

Qualitative easing: a new tool for the stabilisation of financial markets

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This paper presents the text of the annual John Flemming Memorial Lecture, given at the Bank of England on 16 October 2013. The views expressed are those of the author and do not represent those of the Bank or the Monetary Policy Committee.⁽¹⁾

My memory of John Flemming

Let me begin this talk with a few words in honour of the person after whom this lecture series is named: John Flemming. It is a privilege to be standing here today, not just because of the distinguished cast of economists who have preceded me, but also because of the opportunity to honour the memory of one of England's finest minds.

Although I did not know John well, he had an important influence on my early development. In 1977, John was an important figure in international economics. I, at the time, was a Masters student at Manchester University, with uncertain prospects as to my future in the discipline. At the time, I was contemplating a move to Canada in the footsteps of David Laidler, who had just moved from Manchester to the University of Western Ontario and who had mentored me in Manchester. David offered me a scholarship of 4,000 Canadian dollars to study in Canada, a considerable sum at the time, and the prospect of relocating to North America was an enticing one.

Among the other possibilities that I was entertaining, was the prospect of a research Fellowship at Nuffield College Oxford, where John was Bursar and a leading figure at the College.

One cold day in the autumn of 1977 I set off to Oxford for an interview, and was greeted by John in his Nuffield office. This being before the advent of the PC, John used the floor as a filing system. At the time, he was editor of the *Economic Journal* and to reach his desk, I was required to step around the next issue of the journal, which was assembled in an orderly fashion on the floor. Here was a man who knew his priorities: we had an instant rapport.

At the time, the hot topic in macroeconomics was a new book by Edmond Malinvaud, *The Theory of Unemployment Reconsidered*. I had studied Malinvaud's work at Manchester and John and I had a stimulating conversation that became increasingly lively as we walked across the quad to the place

where my interview would take place. As we entered the door of the interview room, a silence descended. John took his appointed seat with two other Fellows behind an oak desk and I sat opposite in the hot seat. The interview was an intensive grilling on the operation of monetary policy and it would be an understatement to say that it did not go well. I returned to Manchester and the next day I sent off a letter to the University of Western Ontario accepting David's offer to study in Canada for a Ph.D.

This turned out to be altogether premature. The next week I received a letter from Oxford which began: 'We were so impressed with your performance at interview that we have decided to offer you early acceptance and a bursary to support your studies for a Ph.D'. This, I believe, owed a great deal more to my conversation with John over the pages of the *Economic Journal* than it did to my formal interview. I have had a fondness for John ever since and I continue to wonder, to this day, where my path would have taken me had I not sent off that acceptance letter to Canada so quickly. It is rewarding that my path has led me back to my home country today to discuss monetary and fiscal policy once again in a lecture that honours the legacy of John Flemming.

Introduction

I want to take the opportunity today to share some economic ideas and policy proposals stemming from my own academic research. Five years after the collapse of Lehman Brothers, in September 2008, the world is still mired in a deep recession. Unemployment in the United States is 7.3%. In the United Kingdom it is 7.7% and in Europe 11%. In Greece and Spain a staggering 27% of the population is without a job. What can we do about it?

(1) This lecture series was inaugurated in 2005 in memory of John Flemming, who worked at the Bank of England between 1980 and 1991. A short biography can be found in the box on page 406. Past lectures have been given by Professor Alan Taylor, Professor Michael Artis, Dr Adam Posen and Professor Thomas Sargent.

John Flemming



John Flemming worked at the Bank of England between 1980 and 1991, for much of that time as Chief Economist. Prior to that he was a Fellow in Economics at Nuffield College, Oxford, a position to which he was originally appointed in his early 20s.

His association with the Bank began in 1975, when he took leave from Oxford for a year to work as a special adviser to the then Governor, Gordon Richardson. Commuting from Oxford, he took the opportunity the journey provided to write his influential book *Inflation*, a key theme of which was the importance of expectations in determining inflation.

