

References

- Alesina, Alberto, and Roberto Perotti, 1996, “Fiscal Adjustment in OECD Countries: Composition and Macroeconomic Effects,” NBER Working Papers No. 5730 (Cambridge, Massachusetts: National Bureau of Economic Research).
- Anderson, Barry, and Joseph J. Minarik, 2006, “Design Choices for Fiscal Policy Rules”, *OECD Journal on Budgeting*, Vol. 4, No. 4, pp. 159-208.
- Dában, Teresa, and others, 2003, *Rules-Based Fiscal Policy in France, Germany, Italy and Spain*, IMF Occasional Paper No 225 (Washington, DC: IMF).
- European Commission, 2006, *Public Finances in EMU—2006* (Bruxelles, Belgium: European Commission).
- Fabrizio, Stefania, and Ashoka Mody, 2006, “Can Budget Institutions Counteract Political Indiscipline?”. IMF Working Paper 06/123(Washington, DC: IMF).
- Fatas, Antonio, 2005, “Is there a Case for Sophisticated Balanced-Budget Rules?” OECD Economics Department WP No. 466 (Paris, France: OECD).
- Gleich, Holger (2003), “Budget Institutions and Fiscal Performance in Central and Eastern European Countries,” European Central Bank Working Paper No. 215 (Frankfurt, Germany: European Central Bank).
- Fiscal Affairs Department (FAD), *Promoting Fiscal Discipline*, IMF Occasional Paper (forthcoming, Washington: International Monetary Fund).
- International Monetary Fund, 2006, *Turkey: Report on the Observance of Standards and Codes—Fiscal Transparency Module*, IMF Country Report No. 06/126 (Washington, DC: IMF).
- Kopits, George, and Steven Symansky, 1998, *Fiscal Policy Rules*, IMF Occasional Paper No. 162 (Washington, DC: IMF).
- Mody, Ashoka, and Martin Schindler, 2005, “Economic Growth in Turkey, 1960-2000” in *Turkey at the Crossroads: From Crisis Resolution to EU Accession*, by Reza Mogadham and others, IMF Occasional Paper No. 242 (Washington, DC: IMF).
- Poterba, James, 1996, “Do Budget Rules Work?” NBER Working Paper No. 5550 (Cambridge, Massachusetts: National Bureau of Economic Research).
- Von Hagen, Jurgen, and Ian Harden, 1995, “Budget Processes and Commitment to Fiscal Discipline,” *European Economic Review* Vol. 39, No. 3/4, pp. 771–79.

IV. DO BANKS MATTER FOR TURKEY'S MONETARY TRANSMISSION MECHANISM?¹

A. Introduction

1. **Does the bank lending channel of monetary transmission work in Turkey?** The bank lending (or “narrow credit”) channel refers to the adverse effect of higher interest rates on bank loan *supply*, which may suppress economic activity if firms and consumers cannot replace completely the “missing” loans with other sources of credit.² This effect should be distinguished from the operation of the standard interest rate channel, which prompts a *demand*-driven decline in bank loans due to higher interest rates.

2. **The question of whether there is a bank lending channel in Turkey has come into focus recently.** In recent publications, the Central Bank of Turkey (CBT) mentions that this channel may have become more important for monetary transmission, as the banking sector has started to perform its intermediation role more effectively (Inflation Report I, 2006). Indeed, the view that the bank lending channel plays a role in Turkey is implicit in the CBT's expectation that the supply of bank credit would subside due to the higher short-term interest rates and liquidity withdrawal following the May–June turbulence (Inflation Report III, 2006). Nonetheless, empirical evidence in support of the view remains scarce.

3. **Establishing the existence of a lending channel in any country is hard for two reasons.** First, changes in interest rates usually occur in response to changes in economic conditions, which makes it difficult to recover from the data the pure effect of the interest rate change on economic activity. Second, all channels of monetary transmission tend to work at the same time, which complicates their separate identification. Following an interest rate increase, for instance, bank credit may decline due to either lower demand for loans (the interest rate channel and, possibly, the balance sheet channel), or reduced supply of loans (the bank lending channel), or both.

4. **Circumventing most identification problems, this chapter addresses the question in the case of Turkey.** Using the May-June financial turbulence as an exogenous shock that prompted a significant tightening of monetary policy, the chapter examines the loan supply response of Turkey's banks, depending on their balance sheet characteristics. The key question is whether the effect of monetary policy in Turkey is amplified by the banking sector, depending on its financial position.

¹ Prepared by Petya Koeva Brooks.

² Monetary policy operates through several other channels as well. The *interest rate* channel refers to the negative effect of higher (real) interest rates on consumption and investment. In an open economy like Turkey's, the *exchange rate* channel can also be important, as monetary policy can bring about changes in the level of the exchange rate and, consequently, inflation, trade volumes, and investment. The *balance sheet* (or broad credit) channel can operate through the effect of higher interest rates on asset prices that determine the value of collateral used by firms and consumers to obtain credit.

