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Changed Prospects for Economic Growth and Long Term Actuarial Assumptions

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Changes to Short Term Economic Prospects

Country	April 2012 (%)	April 2013 (%)
United States	2.4	1.9
Germany	1.5	0.6
France	1.0	-0.1
Italy	-0.3	-1.5
Spain	0.1	-1.6
United Kingdom	2.0	0.7

Source: IMF

- IMF forecasts for economic growth in calendar year 2013 reduced significantly from April 2012 to April 2013
- Inflation in the US is undershooting expectations
- Aggressive quantitative easing has gone global
- How important is this in actuarial work?



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And to Long Term Prospects

- Eurozone crisis and enduring recessions in the periphery
- Credit crisis and debt fueled growth
- Demographics and immigration
- Resource constraints and shale oil.



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Fixed Risk Premia

- Equities outperform bonds by, say, 3% p.a., small cap always outperform large cap, value stocks outperform growth stocks
- Corporate bonds always outperform government bonds, high yield outperform investment grade
- Property returns set between those of equities and bonds.

Easy to use but ignores market levels, valuations and how the future might be different from the perceived past.

Methodology argues against incorporating changed prospects for economic growth

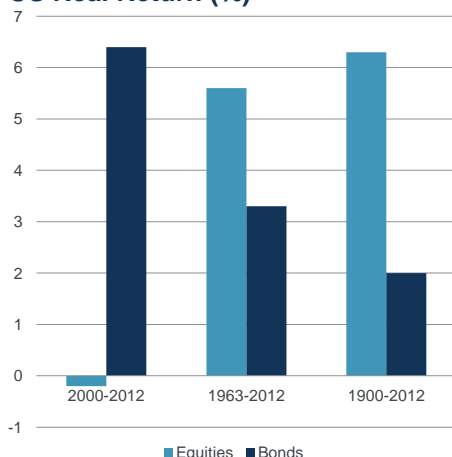


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Using Historic Returns

US Real Return (%)



Source: Credit Suisse Global Investment Returns Yearbook 2013



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- Which historical time period?
- Will the future look like the past?
- Broad brush approach to take into account economic change
- Thought to be more objective
- Easier to produce consistent volatilities and correlations.

Forward Looking Assumptions

- Incorporate current market levels and hence handle market movements well
- Take into account market valuations and the economic / political / financial market outlook
- Relatively straightforward to incorporate changes in economic assumptions
- However distinctly subjective and may be challenging to win buy-in
- Time consuming and skilled resources required.

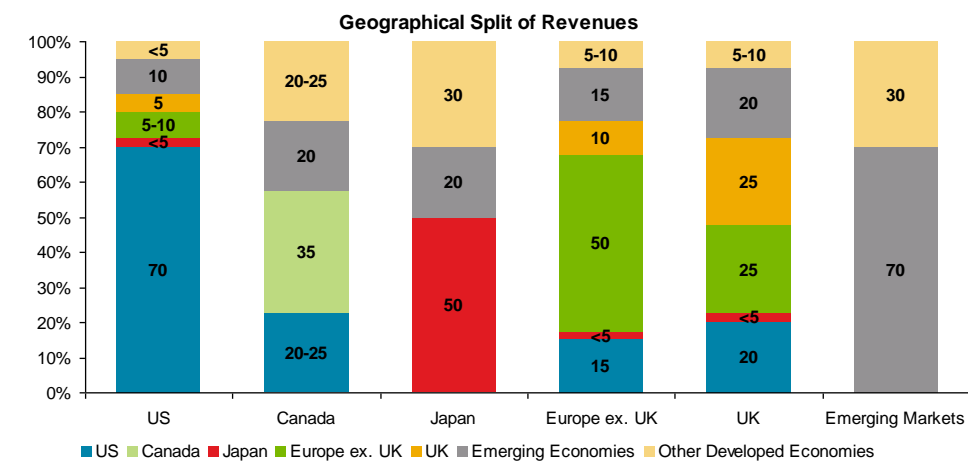


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UK stock market exposure to UK economy limited

Equity markets depend on more than the domestic economy



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Quoted Companies and National Economic Statistics

- Actuarial assumptions are usually based on stockmarket indices and so typically omit smaller companies
- In particular, growth in companies prior to flotation is not included and growth is likely to be faster pre-flotation
- Privately held companies which form part of the GDP statistics are ignored
- Therefore using national economic statistics to forecast quoted company returns is an approximation and the latter are often thought to grow more slowly than the economy as a whole
- Quoted company profits are more volatile and, as reported, are more cyclical.

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Should you incorporate shorter term factors?

- Market movements versus economic / corporate / political developments
- What is now priced into markets? Has there been an over-reaction?
- Corporate earnings revisions versus change in taxation
- Inflation forecasts versus change in central bank inflation target
- Flood of money into asset class reducing potential returns.

