Russell Investments

Diversified Equity & Fixed Income Reviews
The Process

University of Western Ontario DC Pension Plan

Bruce Curwood, MBA, CFA, CIMA, Acc.Dir.
Director, Investment Strategy

March 2012

From conversations with clients

The global markets are much **more complex** today and we are looking for relevant and transparent advice.

The effect of a left tail event on our fund would **significantly impact our members financial security.**

Heightened market volatility impacts our investment policy decisions.

Do we need to change approach?

Will members have enough to retire?

Five Top Challenges for Pension Fund Governance
January 2012 Keith Ambachtscheer

1. Good Governance (raising effectiveness)
   - i. Assess & understand the situation
   - ii. Design & develop the roadmap
   - iii. Implement the roadmap
2. Sensible Investment Beliefs / Design
   - Explicit, scalability, cost effective
3. Robust Risk Management
   - Understand & identify risks, within risk appetite
4. Effective Stakeholder Communication
   - Keep in the loop & get buy-in for changes
5. Financial Sustainability
   - a) Determine reasons for concern
   - b) Explore solution options
   - c) Consult with stakeholders

Scenarios that are likely to shape asset returns in 2012 as a whole Source: Russell

PROBABILITY ≈ 10%

Strong growth take-off above 3 ¼ pct.

Smooth (5%)

›Risky assets rally across the board, bond yields rise modestly

Bumpy (5%)

›Inflation scare (as in 1994)

›Flat year for risky assets and bad year for fixed income

PROBABILITY ≈ 65%

Modest recovery proceeds with growth near 2 ½ pct.

›Square-root-shaped recovery

›Inflation stays benign

›Equity valuations rise modestly

›Bond markets in the core sell off mildly as U.S. growth is not derailed

PROBABILITY ≈ 25%

Downside to growth---recession or stagnation

Recession contagion from Europe (20%)

›Bond yields go even lower; risky assets negative

Stagflation (5%)

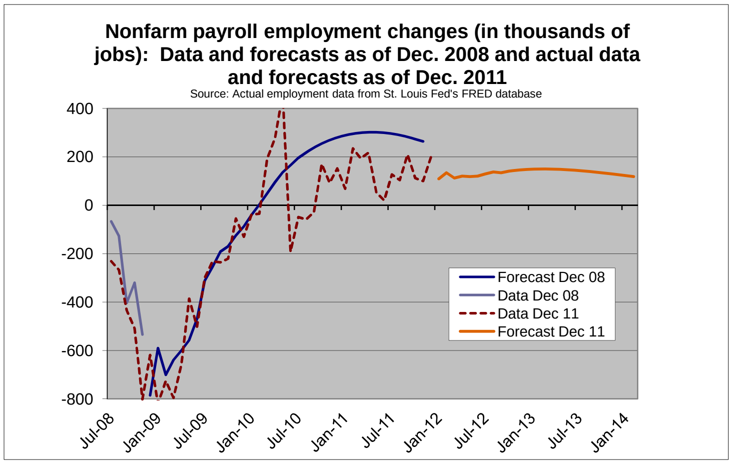
›Longer-than-expected drought in jobs market

›Negative equity price environment

Source: Russell Investments research. There is no guarantee that any stated expectations will occur.

We are far below where we expected to be by now

- Nonfarm payroll employment changes

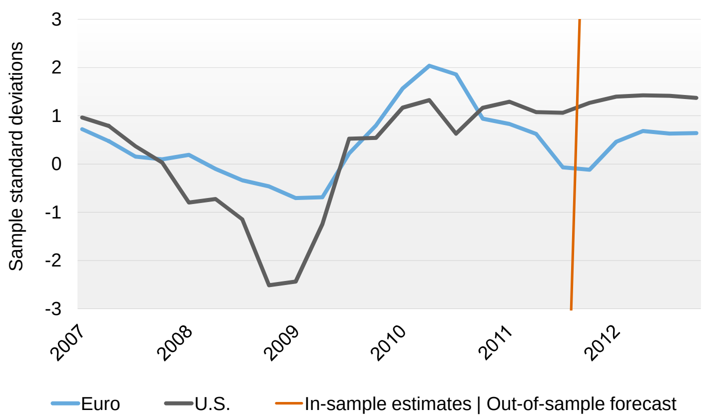


Data and forecasts as of Dec. 2008 and actual data through Nov. 2011
Source: Actual employment data from St. Louis Fed's FRED database
This analysis is not meant to serve as a direct prediction regarding the future results of any economic or financial market. Similarly, they are in no way intended to predict or guarantee future results of any sort. Other economic or financial market indictors not considered in this analysis may produce different results.

