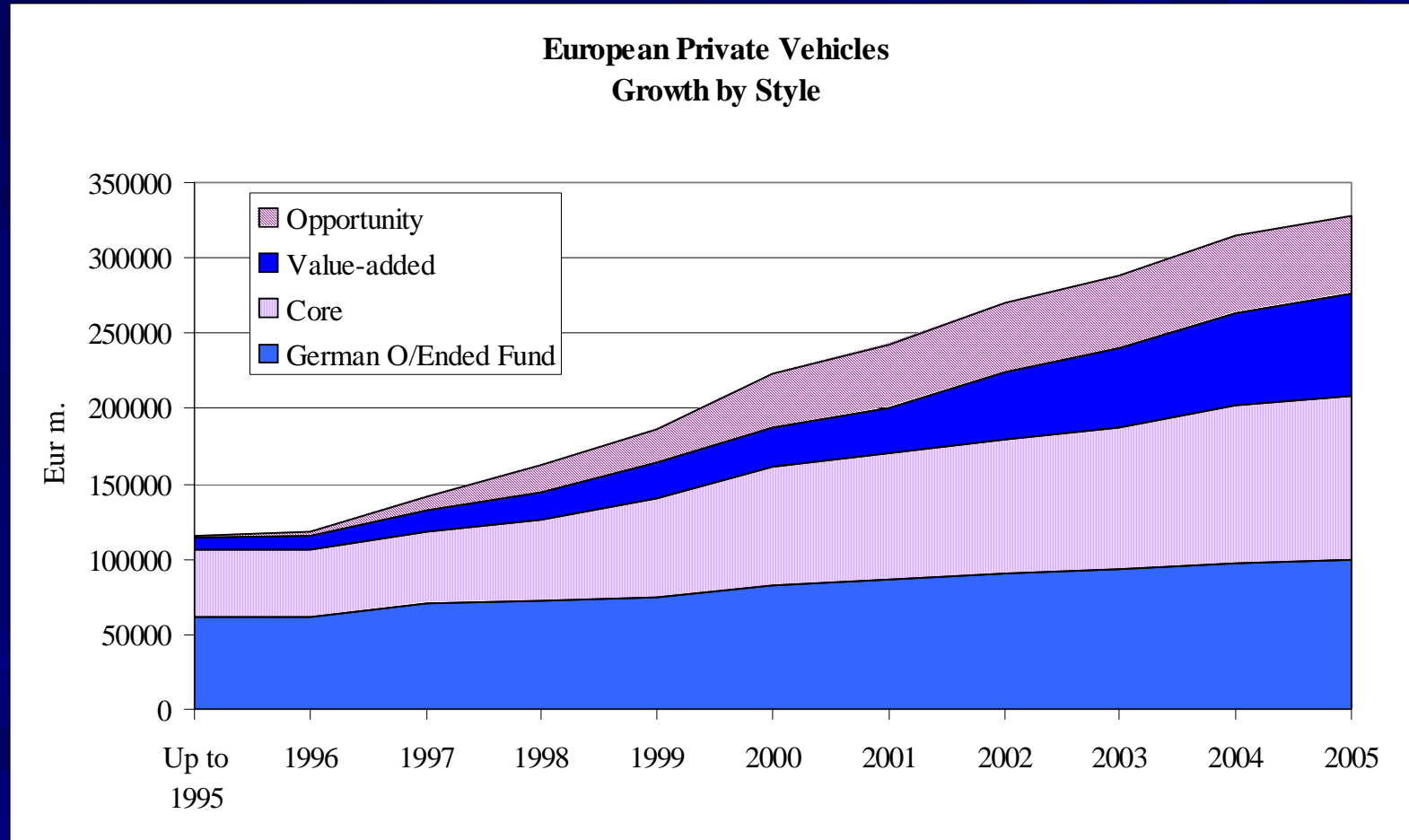
NAREIT Market Capitalisation



Tax Efficient Listed Vehicles

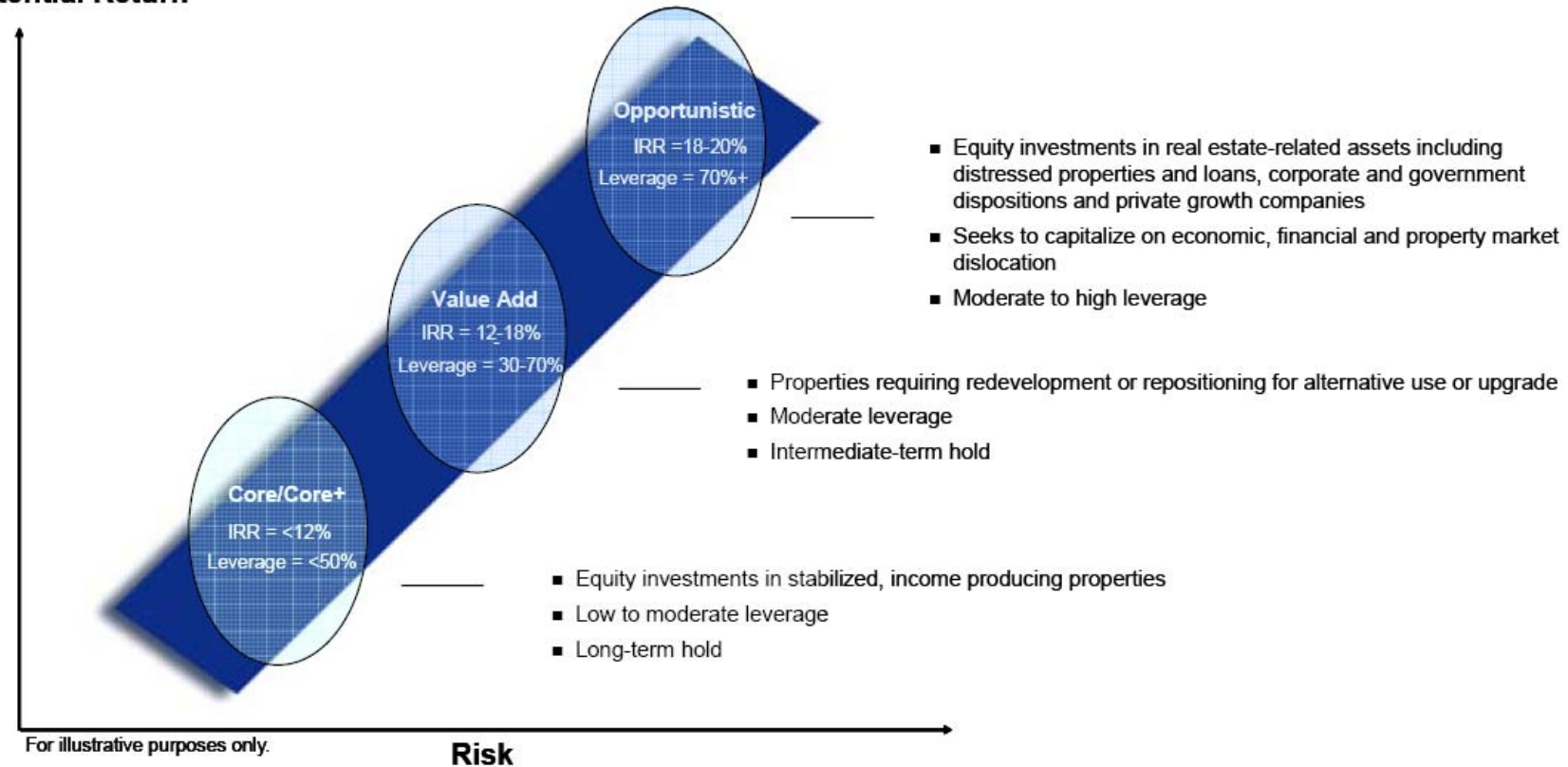


Private Real Estate Equity Vehicles



Private Real Estate Equity Vehicles

Potential Return

