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Tailflation: Forecasting, Modelling and Managing it

Sam Worthington

13 November 2015

Agenda

Part 1: Why is inflation important?

Part 2: Inflation framework

Part 3: Managing inflation



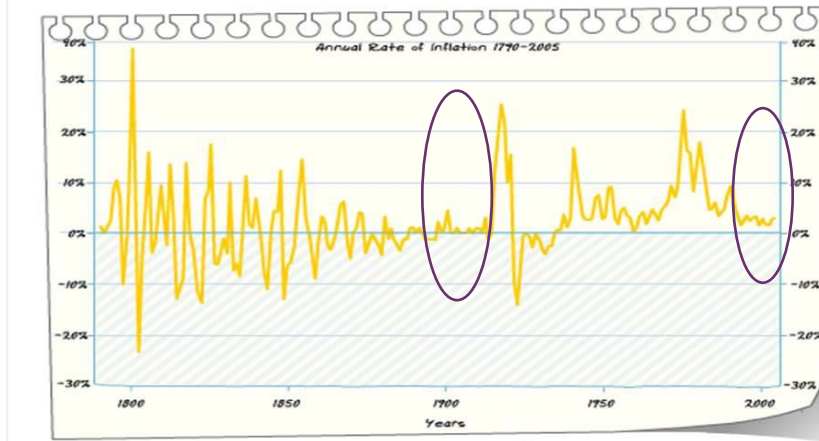
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Why is inflation important?

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Inflation history

UK Inflation 1790-2005



Impact of inflation on non-life insurance

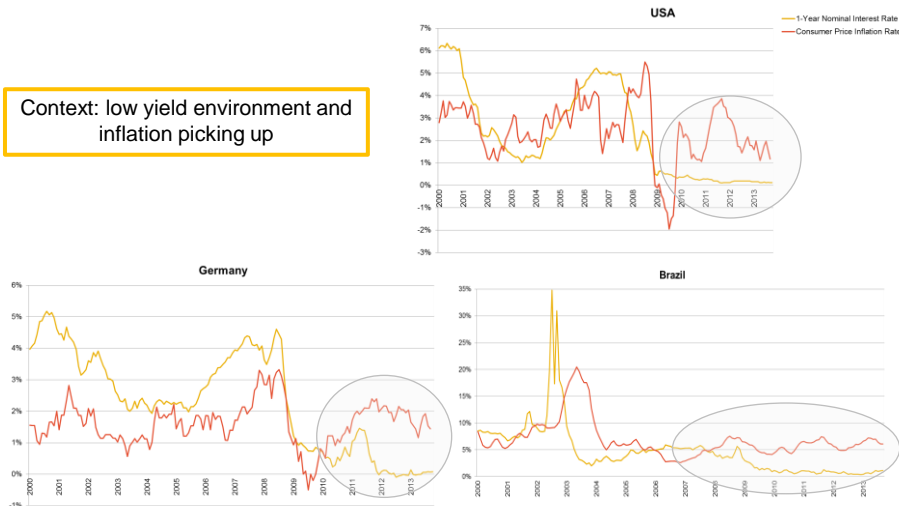


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Real Discount Rate

Context: low yield environment and inflation picking up



Source: USA: U.S. Department of Labor: Bureau of Labor Statistics, Federal Reserve; Germany: Statistisches Bundesamt, Bundesbank; Brazil: Bloomberg

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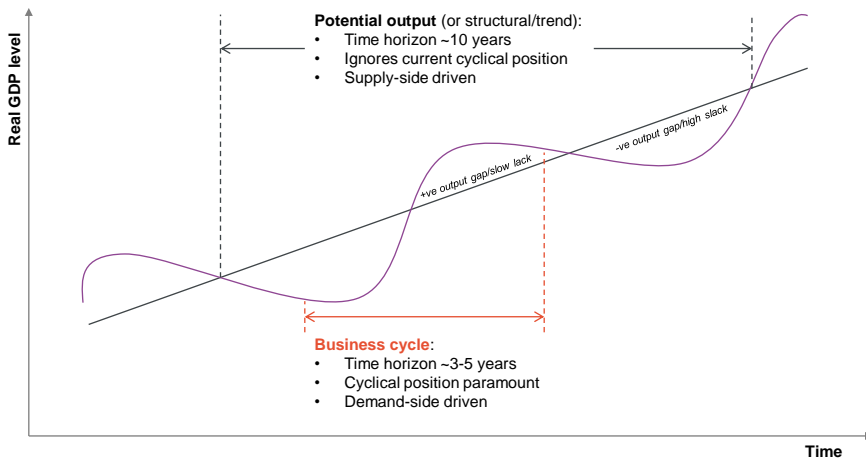
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Inflation framework



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Output gap: Potential vs Business cycle

