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Monetary Policy Dependency in the Periphery - the Case of Turkey

(Part of the PhD project)

A summary[*]

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Summary

A large body of literature has studied the inflation targeting in developing countries since the 1990s. Yet, a few studies approached the issue of core - periphery division in the international financial system and the corresponding narrow monetary policy space of the periphery. The Global Crisis of 2008-2009 and the effects of very low interest rates in the core countries afterwards on the periphery through accelerated capital flows amplified this issue's topicality.

Turkey is considered to have one of the most fragile domestic financial systems in the 2000s, which is a great obstacle for an autonomous monetary policy directed towards some domestic economy goals such as output, employment and inflation. The puzzling case concerning Turkey's monetary policy is that on the one hand inflation targeting in Turkey was praised for its great contributions to stabilizing inflation and promoting growth (see IMF, 2008). Turkey achieved decreasing its inflation rates to single digit levels and boosted its growth rates in the 2000s. Yet, Turkish economy has become one of the most fragile economies in the late 2000s and early 2010s in terms of rapid domestic credit expansion, accelerated household indebtedness, appreciated exchange rate in real terms and deteriorated current account balance as well as high currency mismatch especially within the firm sector (Krugman, 2014). Inflation targets were missed in most years after 2006. Under such fragilities, inflation targeting seems like a delusion for Turkey. Accordingly, this study questions the distinguished characteristics of Turkey's de facto monetary policy from its de jure inflation targeting form. Based on this question, the research focus is on the following subject matters:

- Inflation and output gap concerns (flexibility of inflation targeting)

- Exchange rate concerns

- Interest rate stability concerns (interest rate smoothing)

- Reactions to an anchor core country interest rate

- Reaction to foreign capital inflows in proportion to GDP assuming that these inflows facilitate a fast credit expansion

- Whether there is an indication that the modified monetary policy framework from November 2010 onwards enabled a break with dilemma of monetary policy autonomy versus capital account openness.

This study considers the Post-Keynesian (PK) theory as a realistic ground to approach monetary policy. On the other hand, PK theory usually assumes a „normal" economy that is an economy free of fragilities such as: an internal or external political conflict, large banking system vulnerabilities, possibility of trans-border capital flow volatility, large exchange rate fluctuations, high inflationary environment, etc. (Sicsú, 2001). Therefore for approaching the core-periphery division in the international financial system and the periphery monetary policy, this study aims at combining the PK theory with the "asymmetries" debate by an unorthodox body of literature (Andrade & Prates, 2013; Camara-Neto & Vernengo, 2009; Cohen, 2009; Fritz, Prates, & de Paula, 2014; Hausmann, 1999; Hausmann & Panizza, 2011; Hausmann, Panizza, & Stein, 2002; Herr, 2008; Herr & Hübner, 2005; Herr & Priewe, 2006; Kindleberger, 1967, 1970; Riese, 2004; Vernengo, 2006) which studies the core – periphery division and corresponding vulnerabilities of the periphery in the international financial system. Various empirical studies (for instance Calvo & Reinhart, 2002; Cömert, Olçum, and Yeldan, 2010; Filardo, Ma, & Mihaljek, 2011; Hilbers, Otker-Robe, & Pazarbaşıoğlu, 2006; Mihaljek, 2011; Mohanty & Klau, 2004; Rey, 2013; Sinclair, 2005) also guide this study for constructing a theoretical framework of monetary policy reaction function in the periphery. Accordingly, the following Taylor-type reaction function is considered:

$$i = f(i, pgap, ygap, e, i^f, f)$$

i : domestic policy rate

$pgap$: inflation gap

$ygap$: output gap

e : exchange rate

i^f : an anchor core country short-term nominal interest rate

f : capital flows in proportion to GDP

This study estimates Turkey's monetary policy reaction function based on the above theoretical framework. Turkey's de facto monetary policy is a controversial topic in the literature. The previous empirical studies do not present a harmonic picture about Turkey's monetary policy reaction function in the post-2001 period. In most of the studies, exchange rate is found to be a significant reaction variable by the monetary policy and the sign of its

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coefficient is usually as expected (a depreciation is aimed to be contained by raising the interest rate). However, some studies found no reaction or negative[1] reaction to exchange rate. Empirical results about the reactions to output gap and inflation gap variables during the inflation targeting period are also mixed.

In terms of methodology, this study has some similarities with and differences from the previous studies. The most similar ones to this study are as follows: Civcir and Akçaðlayan (2010) and Kaytanci (2008) use an extended Taylor-type reaction function which include exchange rate variables and they use a Vector Auto-Regression (VAR) model as a method of estimation. Another similar study is by Cömert et al. (2010) which integrates a Taylor-type function including the interest rate smoothing variable (lag of the domestic interest rate), an exchange rate variable and a foreign interest rate variable (United States Federal Reserve rate), and uses Ordinary Least Squares (OLS) method as well as a Generalized Method of Moments (GMM) estimation. These previous studies are similar to my study in terms of adopting an extending Taylor-type reaction function and their research methods.

