



Institutional Investor Asset Management in a Low Return/High Risk World

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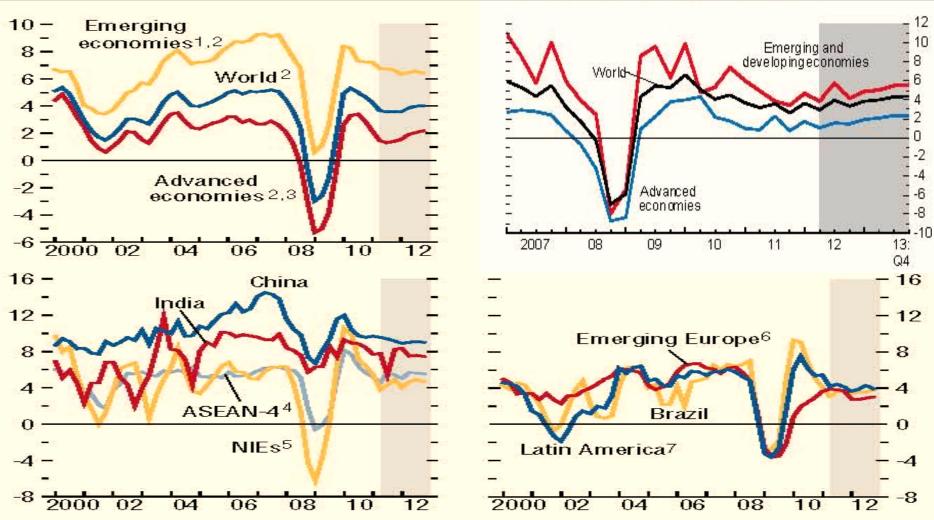
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I. Global Economic and Financial Environment

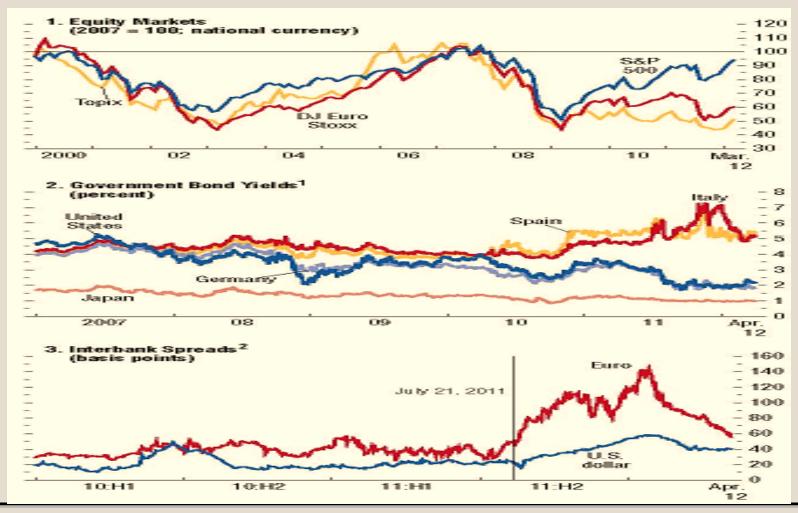
Economic growth remains weak; EM countries weathered the financial crisis better than advanced economies

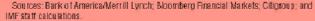




Financial Market Developments

Central banks have driven down interest rates to encourage credit expansion and growth with Euro risks looming





¹Ten-year government bonds.

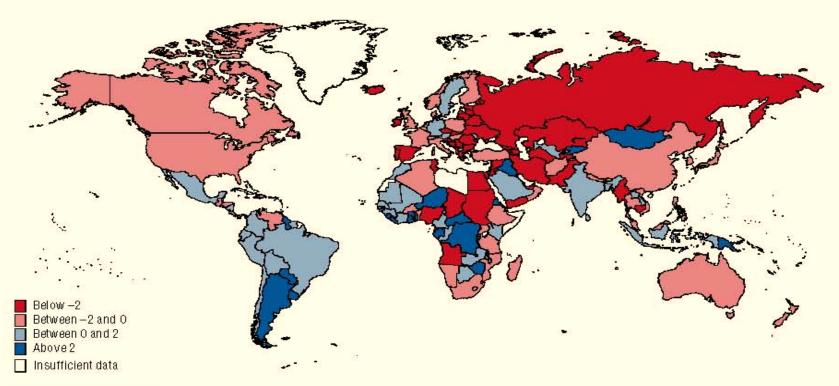


²Three-month London interbank offered rate minus three-month government bill rate.

Global Growth versus Pre-Crisis Average

Global growth exceeds pre-crisis levels in EM Countries in contrast with lower growth in advanced economies

(Percentage point difference in compound annual rates of change between 2011-12 and 2000-07)



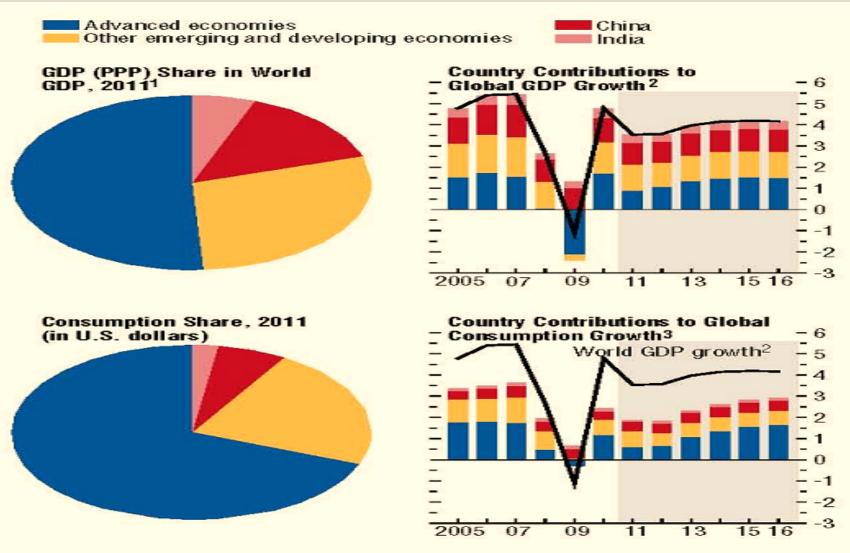
Source: IMF staff estimates.

Note: There are no data for Libya in the projection years due to the uncertain political situation. Projections for 2011 and later exclude South Sudan. Due to data limitations, data for Iraq are the growth differential between the average in 2011–12 and 2005–07; for Afghanistan between the average in 2011–12 and 2003–07; and for Kosovo, Liberia, Malta, Montenegro, Tuvalu, and Zimbabwe between the average in 2011–12 and 2001–07.



