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Potential impacts of autonomous vehicles on the UK insurance sector – Bank of England Quarterly Bulletin 2017 Q1

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Articulate
Sponsorship
Thought leadership
Progress
Community
Sessional Meetings
Education
Working parties
Volunteering
Research
Shaping the future
Networking
Professional support
Enterprise and risk
Learned society
Opportunity
International profile
Journals
Support

Imagine a world where cars can drive themselves

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Where cars don't look like cars?

Content removed for external publication

Where coffee houses transport you from A to B?

Content removed for external publication

Source: <https://www.standard.co.uk/news/transport/revealed-vision-of-how-london-would-look-if-driverless-cars-were-used-by-the-masses-a3484231.html>

Where you can do your shopping on the move?

Content removed for external publication

Source: <https://www.standard.co.uk/news/transport/revealed-vision-of-how-london-would-look-if-driverless-cars-were-used-by-the-masses-a3484231.html>

Where cars almost never crash?

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Source: <https://iwsmt-content-ok2nbdvvyp8jbrhdp.stackpathdns.com/95201620215887528.gif>



BANK OF ENGLAND

Quarterly Bulletin

2017 Q1

Topical article

Potential impacts of autonomous vehicles on the UK insurance sector



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[Link to Bank of England Quarterly Bulletin](#)

So why does the Bank of England care?



BANK OF ENGLAND

Assessment – individual, firm and whole-of-market

Bank of England

Top Down view of **whole market**:
impact of AV on motor insurance sector

DfT / Catapult Transport system

Quantify size & core economic impacts:
trade, gross output & investment, GVA and jobs

Individual motor insurers

Blended view for **single portfolio** of motor insurance: assumptions required

OEMs, Research institutes, Tech Companies

Assessment of safety impact for **individual vehicles**



Research key findings

- Uptake of autonomous vehicles likely to be gradual
 - but wide range of opinion
 - more rapid uptake possible
 - differing views on technological, ethical and regulatory hurdles
- Central forecast projects reduced motor insurance market
 - contraction of the UK motor insurance market of 21% by 2040.
 - but capital requirements only falling by 12%
- Insurers will need to transform their business models
 - expect future success to increasingly rely on partnerships with technology firms and manufacturers.

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Currently some cars on the road have some Level 1 and Level 2 systems.

L1 – either steering or acceleration automated

L2 – steering and acceleration automated but only in narrow specific circumstances

