

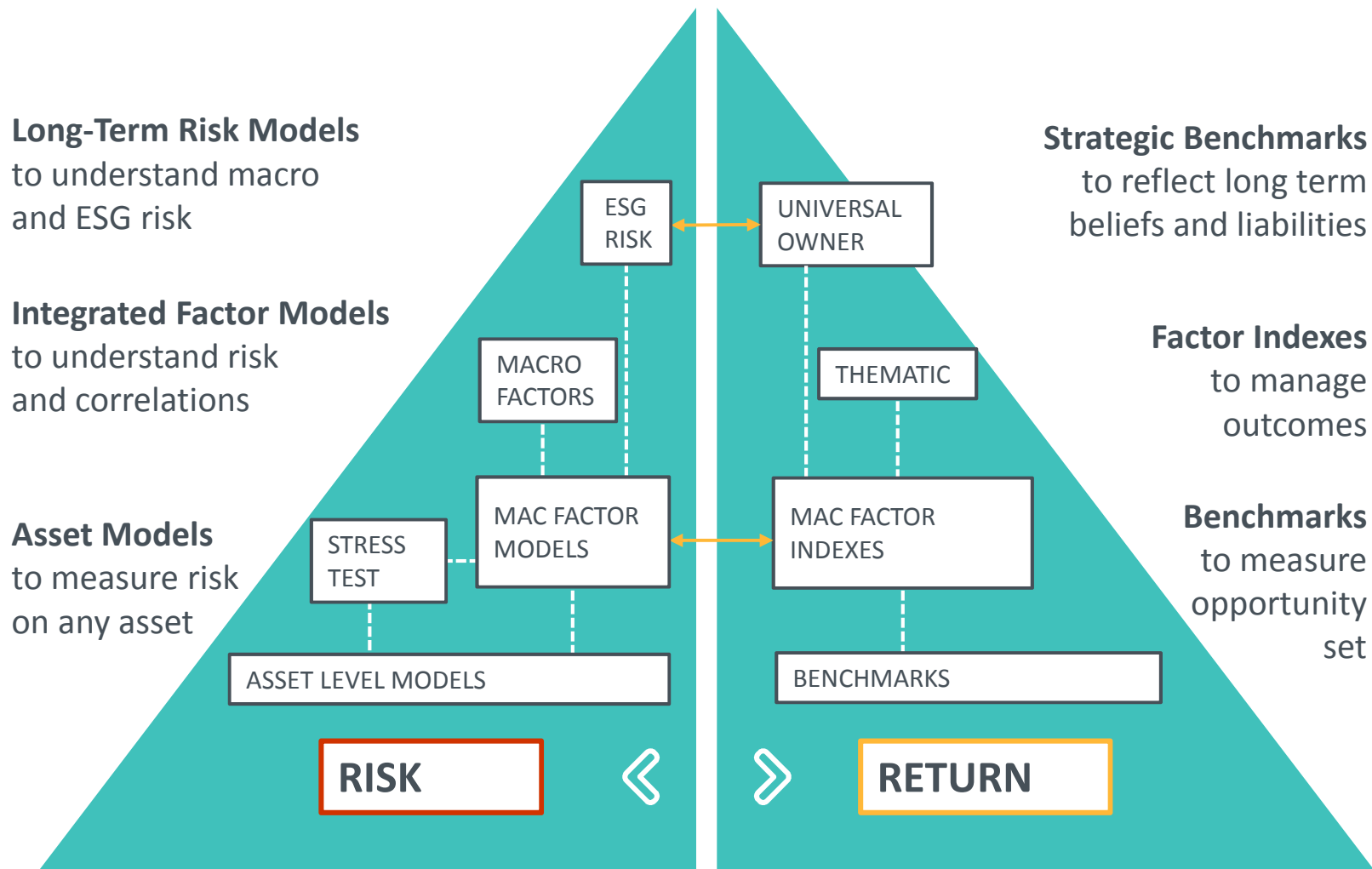
# SWISS REAL ESTATE: MYTHS OF INTEREST RATE SENSITIVITY

Presentation for CUREMhorizonte

29-Sep-2016/Zurich

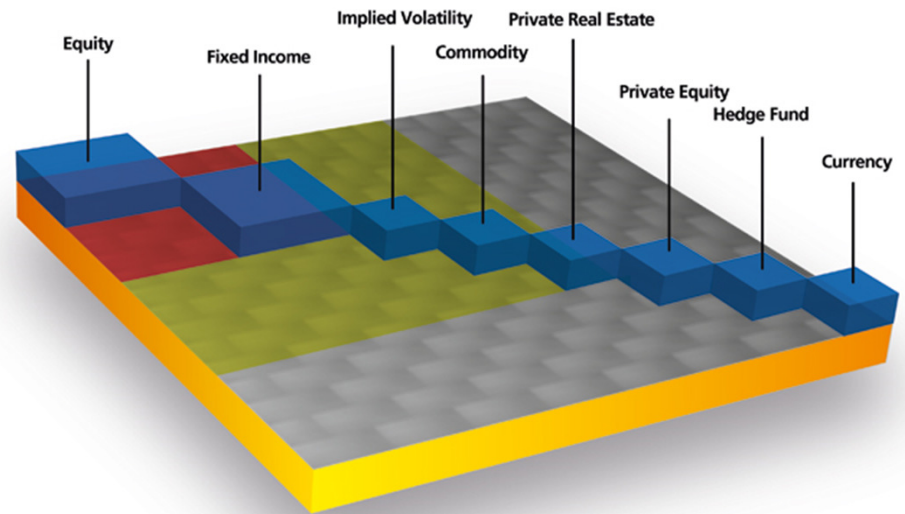
Sam Rubandhas

# MSCI INTEGRATED VIEW OF RISK AND RETURN



# BIM – THE BARRA INTEGRATED MODEL

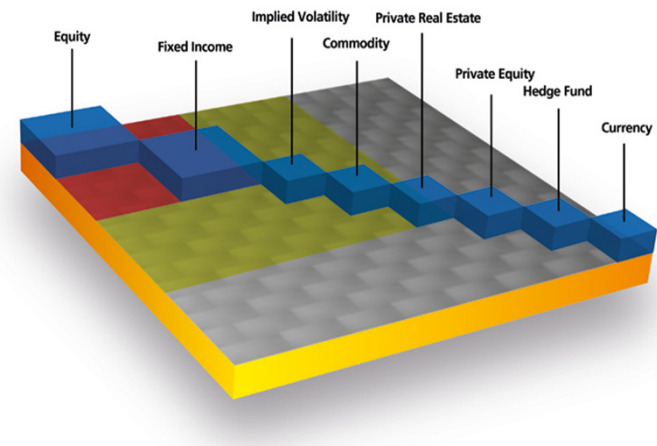
- Truly multi-asset-class
- Decomposes volatility into its fundamental sources from all asset classes
- Measures interactions between:
  - Assets
  - Portfolios
  - Managers
  - Strategies
  - Funds
  - Asset classes
  - Etc.



# INVESTMENT UNIVERSE – ASSET CLASS COVERAGE

BarraOne uses the **Barra Integrated Model** as underlying Factor Model. It provides coverage for the following asset classes:

- **Equities:** Developed, Emerging, Frontier Markets (60+ markets covered), Implied Volatility
- **Fixed Income**
  - Government Bonds (20+ Developed Markets, 20 Emerging Markets), including 13 real term structures
  - Credit, including High Yield
    - detailed sector-by-rating spreads for 6 major developed markets credit markets
    - Spreads for Emerging Market Bonds (40+ sovereigns, 40+ corporates)
- **Commodities**
