

The Dynamics of Commercial Property Derivatives

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Why a Session on Derivatives??



National Council of Real Estate Investment Fiduciaries

- ✓ *March 2007* ... NCREIF began licensing its indices for the purposes of U.S. property derivatives trading.
- ✓ 3 more indices (GRA, RCA, REXX) set to come to the market ... licensing announcements expected soon.

Products Currently Offered on the NPI:

- Appreciation Swap for Fixed (LIBOR + spread)
- Total Return Swap for Fixed (LIBOR + spread)
- Property Type Total Return Swap (e.g. office for apt.)

Background ...what is a derivative?

A **derivative** is an asset whose value depends *completely* on (i.e. **derives from**) the value of another asset (or a bundle of assets).

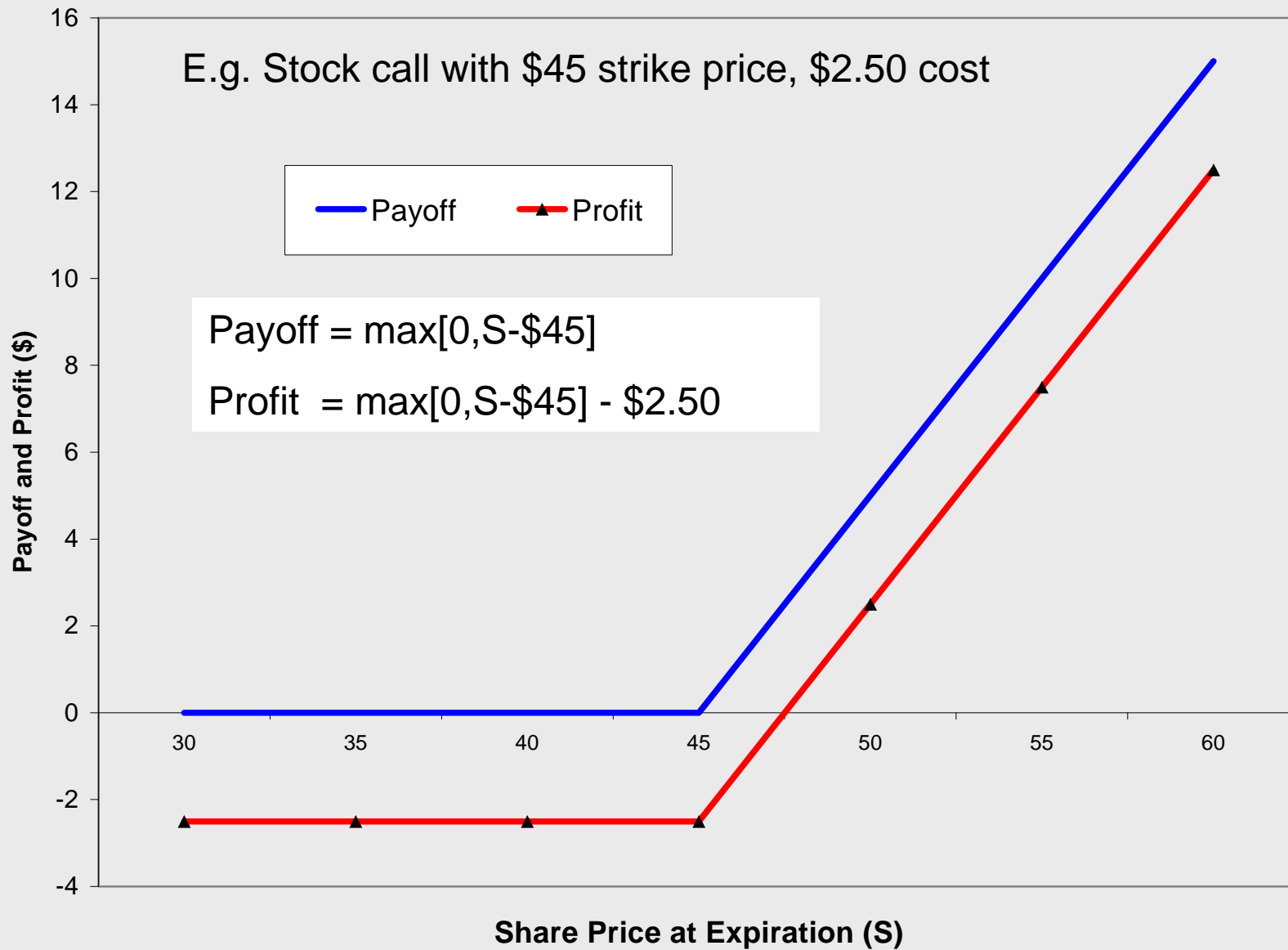
Why do investors use derivatives?