L3 – car can drive itself but driver needs to remain alert

L4 – car can drive itself but only in defined uses e.g. on motorways

L5 – full end to end automation

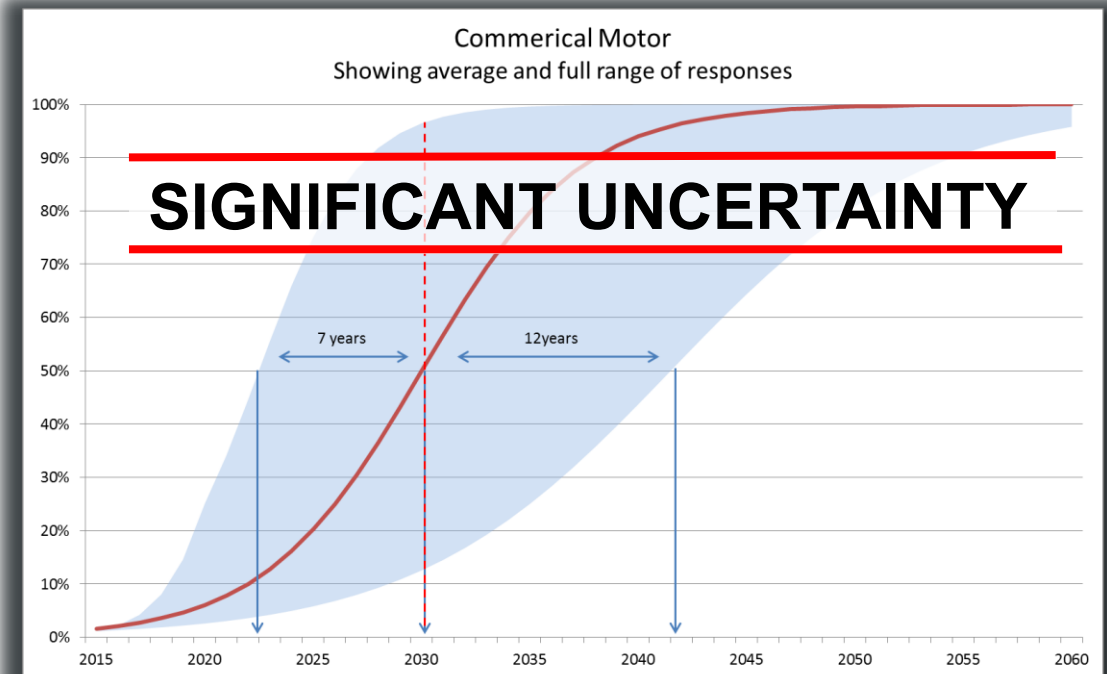
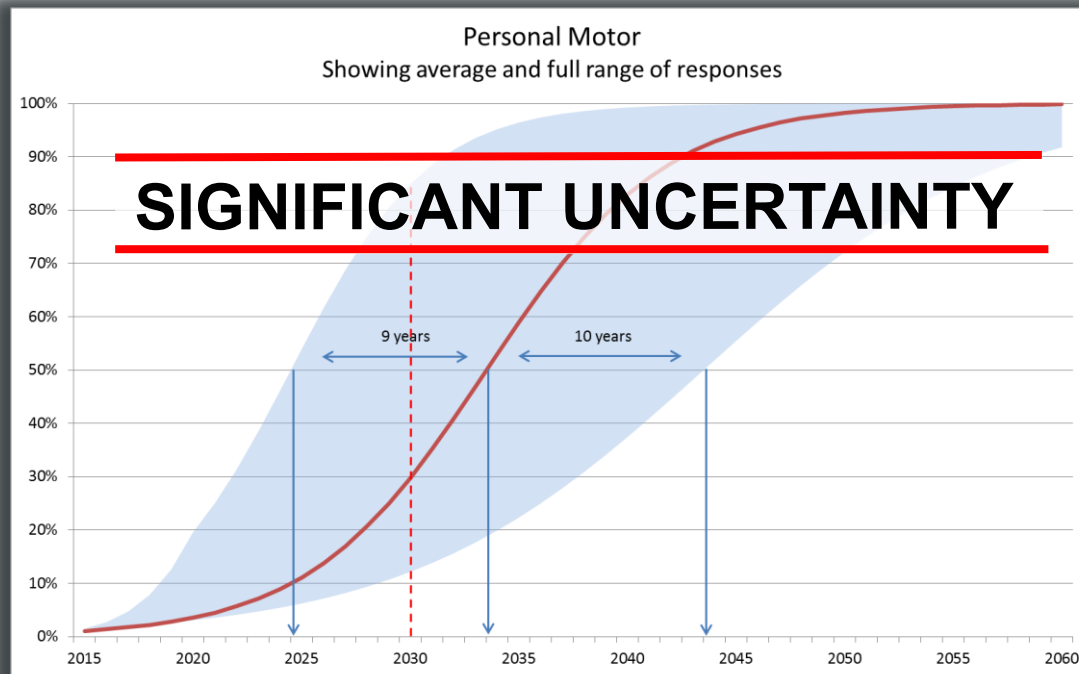
Key observations – Overall Rate of Adoption

Question One: time taken for AV sales to proliferate

- Everyone raise a hand!!
- Keep in mind autonomous means the driver is able be completely 'out of the loop' for periods of time (L4 or L5)
- Keep your hand up if:
 - 1) you think there will be 10% or more AVs sold in 2030 in UK
 - 2) you think there will be 25% or more AVs sold in 2030 in UK
 - 3) you think there will be 50% or more AVs sold in 2030 in UK

Key Observations – Overall Rate of Adoption

- Great uncertainty as to when AVs will filter in to new car sales
- 30%/50% of new sales for Personal/Commercial are AVs by 2030
- Commercial expected to be adopted ahead of Personal
- Tech firms generally more optimistic on adoption