Yet, this study differs from the above previous studies in the following way: first, it investigates Turkey's monetary policy in a relatively more extended way by integrating the variable of capital flows in proportion to the economic size[2] of the country (industrial production index as a proxy to GDP) directly into the reaction function. This dimension is integrated to investigate Turkey's dilemma of capital account openness versus interest rate autonomy. Second, it investigates Turkey's monetary policy in both backward-looking (by using VAR model) and forward looking reaction function (by using OLS method) forms in order to have a more robust picture of the variables reacted by the monetary policy. Third, it investigates the existence of an asymmetrical reaction to exchange rate, i.e. reactions to depreciations versus reactions to appreciations. Fourth, by taking the sample period of 2002-2013, it covers the period from November 2010 onwards where the monetary policy has been modified to a great extent. Since this latter period is too short to estimate, the sub-period of 2002-October 2010 is estimated and compared with the entire period. The aim of this comparison is finding out an indication of a change in monetary policy space after October 2010, though this cannot be considered as a proof from the statistical theory perspective. Data

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[1] A negative reaction implies: when an exchange rate depreciation shock happens (increase in exchange rate), interest rate reacts to it by decreasing. This is not a usually expected reaction from a developing country monetary policy which is supposed to avoid depreciations.

[2] Industrial production index is used as a proxy for GDP, since monthly GDP data is not available.

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for estimations are obtained from the central bank of Turkey's statistical database, International Financial Statistics, Datastream and Eurostat.

Econometric estimation results are presented in table 1 and table 2 below and the results are summarized in table 3. These results are robust to various model specifications.

Table 1

Backward-looking model

Dependent variable: Δ in domestic interest rate

	Entire period 2002m4-2013m8	Sub-period 2002m4-2010m10
First lag of the Δ in domestic interest rate	0.222**	0.234**
Second lag of the Δ in domestic interest rate	0.100	0.095
First lag of the inflation gap	-0.027	-0.080
Second lag of the inflation gap	0.002	0.042
First lag of the Δ in output gap	0.015	0.405
Second lag of the Δ in output gap	2.913	2.920
First lag of the Δ in exchange rate	3.367**	4.026***
Second lag of the Δ in exchange rate	1.059	0.844
Δ in Euro area one week repo rate	0.864*	0.745
First lag of the capital flows in proportion to GDP	0.010**	0.017**
Constant	-0.408***	-0.518***
Number of observations	*137*	*103*

Estimated by VAR model using Stata software. *Significant at 10 per cent level; ** Significant at 5 per cent level; *** Significant at 1 per cent level.

Table 2

Forward-looking model
Dependent variable: Δ in domestic interest rate

	Entire period 2002m5-2013m8	Sub-period 2002m5-2010m10
First lag of the Δ in domestic interest rate	0.196**	0.171**
Second lag of the Δ in domestic interest rate	0.112	0.074
Third lag of the Δ in interest rate	0.112	0.075
Δ in expected inflation gap for the end-year	-0.033	-0.015
Δ in expected output gap for the end-year	0.006	0.018
Δ in expected exchange rate for the end-month	7.680***	6.557***
Δ in Euro area one week repo rate	1.400***	1.280***
First lag of the capital flows in proportion to GDP	0.004	0.012**
Constant	-0.219	-0.417***
Number of observations	*137*	*102*

Estimated by OLS method using Stata software. *Significant at 10 per cent level; ** Significant at 5 per cent level; *** Significant at 1 per cent level.

Table 3 Summary: significance of the variables for domestic interest rate

	Backward-looking		Forward-looking	
	Entire period	Sub-period	Entire period	Sub-period
Interest rate	++	++	++	++
(Expected) inflation gap				
(Expected) output gap				
(Expected) exchange rate	++	+++	+++	+++
Euro area interest rate	+		+++	+++
Capital flows in proportion to GDP	++	++		++
Constant	+++	+++		+++

To sum up, PK theory provides a realistic ground to approach monetary policy, but specifically concerns about the core countries. The „asymmetries“ debate complements the PK theory for approaching the periphery context. Periphery monetary policy is financially dependent through various channels. Turkey's de facto monetary policy does not correspond to its de jure inflation targeting form: inflation gap and output gap do not have much influence on the interest rate. Turkey's monetary policy is following the euro area monetary policy moves. Exchange rate is the major determinant of the interest rate in Turkey. And finally, there is an indication that the modified monetary policy framework with capital controls and alternative policy tools enables a break with the dilemma of financial account openness versus interest rate autonomy. The next step in investigating Turkey's de facto monetary policy by this study is to find out whether exchange rate reactions are asymmetrical, meaning whether depreciations are much more significantly reacted by appreciations.

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