John joined the Bank full-time in 1980 as Chief Economic Adviser, before becoming Chief Economist in 1984 and an Executive Director in 1988. He subsequently departed to

become Chief Economist of the European Bank for Reconstruction and Development in 1991 before returning to Oxford as Warden of Wadham College in 1993. Among other activities, he served for many years as a member of the Royal Commission on Environmental Pollution, his contributions to which were cited when he was appointed CBE in 2001.

John was an economist of great standing whose advice and work was much appreciated by his peers. He is best captured, perhaps, by the quote by fellow economist John Helliwell, who said:

'If one could choose parts to assemble someone to epitomise the best of Oxford and British Universities in general, the result would match Flemming. He was brilliant without being brassy, incisive in thought, precise in speech, encyclopaedic in knowledge, interested in everything he heard and saw, and a lively companion for all those lucky enough to share a journey, a job or a dinner with him.'

That question is particularly resonant at a time when our politicians are implementing a programme of austerity, amid calls from leading journalists and academics for more fiscal stimulus. Those who argue that now is the time to rebuild our infrastructure are right. The UK Government can currently borrow money at an interest rate of 3.5% fixed for 30 years. That is a lower rate of interest than at any time since the Great Depression and it would be foolish not to take advantage of that opportunity to put in place new rail lines, roads and bridges that will improve the productive capacity of the private sector and promote future economic growth.

Those who argue that more government spending is not the solution also have a point. In a recent online poll in the United States, 61% of respondents were opposed to additional government spending to reduce unemployment.⁽¹⁾ The public, understandably, is growing weary of business as usual. I believe that we can and should go beyond traditional fiscal policy if we are willing to learn from the new facts the Great Recession has offered us, and to expand our horizons by redefining what we mean by fiscal policy.

I am not an advocate of increasing the size of the government sector, but an unregulated private sector cannot safely be left to its own devices.

When we teach undergraduates the difference between fiscal and monetary policy, we stress the distinction between flows, (the domain of fiscal policy) and the maturity structure of government liabilities (the domain of monetary policy).

Fiscal policy deals with the expenditure decisions made by national treasuries and the choice of how to fund those expenditures, with taxes or with increased borrowing. Monetary policy deals with the asset composition of the public debt. How much of the government debt, held by the public, should be in the form of short or long-term government bonds, and how much should be in the form of money? Many economists believe that, although it matters a lot whether government expenditure is funded by borrowing, or by printing money, it doesn't matter at all if the government borrows by issuing three-month bonds, five-year bonds or 30-year bonds. I believe that that perception is gravely mistaken. It matters a great deal.

Following the 2008 financial crisis, central banks throughout the world engaged in an unprecedented set of new and unconventional policies. I would like to draw upon a distinction that was made by Willem Buiter, a former member of the Monetary Policy Committee, between quantitative and qualitative easing (Buiter (2008)). When I refer to **quantitative easing** I mean a large asset purchase by a central bank, paid for by printing money. By **qualitative easing**, I mean a change in the asset composition of the central bank.⁽²⁾ Both policies were used in the current crisis, and both policies were, in my view, successful. In this talk I argue that qualitative easing is a fiscal policy and it is a tool that should be permanently adopted by national treasuries as a means of

(1) See the guest author question by Roger Farmer, 'Should the federal government increase spending in order to reduce the unemployment rate?', isidewith.com/poll/308735830.

(2) Farmer (2013d).

maintaining financial stability and reducing persistent long-term unemployment.

I am heartened that the Nobel Prize Committee this year has chosen to recognise three economists who have highlighted important empirical features of asset markets. Eugene Fama (1970) taught us that asset prices are unpredictable at short horizons. Lars Hansen (2008) gave us tools to study their statistical properties; and Robert Shiller (2000) taught us that asset prices, at long horizons, are both predictable and impossible to understand using standard tools of economic theory. In a series of books and papers I explain why stock market fluctuations are inefficient, and I provide a theory that explains the findings of both Eugene Fama and Robert Shiller.⁽¹⁾ My co-authored paper (Farmer, Nourry and Venditti (2012)), explains why we cannot make money by trading in asset markets, and why long-horizon movements in asset markets are inefficient. My proposed policy tool follows directly from my research findings of the past twelve years. Those findings demonstrate that, by trading in asset markets, national treasuries can and should act to prevent swings in asset prices that have had such destructive effects on all of our lives.