http://www.russell.com/Helping-Advisors/Markets/BusinessCycleInde

Eurozone is projected to have a recession; the U.S. is not

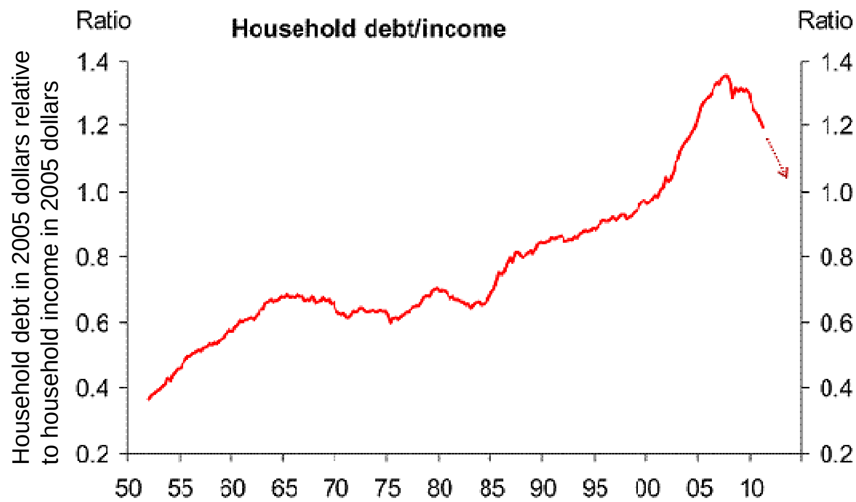
- Eurozone and U.S. business cycle indices (2007-2012)



Values shown for the in-sample estimates and out-of-sample forecasts are the median of the simulated values for the quarter. Out-of-sample forecasts were calculated by simulating the time-series model into the future.
Source: U.S. recession data from National Bureau of Economic Research. Europe recession data from the Centre for Economic Policy Research. Recession for Europe in 2002 is based on research completed by Mike Dueker, Ph.D., Russell Investments: http://research.stlouisfed.org/wp/more/2008-001
Data as of Sept. 30, 2011

Forecasting represents predictions of market prices and/or volume patterns utilizing varying analytical data. There is no guarantee that the stated results will occur. Index performance is not indicative of the performance of any specific investment. Indexes are not managed and may not be invested in directly.

Notwithstanding Europe's recession and risks, the economy's chief obstacle to rapid growth is the ongoing deleveraging



Source: http://www.econbrowser.com/archives/2012/01/a_call_for_acti.html

The world has changed…

Status quo investing

OLD WORLD

- Equity & fixed income portfolio
- Stock picking
- Focus on excess return
- "Stay the course"

Dynamic / flexible model

NEW WORLD

- Global portfolios & wide array of strategies and classes
- Dynamic investing
- Sensitivity to volatility and tail risk
- Alternatives

INFLECTION POINT

- Uncertainty
- Regulatory complexity
- Due diligence requirements
- The volatility of equities
- Recent economic downturn
- The Outlook: slow growth, volatility & low returns

The evolution:

How much growth and how much consistency is desired?

Old world: Allocations by asset class

Long-only strategies / Traditional rebalancing

Large cap U.S. equity
- Core
- Quant
- Concentrated

Small cap U.S. equity
- SMID
- Small Cap

Non-U.S. equity
- Developed
- Emerging
- Frontier

Alternatives
- Real estate
- Commodities
- Hedge funds

Fixed Income
- Core plus
- Cash
- Long duration

New world: Allocations by role in the portfolio

(Growth) Return-seeking pools – Daily liquidity

(Equity, return-oriented fixed income and alternatives)

Return-seeking pools – Less liquid

(Consistency) Liability hedging pools

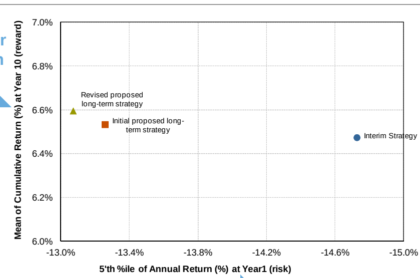
What's different?

