

Postgraduate Entry

Unconventional Monetary Policy and the Role of Central Banks in the Financial Crisis

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Introduction: Conventional Monetary policy

In developed economies, the notion of conventional monetary policy refers to the targeting of low and stable inflation. This is achieved by setting the official short-term nominal interest rate at which the central bank lends to banks. (Joyce et al. 2012). It is worth noting that the history of conventional monetary policy as it is known today has been ‘conventional’ for a very short period of time (approximately 25 years) relative to the 350-year history of central banks (The Economist, 2017). The first significant and explicit manipulation of interest rates by central banks as a means of moderating inflation rates was used in the 1980s by the (then) head of the Federal Reserve, Paul Volcker. Today’s conventional, low-and-stable-inflation targeting was adopted more broadly and formally in 1989 by New Zealand and later on by the central banks of larger economies such as the Bank of England; Bank of Japan and the European Central Bank. The resulting world economy was indeed characterised by low and stable inflation along with prolonged and pervasive growth in the pre-crisis period that has come to be known as the “Great Moderation” (ibid.).

This Great Moderation led to the widespread acceptance that central banks had, for the most part, worked out how to maintain a functioning and efficient economy and should therefore be left to operate autonomously to achieve its primary mandate: price stability. Historically speaking, the power and independence with which central banks now operate in the modern global economy comes with unprecedented responsibility for the economic well-being of the global economy and all those in it. Needless to say, the role of central banks both in their failure to detect the impending crisis and in their response to this crisis has renewed the question of exactly what monetary policy should and should not entail.

This essay is structured as follows: section 2 will address the rationale of unconventional monetary policy and will assess its overall effectiveness; in section 3, international spill-over effects and government debt are discussed, as is the role of central banks in the financial crisis. This essay will show that the benefits of unconventional monetary policy have been considerably limited at best and should not be carried out on an ongoing basis. It is further argued that monetary policy must broaden its mandate to ensure that it does not enable the conditions for the next crisis.

Section 2. The Rationale and History of Unconventional Monetary Policy

The concerns about the limitations of short-term nominal interest rates has historical precedence as far back as Keynes (1936) and was later mathematized in Hicks (1937). These concerns are fundamentally linked to the concerns of the effectiveness of monetary policy in times of crisis: when crises occur, the short-term policy rate is adjusted to lower levels than usual to encourage lending, borrowing and spending. However, as this rate approaches zero agents become increasingly indifferent between keeping their money in banks and storing it themselves. When the interest rate reaches zero, there are no monetary benefits associated with saving money in a bank and any interest rate below this will dis-incentivise agents to store their money with banks. (Fawley and Neely, 2013). This creates a liquidity trap in which money demand is not only unresponsive at the zero-lower bound but becomes increasingly desensitized as interest rates approach this lower bound. What is a central bank to do in such a situation?

For unconventional measures to be justified, first it needs to be established that conventional measures have been exhausted. Figure 1 below shows that indeed policy rates converged rapidly to the zero-lower bound as the global crisis emerged and spread. Given that the crisis persisted well beyond this period and was accompanied by deflationary pressure (see figure 2 below), if central

banks were to fulfil their mandate of achieving two percent inflation, unconventional measures would have to be undertaken. Unconventional monetary policy can refer to the use of credit easing, negative nominal interest rates or quantitative easing. The majority of post-crisis literature is concerned with quantitative easing (henceforth QE) and hence will be the focus of this essay (Fawley and Neely, 2013; Joyce et al. 2012). The four regions associated with QE programs are those shown in the graphs, namely: the USA, Euro area, UK and Japan. World Bank data¹ suggests these regions accounted for just over half of global GDP in 2015 and hence their monetary policy can be expected to have significant global ramifications.