The institution that I would like to promote is a fiscal authority, with the remit to actively manage the maturity structure and risk composition of assets held by the public. This authority would continue the policy of qualitative easing, adopted in the recent crisis, and by actively trading a portfolio of long and short-term assets it would act to stabilise swings in asset prices. I will show that asset price instability is a major cause of periods of high and protracted unemployment, and I will argue that by varying the maturity and risk composition of government debt, we can control large asset price fluctuations, and prevent future financial crises from wreaking economic havoc on all of our lives.

The role of the state in economic affairs

Beginning with David Hume and Adam Smith in the 18th century, economic thought has wavered between two visions of the social world. On one side, there are proponents of free markets who argue that any intervention in the market system is unwarranted. On the other, there are those who believe that socialist planning is a rational response to the anarchy of the free market. In this lecture I am going to stake out a position somewhere in the middle ground.

I will argue that there are good reasons for state intervention in markets; but the reasons for intervention must always be spelt out clearly. My presumption is that, for the most part, free markets work well and any intervention by appointed mandarins should be explained to the public and subject to control by elected politicians.

In 1936, John Maynard Keynes wrote a book, *The General Theory of Employment, Interest and Money*. That book changed

the way we think about the role of the state. Before the publication of *The General Theory* most economists, both academic and policymakers, did not see a role for government to maintain full employment. After its publication, governments everywhere accepted full employment as a legitimate and central goal of economic policy.

In *The General Theory*, Keynes made two key arguments. The first was that capitalist market economies, if left to themselves, will often end up in a state of perpetual high unemployment. In the language of modern general equilibrium theory, Keynes argued that any unemployment rate can be a steady-state equilibrium. Second, he argued that fluctuations in the animal spirits of investors determine which unemployment rate we end up with. Both messages have been forgotten by his mainstream followers. My own recent research (Farmer (2010a,b, 2012a,c, 2013c)), has been aimed at reintroducing these two central insights of Keynes' work and reconciling them with the body of microeconomics, which teaches us that markets, most of the time, work well.

But not all markets work well. I will explain in this talk why financial markets and labour markets are both subject to important failures.

First, let me explain why financial markets are not efficient and provide evidence to support my case. My argument is based on the fact that financial crises are incredibly persistent and most of the people who are affected by a crisis were not born at the time the crisis hit. We cannot buy insurance against the occurrence of financial panics that occur before we are born or before we reach the age of consent. That simple fact is an important idea because it explains why asset markets are so volatile and why that volatility is something that governments should try to avoid. I am advocating that governments can and should intervene in the asset markets to trade on behalf of the unborn and protect the economic legacy of future generations.

Second, how does asset market volatility impact our ability to find a job or find an affordable house? My theoretical work on that topic explains how high unemployment can persist and why flexible wages are not a solution to the problem.⁽²⁾ Although I do not have the time to explain the theory behind that idea in this lecture, I will document the fact that asset market volatility and unemployment are closely correlated and I will argue that by stabilising asset markets, we can maintain demand and prevent the spectre of persistent unemployment.

Finally, there is the question: how can we prevent high persistent unemployment from reoccurring? Keynes argued that, in recessions, the state should spend more than it earns.

(1) Farmer (2002a,b, 2010a,b, 2012a,c, 2013a,b,c,d). Farmer, Nourry and Venditti (2012).

(2) Farmer (2012a, 2013a,b).