- Return sources beyond security selection
  - Discretion inside ranges between asset classes
  - Discretion within asset Opportunistic
- Strategies beyond long-only
  - Extended strategies
  - Smart beta
- Varying use of active & passive
- Cost-plus pricing
- Use of alternatives

Comparison of risk and return

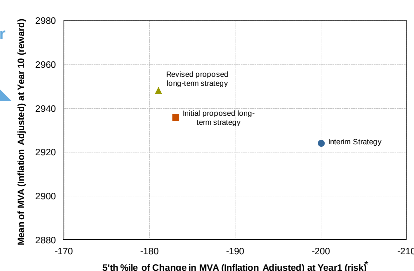
The impact of asset allocation on the potential for loss and reward

Higher return



Higher loss potential

Higher MVA



Higher loss potential

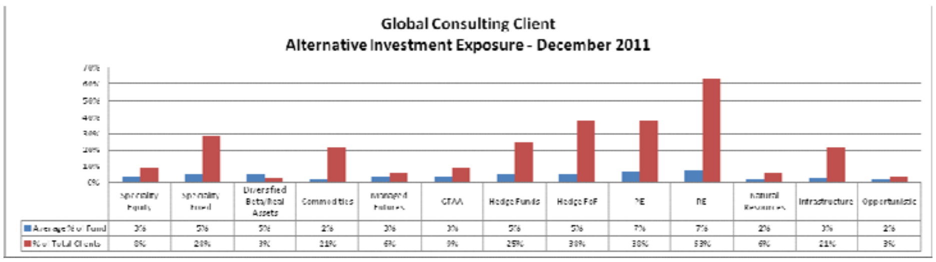
- **Increasing the exposure to alternatives is seen to reduce risk without impacting returns – and in some cases even increasing expected returns**
- **The cost can be less liquidity or unexpected surprises**
- **JPB comfort,transparency, disclosure, understanding & due diligence are key!**

All analysis assumes 5.5% outflows after 9/30 2016, and the stated projected cashflows prior to 9/30 2016. Assumes 9/30 year end. Returns include both beta and alpha.
* Assesses the change in inflation adjusted asset value and reduces the change by the net cashflows for the year.

Russell's Consulting Clients allocate over $100 billion in Alternative Investments

Region	Market Value (US$ millions) September 30, 2011	Total Consulting Clients	Average Alternative Investment Allocation (Equal Wtd)	# of "Alts" Segments
Americas	478,452	62	11.7%	192
Australia/NZ	69,056	43	14.7%	120
Japan	1,398,997	32	12.7%	101
EMEA	59,206	22	13.3%	60
Total	**2,005,711**	**159**	**13.8%**	473

Total Alternative Assets (US$)	**102,017,880,754**
Total Alts/ Total AUA (Dollar weighted)	5%
Total Alts/ Total AUA ex Traditional Only Assignments (Dollar weighted)	14%



January 2012 – estimated portfolio values

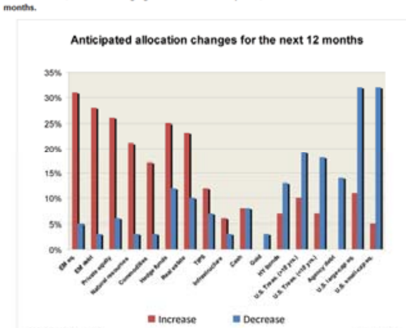
Recent Surveys expect continued growth in alternatives such as PE, Natural Resources, Commodities, HFs, Infrastructure. Funding to come from stocks / bonds

Institutional investors look to shift toward emerging markets and alternatives, away from U.S. equities an Treasuries

BY: TIMOTHY POLLARD
PUBLISHED: NOVEMBER 28, 2011

Older New

Deutsche Bank's 2011 Institutional Survey - which gauges investor sentiment among 101 asset own representing $1.2 trillion in assets - reveals that investors are looking to shift away from U.S. equit and Treasuries, and into emerging markets debt and equities, and alternatives over the next 12 months.