Drivers of Global Growth

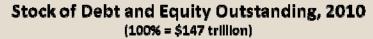
EM countries are projected to continue to drive most global growth through 2016

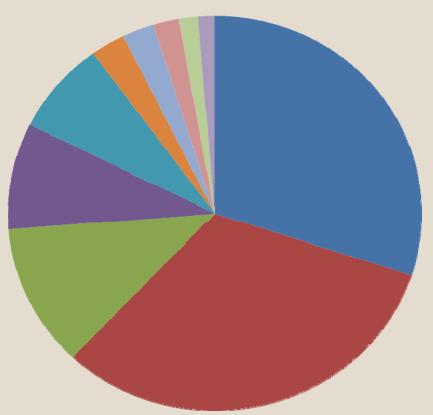




Global Share and Growth of Capital Markets

Emerging markets account for small (18%) but rapidly growing share of global financial markets





Source: BIS, Dealogic, S&P, McKinsey Global Banking

(Compound Annual Growth Rate, 2000-10)

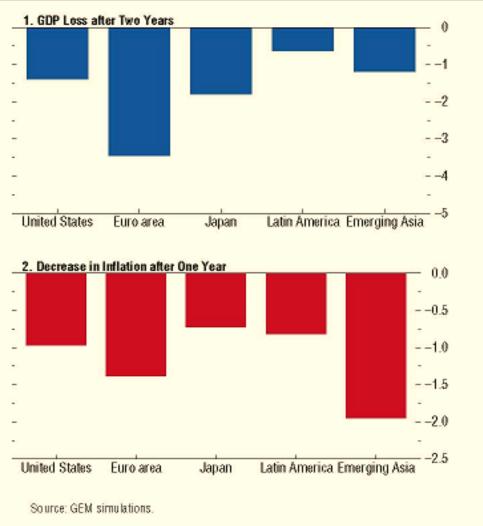
- Western Europe (5.2%)
- United States (5.2%)
- Japan (2.4%)
- Other dev. (8.2%)
- China (20.8%)
- Latin America (15.2%)
- CEE and CIS (20.5%)
- ME&Africa (15.8)
- India (23.0%)
- Other Asia (11.9%)

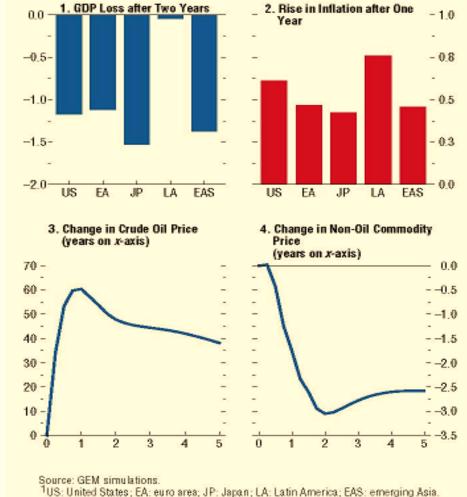


Global Risks: WEO Downward Scenario

Increased Bank and Sovereign Stress in Euro Area

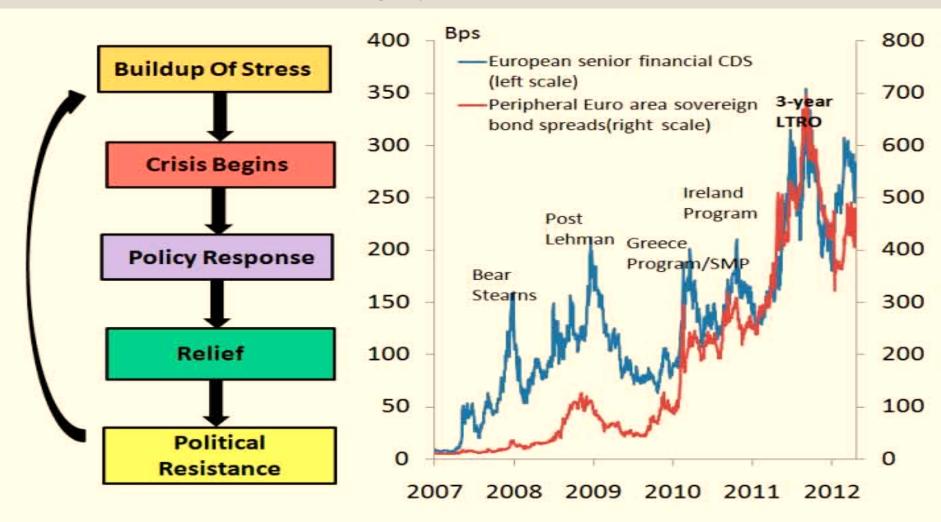
Oil Supply Disruption







Escalating Cycle of Turmoil



Sources: Bloomberg L.P.; and IMF staff estimates.



II. Global State of Institutional Investors, 2007-2011

Despite a decline in global market capitalization (driven by reduced stock market capitalization more than offsetting increased bond capitalization), institutional investors AUM grew quickly

Institutional investors face low returns and high risk

- Low advanced economy growth
- Low interest rates and a flat yield curve
- Low returns on publicly traded equities
- Increasing cross-asset correlations
- Increasing likelihood of significant negative risks

Nevertheless, institutional investors face continued pressure to perform

- Central banks must meet rising operational deficits as they sterilize capital inflows
- Pension funds face growing budget deficits resulting from increasing demographically-driven liabilities
- Endowments face increasing budgetary needs
- •Sovereign Wealth Funds face a range of goals depending on their mandates

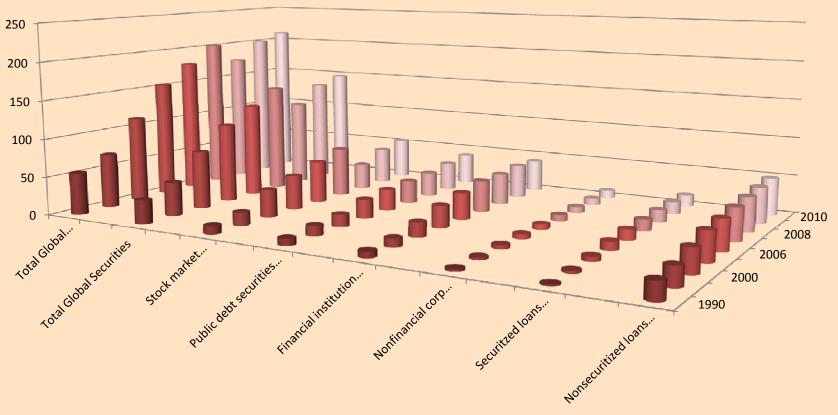


Global Financial Stock

Global financial stock increased from \$55 trillion in end-1990 to \$211 trillion in end-2010 (global securities increased from \$31 trillion in 1990 to \$144 trillion in 2007 and to \$147 trillion in 2010)

- •This is a measure of funds held by households, corporations and governments
- •From 2007-2010, stock market capitalization declined while bond capitalization increased significantly

\$ trillions, end of period, constant 2010 exchange rates

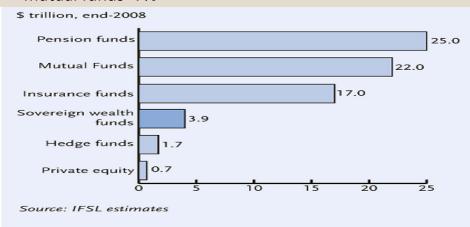


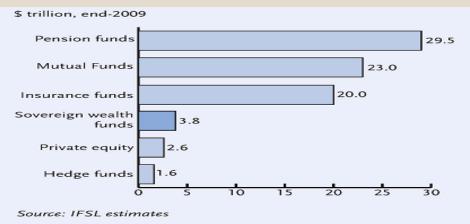


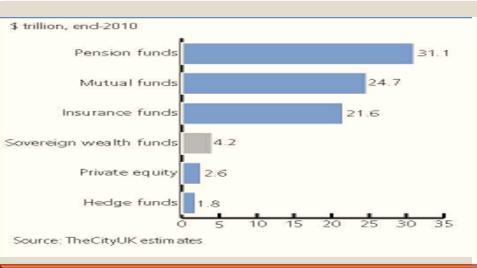
Global Assets Under Management

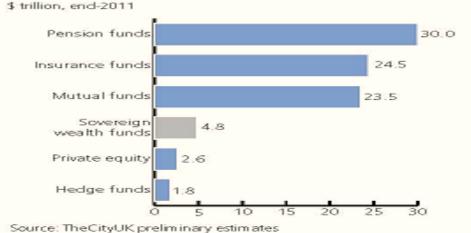
Total global AUM rose from \$71 trillion in end-2008 to \$89 trillion in end-2011

