



# How do banks' stock returns respond to monetary policy committee announcements in Turkey? Evidence from traditional versus new monetary policy episodes



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## ABSTRACT

Using a methodology that is robust to endogeneity and omitted variable problems, it is found that the stock returns of all banks that are listed in Borsa Istanbul (BIST) respond significantly to the monetary policy surprises on Monetary Policy Committee (MPC) meeting days prior to May 2010. It is also shown that stock returns of banks for which interest payments constitute an important share in their balance sheets respond more aggressively to the changes in policy rates. In addition, foreign banks and participation banks give relatively less responses to monetary policy surprises. Finally, the estimation results suggest that since the Central Bank of the Republic of Turkey has started adopting a new monetary policy framework in May 2010, with various instruments and flexible timing, aggregate and individual bank indices have not responded significantly to the surprises on MPC meeting days.

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## 1. Introduction

Measurement of the reaction of asset prices to monetary policy changes is complicated due to endogeneity and omitted variable bias problems. In the literature, to overcome these problems, the most commonly adopted estimation method is the event study (ES) approach.<sup>1</sup> Rigobon and Sack (2004) (henceforth, RS) develop and use the heteroscedasticity-based estimation technique as an alternative to the event study (ES) approach. This technique is considered more reliable as it is valid under much weaker assumptions.<sup>2</sup> The results from the heteroscedasticity-based estimation in RS suggest a significant negative impact of monetary policy on stock indices in the United States. Recently, an increasing number of studies have investigated the impact of monetary policy on stock indices using the heteroscedasticity-based methods and find similar results with RS (see Ehrmann et al. (2011) for the United States and the Euro Area; Bohl et al. (2008) for the largest four

European countries and Kholodilin et al. (2009) for all the European countries). Rosa (2011) documents the effects of changes in US monetary policy on stock prices in 51 countries.<sup>3</sup>

Studies using the heteroscedasticity-based methods developed by RS as an alternative to the ES approach are rare for emerging markets.<sup>4</sup> Duran et al. (2012) find that an increase in the policy rate leads to a decline in aggregate stock indices in Turkey. In addition, monetary policy has the greatest impact on the financial sector index, 70% of which consists of bank stocks. As a complement to Duran et al. (2012), the aim of this study is to measure the response of individual banks' stock returns to monetary policy in Turkey, using the heteroscedasticity-based GMM method suggested by RS and then relate the results to some bank specific characteristics.

Banks' or firms' balance sheet, size and ownership structure may be possible reasons of the heterogeneity in their responses to monetary policy. For example, Kwan (1991), who shows that US commercial bank stock returns are significantly sensitive to the monetary policy decisions, reveals that sensitivity of bank stock returns positively depends on the maturity mismatch between assets and liabilities of

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<sup>1</sup> This method basically compares asset prices immediately after monetary policy announcements with those immediately before, and attributes the changes to monetary policy surprises. For details and two notable examples using the ES approach, see Kuttner (2001) and Gürkaynak et al. (2005).

<sup>2</sup> For a comparison of assumptions under the ES and the GMM approaches, see Rigobon and Sack (2004).

<sup>3</sup> Please see Wickens (2008) for the theoretical backgrounds of the relationship between monetary policy and stock markets.

<sup>4</sup> Duran et al. (2012) and Duran et al. (2010) focus on the aggregate stock indices in Turkey. Rezessy (2005) and Goncalves and Guimaraes (2011) apply the heteroscedasticity-based methodology to the asset prices in Hungary and Brazil, respectively.

banks. Using several different techniques and measures for monetary policy Thorbecke (1997) finds that monetary policy has a significant effect on stock returns in the US. He shows that the effect of monetary policy shocks on small firms is higher than larger firms.

From the financial stability point of view, analyzing the impact of monetary policy on a bank specific level is important. For example in case of a hike in the policy rate, if a bank's stock market value is severely affected this may impair the bank's access to funding in financial markets. This in turn negatively affects the overall financial stability if this bank is systemically important. Hence, the policy makers may want to know the banks that are mostly affected from the MPC decisions and why these banks' behave differently than others.

### 1.1. Structure of the Turkish banking system

In terms of their functions, Turkish banks can be classified in three different groups: deposit banks, participation banks, and development and investment banks. There are 32 deposit banks, 4 participation banks and 13 development and investment banks operating as of the end-2012. Deposit banks, participation banks, and development and investment banks constitute 91.5%, 5.1% and 3.4% of the total asset size of the banking system respectively. Total asset size of the banking system relative to GDP is 97% in 2012, which was 62.7% in 2005. Accordingly, average growth rate of the total assets/GDP ratio of the Turkish banking system between 2005 and 2012 is about 6%. There are 20 banks that are partly or totally owned by foreigners and their asset size is about 17% of the total banking system. Although 16 out of 49 banks are traded in Borsa Istanbul, their asset size is about 88% of the total banking system.

In summary, according to the asset size, more than 90% of the Turkish banking system is occupied with traditional deposit banking, which is dominated by domestic banks. The banks whose shares are traded in Borsa Istanbul constitute most of the banking system.