Institutional Investors Strategy Preferences - 2011

Product Use	Growing Use (green > 5% increase YOY	Declining Use (red > 5% decrease YOY)	Stable Use
US Equity Product Use	SC growth and value, LC growth, absolute return, multi-asset class	LC/MC value, 130/30, active quant, enhanced index	MC growth
International Equity Product Use	EM, Multi-Asset, GTAA	Core EAFE, Growth EAFE, Value EAFE, Passive EAFE, ACWI ex US, Global, Regional, Intl SC, Act Quant, Europe Only, Japan Only, 130/30	Currency overlay
Fixed Income Product Use	Absolute Return, EMD	Domestic Core, Domestic Core plus, Global, Passive, International	HY, Long Duration, TIPs
Alternatives Product Use	Hedge Funds, Real Estate, Commodities		HF (FoF, Single), Private Equity (FoF, Single)

Source: Greenwich Associates 2011 U.S. Investment Management

Hedge Funds:

- Allocations to hedge funds and private equity continue to rise from 2008 to 2010
  - HF - 3.3% to 4.6% --
    - Use is inching back up (44% of investors from 48% high),
    - Stable use of single managers (25%) and FoF (32%),
    - Most are close to targets
    - Diversification and risk-adjusted return are more important thatn LT return
  - PE - 5.4% to 6.1%
  - RE - 4.9% to 4.4%

Integrating Alternatives into the Total Portfolio

Total Portfolio (Multi-asset)

- -Total portfolio integration
- -Strategy attributes
- -Risk (asset class, factor, ALM)
- -Performance, market environment
- -Education
- -Strategy / Manager Research

Equity	Fixed Income	Real Assets	Alpha Driven	Private Equity	Other / MA
•Long •Long/ short	•Treasury/Core •Long/ short	• Commodity • Listed REITs • Listed Infra	•Hedge funds •GTAA •Commodity L/S	•VC, Buyout, distressed, mezz •Direct / FoF	•Opportunistic Credit
	•Distressed	• Real estate – core, VA, opportunistic • Infrastructure • Natural resources, Energy, Timber, Farmland			•Opportunistic Credit

Global Summary
Common Requirements and Key Investment Ideas

Common Regional & Client Requirements

- Shift away from reliance on equity premia [beta] for long term returns
- Increased diversity and range of acceptable alternative strategies – diversification, long term return, timing/alpha strategies, illiquidity premium
- Increased focus on "holistic" total portfolio outcomes – greater distinction of total risk-adjusted return expectations, tailoring "return seeking" with "hedging" portfolios, measuring & managing multiple risk factors (quantitative and qualitative)
- Increased "customization" of investment portfolios (completion strategies, narrow investment "sleeves", shift from traditional FoFs) and diversity of "implementation" methods

2012 current investment opportunities:

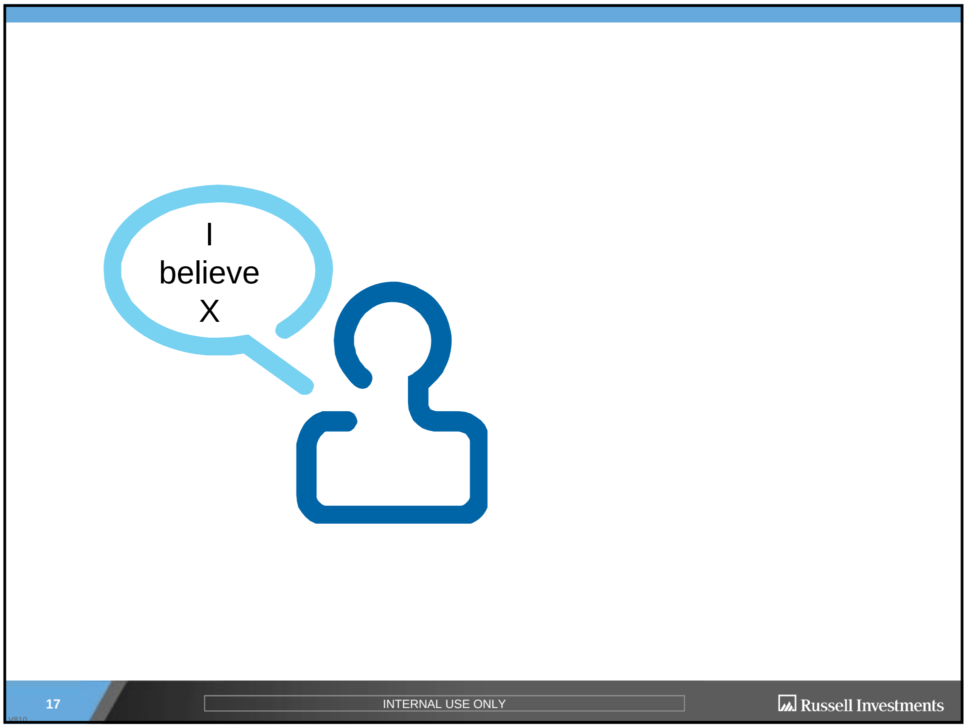
- Opportunistic credit-MBS, direct lending, mortgage servicing rights, securitized product
- Tactical trading spectrum– global macro, discretionary systematic, managed futures, CTA, short/long term, FX, GTAA
- Absolute return – diversification to equity risk premia
- Private markets – real estate (distressed, emerging managers, opportunistic), PE (small/mid market buyout), infrastructure, distressed turnaround, natural resources (energy, soft commodities) etc

