REQUIRED RESERVES, LIQUIDITY RISK, AND CREDIT GROWTH

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Extended Abstract

Following the global financial crisis of 2007-2009, capital flows to emerging market economies have been quite volatile due to excessive liquidity caused by monetary easing in advanced economies and uncertainty in the global economy. For emerging economies, this framework has created financial stability challenges such as excess volatility in exchange rates and credit growth. Central banks in many emerging economies incorporated financial stability concerns into standard inflation-targeting frameworks and adopted new monetary policy tools to cope with multiple objectives.

The standard response to surging capital inflows by most emerging economies, including Turkey, was to keep policy rates at low levels, while engaging in some form of macroprudential tightening to curb rapid credit growth. At this point, it is still an open question whether the recent policies pursued by the emerging economies are specific to the post-crisis environment or they are here to stay. In order to answer this question, more research regarding the transmission mechanisms of these new instruments is needed, which is exactly the aim of this study.

One of the instruments that have been widely used by the central banks of emerging economies to control credit growth was reserve requirements (RR). In this paper, we utilize the Turkish economy as a laboratory to unveil the transmission of reserve requirements on the bank lending behavior. RR are a natural starting point to assess the recent unconventional instruments

that are used since the global financial crisis. They have been extensively used by both IT and non-IT emerging market economies as a supplementary monetary policy tool to ease the trade-off between financial stability and price stability. The case for reserve requirements as a policy tool to stabilize lending behavior may be particularly valid for emerging markets where the financial markets are less developed and the transmission from the policy rate to market rates is weaker (Montoro and Moreno, 2011).

Despite the increasing reliance on RR as a policy tool, the effectiveness of RR and the relevant micro transmission channels have not been studied in detail. The existing studies such as Pascal and Towbin (2012) mostly focus on the cost channel of the RR where an increase in reserve requirements affects financial intermediation through an implicit tax on the banking system. In our study, we will aim to identify an additional channel which can be called the "liquidity channel".

In practice, there may be reasons why the liquidity channel may be important especially in emerging markets. For example, a tightening through reserve requirements increases the dependency of the banks to central bank funding, which may alter the lending-deposit behavior of banks since deposits are a much more valuable source of funding in emerging economies. The liquidity positions of the banks may matter the most when banks have collateral constraints: The amount of liquidity that banks would borrow from central banks is restricted by the available eligible collateral held by banks. For instance, if a tightening in reserve requirements increases the borrowing needs and makes collateral constraints binding for a bank, it might opt to resort to uncollateralized borrowing. This means the use of RR may induce some banks to behave more cautiously in extending loans.

The effectiveness of the liquidity channel may not be only confined to the availability of collateral. For example, reserve requirement hikes combined with a tightening in liquidity provision may increase the expected uncertainty regarding the price of liquidity. Central Banks could, in practice, limit the amount of liquidity provided from their regular funding facilities, for example by providing less liquidity than aggregate need of the system, which implies that banks might need to resort to other banks' excess liquidity. If a RR hike increases the probability that an individual bank cannot obtain sufficient liquidity from the market, it might have to tap central

bank's standing facilities. Standing facilities do not only involve higher costs in terms of interest rates charged, but could also bring about formidable reputational costs.

We conjecture that liquidity positions of the banks may be important in assessing the effectiveness of RR policy. Moreover, we note that one should incorporate the heterogeneity of bank balance sheets in order to better assess the effects of RR policy. Even if banks have enough liquidity at the aggregate level, existence of banks with inadequate liquidity and their differential response to RR shocks could have implications on the loan supply at aggregate level.

These arguments suggest that the transmission of the RR, especially the liquidity impact, might involve more sophisticated channels than what is typically covered in the existing literature. In this paper, we will investigate the effects of required reserves on bank lending by focusing on the impact of required reserves on the banks' liquidity risk. Using a panel framework, our empirical approach involves two steps. In the first step, we will focus on the link between reserve requirements and liquidity risk at the bank level. The goal of this step is to understand how reserve requirements affect the liquidity risk assumed by the banks. The strength of this relationship may vary depending on the initial liquidity, size, or the capital ratio of a bank. Using the balance sheets of individual banks, we will develop a metric to map reserve requirement decisions to liquidity risk. In the next step, we will investigate the sensitivity of bank loans to liquidity and the cost channels that are affected by RR decisions. Using the separate metrics derived for cost and liquidity channels may allow us to assess the relative importance of these two channels in bank lending behavior.

We believe that the framework that is outlined above will be an important contribution to the literature. In existing empirical studies, the effectiveness of reserve requirements is measured using the effective or simple average levels of reserve requirement ratios (see Tovar et al., 2012 and the references therein) which do not distinguish between cost and liquidity channels. Although these studies are able to find some effect of reserve requirement policy on credit growth, they do not provide satisfactory information regarding the exact transmission channels.

As a supplementary exercise, if time and data permits, we plan to analyze the impact of RR on the lending behavior through the bank profitability channel. Even though the global financial crisis proved otherwise, the literature generally ignores the possibility of irrational bank behavior. Such behavior usually stems from institutional factors such as the relatively inelastic

profitability targets preset at the beginning of the relevant period. Although, there are numerous studies showing that reserve requirements are detrimental to bank profitability, to our knowledge, there is no study exploring the indirect implications on bank lending behavior. Our hypothesis is that, if the banks try to achieve preset profitability, they might change the composition of the loans in favor of riskier borrowers or simply extend the loan portfolio by loosening credit standards when they are faced by a RR hike.[1] In that case, reserve requirement decisions might yield unintended results.

Since 2010, the Central Bank of Turkey (CBT) uses the required reserves ratio as an active policy instrument. This involved several steps until the proper policy framework was established. First, the remuneration of required reserves has been terminated. Second, liabilities subject to reserve requirements were expanded to include liabilities such as repos with foreigners and non-bank domestic counterparties. Third, in order to encourage the lengthening of maturities in deposits and other similar liabilities, the required reserve ratio was differentiated with respect to maturities, with longer maturity liabilities subject to smaller reserve requirements. Lastly, the weighted average required reserve ratio for the banking sector has been raised very significantly which was aimed to discourage excessive credit growth during that period. At the same time, the CBT widened the interest rate corridor downwards in order to limit short-term capital inflows by reducing the risk-adjusted TL returns through increasing volatility as well as the level in the short-term rates. We believe that the use of asymmetric interest rate corridor in conjunction with the RR provides a rich framework to study the interaction of liquidity channel with bank lending behavior. Working with Turkish data may be particularly useful as the CBT used liquidity facilities and reserve requirements intensively since the end of 2010, which may facilitate the identification of bank specific liquidity channels.

[1] Indeed, in a recent survey of Turkish banks' top managers, some participants mentioned the possibility of that type of reaction.

References

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