- **Synthetic** investment in an asset, or exposure to the “beta” of an asset class, without acquiring the asset.
- Part of **hedging/risk management** strategy.
- Implement **portable “alpha”** strategy
- **Speculation**

Types of Financial Derivative Contracts...

- **Option**
 - The “right” but not obligation to buy (**call**) or sell (**put**) an asset at a specified price
- **Forward/Future**
 - Obligation to exchange an asset at a specified price on a specified date in the future
- **Swap**
 - Contract to exchange cash flows over a specified period of time; based on a “notional” principal
- **Interest Rate Cap, Floor & Collar**
- **Exotics**

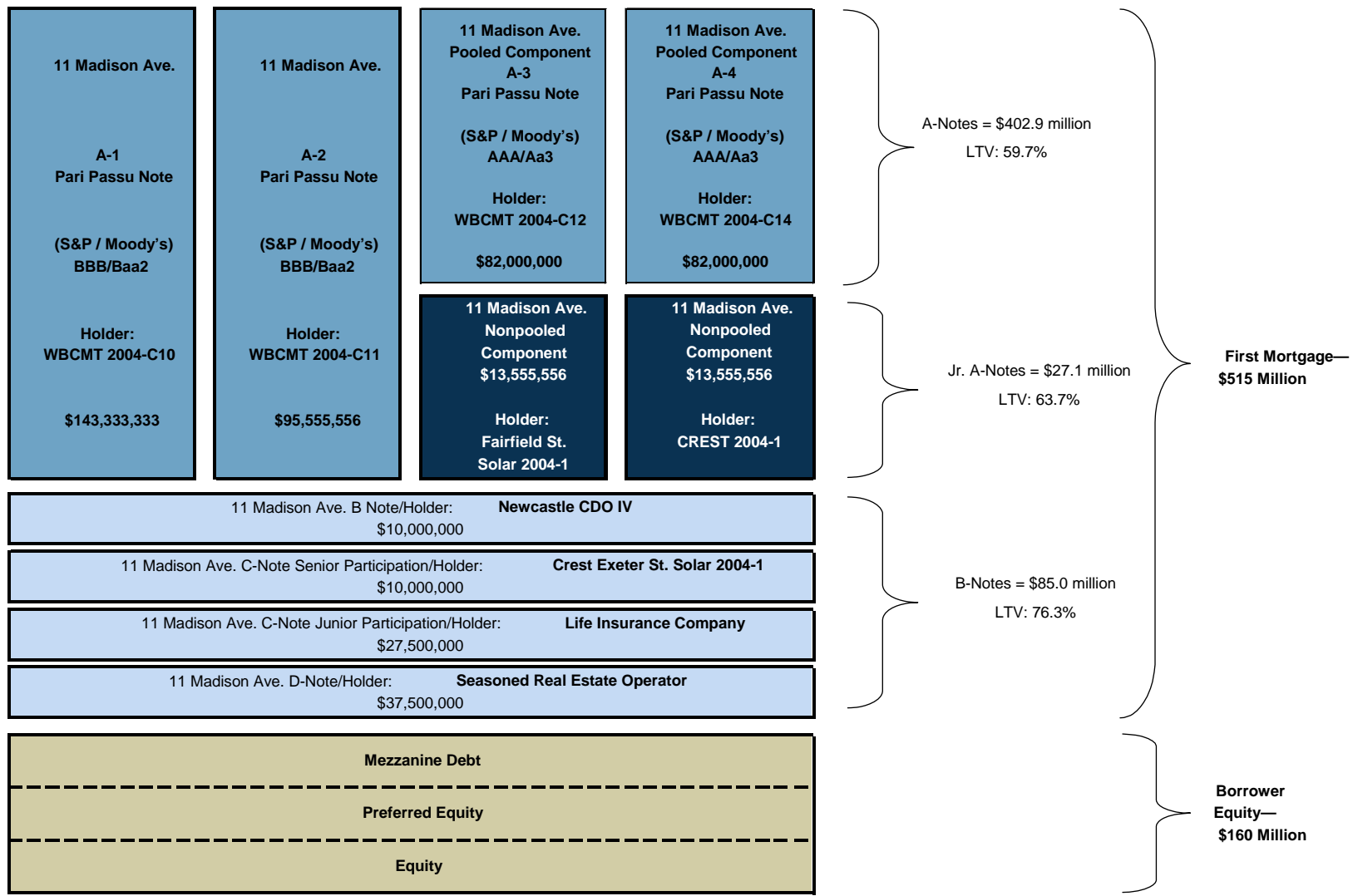
Call Option Basics ...



Why Property Derivatives?