He thought that government deficit spending would replace private investment spending and help to maintain full employment. Although there are very good arguments for the use of government expenditure to repair infrastructure during recessions, we should not rely on countercyclical government investment expenditure as our primary tool to stabilise business cycles. Qualitative easing is an effective and more efficient alternative.⁽¹⁾

In testimony to the Treasury Committee this past April (Farmer (2013d)), I argued for direct control of excess asset market volatility through active management of the Treasury's loan portfolio. This policy would be implemented by open market operations between risky and safe assets that are not too dissimilar from the policies that the Bank of England and the Federal Reserve have been engaged in for the past five years. I am going to explain why those policies worked and why they should be continued, even when the current crisis is over.

Why are financial markets inefficient?

There has been a tremendous amount of debate in recent years about the efficiency of financial markets. Following WWII, financial markets were heavily regulated because the legacy of the Great Depression damaged the public's confidence in free markets. Beginning in the 1970s, financial regulations were gradually relaxed in response to pressure from economists of the Chicago School who promoted a new idea: the 'efficient markets hypothesis'. The gradual relaxation of financial regulation led to two decades of financial turmoil that culminated in the Lehman Brothers' bankruptcy of 2008. We are currently living through the consequences.

The efficient markets hypothesis has two parts that are often confused. The first, 'no free lunch', argues that without insider information, it is not possible to make excess profits by buying and selling stocks, bonds or derivatives. That idea is backed up by extensive research and is a pretty good characterisation of the way the world works.

The second, 'the price is right', asserts that financial markets allocate capital efficiently in the sense that there is no intervention by government that could improve the welfare of one person without making someone else worse off. That idea is false. Although there is no free lunch, the price is not right. In fact, the price is wrong most of the time.

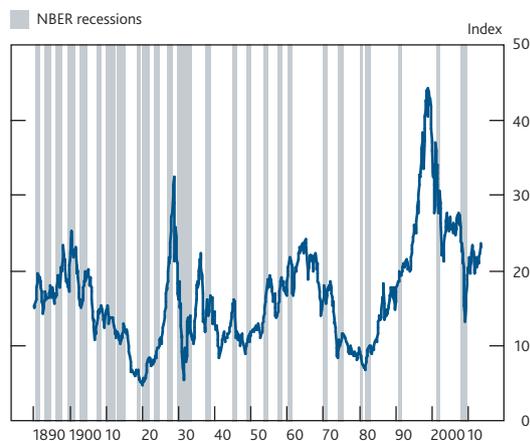
The argument for free trade in financial assets is the same as the argument for free trade in goods. If I have something that you want, and you have something that I want, we will both be better off if we are able to exchange one good for the other. The economist Vilfredo Pareto formalised that argument in the 19th century. Pareto's argument is taught to every student of

economics under the imposing title of the first welfare theorem of economics.

I argue that the first welfare theorem of economics does not apply to financial markets. For those markets to work well, everybody who will be affected by asset price fluctuations must be present to insure against them. Economists call that requirement 'complete participation'. Complete participation fails in financial markets because we cannot insure against events that occur before we are born. My individual and co-authored research has shown that the fact that people die, and new people are born, is sufficient to invalidate the thesis that free financial markets are good for all of us, in a quantitatively important way.⁽²⁾

If financial markets were efficient, the value of a share in a company should be equal to the present value of its earnings. Simple economic theories predict that the ratio of the price of a share to the earnings of that share should be roughly constant. **Chart 1** shows that, in reality, the price to earnings ratio swings wildly and it has been as low as five (in 1919) and as high as 44 (in 1998).

Chart 1 US stock market fluctuations: the price/earnings ratio



Sources: NBER, Shiller (2013) and author calculations.

Chart 2 shows the cost of a house in the United Kingdom in units of constant purchasing power. This chart illustrates in a very stark way how asset price fluctuations impact all of our lives. Those of us buying our first house in 2007 paid twice as much as those who bought their first house in 1992. And that change is not just a difference in pounds sterling; it is adjusted for changes in purchasing power. Asset price fluctuations are a big deal.