- Increase of \$5 trillion for pension funds-20%; Increase of \$7 ½ trillion for insurance companies-44%
- Increase of \$1 trillion for private equity funds-270%; \$1 trillion for sovereign wealth funds -23%; and \$1 ½ trillion for mutual funds -7%









III. Asset Management in Low Return/High Risk World

Institutional investors face an environment with low returns and high risk:

- ☐ Fixed income sectors are generally offering yields that are at or close to historic lows
- □S&P Index stood at same level end-2011 and in end-1998
- ☐ Elevated volatility implies a decline in the prospects for attractive risk-adjusted returns

In this environment, asset managers should search for risk-adjusted yield through diversification to alternative assets, emerging/frontier markets and cash

Selected Advice from JP Morgan

- •The assumption of non-normal distributions (tail risk) on expected pension fund liabilities, contributions and funding ratios results in increased estimation of downside contribution risk and decreased estimation of median contributions. Portfolio management should be based on non-normal distributions
- •Invest strategically in alternatives that can deliver when bonds and equities cannot. Real assets are an essential portfolio component. Real assets encompass a wide variety of tangible investments that give investors ability a stable source of income in weak markets and to participate in the capital appreciation associated with strong markets
- Invest in Emerging Market (EM) fixed income and equities for their higher risk-adjusted returns (both higher nominal returns and benefits of renewed decoupling from developed markets)
- Take advantage of regime change to take advantage of positive economic regimes and reduce potential downfalls from a adverse economic regimes. This enables different asset classes to take advantage of different economic drivers (e.g. fixed income to interest rates, commodities to inflation expectations, and equities to capital market liberalization)



Asset Management Advice

Asset managers are advised to search for risk-adjusted yield through diversification to alternative assets, emerging/frontier markets and cash

Selected Advice from BNY Mellon

- Rethinking risk management through a holistic approach to ALM that provides adequate liquidity as well as maximize wealth creation by partitioning assets into separate portfolios with different liquidity and risk profiles.
- A regime-based approach that dynamically adjusts asset class exposure as growth and inflation expectations shift—understanding the underlying forces that drive asset performance-- is shown to provide higher long-term returns and better downside protection during periods of market stress.
- The mainstream model for institutional investors centered on quasi-static policy portfolio with high allocation to equity-like assets, with modest amount of active management and diversification into alternative assets. The CPPIB's experience with a "liquid investible factor (LIF) model is a good example of how to bridge traditional asset allocation to the new world of risk premia:
- Retains a reference portfolio composed of liquid public market assets as a passive, transparent, cheap-to-implement solution.
- The actual invested portfolio is composed of the reference portfolio and a wide spectrum of active investment strategies that include alternative beta returns such as real estate and timberland, "style-factor" returns such as value and momentum, skill-based alpha returns from stock selection or currency overlays, or asset-specific returns.



IV. A Closer Look at Asset Class Performance and the Value of Diversification

Observations underlying asset management advice:

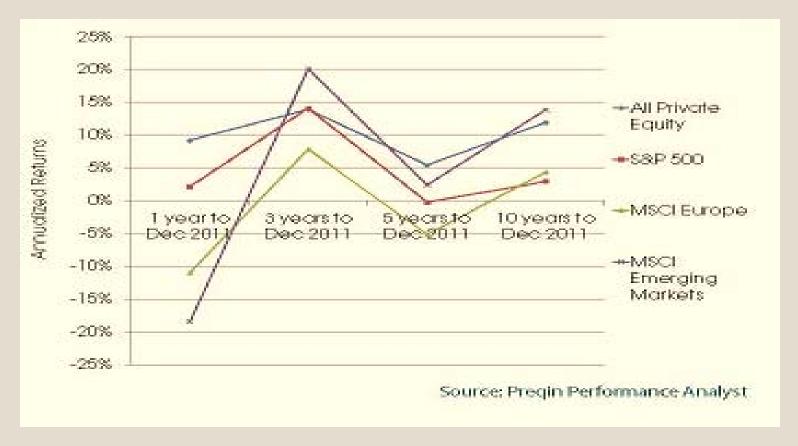
- Diversification to alternative assets and emerging/frontier markets still lowers cross-asset and intra-asset correlation
- Long-term yields on alternative assets and emerging/frontier markets has been higher than traditional assets and is likely to remain so
- The higher yields from alternative assets allows increased liquidity without reducing returns
- Risk management also can be achieved through:
- Portfolio selection based on underlying risk factors, such as economic and structural drivers (e.g. fixed income to interest rates, commodities to inflation expectations, and equities to capital market liberalization)
- Active investment strategies that include alternative beta returns such as real estate and timberland, "style-factor" returns such as value and momentum, skill-based alpha returns from stock selection or currency overlays, or asset-specific returns.



