

Monetary policy rules in practice: Re-examining the case of Turkey

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Abstract

This paper investigates possible asymmetries in the monetary policy reaction function of the Central Bank of Republic of Turkey over the business cycles. It is found that the bank reacted more aggressively towards output stabilisation during recessions than expansions. The empirical evidence suggests that the inflation targeting policy of the Turkish Central Bank was accommodative rather than stabilising. Furthermore, it is found that although the Central Bank of Republic of Turkey responded to foreign reserves, real exchange rates and short-term capital inflows both in expansion and recession periods, the bank targeted money growth, budget deficits, and net foreign assets only in expansion periods.

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1. Introduction

After the seminal work of Taylor [1], a large amount of work has been devoted to the estimation of monetary policy reaction functions, concentrating mainly on developed economies, see, for example, Clarida et al. [2,3], Ruge-Murcia [4], Dolado et al. [5], and Kim et al. [6]. The linear reaction function (Taylor rule) proposed by Clarida et al. [2,3] has been derived from a combination of a quadratic objective function for the central bankers and a linear aggregate supply relation (Phillips curve). Recently, however, the theoretical foundations of linear reaction functions have been challenged. For example, Nobay and Peel [7] examine monetary policy rules when there is nonlinearity in the Phillips curve while Nobay and Peel [8] consider asymmetric preferences of central bankers over inflation. Dolado et al. [9] construct a more general model that captures both types of departure from the linear-quadratic set-up. Bec et al. [10] and Ruge-Murcia [4] consider nonlinear reaction functions arising from asymmetric central bank preferences and provide strong evidence that central bankers' behaviour varies over the business cycles. On the other hand, Dolado et al. [5] combine a nonlinear Phillips curve with a quadratic loss function and show that the optimal policy is also nonlinear and provide some empirical evidence of nonlinearity. Finally, Kim et al. [6] estimate a more general nonlinear function for the US and find significant evidence of nonlinearity for the period before 1979 but little evidence for the subsequent periods.

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While reaction functions of central banks of developed countries have been examined extensively, a little work is done for developing countries [11–14]. Berument and Malatyali [11] argue that central banks of developing countries may assume a wide range of responsibilities such as “preventing a possible currency crisis, supporting the deficit-producing public sector, smoothing of interest rates, guarding the credibility of the financial sector as well as the stability of the currency”. If central banks are accountable to elected officials, as is the case in most developing countries, then monetary policy shall heavily be influenced by political concerns. Refs. [2,3] show that central banks may have covert objectives such as stabilisation of output and financial markets in addition to price stability, which is the primary objective of central banks, even in the case of developed countries, where central banks are independent of political authorities. Therefore, it is likely that the difference between the declared policy objectives and the implicit ones shall be more pronounced in the case of the central bank of a developing country. Since monetary policy has vital economic consequences, it is important to analyse covert objectives of central banks. In addition to broadening our knowledge of monetary policy setting, investigation of implicit reaction function of central banks of developing countries may prove to be helpful in improving our understanding of the reasons of economic instabilities and high chronic inflation in these countries.

The objective of this paper is to estimate the implicit monetary reaction function of the Central Bank of Republic of Turkey (CBRT) over the period 1990–2000 using monthly data. The Turkish economy has experienced a high and volatile growth and inflation during the sample period. The average inflation rate (percentage change in GDP deflator) was 71.2%, reaching its highest level 107.3% in 1994 and lowest level 50.9% in 2000. The real growth rate has also fluctuated widely, between -6.1% and 9.4% , with moderate average growth rate of 4.1% . Turkey provides a good case for developing countries because Turkey failed to reduce high chronic inflation to acceptable rates during the sample period despite recurring stabilisation programmes. As Berument [15] argues, unlike some central banks which merely keep an eye on markets, CBRT was actively involved in monetary policy setting during the sample period, either by influencing interbank interest rates or by setting the exchange rate. Therefore, it might be interesting to scrutinize the reaction function of the CBRT in order to understand the factors that shaped monetary policy in Turkey. Recently, Berument and Malatyali [11] and Berument and Taşçi [12] have estimated the implicit monetary policy reaction function of the CBRT following the forward-looking specification of Ref. [2]. Particularly, Ref. [11] found that the CBRT targeted output, past rather than forward inflation and M2Y growth. Ref. [11] further concluded that the CBRT targeted neither the real or nominal depreciation, nor M2, net domestic assets, net foreign assets or any measure of the budget deficits. On the other hand, Ref. [12] found that the CBRT responds to its foreign exchange reserves, output, M2 growth, but neither to forward, current nor lagged inflation.

Berument [15] argues that central banks of small open economies like Turkey may have additional concerns like currency substitution and the level of foreign exchange reserves. Because of the high chronic inflation, agents choose to hold foreign currency to guard themselves against inflation, and the central bank may monitor the foreign reserves in order to eliminate the risk of speculative attack or a balance of payment crisis. Ref. [15] shows that the stance of the monetary policy in Turkey, which can be characterised as a highly inflationary and open developing country, can be measured by the spread between interest rates and the depreciation rate of the local currency. This indicator of the stance of the monetary policy is also robust when the central bank switches between pure exchange rate targeting and interest rate targeting regimes. Therefore, following Ref. [12], we define the policy variable as the spread between interbank interest rate and the currency depreciation.

Both Refs. [11,12] have estimated the reaction function of the CBRT within a linear specification proposed by Ref. [2]. However, as argued before, the assumption of linearity has been challenged extensively by Refs. [4–10]. The idea behind asymmetric reaction function is the widespread belief that central banks, even if they are independent as in most industrialised countries, are more concerned with output stabilisation rather than price stability in recession periods and place greater emphasis on price stability in expansion periods. Refs. [4,6,10,16] provide empirical evidences supporting such asymmetric behaviour of central bankers. Another possible cause of nonlinearities is that the effects of monetary policy on the output or on the inflation rate may not be linear. Telatar and Hasanov [17] find that the effects of the monetary policy vary over the business cycles in the case of Turkey. Kandil et al. [18], on the other hand, provide some empirical evidence on asymmetric effects of unanticipated exchange rate fluctuations on components of aggregate demand. Furthermore, it is generally agreed that many key macroeconomic variables follow asymmetric paths over the business cycles [19,20]. Moron and Winkelried [21] show that it might be optimal to follow a nonlinear monetary policy rule for small open economies with higher degree of liability dollarization. Finally, and most importantly, Turkey has implemented various stabilisation programmes during the analysed period,

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