- **Hedge Funds** (through a time-series regression-based model) (see Appendix)
- **Private Real Estate** (based on IPD data, 30+ markets)
- **Private Equity** (global coverage)
- **Currencies**
- Additional Instruments: **Mutual Funds** are covered through a time-series regression-based model; 1400 **equity ETFs** are covered with Look-Through; **Convertible Bonds**

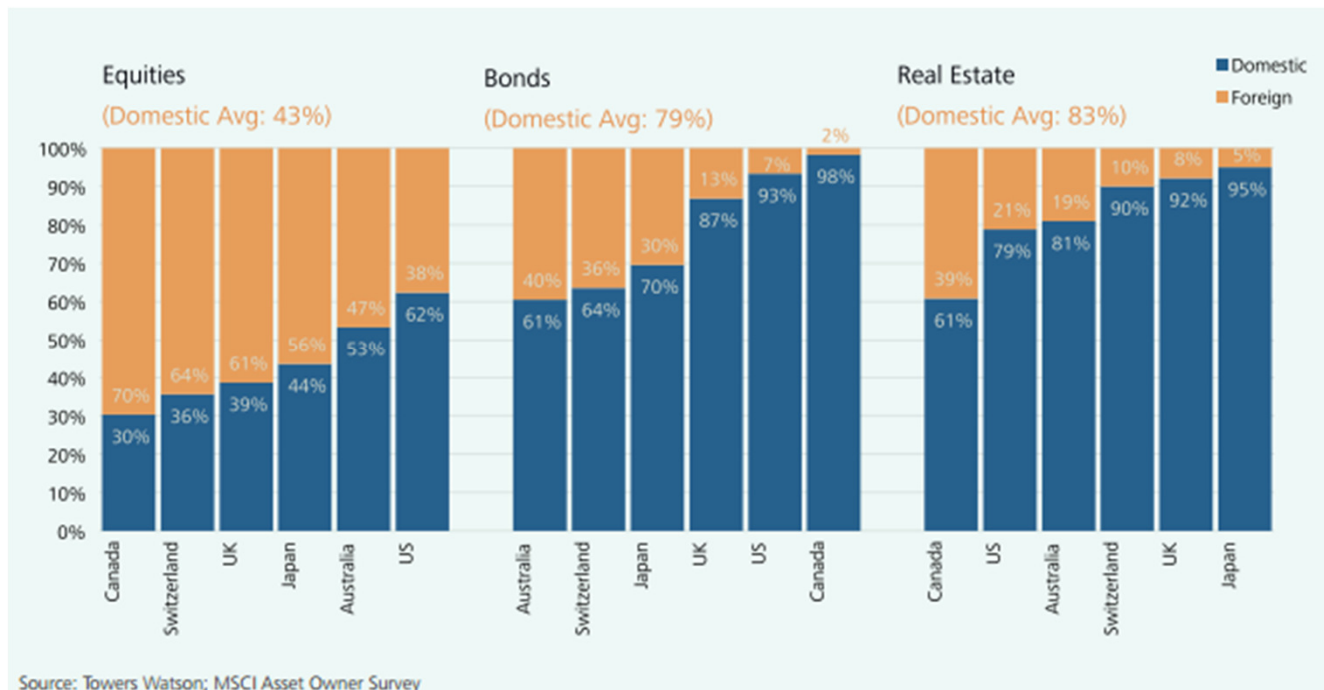


Overall portfolio risk with varying LTV for the 15% Real Estate allocation

# INTEREST RATES : CASE STUDY

# BACKGROUND

- Bias toward domestic investment is lowest for equities, but far higher for fixed income and for real estate.
- Despite this home bias, a range of recent studies, point to an increasing appetite for foreign real estate



# WHY IS REAL ESTATE BOND-LIKE?

- The smooth income stream of real estate – reminiscent of a bond's coupons
- The prevalence of discounted cash flow (DCF) valuation models have led some investors to think of real estate as bond-like.
- Real estate is highly idiosyncratic at the level of individual properties; tenants do pose some credit risk
- In this view, risk management may emphasize interest rate risk and the credit risk of the tenant.