(1) Farmer (2012b).

(2) Farmer (2002a,b) and Farmer, Nourry and Venditti (2012).

Chart 2 UK real house prices^(a)



Sources: ONS and author calculations.

(a) Deflated using the consumer prices index.

Why should we care?

I have shown, in **Chart 2**, that swings in asset prices affect our ability to step onto the housing ladder. They also affect our ability to find a job. Recent empirical research has shown that the lifetime earnings of school leavers whose first job occurs in a recession is 10% to 15% lower than the lifetime earnings of those who enter the labour market in a boom.⁽¹⁾ Those are big numbers.

If asset price fluctuations were simply a matter of the gains and losses of big banks then perhaps we should be unconcerned. In good times the owners of the banks would be richer than in bad times. What’s a £100 million loss to a billionaire? But in reality, financial fluctuations do not just affect the City of London and Wall Street; they affect all of us through feedback effects on the real economy.

The reality is that fluctuations in financial wealth cause fluctuations in the number of unemployed — and long-term unemployment is a very bad situation to be in. But what is the evidence that financial crises are associated with unemployment?

Wealth and the Great Depression

In *The General Theory*, Keynes argued that economic cycles are caused by fluctuations in the confidence of investors. He called those fluctuations ‘animal spirits’, and he developed a theory and a set of policies that governments can use to help to prevent the effects of financial fluctuations from damaging our lives. In 1936, when Keynes wrote *The General Theory*, most economists did not see a role for governments in promoting full employment. At the end of WWII, Keynesian employment policies became written into law.

Chart 3 shows what happened to the real value of US assets during the Great Depression. The magenta line is the value of the stock market in real units and the blue line (measured on

the left-hand side on an inverted scale) is the unemployment rate. The chart shows clearly that the crash in the value of financial assets preceded the increase in the unemployment rate. In a series of recent books and papers (Farmer (2010a,b, 2012a, 2013a)), I have provided the theoretical framework to understand how the stock market crash could have caused the Great Depression.

Chart 3 Equity prices and the unemployment rate in the United States during the Great Depression



This chart is reproduced from Farmer (2012c).

(a) Deflated using the consumer prices index.

Keynes did not just provide a policy recommendation. He provided a theoretical framework to understand what went wrong in the Great Depression, and why. In response to Keynes’ analysis, governments throughout the world began to operate active stabilisation policies through monetary and fiscal mechanisms. Those policies were effective and led to several decades of relative stability. But the value of financial assets continued to be highly volatile and, in 2008, a new financial crisis hit.

Wealth and the Great Recession

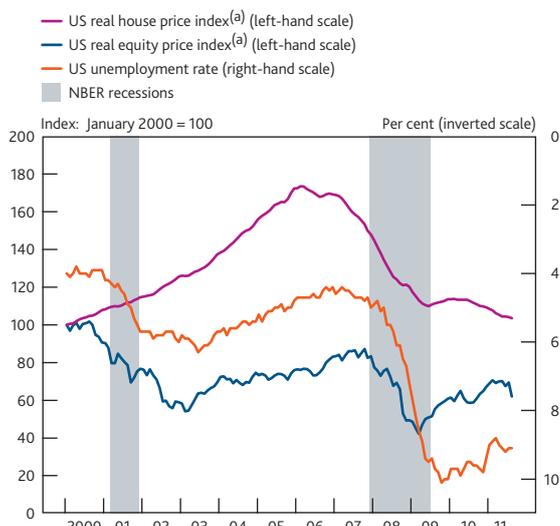
The 2008 financial crisis was remarkably similar to the Great Depression; but this time, it was housing wealth that provided the trigger. To put this in perspective, housing wealth, in the United States, makes up roughly two fifths of tangible assets held by the private sector; the remaining three fifths is held as claims on the nation’s factories and machines that is capitalised in the stock market. In the United Kingdom, the balance is reversed and housing wealth is a more important component of assets owned by UK households.

