



Tailflation: Forecasting, Modelling and Managing it

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13 September 2016

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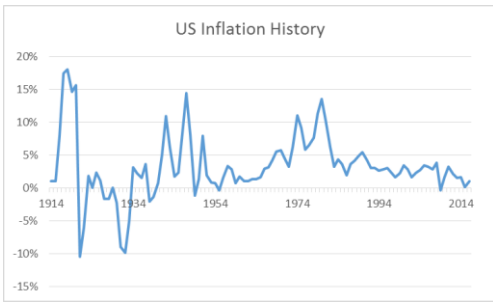
Agenda

- Part 1:** Why is inflation important?
- Part 2:** Inflation framework
- Part 3:** Managing inflation



Why is inflation important?

Inflation history



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Impact of inflation on non-life insurance

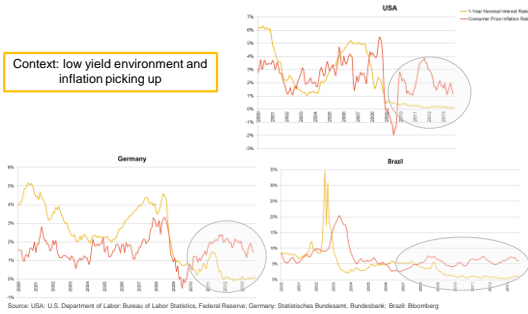


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Real Discount Rate

Context: low yield environment and inflation picking up



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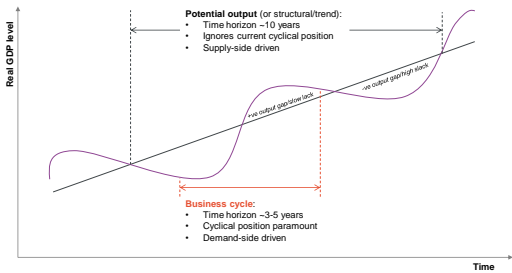
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Inflation framework

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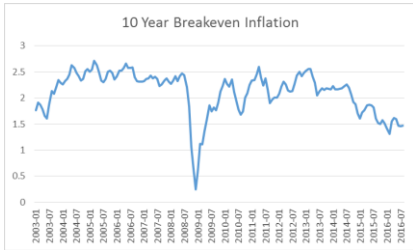
Output gap: Potential vs Business cycle



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Inflation expectations anchored

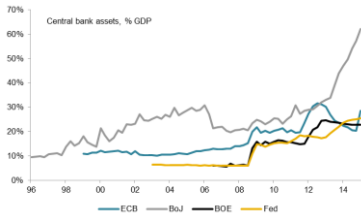


Central banks "tamed" inflation & expectations

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Monetary Policy (short term driver)



Base interest rate QE
Forward guidance Reserve requirements

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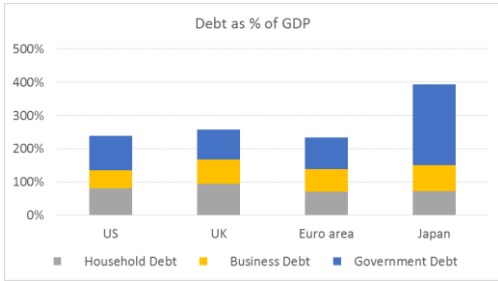
Commodity Prices (short term driver)



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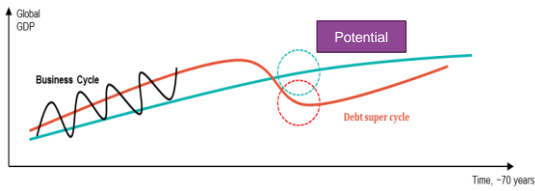
Debt fuelled growth (long term driver)



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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 OQE 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

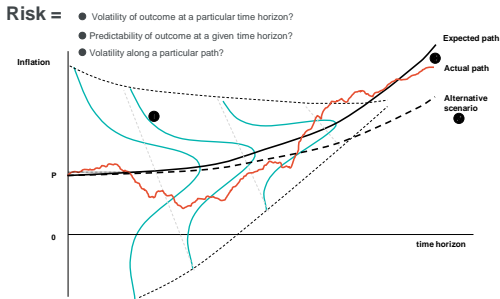
Some views on managing inflation risk

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

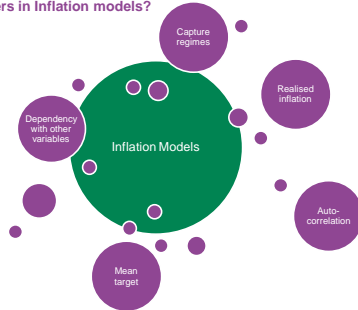


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Modeling

What matters in Inflation models?



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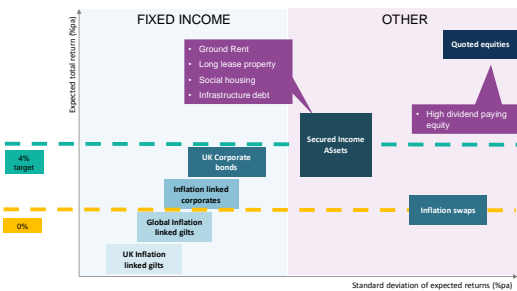
Toolkit for mitigating, reducing or transferring inflation risk

<p>Reduce inflation-sensitivity of new business</p> <p>Underwriting and product design (indexation clauses, claims made policies)</p> <p>Ground Rent</p>	<p>Transfer reserve exposure</p> <p>Securitization (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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Investment options for liability hedging



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