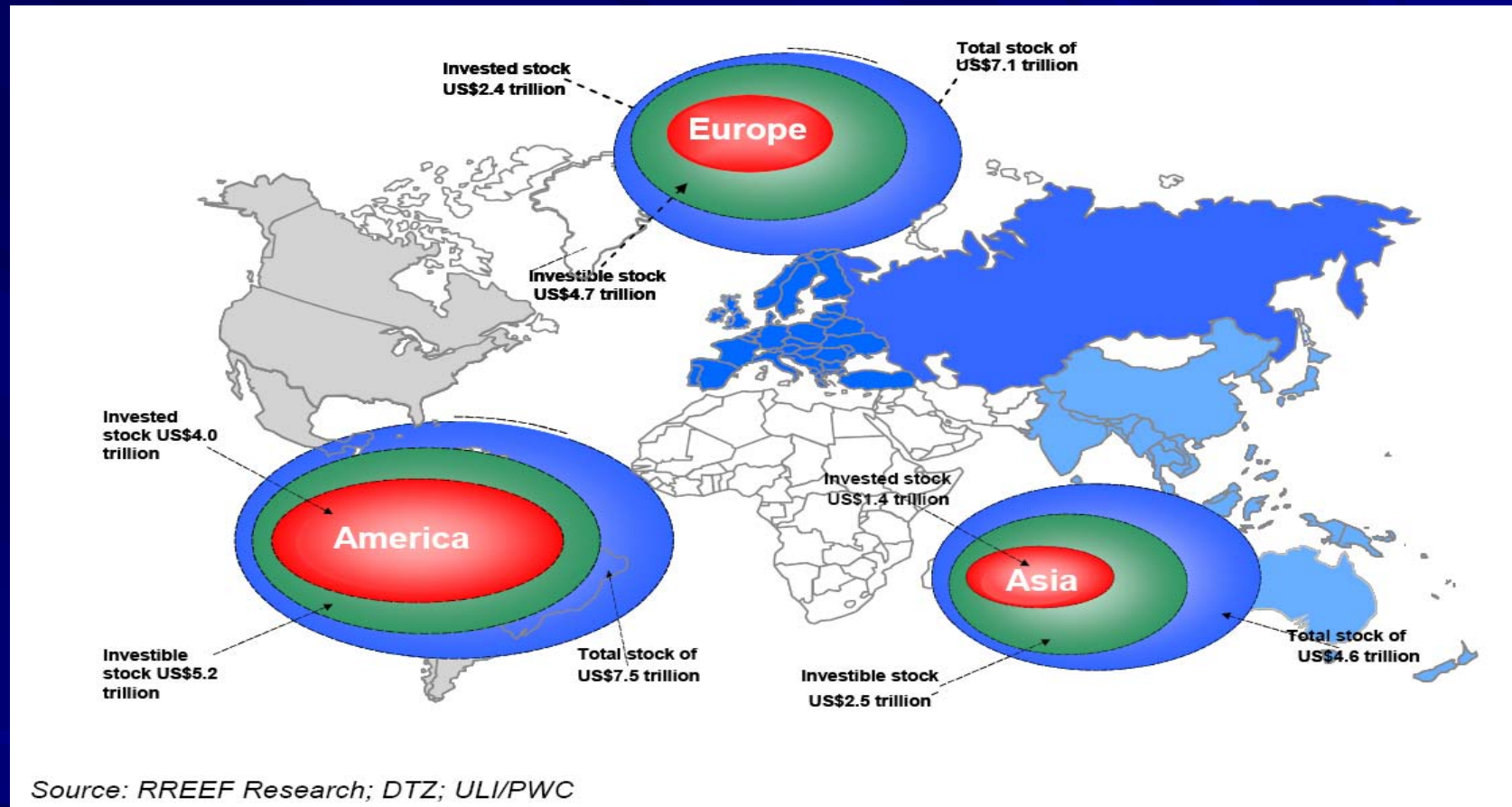


Source: RREEF Research

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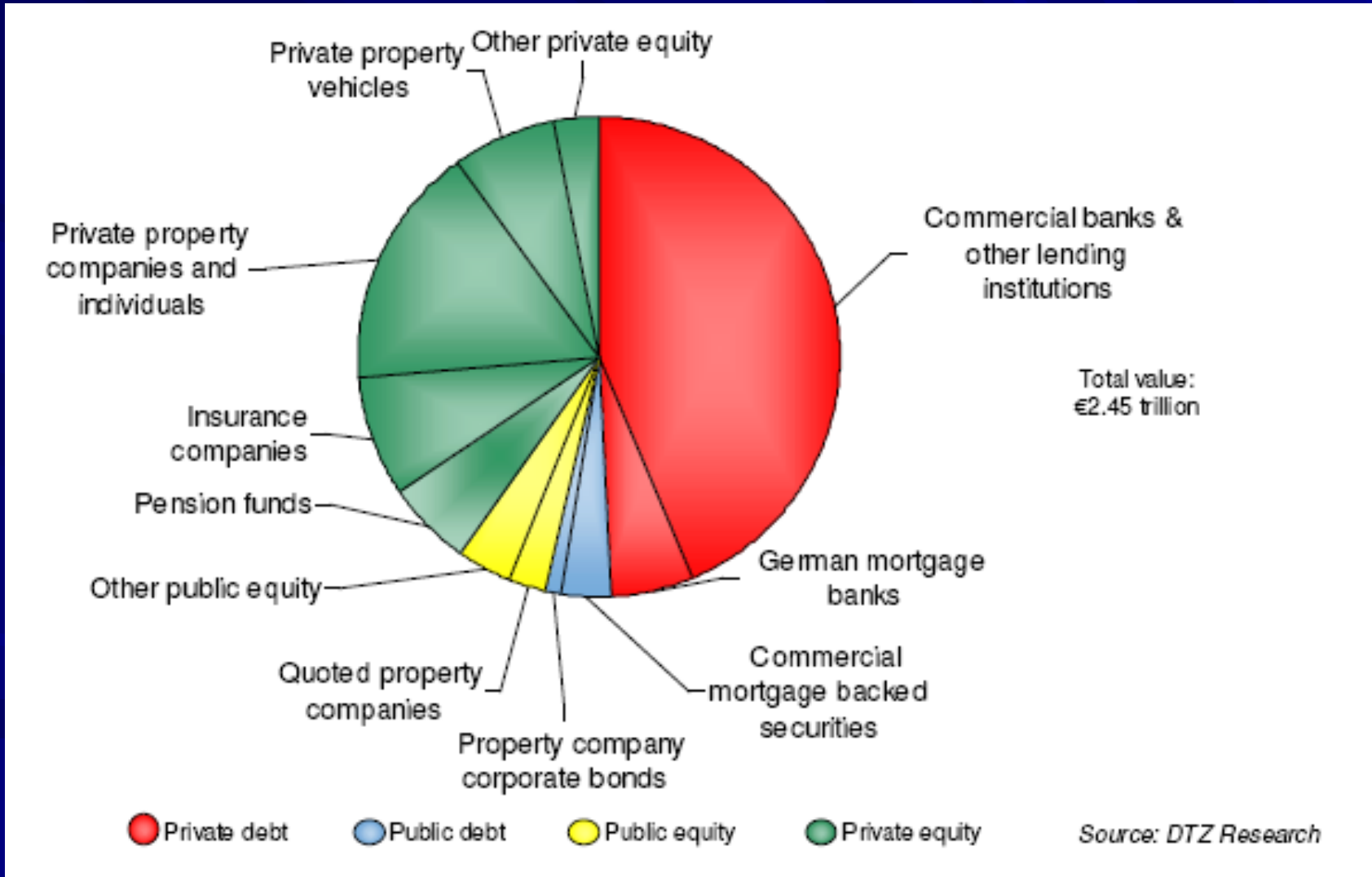
Size and Maturity of Markets

How Much Real Estate Is There?

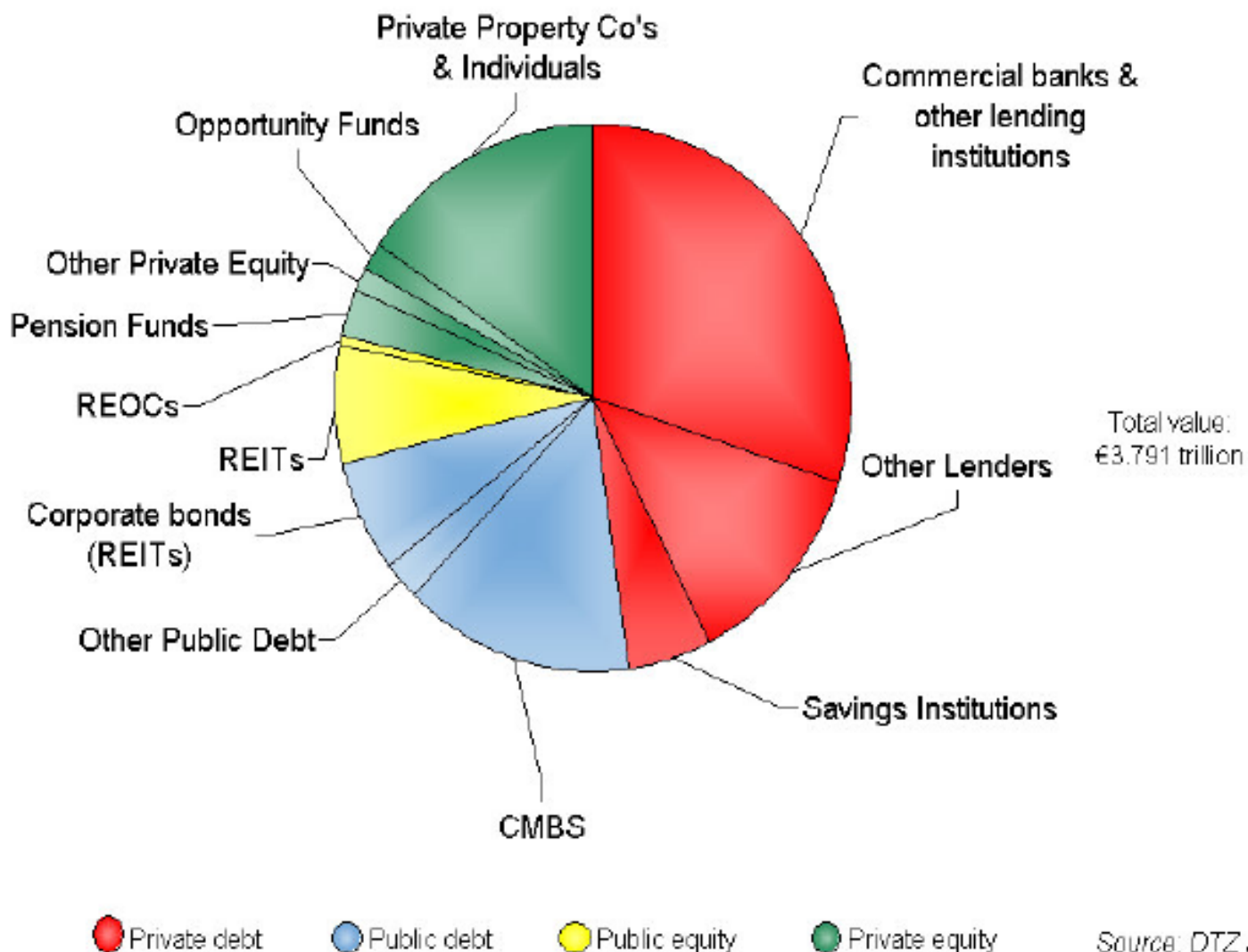


- 1) Hence, the figure is in the \$8-19 trillion range depending on the definition used
- 2) The figure would be three-fold if housing were included

Real Estate Capital Markets (Europe)

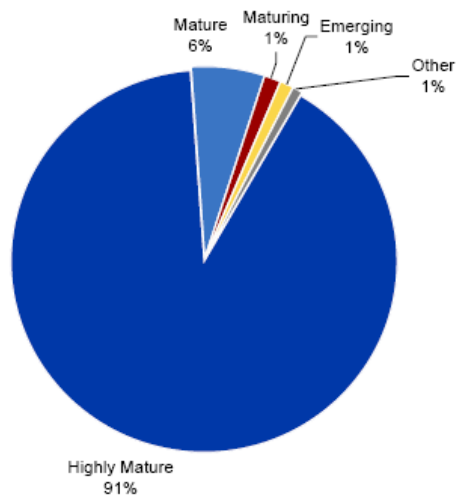


Real Estate Capital Markets (U.S.)

