The Impact of Quantitative Easing on Risks and Risk Management Approaches in the Financial Sector

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By Malcolm Kemp

Chair, AAE Risk Management Committee
Adjunct Professor, Imperial College Business School
Member of ESRB Advisory Scientific Committee
Associate, Barnett Waddingham
Managing Director, Nematrian

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Quantitative Easing and Its Risk Management Impacts

- Introduction
- Impact on yield curves
- Impact on insurers (and pension funds)

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Introduction

- Quantitative Easing (QE)
  - An ‘unconventional’ monetary policy that involves the central bank purchasing (typically) longer-dated government debt with newly created money
  - With aim of pushing up asset prices, lowering yields, stimulating economic activity, meeting inflation targets
  - Widely used after 2007 – 2009 Global Financial Crisis (GFC), as well as in the early 2000s in Japan
- Policies akin to QE used belatedly in 1920s and 1930s Great Depression
  - Economists generally reckon that had they been used sooner, the Great Depression would have been less severe, and that QE programmes adopted in recent years mitigated the impact of the GFC on the real economy

Side-effects?

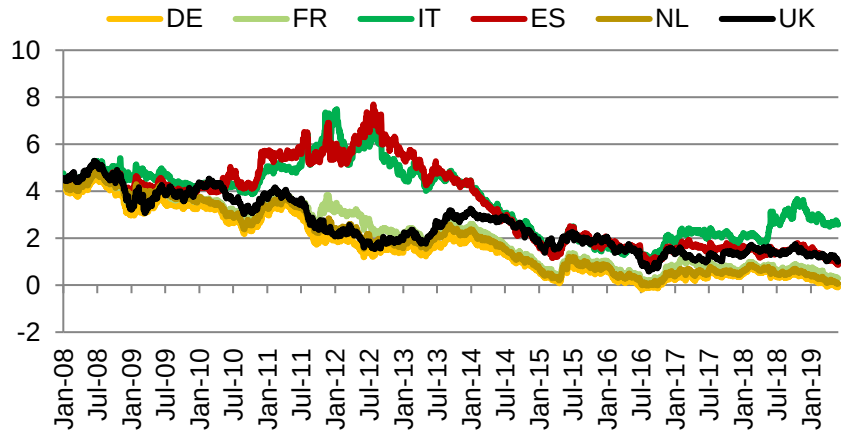
- QE was expected to be quick, central banks were expected to revert to 'conventional' policy once short rates rose above their effective lower bound
  - But reversion to previous norms has been a long time coming
  - Long-dated interest rates have continued to decline
- Now QE is being blamed for 'destroying' the financial sector:
  - Life insurers (and DB pension funds) challenged due to the prevalence of long-term guarantees in their liabilities. Banks suffer squeeze in interest margin
  - Asset managers have arguably benefited from QE. Business models elsewhere in the financial sector are shifting to be more asset management-like (e.g. more new business into asset management and wealth management subsidiaries, more unit-linked life insurance, DB to DC shift in pensions, more fee-based business)
  - QE also perceived as creating wealth redistribution

ECB's Quantitative Easing

- ECB website indicates:

"*The ECB started buying assets from commercial banks in March 2015 as part of its non-standard monetary policy measures. These asset purchases, also known as quantitative easing or QE, support economic growth across the euro area and help us return to inflation levels below, but close to, 2%.*"

10 year government bond yields

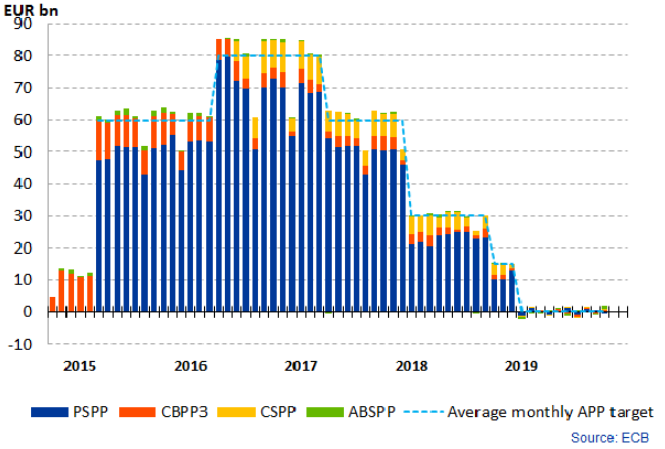


Source: EIOPA (2019) Financial Stability Review June, 2019

Holdings (amortised cost) end Oct 2019	Eur m
corporate sector purchase programme (CSPP)	177,096
public sector purchase programme (PSPP)	2,082,106
asset-backed securities purchase programme (ABSPP)	26,925
third covered bond purchase programme (CBPP3)	260,755
Total	**2,546,883**

