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Monetary contractions reduce bank credit supply tightening Loan , volume, and rates

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ABSTRACT

Monetary policy increases liquidity to create economic growth. It reduces liquidity to prevent inflation. Central banks use interest rates, bank reserve requirements, and the number of government bonds that banks must hold. All these tools affect how much banks can lend. The volume of loans affects the money supply. Monetary policy is the macroeconomic policy laid down by the central bank. It involves management of money supply and interest rate and is the demand side economic policy used by the government of a country to achieve macroeconomic objectives like inflation, consumption, growth and liquidity. Recent studies of monetary policy in developing countries document a weak bank leading channel based on aggregate data. In this paper, we bring new evidence using Uganda's supervisory credit register, with micro data on loan applications, volumes and rates, coupled with unanticipated variation in monetary policy. We show that a monetary contraction reduces bank credit supply increasing loan application rejections and tightening loan volume and rates especially for banks with more leverage and sovereign debt exposure.

1. Introduction

In India, monetary policy of the Reserve Bank of India is aimed at managing the quantity of money in order to meet the requirements of different sectors of the economy and to increase the pace of economic growth. The RBI implements the monetary policy through open market operations, bank rate policy, reserve system, credit control policy, moral persuasion and through many other instruments. Using any of these instruments will lead to changes in the interest rate, or the money supply in the economy. Monetary policy can be expansionary and contractionary in nature. Increasing money supply and reducing interest rates indicate an expansionary policy. The reverse of this is a contractionary monetary policy.

For instance, liquidity is important for an economy to spur growth. To maintain liquidity, the RBI is dependent on the monetary policy. By purchasing bonds through open market operations, the RBI introduces money in the system and reduces the interest rate. In developing countries, institutional constraints hamper financial intermediation and public policy effective transmission, for instance, is hindered by weaknesses in the legal environment, underdeveloped and concentrated banking systems Stanley Fischer, the Federal Reserve's Vice Chairman, points out that in developing countries “interbank markets are still underdeveloped, and, even though some central banks use policy rates, changes to these policy rates have only limited effect on other interest rates and on the economy more generally” Olivier Blanchard, IMF Chief Economist, argues that “the of low-income and of advanced economies are incredibly different The role of banking both its existence and governance seems so essential to understanding how for example monetary policy is transmitted to the economy” The existing literature documents a weak or nonexistent traditional , but is confronted with data and methodological challenges. In this paper we shed new light on the bank lending channel of monetary policy in developing countries using Uganda as a case study. Uganda is a fast-growing, bank-dependent African economy which shares many characteristics with countries at the same level of development (for instance, low levels of financial intermediation).- Over the past decade, the financial system experienced rapid growth and diversification and the country became increasingly integrated with regional and global capital markets. These factors led Uganda, like other low and lower-middle income countries, to take steps towards adopting a more forward-looking monetary policy framework (Specifically, in July 2011, the Bank of Uganda transitioned from a traditional, backward-looking monetary targeting framework, to an inflation targeting (IT) “lite” framework, in order to meet the challenges of macroeconomic management generated by the recent transformation of the economy. We test the bank lending channel in Uganda during a four-year period around the introduction of the new monetary policy framework (2010–2014), with two objectives. First, we wish to better understand the effects of monetary policy in developing economies that pursue price and financial stability objectives through modern monetary policy frameworks. Second, we wish to systematically document the behaviour of banks in developing countries in the face of significant fluctuations in monetary conditions. We are able to undertake this analysis because Uganda has an extensive credit register with the universe of loan applications and rates and has had, as we will argue, largely unanticipated variations in monetary policy. In addition to detailed micro data on the lending activities of commercial banks, we also bring to the analysis extensive information on local economic activity, including data on construction permits, trade, and social unrest. We exploit a high degree of variation in monetary conditions during the period of analysis, ranging from highly contractionary to highly expansionary. Following inflationary pressures from a shock coupled with strong credit growth, the Bank of Uganda raised the policy rate in the second half of 2011 by a cumulative 1,000 basis points (bps). After this tightening, the economy slowed down and the Bank of Uganda gradually cut the policy rate by a total of 1,100 bps over the following year. Previous studies that employ narrative or data-driven approaches to identify monetary policy shocks argue that the timing and the extent of the tightening episode in mid-2011 were at least partly unexpected by economic agents One reason is that the track record of the central bank was one of accommodative monetary policy in the face of sizable price shocks, casting doubt on whether a tightening would occur during this period at all. These arguments, together with our own analysis of central bank communications and media coverage during the sample period, suggest a lack of anticipation of central bank actions, and help with identification. Moreover, our specifications include comprehensive controls for economic activity and prices to reduce the influence of potentially confounding factors. A key challenge for testing the bank lending channel of monetary policy is to isolate changes in loan supply from changes in loan demand, given that aggregate macroeconomic shocks affect bank credit through both the bank lending and the firm borrowing channels. To overcome this empirical identification challenge, we use granular data from the credit register which covers all corporate loans extended by banks in Uganda. The data includes individual loan applications by non-financial firms, with accept/reject decisions, and the terms of new originated loans, including volume and interest rate. Such granular data, especially on loan applications and loan pricing, are absent in most credit registers around the world, including in advanced economies. We match these loan-level data with supervisory bank balance sheet data on a quarterly basis. Matching the micro data from the credit register with extensive regional statistics, we also analyze the impact of the bank lending channel on the real economy and prices. In particular, we match the locations (districts) of the lending bank branch and the borrowing firm with measures of real economic activity at different frequencies (monthly, quarterly, and yearly). Outcome variables in our real-effects regressions include (non-food, utilities and transport) inflation, permits for commercial construction, volume of exports, and public demonstrations, as a broad indicator of the quality of economic and living conditions

