Foreign Capital, Real Sector Financing and Excessive Leverage in Turkey: What Went Wrong?

Bahadır Karakoç
Muş Alparslan University, Turkey | bahadir.karakoc@hotmail.com

Volume 10 No 1 (2020) | ISSN 2158-8708 (online) | DOI 10.5195/emaj.2020.190 | http://emaj.pitt.edu

Abstract

Recently, large swings in inflation and exchange rates revealed that non-financial sector is heavily geared and extremely vulnerable. Therefore, a study trying to identify the contributing factors is needed. Separating firms into groups, based on size and stock market trading status; changes in financing patterns are investigated via panel data methodology. The study aims at fulfilling the need for analyzing the consequences of foreign capital flow at firm level and documenting its significance in addition to assessing the efficacy of contemporary monetary policy. Economic conditions significantly facilitated lending process, strengthening corporate access to credit, and resulted in excessive borrowing both in the form of foreign and domestic currency. With such heavy burden of debt, non-financial sector has been facing both exchange rate and the liquidity risks. The more severely a firm was previously challenged by financing limitations, the more it borrowed once the limitations are relaxed, contributing to excessive debt burden of the economy in proportion to its previous financing challenges.

Keywords: Financial Liquidity; Financing Constraint; Foreign Capital Inflow; Small Firm Financing; Excessive Leverage

Volume 10 No 1 (2020) | ISSN **2158-8708** (online) | DOI 10.5195/emaj.2020.190 | http://emaj.pitt.edu

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I. Introduction

Recently, drastic shifts in major macro indicators such as inflation and interest rates, ensuing exchange rate fluctuations revealed that non-financial sector has been exposed to liquidity and exchange rate related risks. From mid-2018 to end of 2018, value of United States (U.S.) dollar hit historical highs against Turkish lira and economic conditions led to hundreds of firms going to court for concordat. Particularly, the sensitivity toward the fluctuations in exchange rate motivates this study to investigate the effect of international capital movements on real sector's financing. Therefore, the main goal of the study is formed as to document the effect of foreign capital (FC) on real sector's financing decisions while assessing the efficacy of contemporary monetary policy choices. The main hypothesis investigated is whether FC inflow and contemporary monetary policy have created a suitable environment for excessive borrowing. What are some risks to real sector accompanying FC? Did financing challenges, an important aspect to firms financing policies, make any difference in leverage decisions? What are the major monetary policy dimensions, deployed to accommodate capital movements? Has the monetary policy been effective enough to mitigate potential risks or has it simply facilitated borrowing process and allowed real sector's debt burden to grow? Answers to these questions can provide insight into real sources of weaknesses embedded in the economy, which also makes it vulnerable to foreign monetary policy shocks. They may assist with identifying the needs of non-financial sector and creating relevant policies. The findings may also contribute to developing more effective policy responses as to reap the benefits of FC while avoiding the negative consequences associated with it.

Present study contributes to the literature by comparatively examining leverage decision of private SMEs and public firms and documenting how they are affected from expansionary state of the economy. It also offers useful findings regarding the benefits and risks associated with foreign capital inflow to an emerging economy such as Turkey. To the best of my knowledge, there has not been such a study focusing on the impact generated by recent FC inflow and the contemporary monetary policy decisions on real sectors financing choices in Turkey, and the current study may fill the void. To achieve the stated objectives, the effect of monetary policy and FC inflow is investigated using corporate data collected by the Turkish Central Bank (CBRT). The data set includes more than 30.000 firms in various size and ownership structure, presenting opportunity to test the hypothesis on firms with different degrees of access to external funding. Firms are separated into groups in accordance with their financial strength. Commonly used measures such as dividend payment (Fazzari et al., 1988), or credit rating (Korajczy & Levy, 2003) are not available in case of private firms, hence firstly, asset size[1] is used to classify firms, since size can be a valid proxy for a firm's ability to access to external capital (Petersen and Rajan, 1997). The reasoning is very simple but intuitive that smaller firms are more likely to be dependent on bank credit and discriminated in loan applications because of severe agency cost (Blasio, 2003).

Theoretical ground for the limited access of financially constrained small firms have been covered at length by Bernanke et al.(1996); Gertler and Gilchrist (1994); Kashyap et al.(1993). Common theme hypothesized in those studies is that severe agency cost arising from informational asymmetry between banks and bank-dependent small firms leads to constraints in the form of higher cost of external financing, limited or complete denial of access to funds. However, their access can be enhanced or impaired by the stance of monetary policy. Bernanke et al. (1996) argue that, during monetary contractions limited credit supply will be directed largely toward financially solid firms, i.e. an episode of "flight to quality" will take place. Since our primary objective is to document the effect of FC and monetary policy on borrowing decision, the choice of criterion by which firms are separated seems to serve well to the goal of the study. Secondly, stock listing status is used to group firms. Being listed on a stock market may allow firms to gain access to less costly equity financing, which may reduce their reliance on debt financing (Brav, 2009). It can also provide better access to external funding at a cheaper cost and for a longer term (Abdulla et al, 2016), reducing the severity of financing challenges. Our reasoning relies on the assumption that private firms tend to be more illiquid (Asker et al., 2015) and in need of external funding. Moreover, public firms suffer relatively less from asymmetric information, and financial constraints are less binding (Brav, 2009; Schenone, 2010). Empirical findings from previous studies are in support of these arguments that public firms tend to have stronger access to credit lines (Demiroğlu et al., 2012; Farre-Mensa and Ljungqvist, 2016). Thus, the discussion leads to a question whether public and private firms are affected

[1]Hadlock & Pierce (2010), after studying various measures, suggest that size and age are strong predictors of financing constraint. Gertler & Gilchrist (1994) use size to proxy for access to external funding. Findings in Beck et al. (2005) emphasize the importance of size and demonstrate how small firms are the ones that are most affected by legal and financial structure. Bernanke et al. (1996) argue that small firms have to deal with agency cost in borrowing relations, which make them vulnerable to the changes in the state of monetary policy. Thus, size can be a valid proxy for access to external funding.

differently or similarly by the recent financial conditions.