Private Equity and Emerging Market Returns vs. Public Indices

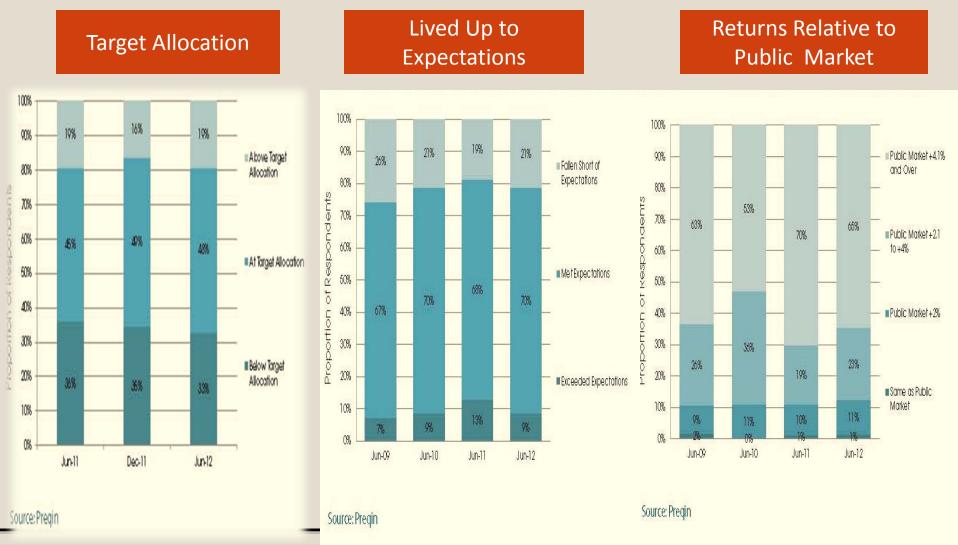
Ten years through December 2011

Private equity and emerging markets have outperformed public securities





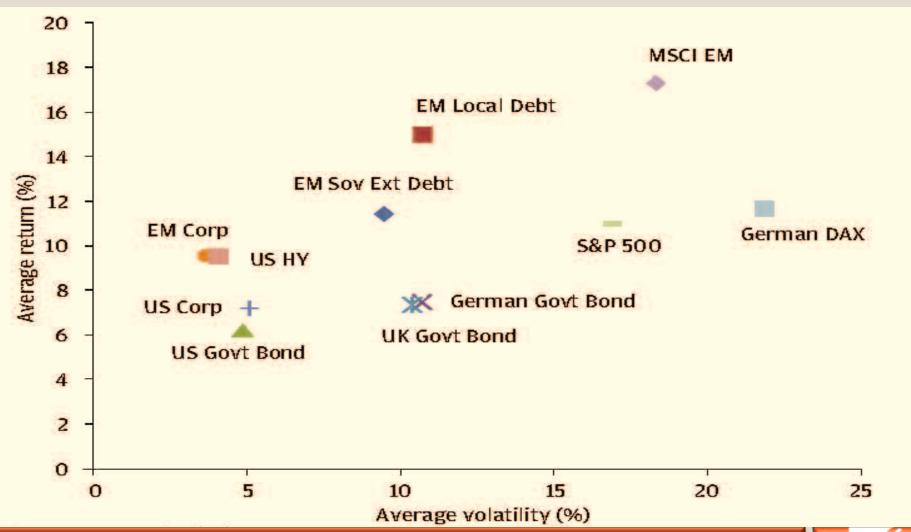
Investors Expect Private Equity Portfolios to Continue to Outperform





Emerging Market Returns Over Past 15 Years

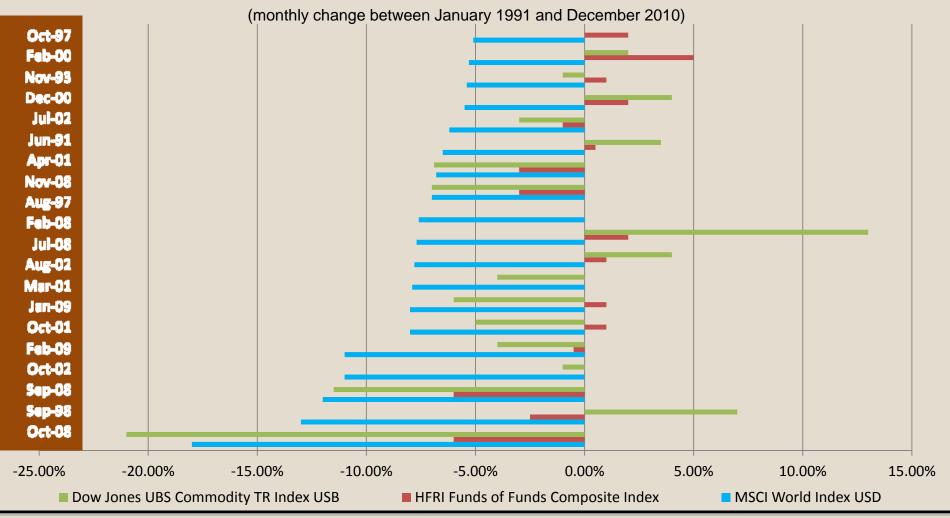
Emerging market assets have a record of higher returns and lower volatility





The Value of Diversification The 20 Worst-Performing Months for Equities

Alternatives largely remain a non-correlated asset





Correlations of Emerging Market Asset Classes

- Frontier market equities have lower correlation with other asset classes than publicly traded world or EM equities
- U.S. equities have lower correlation with EM equities than with other advanced economy equities 1

June 2002-September 2011

| | Emerging Markets | Local Currency Debt | Commodities | Dollar Index | Hard Currency Debt | China A Shares | Frontier Markets | MSCI World |
|---------------------|---------------------|------------------------|-------------|-----------------|-----------------------|-------------------|---------------------|---------------|
| Emerging Markets | 1.00 | 0.78 | 0.58 | -0.51 | 0.65 | 0.43 | 0.60 | 0.90 |
| Local Currency Debt | 0.78 | 1.00 | 0.57 | -0.81 | 0.65 | 0.33 | 0.61 | 0.77 |
| Commodities | 0.58 | 0.57 | 1.00 | -0.54 | 0.33 | 0.30 | 0.52 | 0.48 |
| Dollar Index | -0.51 | -0.81 | -0.54 | 1.00 | -0.46 | -0.34 | -0.42 | -0.53 |
| Hard Currency Debt | 0.65 | 0.65 | 0.33 | -0.46 | 1.00 | 0.26 | 0.41 | 0.63 |
| China A Shares | 0.43 | 0.33 | 0.30 | -0.34 | 0.26 | 1.00 | 0.22 | 0.35 |
| Frontier Markets | 0.60 | 0.61 | 0.52 | -0.42 | 0.41 | 0.22 | 1.00 | 0.61 |
| MSCI World | 0.90 | 0.77 | 0.48 | -0.53 | 0.63 | 0.35 | 0.61 | 1.00 |

Source: FactSet

Past performance is not a guarantee of future results. Diversification does not ensure a profit or guarantee against loss.

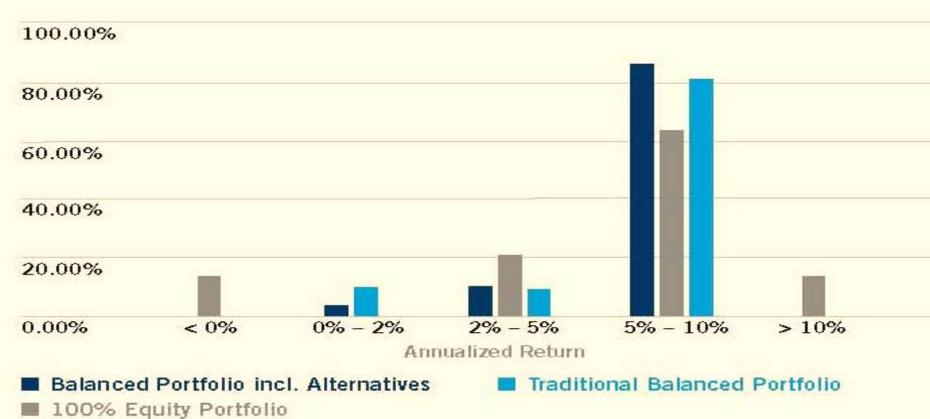
The correlation coefficient measures the degree to which the movements of two variables are related. For example, a correlation of 1.00 (or 100%) would indicate that the two asset classes monthly returns move in the same direction (positive or negative) for the stated time period. In contrast, a correlation coefficient of -1.00 would mean that the to indices move in opposite direction. A correlation of zero indicates that the two exhibit no discernible relationship.