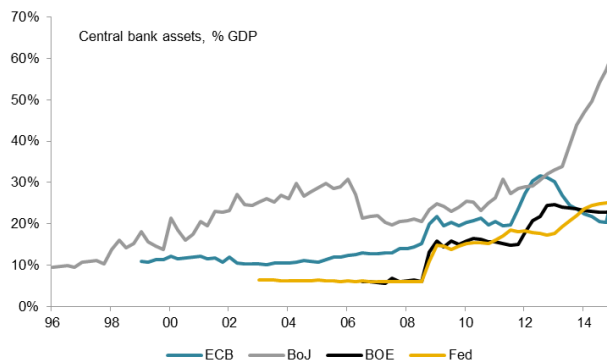


Inflation expectations anchored



Central banks “tamed” inflation & expectations

Monetary Policy (short term driver)



Base interest rate	QE / QQE
Forward guidance	Reserve requirements

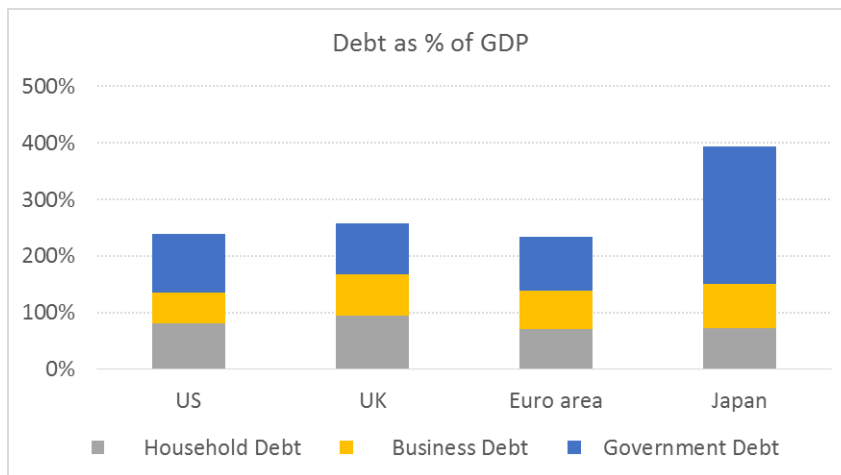
Commodity Prices (short term driver)



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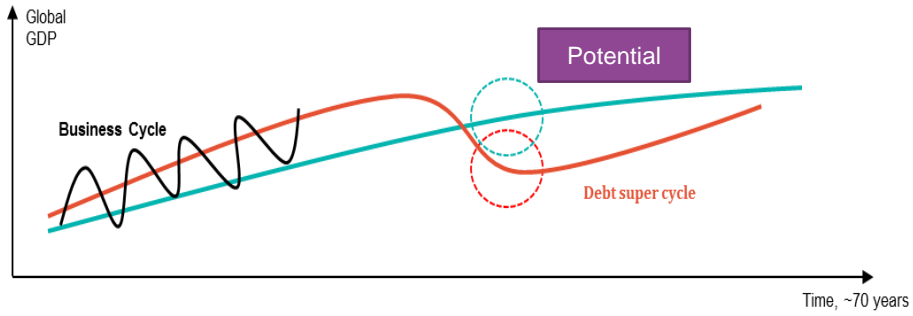
Debt fuelled growth (long term driver)



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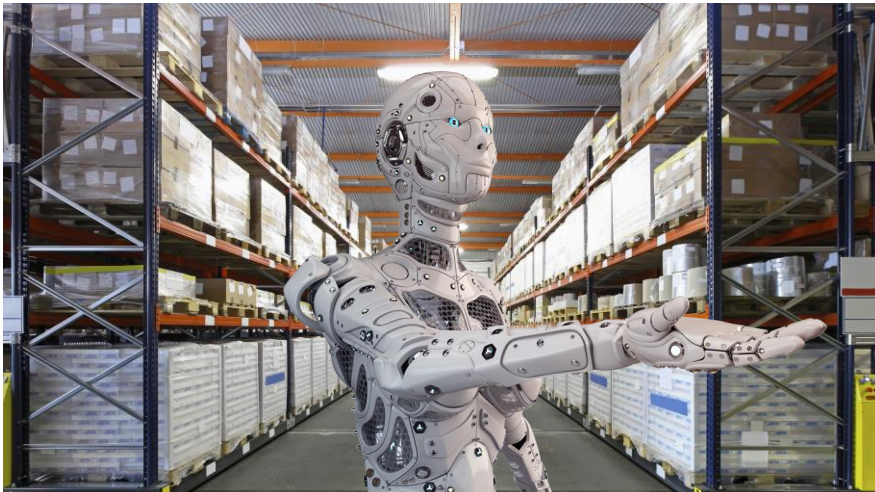
Debt fuelled growth (long term driver)



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Productivity (long term driver)



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Demographics (long term driver)