The analysis produces convincing evidence that both monetary policy and FC facilitated borrowing process contributed to excessive leverage. SMEs appear to be highly sensitive to monetary policy and FC inflow, since the marginal effects of both variables are relatively greater. Considering that previously these firms were likely to be credit constraint, they seem to have taken advantage of abundance of liquidity. Patterns in aggregate data are in support of this conclusion, which is also consistent with findings in similar studies such as Bougheas et al. (2006); Korajczy & Levy (2003). They find that, bank-dependent small firms tend to increase leverage in favorable economic conditions. Leary (2009) finds similar patterns among small bank-dependent and large, less bank-dependent firms. He argues that those bank dependent small firms' leverage rise with the credit supply and decline with contraction, whereas less bank-dependent large firms may have substitute funding sources on which they can rely on in contractionary times, thus they maintain a relatively more stable capital structure.

Financial constraints, to a considerable degree, become irrelevant during expansionary times and seem to matter particularly in contractionary state of the economy, forcing SMEs to maintain capital structure highly sensitive to monetary conditions. Such sensitivity fits the description provided in "flight to quality" of Bernanke et al. (1996), which argues that small firms that suffer from agency cost in a borrowing relationship should reduce (increase) the economic activity in contractionary (expansionary) times. However, their theory is silent as to why small firms may engage in excessive borrowing in times of high credit supply. One likely explanation is that, they had suffered from the lack of external borrowing during early 2000s and had to put on hold viable investment opportunities till external funding is available again. Now that the credit conditions are admissible, they take advantage of the situation while window of opportunity still permits. On the other hand, publicly traded and large private firms display little sensitivity; only the coefficient for lagged FC indicates positive influence on their leverage decision while monetary policy has no statistically significant effect. The results may be summarized as following: Both monetary policy and FC variables positively affected borrowing decision of SMEs and ultimately led to excessive leverage, resulting in hundreds of firms going to the court for either concordat, or to restructure and/or postpone overdue debt payments[2]. On the other hand, the relation between monetary conditions and the leverage decision of financially strong firms, i.e., publicly traded and large private firms is relatively weak, possibly due to availability of alternatives as suggested in Leary (2009) such as stable access to external funding and internal revenue stream.

In the next section, to further motivate the goal of the study, the recent trends in corporate borrowing are discussed, in section III, monetary policy measures in times of high FC inflow are examined. In section IV, data and methodology is discussed. In section V, a brief conclusion is presented.

II. Recent Trends in Corporate Leverage in Turkey

Figure 1 presents the debt stock of non-financial sector in Turkey, in comparison to the average of other emerging economies[3]. Starting from early 2000s, debt to GDP ratio has been growing almost non-stop. It goes up to 67 percent of GDP in 2016 from 30 percent in 2007, a year before the mortgage crisis.

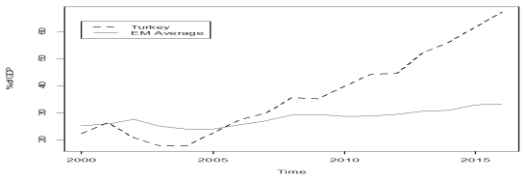

Figure 1. Real Sector's Debt as a Percent of GDP in Comparison with other EMs Data

Source: IMF International Statistics, 2018

Figure 2 presents average financial debt (bank loans and debt securities) to assets ratios of 27.872 firms, between 1996 and 2016. General trend suggests that macroeconomic shocks do affect SMEs more significantly than the large firms and they do maintain higher leverage, as suggested in the literature4. Their debt ratios declined from 42 percent of total assets in 1997 to 18 percent at end of 2001, and rose back up to 42 percent in 2014, indicating more than 130 percent increase in percentage wise. Once the Turkish economy has left the bad memories of early 2000s behind, SMEs seemed to have been inclined to take advantage of favorable financial conditions in the second half of the last decade. While medium sized firms demonstrate a similar but relatively softer pattern, debt ratios of large private and public firms fluctuate considerably less.

[2] In late 2018, the value of dollar hit all-time high against Turkish lira and 979 firms went to court for concordat as announced by Trade Minister Ruhsar Pekcan on December 27, 2018. In 2019, The Banks Association of Turkey announced a restructuring program in order to provide assistance to troubled firms and their lenders.

[3]South Africa, Mexico, Peru, Romania, Pakistan, Argentina, Kazakhstan, Nicaragua, Morocco, India, Czech Republic, Indonesia, Brazil, Poland and Russia.

[4]See for example Bougheas et al. (2006); Ang (1992); Cole (2013), and Goyal et al. (2011).

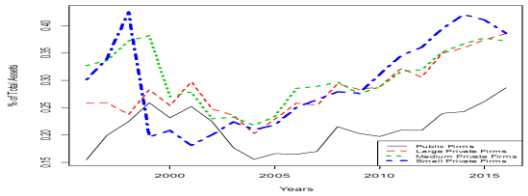

Figure 2. Non-Financial Firms' Financial Debt Ratios

Source: CBRT, 2018

The distinct pattern in aggregate data suggests that firms contributed to the excessive debt stock inversely proportional to their size or directly proportional to their previous financing constraints. Fluctuations in early and late 2000s support this conclusion. The firms with the weakest access have the highest amount of leverage and the ones with presumably strongest access have the lowest leverage. A likely reason for the presence of such a pattern is because illiquid SMEs may not be able to obtain the amount of credit they need in a timely manner because of the major weaknesses in their balance sheets and have to put spending decisions on hold due to the lack of funding. Once the credit conditions are improved, they borrow more to take up all positive NPV projects that were previously kept aside. Furthermore, sales rises fueled by the expansionary monetary regime may also encourage them to exploit the window of opportunity today, resulting in higher leverage. The findings are similar to Korajczyk & Levy (2003) and Leary (2009) and consistent with theoretical ground established by Bernanke et al. (1996) and others that financially constrained firms' debt decisions are pro-cyclical and that of unconstrained firms' is counter-cyclical. Since expansionary monetary policies are usually accompanied by lowered cost of financing, increased credit supply and rise in economic activity, it is reasonable to expect that those who have been previously denied funding would desire to take advantage of eased credit conditions, compared to those who have credit resources within their reach at all times.

