Financial disruption and state dependent credit policy

Thibaud Cargoët, Jean-Christophe Poutineau

CREM-CNRS, University of Rennes 1, France

1. Introduction

The financial crisis that erupted in 2007 has deeply modified the nature of monetary policy in developed countries. The initial financial disruption that affected the loan market, followed by the sharp decrease of the official interest rate down to the Zero Lower Bound, made the usual monetary transmission mechanism ineffective. These phenomena led most Central Banks to adopt unconventional monetary policy practices to provide liquidity to the economy.

Although such unconventional measures were necessary at short notice to avoid a generalized collapse of the financial system and to dampen the macroeconomic effects of the financial crisis, they are still part of today’s monetary policy. This situation raises questions. First, what should be the required length of unconventional policy measures? The temporary nature of these policies has regularly been emphasized over the last decade and, we now seem to be at a point where some Central Banks, such as the Federal Reserve or the Bank of England begin the process of reversing loose monetary policy decisions to go back to more conventional practices. A second main question concerns the medium run consequences of the enduring conduct of unconventional policy decisions. The extension for a longer time period of unconventional measures based on quantitative easing creates new distortions in the economy. As underlined by Ben Bernanke at Jackson Hole in 2012, “While there is substantial evidence that the Federal Reserve’s asset purchases have lowered longer-term yields and eased broader financial conditions, obtaining precise estimates of the effects of these operations on the broader economy is inherently difficult, as the counterfactual – how the economy would have performed in the absence of the Federal Reserve’s actions - cannot be directly observed.”

Ten years after the Lehman-Brother collapse, the unwinding of unconventional policy measures is now on the agenda. However, apart from a few papers, the theoretical literature devoted to the assessment of unconventional monetary policies that follows Gertler and Karadi (2011), considers the adoption of such measures as belonging to the “new normal” of monetary policy. Noticeably, only a very small number of papers have proposed analytical frameworks to study the exit from these policies. Our paper contributes to this strand of the literature by analyzing the state dependent nature of unconventional policy measures related to a financial disruption. Although the reaction of Central Banks over the last decade has targeted different objectives, our paper concentrates more particularly on the link between unconventional policy decisions and financial intermediation disruption. This focus accounts for a main stylized fact: In the wake of the crisis, many commercial banks were affected by a sharp deterioration of their balance sheet and restricted the supply of loans, being concerned about their ability to refinance themselves. Fears that commercial banks were keeping funds to improve their liquidity rather than lending to the private sector, led Central Banks to intervene with the direct provision of credit to restore the functioning of the loan market.

The objective of this paper is twofold. First, we provide a compact
approach to describe how negative financial shocks transmit to the economy by generating a shortened provision of loans which endogenously determines the length of the stressed situation. Second, we evaluate the effect of credit policies aimed at restoring a normal functioning of the financial sector, accounting for their two effects, both on the length and on the magnitude of financial crisis.

Our results are three. First, in line with the existing literature, we find that unconventional monetary policy measures significantly reduce the negative consequences of a financial crisis on the main aggregates of the economy in the short run. However adopting such measures may generate a longer period of stress on the loan market: When the Central Bank delivers credit directly to the private sector, this quantitative decision has a further effect on the interest rate on loans that decreases, thus marginally increasing loan demand more than proportionally with respect to loan supply, and delaying the transition back to normal times. Second, accounting for the joint effect of shocks on the length of the stressed period and on the fluctuation of activity in the transitory period back to normal times, we assess the interest of conducting credit policy measures. We find that in the medium run, the positive effect of this policy requires some qualification as part of its positive effects may vanish when firms are heavily leveraged. Third, extending our analysis to the Zero Lower Bound situation we find that credit policy is helpful not only for dampening the negative macroeconomic effects of the financial disruption, but also suppresses the Zero Lower Bound phenomenon, which gives the control of interest rates back to the Central Bank.