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Country-level analysis: short term

Factor	US	UK	Germany	Japan
Monetary policy	Expect low and slow rate rises from end 2015. Sensitivity to interest rate rises, so rising rates could slow demand and therefore restrict inflation. QE ended.	Expect low and slow rate rises from mid 2016. Sensitivity to interest rate rises, so rising rates could slow demand and therefore restrict inflation. QE ended.	QE extremely accommodative given position in debt cycle and weakening currency increases cost of imports and improves export competitiveness leading to higher demand.	No-holds barred Q&E trying to overcome entrenched low inflation expectations. Weaker currency increases cost of imports and improves export competitiveness, increasing demand.
Inflation expectations	Stable, low inflation expected.	Stable, low inflation expected.	Stable, low inflation expected.	Very low expectations below BOJ target inflation.
Commodity prices	Falling oil price			
Output gap	Around - 1% of GDP and actual growth closing slowly on potential growth of 2 - 2.5%.	Around - 0.5% of GDP and expected to close slowly on 2% potential growth.	Around + 1% of GDP. Economy likely to grow above potential in medium-term, affecting goods or real assets (property).	Estimate neutral but very hard to say.
Summary	Low positive inflation but with risk of deflation.	Low positive inflation but with risk of deflation.	Inflationary environment due to low levels of slack and accommodative monetary policy, set with reference to Eurozone.	Stalemate between Abenomics and entrenched views of inflation.

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Country-level analysis: long term

Factor	US	UK	Germany	Japan
Inflation expectations	Stable, low inflation expected	Stable, low inflation expected	Stable, low inflation expected	Very low expectations below BOJ target inflation
Demographics 2012-22 (UN database)	Slightly growing Population growth: 0.8% Labour growth: 0.3%	Slightly growing Population growth: 0.8% Labour growth: 0.2%	Rapidly ageing Population growth: -0.2% and labour growth: -0.6%	Rapidly ageing Population growth: -0.2% Labour growth: -0.9%
Productivity	Appears to be long term declining productivity. Tech change is less transformative than in the past	Appears to be long term declining productivity, and recovery has been associated with "productivity puzzle"	Productivity of labour force expected to reduce due to ageing population	Productivity of labour force expected to reduce due to ageing population
Debt fuelled growth	Very high levels of household debt. Households expected to reduce debt relative to income, reducing demand growth	Very high levels of household debt. Households expected to reduce debt relative to income, reducing demand growth	Relatively low household and government debt for cultural reasons.	Astronomical government and reasonable household and corporate debt Government debt domestically funded and unsustainable in long term
Global pressure	Disinflationary because high capacity in many economies, e.g. Eurozone, Japan and parts of China			
Summary	Deleveraging high levels of household debt expected to be main driver	Deleveraging high levels of household debt expected to be main driver	Declining labour productivity and low household debt offset by rapidly ageing population	Rapidly ageing population and government debt unsustainable to be funded in current form in long term without tax rises

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Managing inflation risk

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Some views on managing inflation risk

1. “We ignore inflation risk – we assume it does not deviate from expected”
2. “We are in a low interest rate environment and the major risk is deflation so it’s not worth managing”
3. “Investible assets cannot hedge claims inflation entirely so there is no point using them”
4. “Claims inflation is slow to emerge. We monitor it but do not think further action is needed”
5. “We believe inflation is a risk and want to do more to manage it”
6. “We understand and manage inflation risk proportionately for our needs”

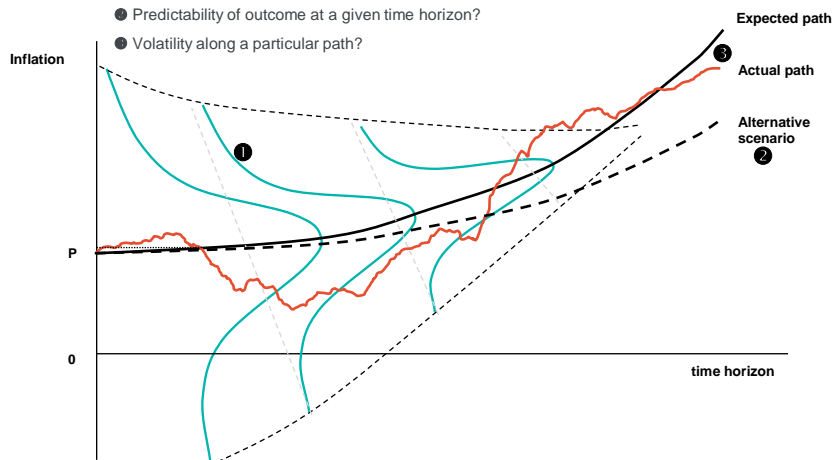
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Risk has a time horizon dimension

Risk =

- Volatility of outcome at a particular time horizon?
- Predictability of outcome at a given time horizon?
- Volatility along a particular path?