- Unlike in stock and bond markets, there is limited capacity in private property markets to manage/hedge asset value risk without transacting in the physical asset market ... *and portfolios cannot be adjusted quickly*
- Natural next step in the continued evolution of real estate as an asset class and integration with broader capital markets ... stock and bond/credit derivative markets are well established, very large and dynamic!
- Index return swaps allow investors to adjust exposure to real estate without buying or selling properties, thereby creating flexibility for portfolio management, while eliminating the required physical delivery of the asset...
 - smaller more capital constrained investors
 - global/international equity real estate exposure

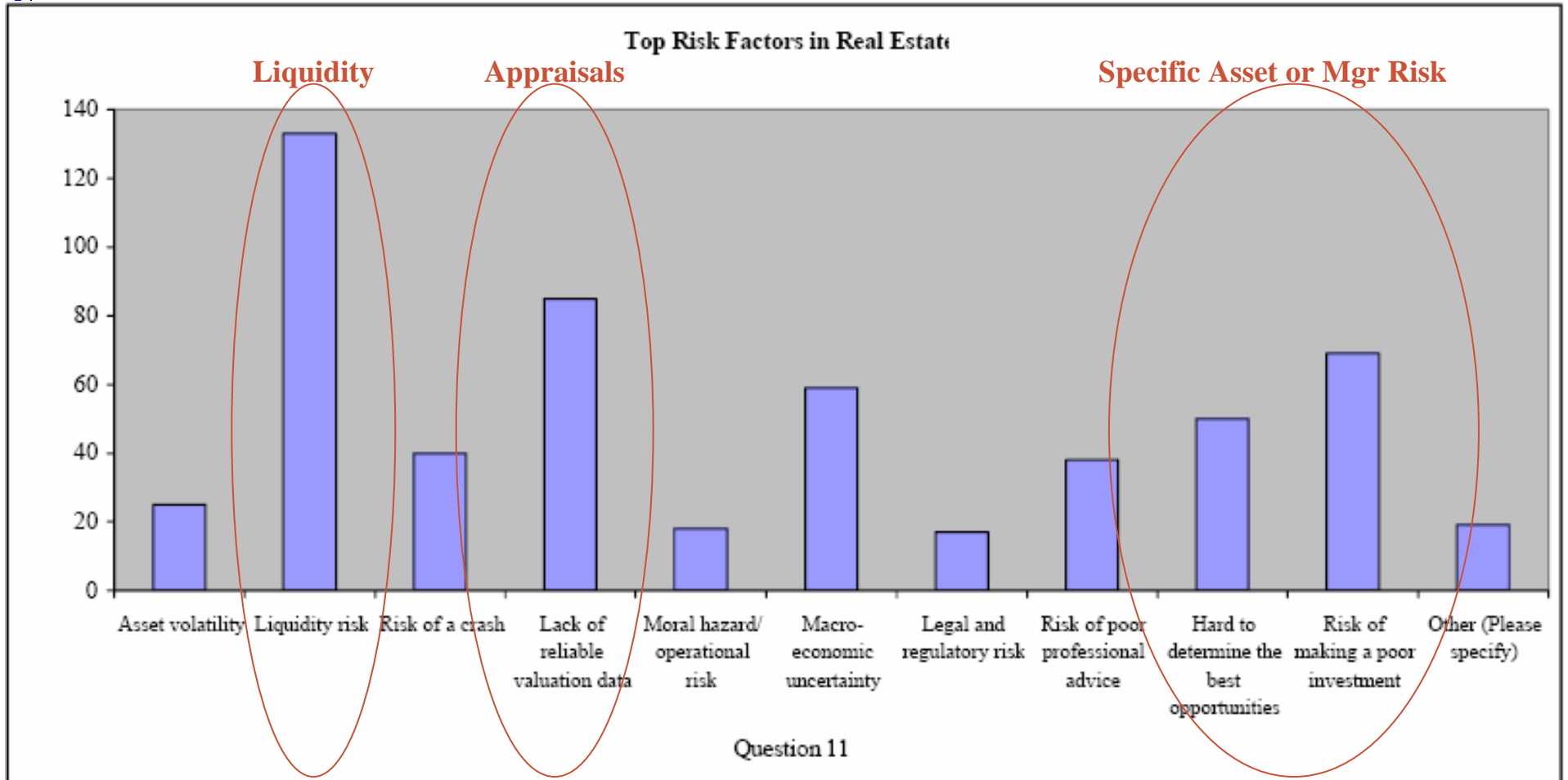
Commercial Real Estate Finance Today ... Slicing and Dicing



Source: Wachovia Capital Markets, LLC.