# VOLATILITY

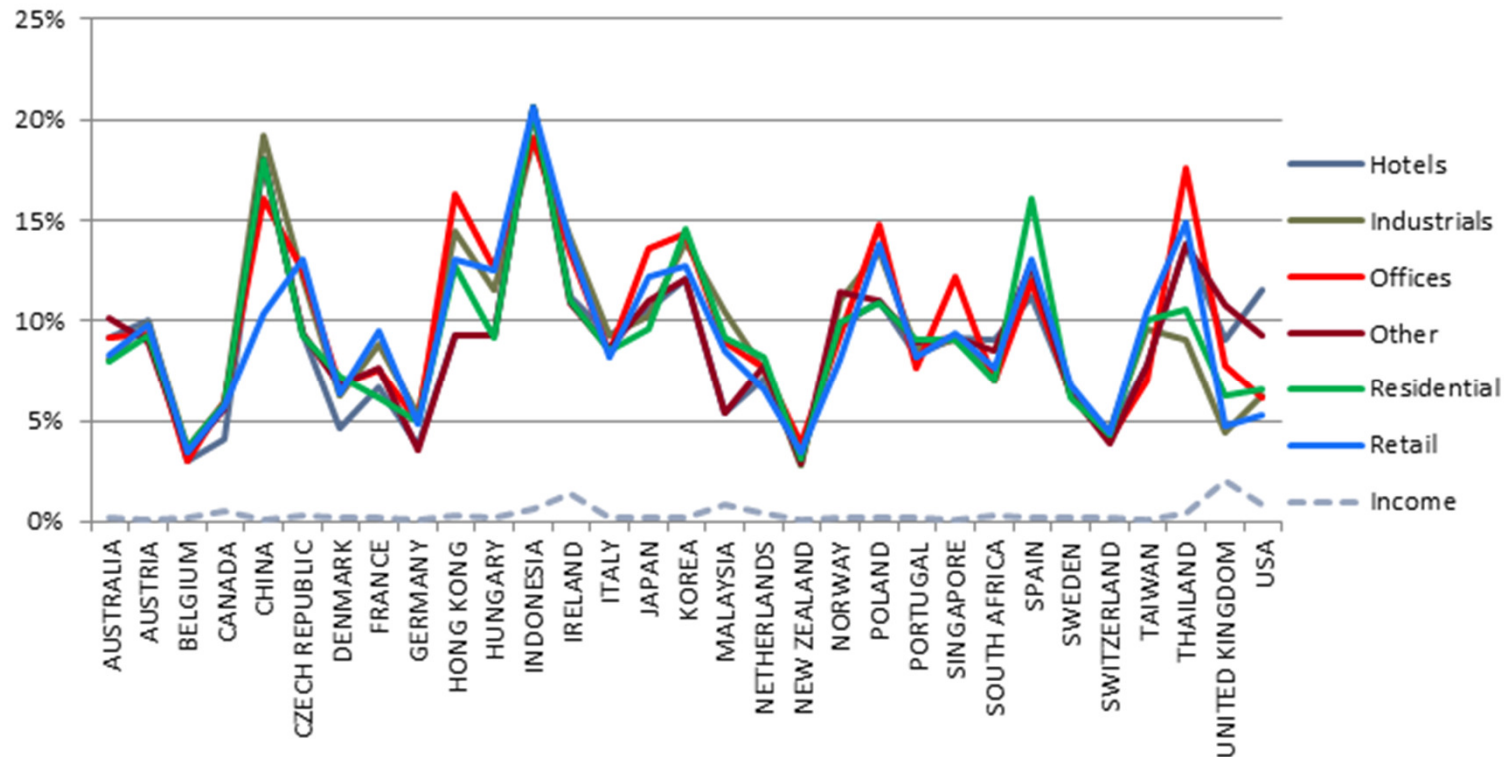
Real estate markets are volatile with both global impact and local impact on return series





