Institution: University of Bath

Unit of Assessment: C17 Business and Management Studies

Title of case study: Identifying the portfolio balance channel as a key mechanism for the effectiveness of quantitative easing

Period when the underpinning research was undertaken: 2012–2018

Details of staff conducting the underpinning research from the submitting unit:

Name(s):	Role(s) (e.g. job title):	Period(s) employed by submitting HEI:
Ian Tonks	Professor of Finance	September 2010 – August 2018

Period when the claimed impact occurred: August 2013 – December 2020

Is this case study continued from a case study submitted in 2014? No

1. Summary of the impact

Following the financial crisis, the Bank of England (BoE) adopted 'non-standard' monetary policies to stabilise the macroeconomy. Research at the University of Bath, led by Professor Tonks, demonstrated how institutional investors changed their asset allocation in response to quantitative easing (QE). This evidence on the effectiveness of the 'portfolio balance channel' gave confidence to the BoE to further extend QE. It also encouraged the European Central Bank (ECB) to adopt its own asset purchase programme initially worth EUR1,100 billion (but accumulated to EUR2,600 billion by end-2018), confident that there was a mechanism through which QE operated. This policy helped to shield the Euro-area from subsequent contagion effects of the European sovereign debt crises, and allowed the ECB to achieve its monetary goals, promoting growth and reducing unemployment.

2. Underpinning research

Context

Following the global financial crisis of 2008, central banks and financial market regulators have been focused on the significance of financial institutions, such as banks and institutional investors, for ensuring the stability of the financial system. They have sought to understand the transmission mechanisms through which monetary policy influences the real economy, particularly in post-crisis circumstances when there is a need to implement 'non-standard' measures, such as quantitative easing (QE). The European Central Bank (ECB) started its QE asset purchase programme in 2015 and continued purchasing sovereign and corporate bonds for the next four years. By December 2018, its balance sheet had increased by EUR2,600 billion (December 2018). In March 2020, the ECB announced a further emergency QE programme of EUR750 billion (March 2020) up to the end of 2020 to mitigate the economic impact of the coronavirus crisis. Professor Tonks, who worked at the University of Bath between 2010 and 2018, was seconded to work at the BoE in 2012–2013 on a project to assess the behaviour of institutional investors in response to the Bank's QE policies.

The portfolio balance channel

The operation of the 'portfolio balance channel' by institutional investors has been emphasised by monetary policymakers as a key channel through which QE policies work. Research by Professor Tonks and colleagues (Joyce and Liu) from the Bank of England (BoE) describes how the portfolio balance channel provides a means for central bank asset purchases to affect the real economy (R1, R2). By purchasing assets from the non-bank private sector, including institutional investors such as pension funds and insurance companies, in return for central bank

reserves, QE increases institutional investors' broad money holdings. If money is seen as an imperfect substitute for the assets being purchased, these investors then seek to rebalance their portfolios by buying other, riskier assets, such as corporate bonds. After selling these assets, institutional investors want to rebalance their portfolios. During this rebalancing process, asset prices will rise until investors are indifferent to the overall supplies of money and financial assets. Higher asset prices, or equivalently lower yields, may in turn be passed on in lower borrowing costs for households and firms, and may also increase the net wealth of asset holders, both of which should stimulate real activity and inflation.

Evidence from counterfactual exercises

Tonks and his co-authors assessed whether the investment behaviour of insurance companies and pension funds in the UK during the global financial crisis was consistent with the operation of the portfolio balance channel, by conducting a number of counterfactual exercises using both macro and micro data on the changes in asset allocations of pension funds and life insurance companies (R1, R2). The results suggest that QE led institutional investors to shift their portfolios away from government bonds and towards corporate bonds, demonstrating the existence of the channel. But portfolio rebalancing seems to have been limited to corporate bonds and did not extend to equities. This research is significant because it identifies the channel through which non-standard monetary policy operates and enables policymakers to adopt channel-related measures with the confidence that they work. The final version of the working paper (R1) was published in 2014, but earlier versions of this research and presentations of the results were shared internally within the Bank of England and at workshops with other central banks.

