The bank lending channel of monetary policy in EU countries during the global financial crisis

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A B S T R A C T

The study examines the existence of the bank lending channel of monetary policy in European Union (EU) countries. The paper advances current research on the monetary transmission mechanism in the following ways: Firstly, we analyze the differences between ‘old’ Economic Monetary Union (EMU) and ‘new’ EU countries. Secondly, we examine the key bank characteristics and monetary policy indicators that may have an impact on the bank lending channel. We assume that short-term market interest rates and monetary aggregate M2 affect banks’ activities. We apply the generalized method of moments (GMM) with pooled data from 1999 to 2012. We show that in the pre-crisis period the effect of changing the short-term market interest rates on the bank lending channel of monetary policy is more pronounced among ‘old’ EMU countries, whereas the effect of M2 is significant during the period of the global financial crisis (GFC) among ‘old’ EMU countries. Last but not least the important finding is that banks in ‘new’ EU countries react differently to monetary shocks.

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1. Introduction

The recent global financial crisis (GFC) has changed banks’ behavior and affected the monetary policies of central banks in Europe, the USA and also in other regions. As a reaction to the GFC, the central banks have adopted unconventional monetary policy measures such as supplying an unlimited amount of capital to the market to support the liquidity of commercial banks and foreign exchange interventions through competitive devaluations of other currencies against the euro. These systemic changes have undoubtedly had an impact on banking systems and have affected bank lending channels of monetary transmission in ‘old’ Economic Monetary Union (EMU) and ‘new’ European Union (EU) countries.

In the existing literature on monetary transmission mechanisms, three major bank characteristics are found to affect the responses of bank loans to shifts in monetary policy—asset size, bank capitalization and bank liquidity—as discussed in seminal papers by Kashyap and Stein (1995, 2000), Kashan and Opiela (2000) and further tested in different markets, see for example, Keks and Sturm (2002), Wróbel and Pawlowska (2002), Ehrmann et al. (2003), Gambacorta (2005), Matousek and Sarantis (2009), Fungáčová et al. (2014), and Heryán et al. (2015) among others.

This paper attempts to contribute to the extensive research on monetary transmission mechanisms in general, and lending channels in particular. We extend the previous studies on the lending channel in the following ways: first, we use short-term interest rates as well as the monetary aggregate M2 to examine which variable most affected the lending channels. Second, the paper uses two periods within the entire period of 1999 to 2012, that is, the pre-crisis period and entire period including the crisis period from 2007 to 2012, to show the differences in how banks’ behavior changed. Finally, we compare the results for old EMU countries with the results for new EU countries that joined after 2004 (the UK, Sweden and Denmark are therefore excluded from the analysis). Only a handful of studies have focused on comparing the development of short-term interest rates and changes in monetary aggregates and their impacts on lending channels in the context of the distributional effects of monetary policies during the financial crisis period (see Heryán et al., 2015). However, there is no evidence of differences between old European economies that accept the euro as the...
common currency and new European Union (EU) economies in this field.

Reported findings indicate that there are the differences between the old EMU lending channel, in which the transmission mechanism was more obvious in terms of short-term interest rates before the financial crisis, whereas during the crisis period, there were changes in the monetary aggregate M2 that affected the channel more. In contrast, in the new EU lending channel, it was found that the transmission mechanism worked more effectively with the M2 before the crisis, whereas during the crisis period, it was the changing interest rates that affected the channel more. Throughout the paper, we show the following: first, smaller banks react more to changes in the M2 than in interest rates within the crisis, but only in old EMU countries; this is consistent with the recent monetary behavior of the ECB. However, the old EMU lending channel is affected more by smaller banks in pre-crisis period, but by larger banks due to the GFC, in contrast to the existing literature. Even among new EU countries, no evidence supports the idea that bank size affects the lending channel. Second, bank liquidity mattered among both the old EMU and new EU countries during the crisis, but only the old EMU lending channel was affected throughout the entire crisis period. Third, strongly capitalized banks reacted more to monetary policy changes in the old EMU countries, which is consistent with the existing literature. In the case of the new EU countries, only the strongly capitalized banks reacted for the entire period, but the reactions of the undercapitalized banks were much more evident in pre-crisis period. Finally, last year’s development of loans granted was significant in all generalized method of moments (GMM) models. This result contrasts with the findings published by Fungáčová et al. (2014).