Question One: time taken for AV sales to proliferate

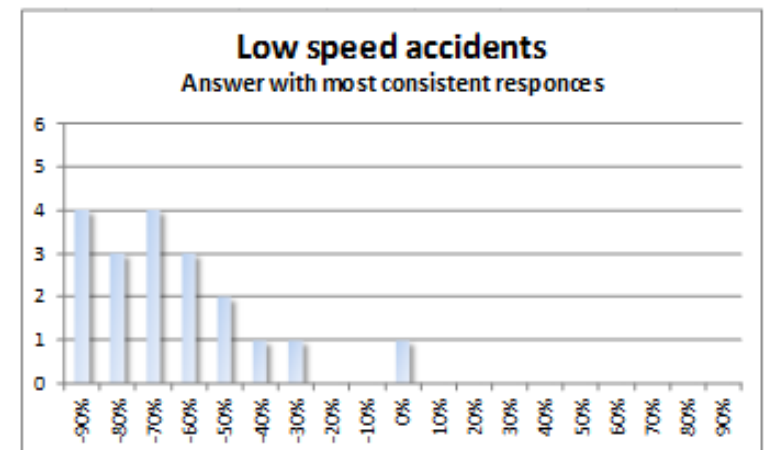
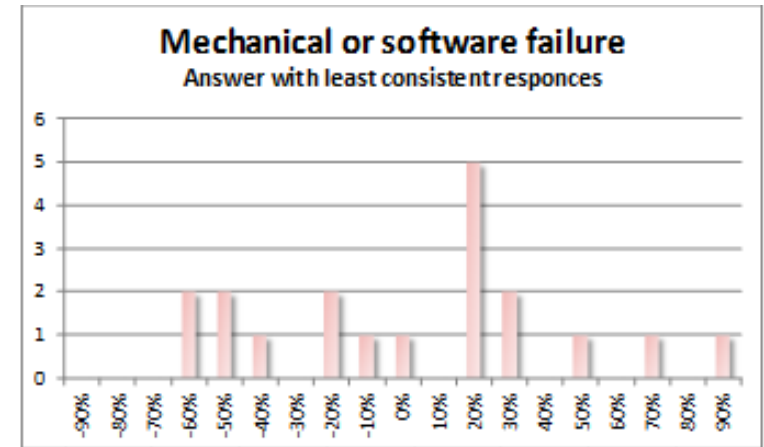
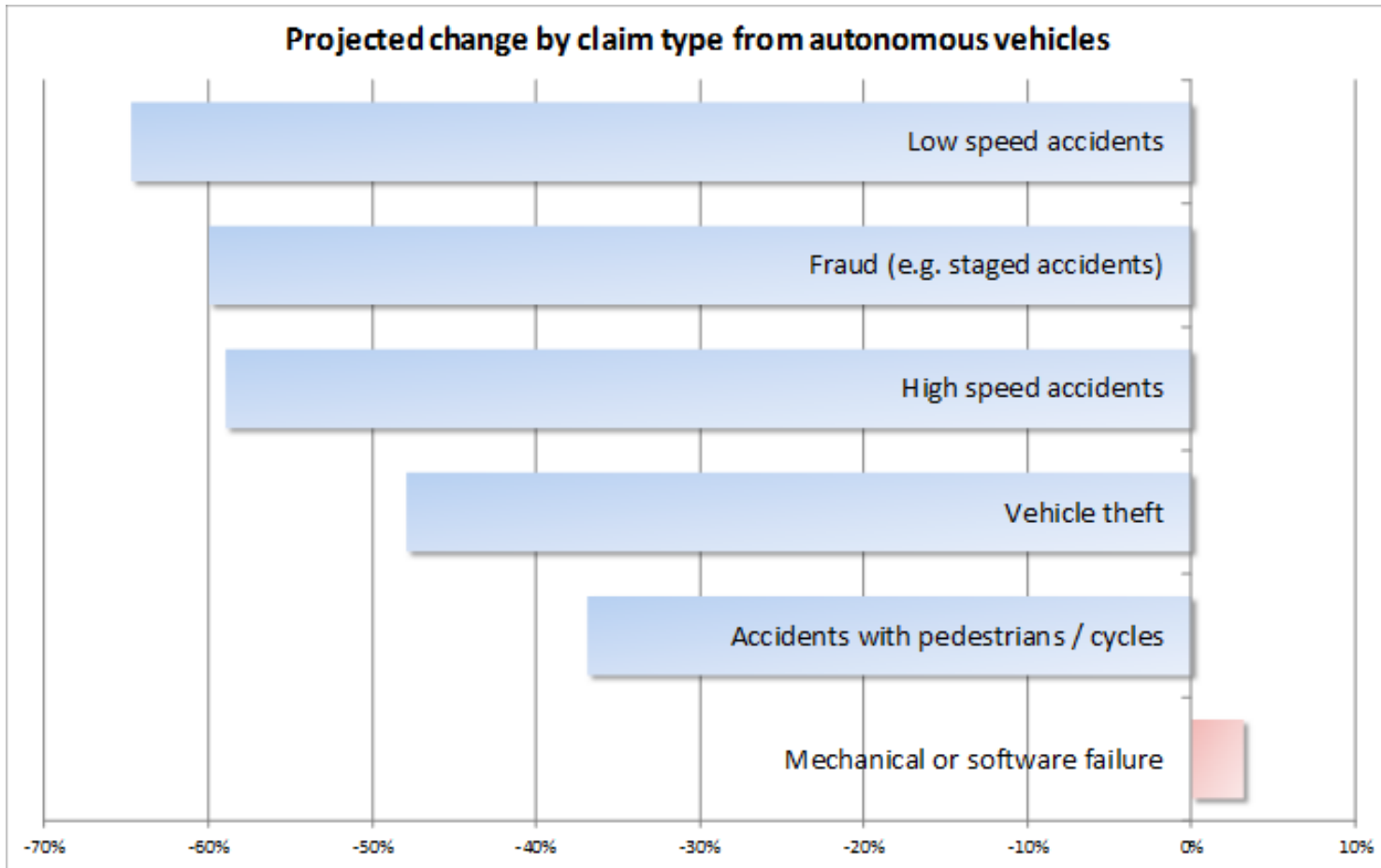
Key Observations – AV impact on insurance claims

