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The Impact of Selected Macroeconomic Variables on The Balance Sheets of Manufacturing Sector in Turkey

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ABSTRACT

This study aims to analyse the impact of selected macroeconomic variables on the balance sheets of the firms in the manufacturing sector in Turkey. Within the framework of this study, the impact of macroeconomic variables such as labor force participation rate, real exchange rate and discount rate on Z score value calculated according to the ratios obtained from the Central Bank of the Republic of Turkey's manufacturing sector balance sheets has been examined for the period of 1996-2015. Z score value has been calculated based on the variables obtained from the manufacturing sector balance sheets prepared by the Central Bank of the Republic of Turkey including working capital to total assets, retained profits to total assets, profit before interest and taxes to total assets, debt-equity ratio. Macroeconomic variables have been obtained from the Electronic Data Delivery System (EVDS) of the Central Bank of the Republic of Turkey.

KEYWORDS: ***Z score, Balance Sheet Ratios, Discount Rate, Real Exchange Rate, Labor Force Participation Rate***

INTRODUCTION

There is a close relationship between the investment decisions of firms, their financial methods and the development of an economic level on which they operate and macro policies. The studies analysing the firm-based microeconomic roots of the macroeconomic developments put forth the close interrelation between these two branches of the economy. The balance sheet values of the firms operating in the manufacturing sector enable us to follow the effects of macroeconomic policies on the manufacturing sector while providing indicative data for the economic orientation. The fact that the liquidity and total demand tightened by 2008 global financial crisis became indicative on balance sheet values by restricting the investment and borrowing opportunities of the firms led the researchers to focus on such studies. Poor macroeconomic conditions decrease the profit and incomes of the enterprises (including banks) and cause the income of the household and net value of enterprises to increase slowly and sometimes decrease (BIS, 2011:5). While the impaired balance sheets affect the expenditures and total demand in the short term, they become indicative for total supply by hindering the capital in the long term (Agenor and Montiel, 2015:173).

During their operating cycle, the firms encounter global risks, country risks, sector-based commercial risks and firm-based financial risks. In financial structure analyses, firm-based risks and their effects on balance sheet are tried to be calculated by taking different ratios into

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consideration. In the quality analysis of the ratios in this study, Z score method developed technically by Altman (1968) was used. Within this framework, the impact of the macroeconomic variables such as labor force participation rate, real exchange rate and discount rate on the balance sheets ratios of the firms operating in the manufacturing sector including working capital to total assets, retained profits to total assets, profit before interest and taxes to total assets, debt-equity ratio of Turkey for the last twenty years since 1996 was examined.

In the first section of the study, the macroeconomic developments and manufacturing sector firm balance sheets were put forth within the years 1996-2015. In the second section, a relevant literature analysis was provided. In the third section, the model showing the relationship between the macro indicators and balance sheet indicators was explained. In the last section, the results obtained from the research were presented.

1. MACROECONOMIC DEVELOPMENTS AND MANUFACTURING SECTOR FIRMS' BALANCE SHEETS

1996 was the year when Turkey experienced positive developments in terms of growth. During this period an increase was observed both in export income and import rate. 1996 was the year when Turkey became a member of the Customs Union (TCMB, 1996-1998: 7). In 1997, an increase was observed in economic growth. In this year of the manufacturing industry, total assets increased by 7%, foreign resources by 9% and equities by 2%. The net sales of the sector increased by 14% especially with the increase in the sales of the private firms. The share of pre-tax profit decreased in 1997. The sector owned 54% of the pre-tax profit (TCMB, 1996-1998: 37-48). In terms of economic growth, 1998 refers to a period when a slowdown and shrinkage was observed compared to the previous year. It is possible to conclude that the slowdown observed in the added value of the manufacturing industry during the second quarter of the year may be said to have an effect on this process. In all manufacturing industry sub-areas except for food and machine, shrinkage was observed during January-September. With the increase in financial costs resulted from Asia and 1998 Russia crisis, domestic borrowing interest rates increased in June while inflation rates decreased (Kalkınma Bakanlığı, 1998).

Due to the effects of 1999 Marmara Earthquake, the annual GDP increase rate with fixed prices decreased to -3.37%. In the mentioned year, the manufacturing sector had a share of 24% within the GDP. The share of the manufacturing sector within the total assets decreased from 46% to 45% in 1999. In the previous year, a decrease was also observed in the share of manufacturing firms within the net sales and the mentioned rate decreased from 28% to 25%.

