



Measuring monetary policy for a small open economy: Turkey

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Abstract

This paper proposes a measure to assess the monetary policy for a highly inflationary small open economy: Turkey. The empirical evidence suggests that positive innovations in the *spread* between the Central Bank's interbank interest rate and the depreciation rate of the local currency mimic the properties of the tight monetary policy. These innovations, when they are positive, decrease income and prices, and appreciate the local currency. For prices and the exchange rate, the effects are permanent; but for income the effect is transitory.

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1. Introduction

There has been a considerable work on developing monetary models of business cycles. There have also been extensive studies on constructing empirical measures of exogenous monetary policy shocks. Most of these studies perform their analyses for developed countries (see [Christiano et al., 1999](#) and references cited therein). However, central bankers of developing countries, which are also small and open economies, face additional challenges.

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Two of these challenges are related: the problem of currency substitution and central banks' motive for monitoring their foreign exchange reserves closely. Therefore, the construction of a model for developing countries may differ from that of developed countries, and central banks may use their monetary policy tools to accommodate these two policy goals in addition to the ones that the central bankers of developed countries have. First, as regards currency substitution, the public may avoid using domestic currency and prefer using foreign currency to guard itself against inflation. Agents like to hold more of their wealth in foreign currency than in domestic currency if domestic interest rates are lower or if the depreciation of the domestic currency is higher. Second, regarding the level of foreign exchange reserves, central banks closely monitor these reserves in order to eliminate the risk of speculative attacks or balance of payment crises. Reserves increase as domestic interest rates increase (due to either capital inflows or the decreasing foreign exchange demand of domestic residents) and decrease as the return on foreign exchanges increases. Thus, central banks may use their interest rate and exchange rate policies to achieve their objectives, by moving them in the opposite directions.

This paper uses a new measure to assess monetary policy when interest rates and exchange rates are used simultaneously. In particular, this paper argues that the spread, defined as the extent to which interbank interest rates exceed the depreciation rate of the local currency, can be used as an indicator of the stance of the central bank's monetary policy for a highly inflationary small and open developing country. Using the spread as an indicator of a central bank's monetary policy does not mean that the bank controls both of these instruments simultaneously, but rather the bank may control one of the two and merely watch the other. However, even in this case, the *spread* might be used as an indicator of monetary policy. This measure is also robust when the central bank switches between pure exchange rate targeting and interest rate targeting regimes. Here, the central bank may cut the liquidity provided to the public by raising interest rates at a given level of depreciation, or it may keep domestic interest rates stable and buy domestic currency from the public by selling foreign currency at a lower rate.

This paper uses Turkish monthly data from 1986:05 to 2000:10¹ to show that tight monetary policy is associated with the decrease in income and prices and the appreciation of the local currency, but the effect of monetary policy is not persistent for income. Turkey offers a unique environment for assessing the stance of the monetary policy. Firstly, unlike some other central banks that merely watch markets (e.g., under a currency board), the Central Bank of the Republic of Turkey (CBRT) was actively involved in monetary policy setting during most of the sample period considered, either by influencing interbank interest rates or by setting the exchange rate. Secondly, Turkey has been experiencing a high and persistent level of inflation without running into hyperinflation since the mid-1970s. The average annual inflation is 52.3% for the period between 1975 and 2000 and 61.6% for the period that is considered in this study. The high variability of monetary policy changes and the higher level of inflation (or higher level of price level variability) make the relationships between the money aggregates and the macroeconomic variables more visible. Therefore, detecting these relationships will be easier. In other words, the probability of a type 2 error—accepting the null hypothesis when it is false—decreases. Thirdly,

¹ The data set is ended in 2000:10 to avoid the beginning of a period that has a series of financial crises starting with 22 November 2000 and continuing with 22 February 2001, 7 July 2001 and 11 September 2001, 3 March 2003.

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