Figure 3 shows non-financial firms' foreign currency denominated assets and liabilities (bank loans, debt securities and trade credits), presenting the severity of exchange rate exposure. The gap between the series seems to have become particularly wider after 2010, in the midst of a period of expansionary monetary policies. As of 2018, total assets equal to only 30 percent of liabilities, which give rise to vulnerabilities to future monetary policies of advanced countries (Avdjiev et al., 2012) particularly, in the events such as sudden stops and/or reverse flows as suggested in Calvo (1998). A noteworthy decline in the value of domestic currency would translate into a noteworthy rise in the debt burden if the income is denominated in a currency other than the debt.

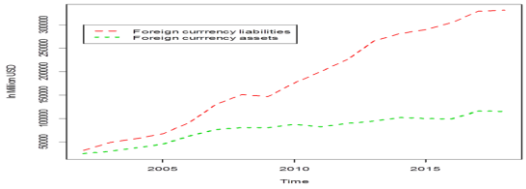

Figure 3. Non-Financial Sector Foreign Currency Position

Source: CBRT, 2018

From 2015 to 20185, value of U.S. dollar appreciated more than 160 percent against Turkish lira. In other words, the value of debt in domestic currency almost tripled. A sudden stop in FC flow or a reverse flow, which would potentially trigger depreciation in currency value, and consequent rises in interest rates, leading to a cut in public spending, may reduce the profitability of real sector, even if the borrowed funds are channeled toward efficient investments, as experienced very recently.

III. Monetary Policy and Capital Flow

Common theme emphasized in existing studies is that capital flow leads to expansionary policy responses, and their combination with increased global liquidity is the major driver of credit booms (Calderon & Kubota, 2012; Mendoza & Terrones, 2012). Although, the expansion in credit supply may demand contractionary polices to be confined through a rise in policy rate, it feeds the possibility of attracting more capital (Blanchard et al., 2015), because the primary reason motivating borrowing from abroad is positive interest rate differential between domestic rate and the rate charged on foreign funds (Ahmed & Zlate, 2014; Carabarin et al., 2017). As the domestic sources continue to be a more costly option, both banks and large corporations with access to international capital markets draw foreign funds into the local system. Accordingly, most EMEs have responded FC movements with expansionary monetary policy measures, particularly reducing their interest rates (Anaya et al., 2017). Consistently, as FC comes in CBRT embraces an expansionary strategy and constantly lowers the rates, as shown in Figure 4. Starting early 2000s, policy rate follows a downward trend until 2014, at a time the FED announces first interest rate increase[6].

[5]At the end of 2014, $1=2.3870₺ and late 2018s $1= 6,2143₺ by CBRT's exchange rates.

[6]This is not to argue that the only reason for declining interest rates is FC inflow since during this period the economy has made significant progress, which is reflected in various economic indicators such as inflation, employment, etc., all of which may primarily contribute to determining policy rates.

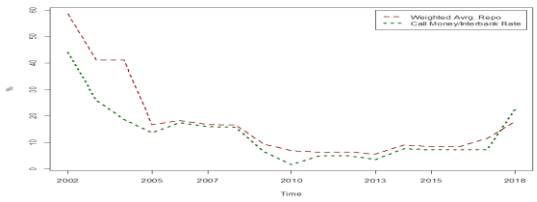

Figure 4. Representative interest rates (Annually)

Source: CBRT, 2018

Another monetary action taken by central banks in EMEs as a response to recent capital movements was to resort to purchase of foreign currency, aiming to mitigate upward pressure on exchange rates (Ahmed & Zlate, 2012; Reinhart & Reinhart, 2009) and possibly create an insurance for future economic shocks (Alberola, Erce & Serena, 2016; Gosh et al., 2012). After bearing the cost of economic crisis of last decades, many EMs have adopted monetary policies aiming to maintain certain level of exchange rate flexibility and monetary independence. Sustainability of such policy required accumulation of foreign currency reserves, which leads to flexible but still managed exchange rate policy, allowing conducting relatively independent monetary policies, and leaving room for financial integration (Aizenman & Glick, 2009).

Despite favored nature of foreign currency accumulation program, empirical findings suggest that it actually encourages borrowing from abroad, the effect it has been designed to mitigate. This is best described in Montiel and Reinhart (1999) who sterilized that intervention[7] attracts more capital by offering relatively higher return and stable exchange rates, both of which motivate each party, the lender and the borrower, giving rise to borrowing in foreign currency. Validity of this point is empirically documented by Alberola et al. (2017). They examine gross capital inflow to 63 countries, and find that hoarding of foreign currency reserves positively and significantly increases capital inflow.