1.1. Macroeconomic context: arguments for unanticipated monetary policy

Uganda faced two major external shocks around the period of analysis. First, a major food and fuel price shock generated inflationary pressures in most developing countries just before the 2008 financial crisis. However, as the crisis became global, price pressures subsided and inflation returned to single digits in 2009. A second shock hit the Ugandan economy in 2010–2011, sending inflation back into two-digit territory, and simultaneously affecting several East African countries. While the first shock waned due to external forces and in the absence of a strong monetary response, central banks in the region (Kenya, Rwanda, Tanzania, and Uganda) addressed the second shock with a significant monetary tightening. During July–November 2011 the Bank of Uganda raised the policy rate by a total of 1,000 bps: 300 bps between July and September and an additional 700 bps between September and November. Following the collapse of credit aggregates and economic growth, a phase of monetary easing began in January 2012. The policy rate was gradually reduced during the first three quarters of 2012 from 23% to 11%. Our period of analysis between 2010 and 2014 thus captures a full economic cycle.

1.2. Banking system

Uganda experienced significant financial development during the 2000s, with bank credit to the private sector reaching 16.4% of GDP in 2016. This ratio remains nonetheless low by international standards and there is a large informal financial sector. Financial deepening in Uganda occurred through an expansion of bank presence and financial access. Data from the IMF's Financial Access Survey indicates that the number of commercial banks rose from 15 in 2006 to 25 in 2016 (the same as in Nigeria) and the number of loan accounts doubled to 36 per 1,000 adults over the same period. The banking system comprises 25 mostly foreign- and privately-owned) banks at the time of analysis and is highly concentrated, with the largest 5 banks accounting for almost 75% of banking system assets. As is common in developing countries, most firms work with only one bank.

2. Data

2.1. Credit register

Our study employs detailed data on the commercial lending activities of banks and the economic performance of the private sector. Uganda has a fully functional and comprehensive credit register that is maintained by the private credit bureau Compuscan Uganda CRB Ltd. under the supervision of the Bank of Uganda. The credit register was set up in 2008 and collects data on all loan applications (39,643 applications) and new originated loans (29,960 new loans) based on monthly reports from all commercial bank

2.2. Real economic activity

To examine the real effects of the_we employ several measures of economic activity and living conditions *at the district level*. These measures include construction permits, exports, public demonstrations, and non-food inflation and its main components. We briefly describe each economic indicator in turn. Quarterly data on commercial building permits comes from Uganda Bureau of Statistics. We have information on the quarterly number of applications for construction permits for all districts. Growth in commercial building permits is a valuable indicator of local economic activity and is highly correlated with income

3. Monetary Policy Tools

All central banks have three tools of monetary policy in common. First, they all use open market operations. They buy and sell government bonds and other securities from member banks. This action changes the reserve amount the banks have on hand. A higher reserve means banks can lend less. That's a contractionary policy. In the United States, the Fed sells Treasurys to member banks. The second tool is the reserve requirement, in which the central banks tell their members how much money they must keep on reserve each night. Not everyone needs all their money each day, so it is safe for the banks to lend most of it out. That way, they have enough cash and hand to meet most demands for redemption. Previously, this reserve requirement has been 10%...