Distribution of 10-Year Returns for Three Asset Mixes

(Jan. 1991 – Dec. 2010-rolling (monthly) 10-year returns for each of the three asset mixes)

The value of diversification with alternatives: Higher absolute returns with lower risk

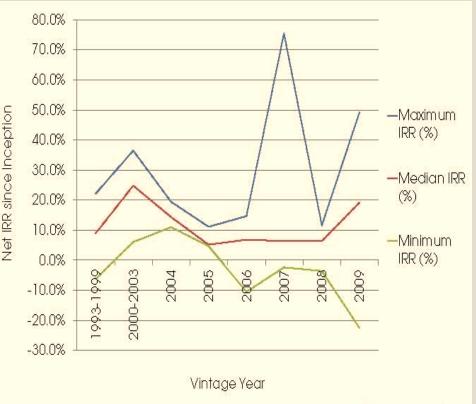


A 100% equity portfolio, a traditional balanced portfolio (60% equities and 40% bonds) and a balanced portfolio including alternatives-- 48% equities, 32% bonds and 20% alternatives, equally split between hedge funds, real estate, equities and commodities



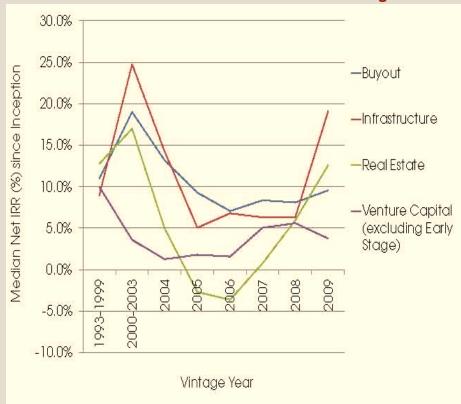
Careful Due Diligence and Diversification Across Alternative Assets Reduces Risk

Median, Maximum and Minimum net IRRs by Vintage Year
Wide Disparity in Performance



Source: Pregin Infrastructure Online

Infrastructure, Private Equity and Real Estate
Strategies—Median net IRRs by Vintage Year
Each has Led Performance in Different Vintage Years



Source: Pregin Infrastructure Online



Interplay of Asset Class and Portfolio Roles

Take advantage of positive economic regimes and reduce risk from a adverse economic regimes

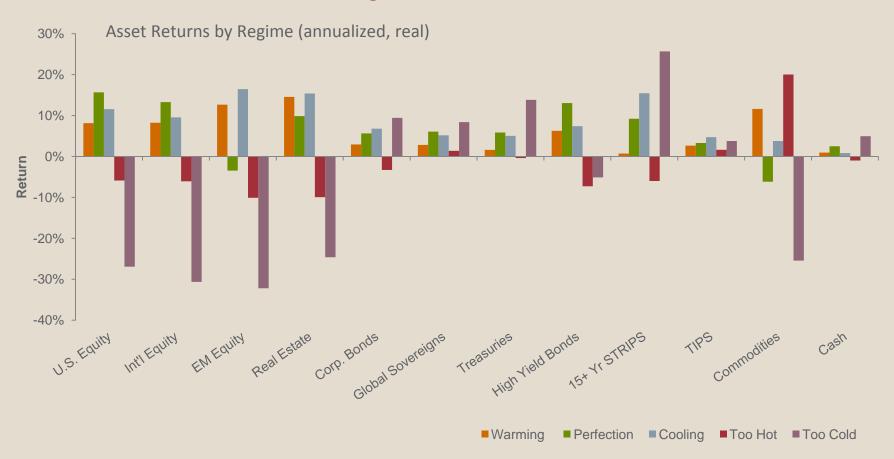
•This enables different asset classes to take advantage of different economic drivers (e.g. fixed income to interest rates, commodities to inflation expectations, and equities to capital market liberalization)

Inflation **Deflation** Growth U.S. Equity **Equity Traditional Asset Classes** Int'l Equity **Energy Equity Utilities Equity EM** Equity **Treasuries Fixed Income** High Yield **TIPS** Sovereign Debt High Quality Corp. Real Estate **Private Equity** Specialty Hedge Funds **Alternatives** Commodities Interest Rate Products Long-biased HF **Real Assets**



Asset performance is regime dependent

To take advantage of regime change requires broad and diverse use of all asset classes, including alternatives and cash





V. Clear Shift in Asset Allocation Strategy Across Institutional Investors

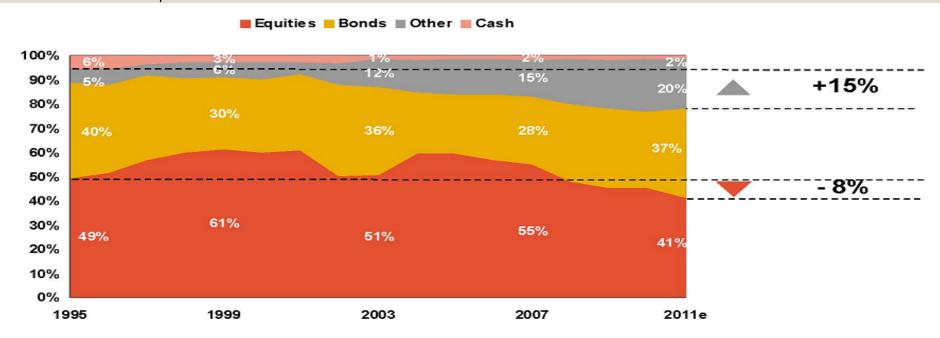
- OECD Pension Funds have diversified with increasing allocation to alternatives, 1996-2011
- Shift in asset allocation of large pension plans in Texas and California driven by macro-regimes: from period of fixed income (low inflation, high dividends and volatile equities), to fixed income/equity mix (high economic growth and reduced equity volatility) to decreasing equities and increasing alternatives (low inflation and economic growth with higher equity volatility), 1900-2011
- European pension plans reduced allocation to equities and increased allocation to fixed income and alternatives across plan size and expect to continue this asset allocation shift; they also have increased allocation to emerging market fixed income and equity as well as to cash
- EU and UK pension funds expecting to increase allocation to fixed income (with emphasis on inflation-linked instruments) and alternative assets (with concentration on diversified growth funds and distressed and EM debt)
- SWFs have diversified across all asset classes with increasing allocation to alternatives as well as to emerging and frontier markets



Pension Funds have diversified with increasing allocation to alternatives 1995-2011

Pension fund asset allocation:

- Decade long decline in allocation to equities
- ❖ Sizable increase in allocation to bonds since 2007/8 financial crisis
- ❖ Secular increase in exposure to alternative assets mainly coming out of equity investments
- ❖ Small increase in cash position



 For the last 16 years, equities, bonds and cash allocations have all been reduced to a varying degree while assets in alternative areas have increased from 5% to 20% in the same time period.