3. References to the research

R1 Joyce, M., Liu, Z. & Tonks, I. **(**2014) 'Institutional investor portfolio allocation, quantitative easing and the global financial crisis', *Bank of England Working Paper No. 510,* pp. 1-49 Available at: https://www.bankofengland.co.uk/working-paper/2014/institutional-investor-portfolio-allocation-quantitative-easing-and-the-global-financial-crisis (Internal Bank of England versions of this work were circulated earlier).

R2 Joyce, M.A.S., Liu, Z., & Tonks, I. (2017) 'Institutional investors and the QE portfolio balance channel', *Journal of Money, Credit and Banking* 49(6), pp. 1225–1246. DOI: 10.1111/jmcb.12415

4. Details of the impact

The Bank of England

The research had a critical impact on the Bank of England's policy of quantitative easing (QE) because it demonstrated that the most powerful effect was on corporate bonds. Results from the research were circulated through conference presentations and internal seminars at the BoE, and then published in 2014. Evidence for the reach and significance of the research is corroborated in letters from the Deputy Governor, BoE between 2008 and 2014 and member of the Monetary Policy Committee (MPC), and a senior member of the BoE who was also a member of the MPC from 2009 to 2014. The Deputy Governor states that in the early days of QE, the understanding of the possible transmission channels was "*very much guesswork*". However:

> "*As more evidence became available, both in the UK and the US, we were able to understand better the precise mechanisms at work. Ian Tonks' research ... represented an important step in this process, as it demonstrated that the most powerful effect was onto corporate bonds (a relatively close substitute for gilts), with a much more muted impact on the prices of other assets, such as equities*" (S1).

The MPC member identified the Bath research as being particularly important for the BoE, stating that:

> "*In the Bank of England, a range of channels were identified for the possible impact [of QE]... but in the main House View, the portfolio balance effects was thought particularly important. The idea was that those institutions who would have held gilts, instead get incentivised to hold riskier assets such as corporate bonds, this channelling more lending into the economy... [the researchers] are typically thorough in the methods and analysis, using a variety of methods to estimate the portfolio balance impact of QE*" (S2).

They further explained that the research helped "*to set the policy agenda for the future, and [that] the [BoE's] monetary toolkit became richer as a result*", stating that it "i*nfluenced subsequent decision makers in other countries who continued to engage in QE after the BoE had stopped purchasing*" (S2).

The European Central Bank

The President of the European Central Bank (ECB), Mario Draghi, cited the research in justifying the ECB's expanded asset purchase programme worth EUR1,100 billion, in a major policy speech in March 2015 (S3). The President explained that the work of Professor Tonks and colleagues demonstrated how the portfolio balance channel works for large-scale asset purchase programmes and meant that the ECB could proceed with its own asset repurchase programme with the confidence that there was evidence that such schemes have positive macroeconomic effects. He stated:

> "*Experience with large-scale asset purchase programmes in other jurisdictions shows that the portfolio balance channel works. For instance, model-based estimates show that as a consequence of the Bank of England's quantitative easing programme, insurance companies and pension funds invested less in gilts and more in corporate bonds [citing R1] leading to price increases of both investment grade and non-investment grade corporate bonds*" (S3).

The reference to R1 was the only cited piece of research in the President's speech, attesting its salience in the decision-making process.

Impact of large-scale asset purchases

The knowledge that the research had identified the monetary transmission channel through which government asset purchase programmes work allowed the ECB to proceed with its own major asset repurchase programme in January 2015. The President of the ECB explained that:

> "*The impact of the [asset purchase] programme [in January 2015] and the ECB's previous monetary policy measures is visible. Bank lending rates to companies started to decline in the third quarter of last year [2014], market-based measures of inflation expectations have reacted positively to the ECB's balance sheet expansion over recent months, and Euro-area long-term sovereign yields have fallen – in spite of the renewed crisis in Greece. This suggests that the asset purchase programme may be shielding other euro area countries from contagion, which also helps the ECB achieve its monetary policy goals across the Euro area. The Euro-area economy grew more than expected in the fourth quarter and unemployment fell to its lowest level since August 2012 in January. While this cannot exclusively be attributed to the ECB's monetary policy, it certainly supports the recovery*" (S3).