Furthermore, foreign currency reserves reduce currency mismatch risk in the eyes of both international capital suppliers and EM borrowers, strengthening the lending/borrowing relation between the parties (Chui et al., 2016). Similar conclusions have been reported by Gosh et al. (2012) and Magud et al. (2012). The evidence they demonstrate suggests that less flexible exchange rates, mostly sustained by foreign currency reserve accumulation, make borrowing from abroad sources attractive, building expectations about stability of the exchange rates in the future. It must have created an illusion that, every time exchange rates fluctuate too much, the central bank will step in and reset the rates by deploying foreign currency reserve, thus they will not be exposed. The information on CBRT website clarifies that, currency reserves are to be used in implementing predetermined monetary policy and exchange rate regime. Accordingly, as the FC inflow gained magnitude, the CBRT, as part of monetary policy, increased the stock of foreign currency in order to restrict the rises in the value of TL, to prevent trade account balance from worsening and to prepare for future economic shocks when global liquidity fades away (Aysan, Fendoğlu & Kılınç, 2014). The reserves are constantly increased from 2002 to 2011[8], in times of high FC inflow, implicitly encouraging borrowing in foreign currency.

Last but not least, an economic variable representative of active monetary policy is money supply (M2) and its growth rate. It indicates that, from 2001 to 2014, money supply grew at an average rate of about 30 percent annually[9]. It would be fairly reasonable to argue that, global liquidity has also contributed to such expansion. Although on the central bank's website price stability is stated as the main goal of monetary policy, as a response to increasing global liquidity it seems to have welcomed capital flow, accordingly taken expansionary monetary policy measures in response and conducted a relatively managed exchange rate regime. Thus, low interest rates, combined with high liquidity fueled via FC inflow and domestic money supply have been the major drivers of the rise in credit supply and excessive leverage of non-financial sector.

IV. Data and Methodology

The study uses unique data set of CBRT that includes balance sheet and income statements of more than 30.000 firms. After eliminating implausible values such as negative total and tangible assets, the data left available has 151.072 observations belonging to 27.522 firms. It covers non-financial sectors, and it is collected from firms via annual surveys. Firms have been split into groups based on asset size (large, medium and small). Firms whose asset sizes falling into top ten percentile are classified as large,[10] and the rest is divided equally as small and medium.

Table 1: Descriptive Statistics for Financial Debt Analysis

	Minimum	Maximum	Mean	Median	St. Deviation	Observation
Liquidity	.0001	.997	.3362	.3165	.219	151,072
Tangible	.0001	.999	.2714	.2142	.2286	151,072
Log(size)	5.874	24.82	16.68	16.66	15.467	151,072
Debt	.0008	.886	.3105	.2892	.2140	151,072
Own fund	-.229	.996	.3252	.2973	.2538	151,072
ROA	-.219	2.56	.0560	.0479	.1106	
GDP growth	-0.06	0.11	0.055	0.061	.4017	
Inflation	0.062	0.85	0.110	0.875	0.929	
FC	.504	.730	.652	.663	.0709	

[7]It is called sterilized intervention if the central bank completely mops up the expansion in money supply as a result of foreign currency purchase and leaves the money supply unchanged after the purchase.

[9]M2 data is available at https://fred.stlouisfed.org/search/?st=M2%20for%20Turkey

[10]CBRT's own classification of firm size considers firms which have more than 500 workers as the large firm, between 250-500 medium and less than 250 small. Our classification of large firms is approximately the same as that of CBRT.

Firm size[11] is determined as the main criterion to classify firms based on the strength of their access to external funding, as explained in section I. Firms are also separated based on ownership structure[12], public and privates firms. Table 1 presents descriptive statistics of the data used in the analysis. It includes a wide range of firms from various sectors, and descriptive statistics document that variation, which considerably contributes to the efficiency of analysis. The data set is 21 years of annual data, from 1996 to 2016, during which time Turkish economy has suffered both 2001 currency crisis and 2008 mortgage crisis and hosted large volume of FC. Starting from 2004, monetary authorities implemented expansionary monetary policy (MP), which is accounted via a dummy variable. The estimation period is long enough to draw reliable conclusions. Periods subsequent to crisis are important, because those are the times CBRT adopted loose MP to empower the recovery. In fact, capital flow and monetary expansion have softened the credit conditions and caused the borrowing to rise. Panel data study will be able to successfully capture that influence. Clearly, the trends in aggregate data (in Figure 2) suggest high level of dependence on prevailing economic conditions. Documenting such dependence next to other firm-specific variables is an essential goal of this study, only then significance of FC may be revealed and appropriate policy measures can be taken for future episodes. With this objective in mind, the hypothesis presented in this study will be tested via unit fixed effect regression analysis constructed as following.

$$Debt_{it} = \alpha_i + \beta_1 liquid_{it} + \beta_2 ROA_{it} + \beta_3 tang_{it} + \beta_4 CE_{it} + \beta_5 size_{it} + \beta_6 gr_t + \beta_7 inf_t + \beta_8 fc_t + \beta_9 D_t + \mathcal{E}_{it}$$

Where $Debt_{it}$ represents bank loans and debt securities, $liquid_{it}$ is cash plus short term investment plus accounts receivable, ROA_{it} is the operating profit, $tang_{it}$ is tangible assets, CE_{it} is common equity, all firm specific variables are scaled by total assets and size is logarithm of total assets. gr_t represents yearly growth in real GDP, inf_t stands for inflation and fc_t *is* FC minus direct corporate borrowing divided by GDP. D_t is the dummy variable for MP and constructed as following.

$D = 0$, *if* t = 1996-2004, 2008-2009 and 2015-2016=0; $D = 1$ *if* t =2005-2014

Dummy variable takes reporting periods into consideration. For instance the mortgage crisis took place in 2008; however its effect on balance sheets is observable in the next reporting period, in 2009. Figure 2 for aggregate data supports this insight. Similarly, 2005 is assumed to be the starting date of monetary expansion. Expansionary policy has been disrupted after 2014 because of increases in interest rates following fluctuations in exchange rates. Since the rise in capital inflow coincides with these dates, it will also serve to isolate the influence of MP and document true impact of FC on borrowing activity. Real GDP growth and inflation are included to make sure that main variable of interest is not picking up their effect. FC data are obtained from CBRT international investment position data, values of direct corporate borrowings are excluded from total FC and final sum divided by GDP. Thus it is composed of foreign direct investment plus foreign portfolio investment plus other investment minus direct corporate borrowings (loans and debt securities) and divided by GDP.