The rest of the paper is organized as follows. Section 2 presents the policy and theoretical backgrounds of our analysis. Section 3 presents the loan market equilibrium. Section 4 describes the non financial part of the model. Section 5 is devoted to the calibration of the model and to the analysis of the effect of endogenous quantitative lending shortage on the dynamics of the economy. Section 6 evaluates the consequences of a credit policy implemented according to a state dependent dimension. Section 7 analyses the Zero Lower Bound situation. Section 8 concludes.

2. Background of the paper

2.1. Policy background

The conventional approach to monetary policy that characterized the “great moderation” (1985-2007) rests on the setting of short term interest rates through open market operations. The financial crisis that erupted in 2007 sharply affected this operational framework. On the one side, emergency measures adopted by the Federal Reserve led to a sharp reduction in the interest rate that hit the Zero lower bound a few months latter. On the other side, the banking sector shortened loan supply for liquidity reasons, thus introducing a disconnection between policy and market rates. To overcome these consequences of financial disruption and the problem of the transmission of monetary policy decisions through conventional channels, most Central Banks embarked in the implementation of policies focussing on the quantity rather than on the price of liquidity.

Unconventional monetary policy encompasses a wide array of procedures – ranking from an unconventional use of conventional instruments to the development of new practices – with the common objective of overcoming the inefficiency of conventional practices based on the manipulation of the short term interest rate. Unconventional policy tools can broadly be divided into three categories: Quantitative Easing (QE), Targeted Asset Purchases (TAP), and Forward Guidance (FG). QE involves an expansion of the Central Bank’s balance sheet while TAP involves a change in the mix of Central Bank assets—keeping the balance sheet scale and supply of reserves unchanged—in order to alter the relative prices of different assets. FG is a form of communication by the Central Bank about its future policy rate path.

As an example, Fig. 1 presents the measures undertaken by the Federal Reserve and the consequences on its balance sheet. The three main measures adopted to address the problem of the financial crisis were direct lending to financial institutions, mortgage-backed securities purchases, and long term treasury purchases.

As summarized by Joyce et al. (2012), the efficacy of such measures rests on two channels. First, the portfolio substitution channel aims at affecting the interest rates of the different assets, as the direct buying of assets by the Central Bank affects their relative yield through their relative availability. By focusing on a specific segment of the yield curve (e.g. Long Term Treasury Purchases (LTTP)) they can lead to a decrease of long term interest rates even if the short term interest rates are set at the Zero Lower Bound. Second, the bank funding channel aims at providing direct credit to the non financial private sector, in order to ease the negative effects of financial disruption on the availability of loans. Among all the measures undertaken by the Federal Reserve, some can be more directly related to the bank funding channel such as Mortgage Backed Securities Purchases (MBSP), still in effect today.

2.2. Relation to the literature

Our approach follows Gertler and Karadi (2011) and focuses on the MBSP via their effect on the credit market. Gertler and Karadi (2011) set the standard framework to analyze the economic environment requiring the implementation of unconventional policy measures. They provide a DSGE model with financial intermediaries facing endogenously determined balance sheet constraints. In their model, the deterioration in the financial positions of financial intermediaries leads to a disruption in the flow of funds between lenders and borrowers. Unconventional monetary policy is modelled as an expansion of Central Bank credit intermediation needed to offset a disruption of private financial intermediation and improve the economic situation.

This framework has furthermore been extended to more complex policy environments. Gertler and Karadi (2013) assess the consequences of Large Scale Asset Purchases (LSAP) such as the ones implemented by the Federal Reserve. They study the consequences of purchases of both long term government bonds (i.e. Long Term Treasury Purchases) and securities with some private risks (i.e. Mortgage Backed Securities Purchases).

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1. By undertaking these unconventional policy measures, the Central Bank expands its balance sheet and shifts the portfolio mix of assets held by the private sector who comes to hold more claims on the Central Bank (e.g money) and fewer of the claims that the Central Bank has acquired (e.g mortgage-backed securities purchases). Thus, the Central Bank’s balance sheet rises.

2. For an analysis of this channel, see for example Vayanos and Vila (2009), Gagnon et al. (2011), Chen et al. (2012).

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