Question Seven: estimated impact on claims

- On which type of accident do you think AV will have the greatest impact?
 - 1) Low speed accidents
 - 2) High speed accidents
 - 3) Fraud / staged accidents
 - 4) Vehicle theft
 - 5) Accidents with pedestrians / cycles
 - 6) Mechanical or software failure

Key Observations – AV impact on insurance claims

- Responses suggest a reduction in accidents of up to two thirds (& most consistent responses)
- 60% reduction in fraud; 50% reduction in vehicle theft
- Expected marginal increase in software failures, but mixed opinions



Question Seven: estimated impact on claims

Key Observations – AV impact on insurance claims

Changing claims profile: financial loss per mile per vehicle



UK motor insurance market model

- Made no distinction between motor insurance and product liability insurance
- Used responses to questionnaire on:
 - Q1: When AVs enter the market
 - Q2: Number of total vehicles in 2030
 - Q3: Increase in number of miles travelled by AVs
 - Q7: Claim frequencies
- The risk premium (per policy) is based on the DV and AV mix each year

The BASE CASE (UK private car market)

This is our initial forecast assuming no AVs enter the market.

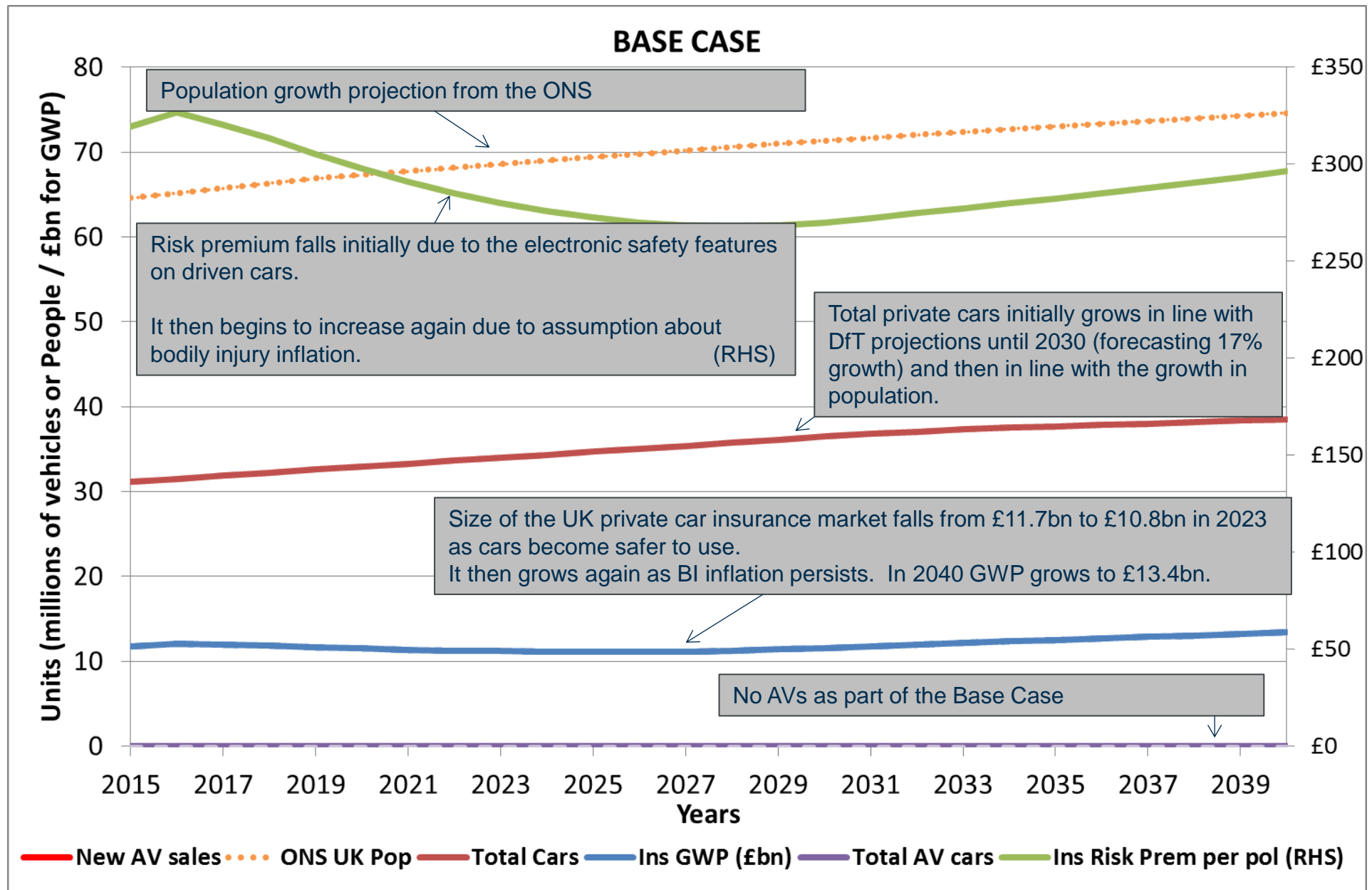
We have developed this using the following key assumptions:

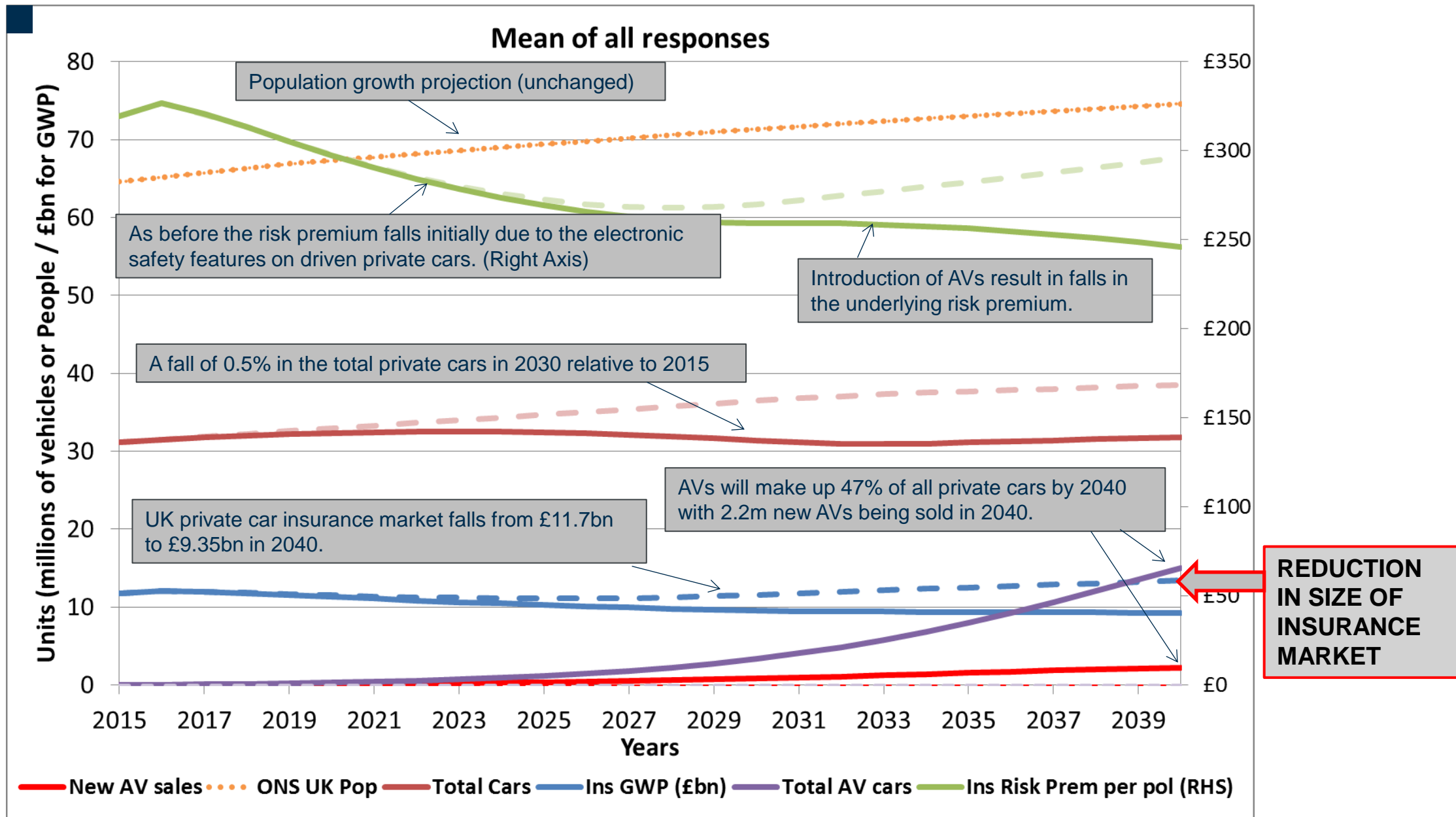
Private Car projection graph

- Number of cars on the road following DfT projections until 2030 and then follows ONS population growth forecasts
- Losses are taken from ABI market information and scaled up to cover the full population of cars
- Driven cars are assumed to improve to become 30% safer by 2030
- Long term bodily injury inflation is assumed to be 2% above inflation (higher in short term). Inflation is assumed to be 0%.

Note on Ogden Discount Rate

- In light of impending consultation that will revisit the process by which the discount rate is set, and the focus of the Bank's work on the longer-term view, we have decided not to revise our projections at this point in time.