B. Previous Literature

5. **Theory suggests that two key conditions must be satisfied for the bank lending channel to operate.** The *first* essential element is that banks should not be able to fully shield their loan portfolios from changes in monetary policy. The presumption is that banks cannot offset completely the decline in liquid funds (due to restrictive monetary policy) by resorting to alternative sources of funding without incurring additional costs. As a result, banks reduce their loan supply. The *second* crucial element is that there is a substantial group of borrowers, firms or consumers, that cannot insulate their spending from the reduction in bank credit. This, in turn, can depress real investment and consumption (Bernanke and Blinder, 1988; Bernanke and Gertler, 1995; Farinha and Marques, 2001). *The remainder of the chapter examines whether the first (but not the second) condition holds in Turkey.*

6. **On theoretical grounds, bank size, liquidity and capitalization are expected to matter for loan supply.** As small banks may find it more difficult to raise external funds in times of monetary tightening, they may be forced to reduce their lending relatively more than large banks (Kashyap and Stein, 1995, 2000). As more liquid banks can draw down on their liquid assets to shield their loan portfolios, they are less likely to cut back on lending in the face of monetary tightening (Kashyap and Stein, 2000; Ashcraft, 2001). Lending of highly-leveraged banks is expected to be more responsive to monetary policy than lending of well-capitalized banks (Kishan and Opiela, 2000).

7. **In Turkey, the empirical evidence on the bank lending channel is scarce.** To our knowledge, existing studies cover the pre-crisis period only. Using annual bank-level data, Cavusoglu (2002) finds no evidence in support of a bank lending channel during the 1988–99 period. Based on a different empirical approach, however, Sengonul and Thorbecke (2005) establish that liquidity had an effect on bank supply during the 1997–99 period.

C. Empirical Strategy³

8. **Our methodology involves exploiting the variation in loan supply across banks following the May–June turbulence.** The retrenchment of investors' risk appetite triggered a sell-off of emerging market assets. Though Turkey's financial markets suffered disproportionately, it is reasonable to assume that the May-June turmoil was an exogenous event. In the aftermath of the turbulence, the CBT increased the policy interest rate by 425 basis points and started to actively withdraw liquidity from the system through deposit auctions. This contraction of monetary policy can be viewed as a large, exogenous and persistent shock. Under the assumption that the decline in loan demand was uniform across banks, the variation in banks' responses is used to identify shifts in loan supply.

³ See Appendix for a detailed description of the data used to obtain the empirical results.

9. **A “difference-in-difference” approach is adopted to test whether a bank lending channel could be operational in Turkey.** The more restrictive monetary policy is assumed to affect loan supply between June and September. Therefore, for each bank and loan type, the loan growth rate is computed as the percentage change from June (before the shock) to September (after the shock). To eliminate any bank-specific effects, the loan growth rate between March and June is subtracted from the June-September growth rate.⁴

10. **Three alternative specifications of the model are estimated.** In the first case, the differenced loan growth rates are regressed on bank-specific variables (size, liquidity, and capitalization) as of end-June. In the second case, the same dependent variable is regressed on the *change* in all bank-specific characteristic between end-June and end-March. In the third case, the difference loan growth rates are regressed only on the *change* in the liquidity and capitalization variables between end-June and end-March. In other words, the corresponding regression equations take the form:

$$\Delta\Delta l_i^{(s,j),(j,m)} \equiv \Delta l_i^{(s,j)} - \Delta l_i^{(j,m)} = \beta_o + \beta_1 Size_i^j + \beta_2 Liq_i^j + \beta_3 Cap_i^j + \varepsilon_i \quad (1)$$

$$\Delta\Delta l_i^{(s,j),(j,m)} \equiv \Delta l_i^{(s,j)} - \Delta l_i^{(j,m)} = \beta_o + \beta_1 \Delta Size_i^{(j,m)} + \beta_2 \Delta Liq_i^{(j,m)} + \beta_3 \Delta Cap_i^{(j,m)} + \varepsilon_i \quad (2)$$

$$\Delta\Delta l_i^{(s,j),(j,m)} \equiv \Delta l_i^{(s,j)} - \Delta l_i^{(j,m)} = \beta_o + \beta_2 \Delta Liq_i^{(j,m)} + \beta_3 \Delta Cap_i^{(j,m)} + \varepsilon_i \quad (3)$$

where $\Delta l_i^{(s,j)}$ is the percentage change in loans for bank i in the period from June to September; $\Delta l_i^{(j,m)}$ is the percentage change in loans for bank i in the period from March to June; $\Delta\Delta l_i^{(s,j),(j,m)}$ is the difference between the previous two variables; Liq_i^j is the liquidity ratio of bank i as of end-June; $\Delta Liq_i^{(j,m)}$ is the change in liquidity ratios of bank i from end-March to end-June; and other variables are defined similarly.