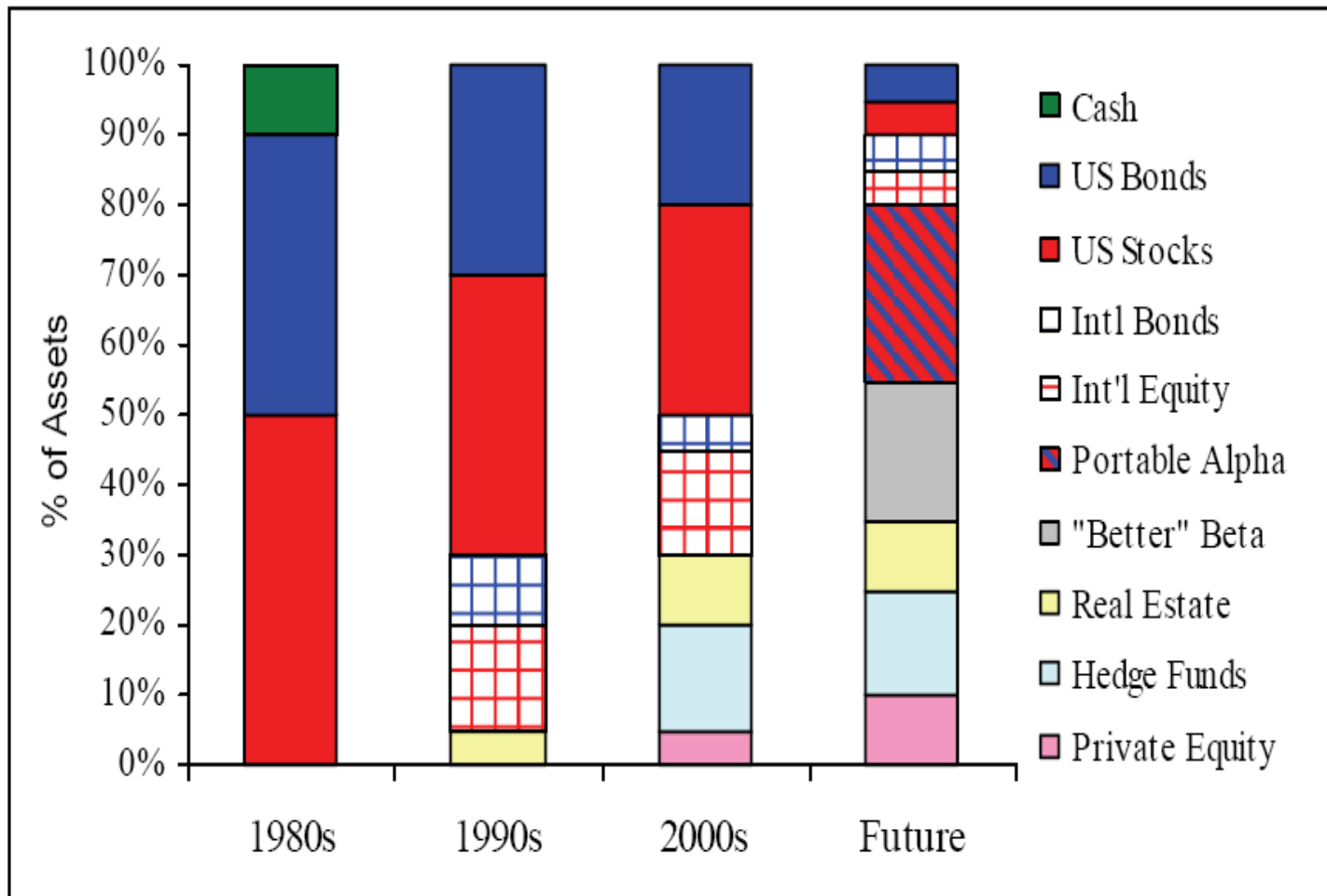
Real life example of tranching and structuring ... Wachovia financing of the Credit Suisse headquarters in NYC.