Source: ECB

ECB QE Monthly asset purchases



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Impact on yield curves

- The big worry from the (insurance) industry perspective
- ESRB (2016) highlighted two main views regarding why interest rates had come down (and they have come down further since then):
  - Cyclical factors (including responses to them such as QE)
  - Structural factors (e.g. ageing demographics)
- Difficult to say which has had the greater impact

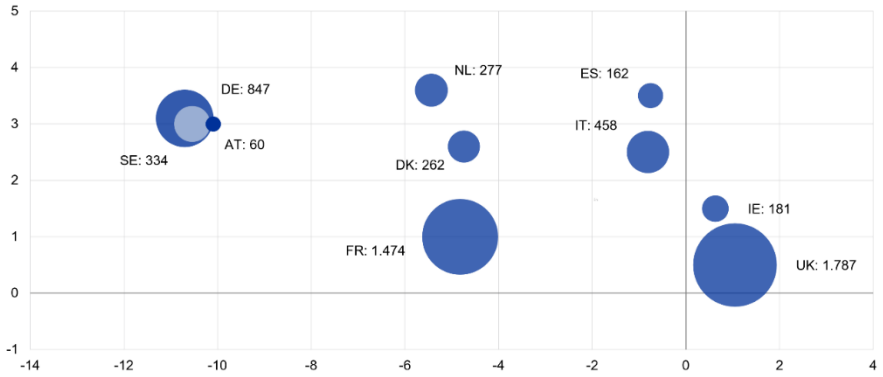
Whatever the cause, insurance industry poorly positioned

- ESRB (2016) highlighted apparent life insurer asset-liability mismatches in some jurisdictions
  - Particularly in some jurisdictions where high guaranteed rates were prevalent
- Little aggregate change since then according to recent ESRB September 2019 Financial Stability Dashboard

Chart 9

Life insurance: average guaranteed rate and duration mismatch

x-axis: duration mismatch (years)
y-axis: average guaranteed rate in %
bubble size: size of the industry in EUR billion)

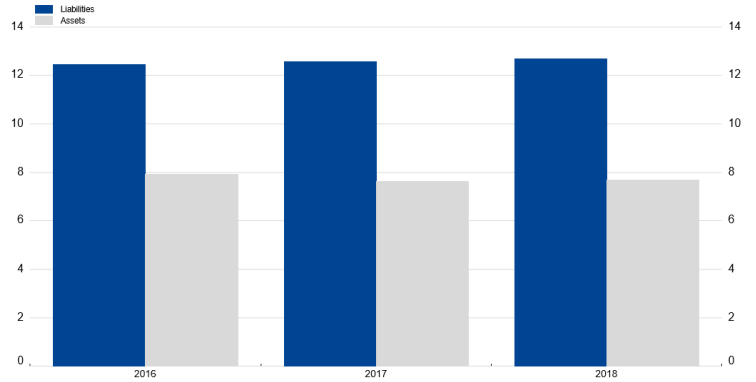


Source: ESRB Insurance Expert Group and EIOPA.
Note: For further details, see Technical Documentation, Section C. Negative duration gap: longer maturity of liabilities vs. assets.

Source: ESRB (2016)

5.6 Insurance groups' assets and liabilities duration

(EU; years; last observation: 2019)



Source: EIOPA, based on Solvency II Reporting.
Notes: asset duration is calculated as Weighted Average Modified Duration.
Liability duration is calculated as Weighted Average Macaulay Duration.
For more details on the Solvency II reporting please see Annex I to the risk dashboard.