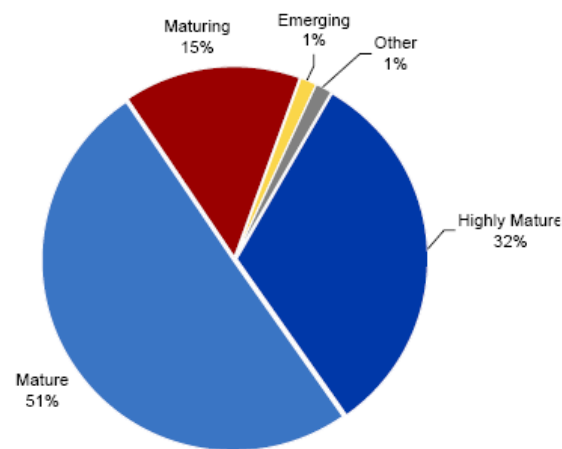


Maturity of Markets

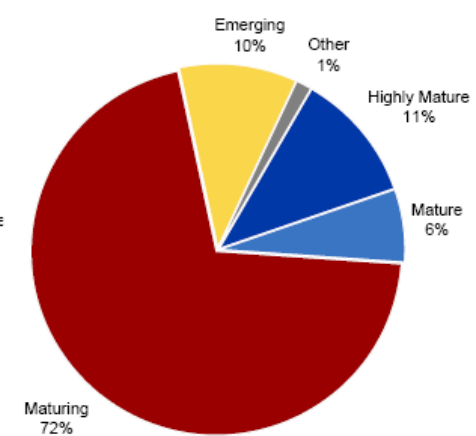
Americas: US\$4.0 tn



Europe: US\$2.4 tn



Asia Pacific: US\$1.4 tn



Source: RREEF Research

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Return, Risk and Diversification

U.S. Markets: Risk & Return 1985-2006

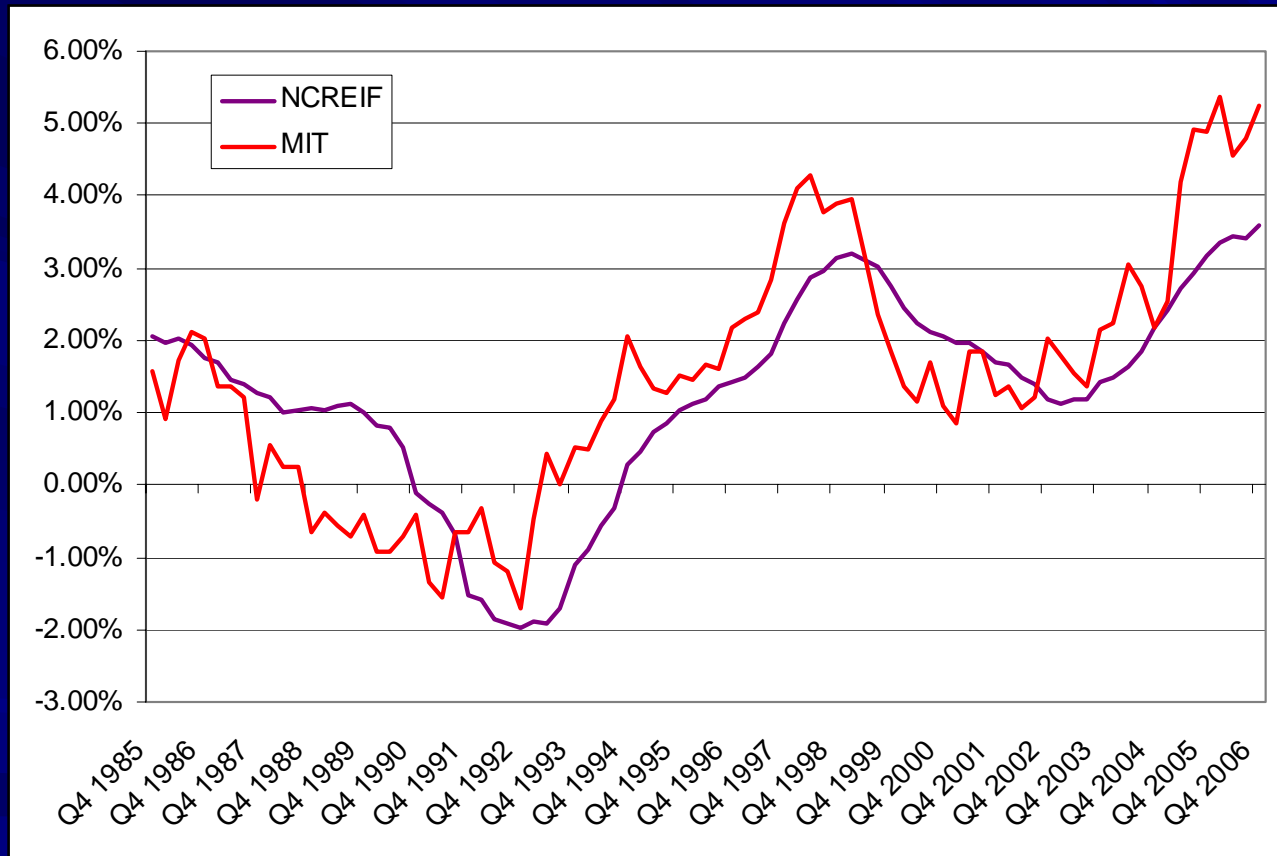
	Stocks	Bonds	REITs	Real Estate (MIT-TBI)
Mean Return	14.4%	8.3%	12.4%	9.9%
Standard Deviation	16.1%	8.2%	14.0%	7.4%