While the manufacturing sector firms had 49% of the total equity and 44% of the pre-tax profits, these rates decreased to 48% and 34% respectively in 1999. During the finance crisis of November 2000, foreign assets went into a decline because of the outflow of foreign currency and the increase in the exchange rate became more visible during the finance crisis of 2001. While the share of their equities decreased within the total resources of the private and public institutions operating in the manufacturing industry during 1998-1999, the share of foreign resources increased. The equities failed to fulfil the fixed assets. On the other hand, because of their borrowing structures, no significant change was observed during the aforementioned period and the rate of short term debts remained at 75%. While the pre-tax profits of the private firms operating in manufacturing sector decreased, the pre-tax profits of the public sector increased during 1997-1999 (TCMB, 1997-1999: 4-51).

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The shrinkage in bank credits caused by the currency constraints led the crisis to spread from the finance to the real sector (Kepenek and Yentürk, 2010: 593). Towards the end of 2000, the fixed exchange rate regime was given up. While the exchange rate was left to fluctuate, shrinkage was observed in domestic demand and TRY lost value. The high amount of increase in credit interests created negative effects on the production and investment decisions of the firms. In 2001, the real sector firms whose sales decreased by 4.7%, their assets by 15% and equities by 30% experienced significant real losses (TCMB, 2000-2002: 13-15). The research carried out by İstanbul Chamber of Industry on five hundred industrial institutions showed that the Non-operating Profit rate exceeded 80% within the total profits of the industrial institutions in 2001. This result implies that the firms tend towards speculative profits instead of real manufacturing (Acar, 2013: 17). Following the Crisis of 2001, Turkey displayed a growth conjuncture in 2002, 2003 and 2004 within the framework of "Transition Program of Turkey to a Strong Economy" (Voyvoda, 2012:1). With the provision of external source and inflation aim, inflation and real interests decreased. Because of these changes, the sales of the manufacturing sector increased by 1000/1, equities by 30% and assets by 15.6%. The firms got pre-tax profit that amounted to 4% of their net sales. The developments observed in 2000-2002 reveal the reflection of economic balances on firm behaviours (TCMB, 2000-2002: 14-17).

During 2003-2005, Turkey's economy entered into an integration process with EU and hence inflation and interest rates decreased with the effects of tight money and financial policies as well as structural reforms. As a result, the economy gained a quick growth trend. During these years, manufacturing and trade sectors provided significant contributions to this quick growth trend. In 2005 when growth increased in a slower manner, TRY gained value against foreign currency. In this year, the share of tangible fixed asset in the fixed assets of the manufacturing industry was 72.1% while its share in total assets was 32.5%. The way the tangible fixed assets determining the manufacturing capacities are financed is highly important for liquidity and financial structure. The realization of tangible fixed asset/equity rate as 61.3% for the manufacturing industry in 2003 implies the sufficiency of the equity. Domestic and foreign sales generally decreased with fixed prices in the manufacturing industry in 2005. In this year, while the financing expenditures decreased by 29.4% with fixed prices, the pre-tax profits decreased by 24.8% with fixed prices (TCMB, 2003-2005: 13-19).

In 2006, it was observed that the growth continued in a slower manner in all the sectors while it quickened in the manufacturing sector. As of the second half of 2006, TRY lost value and the interests increased. As a result of the mobility observed in the exchange rates, PPI-based inflation quickened in 2006 after a slowing tendency observed in previous years. The upward growth trend continued until 2007; a financial discipline was established and the inflation rate decreased. In addition, increase occurred in export and production. Because of the global finance crisis of 2008, Turkey's economy experienced a difficult year, for the effects of the crisis got more intense in the real sector when compared to the finance sector (Acar, 2013: 17). During 2008-2010 when the global crisis shaped macroeconomic developments, the firms in the manufacturing sector met their resource needs from equities rather than external resources. Due to the shrinking foreign demand, the firms in the manufacturing sector oriented themselves towards domestic demand and the net sales of the total manufacturing sector displayed increase in real basis (TCMB, 2008-2010: 24).