Figure 1: Main Policy Rates in QE4 countries
Convergence to the zero lower bound

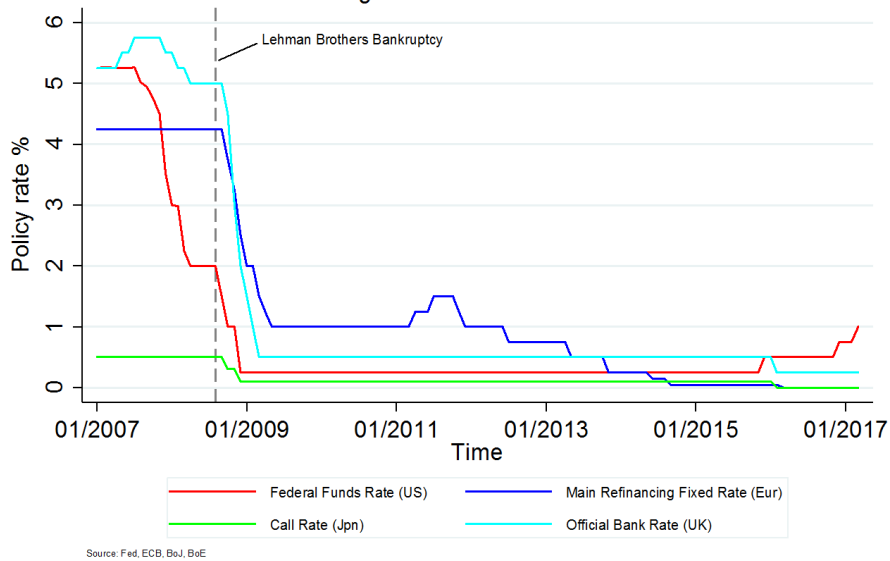
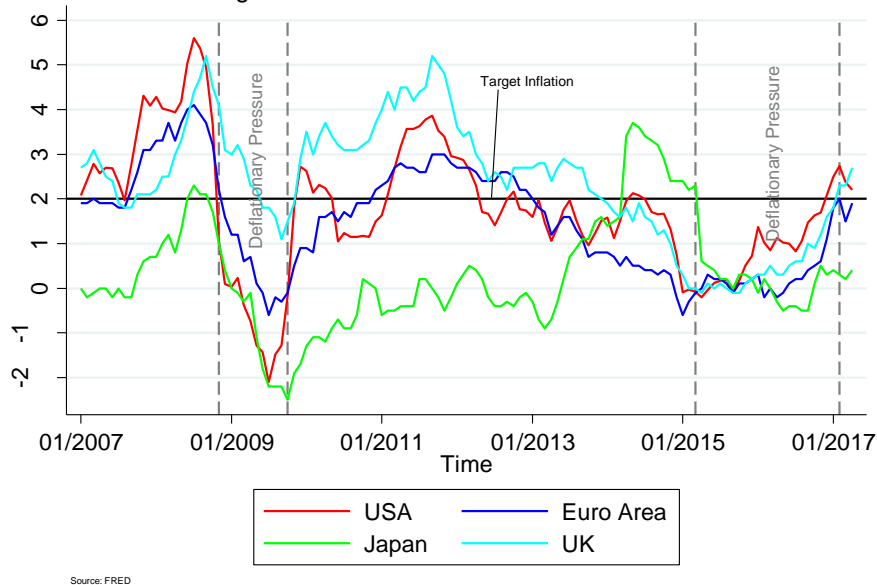