Chart 4 shows that the real value of housing wealth in the United States (the magenta line on the chart) began to decline at the beginning of 2006. This decline in house prices was

(1) Oreopoulos, Von Wachter and Heisz (2012).

unprecedented and it had immediate effects on the real economy as households had been using the value of housing equity to purchase consumer goods. Demand fell, and as it fell, unemployment (the orange line on **Chart 4**, measured on an inverted scale) began to increase. As the recession gained steam, it led to declines in the equity value of financial companies that owned assets backed by the value of US housing equity. The effect of declines in US housing wealth was global in scale and reached out across the Atlantic and the Pacific and triggered declines in financial markets in London, Frankfurt and Tokyo.

Chart 4 US real house and equity price indices and unemployment during the Great Recession



This chart is reproduced from Farmer (2012c).

(a) Deflated by the consumer prices index.

In response to the collapse in stock prices, and the increase in unemployment, central banks in America, Asia and Europe slashed the interest rate on overnight loans in an attempt to provide much needed cash to financial firms that could no longer raise short-term financing. That response is precisely why central banks were created in the first place and it is a prescription for combatting financial panic that goes back to the English economist, Walter Bagehot, who wrote a famous treatise on central banking in 1873 (Bagehot (1873)).

A similar financial panic occurred in 1987 and at the time, the Federal Reserve under Paul Volcker was successful at preventing the crash from having a major effect on the real economy. But 2008 was different because the standard channel of monetary response, lowering the interest rate on short-term loans, was exhausted. In the United States, the short-term interest rate was slashed to one tenth of 1% in the autumn of 2008 and the Bank of England followed suit shortly after, lowering rates to half a percentage point in early 2009.⁽¹⁾

What can we do about it?

Once interest rates hit zero, the traditional response of central banks was no longer an option. Instead, inspired by the writings of the American economist Milton Friedman (Friedman and Schwartz (1963)), central banks engaged in a process of massive and unprecedented monetary expansion. The balance sheets of the Bank of England, the Federal Reserve and the European Central Bank increased by a factor of three or more in the space of a few months. That expansion had two components. The first was **quantitative easing**; the second, **qualitative easing**.⁽²⁾ We are still trying to understand the effects of these policies and there has been a tremendous amount of research asking if they worked and, if so, how they worked. My research explains how quantitative easing and qualitative easing worked and I will present some evidence to back up the claim that both policies were successful.

Quantitative easing prevented deflation

The Bank of England is charged with maintaining price stability, currently interpreted as 2% inflation, and to the extent that it is compatible with the inflation target, to support the Government's economic policy, including its objectives for growth and employment. The mandate of the Federal Reserve is similar and, although the United States has not embraced an inflation target, the Federal Reserve has operated in a way that is consistent with inflation targeting for the past 20 years.

Price stability is important because large fluctuations in the value of money have unintended consequences. That is true both of large unanticipated inflations, which transfer wealth from lenders to borrowers, and large unanticipated deflations, which transfer wealth from borrowers to lenders. Deflation is extremely disruptive to economic activity and is associated with bankruptcy and unemployment as firms struggle to repay fixed nominal loans with earnings that are worth less in monetary units.

Chart 5 shows how the Federal Reserve Board responded to the financial crisis. The blue line, measured in per cent per year on the right-hand axis, measures the expected rate of inflation.⁽³⁾ The boundary of the shaded region, measured on the left-hand axis in millions of dollars, is the size of the Federal Reserve's balance sheet.

