

Turkey: Credit Shock & the Economy

The effects of Credit Guarantee Fund (KGF) on the Turkish economy

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The Credit Guarantee Fund (KGF) was implemented in March 2017 as a countercyclical tool to support the recovery of the economy after the slump of last year (3Q-2016) and the uncertainty shock that hit the economy during the summer. The KGF has been successful so far, as it has provided some extra GDP growth through both the increase in supply and demand of credit. While we maintain this positive scenario on this “credit supply” shock, it will also have side effects. In this watch, we use a Sign Restrictions SVAR model to disentangle the effects of the KGF on the economy from both supply and demand of credit. The initial credit supply shock has been also followed by credit demand, thus contributing to stimulate further the economic growth. While credit supply boosted the 2Q GDP growth by near 1pp (0.7pp), this extra stimulus could grow further in 3Q. However, there are no “free lunch” policies and this one will have also side effects to monitor.

The Turkish Credit Guarantee Fund

The Turkish Credit Guarantee Fund (KGF) is a financial mechanism through which the Turkish Treasury acts as a guarantor and will repay some or all of the loan amount to the lender in case of a borrower default. The Treasury Guarantee reduces the risk faced by the Banks, thus increasing the loan supply as the guarantor takes a part of the credit risk. The amount of the KGF was significantly increased last March (from 2 TL bn to 25 TL bn) by the Turkish Treasury, which is acting as a collateral for up to TL250 bn of credit. The Treasury guarantees an amount up to a Non Performing Loan (NPL) ratio in the KGF book of 7% (TL17.5 bn out of T250 bn), beyond this the NPL risk will be translated to the bank balance sheets. So far, near 200 TL Bn (80% of the Guarantee program) has been allocated and the authorities of the KGF announced that the conditions on the release of the final TL50bn credit guarantee tranche has still to be determined.

Credit Supply Shocks and the Economy: Identifying Credit Supply & Credit Demand

The fundamentals behind of the KGF to stimulate the economy are simple. Given the constraints to reduce the interest rate (as the exchange rate would depreciate substantially) the policy makers rely on a mechanism to stimulate the supply of credit with the idea that the initial supply side shock will be followed by demand once confidence re-engage with credit demand, consumption, investment etc. in the Business Cycle. In essence, this is similar to the quantitative easing frameworks developed by the advanced economies (constrained also by interest rate reduction as interest rates reached the zero lower bound). In the KGF program, there will be a temporary increase of the credit supply.

From the analytical point of view, the key issue is the identification of the “supply” and “demand” side of credit shocks, as there is no alternative to distinguish what part of the response of the macro variables are coming from the original supply or the induced demand shocks. However, this is not an easy task as economic variables are normally affected by multiple shocks on different directions at the same time. Thus, identifying this policy shock requires that most of the

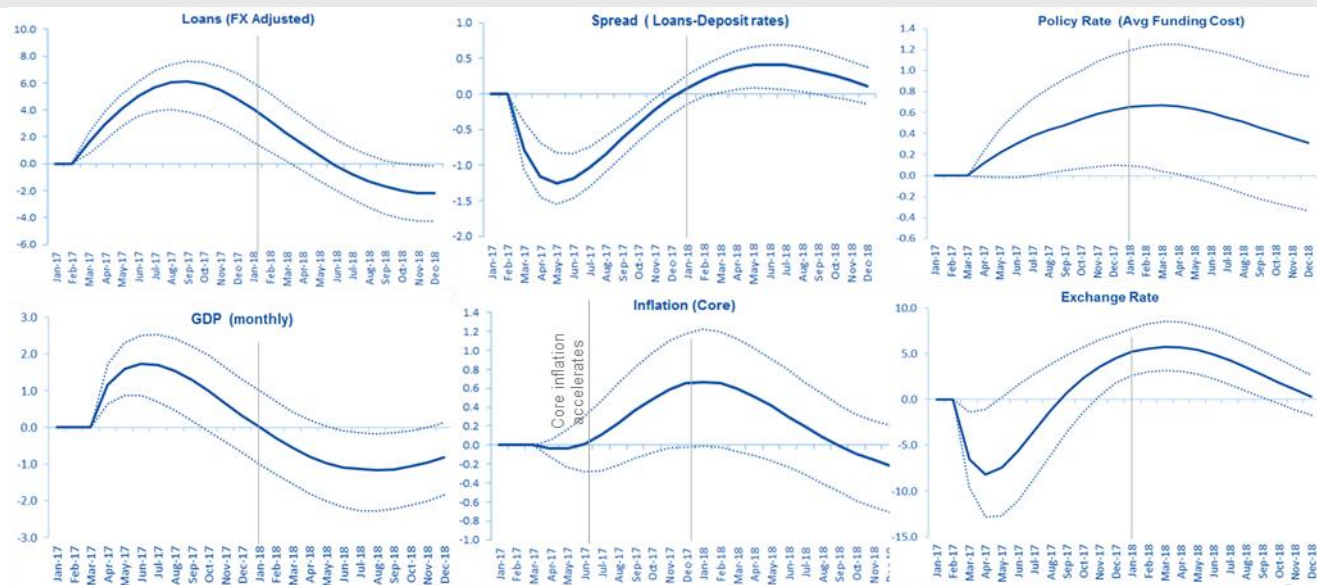
shocks affecting the economy are assumed to be identified. Without this, disentangling the effects of credit supply from the rest of the shocks (including the credit demand) can lead to a misleading analysis of the effects of the KGF.