Empirical findings

Tables 2, 3 and 4 below present the results from firm fixed effect panel data estimations. All standard errors are robust to heteroscedasticity and autocorrelation, and P-values are in parentheses. One of the goals of the study is to examine the effect of rising FC inflow since early 2000s; therefore estimations are conducted for various periods such as 1996-2016, 1996-2002, and 2003-2016.

Table 2, left and right hand sides present the results for small and medium sized firms, respectively. The coefficients for FC in case of both groups are significant for the first and third periods and insignificant for 1996-2003, pointing to the positive effect of FC on borrowing at the time of its rising when considering full period, both FC and MP are positively and significantly related to borrowing decision, in other words they contribute to borrowing process of financially challenged SMEs. The estimation for 2003-2016 repeated 3 times to include one year lagged FC and in the second estimation FC is excluded to isolate the effect of MP. It shows that both present and one year lagged FC is significantly and positively influencing leverage decision of SMEs. The estimation without FC yields negligible differences in marginal effect of MP.

Previous studies, mentioned above, offer an explanation that eased borrowing process may be achieved via rising credit supply fueled with FC and supported by expansionary domestic MP. Assessing the findings in Tables 2 together with aggregate patterns in borrowing (in Figure 2) suggests that, previous financing constraints may also be motivating excess borrowing. Once the access is restored in period of 2004-2014 SMEs, following a severe downturn in the economy, on average, increase their debt ratio more than the rest. Due to SMEs' weak financial position, they are vulnerable to monetary cycle. Hence once the access is restored in period of 2004-2014 SMEs, following a severe downturn in the economy, they increase leverage more than the rest.

Comparing Table 2 with Table 3 and 4, it is noticeable that the immediate effect of FC on SMEs is significant whereas only lagged coefficient for FC is significant for large and stock listed firms, suggesting relatively higher sensitivity of SMEs toward monetary conditions, which is compatible with arguments in Bernanke et al. (1996); Gertler & Gilchrist (1994); Kashyap et al. (1993). Evidently, advanced country monetary policies have implications at firm level, for financing decisions of non-financial sector in Turkey and

[11]See for example Bernanke et al. (1996); Gertler & Gilchrist (1994); Kashyap et al. (1993).

[12]Also see Abdulla et al. (2016); Schenone, (2010) ;Demiroğlu et al. (2012); Farre-Mensa & Ljungqvist, (2016).

large presence of SMEs magnifies that influence. On the other hand, the effect of MP on large private and public firms is limited, although the coefficient is positive, but statistically insignificant. Internal cash flows, trade credits and/or their current access to financing channels must allow them to operate optimally, thus their sensitivity to monetary conditions are reduced. Consistent with it, similar lack of sensitivity between large private and public firms as well as FC is observable; only lagged FC seems to positively influence their leverage decision.

As for the control variables, in accordance with prior studies, liquidity variable is highly significant, with differing impact based on size. Debt ratios of SMEs are positively affected by liquidity, while larger firms are negatively affected by liquidity. A result, which may be explained by financial strength of firms, it presents an ability to repay the debt and an indication of financial solvency in case of small firms. On the other hand, negative coefficient indicates availability of internal resources and an alternative funding to finance operations for financially stronger larger firms. The more liquidity a firm has, the less need for additional debt financing may exist. Unlike findings in previous studies (Frank & Goyal, 2009; Harris & Raviv, 1991; Rajan & Zingales, 1995), no statistically significant relationship between profitability and borrowing exists in any of the sub-groups. The only exception for public firms where the relationship is negative and significant, is where preference toward internal sources for financing over external funds is observed. On the other hand, size variable significantly and positively affects debt ratios, as documented by the above cited studies, which point to the importance of debt capacity attached to it. It is argued that, tangible assets positively affect borrowing since they are used as collateral to secure loans (Frank & Goyal, 2009; Harris & Raviv, 1991; Rajan & Zingales, 1995). Consistent with previous studies, it is highly significant in determining debt ratios of all groups. Real GDP growth and inflation variables are included both to control the effect of general economic conditions and to account for their effect on corporate borrowing decision. However, the coefficient for GDP growth is negative and in some cases highly significant (Table 4, columns 3 through 8). But unfortunately it is unstable, i.e., adding or subtracting a variable causes a change in the sign of the coefficient. Similar issue with inflation is present where the sign of the coefficient alters with the addition and subtraction of other variables. Therefore, it may be wiser to avoid interpreting the coefficient for the both of the variables and rely on their role to account for general economic conditions in estimations.

