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Research impact: making a difference

Helping central banks drive down interest rates

The Bank of England and Federal Reserve used LSE research to push down market interest rates to engineer a recovery after the financial crisis

What was the problem?

During the recent global financial crisis, the Bank of England, the US Federal Reserve and other major central banks around the world were unable to stimulate their economies by using their traditional tool – lowering official interest rates – as these had already been cut to almost 0%.

For this reason governments were looking for new ways to intervene in financial markets to reduce market interest rates. One option was known as quantitative easing (QE) – where a central bank purchases government securities or other securities from the market as a means of lowering interest rates.

What did we do?

Professor Dimitri Vayanos and his colleagues used a novel approach to look at the structure of market interest rates. Previously most research had assumed that the structure was determined by the behaviour of households, whereas LSE researchers examined the role that demand from different groups of institutional investors, such as pension funds and insurance companies, played in determining the movement of interest rates on bonds with different maturities. For example, lower interest rates for longer-term bonds tend to indicate strong demand by pension funds.

Their theory assumes that the "term structure of interest rates", which is the curve that describes how interest rates depend on maturity, is determined by interactions between investor groups with specific demand for bonds of various durations and by arbitrageurs who look to profit from price discrepancies between different parts of the bond market.

Shifts in investor demand and bond supply in their theory affect interest rates, and more so during times of crisis. Vayanos and colleagues tested this prediction of their theory using data for government bond supply and found that when the supply of bonds is cut, interest rates fall. The effects were strongest for bonds with longer maturities and during periods when the amount of money arbitrageurs had to invest was low.

The researchers analysed two examples of this phenomenon. In the UK increased demand for long-term bonds by pension funds in the previous decade had caused long-term rates to fall dramatically but produced only small effects on short-term rates. Falls in the supply of US bonds as a result of buybacks by the Treasury in 2000-02 had similar impacts.

The researchers also found that an increase in the share of investors with a long-term horizon led to a fall in interest rates, which a government interested in increasing general economic welfare could exploit by tilting its issuance towards longer maturities.

What happened?

The LSE research gave central banks a theoretical basis for why purchases of long-term bonds that reduced the supply of debt (i.e. quantitative easing) could reduce long-term interest rates. Central banks undertook massive purchases, with the Federal Reserve buying $1.8 trillion worth of bonds and the Bank of England £375 million.

Senior officials, including then vice-chair of the Federal Reserve Janet Yellen and then chief economist at the Bank of England Spencer Dale, made references to this research. It was also used frequently by researchers at these central banks, who were tasked with assessing the impacts of the early stages of quantitative easing in order to inform the design and execution of later stages. The research was also extensively cited at a Bank of England conference in 2001.

> ““This research has provided an important framework for thinking about the issues and for framing research on the financial market effects of the policy.”
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> **Spencer Dale, former Bank of England chief economist**

The estimates of the impact of quantitative easing, found in the above-mentioned research by the central banks, were large. For example, the 10-year rate for the first phase was estimated to be 100 basis points (1 percentage point) lower than before the programme was put in place, both in the UK and in the US. Such lowering of the interest rate made it significantly more likely that companies and households would borrow money and engage in economic transactions that led to financial recovery and economic growth.

Dimitri Vayanos is Professor of Finance at the London School of Economics, where he also directs the Paul Woolley Centre for the Study of Capital Market Dysfunctionality. He received his undergraduate degree from Ecole Polytechnique in Paris and his PhD from MIT. Prior to joining the LSE, he was faculty member at Stanford and MIT. His research, published in leading economics and finance journals, such as the Journal of Finance, the Journal of Financial Economics, the Quarterly Journal of Economics, the Review of Economic Studies, and the Review of Financial Studies, focuses on financial markets, and especially on what drives market liquidity, why asset prices can differ from assets' fundamental values, why bubbles and crises can occur, and what are appropriate regulatory and policy responses. He is an Editor of the Review of Economic Studies, a Fellow of the British Academy, a Director of the American Finance Association, a Research Fellow at CEPR and a past Director of its Financial Economics program, a Research Associate at NBER, and a current or past Associate Editor of a number of journals including the Review of Financial Studies and the Journal of Financial Intermediation.

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