D. Main Findings

11. **The main findings of this chapter can be summarized as follows** (Appendix Table). First, *liquidity* has a significant effect on loan supply in Turkey. The positive coefficient of the liquidity variable in all regressions suggests that less liquid banks are more likely to reduce their lending than more liquid banks. Second, *capitalization* does not have a significant effect on bank loan supply. The coefficient of the capitalization variable is insignificant in two of the specifications and statistically significant only at a 10 percent level in the third. Third, the impact of *bank size* is not robust. The coefficient of the size variable is insignificant in one of the specifications and significant (with the wrong sign) in another.

⁴ There was little change in policy interest rates during the period.

12. **These results provide partial evidence that the bank lending channel of monetary transmission operates in Turkey.** In line with previous findings for other emerging market countries, we establish that more liquid banks are less responsive to monetary shocks than less liquid ones. This illustrates that, in addition to loan demand, loan supply is also affected by the tightening of monetary policy. Therefore, one key condition for the bank lending channel to operate is satisfied (¶ 5).

Table. Regression Results

	(1)	(2)	(3)
Liquidity	0.325 (0.158)**	-	-
Capitalization	0.554 (0.326)	-	-
Size	-0.028 (0.018)	-	-
Change in liquidity	-	1.772 (0.571)***	1.224 (0.636)*
Change in capitalization	-	0.286 (0.702)	1.556 (0.849)*
Change in size	-	-0.656 (0.162)***	-
Constant	-0.052 (0.200)	-0.139 (0.031)***	-0.107 (0.041)**
Number of observations	31	31	31

Notes:

1. The dependent variable is the difference between the June-September and the March-June growth rates in total bank loans.
2. Estimation is done using least absolute deviations method.
3. Standard errors are reported in parentheses, * significant at 10 percent level and ** significant at 5 percent level, and *** at 1 percent level.
4. Liquidity is defined as the sum of cash, Central Bank, other financial institutions securities, trading government securities and government securities available for sale, divided by total bank assets. 5. Capitalization is the ratio of shareholders' equity to bank assets.

13. **The findings are subject to several important caveats.** *First*, the overall levels of liquidity and capitalization in Turkey's banking system are still very high in most banks. As such, the estimated effect of liquidity and capitalization on bank lending may not be constant over time. *Second*, the identifying assumption that all banks face the same loan demand shock could potentially lead to biased results (Appendix). It is unlikely, however, that banks with lower liquidity have customers whose loan demand is more responsive to interest rate shocks. Hence, the positive effect of liquidity on loan supply is likely to hold even if the assumption does not hold perfectly. *Third*, the sharp movements in the exchange rate during the May–June turbulence could be an additional factor that affected banks' loan supply.

14. **Our analysis does not prove conclusively that the bank lending channel plays an important monetary transmission role in Turkey.** Recall that for this channel to have an impact on real activity, firms and consumers should not be able to substitute completely the loss of bank credit with other sources of finance (¶5). Whether this condition is satisfied in Turkey remains an open question. On the one hand, empirical evidence suggests that (large) Turkish firms depend heavily on bank finance (Aydin, et al., 2006). On the other hand, Turkey's economy is still largely cash-based, particularly on the consumer side, suggesting that bank credit may not be as an important source of finance as personal savings and informal (intra-household) borrowing. Therefore, the issue is left for further research.

E. Policy Implications

15. **The presence of a bank lending channel suggests that the impact of a given change in the monetary stance could be propagated by the banking sector, depending on its liquidity position.** For example, the overall impact of a 100 basis point increase in the policy rate on the real economy may be smaller if banks had very strong liquidity positions. (This is because banks would be less likely to cut back on their loan supply in this case.) Therefore, the overall level and distribution of liquidity across banks should be monitored closely. While incorporating explicitly a bank lending channel in the CBT model is premature, the information on the banking sector could be used as an input to form judgment about the likely impact of future interest rate changes on the economy.

APPENDIX**DATA**

Bank-level balance sheet data are used to construct the variables needed for the empirical analysis. The sample covers all 33 deposit-taking banks in Turkey. The quarterly data are available from the Banks Association of Turkey. For each bank, the dataset contains information on the total loan amount provided by the each bank (as well as the split between short- and medium-term lending and domestic and foreign currency lending). The balance sheet data also allow us to construct the explanatory variables used in the analysis. Size is defined as the logarithm of total bank assets. Liquidity is the ratio of liquid holdings to total assets. Capitalization is defined as the ratio of shareholders' equity to total assets.