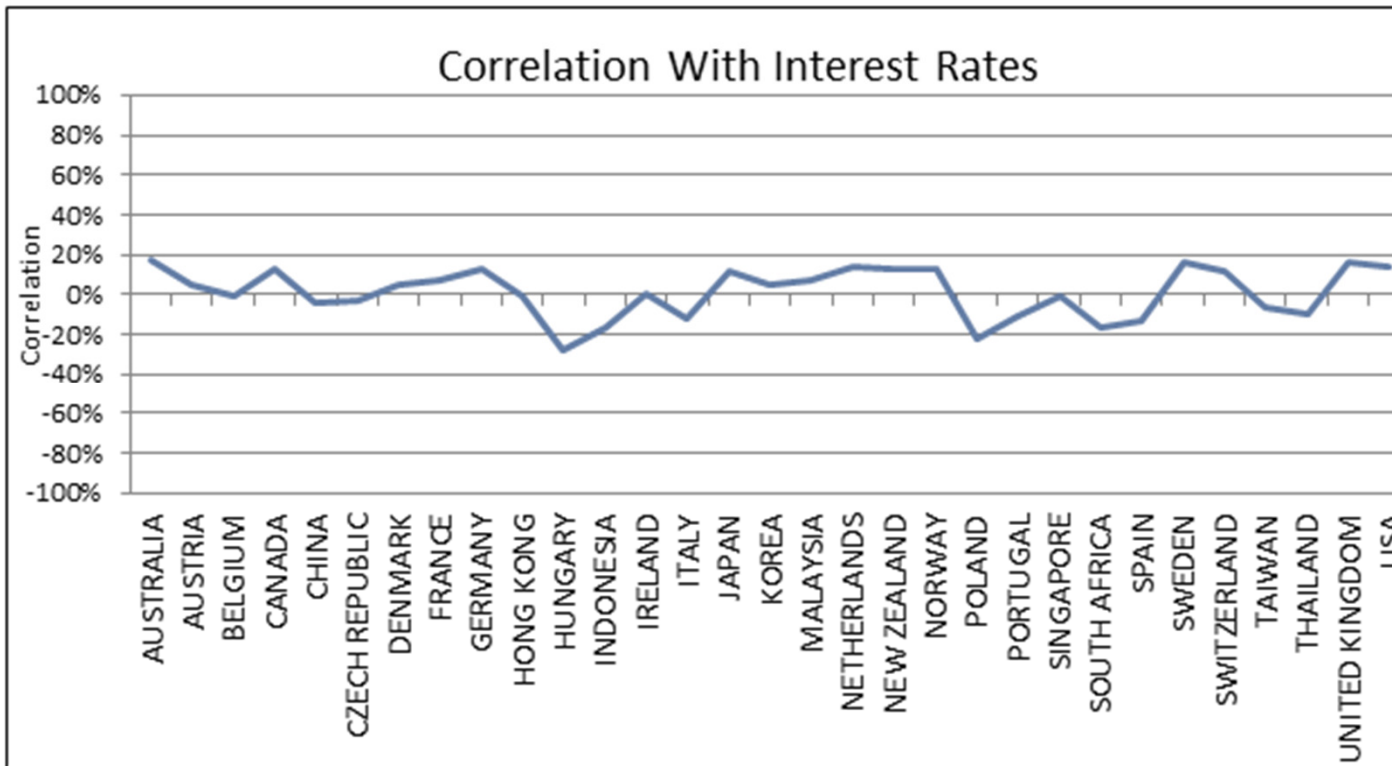
# REAL ESTATE IS NOT BOND-LIKE

- Income risk is low: Bond-like component of risk is small
- Risk varies widely across countries