Current Environment: Messy & Unclear

- Opportunities arise from "detail" and "politics": lack of discrimination and consistency in markets
- Diversity critical: impossible to tell which is right answer
- Outsized returns may be generated by convergence trades once greater clarity returns: currently easier to get conviction in micro than macro
- Flexibility and valuation discipline key: may be better entry points later
- Fixed income market "bubble" creates distortions and unclear implications for unwinding. Need to reconsider what can be "anchor" asset in portfolio – what is a liquid store of value?
- Need to refocus on growth as can't hedge your way out of current markets

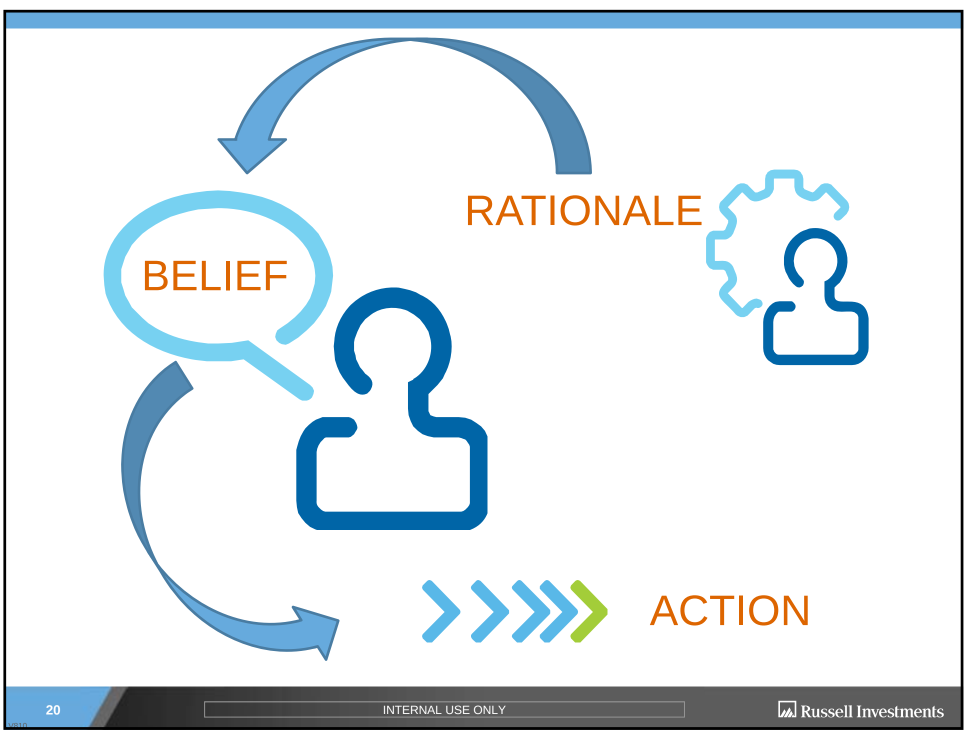
Thematic Framework for Identifying Opportunities

- Strawman example
- Set some thoughts on where opportunities are arising
- "Top down" identification which can then lead to consideration of how , and how best to invest


I
believe
X
17
INTERNAL USE ONLY
Russell Investments


I
believe
X
This is why I
believe X
18
INTERNAL USE ONLY
Russell Investments


I believe X
This is why I believe X
This is what I do because I believe X
19
INTERNAL USE ONLY
Russell Investments