U.S. Asset Correlations, 1985-2006

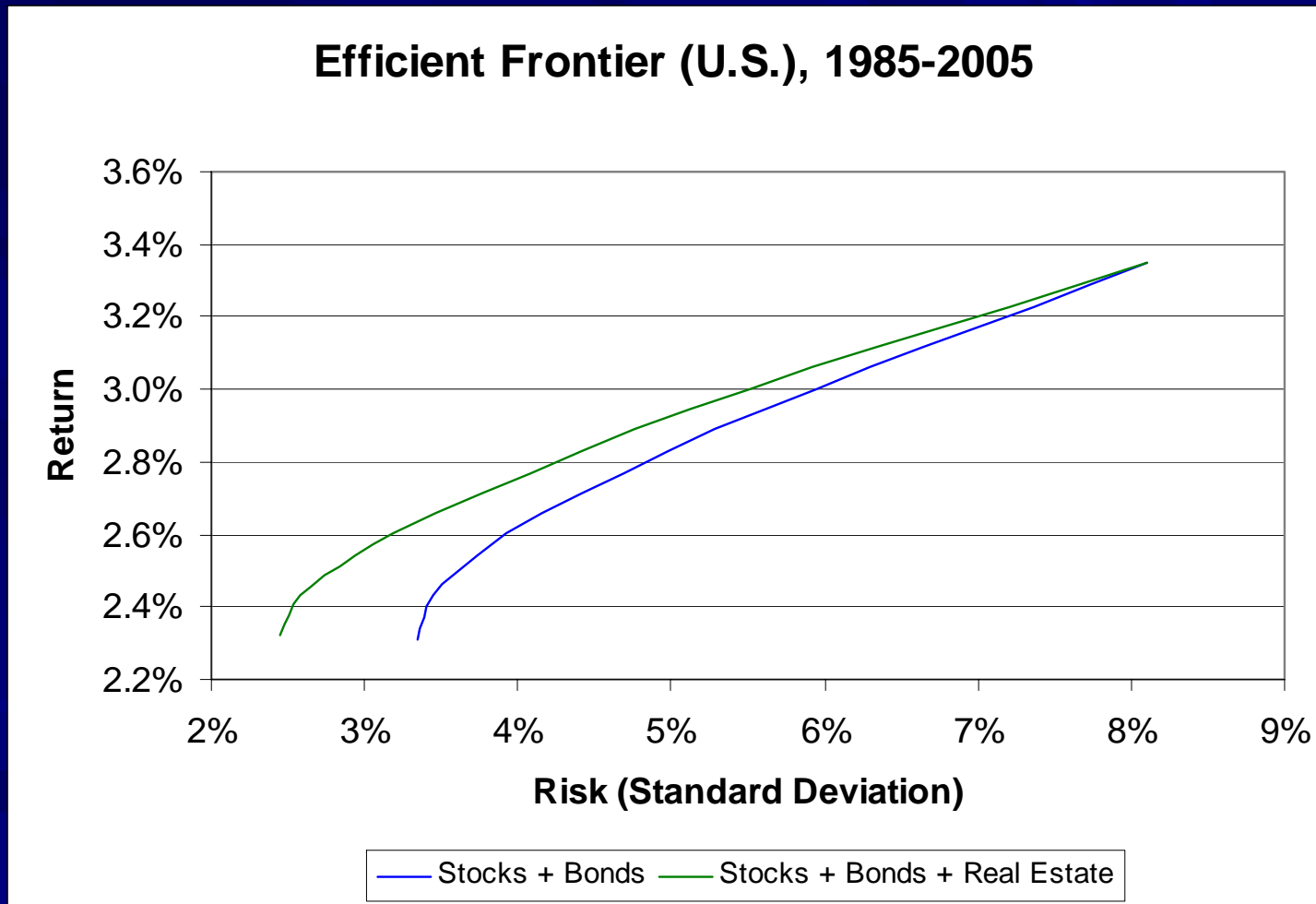
	<i>Stocks</i>	<i>Bonds</i>	<i>REITs</i>	<i>Real Estate</i>
<i>Stocks</i>	1.000			
<i>Bonds</i>	-0.060	1.000		
<i>REITs</i>	0.420	0.123	1.000	
<i>Real Estate</i>	<u>0.174</u>	<u>-0.020</u>	0.186	1.000