Table 2: Fixed Effect Analysis on Financial Debt - Small and Medium Firms

Dependent Variable	Total bank loans and debt securities					Total bank loans and debt securities				
Classification	Medium Firms					Small Firms				
Time Period	Full Period	1996-2002	2003-2016	2003-2016	2003-2016	Full Period	1996-2002	2003-2016	2003-2016	2003-2016
Liquidity	.024**	-.076	.0271***	.0217***	.020**	.0151***	-.0169	.022***	.017*	.016*
	(0.014)	(0.432)	(0.001)	(0.001)	(0.032)	(0.006)	(0.256)	(0.004)	(0.064)	(0.078)
ROA	.023**	.076	.0110	.003	.007	.065***	.0632*	.057**	.091***	.094***
	(0.039)	(0.687)	(0.767)	(0.837)	(0.624)	(0.002)	(0.082)	(0.023)	(0.003)	(0.005)
Size	.049***	.027	.0478***	.039***	.034***	.058***	.0047	.0619***	.051***	.047***
	(0.000)	(0.815)	(0.000)	(0.000)	(0.000)	(0.000)	(0.081)	(0.000)	(0.000)	(0.000)
Tangible Assets	.144***	.0125	.145***	.162***	.163***	.1185***	.0898	.1184***	.118***	.119***
	(0.000)	(0.523)	(0.000)	(0.000)	(0.000)	(0.000)	(0.112)	(0.000)	(0.000)	(0.000)
Own Fund	-.444***	-.374***	-.439***	-.443***	-.446***	-.273***	-.21***	-.273***	-.316***	-.317***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
FC	.0356***	-.156	.0399***		.080***	.044***	-.3995	.0478***		.0686***
	(0.000)	0.316	(0.000)		(0.000)	(0.000)	(0.329)	(0.000)		(0.000)
FC Lagged					.155***					.0671***
					(0.000)					(0.000)
GDP Growth	.0001	.0005	.0009**	-.001***	- .0001**	.0001***	-.0162	.0001***	-.0001	-.0003
	(0.355)	(0.701)	(0.048)	(0.008)	(0.000)	(0.000)	(0.329)	(0.000)	(0.905)	(0.197)
Inflation	-.001	.001	-.0013*	-.001**	-.001**	-.0001	-.002*	.0004**	.0004	.0009
	(0.000)	(0.935)	(0.000)	(0.035)	(0.023)	(0.716)	(0.072)	(0.021)	(0.528)	(0.125)
MP Dummy	.008***		.007***	.007***	.011***	.0014***		.0016***	.0016***	.0020***
	(0.000)		(0.000)	(0.000)	(0.000)	(0.000)		(0.000)	(0.000)	(0.000)
Constant	-.481***		-.385***	-.482***	-.481***					
	(0.035)		(0.035)	(0.035)	(0.035)					
R^2	0.32	0.37	0.30	0.30	0.29	0.19	0.14	0.19	0.19	0.18
Observation Count	69.180	2,023	67,171	67,171	47.889	67.719	5.042	62.876	62.876	42.182
Number of Firms	11.832	1,528	11,788	11,788	10.780	13.495	3.680	13.102	13.102	10.770

P-values are in parentheses and ***, **, * denote significance levels at1%, 5 %, and 10% , respectively

Table 3: Fixed Effect Analysis on Financial Debt- Large Firms

Dependent Variable	Total bank loans and debt securities				
Classification	Large Firms				
Time Period	Full Period	1996-2002	2003-2016	2003-2016	2003-2016
Liquidity	-.0297	.1189	-.036*	-.036*	-.0517**
	(0.119)	(0.318)	(0.059)	(0.054)	(0.016)
ROA	-.0182	-.1478**	-.0206	-.0208	-.0328
	(0.168)	(0.013)	(0.192)	(0.190)	(0.202)
Size	.0394***	-.0132	.0372***	.0378***	.0314***
	(0.000)	0.502	(0.000)	(0.000)	(0.000)
Tangible Assets	.1455***	.311***	.139***	.139***	.147***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Own Fund	-.310***	-.448***	-.503***	-.503***	-.521***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
FC	.0001	.243		.008	.370*
	(0.955)	(0.353)		(0.561)	(0.075)
FC Lagged					.1272***
					(0.000)
GDP Growth	-.0003	.0001	-.006	-.0002	-.001***
	(0.175)	(.123)	(.123)	(0.561)	(0.000)
Inflation	.001***	.001	.002	-.0001*	-.0001**
	(0.003)	(.267)	(.242)	(0.054)	(0.035)
MP Dummy	.005**		.002	.002	.003
	(0.018)		(0.242)	(0.250)	(0.377)
Constant	-.325***	-.506***	-.325***	-.326***	-.326***
	(0.074)	(0.043)	(0.074)	(0.074)	(0.075)
R^2	0.38	0.32	0.37	0.36	0.40
Observation Count	15.494	851	14,553	14,553	10.765
Number of Firms	2,239	547	2,231	2,231	1.927

P-values are in parentheses and ***, **, * denote significance levels at1%, 5 %, and 10% , respectively

Table 4: Fixed Effect Analysis on Financial Debt - Public and Private Firms

Dependent Variable	Total bank loans and debt securities					Total bank loans and debt securities			
Classification	All Firms					Public Firms			
Time Period	Full Period	1996-2002	2003-2016	2003-2016	2003-2016	1996-2016		2003-2016	
Liquidity	.0207**	-.0639**	.019***	.011*	.010	-.023	-.017	-.027	-.027
	(0.000)	(0.046)	(0.000)	(0.084)	(0.118)	(0.028)	(0.026)	(0.030)	(0.030)
ROA	.055**	.0408	.0457*	.0712*	.0742**	-.088***	-.098**	-.079**	-.079**
	(0.038)	(0.188)	(0.064)	(0.055)	(0.044)	(0.034)	(0.025)	(0.026)	(0.026)
Size	.053***	.008	.0540***	.044***	.040***	.023***	.019***	.008	.007
	(0.000)	0.329	(0.000)	(0.000)	(0.000)	(0.006)	(0.006)	(0.007)	(0.008)
Tangible Assets	.134***	.113***	.141***	.141***	.142***	.065**	.075**	.095*	.095**
	(0.000)	(0.006)	(0.000)	(0.000)	(0.000)	(0.029)	(0.030)	(0.032)	(0.032)
Own Fund	-.346***	-.277***	-.354***	-.390***	-.391***	-.592***	-.574***	-.583***	-.583***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.029)	(0.028)	(0.030)	(0.030)
FC	.029***	.259	.034***		.065***	-.045	.007		.012
	(0.000)	(0.605)	(0.000)		(0.000)	(0.033)	(0.032)		(0.038)
FC Lagged					.109***			.162***	.165***
					(0.000)			(0.045)	(0.051)
GDP Growth	-.0001	-.0005	.0002***	-.0001***	- .001***	-.001**	-.001**	-.003***	-.003***
	(0.236)	(0.561)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Inflation	.0001***	- .001*	-.001	.001	-.001	.001	-.001	-.003**	-.003**
	(0.000)	(0.065)	(0.369)	(0.140)	(0.636)	(0.001)	(0.001)	(0.001)	(0.001)
MP Dummy	.0115***		.0115***	.0115***	.0141***	.008*	.002	.010***	.009*
	(0.000)		(0.000)	(0.000)	(0.000)	(0.005)	(0.002)	(0.004)	(0.005)
Constant	-.551***	-.097***	-.449***	-.551***	-.449***	.235***	.256***	.347***	.346***
	(0.030)	(0.023)	(0.034)	(0.030)	(0.036)	(0.077)	(0.082)	(0.089)	(0.089)
R^2	0.25	0.20	0.24	0.24	0.25	0.51	0.51	0.53	0.53
Observation Count	151,072	7.703	144.597	144.597	100.634	3.975	3.327	3.327	3.327
Number of Firms	27.522	5.633	27.120	27.120	23.476	341	317	317	317