RATIONALE
BELIEF
ACTION
20
INTERNAL USE ONLY
Russell Investments

EXAMPLE strategy beliefs

As implied by the current strategy

	Beliefs	Evidence
Risk tolerance	▪ Long term capital growth is the primary objective of the Diversified Equity Fund. Fund has a high risk tolerance and is able to tolerate potentially large market movement or unrealized losses over annual periods as exhibited by the 100% allocation to equity, including some exposure to emerging markets.	▪ The proposed investment plan is to invest over 10% of the fund in riskier equity strategies, such as emerging markets equities and private equity.
Short-term vs long-term asset allocation	▪ Portfolio rebalancing allows to maintain the risk of the portfolio	▪ There is an explicit policy for rebalancing the Diversified Equity Fund when allocations are outside some thresholds. ▪ Monthly contributions and redemptions are also used to rebalance the portfolio
Tolerance for loss	▪ Fund has the ability to sustain unrealized losses.	▪ 100% equity allocation with no capital protection strategies in place.
Diversification across risk premia	▪ Diversification is one method available to build a more efficient portfolio, but to achieve stated return targets the equity risk premium is of first importance. ▪ Expect to increase diversity as portfolio grow.	▪ Fund has exposure to the equity risk premium. The proposed investment plan will add exposure to the liquidity risk premium.

Example beta beliefs

As implied by the current strategy

	Beliefs	Evidence
Currency policy	▪ Foreign currency hedging is desirable to reduce risk	▪ Only 50% of the Diversified Equity Fund is exposed to currency fluctuations, even though 70% of the fund is invested in non-Canadian equities.
Equity risk premium	▪ Regional diversification is important, but a small domestic bias is acceptable or beneficial. ▪ Emerging market equities offers a strong risk / return trade-off. ▪ Private equity offers a strong risk/return trade-off	▪ Proposed investment of 30% in Canadian equities, which is an overweight compared to the MSCI AC World Index ▪ Emerging market equities are already reflected in the portfolio through global and international equity mandates, but a direct allocation is being discussed ▪ A private equity allocation is being discussed
Efficiency of real assets	▪ Real assets provide inflation protection to help preserve the real value of the fund and / or real assets provide higher returns than bonds while diversifying away from the equity risk premium.	▪ Proposed investment of up to10% in real assets (REITs, listed infrastructure).

Example alpha beliefs

As implied by the current strategy

	Beliefs	Evidence
Illiquidity premium	▪ Private markets offer additional return due to leverage, manager skill and an illiquidity premium.	▪ Proposed investments into private equity.
Active Currency	▪ Alpha is possible in active currency.	▪ Active currency management is one of the options considered by the Joint Pension Board
Active vs passive management	▪ Active management may add value in some markets but passive management is the Pension Board's default choice	▪ U.S. large and mid cap equities are passively managed ▪ Active management takes place in the portfolio for the remaining assets. ▪ The return expectations contain a positive net alpha versus the benchmark expectation.
Number of active managers	▪ Skilled managers are hard to recognize and must be monitored by experts. ▪ Active management risk can be reduced through diversifying across multiple managers.	▪ The portfolio is managed by nine different managers

UWO DC Diversified Equity Review Process

UWO DC Diversified Equity Review Process

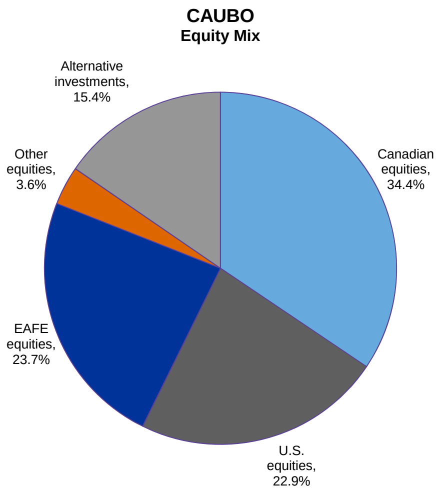
The Issue:	Could the current Diversified Equity Fund be improved?	
The Objective:	Diversify the return stream by adding options to either: 1) Provide the fund with a higher possible return with the same or lower volatility 2) Provide the fund with lower possible volatility with the same or slightly lower return	
Identified Options:	11 (including GTAA, Market neutral, 130/30, PE, RE, Currency, Commodities, infrastructure, hedge funds, small cap)	
Compare the Alternatives:	To our beliefs, guidelines, objectives + other Factors	**EXPECTATIONS NOT MET**
Reduce the Options:	to 3/4 with which we are most comfortable, best fit our beliefs/principles and meet the objective:	**REJECT**
	A) Provide additional education + insight on the 3/4 options; B) Do further quantitative analysis on the options (portfolio risk/return) C) Do further qualitative analysis on the options (pros + cons)	
Quantify the asset allocation to the remaining options:	Provide further analytics, scenario analysis + stress tests	**EXPECTATIONS NOT MET**
Identify appropriate manager(s) for each option:	Do product due diligence on the candidates	**REJECT**
Select manager(s)	to implement new asset mix	