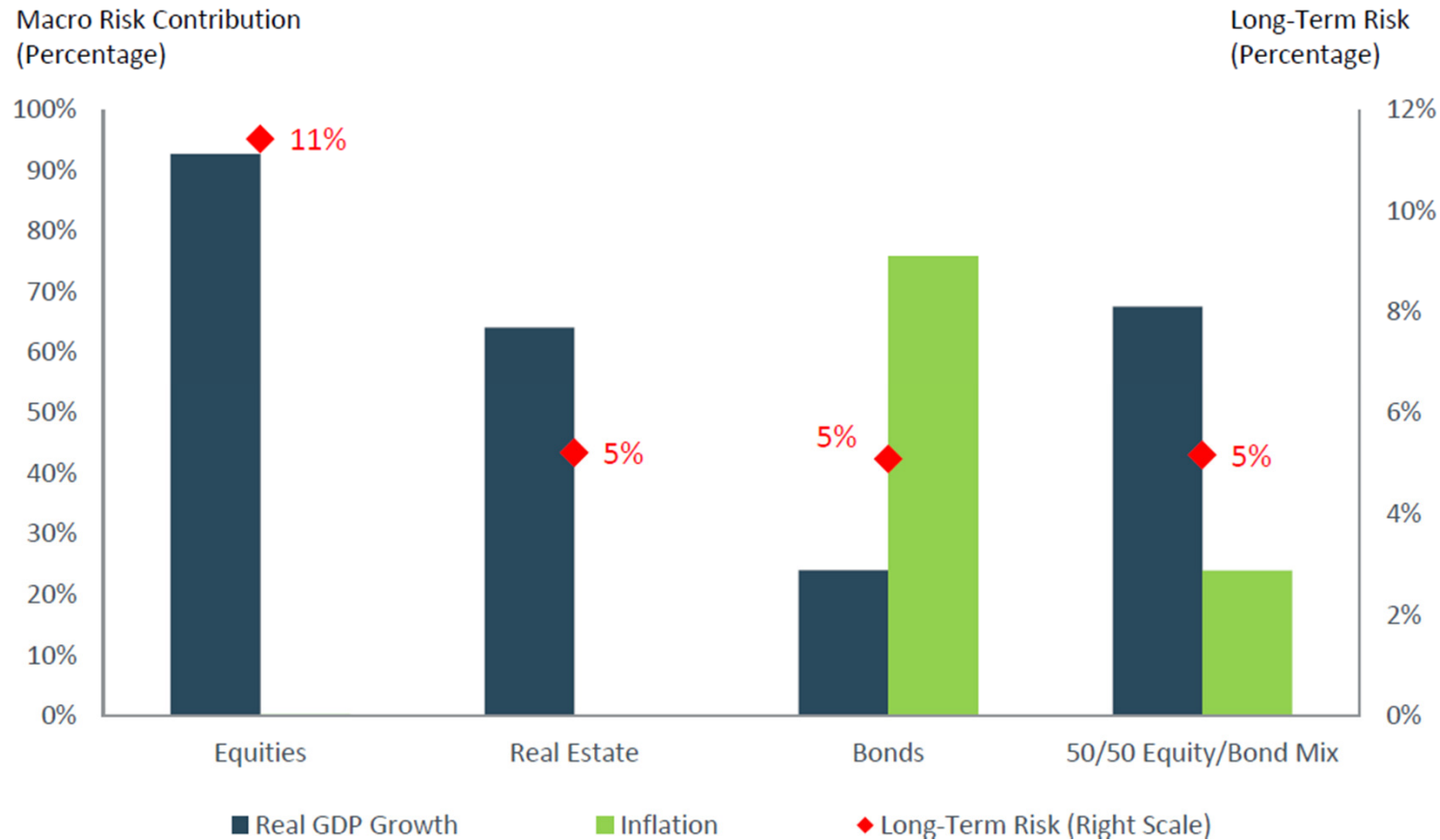


# REAL ESTATE IS NOT BOND-LIKE

- Positive and negative correlations

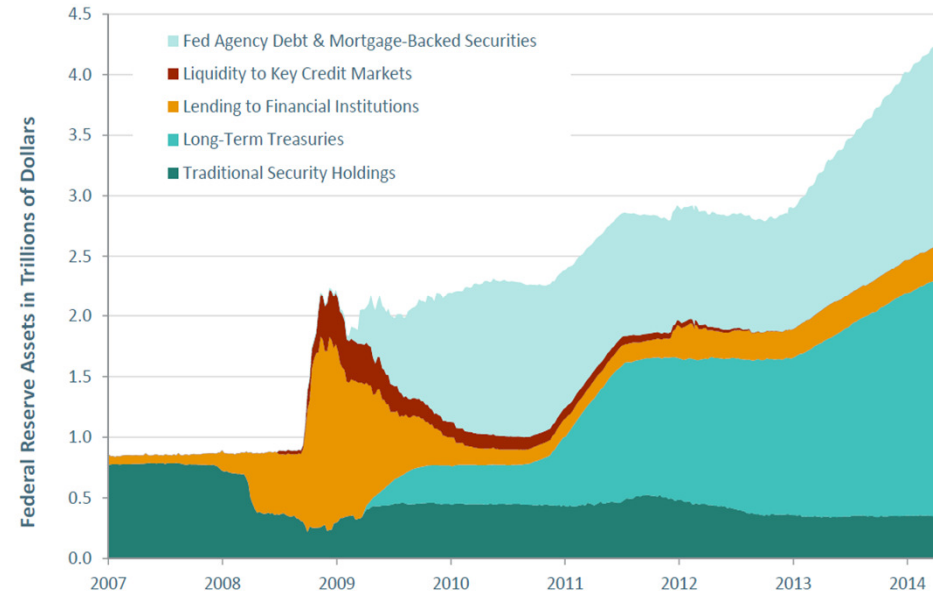
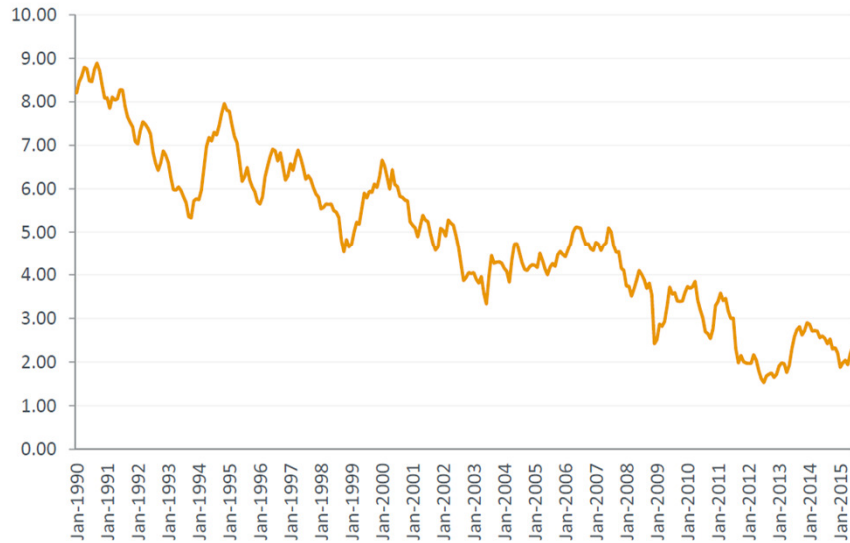


# REAL GDP GROWTH IS THE PRIMARY DRIVER OF RISK



# DECLINING YIELDS AND INTEREST RATE POLICY

10-Year Constant Maturity Nominal Bond Yield (Annualized, %)



Source: Federal Reserve

# SEARCH FOR YIELD WITH MACROECONOMIC UNCERTAINTY

3-Year Horizon Macroeconomic Scenarios*	Model Baseline	Early Lift-Off	Delayed Lift-Off	Return To Pre-Crisis Trend Growth
Real GDP Growth	2.4%	1.4%	1.6%	4.2%
Inflation	2.2%	1.7%	3.7%	2.5%

Growth scenarios

3-Year Horizon Macroeconomic Scenarios*	Model Baseline	Early Lift-Off	Delayed Lift-Off	Return To Pre-Crisis Trend Growth
US Equity Return (Annualized,%)	7.2%	5.4%	7.0%	9.3%
US Factor-Based Strategy Return (Annualized, %)	8.0%	5.0%	7.1%	10.9%
US Real Estate	5.2%	3.9%	6.0%	5.2%
10-Year Bond Yield (%)	2.0%	1.0%	3.4%	2.6%

Return scenarios

# IS REAL ESTATE BOND-LIKE?

- Real estate is not bond-like
  - ✓ Widespread misunderstanding of the risks associated with the real estate investments.
  - ✓ Approaches that emphasize the bond-like risk of discount factors miss the primary source of real estate's systematic risk – the capital value
  - ✓ The cyclical, growth-sensitive nature of the capital component of real estate dominates the more bond-like risks investment