To solve the identification problem, we have developed a Bayesian Structural Vector Autoregression Model (SVAR) which identifies the shocks through sign restrictions in the covariance matrix (see the appendix). The model is pretty in line with the one developed by Barnett, & Thomas, (2014) and Büyükbaşaran et al, (2017), but presents some differences. First, rather than working with quarterly time series, we estimate a monthly model by using our monthly GDP indicator. This allows us a timely tracking of the effects of the KGF. Aside with the monthly GDP, the model includes the exchange rate, the foreign exchange adjusted credit, the lending-deposit interest rate spread, the core inflation and the official interest rate. Most of the variables are included as 3-month moving averages and in YoY terms to fulfill the stability conditions of the model (the interest rate spread and policy rate are measures in levels. Variables of the model are exposed to several shocks after the Sign Restriction scheme explained in the appendix. These shocks are Global capital flows shock, credit demand, credit supply, aggregate demand, aggregate supply and monetary policy response shock. Through this identification, we can estimate the impulse response and the historical contribution to any of the variables of the model from the different shocks.

Credit Supply Shocks and Their Effects on the Economy

The results of the effects of a “Credit Supply” shock can be observed in the figure 1. The graph shows the impulse response functions of all the variables of the model to the Credit Supply shocks. To mimic the timing of the KGF, the shock has been implemented in March and the graphs show the response during the first two years. The shocks are expressed 5 times standard deviation to mimic the impact of the KGF. The key messages are the following:

Figure 1. Impulse Response functions from a “Credit Supply Shock” to the Turkish Economy (70% uncertainty bands)



Source: BBVA Research

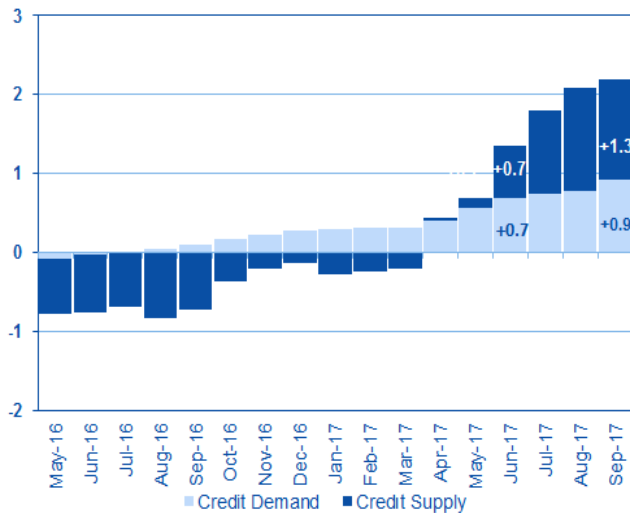
- The credit supply shock will simultaneously increase credit and decrease the loans interest rate. These effects will peak during 3Q and will start to die out thereafter. Once the growth rate of FX adjusted loans starts to moderate, the interest rate spread between loan and deposits will start to recover. As the model is designed in YoY rates, there will be a negative base effect during the second year. The credit response could be higher if the demand for credit finally responds to the impulse in the supply shock.
- The shock will push up the GDP growth rate initially, reaching maximums in 3Q of the first year and moderating thereafter. As in the loans case there will be a compensating base effect in the second year if the credit supply shock is not permanent. The positive effect on economic growth will stimulate the output gap and, as a consequence, core inflation will start to react with a lag. In fact, inflationary pressures will be hump shaped and more intense in 4Q of the first year and 1Q on the second year.
- The initial muted reaction of inflation and appreciation of the exchange rate will maintain monetary policy on hold. However, the monetary policy reacts once the output gap accelerates and starts to feed inflation. There are two possibilities here: either to tight monetary policy further or to tight for longer. Our guess is that the Central Bank would opt for the second option.

Macroeconomic Models and Reality: Higher growth...but core inflation too

The impulse responses shown in the previous paragraph are the result of a model developed to disentangle credit supply and demand shocks. Models, by definition, are a simplification of the reality. As we are now nine months after the implementation of the program we can make a preliminary assessment of the impact of the program. The main conclusions are the following:

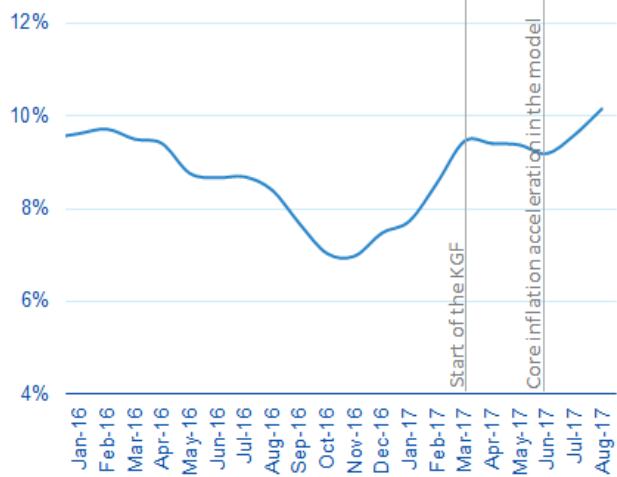
- The first and positive surprise is the extraordinary performance of the GDP. The GDP averaged near 5% during the first half of the year. According to our estimations the contribution of the Credit Supply shock to the 2Q GDP growth was near 1pp (+0.7%), but this contribution is now growing and our expectations are for this figure to increase to near 1.5pp (+1.3%). From this quarter, the contribution of the supply shock will start to die out as the credit supply shock vanishes. However, if the strategy is successful, the credit demand will start to accelerate partially replacing the supply shock. This is in fact what is happening as observed in figure 3, the contribution of demand is already increasing and it is now near 1pp (+0.9%).
- Core Inflation is already providing surprises. However, in line with the model's narrative they are on the negative side. Here, a potential explanation is that the increase in Credit demand and GDP could be creating a mix which is already feeding core inflation. In fact, this is what is observed in figure 3 which shows how core inflation remains high but stable from March to July (when the model impulse response shows no impact) but start to accelerate thereafter just when the response of the model accelerates (see also figure 1).

Figure 2. Contribution of Credit to GDP Growth



Source: BBVA Research

Figure 3: Core inflation (% YoY)



Source: BBVA Research and CBRT

Summing Up: No Free Lunchs

The story behind the model introduced in this brief is a one of “No Free” lunch as most of the countercyclical policies in economics. Obviously, there have been positive results as the positive effects on GDP and, not least, the impact continues with second round effects on credit demand after the initial credit supply shocks. In fact, credit was declining rapidly before the program was implemented so the KGF supposed a turning point to this risky situation.

Beyond these positive effects, there is also some collateral damage. The first obvious one is the persistent core inflation at relatively high levels. With luck (i.e a more appreciated exchange rate due to global factors) some impact could be concealed, but normally the result would be higher core inflation. This will maintain monetary policy on hold, most likely tight for longer rather than new hikes.

Postponing the implementation of the last tranche of the KGF can be a good measure, as it will buffer the negative base effects next year and avoid excess inflation at the end of this year. In any case, and although the program succeed in avoiding the recession and put the business cycle on track, we think that policies should back to normal. That is, focusing on sound monetary and fiscal policies and concentrate on the agenda of structural reforms to enhance the long run potential GDP.

Appendix: Bayesian SVAR Sign Restrictions Identification Scheme

The approach of using sign restrictions to identify structural VAR models was pioneered by Faust (1998)¹, Canova and De Nicrolo (2002), and Uhlig (2005). This approach has become increasingly popular in applied work as an alternative to traditional approaches to identification based on exclusion restrictions.

The Bayesian SVAR-Sign Restrictions model introduced here is a monthly six variables and six structural shocks which are identified by imposing zero and sign restrictions in the covariance matrix of the model so as to identify the shocks. The model is similar to the one developed by Büyükbaşaran et al. (2017) adopted by Barnett and Thomas (2013). The shocks included in the model are capital flows shock, credit demand shock, credit supply shock, aggregate demand shock, aggregate supply shock and monetary policy shock. Rather than relying in quarterly time series we rely on monthly ones in order to assess more timely the impact of the Credit Guaranteed fund. The model is defined in YoY growth rates, except for the spread of interest rates and the policy rate. All the variables are measured in three month moving average. The model includes a deterministic time trend to account for the trend performance of some of the variables. Stability conditions were fulfilled. The version presented here is Bayesian and has been estimated with a normal-wishart (sigma as identity) prior using the European Central Bank Beartoolbox.

The sign and zero restrictions are imposed in the model to identify the structural shocks. Most of the shocks were maintained for three months. The restrictions in the Credit Supply shocks have been maintained by 8 months in line with the implementation of the KGF. The identification of the shocks is the following:

- A Capital flows shock has been identified by restricting the response of exchange rate and inflation to be negative. Thus a positive capital flows shock generates an appreciation of the exchange rate and decreasing inflation.
- A credit supply shock will impact the credit-deposit interest rate spread and credit growth in opposite directions within the same period. Thus a positive supply shock as the KGF will sink the spreads and raise loans at the same time. As the program is maintained through the year we maintain this restriction accordingly (8 months).
- A credit demand shock is identified with one which moves the interest rate spread and loans in the same direction. In line with the literature, both shocks are assumed to have no significant contemporaneous impact on macroeconomic variables such as inflation, economic growth and policy rate.
- An aggregate demand shock moves inflation, growth and the policy interest rate in the same direction while a positive aggregate supply shock moves inflation and growth in different directions. A positive one will increase growth and decrease inflation.
- Finally, a policy rate shock move both growth and inflation in the same direction but opposite to the interest rate. Thus a positive interest rate shock will decrease both growth and inflation.

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