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In 2009, the growth of Turkey's economy continued in a slower way. During the mentioned period, a regression was observed in the sales of manufacturing sector firms and the sector's total assets decreased by 1% in real terms. It is also seen that the share of equity and financing increased in the same year. In 2010, after the grade increase of the international ratings bureau, Turkey's economy returned back to its high growth trend. In this period, the budget deficit decreased, inflation remained at the aimed level and the interest rate decreased a little compared to the previous year. At the beginning of 2010, TCMB decreased the overnight borrowing interest and fixed the overnight lending interest as of the end of the year and hence the gap between the borrowing and lending interest levels got enlarged. In this way, TCMB aimed to enable the overnight forward interest to be determined in a larger gap and wanted to change the direction of the tendency towards very short forward financial investments. The increasing portfolio investment and decreasing exchange rate started to rise again at the end of the year (TSPAKB, 2010: 3,15).

In 2010, while the total assets of the firms operating in the manufacturing sector increased by 8.4% in real terms, the share of financing and equity decreased in asset financing and the share of external sources increased. The ratio of credits to the overseas sales incomes in terms of short-term forward foreign currency is accepted as one of the exchange rate determiners that the firms encounter. In 2010, the overseas sales income of the short-term foreign currency cash credits used by the manufacturing industry decreased to 13.6% by losing 1.6 point. The increase in the sales of the firms operating in the manufacturing sector in 2010 was responsible for this decrease. The equity profitability of the whole manufacturing sector increased from 7.2% (2009) to 9.8% in 2010. Earnings before interest and tax (EBIT) / total liabilities used as an indicator for evaluating the profit increasing opportunities through new borrowings increased from 7.8% value of the previous year to 8.1% in 2010. With the regressions in the interest rates, the share of the financing expenditures within the net sales decreased. Based on the decrease in costs, the margins of profit before tax (PBT) increased in both 2009 and 2010 (TCMB, 2008-2010:15-23).

As of 2011, a slowdown was observed in the growth rate of Turkey's economy. The growth rate of Turkey's economy for 2010, 2011, 2012 was recorded as 9.2%, 8.8% and 2.1% respectively. The inflation rates of 2010, 2011 and 2012 were realized as 6,4, 10,5 and 6,2 respectively. In 2011, real exchange rates lost in value. In the same year, net sales of the manufacturing industry increased by 18.4% while the increase was 2.0% in 2012. The manufacturing industrial firms increased their assets by 3.7% in 2011 and 9% in 2012. In the general part of the manufacturing industry, the share of equity and financing decreased in 2011 and started to increase again in 2012. While the share the short-term foreign currency cash credits used by the manufacturing industry within the overseas sales income amounted to 13.6% in 2011, it was realized as 16% in 2012. While the net profit / equity ratio representing the equity efficiency of the firms was 8.9% in 2011, it increased to 10.7% in 2012. Earnings before interest and tax (EBIT) / total liabilities used as an indicator for evaluating the profit increasing opportunities through new borrowings, on the other hand, decreased to 8.1% in 2012, compared to its value of 9.3% in 2011. When the profit before tax margins of the manufacturing sector firms is examined, it is seen that the profit margins decreased in 2011 while they increased in 2012 (TCMB, 2010-2012: 33).

The growth rates recorded for Turkey's economy for 2013 and 2014 were %4,1 and %2,9 respectively. 2014 was the year when Turkey did not manage to reach its growth and inflation aims and the interests escalated when the Monetary

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Policy Committee Meeting of January 2014 restricted domestic demand. In this year, while import got tightened based on the escalating exchange rate, economy grew by external demand-based export increase (EBSO, 2015: 41). With the revival in foreign sales, the net sales of the manufacturing industry increased by 7.4% in 2013 while it increased by 1.5% in 2014 due to the slowdown observed both in domestic and foreign sales. When the asset profile of the firms in the manufacturing sector was examined, it was seen that the real asset increase rate of 2013 decreased to 5% levels in 2014. The commercial debts /financing ratio of these escalated assets in the manufacturing sector increased again in 2014. Earnings before interest and tax (EBIT) increased from its value of 8.3% in 2013 to 9.4% in 2014. Equity profitability (net profit (equities) was 7.9% and it increased to 13.0% in the following year (TCMB, 2012-2014: 15-22). In 2015, the growth rate of Turkey rose to 4.0% by increasing 1 point as foreseen in Medium-Term Program. As of the end of 2005, the added value of the manufacturing industry increased by 3.8% when compared to the previous year. In this year, inflation was realized above the targeted level and cumulative increases were recorded in the exchange rate (TOBB, 2015: 32-84).