Kishan and Opiela (2006) argue according to the lending channel, monetary policy must allow an effective interest rates of changes from the old EMU to M2 by conducting open-market operations, to shift banks’ loan supply schedules. According to these researchers, the difference between market interest rates and bank loan interest rates is due to the lack of constraints on the lending of some banks due to them. Lower interest rates on loans should also increase loan demand, then investments support an employment and aggregate demand, which finally results into the increasing of inflation.1

The interbank market for funds is an integral part of the short end of the term structure of interest rates. Since the functioning of the money market plays a role for the monetary transmission mechanism, the formation of prices in the interbank market of the euro area has been subject of thorough investigation (Marzo and Zagaglia, 2014). During the crisis money market rates up to 12 months still respond to revisions in the expected path of future rates, even though to a lesser extent than before August 2007. Abbassi and Linzert (2012) attribute part of the loss in monetary policy effectiveness to money market rates being driven by higher liquidity premia and increased uncertainty about future interest rates. Two paragraphs above motivate current research.

According to Bernanke and Blinder (1988) there are two necessary conditions that must hold for there to be a distinct lending channel of monetary policy transmission in the US market: (i) some firms must be dependent on bank loans, i.e., some firms must be unable to substitute between bank loans and other forms of finance; (ii) the Fed must be able, simply by conducting open-market operations, to shift banks’ loan supply schedules. We assume the same conditions for monetary policy transmission of the ECB.

On the other hand, according to our results which have compared the pre-crisis period with the period affected by the GFC, there is the evidence of changes in the monetary transmission mechanism. Therefore expansionary policy is necessary even if the standard monetary policy measures taken by the ECB have already failed. However, inflation targeting monetary strategy has been pointed as a potential source of the crisis, as its main objective of inflation stabilization might have diverted central banks from financial stability (Draško and Kouretas, 2015). From above we can finally complete those two conditions of a distinct lending channel of monetary policy transmission, made by Bernanke and Blinder (1988) with the third: (iii) Commercial banks must offer loans and do not have to hold more than enough liquidity due to potential risks of their insolvency.

In addition, the study contributes to ongoing research by providing evidence for both, pre-crisis and the crisis periods using pooled data from 1999 to 2012 that were published by BankScope and using GMM panel regression. From the methodological point of view, there are four major studies within the area of monetary policy on the bank lending channel among European countries, all of which use methodologies similar to the GMM with pooled data: Gambacorta (2005) estimated relationships within the Italian credit market; Matousek and Sarantis (2009) investigated the lending channels of each country in the Visegrad group and compared them with the channels in the Baltic states; Akinci et al. (2013) estimated the credit market in Turkey; and Heryán et al. (2015) investigated differences between the EMU and EU countries with their own currencies.

This study is structured as follows: In the next Section we summarize studies on bank lending channels, Section 3 describes the estimation methodology used in the papers from the previous paragraph and the data, Section 4 discusses the empirical results, and the last section summarizes the main conclusions.

2. Literature review

The importance of the bank lending channel (BLC) and its interaction with monetary policy was first investigated in the USA mainly in the 1990s. Initially, the lending view was interpreted by Bernanke and Blinder (1988), who interpreted it as a specific, special case of multi-asset models. Therefore, in particular, in the lending view, there were exactly three asset-sets: money, bonds, and bank loans. The main idea was to check a basic premise of the theory, namely, that a tightening in monetary policy does in fact lead to a contraction in the deposits available to both large and small banks. This relation holds for the aggregate banking sector, which has already been established by Bernanke and Blinder (1992).

Kashyap and Stein (1995) found that the growth of bank loans for the sub-segment of small commercial banks was the most responsive to monetary policy. More specifically, they argue that if the lending view is correct, one should expect the loan and security portfolios of large and small banks to respond differentially to a contraction in monetary policy. Kishan and Opiela (2000) consider the size of banks as one of the bank characteristics, as well. They assumed that small banks are more prone to the problem of information asymmetry than large banks. This also implies a higher sensitivity of small banks to monetary policy shocks. Keks and Sturm (2002) find that lending in small German banks declines more than in large banks after a monetary contraction. Akinci et al. (2013) argue in general, the lending behavior of banks with weak balance sheets should be more sensitive to monetary shocks than that of banks with strong balance sheets (i.e. size of bank assets). According to Ehrmann et al. (2003), smaller banks have been found to be more affected by monetary policy tightening in the euro area than large banks, and as such have been forced to restrict their lending more strongly.

Kashyap and Stein (1995) argue that the central bank must be able, simply by conducting open-market operations, to shift banks’ loan supply schedules. According to these researchers, the difference between large and small bank equity emphasizes the fact that their use of bank size as a proxy for external market access is an imperfect one. The researchers find that small banks react more sensitively than large banks to changes in the stance of monetary policy for every one of their specifications. Moreover, one may expect that better capitalized banks would have an easier time raising external funds. For example,

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1 During GFC times the EU markets faced the risk of deflation. During the deflation consumers do not consume due to possible lower prices in the future, which is connected with lower aggregate demand and a slow-down in economic growth. Therefore the ECB has tried its expansionary policy to stimulate the inflation rate.
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