Figure 2: Headline Inflation in QE4 countries

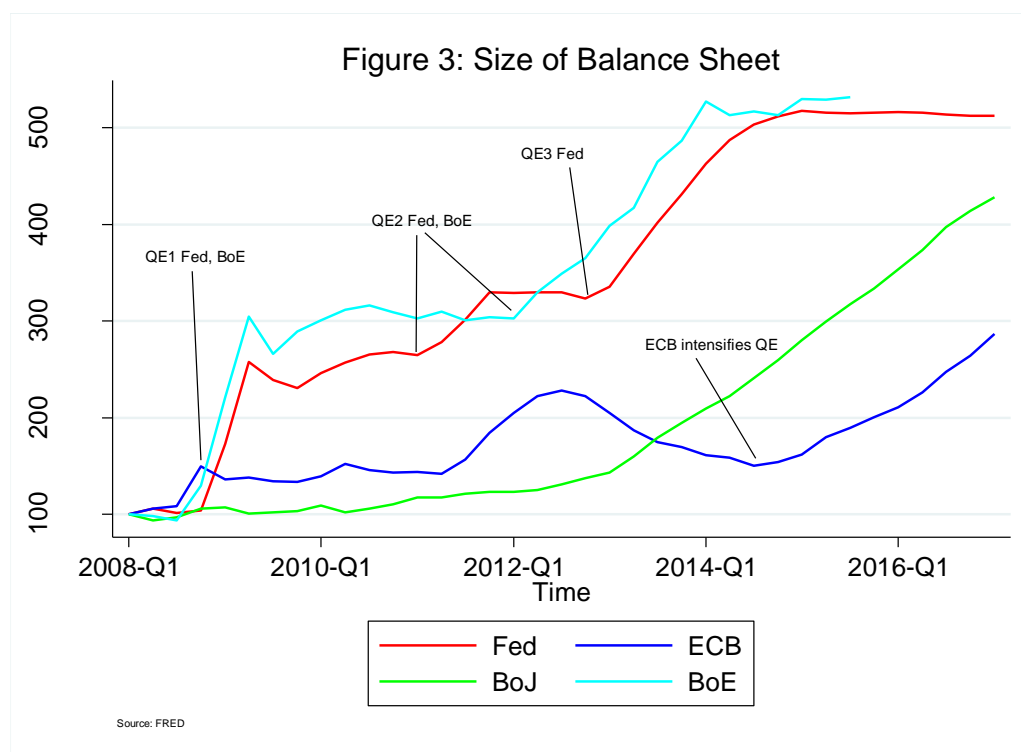


¹ Data available at: <http://data.worldbank.org/indicator/NY.GDP.MKTP.CD>

2.1 QE theory and implementation

QE refers to any policy which unusually increases the size of the balance sheet of central banks. This may be contrasted with credit easing, which is primarily concerned with reducing specific interest rates and restoring market function in key sectors (Fawley and Neely 2013). There is no broad consensus on the exact mechanism through which QE operates: in conventional policy, the quantitative effect of money supply which determines policy rates is viewed as neutral; on the other hand, with QE, large-scale asset purchases are undertaken specifically with the aim of increasing the size of the central bank's balance sheet with the view that the resulting quantitative effects will create demand (Joyce et al. 2012). The suggested conditions through which QE may not be neutral include limited participation and credit imperfections in the financial market – such conditions are plausible in the times of financial crises (Kiyotaki and Moore 2012).

QE was first implemented by the Bank of Japan (BoJ) from 2001-2006 following chronically low growth and deflationary economic conditions. The program it undertook involved moving away from the main short-term policy rate and instead focusing on the quantity of bank reserves as its main policy tool (Schenkelberg and Watzka, 2013). Following the financial crisis, the Fed and the Bank of England (BoE) initiated their own quantitative easing programs. These programs involved purchases of long-term government bonds with the aim of decreasing long term yields and thereby stimulating demand. On the other hand, the BoJ and European Central Bank's (ECB) QE programs focused more on increasing bank reserves, reflecting the relative importance of banks rather than bond markets in these economies (Fawley and Neely 2013). The graph below shows the tapering off of balance sheet expansion in more recent years in the case of the Fed and BoE. The most recent and significant round of QE came in 2015, when the ECB announced it would significantly expand purchases through sovereign bond purchases and has subsequently expanded the range of assets purchased further.