Further impact on the economy and population of the Euro area

The President of the ECB stated that: "*The beneficial impact of the ECB's asset purchases on financing conditions will increase the benefits of governments' structural reforms, rather than reducing incentives for reforms. Firms will be encouraged to increase investment, bringing forward the economic recovery*" (S3). The President of the ECB's speech provides evidence that

the ECB was able to proceed with its versions of QE in the knowledge that the Bath research had identified a channel through which QE operated. The operation of QE policies then had the anticipated benefits on the Euro-area economies. In addition, as a senior economist at the ECB states, as a result of this research and related studies, the ECB now regularly reports on the transmission of QE through the financial system (S4a, S4b).

Non-standard monetary policy at other central banks and in response to COVID-19
The research has also been cited in other central bank publications, as central banks around the world have attempted to understand and implement QE policies (S5, S6, S7). For example, in a speech at Jackson Hole Economic Policy Symposium on 27/28 August 2020 (S8), the Governor of the BoE, explained how QE had been used by many central banks to stabilise markets in response to COVID-19, and again cited the work of Tonks and others as evidence "*that QE works in practice – is now supported by a rich body of empirical work, which has grown rapidly over the past decade*" (S8, p. 9). Bailey notes that "*Over the past decade, QE has been widely used internationally, … [and] has therefore become the primary tool with which many central banks around the world have sought to affect monetary conditions*" (S8, p. 5).

5. Sources to corroborate the impact

S1 Letter from the Deputy Governor, Bank of England from 2008–2014 and Member of Monetary Policy Committee, dated 9 December 2019.

S2 Letter from the former Executive Director for Markets, and Member of the Monetary Policy Committee 2009–14, dated 27 November 2017.

S3 The text of the President of the European Central Bank, Mario Draghi's speech given on 11 March 2014. Available at: http://www.ecb.europa.eu/press/key/date/2015/html/sp150311.en.html

S4a Letter from Senior Economist (former Economist), European Central Bank, dated 27 November 2017.

S4b European Central Bank. (2017) 'Economic and monetary developments', *Economic Bulletin*, (4). Available at: https://www.ecb.europa.eu/pub/economic-bulletin/html/eb201704.en.html#IDofOverview_Eb

S5 Domanski, D., Shin, H. S. & Sushko, V. (2017) 'The hunt for duration: Not waving but drowning?*' BIS Working Papers No 519*. Bank for International Settlements. Available at: https://ssrn.com/abstract=2924658

S6 Reza, A., Santor, E. & Suchanek, L. (2015) 'Quantitative easing as a policy tool under the effective lower bound', Bank of Canada Staff Discussion Paper 2015-14. Available at: https://www.bankofcanada.ca/wp-content/uploads/2015/11/dp2015-14.pdf

S7 Agostini, G., Garcia, J. P., González, Á., Jia, J., Muller, L. & Zaidi, A. (2016) 'Comparative study of central bank quantitative easing programs', *Report for Federal Reserve Bank of New York.* School of International and Public Affairs (SIPA), Columbia University: City of New York. Available at: https://ypfsresourcelibrary.blob.core.windows.net/fcic/YPFS/Comparative_Study_of_Central_Bank_QE_Programs.pdf

S8 Bailey, A., Bridges, J., Harrison, R., Jones, J. & Mankodi, A. (2020) 'The central bank balance sheet as a policy tool: Past, present and future' *Bank of England Paper prepared for the Jackson Hole Economic Policy Symposium*, 27–28 August 2020. Available at: https://www.bankofengland.co.uk/-/media/boe/files/paper/2020/the-central-bank-balance-sheet-as-a-policy-tool-past-present-and-future.pdf?la=en&hash=E396409BAD141A555A1DB449E4DE22FAD75F8B4F