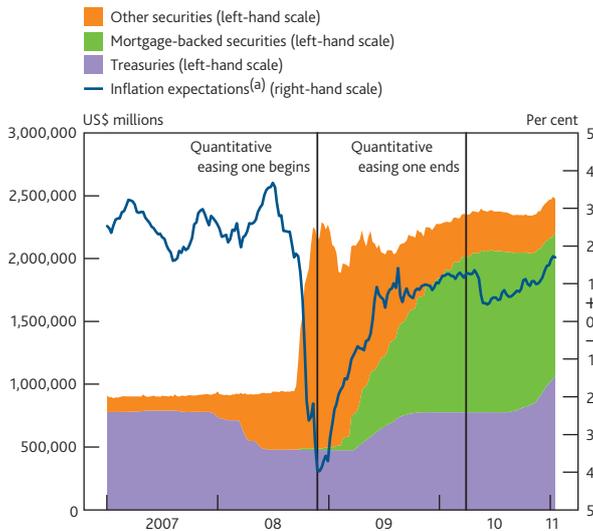
From the beginning of 2007, through the autumn of 2008, expected inflation was about 3%. When Lehman Brothers declared bankruptcy in September 2008, expected inflation

(1) Farmer (2012c, 2013c) establishes that the connection between the stock market and unemployment extends well beyond these two subperiods. It is stable in post-war data.

(2) As defined above, by **quantitative easing** I mean a large asset purchase by a central bank, paid for by printing money. By **qualitative easing**, I mean a change in the asset composition of the central bank.

(3) **Charts 5** and **6** appear in Farmer (2013b).

Chart 5 'Quantitative easing' and inflation expectations in the United States



This chart is reproduced from Farmer (2012b).

(a) One year ahead inflation expectations implied by swaps.

fell precipitously to -4% as financial markets began to expect a large deflation. The main piece of information to take from this chart is that the Federal Reserve's balance sheet (the shaded region) went from US\$800 billion in August 2008 to US\$2.5 trillion in January 2009. And right after the Federal Reserve bought US\$1.3 trillion of new securities, expected inflation went back up into positive territory. If you think, as most economists do, that deflation is very bad for the real economy, then this was a big success story for quantitative easing.

Qualitative easing prevented depression era unemployment rates

In normal times central banks are very conservative; they buy short-term securities backed by high-quality collateral, and in so doing, they face little or no risk. The assets they buy are paid for by creating money that is used by private agents to buy and sell goods. Central banks provide liquidity that 'oils the wheels of trade'.

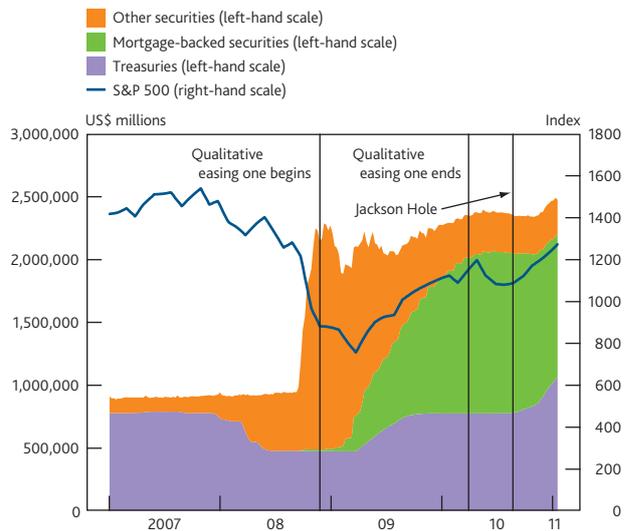
In times of crisis, central banks act very differently; they are a backstop to the financial system that prevents systemic bankruptcies from disrupting economic activity. The 2008 crisis was a good example of this process in action, as central banks throughout the world no longer confined their purchases to safe short-term assets. The Bank of England began a programme of purchases of long-term government bonds and the Federal Reserve purchased long-term bonds as well as agency-guaranteed mortgage-backed securities. These long-term assets carry two kinds of risks. When, in the future, interest rates rise, central banks will take capital losses on their bond portfolios since, as the interest rate rises, bond prices fall. Mortgage-backed securities face a second risk since the

holders of the mortgages may repay early resulting in a loss to the lender who must relend money at a lower rate.