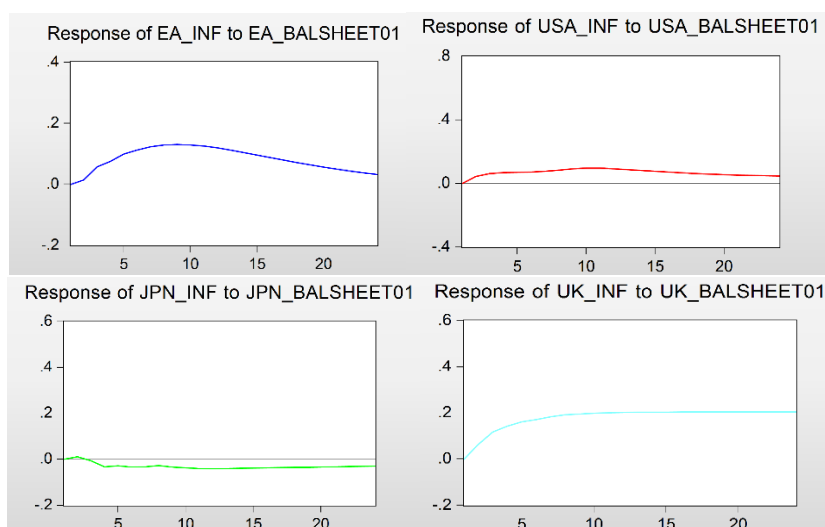
2.2 Empirical assesment of QE

The literature suggests mixed reviews for the effectiveness of QE on the whole. In the case of Japan (Schenkelberg and Watzka, 2013), the Euro area (Lewis and Roth, 2015) and the US (Wu and Xia 2016) there is evidence for small, short-terms boosts to economic activity with little to no effect on inflation. In the UK, QE is found to have small, positive effects on output and inflation although these effects are highly uncertain (Kapetanios et al., 2012). To control for differing methodologies across studies, I verify the above findings using a consistent model for each economy through the estimation of a Vector Autoregressive(VAR) model. I use a methodology similar to that used in Schenkelberg and Watzka (2013) for each QE4 economy in the form:

$$Y_t = \alpha + \beta \sum_{i=1}^6 Y_{t-i} + u_i$$

Where the estimated endogenous variables in the vector Y_t are: inflation; industrial production; size of balance sheet; 10-year government bond yields; the real exchange rate and the main policy rate. As indicated, the autoregressive variable Y_{t-i} has 6 lags as in Schenkelber and Watzka (2013); α is a vector of intercepts while β is a matrix of coefficients. The model has 6 estimated equations. Monthly data is aggregated from FRED and the OECD, ranging from January 2005 – December 2016 for an overall sample size of 144 observations per country. I take logs and first differences for all variables to ensure stationarity of each time series. Given that price stability (inflation at or near 2 percent) is the stated policy target for all of these central banks (BoE, 2012; BoJ, 2013; Federal Reserve, 2014; ECB, 2017), impulse response functions from the VAR estimation for inflation are shown below over a 24-month period.

Figure 4: Impulse Response of inflation to Cholesky one S.D innovations



In the case of Japan, the impact of a one-standard-deviation shock to asset purchases on inflation is not statistically significant from zero. On the other hand, there appears to be evidence for a small, short-term rise in inflation for the Euro area and the US which tapers off as well as a small and prolonged rise in inflation for the case of the UK. The shocks to the balance sheet are also associated with small short-term rises in economic activity (industrial production) for all countries, with the greatest increases generally occurring in months 2-4 after, the effect then tapers off. This generally points to a limited effect of QE as applied in these four countries when considering the price stability mandate of central banks. This is of greatest concern for the Euro area which is still implementing the effects of quantitative easing compared to the cases of the US and the UK which have, for the most