Major Concerns of Institutional Investors ... about Real Estate Investment



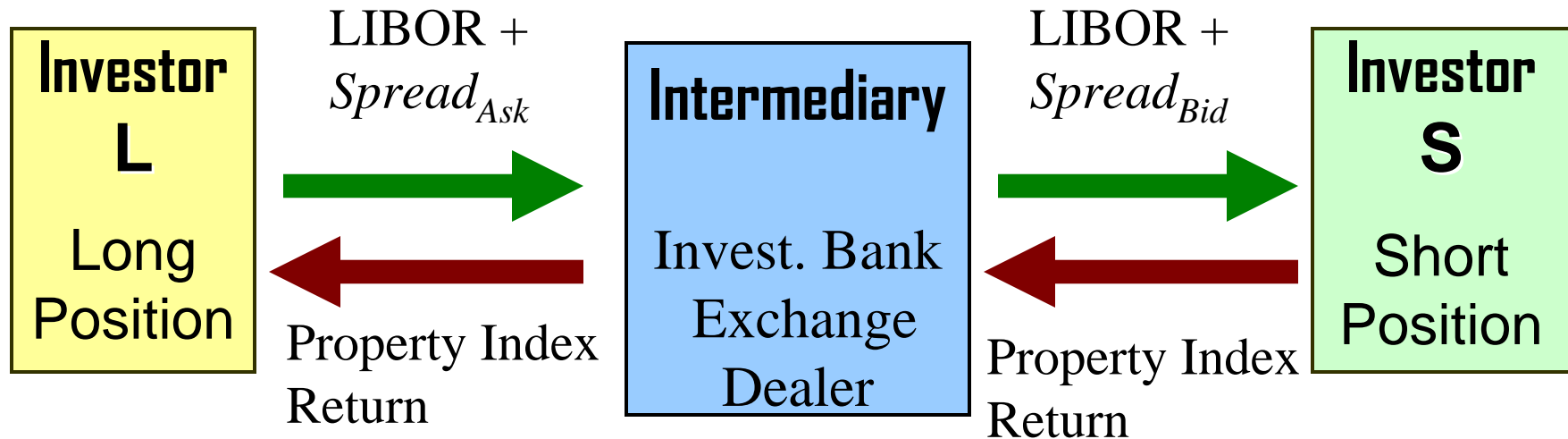
Source: Dhar & Goetzmann 2004 survey of U.S. pension funds for PREA.

Institutional Portfolios ... they are a changin'



Source: New England Pension Consultants

Property Index Swap: How it works...



$$(\text{Spread}_{Ask} - \text{Spread}_{Bid})$$

is the **bid-ask spread** – reflects the intermediary's costs of doing business, including compensation for taking risk and creating liquidity (i.e. making the market), plus differences in expectations about future returns.

Standard Terms of a Property Index Swap Transaction

- **Notional Amount** The implied USD amount used to base payments for the swap transaction. No exchange of principle, only cash flows based on this notional value.
- **Term** The life of the deal ... typically 2-3 years but can be up to 10 years.
- **Settlement** Quarterly in cash – throughout the life of the deal – unless otherwise negotiated.
- **Documentation** Subject to ISDA master agreement signed and agreed upon by both parties.

Why Property Derivatives?

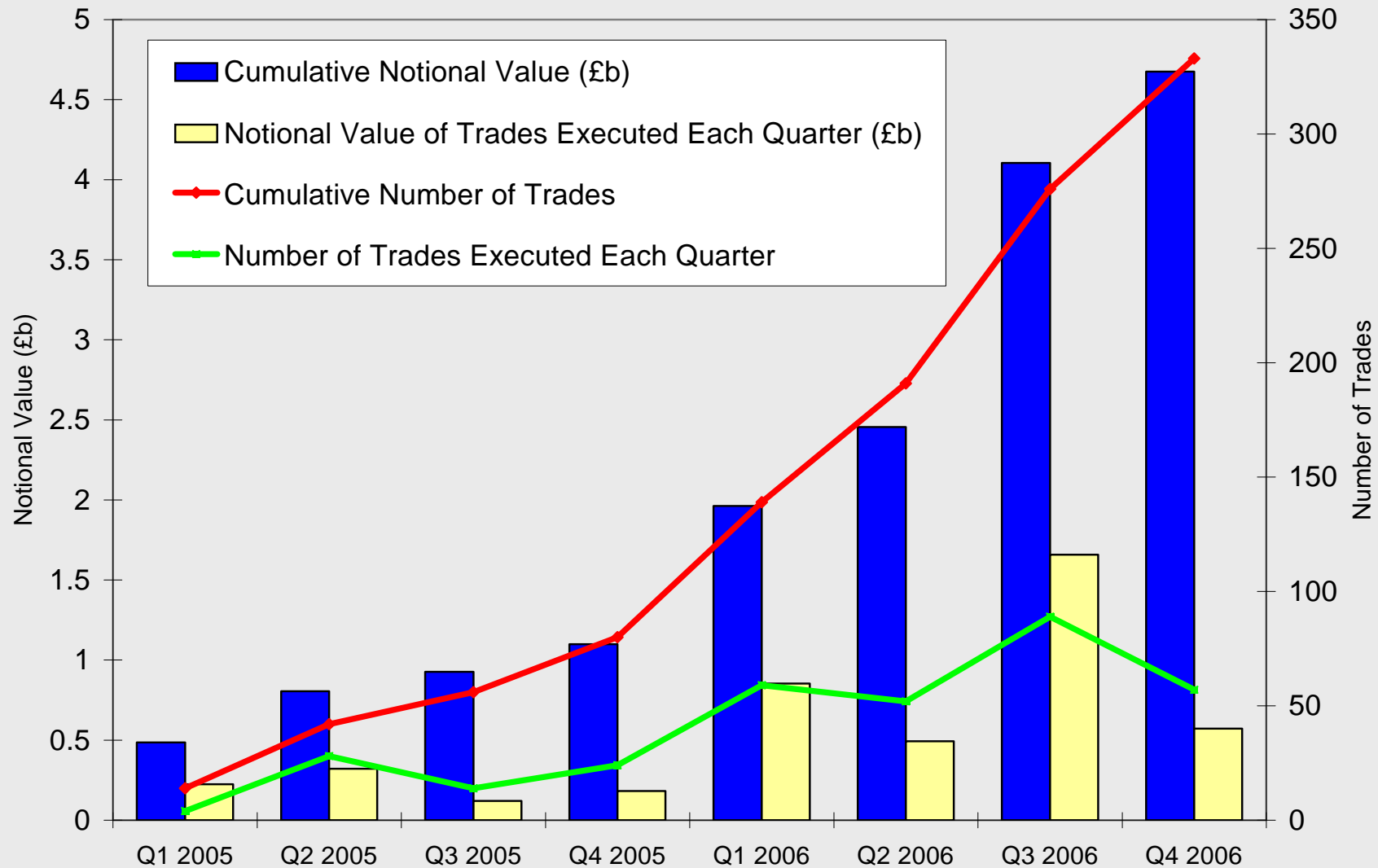
- Obtain an allocation to real estate in a diversified portfolio quickly (*long position in the swap*).
- Hedge existing exposure without selling properties. (*short position in the swap*).
- Rebalance portfolio through property type swaps.
- Focus on “alpha” by shorting the index to shed “beta”.
- Speculate on the direction of the index in either direction.
- **Can increase liquidity in real estate**
- **Price discovery through quotes on swap contracts**