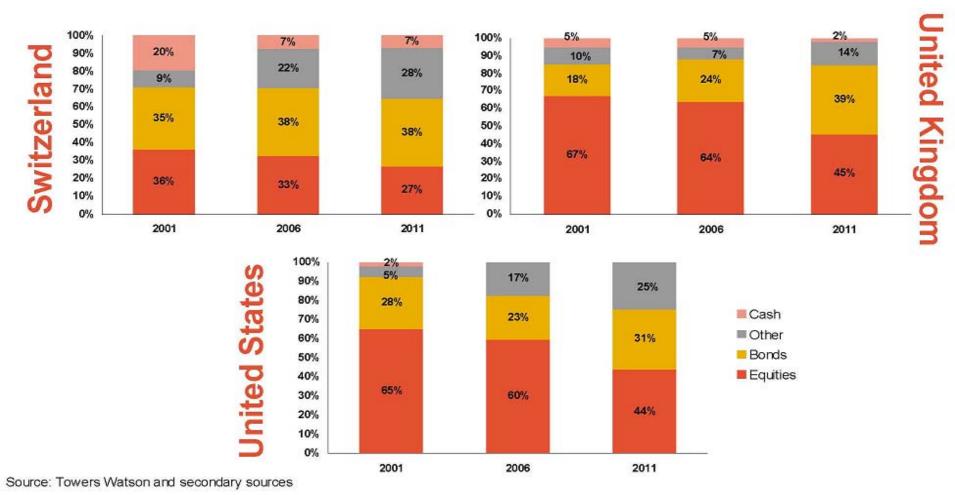
Source: Towers Watson and secondary sources



Shift in Pension Fund Asset Allocation 2001-2011

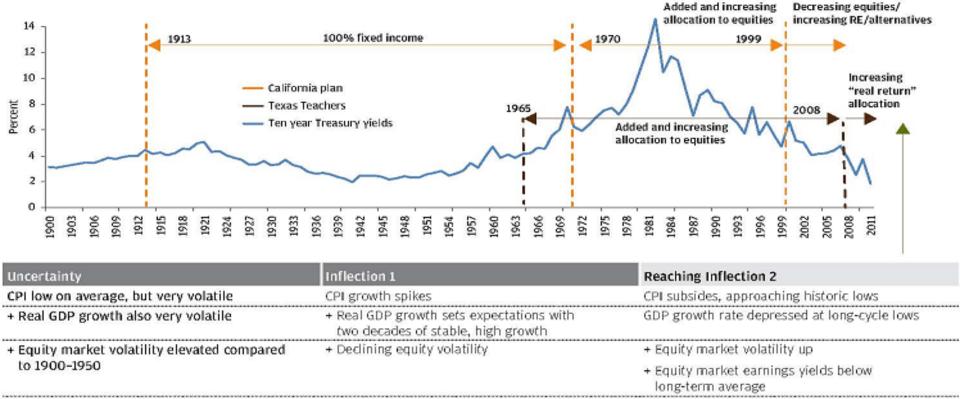
Shift in asset allocation to fixed income and alternatives since 2006:

Allocation to cash has also declined



Asset Allocation History of Large Pension Plans in Texas and California

Shift in asset allocation from: fixed income, to fixed income/equity mix to decreasing equities /increasing alternatives



= Investors moving from FI to equities

total returns willing to price in growth

= Investors buying safety (fixed income)

+ Current dividend yields still at ~2% Fixed income returns heavily reliant on coupon (limited appreciation potential) + equities neither

historically cheap nor backed by growth case as in the early 1950s

+ 10-year yields approaching historic lows

Source: Company reports and annual reports, J.P. Morgan Asset Management, Data as of 31 December 2011.

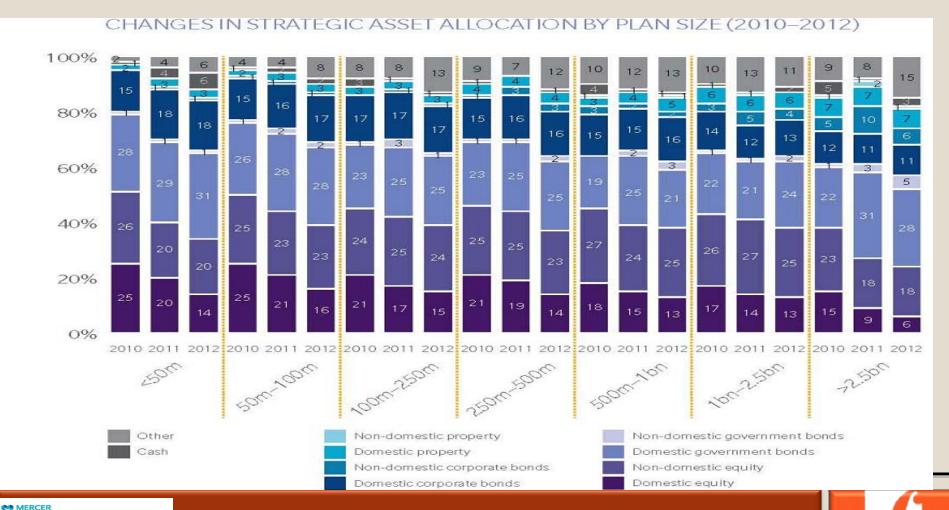
= Equity dividends at all time high serving to boost = Equity % dividends reduced as investors



EU Pension Fund Asset Allocation by Size of Plan, 2010-2012

Significant decline in allocation to equities (domestic and foreign) and increase to alternatives

- Increase in allocation to fixed income and alternatives (including real estate reached 23% of total AUM in 2012 for larger plans)
- Larger pension plans allocated more to alternative assets and less to equities than smaller plans, though the observed trends hold for both
- There was some increase in the allocation to cash.



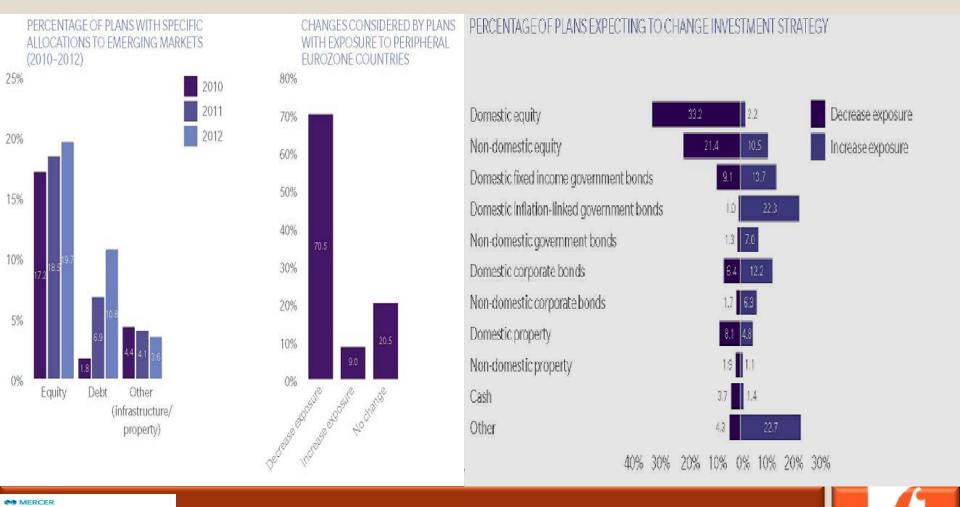


THE FLETCHER SCHOOL

Shifting EU Pension Fund Asset Allocation by Location and Asset Class

EU pensions increasing allocation to EM equity and debt; considering reducing exposure to peripheral EU countries

> Also planning to further decrease their exposure to equity and increase exposure across the fixed income space and to alternative assets