P-values are in parentheses and ***, **, * denote significance levels at 1%, 5 %, and 10% , respectively

Robustness Analysis

Two sets of robustness analysis are conducted. The first part involves adding potentially relevant variables to the base model. In the second part, firms are re-grouped based on net trade credit (TC) balance. The results show that, early findings are robust to adding relevant macro variables and reclassification of the firms proves to be useful, as well. To avoid repetition, please refer to Section IV for variable description and methodology.

In the first part, the results are in Table 5. Macro variables such as representative interest rate[13],

[13]Interbank borrowing rate is used in the analysis.

currency growth[14] and liquid liabilities to GDP ratio are added to the analysis. The significance of these variables is that, they would have a cause and effect relation with FC, and it is necessary to ensure that the effect observed between borrowing and FC is not due to them. International finance research has documented that changes in exchange rates, interest rates and monetary expansion are the immediate results accompanying capital inflow. Therefore, mentioned variables are included to validate the intuition established earlier.

Particularly, representative rate appears to be highly significant, and it reduces the marginal effect of FC in half. Inflation and GDP growth change sign as the variables are added, and in some cases they become insignificant, supporting the early approach not to ascribe special meaning to their relation with firm leverage. Although the magnitude of the coefficient for FC seems to be declining, it survives the test and at the end it is still highly significant and maintains its positive affect on borrowing decision. Other variables; currency growth and M3 to GDP don't seem to absorb influence of FC and either their coefficient change sign or they lose significance. Therefore, it is more intuitive to focus on the behavior of FC in the presence of other macro variables than how they influence leverage because of high correlation among them and accordingly the reader is advised to be cautious in drawing any conclusion.

Next, the data are re-divided using net TC balance: Firms with average net positive TC (received TC minus supplied TC) and firms with average net negative TC. Financial aspect of TC and its importance for small firms have been documented by early studies (Long, Malitz & Ravid., 1993; Petersen & Rajan, 1997). Hence, net balance of TC is used to re-classify firms with the objective that financial aspect of it may offer valuable insight into the leverage decisions. The average of net TC balance over 21 years is used to separate the firms ,because year to year changes may not provide reliable information about their financial position. However, the average of 21 years is more likely to lead to conclusive results. Thus, their borrowing reaction to capital flow and expansionary MP would not only contribute to better understanding of the financing patterns, but also help to improve efficiency of the analysis. The results are presented in Table 6. Findings in previous studies suggest that, offering more TC requires more liquidity and consequently negative TC (since they supply more TC than they receive) firms are financially stronger and might be less sensitive to general credit conditions. Despite that expectation, negative TC firms appear to be more sensitive to monetary conditions. The reason is that, marginal effect of both MP and FC is greater, pointing to a possibility that these financially challenged SMEs finance TC supply by borrowing from conventional sources. Both FC and MP are highly significant and positive for negative TC firms. On the other hand, positive TC firms demonstrate similar sensitivity toward MP. But for FC, only lagged coefficient is significant, as is the case with larger and publicly traded firms. Thus, they are less sensitive to FC's entrance to the economy. Marginal effect of MP for negative TC firms is 1.5 times greater than it is on positive TC firms. The lack of competitive edge and the goal of creating larger costumer base among SMEs may be encouraging them to supply more TC, which may be financed via borrowed funds. The interpretation of the findings is consistent with studies focusing on TC such as Long et al., (1993); Kim and Choi, 2003)[15]. However, in order to stay within the scope of the study, this point is not further pursued. In sum both coefficients, MP and FC, indicate positive and significant effect on leverage decision of both groups.