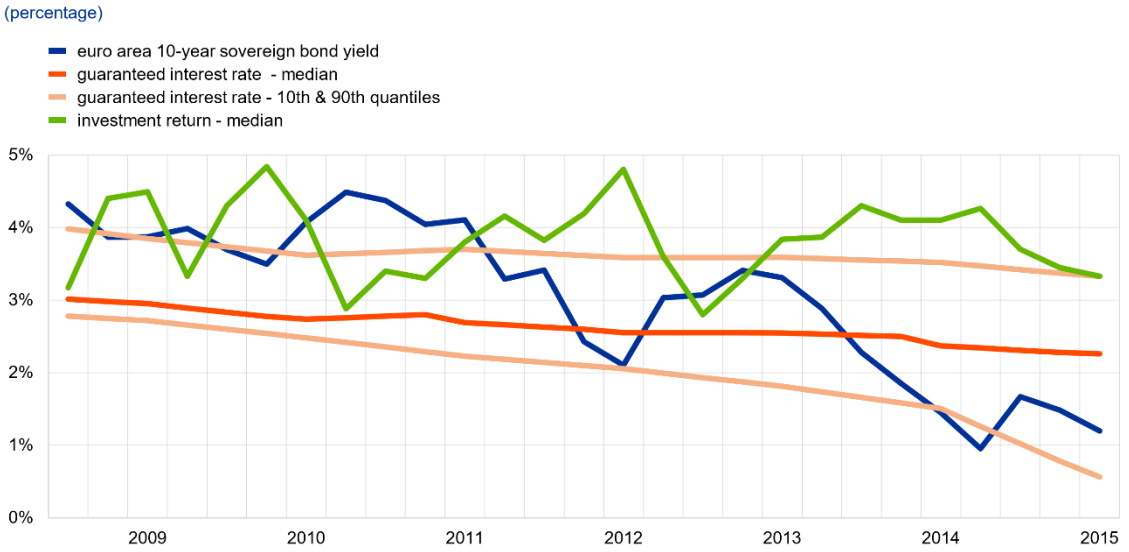
Source: ESRB (2019)

And slow to react?

- ESRB (2016) also suggested a potentially slow response to the issue by some insurers
  - Perhaps due to commercial pressures
  - And/or hope that low interest rates might just be a temporary phenomenon
  - And/or a then robust capital position?

Chart 10

Life insurance: decline in rate of guarantees



Source: EIOPA.
Note: The figure is based on a sample of 32 large insurance groups in the EU and Switzerland. See also Technical Documentation, Section C.

Source: ESRB (2016)

Why does QE work? (1)

- If central bank and government finances are consolidated, and if QE mainly targets government debt, then
  - QE effectively involves a shift in the duration of the outstanding debt, communicated in advance
  - Why should this create economic stimulus and not just an arbitrageur's licence?
- There is an upper limit on programme size: a central bank can't own more than 100% of its own government's debt
  - At close to this upper limit, government would presumably lose scope to manoeuvre, running risk of currency debasement, hyper-inflation, …
  - Maybe QE merely playing with this optionality?

Why does QE work? (2)

- Harrison (2017) refers to Ben Bernanke: "*the trouble with QE is that it works in practice, but not in theory*"
- He thinks consensus focuses on the so-called 'portfolio balance' channel
  - Relative demand for alternative asset classes would depend on their relative prices or returns, due to imperfect substitutability:

    "*[A]ssets are assumed to be imperfect substitutes for each other in wealthowners' portfolios. That is, an increase in the rate of return on any one asset will lead to an increase in the fraction of wealth held in that asset, and to a decrease or at most no change in the fraction held in every other asset. (Tobin and Brainard, 1963)*"
  - Hence stock of short vs long bonds can influence economic decisions made by different economic agents, including work patterns, borrowing, investment etc.

Why does QE work? (3)

- Harrison (2017) uses this insight to build a model that includes QE as a policy option. It suggests central banks:
  - Should respond rapidly with QE if short rates reach effective lower bound
  - Should exit from QE only gradually, but starting before lower bound becomes relaxed
  - Shouldn't adopt 'permanent' QE as it doesn't create social benefit
- Conversely, the portfolio balance channel can also presumably work in reverse, hence the difficulty of disentangling impact of QE from impact of structural factors (e.g. population ageing) that also impact this balance

Signalling risks

- Signalling and other behavioural effects seem important to how QE works, creating a risk that the signalling doesn't work as expected, e.g.
  - QE might just lead to stagflation
  - Or to currency devaluation (less likely if everyone is doing QE)
- 'Real' investors such as insurers and pension funds might not reinvest proceeds of central bank asset purchases in ways policymakers desire
  - Kemp (2017) notes that these institutions may have become less capable of being 'counter-cyclical' over time
- Policymakers may seek other ways of encouraging such players to behave in a 'counter-cyclical' manner
  - Less helpful to these players if the cycle never turns

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Impact on insurers (and pension funds)

- Whatever the cause of low interest rates, the current environment challenges life insurers with (nominal) policy guarantees and DB pension schemes
- Some issues are highlighted in EIOPA's current Consultation Paper (CP) regarding the Solvency II 2020 Review, including:
  - The level of the Ultimate Forward Rate (UFR) and how the yield curve should be extrapolated towards it past the (eurozone) Last Liquid Point (LLP), currently set at 20 years
  - Interest rate stresses used in the standard formula SCR calculation
- QE has also highlighted that long-dated interest rates can go negative, leading to significant changes in how interest rate risk is typically modelled