THE FLETCHER SCHOOL

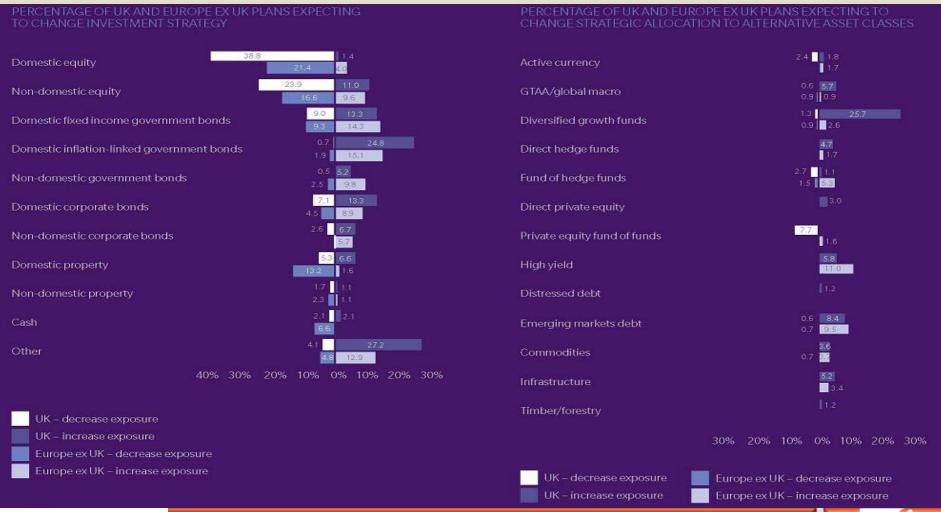
The Sovereign Wealth Fund Initiative

ASSET ALLOCATION SURVEY

UK and EU Pension Plan Investment Strategy

EU and UK pension funds are expecting to increase allocation to:

- Fixed income (with emphasis on inflation-linked instruments) and
- >Alternative assets (with concentration on diversified growth funds and distressed and EM debt)





SWF Asset Allocation Diversifies beyond Traditional Geography and Asset Classes

Many SWFs noted during discussions with Sovereign Wealth Fund Initiative that they are increasing their asset allocation in emerging and frontier markets, as well as in new investment vehicles

Factors driving diversified asset allocation:

- Mandate of SWFs gives them advantage with ability for long-term investment
- Impact of global crisis with less faith in advanced economy financial systems
- Low returns from advanced economy fixed income
- Benefits of asset diversification



SWFs - Not a Homogenous Group

Stabilization Funds

Insulate Budget/Economy (e.g. Chile, Kazakhstan, Azerbaijan, Algeria, and Venezuela)

Savings Funds

Inter-generational transfer (e.g. Kuwait, Qatar, U.S., Alaska)

Reserve Investment Corporations

Part of Reserves; Increasing Returns (e.g. Korea)

Development Funds

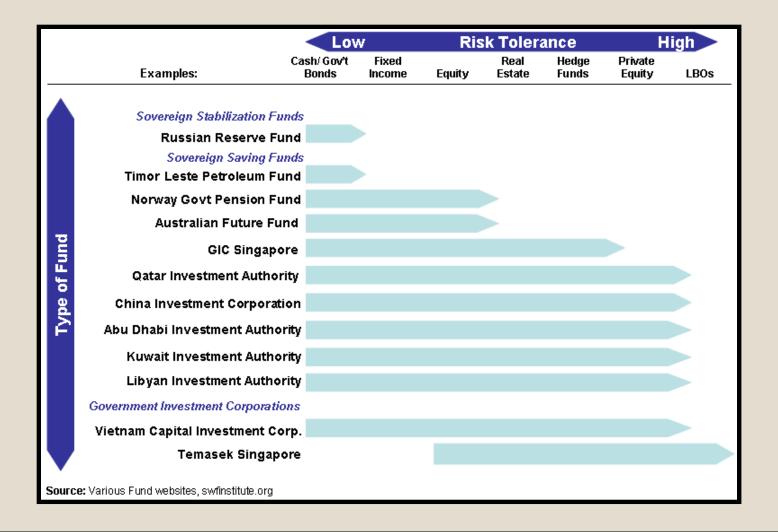
Socio-Economic Objectives

Contingent Pension Reserve Funds

Finance unspecified; contingent pension liabilities of governments (Australia, New Zealand)



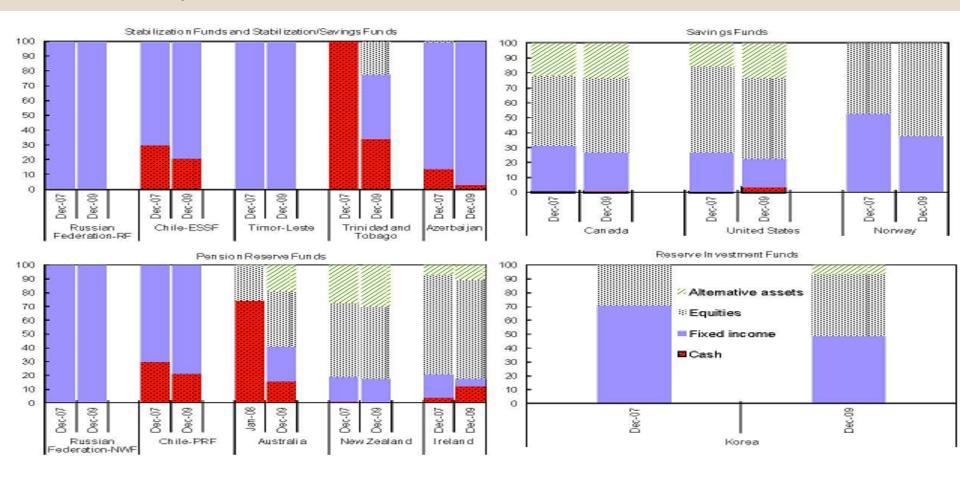
SWF Portfolios Reflect Investment Horizons and Mandate





SWF Asset Allocation, 2007 vs. 2009

The type of SWF investments and extent of diversification vary greatly depending on mandate; however, SWFs increased diversification of investments across mandates



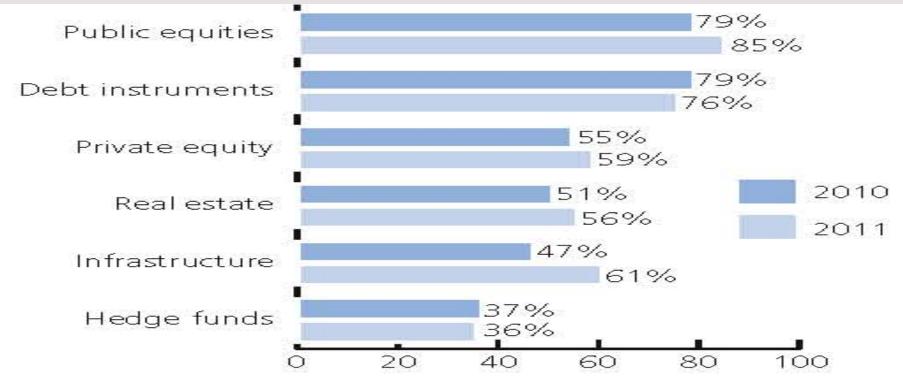
Source: SWF websites and authors' calculations.

Note: Norway classified as savings fund. For some SWFs, cash may be included in fixed income.