Why now?

Is this the right time?

Will it work?

Property derivatives trading has taken off in the UK in the last two years ...



Source: Investment Property Databank (IPD)

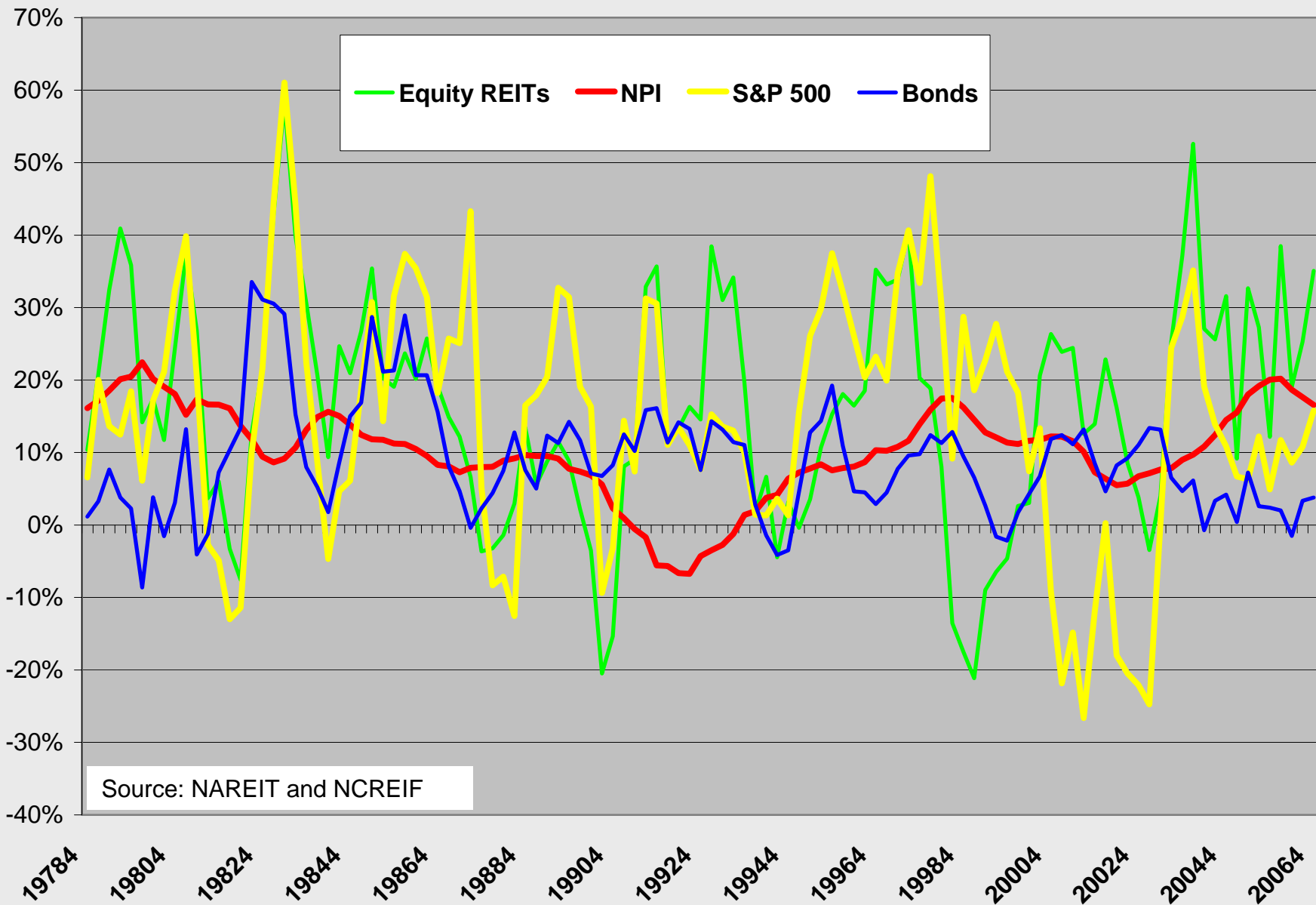
Tradeable U.S. Indices ...