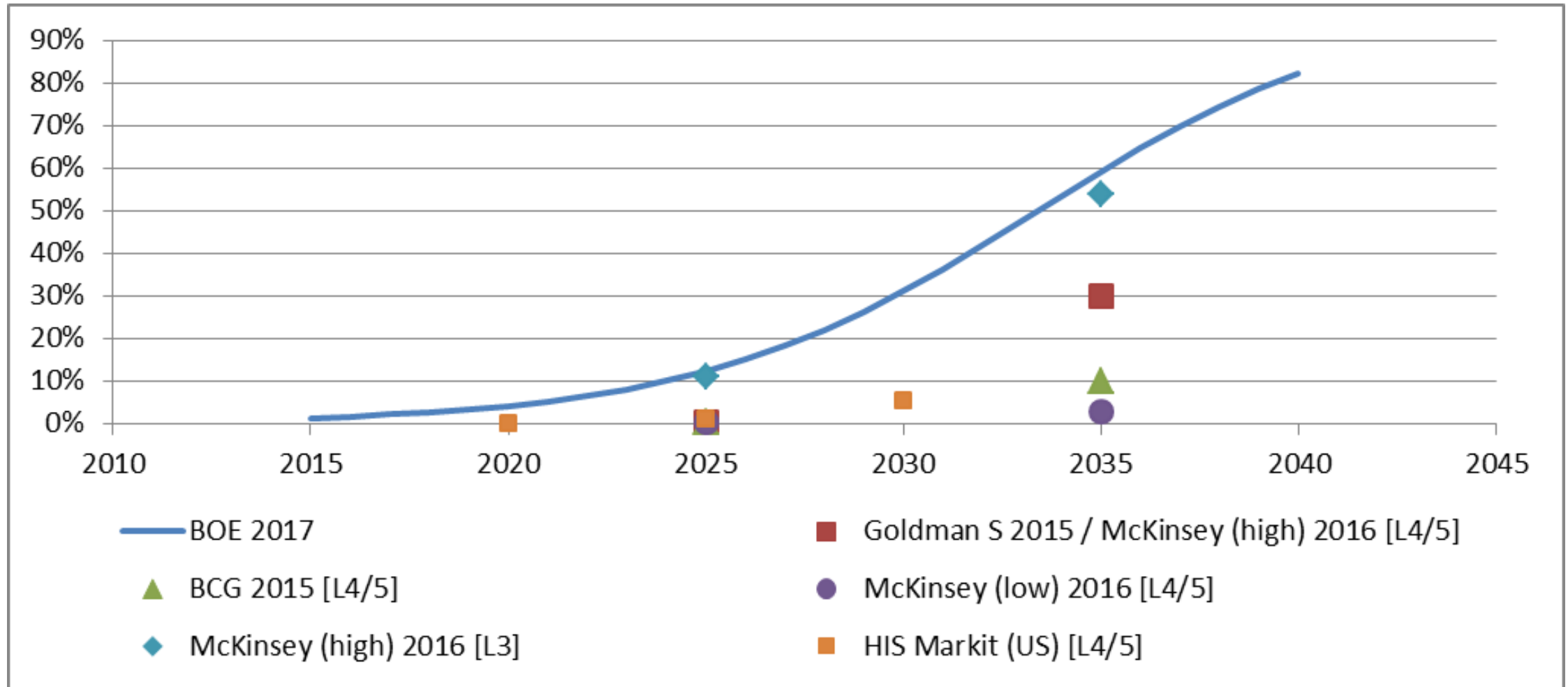




Gross Written Premium UK car – alternative projection



Other studies – Percentage of new vehicle sales are AV



Are insurers considering their business models?

- Admiral – “Admiral ready for the age of the driverless car as it pursues diversification strategy”

Source: <http://www.walesonline.co.uk/business/business-news/admiral-ready-age-driverless-car-12712154>

- Direct Line – Researching the possible effects of driverless cars

Source <https://www.directline.com/media/archive-2016/when-your-car-drives-itself-what-will-you-do-with-the-extra-time>

- Aviva – “In talks with driverless car developers as it faces up to the future”

Source: <http://www.telegraph.co.uk/business/2017/06/18/aviva-talks-driverless-car-developers-faces-future/>

- ABI – “Contrary to what some people might expect, insurers are not standing in the way of this development but actively looking to support progress and innovation,” James Dalton, director of general insurance policy at the ABI.

Source <https://www.abi.org.uk/news/news-articles/2016/09/autonomous-vehicles-response/>

Includes: Admiral, Ageas, Allianz, Aviva, AXA, Co-operative Insurance, Covea, Direct Line Group, esure, LV, Markerstudy, RSA, Zurich, the Lloyd's Market Association and the Motor Insurers' Bureau.

Before we wrap up...



Questions

Comments

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Key Takeaways

- Uptake of autonomous vehicles likely to be gradual
 - but wide range of opinion
 - more rapid uptake possible
 - differing views on technological, ethical and regulatory hurdles
- Central forecast projects reduced motor insurance market
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 - but capital requirements only falling by 12%
- Insurers will need to transform their business models
 - expect future success to increasingly rely on partnerships with technology firms and manufacturers.
- BUT... will developments in electric vehicles, the social acceptability for accidents and concerns about emissions speed up the adoption of more efficient and safer autonomous vehicles?