Proportion of SWFs Investing in Each Asset Class

SWFs have diversified across all asset classes with increasing allocation to alternatives



Source: Pregin

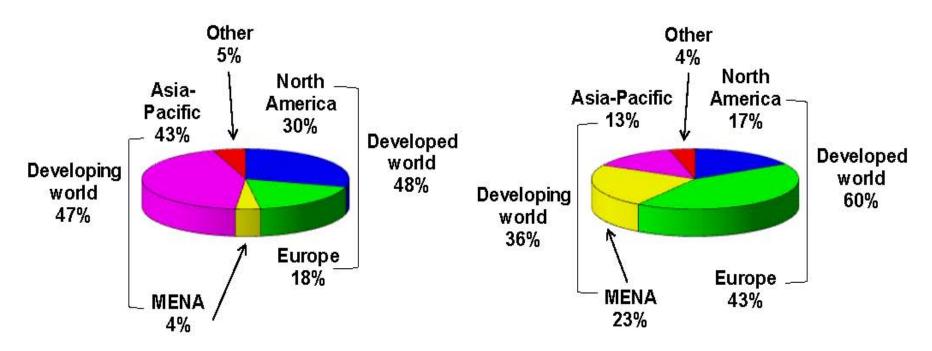


SWF Investments are Geographically Diverse

SWFs investments shifted out of N. America and to Europe following the 2008 financial crisis Need for broader understanding of risk management as asset allocation diversifies

SWFs investments by target region, 2007 (% of total US\$96 billion)

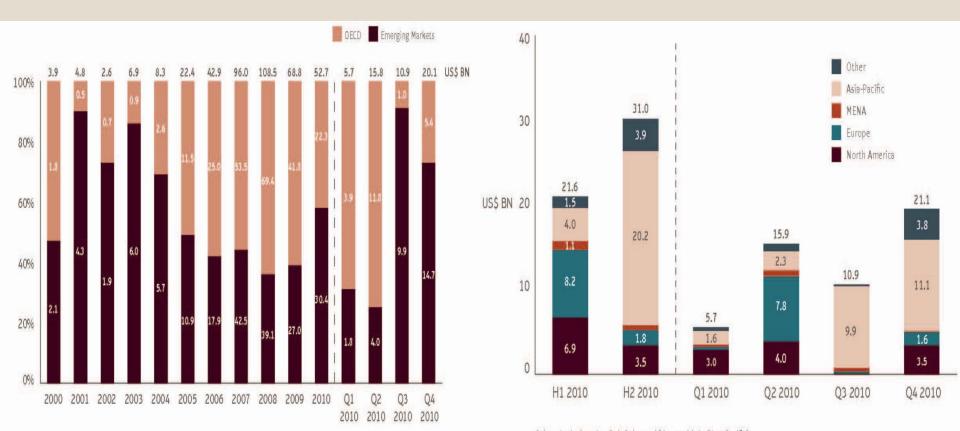
SWFs investments by target region, 2009 (% of total US\$68.8 billion)



Note: Data is based on the 33 SWFs under the Monitor-FEEM definition. Sources: Monitor Group, Milken Institute.



SWF Investment Moved Toward EM Countries in 2010 as Global Risks Subsided



Note: Publicly available data for direct SWF equity & real estate deals, joint ventures and capital injections.

Source: Monitor-FEEM SWF Transaction Database

Other: Latin America, Sub-Saharan Africa, and Asia (Non-Pacific).
Publicly available data for direct SWF equity & real estate deals, joint ventures and capital injections.
Source: Monitor-FEEM SWF Transaction Database



Direct SWF Investment by Market

A shift in the value of direct investment from the BRICs to other EM countries and frontier markets

The move from OECD to emerging and frontier countries likely understated with emphasis of investment in OECD companies that focus on exports to non-OECD countries

| | BRIC | EMERGING MARKETS | FRONTIER MARKETS | OTHERS | OECD |
|-----------------|---------|----------------------------|---|----------|----------|
| | | El leitelli el l'Altitello | THOMPSON TO STATE OF THE STATE | 01112110 | |
| Number 2007 | 28.57% | 6.43% | 12.14% | 8.57% | 44.29% |
| 2011 | 20.1704 | O DEBA | 11 6/04 | 2 1404 | 74 0.005 |
| 2011 | 30.17% | 9.05% | 11.64% | 2.16% | 46.98% |
| | | | | | |
| Value (\$) 2007 | 39.82% | 0.22% | 3.94% | 1.21% | 54.81% |
| 2011 | 20.2504 | 2013.0 | 4 2104 | 0.83% | EE 1004 |
| 2011 | 29.25% | 8.54% | 6.21% | 0.0370 | 55.18% |

Publicly available data for direct SWF equity & real estate deals, joint ventures and capital injections.

Source: Sovereign Investment Lab, Universitá Bocconi



VI. Conclusion: Asset allocation Decisions by Institutional Investors

- ☐ Global Economic and Financial Environment
- Investors are facing lower economic growth, larger downside risks and low returns on "safe" assets
- Emerging and frontier markets have taken policy measures to reduce their risks to external market turmoil and are set for continued economic and financial growth
- Global State of Institutional Investors
- Pension fund and SWF assets under management are growing quickly despite a global decline in equity capitalization
- Pressures to perform to meet budgetary objectives and investment mandates in the face of low returns/high risk environment
- ☐ Asset Management in Low Return/High Risk World
- In this environment, asset managers should search for risk-adjusted yield through diversification to alternative assets, emerging/frontier markets and cash



Clear Shift in Asset Allocation Strategy Across Institutional Investors

- Institutional investors are adjusting well to the current macro/financial/political environment
- Pension plans reduced allocation to equities and increased allocation to fixed income and alternatives across plan size and expect to continue this asset allocation shift; they also have increased allocation to emerging market fixed income and equity
- However, the allocation to cash may not be sufficiently large yet
- SWFs have diversified across all asset classes with increasing allocation to alternatives as well as to emerging and frontier markets. Recent publication of GIC Annual Report shows continued diversification to alternatives and emerging/frontier markets as well as increase in cash position from 3% to 11% of AUM
- Shift in asset allocation should be nimble to macro-regime change to take advantage of macro-sensitive asset behavior



Description of the Sovereign Wealth Fund Initiative (SWFI)

The Sovereign Wealth Fund Initiative (SWFI) is a unique collaboration providing strategic insights, independent research, and thought leadership on public policy issues and investment challenges facing SWFs, institutional investors, central banks, governments, and international organizations. Hosted by the Center for Emerging Enterprises at the Fletcher School, Tufts University with support from State Street Corporation and K&L Gates, LLP, SWFI explores key topics in sovereign and large-scale institutional wealth management – from socio-political risk to international regulatory regimes to investment mandates and innovative finance for development

- **Bulletin and Website**. SWFI targets professionals within the wealth management space with a monthly electronic bulletin, circulating original editorials, research pieces, fund profiles, and news items, and providing a website with additional information.
- Affiliates Program. SWFI collaborates with academics and practitioners from around the world, providing a forum for emergent research and cutting-edge viewpoints on sovereign wealth issues.
- **Webinar Series**. Offered in collaboration with experts from partner organizations, webinar topics are offered both as open sessions addressing key SWFI topics or as bilateral sessions tailored to the interests of individual funds. Webinars introduce the latest research and best practices on public policy issues, institutional governance, capital market impacts and fund-level investment policy.
- Case Study Program. Original pieces are developed and mentored by Fletcher School graduate students, SWFI research fellows, and Fletcher faculty.
- Workshops and Executive Education. Designed to further the intellectual dialogue and knowledge on sovereign and institutional wealth management, executive sessions leverage SWFI original research and other related Fletcher School expertise, and are developed on a custom basis.
- For more information, please see fletcher.tufts.edu/swfi.







Institutional Investor Asset Management in a Low Return/High Risk World

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