Cycles

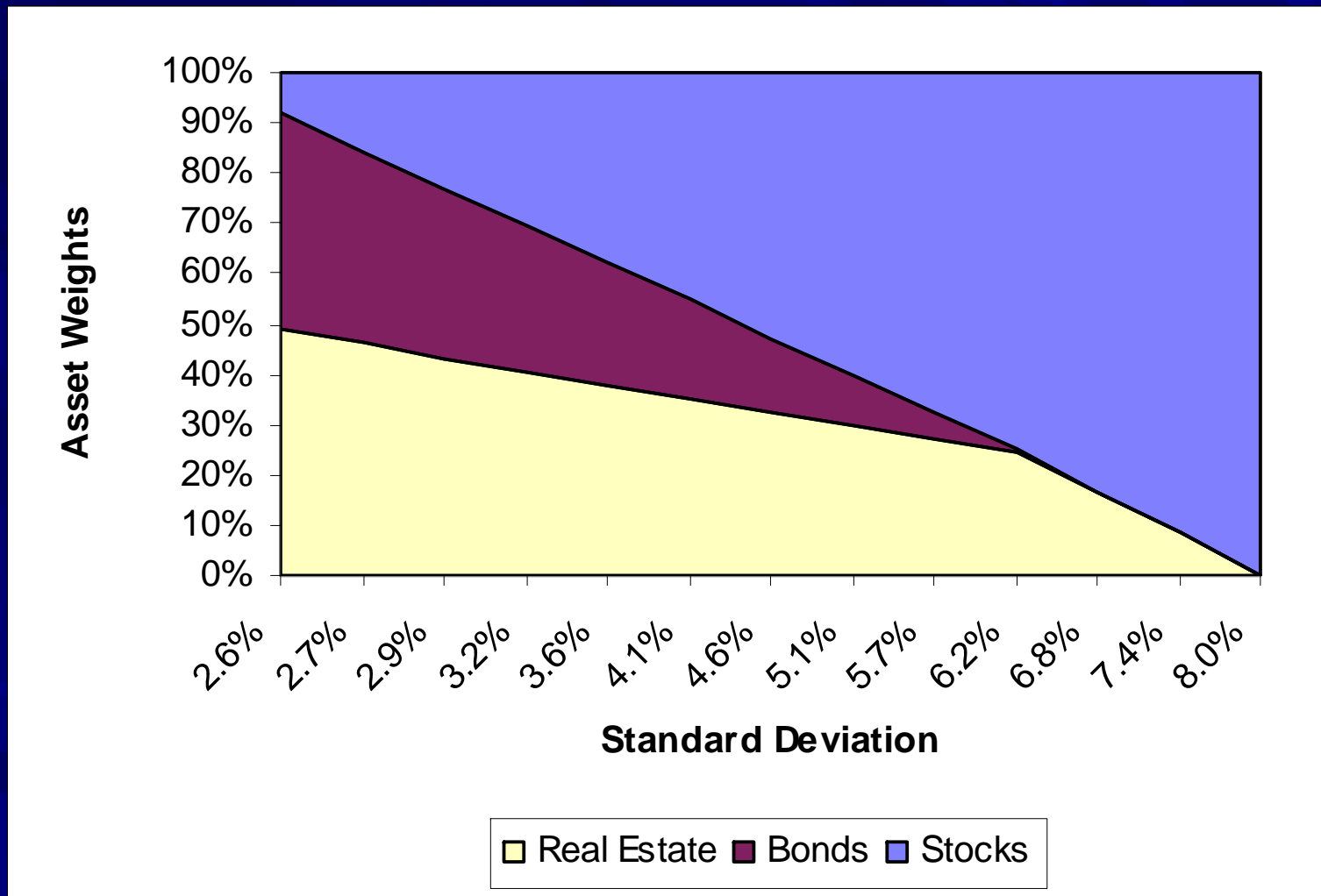
U.S. - 8 Quarter Real Moving Average



Diversification Benefits from Real Estate

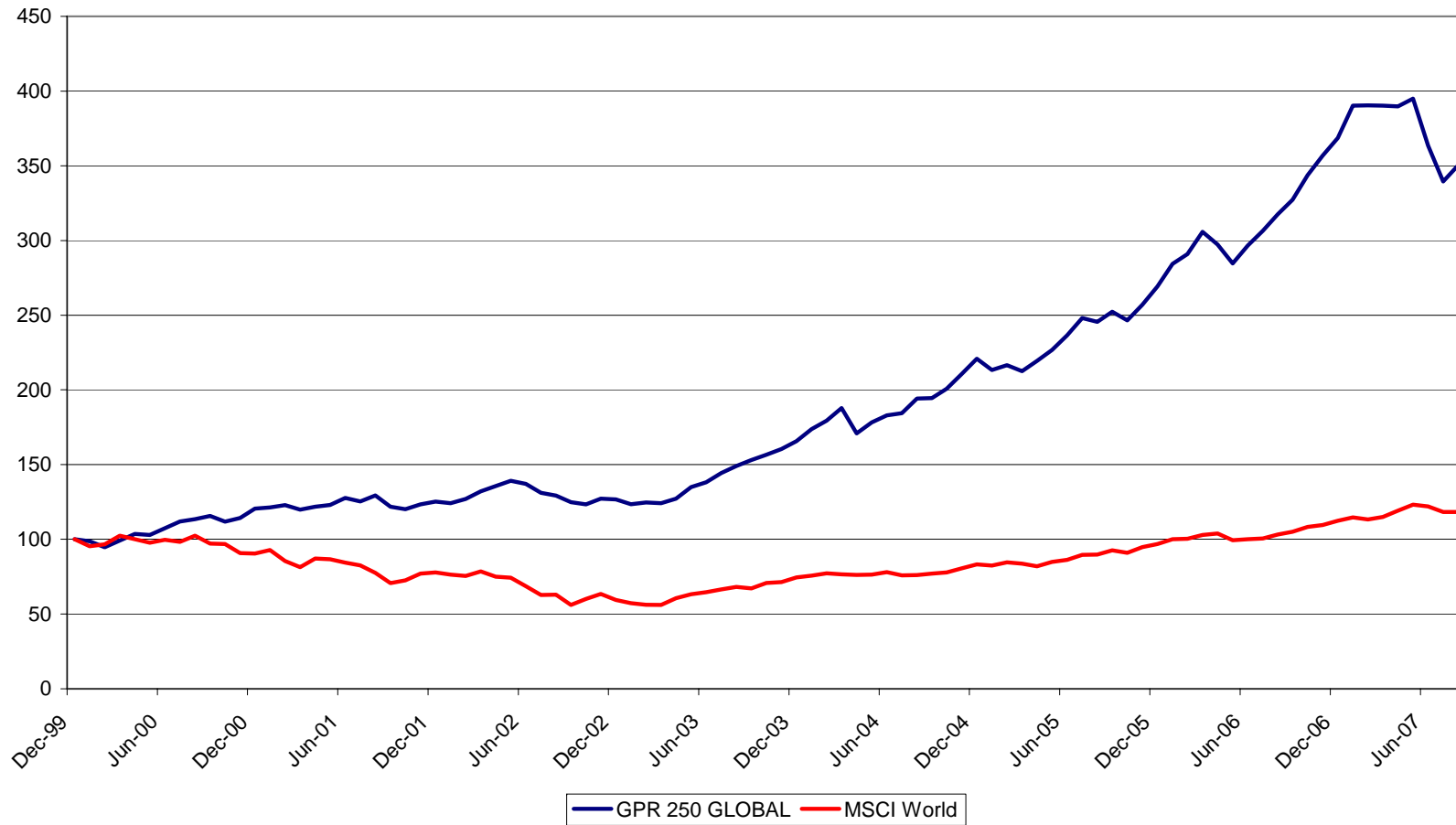


How Much Real Estate in a Portfolio?



Stocks vs. Real Estate Stocks

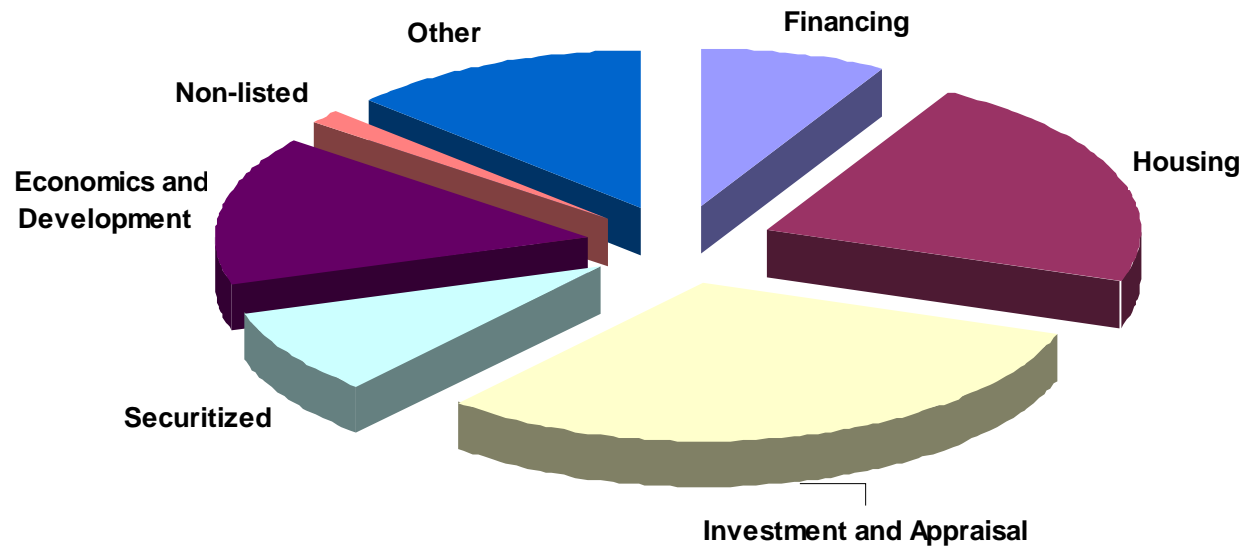
The Performance of World Stocks and Real Estate Stocks (01/2000 - 08/2007)