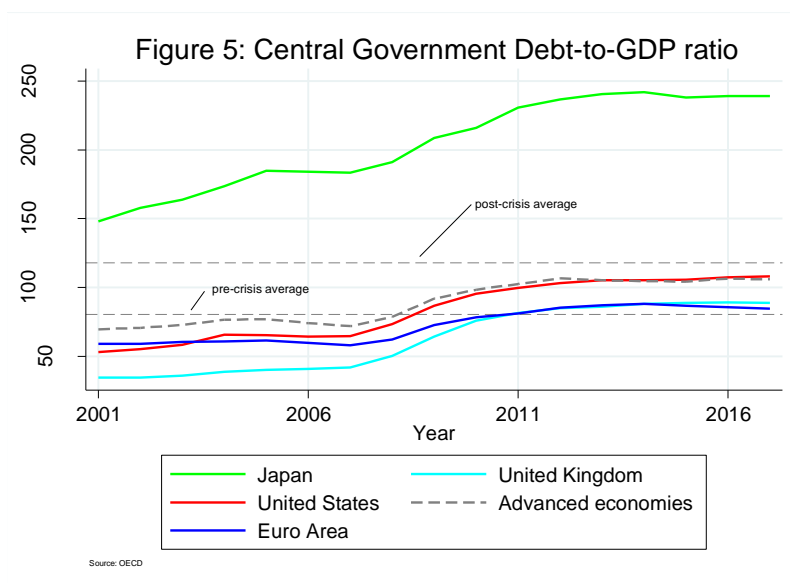
part, tapered off these programs. It is also important to bear in mind that the limited effectiveness of QE also comes with its costs.

3. Looking beyond QE and inflation targeting

The IMF's most recent World Economic Outlook (2017), subtitled "*Gaining Momentum?*", gives an upbeat picture of the current global economy. As figure 2 above shows, headline inflation appears to be recovering towards target levels and global growth estimates for the year have been revised upward from 3.1 percent to 3.5 percent. On the face of it, one is tempted to conclude that central banks have succeeded in stabilising the world economy and have put it back on the path of the "Great Moderation". As has already been established, the need for QE and unconventional policy in general arose out of economic crisis and the effects of this crisis were not just limited to the countries in which they began. Furthermore, one has to look not just at how monetary policy has responded to the crisis, but what its role was in creating it in the first place.

3.1 Increasing Debt and Spill-over effects

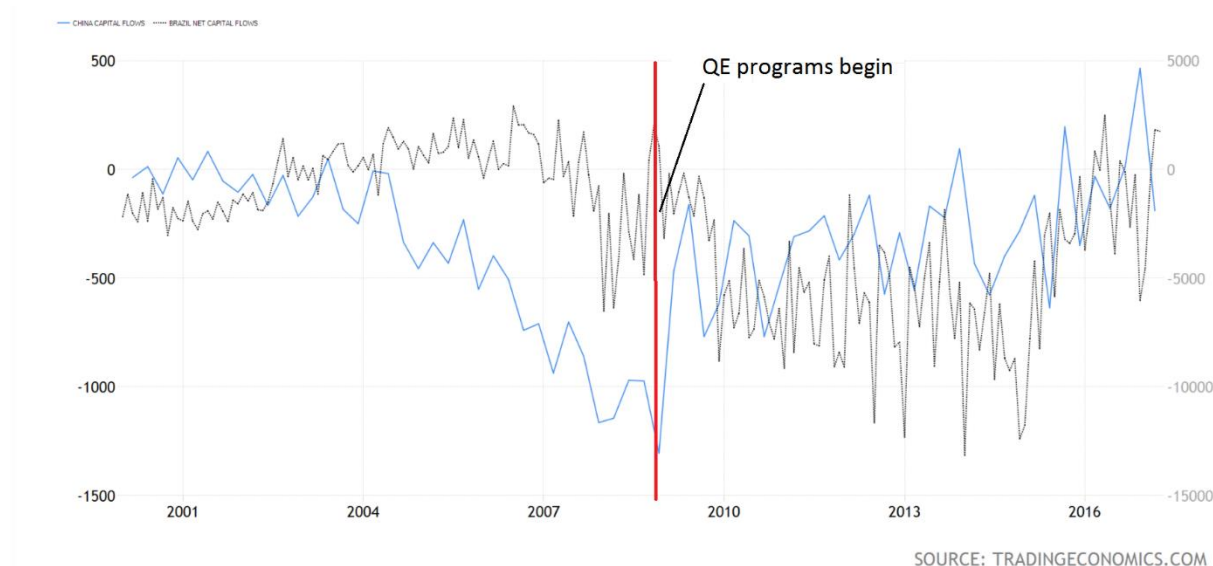
Outside of the narrow framework of inflation targeting and output, the crisis period has resulted in significantly increased government debt for all four QE4 regions as well as in advanced countries more generally. This is a cause for concern for an economic environment in which growth is by no means secure and speaks to the concern that private sector risk has merely been shifted into the public sector. This in turn increases the risk of sovereign default as was the case in three countries in the Euro area namely: Ireland, Portugal and Greece. Until global economic growth picks up, debt-to-GDP appears likely to remain persistently high.