- **NCREIF Property Index (NPI)**
Appraisal-based index of properties of institutional investors that choose to be data contributing members.
- **Global Real Analytics (GRA/S&P)**
Based on average sale price per square foot.
- **Real Capital Analytics (RCA)/REAL**
Repeat sales (same property realized price changes) index.
- **Rexx**
Indices based on metropolitan area rents as well as capital values.

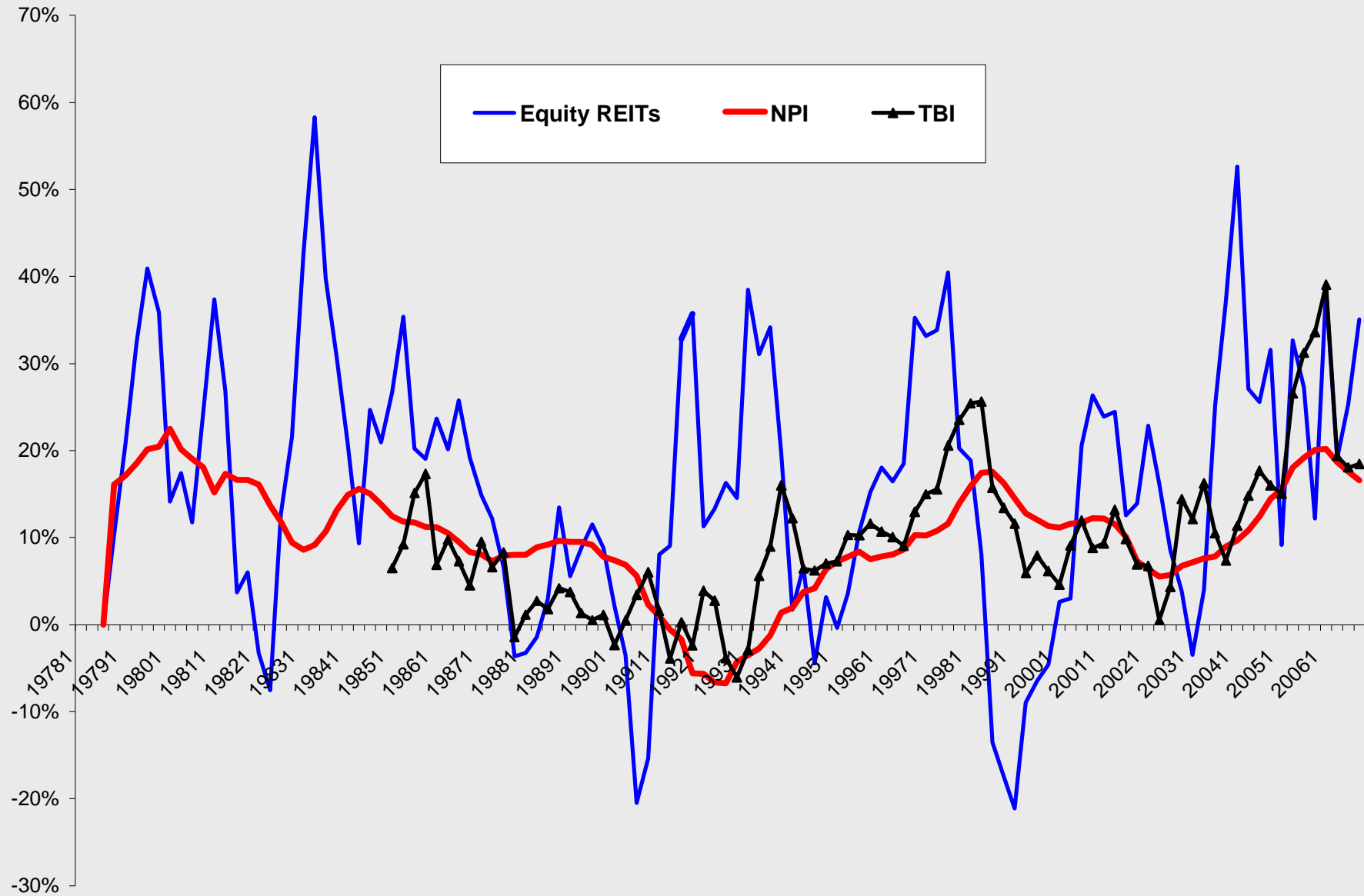
Emerging U.S. Commercial Real Estate Indices for Derivative Trading...