### 1.2. Monetary policy framework in Turkey

The conduct of monetary policy in Turkey has changed considerably in May 2010. Central Bank of the Republic of Turkey (hereafter CBRT) had implemented a traditional inflation targeting policy until then. In this period, sole objective of the CBRT was to keep inflation low and at stable levels. We name the period before May 2010 as “the traditional monetary policy episode”. However, the global financial crisis, erupted with the collapse of the Lehman Brothers in 2008, has changed the shape of the central banking. As the financial crisis deepened, interest rates in advanced economies have declined following the very low or negative growth rates. On the other hand, interest rates in emerging markets were relatively high and their economic growth prospects were strong. In such an environment liquidity released by advanced economies' central banks was channeled to emerging markets. This caused overvaluation of domestic currencies, rapid growth in domestic credits and current account imbalances. Therefore, many emerging market central banks including Turkey have been forced to modify their monetary policy approach to cope with the challenges caused by the excessive capital inflows. In 2010, CBRT has begun to reshape its monetary policy. In order to discourage volatile short-term capital inflows and excessive credit growth, CBRT has increasingly used a policy mix composed of an interest rate corridor, reserve requirements and a liquidity policy.<sup>5</sup> We name the period after May 2010 as “the new monetary policy episode”.

The margin between the overnight lending and borrowing rates of the CBRT is defined as the “interest rate corridor”, which constitute the upper and lower bounds for the overnight market rate. Before May 2010, the overnight borrowing rate of the CBRT was the policy

rate; whereas since May 2010, the CBRT has adopted the weekly repo funding rate as its primary policy rate. Now, the CBRT can adjust the width of the overnight interest rate corridor when necessary, and at the same time can adjust the corridor around the policy rate in an asymmetrical way. In the traditional inflation targeting framework, the policy rates were generally fixed for one month. However, under the new framework, market rates can be changed on a daily basis by adjusting the quantity of funds provided through one-week repo auctions. Hence, the overnight rate can be targeted anywhere inside the corridor. In other words, under the new framework, the short rates can be amended at any time, not only during the MPC days.

In this study, for the sample period prior to May 2010 (the traditional policy episode), we show that an increase in the policy rate leads to a significant decline in all of the individual banks' stock prices, the aggregate bank index (BIST-Bank) and the aggregate stock index (BIST-100). According to our estimates, on an MPC day, a 100 basis point surprise hike in the short-term rate leads to a 3.66% decline in BIST-Bank.<sup>6</sup> This figure is in line with the findings of other studies in the literature.

Then, we question whether the MPC surprises are still important in the period of new monetary policy implemented since May 2010. For this purpose, we compare the responses of banks' stock indices to MPC surprises in traditional and new monetary policy episodes. Interestingly, we find that, once the CBRT has begun following a new monetary policy approach, the effect of MPC surprises became insignificant.<sup>7</sup> Note that this does not mean that the transmission from monetary policy rate to financial markets is completely broken. Our findings only suggest that the monetary policy surprises on MPC meeting days have lost their significance in the new policy episode. Since the monetary policy now has flexible timing and many important decisions, announcements and actions are made in days other than MPC meeting days, monetary policy can still significantly affect the asset markets in other days. The monetary policy surprises in the new framework can arrive on any day and on consecutive days. This is particularly true for the periods of additional tightening. In such a period, CBRT does not provide liquidity from the policy rate and forces the banks to seek funds from alternative sources (i.e., the overnight interbank money market or the overnight lending of CBRT) with a higher cost. In addition, banks do not know when the additional tightening will start and finalize beforehand. Hence, a monetary policy impulse could be given in any day during an additional tightening period. In this case, we cannot identify the policy and pre-policy days. Therefore, our methodology in this paper is not suitable to measure the effects of all the monetary policy surprises during the new monetary policy episode. For that reason we focus on the MPC days for the new period as well.

We also detect heterogeneity in the responses of bank returns to monetary policy for the traditional monetary policy episode. The responses of banks' stock returns; although all of them are statistically significant at conventional levels, posit a wide range between  $-1.82$  and  $-9.49$ . We show that the response of 8 out of 16 banks' stock returns significantly diverge from the aggregate bank index. Intuitively, we provide evidence which suggests that banks that are dependent on money market funding and which incur higher interest rate payments are more likely to give larger responses to the monetary policy surprises. In addition, the banks which earn higher net interest income respond significantly less to monetary policy surprises.

The plan of the remainder of the paper is as follows. We present the methods employed in Section 2. Section 3 describes the data. We discuss the empirical evidence in Section 4 and finally Section 5 concludes.

<sup>6</sup> This figure is 3.26 for BIST-100, somewhat lower in magnitude than BIST-Bank.

<sup>7</sup> Unfortunately, we could not find other studies, which compare the findings for the traditional and non-traditional policy episodes. Our study seems to be unique in that area. Hence, we could not compare our findings for the new monetary policy period with the rest of the related literature.

<sup>5</sup> For details of the new monetary policy framework, please see CBRT (2013).

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