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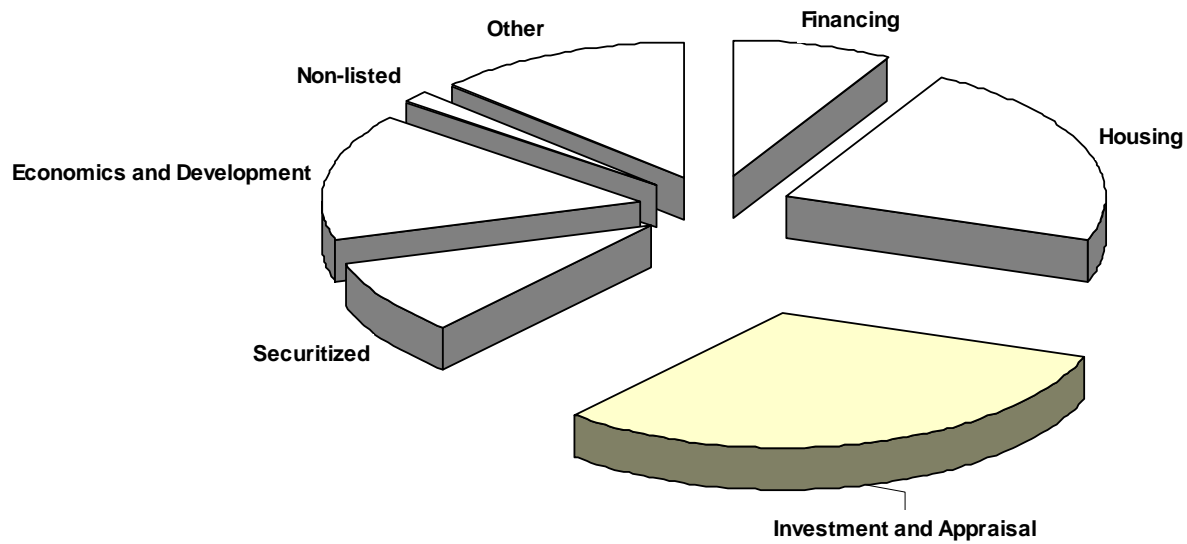
Current Research Themes

Sessions at Real Estate Conferences



Note: Based on the two major international research conferences (AREUEA and ERES) in 2006 and 2007

Current Themes in Investment & Appraisal



Current Themes in Investment & Appraisal (1)

➤ Index construction

- *Desmoothing of appraisal-based indexes (Geltner, 1993; Geltner, MacGregor and Schwann, 2003)*
- *Construction of transaction-based indexes (Fisher, Geltner and Pollakowski, 2007)*
- *Types of indexes needed for derivatives (Clapham et al., 2006)*

➤ Real estate returns

- *Return determinants (Ling and Naranjo, 1997; Mei and Lee, 1994)*
- *Long term behavior of real estate (Chaudhry, Myer and Webb, 1999)*
- *Understanding real estate cycles (Case, Goetzmann and Wachter, 1997)*
- *Returns and inflation (Hoesli, Lizieri and MacGregor, 2008)*
- *Linkages between space and asset markets (Hendershott, various papers)*

Current Themes in Investment & Appraisal (2)

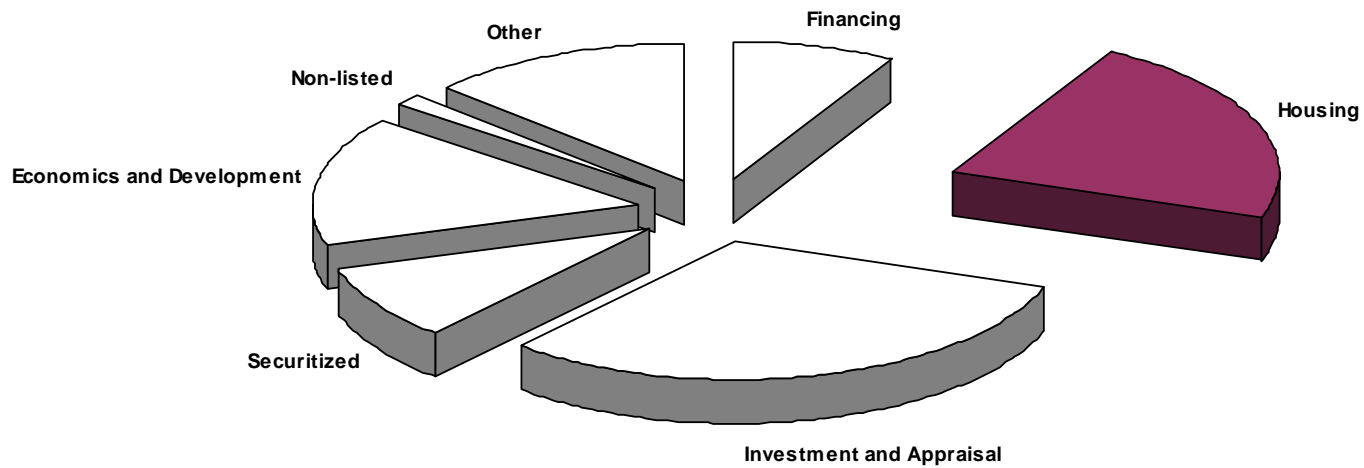
➤ Portfolio construction

- *Confidence intervals (Liang, Myer and Webb, 1996)*
- *Other risk measures (Cheng and Wolverton, 2001; Hamelink and Hoesli, 2004)*
- *Asset Liability Management (ALM) (Booth, 2002; Craft, 2005)*
- *International diversification (Eichholtz, various papers; Hoesli, Lekander and Witkiewicz, 2004)*
- *Illiquidity of real estate (Bond, Hwang and Richards, 2006)*

➤ Appraisal

- *Modelling discount rates (Hoesli, Jani and Bender, 2006)*
- *Hedonic models (Fisher, Geltner and Pollakowski, 2007)*
- *Confidence intervals, VaR*

Current Themes in Housing



Current Themes in Housing (1)

- Housing wealth and consumption (Case, Quigley and Shiller, 2005)
- Housing affordability (Glaeser and Gyourko, 2003; Quigley, 2005)
- Determinants of homeownership rates
 - *Across countries*
 - *By age group*
 - *By ethnicity (Bourassa, 2000)*
 - *Homeownership and crime rates (Haurin, Dietz and Weinberg, 2003)*
 - *Homeownership and maintenance*
- Bubbles (Case and Shiller, 2003; Hendershott, Hendershott and Ward, 2003)

Current Themes in Housing (2)

➤ Impact of externalities

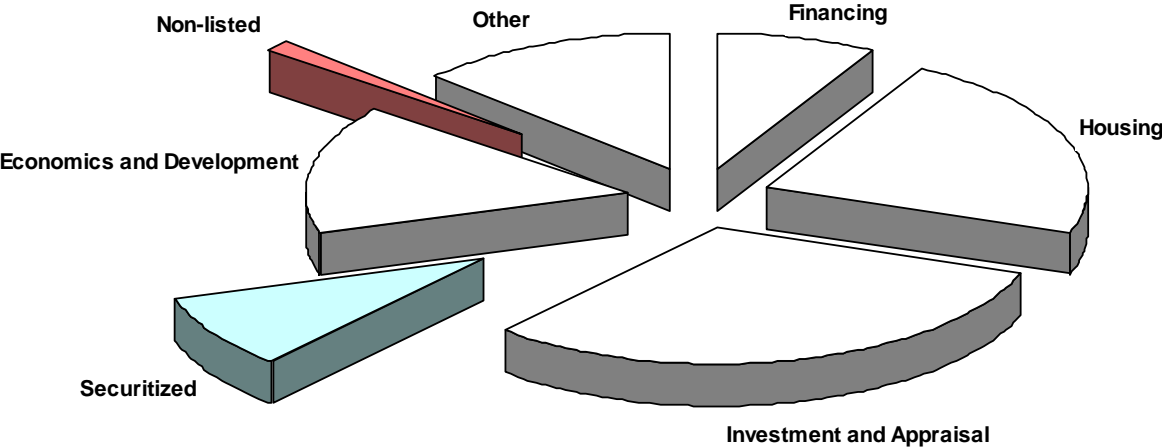
- *Airport, road (McMillen, 2004; Jud and Winkler, 2006)*
- *Views (Bourassa, Hoesli and Sun, 2004 and 2005)*
- *Improved accessibility*