On an international level, emerging economies have also been affected by QE particularly with respect to capital flows. Because of relatively high interest rates (both short- and long-term) in developing countries, capital flows became increasingly speculative leading to increased volatility in key developing economies (Lim et al. 2014). For example, BRICS nations which have generally loose capital restrictions are potentially vulnerable to external monetary policy shocks, leading to the former president of Brazil, Dilma Rousseff's remark that unconventional monetary policy had unleashed a "monetary tsunami" in the developing world. (Chari et al. 2016) This can be seen in the cases of Brazil and China below. This increased volatility in capital flows undermines the stability of financial and asset markets in developing nations thus further propagating financial instability throughout the

global economy. In particular, these capital flows effects are “orders of magnitude” higher in the tapering periods of QE as opposed to the implementation of QE itself (ibid.)

Figure 6: capital flows in two select BRICS nations



3.2 Lessons from History and Theory

While it is important to ascertain the effectiveness of policy responses to a crisis, it is arguably even more important to establish the role of policy in its failures to prevent or detect the impending crisis and to adequately predict the extent of the crisis once it had already hit. Although monetary policy aims to generate demand in economic downturns, it needs to also ensure that the demand which is created is done so through responsible economic behaviour. This involves moving beyond empirical analysis and looking at what drives the kind of irresponsible behaviour which the central banks of advanced economies were so oblivious to in 2008.

In his prescient and now celebrated essay, Minsky (1982) hypothesised that financial crises are not just the result of a lack of oversight on the part of institutions, but that crises are *precisely the result of economically stable conditions* themselves: when an economy stabilises, expectation formation adjusts to one in which growth is a given. In this booming economic environment, the financial system becomes more willing to lend given its expectation of prolonged growth. This eventually results in excessive and irresponsible lending which continues until the weight of this irresponsible lending brings the financial system crashing down and the economy with it. The lesson of Minsky is that it is complacency in times of economic stability which leads to economic crises.

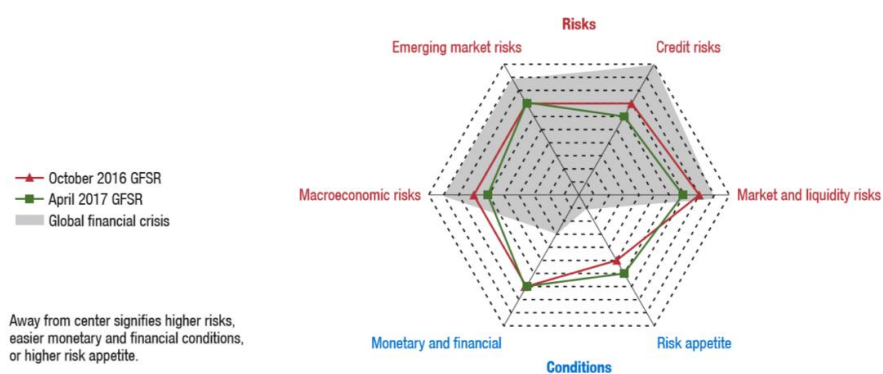
A literature has emerged subsequent to the crisis on the concept of measuring systemic risk. This is distinct from *systematic risk* which describes the non-diversifiable, macroeconomic risk inherent in any system. As Hansen (2013) notes, systemic risk: “...pertains to risks of breakdown or major dysfunction in financial markets. The potential for such risks provides a rationale for financial market monitoring, intervention or regulation”. Such considerations are addressed in the IMF’s semi-annual Global Financial Stability Report (GFSR) which addresses not just the overall outlook of the world economy but the structural imbalances within it, which could undermine financial stability. In its most recent report some of the key issues addressed include: the spill-over effects of policy onto emerging market economies; structural challenges in European Banking systems and political and policy uncertainty (IMF, April 2017).

