



Essential concepts necessary to consider when evaluating the efficacy of quantitative easing[☆]

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ARTICLE INFO

Article history:

Received 1 October 2012

Accepted 1 December 2012

Available online 22 December 2012

JEL classification:

E5

E6

Keywords:

Monetary policy
Quantitative easing
Central banking
Deleveraging

ABSTRACT

The economic impact from quantitative easing (QE) may be much less than assumed by the Federal Reserve. One focus is on the effectiveness of QE to stabilize a failing banking system, and the judgment here is largely positive. A second focus, especially in the US, is on evaluating subsequent rounds of QE that were implemented after the economy had resumed growth and after the banking sector had recapitalized and returned to profitability. For these subsequent rounds of QE, the reviews are decidedly mixed and heavily dependent on the assumptions embedded in the economic models used by the researchers. Researchers willing to assume that the US is a closed domestic economy tend to find a large impact on long-term interest rates from QE. If the US is part of a highly integrated global economy, a smaller effect is presumed. Then there is the more important and controversial evaluation of whether there is any impact on real GDP growth and job creation from QE once the economy is growing again, even if unemployment rates remain historically elevated. What one chooses to ignore or assume does not exist can be more important to the conclusions of QE evaluations than may meet the eye. Inappropriate assumptions can lead to poor decisions.

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1. Introduction

Since the 2008 financial panic, central banks in the US, UK, Europe, and Japan have experimented with the aggressive use of their balance sheets to stabilize their financial markets and encourage a return to higher rates of economic activity. These activities have become known as quantitative easing or QE. This research focuses mostly on balance sheet activities employed by the US Federal Reserve (Fed), and distinguishes between the initial round of quantitative easing (QE1) in late 2008, with later rounds of balance sheet activity to purchase more US Treasury securities or mortgage-backed securities (QE2 & QE3) and to adopt the maturity extension program (i.e., Operation Twist). With respect to certain ideas presented here, in a few cases we also consider European Central Bank (ECB) activities that were relevant to the discussion.

[☆] All examples in this presentation are hypothetical interpretations of situations and are used for explanation purposes only. The opinions expressed in this report are those of the author and do not necessarily represent those of CME Group or affiliated institutions. This report and the information herein should not be considered investment advice or the results of actual market experience. An earlier version of this research was published in September 2012 on CME Group's web site in its "Market Insights" section. The author wishes to thank D. Sykes Wilford for his extensive and thorough comments on earlier drafts of this research as well as an anonymous referee for some extremely helpful suggestions.

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Our first priority is to present a generalized set of theoretical ideas to guide our assessment of quantitative easing and to identify the conditions under which it is likely to achieve the desired economic and financial market results. We recognize that some of these ideas may be controversial. There is considerable value, however, in explicitly recognizing the embedded assumptions in models designed to assess the impacts of quantitative easing. By making key assumptions explicit, we better understand why different quantitative models see quantitative easing in such varying lights, and we can better interpret their likely robustness as a tool to guide either policy decisions or market participant actions. Finally, as we link our theoretical ideas with the actual quantitative easing that has occurred, we want to draw some tentative conclusions about when it is most appropriate to use QE and, in addition, to evaluate whether future QE policies are likely to achieve their objectives. To enhance the flow of the arguments made here and increase the value of this research as a road map for the evaluation of quantitative easing, relevant research from the academic literature is cited at the appropriate point in the discussion rather than in a separate review of the literature section.

To highlight and anticipate our conclusions, this research suggests the following:

- QE is a very effective tool for central banks to use when combating a failing banking system facing systematic solvency and liquidity challenges.
- Central bank purchases of securities held by a weakened or failing banking system may be more effective in encouraging a rapid return

to economic growth than other forms of QE such as outright loans to the banking system.

- QE in the form of purchases of securities with long-term maturities can have a meaningful effect in terms of lowering long-term interest rates.
- QE may have little impact on economic activity and job creation once the banking system has been recapitalized and returned to profitability.
- QE applied to an economy that has returned to positive growth, even with elevated unemployment, has the distinct potential to be counter-productive in terms of achieving the objectives of the central bank due to the fact that the use of QE in non-emergency situations sends a powerful signal from the central bank of economic pessimism to market participants.
- Exit strategies from QE by central banks may be extremely challenging to implement and have the potential, if not the certainty, to delay a return to the normal conduct of monetary policy to the detriment of longer-term economic growth, currency values, and potential future inflation.

1.1. Quantitative easing and the case of a failing banking system

Virtually all equilibrium models of economic activity and market behavior start from the presumption that money is fungible and that the domestic money and credit markets, generally characterized as the banking system, are functioning normally, whether these models explicitly recognize the embedded assumption or not. What we mean by functioning normally is that banks are willing to pay and receive payments from each other and to make and take short-term loans from each other on essentially a no-name basis. This requirement is essential for payment systems to work properly and grease the wheels of commerce.