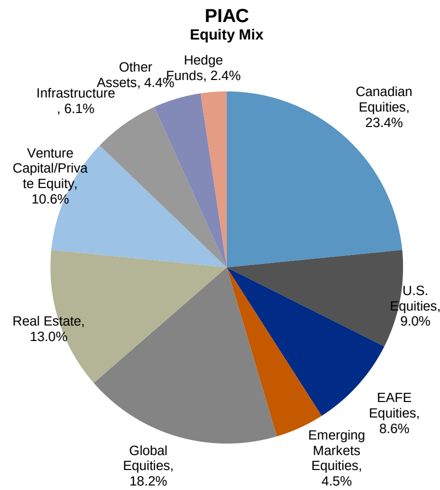
UWO DC Diversified Bond Review Process

	UWO DC Diversified Bond Review Process	
The Issue:	Could the current diversified bond fund be improved?	
The Objective:	Diversify the return stream by adding options to either: 1) Provide the fund with a higher possible return with the same or lower volatility 2) Provide the fund with lower possible volatility with the same or slightly lower return	
Identified Options:	2 (RRB's or mortages) or better manager diversification	
Compare the Alternatives:	To our beliefs, guidelines, objectives + other Factors	**EXPECTATIONS NOT MET**
Reduce the Options:	to those with which we are most comfortable, best fit our beliefs/principles and meet the objective	
	A) Provide additional education + insight on the options; B) Do further quantitative analysis on the options (portfolio risk/return C) Do further qualitative analysis on the options (pros + cons)	
Quantify the asset allocation to the remaining options:	Provide further analytics, scenario analysis + stress tests	**REJECT**
Identify appropriate manager(s) for each option:	Do product due diligence on the candidates	
Select managers(s)	to implement new asset mix	

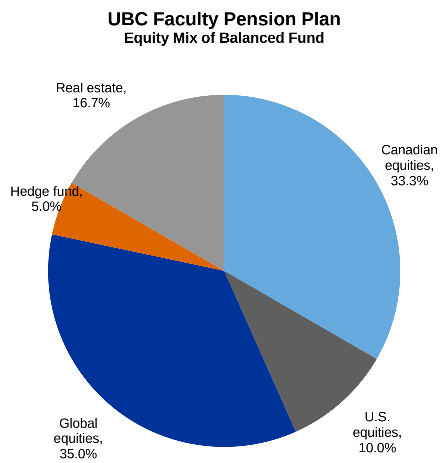
APPENDIX

Other Pension Plans



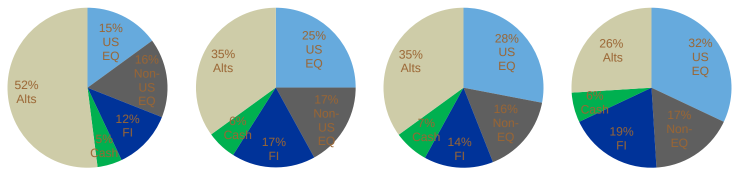


Other Pension Plans



Where is the market today?

ENDOWMENTS[1]		FOUNDATIONS[2]	
TOTAL UNIVERSE	$101-500MM	TOTAL UNIVERSE	$101-500MM



	ENDOWMENTS	$101-500MM	FOUNDATIONS	$101-500MM
Liquid/Illiquid	77% / 23%	89% / 11%	82% / 18%	90% / 10%
Avg. Spend	4.5%	4.9%	5.9%	6.3%
% w/ underwater funds	13.6%	13.3%	39%	43%
Exp. Total Return[3]	6.23%	6.03%	5.6%	6.16%
Exp. Volatility[3]	10.4%	10.3%	11.8%	10.9%

[1] Source: NACUBO — Commonfund Study of Endowments 2010
[2] Source: Commonfund Benchmarks Study — Foundations Report 2010
[3] These numbers were projected using Russell's Portfolio Evaluation Tool
Data is as of the date specified and is not indicative of future results. Current data may differ. Asset Allocations are dollar-weighted.