Indices	Provider Information	Basic Index Characteristics
NCREIF	<p>National Council of Real Estate Investment Fiduciaries Property Index (NPI) derived from the performance of institutional class properties owned by investment managers and pension funds (plan sponsors).</p> <p>www.ncreif.org</p>	<ul style="list-style-type: none"> ◆ <i>Quarterly</i> unlevered returns (total, income and appreciation) at the national and regional level by property type back to 1978. MSA level returns as well. ◆ <i>Appraisal-based</i>: Capital returns are derived from changes in appraised values. NCREIF returns tend to lag “true” market returns, due to the nature of the appraisal process and the fact that not all properties are reappraised each quarter. ◆ As of 3rd quarter 2006 comprised of 5,162 properties with an estimated aggregate market value of \$232.5 billion. ◆ The benchmark for most institutional core real estate portfolios.
S&P/GRA	<p>Standard & Poor’s (S&P) has partnered with Global Real Analytics (GRA) to produce the S&P/GRA Commercial Real Estate Indices (SPCREX™), which are to begin trading on the Chicago Mercantile Exchange (CME)</p> <p>www.cme.com/trading/prd/re/uscre19624.html</p> <p>www.graglobal.com/index.php?section=products&page=aboutCREX</p>	<ul style="list-style-type: none"> ◆ <i>Quarterly price</i> indices and capital returns at the national and regional and level, as well as property type on a national basis, back to 1994. ◆ <i>Transaction-based</i>: Price index is derived as the 3 month moving average of average sale price per square foot. Average sale price per square foot figures is derived using a proprietary algorithm applied to property level transaction price per square foot data observations.
RCA-based	<p>Real Capital Analytics (RCA), a national real estate data vendor specializing in tracking commercial real estate transaction activity and prices, has partnered with the MIT Center for Real Estate (MIT/CRE) and the firm Real Estate Analytics LLC (REAL) to produce a series of property price indices.</p> <p>http://web.mit.edu/cre/research/cred/rca.html</p> <p>www.rcanalytics.com</p>	<ul style="list-style-type: none"> ◆ <i>Monthly price</i> indices and capital returns at the national level back to 2000; <i>Quarterly</i> indices for core property types and <i>annual</i> indices for select MSAs. ◆ <i>Transaction-based</i>: Constructed using a statistical/econometric methodology applied to repeat sales of individual properties (same-property realized price changes) in the RCA database. Similar to methodology used to construct the Case-Shiller/S&P housing prices indices that are traded on the CME. ◆ RCA database includes most property sales of more than \$2.5 million.
REXX	<p>Rexx Index venture includes Cushman & Wakefield and Newmark, Knight, Frank as minority owners and data contributors.</p> <p>www.rexxindex.com</p>	<ul style="list-style-type: none"> ◆ <i>Quarterly</i> returns (total, rent and capital) at the national level as well as for 15 major metro areas, back to 1994. Office only at the current time. ◆ <i>Proprietary model</i> based on current micro (space market) variables including rents, vacancy rates and leasing activity as well as key macro variables such as interest rates and inflation. ◆ Focus on metro level rent indices to allow investors to hedge or leverage on performance in specific local markets.

Private Property versus Financial Asset Returns



Private Property and REIT Returns...



Source: NAREIT, NCREIF and the MIT Center for Real Estate

Final Thoughts ...

“Derivatives make markets more complete – that is, they make it possible to hedge risks that otherwise would be unhedgeable... risks are born by those who are in the best position to bear them and firms and individuals can take on riskier but more profitable projects by hedging those risks that can be hedged. As a result, the economy is more productive and welfare is higher.”

René Stulz, author of “Should We Fear Derivatives?”
Journal of Economic Perspectives, Summer 2004.