# IMPLICATIONS FOR ASSET ALLOCATION

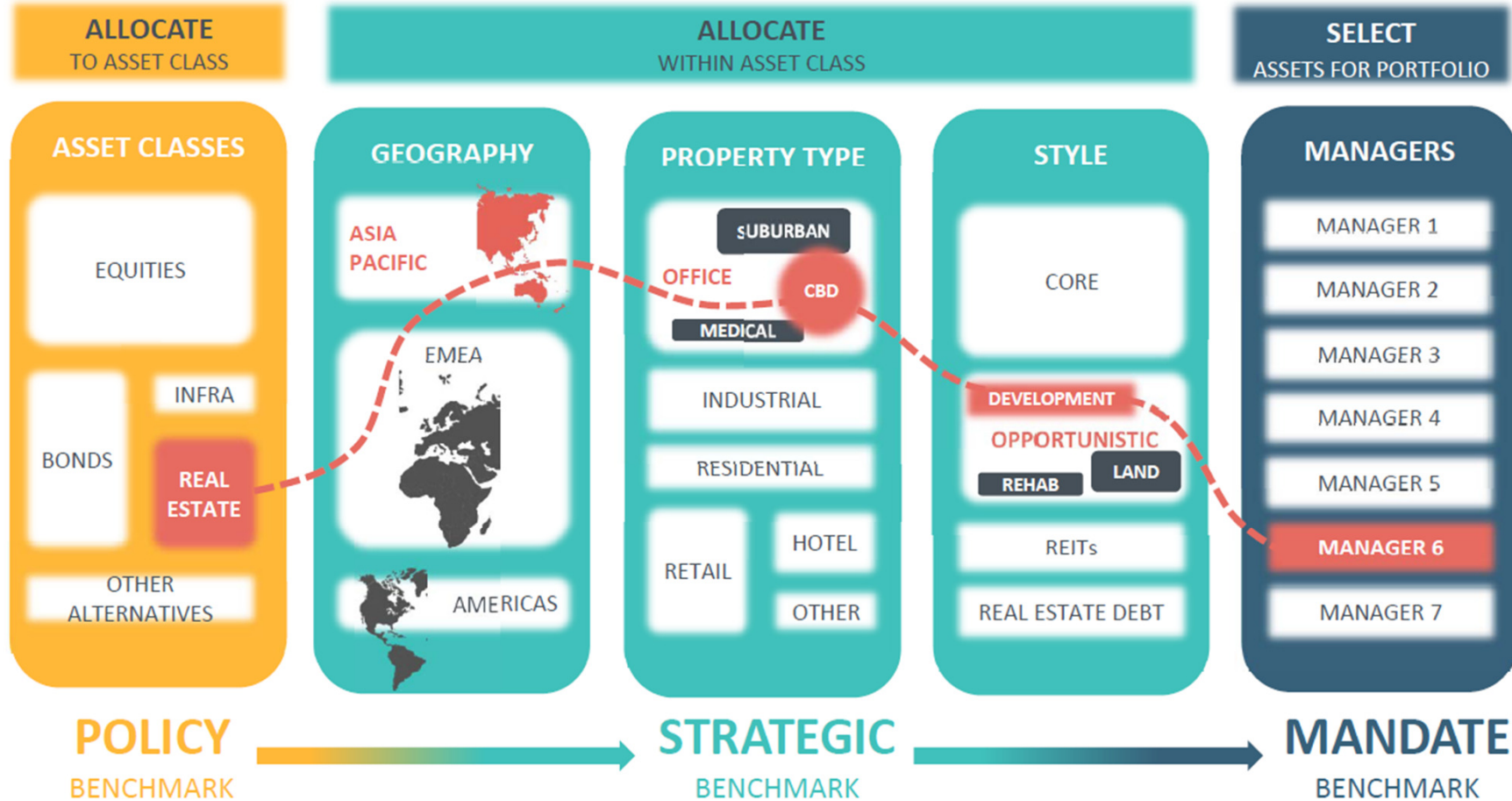
- Growth-sensitive nature of real estate has significant implications for asset allocation
- Short-term smoothness of real estate's cash flows and valuations can give the impression of low risk and low correlation with other asset classes
- Long-run behaviour of real estate is much more closely tied to traditional market risk