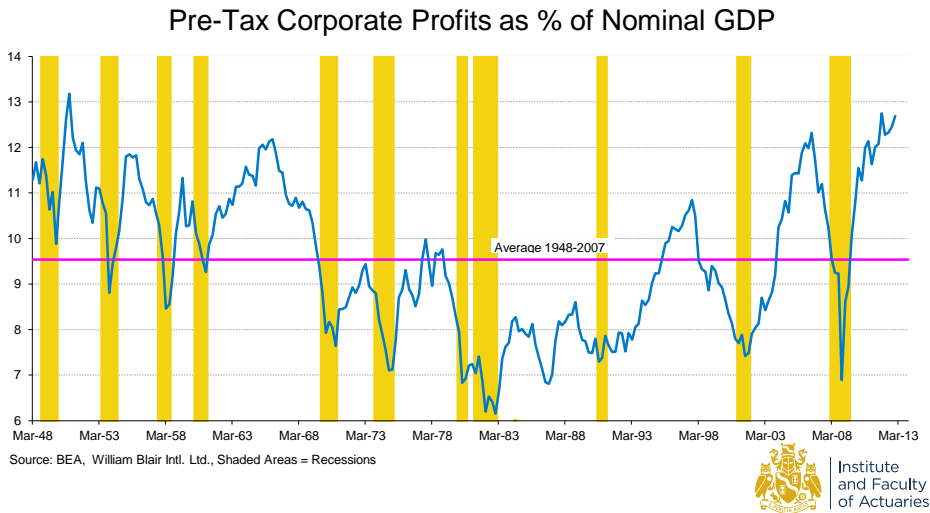
Sources for Long Term Growth Rates

Country	1995-2011 (%)	2011-2030 (%)
Brazil	3.3	4.1
China	10.0	6.6
Germany	1.4	1.3
Japan	0.9	1.2
Spain	2.9	2.0
United Kingdom	2.3	1.9
United States	2.5	2.3

Source: OECD

- Table shows OECD trend growth forecasts for selected countries together with growth rates achieved
- The publication Consensus Economics is useful although it projects less far out
- Investment bank research and work of independent research houses are also helpful
- Such an exercise is highly subjective but necessary.

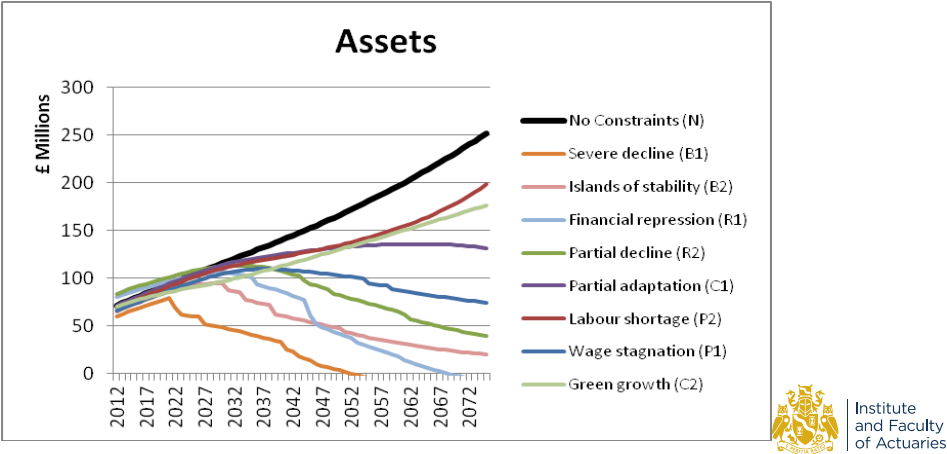
Adjusting for current corporate profitability



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Adjusting for Constraints to Growth

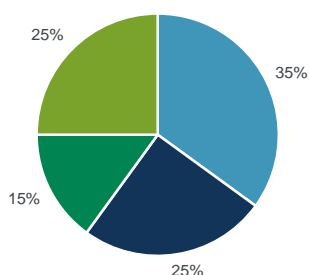
Actuarial Profession Research Report “Resource constraints: sharing a finite world”
Defined benefit scheme asset projections: all scenarios



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Alpha as well as Beta

Hypothetical hedge fund portfolio beta



- Equity
- High Yield
- Government Bond
- Cash

- If invested in asset classes such as hedge funds and private equity, then need to incorporate alpha in assumptions
- Can estimate underlying beta using other asset class assumptions
- Use historic alpha, average or median?
- Alpha varies over time with economic and financial market conditions.



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Volatilities and Correlations

- Using a 10 or 15 year history for volatilities implies more 'crashes' than have typically been implicit in volatility assumptions
- Very low bond yields lead to more asymmetric and lower volatility assumptions for bonds
- Is the world becoming more regional, for example due to the Eurozone crisis?
- Is a 'risk on', 'risk off' environment permanent?



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Round-up

- The ability to incorporate changed economic prospects in actuarial assumptions depends greatly on the methodology
- Considerable subjectivity is inevitable, much approximation is required and there are no right answers
- There are very strong and unstable features in the economic landscape
- Changed prospects for economic growth need to be incorporated in long term actuarial assumptions.



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Questions

Comments

Expressions of individual views by members of the Institute and Faculty of Actuaries and its staff are encouraged.

The views expressed in this presentation are those of the presenter.



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