The financial panic of 2008 was triggered by the bankruptcy of Lehman Brothers and the next day's relatively messy bailout of AIG. Bankers were so scared that they were afraid to take each other's credit risk, even overnight. The interbank market nearly froze, and spreads for interbank loans rose dramatically relative to similar maturity Treasury bills. That is, the sharp widening of the TED spread (i.e., LIBOR minus Treasury bill rates) was a reflection of a failing banking system. The spread between 3-month US dollar denominated deposits (LIBOR) and 3-month US Treasury bill rates averaged under 30 basis points over the period from 2002 to 2006, before the subprime crisis began and before the financial panic of 2008. In September 2008, with the failure of Lehman Brothers, the TED spread widened sharply and briefly to over 400 basis points as financial panic began. (See Fig. 1.)

As thoroughly examined by Reinhart and Rogoff (2009), recessions triggered by a financial crisis are fundamentally different from cyclical recessions that do not involve a breakdown of the banking system. Recessions related to banking system breakdowns are characterized

by a sharp drop in asset values which puts bank solvency into question and leads to extensive deleveraging by consumers, corporations, and local governments. Consumers seek to reduce their liabilities to better match the lower value of their assets. Corporations seek to rapidly shed costs, including workers, to better match future production with the likely lower demand. Local governments face a sharp drop in tax and fee revenue, and thus seek to cut costs by reducing services, laying-off workers, and avoiding new projects that would require additional debt issuance.

In a financial crisis, the banking system faced liquidity and/or solvency challenges because it was widely perceived as being vastly over-extended. In the face of a failing banking system, central banks can use their balance sheets to make loans to banks to ease their liquidity issues or to purchase securities from banks which potentially allows for a smoother reduction in banking assets.

We note historically that the Federal Reserve System was established in 1913, following a series of financial panics of which the one in 1907 was especially severe. The Fed was specifically given extensive powers to use its balance sheet and serve as a lender of last resort to prevent financial panics turning into severe recessions or depressions. Virtually all central banks that control their own currencies have similar powers, even if they have been given different long-term economic objectives regarding inflation, currency stability, or economic growth and job creation. As an aside, the national central banks inside the Euro-Zone no longer control their own currencies and can lend to their domestic banking system only in so far as the ECB lends to them — which the ECB has done in considerable size in the 2009–2012 period.

In terms of economic modeling, there are several points to consider here. Reinhart and Rogoff's (2009) arguments can be interpreted in terms of a regime shift which depends on whether the banking system is functioning normally or breaking down. Economies with failing banking systems are likely to undergo severe deleveraging by all sectors during and immediately after the crisis period. During the period of deleveraging, interest rates largely do not matter to the decision process of consumers, corporations, and local governments (i.e., governments without access to a printing press). That is, the need for consumers to reduce liabilities, for corporations to reduce costs and shed workers, and for local government to cut services dominates any potential stimulatory effect implied by equilibrium macro-economic models from near-zero short-term interest rates. Decisions, by consumers to spend, by corporations to invest in new plant and equipment or to hire new workers, by local governments to expand services, are no longer interest rate sensitive. The path back to a regime involving market equilibrium depends critically both on the banking system recovery and recapitalization as well as the time it takes for consumers, corporations, and local governments to deleverage.

During QE1, most of the immediate balance sheet expansion by the Fed was concentrated in a very short period of time after September 17, 2008, with over US\$ 1.3 trillion of troubled security purchases, loans, and other credit facilities implemented mostly in a matter of weeks and all before the end of 2008. In effect, during the emergency period when the financial panic first started, the Fed was plugging holes in the financial system wherever they found them, from AIG to money market funds, from the commercial paper market to troubled assets on bank balance sheets. Please note that QE1 did not involve the purchase of US Treasury securities. Subsequent programs were conducted in relative calm and focused solely on US Treasuries, as in QE2 and the maturity extension program, as well as more mortgaged-backed securities in QE3, while at the same time the emergency purchases during QE1 of troubled assets and special facility investments were cleaned-up. See Table 1.

Analyzing the recovery of the banking system, interestingly, is one place where the different forms of QE as practiced by the Fed in the US and the ECB in Europe appear to have had varying impacts. The Fed bought assets from the banking system, and this did two things. It provided liquidity and it allowed the banks to shed assets without a fire sale into an imploding market. In turn, shedding assets reduced the banks need to raise new capital, so that the amounts of new

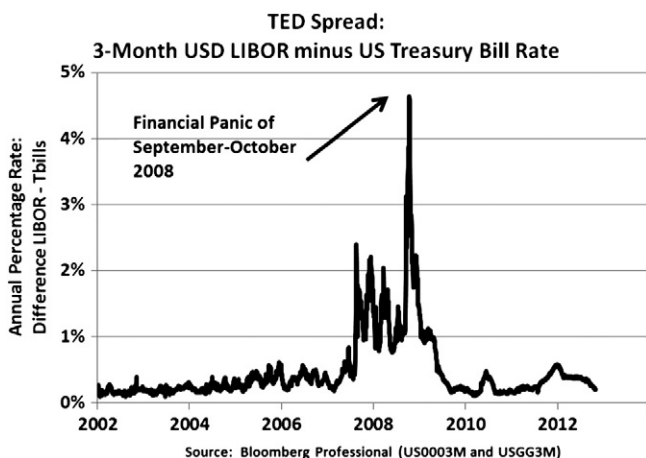


Fig. 1. TED spread.

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