# ASSET ALLOCATION INVESTMENT PROCESS

BOARD OF TRUSTEES/CIO

INVESTMENT DEPARTMENT

MANAGERS





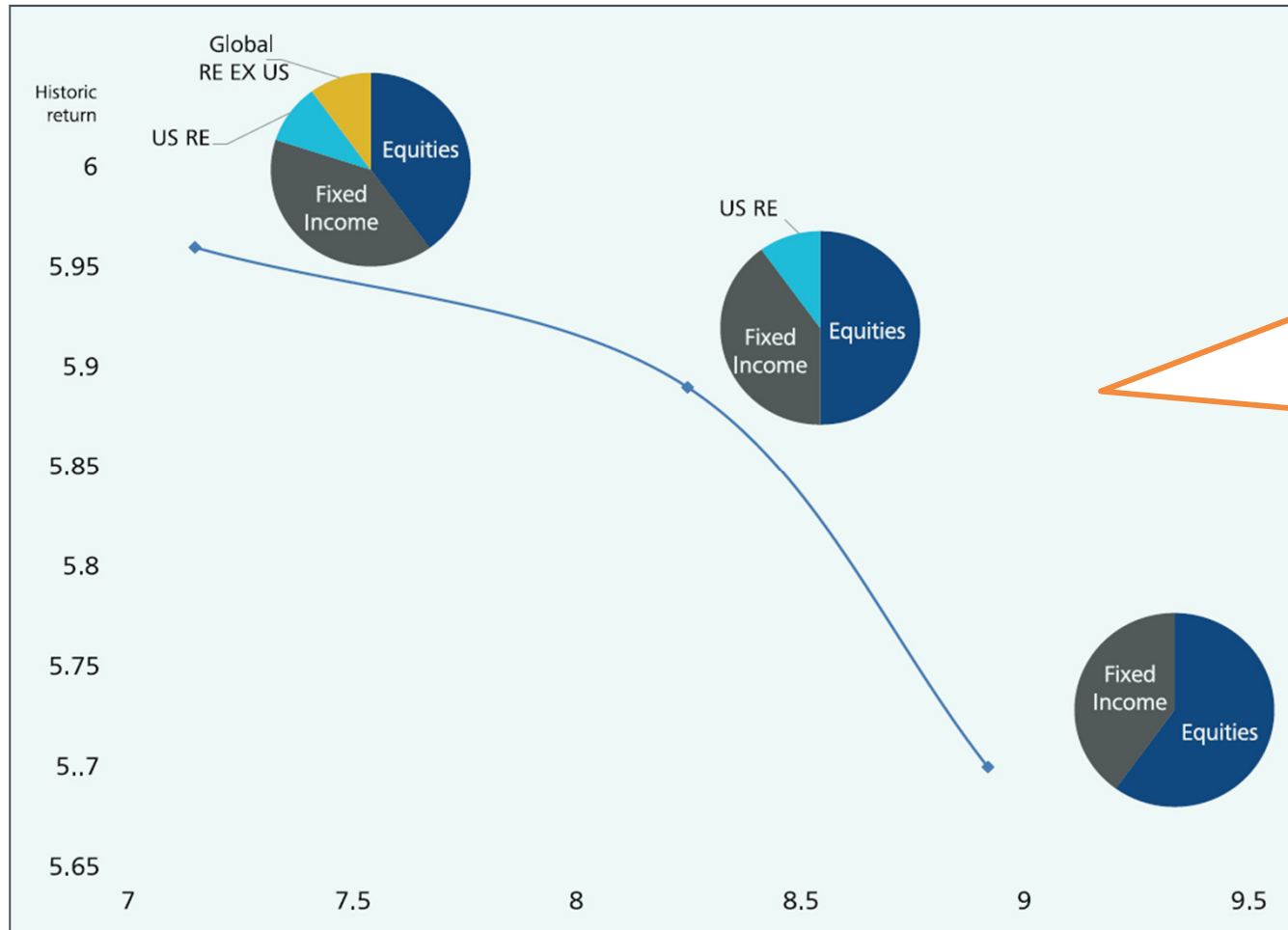
# UNDERSTANDING RISK CONTRIBUTION FROM REAL ESTATE

Illustrative Swiss Real Estate risk contributions estimated by BarraOne

Asset Class	%	Stand-Alone Risk	Correlation	Risk Contribution
Equity	50	13.72	0.99	6.79
Fixed Income	35	2.15	-0.04	-0.03
<b>Real Estate</b>	<b>15</b>	<b>4.78</b>	<b>0.43</b>	<b>0.31</b>
Portfolio	100			7.07

- Equity Portfolio: Swiss Performance Stock Index  
(Stocks diversified across all 10 GICS sectors)
- Fixed Income Portfolio: Swiss AAA-BBB Total Return Bond Index  
(Swiss Government, General, Agency, ABS and Corporate bonds)
- Real Estate Portfolio: Diversified sample portfolio / No leverage

# POWERFUL ANALYSIS FOR ASSET ALLOCATION



Assess the Risk/Return implications of various asset mixes

Apply similar allocation analysis to Industries, Styles, Ratings, Strategies, etc.

# MAC REPORT WITH REAL ESTATE

Grouping: Inst. Type	Asset Name	Holdings	Mkt Value	Weight (%) ▲
by: Inst. Type_JMA		39,993,514.10	1,736,988,568,860.14	100.00%
<input checked="" type="checkbox"/> <u>Equity</u>		34,642,297.21	868,494,284,430.07	50.00%
<input checked="" type="checkbox"/> <u>Fixed Income</u>		57,065,887.87	607,945,999,101.05	35.00%
<input type="checkbox"/> <u>Private Real Estate</u>		260,548,285,329.02	260,548,285,329.02	15.00%
	CHE Residential Zurich Core	41,033,482,128.57	41,033,482,128.57	2.36%
	CHE Office Zurich Core	40,350,385,614.15	40,350,385,614.15	2.32%
	CHE Residential Rest Switzerland Core	39,580,620,107.04	39,580,620,107.04	2.28%
	CHE Retail Major City Core	33,766,409,891.50	33,766,409,891.50	1.94%
	CHE Residential Basle Core	14,985,289,671.38	14,985,289,671.38	0.86%
	CHE Retail Other City Core	14,531,334,962.94	14,531,334,962.94	0.84%
	CHE Office Rest Switzerland Core	12,052,004,410.62	12,052,004,410.62	0.69%
	CHE Residential Geneva Core			
	CHE Residential Lausanne Core			

View and customise reports from aggregate figures down to asset-level numbers

Correlation Type: Portfolio Total			
Portfolio	CH FI	CH EQ	CH RE
CH FI	1.00		
CH EQ	-0.15	1.00	
CH RE	-0.02	0.32	1.00
Aggregate of Others	-0.15	-0.11	0.32

The Real Estate and Equity portfolios are negatively correlated with the Fixed Income holdings

# CONCLUSIONS

- Real estate is not bond-like!
- Long run behavior of real estate closely tied to traditional market risk
- Asset Allocation with real estate should account for the growth sensitive nature of real estate
- Asset allocation should incorporate the impact of home-bias and leverage

# CONTACT US

## AMERICAS

Americas	1 888 588 4567 *
Atlanta	+ 1 404 551 3212
Boston	+ 1 617 532 0920
Chicago	+ 1 312 675 0545
Monterrey	+ 52 81 1253 4020
New York	+ 1 212 804 3901
San Francisco	+ 1 415 836 8800
Sao Paulo	+ 55 11 3706 1360
Toronto	+ 1 416 628 1007

\* = toll free

[msci.com](https://www.msci.com)

[clientservice@msci.com](mailto:clientservice@msci.com)

## EUROPE, MIDDLE EAST & AFRICA

Cape Town	+ 27 21 673 0100
Frankfurt	+ 49 69 133 859 00
Geneva	+ 41 22 817 9777
London	+ 44 20 7618 2222
Milan	+ 39 02 5849 0415
Paris	0800 91 59 17 *

## ASIA PACIFIC

China North	10800 852 1032 *
China South	10800 152 1032 *
Hong Kong	+ 852 2844 9333
Mumbai	+ 91 22 6784 9160
Seoul	00798 8521 3392 *
Singapore	800 852 3749 *
Sydney	+ 61 2 9033 9333
Taipei	008 0112 7513 *
Tokyo	81 3 5290 1555

# NOTICE AND DISCLAIMER

This document and all of the information contained in it, including without limitation all text, data, graphs, charts (collectively, the “Information”) is the property of MSCI Inc. or its subsidiaries (collectively, “MSCI”), or MSCI’s licensors, direct or indirect suppliers or any third party involved in making or compiling any Information (collectively, with MSCI, the “Information Providers”) and is provided for informational purposes only. The Information may not be modified, reverse-engineered, reproduced or disseminated in whole or in part without prior written permission from MSCI.