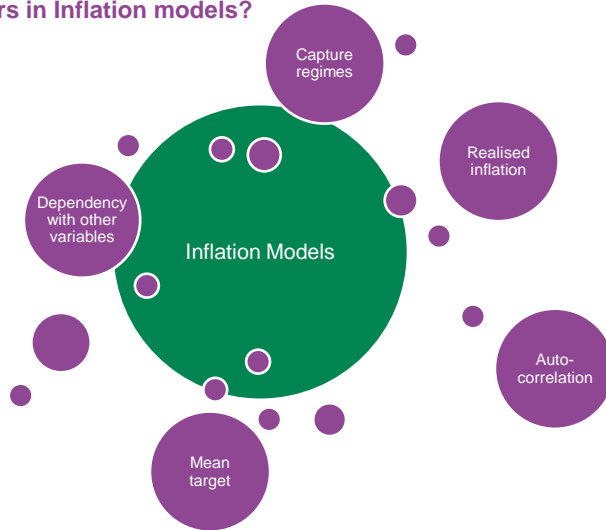


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Modelling

What matters in Inflation models?



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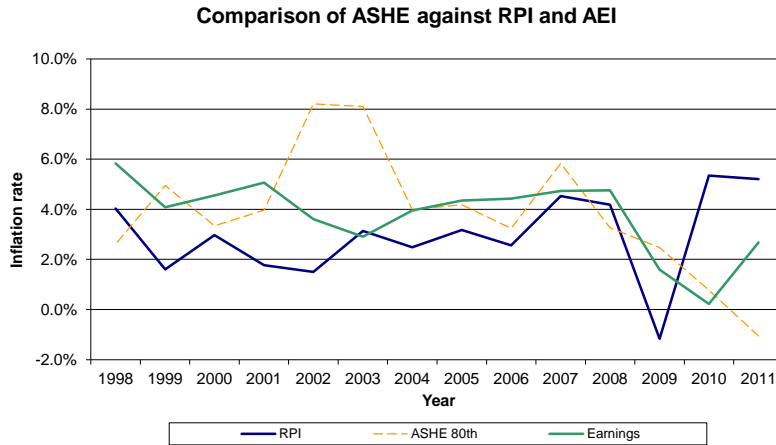
Toolkit for mitigating, reducing or transferring inflation risk

<p>Reduce inflation-sensitivity of new business</p> <p>Underwriting and product design (indexation clauses, claims made policies)</p>	<p>Transfer reserve exposure</p> <p>Securitisation (sell ILS e.g. AXA's motor portfolio)</p>
<p>Reduce volatility through pooling risk</p> <p>Portfolio management (change mix of business to reduce inflation sensitivity)</p> <p>Diversification (across regions and insurance classes)</p>	<p>Mitigate impact of inflation</p> <p>Reinsurance (XoL casualty covers, align indexation clauses with underlying policies)</p> <p>LDI (invest in assets that provide returns linked to inflation)</p>

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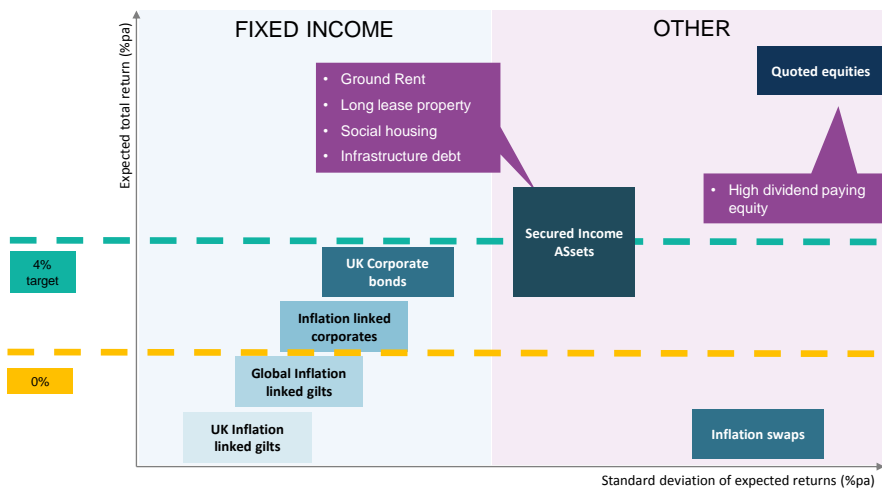
Assess Exposure: ASHE ; RPI ; AEI



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Investment options for liability hedging



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One approach for hedging inflation risk

1. Identify inflation sensitivity of liabilities and beta to investible inflation measure (RPI)
2. Determine target hedge ratio (price; minimum risk; capital)
3. Select investments to achieve target hedge ratio (funding; investment policy / return target; other risks e.g. IR)

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