UFR and (eurozone) LLP

- UFR originally 4.2% pa, now more dynamic, but still above apparent market observables, which EIOPA think extend out to c. 50 years for eurozone

- Options under consideration for (eurozone) LLP in EIOPA CP:

  1. No change
  2. Leave LLP at 20 years but with additional Pillar 2 and 3 safeguards, e.g. quantify / communicate impact if LLP were 50 years and additional supervisory powers
  3. Increase LLP to 30 years, with similar additional Pillar 2 and 3 safeguards
  4. Increase LLP to 50 years
  5. Different extrapolation beyond 20 years, with similar additional Pillar 2 and 3 safeguards

- Material solvency impacts from Options 3 and 4 (and to a lesser extent 5)

Interest rate risk

- Whatever the cause of low interest rates, QE highlights that they can be pushed (at least temporarily) lower
  - Insight has led to significant changes in how interest rate risk is modelled and potentially therefore managed
- Technical aspects referred to e.g. in AAE (2016)
  - Switch from lognormal to normal pricing conventions for e.g. swaptions, as lognormal based ones can explode or become ill-defined
  - Adoption of “displaced” or “shifted” models for valuation and asset-liability management
  - The shift parameter can be a ‘meta-parameter’, so models not necessarily much harder to calibrate
    - Or calibrate simulations of zero coupon bonds to fit the whole swaption matrix?

Interest rate stresses in standard formula (SF) SCR

- EIOPA had previously asserted that assuming a floor of zero on interest rates was too optimistic. Message reiterated in current CP. As with any change to LLPs some transitional arrangements likely. Internal model firms generally already use models that do not include a zero lower bound. Proposed recalibration for SF SCR involves a 'shifted' approach:
  - Up shock: $r^{up}(m) = r(m) \cdot \left(1 + s^{up}(m)\right) + b^{up}(m)$
  - Down shock: $r^{down}(m) = r(m) \cdot \left(1 - s^{down}(m)\right) - b^{down}(m)$

Maturity m (years)	$s_t^{down}(m)$	$b_t^{down}(m)$	$s_t^{up}(m)$	$b_t^{up}(m)$
1	58%	1.16%	61%	2.14%
2	51%	0.99%	53%	1.86%
3	44%	0.83%	49%	1.72%
5	40%	0.71%	45%	1.58%
7	37%	0.63%	37%	1.30%
10	40%	0.61%	30%	1.05%
15	45%	0.57%	28%	0.98%
20	50%	0.50%	25%	0.88%

Source: EIOPA (2019)

EIOPA Solvency II 2020 Review CP also proposes

- Changes to Volatility Adjustment (VA), perhaps making it more (spread risk) counter-cyclical
- Proposals for additional Pillar 2 and Pillar 3 disciplines, including:
  - Liquidity risk management planning and reporting
  - Systemic risk management planning and reporting
  - Additional ORSA and Prudent Person Principle elements
- Inclusion of other macroprudential tools
- Increased emphasis on recovery and resolution planning
- Additional guidance on dynamic policyholder modelling (c.f. a swift 'back-to-normal' scenario)

ORSA proposals include

- Enhanced asset allocation and sensitivity analyses if using VA
- Expansion of use of ORSA to include macroprudential perspectives
  - E.g. integrate ORSA with EIOPA (macroprudential) stress test scenarios
- But also some proposals linked to proportionality in context of ORSA, e.g. less frequent need to assess standard formula appropriateness

Other risks / risk management responses

- If problem sufficiently challenging, firms may be willing to hedge if practical
  - And/or use policy flexibilities even if negative implications for sector longer-term
  - C.f. Guaranteed Annuity Rates, WP, equity-linked guarantees in UK
- A savings shift to elsewhere (e.g. to UCITS) would impact expense ratios
- Will other trends, e.g. disrupters, fintech, big tech, digitalisation, limit scope for new business to offset these issues?
- Participating business seeing good growth elsewhere, e.g. Asia
  - Pivot geographically if group large enough?

Summary

- **Ultra-low interest rates stressing many parts of the financial sector**
  - Less clear whether this is principally due to QE
- **Multiple regulatory tools being proposed in Solvency II 2020 Review**
  - Including change to LLP / interest rate stresses / added Pillar 2 and Pillar 3 disciplines / macroprudential tools / enhanced recovery and resolution planning
  - Likely knock-on implications for internal risk management activities for vulnerable companies, especially if low for long interest rate environment continues
- **Shifting business models**
  - E.g. greater new business directed towards asset management / wealth management, increased unit-linked business, DB to DC pensions, fee based business

References

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