➤ Indexes

- *Hedonic (Clapham et al., 2006)*
- *Repeat sales (Clapp and Giaccotto, 1992)*
- *Mix of transaction prices and assessed values (SPAR)*

➤ Spatial influences (Pace et al., 1998)

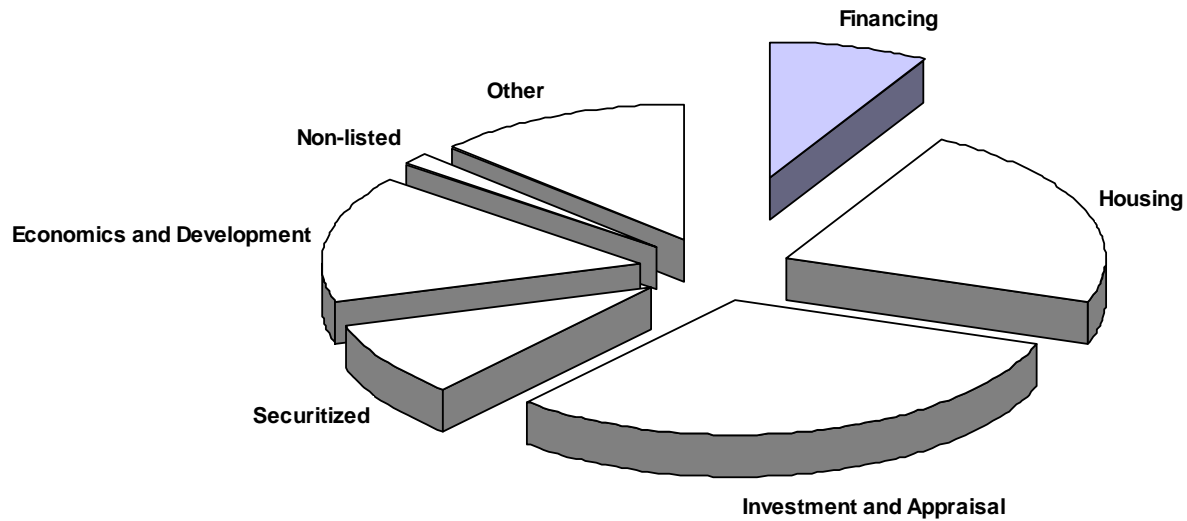
Current Themes in Securitized and Non-listed Real Estate



Current Themes in Securitized and Non-listed Real Estate

- **Short term and long term linkages between securitized and direct real estate**
 - *De-gearing of securitized returns (Pagliari, Scherer and Monopoli, 2005)*
 - *Price discovery (Geltner, MacGregor and Schwann, 2003)*
- **Returns on securitized real estate**
 - *Determinants (Clayton and MacKinnon, 2003)*
 - *Equilibrium models (Ling and Naranjo, 2002)*
- **Corporate finance studies**
 - *Capital structure (Feng, Ghosh and Sirmans, 2007)*
 - *Governance and performance (Bauer, Eichholtz and Kok, 2007)*
- **Non-listed real estate**
 - *Construction of a benchmark (INREV)*
 - *Flows into the market (Brounen, Op 't Veld and Raitio, 2007)*

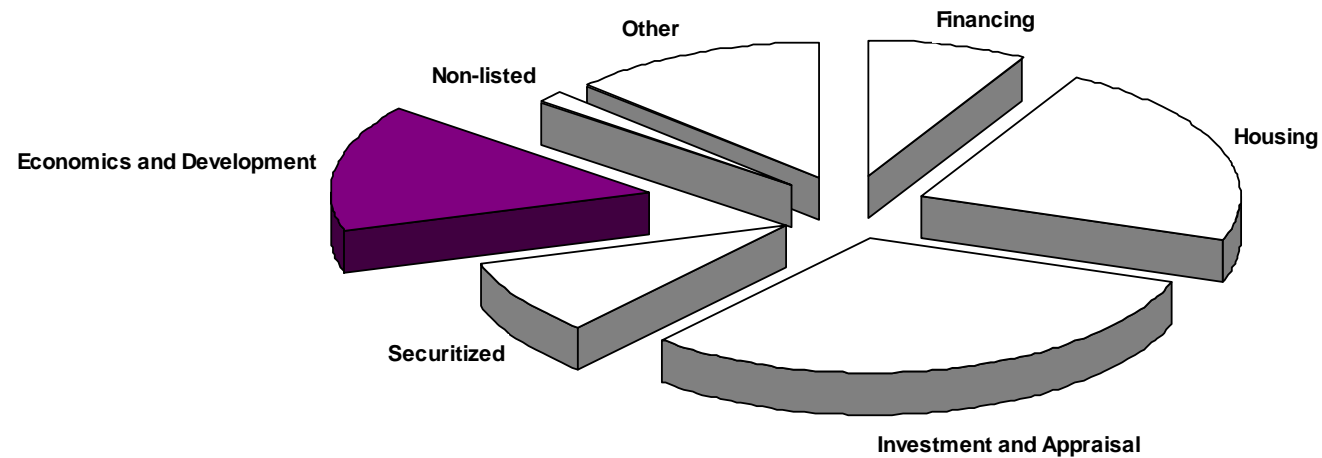
Current Themes in Financing



Current Themes in Financing

- Pricing of mortgages and mortgage-backed securities
- Mortgage choice
- Refinancing decisions
- Securitization
- Mortgage prepayments

Current Themes in Urban Economics, Planning & Development



Current Themes in Urban Economics, Planning & Development

- Demographics
- Real options
- Taxation
- Land management
- Public Private Partnerships (PPPs)

REAL ESTATE AS AN ASSET CLASS

Conclusions

Conclusions (1)

- Real estate is an important asset class which has drawn substantial interest from academics over the last 30 years
- Returns are lowly correlated to those of stocks and bonds
- Real estate investments generally have quite regular cash-flows

Conclusions (2)

- There have been substantial improvements in the ways properties can be valued and the uncertainty can be incorporated
- There is a strong case for real estate being included in most portfolios

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