Table 5: Fixed Effect Analysis on Financial Debt with Additional Macro Variables

Dependent variable	Total bank loans and debt securities								
Classification	All firms								
Time Period	2003-2016								
Size	.055***	.054***	.054***	.054***	.054***	.054***	.051***	.050***	.050***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Tangible Assets	.120***	.120***	.123***	.131***	.131***	.131***	.132***	.133***	.133***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Own Fund	-.345***	-.346***	-.354***	-.354***	-.354***	-.354***	-.354***	-.354***	-.353***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
FC		.0313***	.0348***	.0341***	.0340***	.0344***	.0158***	.0169***	.0179***
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
ROA			.048**	.045**	.045*	.045*	.046*	.046*	.044*
			(0.044)	(0.044)	(0.065)	(0.064)	(0.060)	(0.060)	(0.074)
Liquidity				.019***	.019***	.019***	.0186***	.0185***	.0183***
				(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Inflation					-.0004	-.0001	.0001***	.0001***	.0001***
					(0.849)	(0.816)	(0.000)	(0.000)	(0.000)
GDP Growth						.0002***	-.0001	.0001*	.0001*
						(0.000)	(0.616)	(0.086)	(0.099)
Policy Rate							-.001***	-.001***	-.001***
							(0.000)	(0.000)	(0.000)
M3/GDP								-.005**	-.007
								(0.011)	(0.738)
Currency Basket Growth									.0249***
									(0.000)
MP Dummy									.0101***
									(0.000)
Constant	-.534***	-.534***	-.548***	-.544***	-.553***	-.563***	-.564***	-.531***	-.603***
	(0.029)	(0.029)	(0.029)	(0.029)	(0.029)	(0.034)	(0.033)	(0.036)	(0.034)
R^2	0.24	0.24	0.24	0.24	0.24	0.25	0.25	0.25	0.25
Observation	144.597	144.597	144.597	144.597	144.597	144.597	144.597	144.597	144.597
Number of Firms	27.120	27.120	27.120	27.120	27.120	27.120	27.120	27.120	27.120

P-values are in parentheses and ***, **, * denote significance levels at 1%, 5% ,and 10%, respectively

Table 6: Fixed Effect Analysis on Financial Debt-Based on TC Balance

Dependent Variable	Total bank loans and debt securities									
Classification	Trade Credit Negative Firms					Trade Credit Positive Firms				
Time Period	1996-2016	1996-2002	2003-2016	2003-2016	2003-2016	1996-2016	1996-2002	2003-2016	2003-2016	2003-2016
Liquidity	.0105	-.0243	.0011	.003	.001	.032***	-.062	.033**	.025**	.024**
	(0.134)	(0.589)	(0.699)	(0.703)	(0.837)	(0.000)	(0.140)	(0.019)	(0.019)	(0.021)
ROA	.063*	.057	.575*	.099*	.104*	.042*	.038	.0297	.0264	.0275
	(0.069)	(0.170)	(0.068)	(0.070)	(0.056)	(0.051)	(0.356)	(0.108)	(0.116)	(0.102)
Size	.0526***	.008	.053***	.042***	.036***	.054***	.014	.054***	.046***	.044***
	(0.000)	(0.286)	(0.000)	(0.000)	(0.000)	(0.000)	(0.226)	(0.000)	(0.000)	(0.000)
Tangible Assets	.123***	.167***	.123***	.127***	.129***	.172***	.066	.142***	.155***	.155***
	(0.000)	(0.004)	(0.000)	(0.000)	(0.000)	(0.000)	(0.300)	(0.000)	(0.000)	(0.000)
Own Fund	-.395	-.371***	-.391***	-.449***	-.452***	-.303***	-.199***	-.303***	-.304***	-.304***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
FC	.039***	-.184	.051***		.091***	-.0003	-.346	.011		.0195
	(0.000)	(0.110)	(0.000)		(0.000)	(0.968)	(0.342)	0.267		(0.128)
FC Lagged					.129***					.084***
					(0.000)					(0.000)
GDP Growth	-.0002	.0103	-.0002	-.0007***	-.001***	.0004***	-.0013	.0001	.0001	.0001
	(0.558)	(0.372)	(0.286)	(0.000)	(0.000)	(0.360)	(0.368)	(0.410)	(0.635)	(0.418)
Inflation	-.0003**	-.0002	.0001***	.001**	.001**	.0001	-.0016	.0001	.0001***	.0001***
	(0.046)	(0.838)	(0.002)	(0.013)	(0.129)	(0.542)	(0.222)	(0.194)	(0.002)	(0.001)
MP Dummy	.0130***		.0125***	.0130***	.0156***	.009***		.009***	.009***	.011***
	(0.000)		(0.000)	(0.000)	(0.000)	(0.000)		(0.000)	(0.000)	(0.000)
Constant	-.506***	-143*	-.339***	-.508***	-.339***	-.600***	-101***	-.517***	-.403**	-.516***
	(0.051)	(0.092)	(0.053)	(0.050)	(0.053)	(0.034)	(0.015)	(0.047)	(0.025)	(0.047)
R^2	0.32	0.20	0.31	0.31	0.30	0.25	0.12	0.25	0.25	0.25
Observation Count	92.142	4.552	87.729	87.729	62.041	60.158	3.385	56.868	56.868	38.593
Number of Firms	15.590	3.330	15.393	15.393	13.647	11.975	2.426	11.727	11.727	9.829

P-values are in parentheses and ***, **, * denote significance levels at 1, 5, and 10 percent, respectively

V. Conclusion

The data and the empirical findings reveal the importance of foreign savings by demonstrating that it contributes to financing non-financial sector. However, excess supply of credit can result in excessive leverage and the related vulnerabilities, as experienced recently. Since the CBRT has no influence on foreign MP choices, it implies that as the real sector's dependence on foreign capital for financing continues, business operations such as borrowing and investment, and naturally growth may be vulnerable to foreign country policy shocks.

[14]Currency growth variable is calculated using currency basket, consists of 50 percent USD/TL plus 50 percent EUR/TL exchange rate.

[15]They find that small firms offer more TC to increase sales and stay competitive. Long et al., (1993) argues that small firms lack the reputation, which large firms have built over time, therefore their product quality is subject to verification and requires extra TC offering.

Foreign capital though seems to have benefited the real sector by providing financing. But, it can lead to a credit boom which may end with a bust. Therefore, it is necessary for monetary authorities to take cautionary steps aiming at providing long term solutions to financing issues of SMEs; hence they are not tempted to take advantage of loose monetary conditions.

Most firms, borrowing in a foreign currency have little revenue denominated in the same foreign currency, which significantly increases their exposure. Therefore, real sector's leverage decision should be regulated and monitored. This is particularly true for borrowing in a foreign currency, while allowing reasonable financial flexibility to maintain a healthy growth level is a must.

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