The Information may not be used to create derivative works or to verify or correct other data or information. For example (but without limitation), the Information may not be used to create indexes, databases, risk models, analytics, software, or in connection with the issuing, offering, sponsoring, managing or marketing of any securities, portfolios, financial products or other investment vehicles utilizing or based on, linked to, tracking or otherwise derived from the Information or any other MSCI data, information, products or services.

The user of the Information assumes the entire risk of any use it may make or permit to be made of the Information. NONE OF THE INFORMATION PROVIDERS MAKES ANY EXPRESS OR IMPLIED WARRANTIES OR REPRESENTATIONS WITH RESPECT TO THE INFORMATION (OR THE RESULTS TO BE OBTAINED BY THE USE THEREOF), AND TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, EACH INFORMATION PROVIDER EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES (INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTIES OF ORIGINALITY, ACCURACY, TIMELINESS, NON-INFRINGEMENT, COMPLETENESS, MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE) WITH RESPECT TO ANY OF THE INFORMATION.

Without limiting any of the foregoing and to the maximum extent permitted by applicable law, in no event shall any Information Provider have any liability regarding any of the Information for any direct, indirect, special, punitive, consequential (including lost profits) or any other damages even if notified of the possibility of such damages. The foregoing shall not exclude or limit any liability that may not by applicable law be excluded or limited, including without limitation (as applicable), any liability for death or personal injury to the extent that such injury results from the negligence or willful default of itself, its servants, agents or sub-contractors.

Information containing any historical information, data or analysis should not be taken as an indication or guarantee of any future performance, analysis, forecast or prediction. Past performance does not guarantee future results.

The Information should not be relied on and is not a substitute for the skill, judgment and experience of the user, its management, employees, advisors and/or clients when making investment and other business decisions. All Information is impersonal and not tailored to the needs of any person, entity or group of persons.

None of the Information constitutes an offer to sell (or a solicitation of an offer to buy), any security, financial product or other investment vehicle or any trading strategy.

It is not possible to invest directly in an index. Exposure to an asset class or trading strategy or other category represented by an index is only available through third party investable instruments (if any) based on that index. MSCI does not issue, sponsor, endorse, market, offer, review or otherwise express any opinion regarding any fund, ETF, derivative or other security, investment, financial product or trading strategy that is based on, linked to or seeks to provide an investment return related to the performance of any MSCI index (collectively, “Index Linked Investments”). MSCI makes no assurance that any Index Linked Investments will accurately track index performance or provide positive investment returns. MSCI Inc. is not an investment adviser or fiduciary and MSCI makes no representation regarding the advisability of investing in any Index Linked Investments.

Index returns do not represent the results of actual trading of investable assets/securities. MSCI maintains and calculates indexes, but does not manage actual assets. Index returns do not reflect payment of any sales charges or fees an investor may pay to purchase the securities underlying the index or Index Linked Investments. The imposition of these fees and charges would cause the performance of an Index Linked Investment to be different than the MSCI index performance.

The Information may contain back tested data. Back-tested performance is not actual performance, but is hypothetical. There are frequently material differences between back tested performance results and actual results subsequently achieved by any investment strategy.

Constituents of MSCI equity indexes are listed companies, which are included in or excluded from the indexes according to the application of the relevant index methodologies. Accordingly, constituents in MSCI equity indexes may include MSCI Inc., clients of MSCI or suppliers to MSCI. Inclusion of a security within an MSCI index is not a recommendation by MSCI to buy, sell, or hold such security, nor is it considered to be investment advice.

Data and information produced by various affiliates of MSCI Inc., including MSCI ESG Research Inc. and Barra LLC, may be used in calculating certain MSCI equity indexes. More information can be found in the relevant standard equity index methodologies on [www.msci.com](http://www.msci.com).

MSCI receives compensation in connection with licensing its indexes to third parties. MSCI Inc.’s revenue includes fees based on assets in investment products linked to MSCI equity indexes. Information can be found in MSCI’s company filings on the Investor Relations section of [www.msci.com](http://www.msci.com).

MSCI ESG Research Inc. is a Registered Investment Adviser under the Investment Advisers Act of 1940 and a subsidiary of MSCI Inc. Except with respect to any applicable products or services from MSCI ESG Research, neither MSCI nor any of its products or services recommends, endorses, approves or otherwise expresses any opinion regarding any issuer, securities, financial products or instruments or trading strategies and neither MSCI nor any of its products or services is intended to constitute investment advice or a recommendation to make (or refrain from making) any kind of investment decision and may not be relied on as such. Issuers mentioned or included in any MSCI ESG Research materials may include MSCI Inc., clients of MSCI or suppliers to MSCI, and may also purchase research or other products or services from MSCI ESG Research. MSCI ESG Research materials, including materials utilized in any MSCI ESG Indexes or other products, have not been submitted to, nor received approval from, the United States Securities and Exchange Commission or any other regulatory body.

Any use of or access to products, services or information of MSCI requires a license from MSCI. MSCI, Barra, RiskMetrics, IPD, FEA, InvestorForce, and other MSCI brands and product names are the trademarks, service marks, or registered trademarks of MSCI or its subsidiaries in the United States and other jurisdictions. The Global Industry Classification Standard (GICS) was developed by and is the exclusive property of MSCI and Standard & Poor’s. “Global Industry Classification Standard (GICS)” is a service mark of MSCI and Standard & Poor’s.

© 2014 MSCI Inc. All rights reserved.

May 2014