The Euro area poses a particular area of concern. It has already been noted that the effects of quantitative easing appear to be somewhat ineffective in achieving price stability; coupled with concerns about rising sovereign debt, low growth, capital flow spillovers from QE tapering as well as structural concerns in the banking sector, this area appears to be the most vulnerable and systemically important region in the aftermath of the financial crisis.

Increased public debt in the Euro area is a particular problem because of the lack of union in both monetary and fiscal policy. Rodden et al. (2003) note that this leads to the problem of “soft budget constraints”: at the heart of the issue is the fact that while risks are assumed by each member state individually, the costs of default are borne by the monetary union as a whole. The softening of the budget constraint comes from the fact that when a systemically important member of the union defaults, the costs of bailout to the monetary union will be lower than the costs of default; this essentially leaves monetary policy at the mercy of fiscal irresponsibility.

It is important to note the distinction between understanding what caused the financial crisis and understanding what *causes crises generally*. In the former case, we can rely on the historical record and stylized facts: the crisis came from irresponsible lending and borrowing which resulted in the 2006 subprime mortgage crisis, which then propagated its way through the world economy causing banking and sovereign debt crises in Europe and economic slowdown elsewhere (Lane 2013; Shambaugh 2012). While it is important to learn the lessons of the last crisis, the fundamental point remains that no crisis occurs in the same way to those preceding it: economic crises are, by their very nature, unprecedented phenomena or “*Black Swans*” (Taleb, 2005). Nevertheless, the IMF’s most recent Global Financial Stability Report cites overall improving financial stability in the global economy as displayed below. While almost all conditions appear to be improving, if these conditions are to continue to improve they should not be taken for granted and central banks must broaden their mandate to include considerations beyond simply generating demand.

Figure 7: Global stability over time



Source: GFSR 2017

Recommendations and Conclusion

This essay has addressed several issues within the framework of monetary policy and has argued that the benefits of unconventional monetary policy is at best very limited and is most likely ineffective in adjusting inflation towards its mandate of 2 percent inflation. There are however some associated short-term benefits in economic output as measured by industrial production. Several challenges remain for monetary policy in general as well as for the Euro area in particular, this includes: providing the appropriate mixture of monetary easing with fiscal tightening so as to lower government debt levels without dampening demand; re-normalizing monetary policy with due concern for tapering

effects on capital flows in emerging economies and, finally, structural revisions to monetary policy particularly in the Euro area. Given these issues the following recommendations are made:

1. Monetary normalisation should take place in the Euro area provided that: inflation is sustained around its current 2 percent target and global economic conditions continue to improve.
2. Forward guidance is needed from the ECB to reduce speculation and volatility associated with tapering off QE, particularly in emerging markets.
3. Structural reforms within the Euro area to properly align incentives between fiscal and monetary policy through hardening of the budget constraint. This includes measures such as stricter enforcement of existing fiscal deficit rules.
4. Broadening of the monetary policy mandate in advanced economies to look beyond the considerations of inflation targeting and to ensure that the demand it generates is sustainable and responsible. This includes development of more robust measures of financial stability in the general spirit of the GFSR.

This essay has shown that unconventional measures may not be contributing as much to the global economic recovery as central banks would like to think that they have. Although such measures were crucial in preventing the collapse of the financial system, there is little evidence to suggest that they have contributed in any significant way to restoring price stability. It should be borne in mind that while central banks indeed have a considerable amount of independence and power, their mandate is still considerably narrow. This essay has argued that in order for central banks to ensure that the risks associated with unconventional measures do not turn into the next crisis, structural reforms must take place and the mandate of monetary policy needs to be broadened so that it can operate in such a way as to ensure that its inflation targeting is achieved in a responsible and sustainable manner.

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