Chart 6 contains the same information on asset purchases as **Chart 5**. Instead of plotting expected inflation on this chart, the blue line is the value of the stock market. I want to use this chart to make a point about the effects on markets of the type of assets that central banks buy.

The shaded area on **Chart 6** is broken down into three regions. The purple region is holdings of treasury securities. In normal times this is *all* that the Federal Reserve holds. The orange area is other securities, mainly long-term bonds and the assets of the banks that were bailed out by the Federal Reserve. Finally, the green area is the Federal Reserve's holding of mortgage-backed securities.

Chart 6 'Qualitative easing' and equity prices in the United States



This chart is reproduced from Farmer (2012b).

Notice the coincidence in timing of the Federal Reserve's purchases of risky mortgage-backed securities — the green area on the chart — with movements in the stock market, shown by the blue line. The turn around in the stock market that occurred at the beginning of 2009 coincides closely with the decision by the Federal Reserve to start purchasing mortgage-backed securities. Further, when asset buying was suspended temporarily, in the second quarter of 2010, the stock market resumed its downward spiral, picking up again only when the Federal Reserve announced at the Jackson Hole conference in the autumn of the same year, that large-scale asset purchases would resume. This was a big success story for qualitative easing.

A more recent episode occurred on 19 June of this year, when Chairman Bernanke made a rather mild statement that the policy of quantitative easing that the Federal Reserve had been following might slow down later in the year. The Federal

Reserve has been pumping US\$85 billion dollars a month into the US economy and merely the mention that this policy might soon be reduced caused markets all over the world to tumble by 4 percentage points in two days.

The lessons for economic policy

In the wake of the 2008 crisis, central banks throughout the world engaged in massive expansions of their balance sheets, so-called quantitative easing. These policies were unlike anything we have seen since the inception of central banking over 300 years ago. The Great Recession did not turn into Great Depression II, in large part because of these co-ordinated central bank actions. My empirical results (Farmer (2013c)) on the connection between unemployment and asset markets suggest that in the absence of quantitative easing, the unemployment rate would have peaked at 18% rather than the rise from 5% to 10% that occurred in practice. Central banks saved the day.

The crisis was caused by inefficient financial markets that led to a fear that financial assets were overvalued. When businessmen and women are afraid, they stop investing in the real economy. Lack of confidence is reflected in low and volatile asset values. Investors become afraid that stocks, and the values of the machines and factories that back those stocks, may fall further. Fear feeds on itself, and the prediction that stocks will lose value becomes self-fulfilling.⁽¹⁾

If confidence is low, the private sector places a low value on existing buildings and machines. Low confidence induces low wealth. Low wealth causes low aggregate demand, and low aggregate demand induces a high-unemployment equilibrium in which the lack of confidence becomes self-fulfilling.

Qualitative easing works to combat this vicious cycle by increasing the value of wealth as governments absorb the risks that private agents are unwilling to bear. In both the United Kingdom and the United States, qualitative easing reduced the real expected return on long-term government bonds, which in turn nurtured a recovery in the stock market. In my view, the policy of qualitative easing should be retained as a permanent component and new tool for the stabilisation of financial markets.

Initially it was considered a radical step for central banks to control interest rates. The use of interest rate control to stabilise prices has proven to be effective and should be continued. But one instrument, the interest rate, is not sufficient to successfully hit two targets. My work demonstrates that the instability of financial markets is not just a reflection of inevitable fluctuations in productive capacity; it is a causal factor in generating high unemployment and persistent stagnation. The remedy is to design an institution, modelled on the modern central bank, with both the authority and the tools to stabilise aggregate fluctuations in the stock market.

Since the inception of central banking in the 17th century, it has taken us 350 years to evolve institutions that have proved to be successful at managing inflation. The path has not been easy and we have made many missteps. It is my hope that the development of institutions that can mitigate the effects of financial crises on persistent and long-term unemployment will be a much swifter process than the 350 years that it took to develop the modern central bank.

(1) Farmer (1999).

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