When a central bank wants to restrict liquidity, it raises the reserve requirement. That gives banks less money to lend.

When it wants to expand liquidity, it lowers the requirement. That gives members banks more money to lend. Central banks rarely change the reserve requirement because it requires a lot of paperwork for the members.

The third tool is the discount rate. That's how much a central bank charges members to borrow funds from its discount window. It raises the discount rate to discourage banks from borrowing. That action reduces liquidity and slows the economy. By lowering the discount rate, it encourages borrowing. That increases liquidity and boosts growth.

In the United States, the Federal Open Market Committee sets the discount rate a half-point higher than the fed funds rate. The Fed prefers banks to borrow from each other.

Most central banks have many more tools. They work together to manage bank reserves.

The Fed has two other major tools it can use. It is most well-known is the This rate is the interest rate that banks charge each other to store their excess cash overnight. The target for this rate is set at the FOMC meetings. The fed funds rate impacts all other interest rates, including bank loan rates and mortgage rates. The Fed, as well as many other central banks, also use inflation targeting. It sets expectations that the banks want some inflation. The Fed's inflation goal is 2% for the core inflation rate. That encourages people to stock up now since they know prices are rising later. It stimulates demand and economic growth. When inflation is lower than the core, the Fed is likely to lower the fed funds rate. When inflation is at the target or above, the Fed will raise its rate. The Federal Reserve created many new tools to deal with the 2008 financial crisis. These included the Commercial Paper Funding Facility and the Term Auction Lending Facility. It stopped using most of them once the crisis ended.

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Three Objectives of Monetary Policy.

The most important is to manage inflation. The secondary objective is to reduce unemployment, but only after controlling inflation. The third objective is to promote moderate long-term.

The U.S. Federal Reserve, like many other central banks, has specific targets

For these objectives. It wants the core inflation rate to be around 2%.

Beyond that, it prefers a natural rate of unemployment of between 3.5% and 4.5%.

3.1. Empirical strategy and hypotheses

In this section we discuss the empirical approach for examining the extensive and intensive margins of credit adjustment followed by the pass-through to loan rates. We focus on the identification of credit supply effects using a rich set of controls and fixed effects.

3.1.1. Extensive margin

(*GDP*) and inflation (*CPI*) as controls for conditions that influence monetary policy decisions. We allow differences in bank balance sheets to affect the likelihood of loan granting by including the ratio of total regulatory capital to risk-weighted assets as a measure of bank capital and the ratio of liquid assets to total deposits as a measure

3.1.2. Intensive margin and loan rates

For each granted loan we have information on volume, interest rate, and maturity. Given the prevalence of single bank relationships by individual firms, we set up the data at the bank-firm cluster-quarter level where a firm cluster includes all the firms in a given district and industry Then we compute average loan volumes for each bank-firm cluster-quarter combination as in This data set-up allows us to include in the main specifications district-industry year-quarter fixed effects which control for unobserved factors under the assumption that all firms in the same industry and district receive a common quarterly demand shock. In an alternative specification we show that the results hold up to setting up the data at the bank-firm-year level by averaging loan volumes extended by each bank

4. Conclusions

Research on monetary policy using aggregate data documents a weak or nonexistent banking leading channel in developing countries. We revisit this question using the case of Uganda, which provides a supervisory credit register with high-quality information on loan applications and rates, coupled with extensive regional statistics on real sector activity, and largely unanticipated variation in monetary policy. We find that a tightening of monetary policy reduces the supply of bank credit to firms and dampens economic activity. We document a significant and sizeable effect of monetary policy on the quantity and price of credit, with adjustments in credit supply on both the extensive and intensive margins. The analysis reveals a quantitatively and statistically significant bank balance sheet channel. The tightening of credit conditions through higher rejection of loan applications reduced volume of new loans, and higher loan rates—is stronger for banks with less capital and greater exposure to sovereign debt, even when comparing loans to identical firms borrowing at the same time from different banks. Our credit supply results also imply binding effects of monetary policy through the bank balance sheet channel on prices and economic activity measured by commercial construction permits, trade, and public demonstrations.

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