2. LITERATURE REVIEW

According to Gray and Stone (1999), there are three operational tools used in the correlation analysis between macro-economy and corporate sector. The first group represents such simple financial indicators as the ratio of corporate debts to the equity and the ratio of debts to the assets. These indicators represent the fragility of the institutions against macroeconomic shooks. It was observed that the ratio of debts to the equity was very high before the Asian Crisis of 1998. According to Gray and Stone, corporate profit simulation is the second tool for evaluating the effects of the changes in key financial variables on profitability. The study showed that profit simulations as well as the macroeconomic shocks triggered by Asian crisis had significant effects on the firms' balance sheets. The third tool is EVE (Economic Value Estimate). EVE method is based on the idea that the economic value of the corporate sector is equivalent to the current value of the obtained profit and that the current or future investments should be discounted in accordance with discount rates arranged according to risks. Discount rate factors refer to the changes of country risk premia, domestic interest rates and stock risk premia, all of which are affected by macroeconomic conditions. Applying the EVE model to the Asian countries showed that actual and potential shocks turned a corporate sector into an instable condition.

Schmukler, Vesperoni (2001), prepared a big panel for the firms in East Asia and Latin America. The seven, escalating market economies consisting of Argentine, Brazil, Indonesia, Malaysia, Mexico, South Korea and Thailand were analysed for the periods of 1980's and 1990's. The explanatory variables were listed under four groups. The first group denotes the characteristics of the firm, the second group includes the macroeconomic variables while the third and the fourth group refers to the access to international capital markets and the country effects respectively. In the study, the effects of global developments on financial preferences were examined with the panel regression method. The change of deleverages, debt maturity structure and the financial sources observed when the economy got liberated and the firms were integrated into the international capital markets was examined. The findings show that debt/ equity ratio does not change during the liberalization process, the debt term of local firms entering into international capital markets gets longer, the financial liberation has less effect on the firms in countries with a more developed

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financial system and that the deleverage increases during crisis periods.

Bonomo, Martins, Pinto (2003), examined the correlation between the macroeconomic environment and firm balance sheets in Brazil in 1990. Firstly, they analysed the effect of macroeconomic conditions on the debt composition of the firms and concluded that the bigger firms were more inclined to change their debt composition against the exchange rate risk. In addition, they examined whether there exist exchange rate balance sheet effects and their (if exists) effects on the investment decisions of the firms. In the simple regression analysis, sales ratio (to the capital) and cash flow ratio (to the capital) were taken into consideration. It was concluded that the effects of exchange rate balance sheet were not significant for explaining the investment decisions. However, it was found out that they made less investment as the exchange rate decreased in the industries using imported output.

Carling, Jacobson, Lindé, Roszbach (2003), examined the relationship between the real activity and financial situation of the ten year period between 1990 and 1999 by the panel data set of Swedish Stock Companies consisting of 7,652,609 observations and quarter data. The micro data used in the analysis are composed of the total of EBITDA (Earnings Before Interest, Taxes, Depreciation, And Amortization), Total Assets, Total Liabilities, Liquid Assets, Stocks, Total Sales, Net interest payments for the Debts and extraordinary net income. If there is no dividend payment, dummy is 0; if there is dividend payment it is 1. If dummy is 1, analyses were carried out on the basis of non-performing loan, bankruptcy request, issuance of a court order for debt payment and sub-criteria such as seizure of property. The macro data analysed between the period of 1986Q3 − 2002Q4 include such data offered by Lindé (2002) as GDP's deficit, annual inflation rate, REPO nominal interest rate and real exchange rate. In order to reveal whether financial indicators affect real economy, VAR analysis was made. A default risk model was predicted on firm level. For the balance sheet rates, a dynamic panel VAR was predicted. Macro data were added in order to test the relative importance of the shocks. According to the results of the study, real economy is not exogenous for the examined financial variables. While the micro data play a significant role in the classification of the firms, they cannot explain the absolute default risk. Macroeconomic variables are important for determining the default risk considered absolute on firm level.

Gönenç et al. (2003), measured the exchange rate pressure on the balance sheets of Turkish Industry during 2000-2003 by means of a regression analysis. They concluded that the firms having a balance sheet effect decreased their investments as TRY lost value. In addition to that, they showed that there existed a positive correlation between the value of the firm and its investments.

Jacobson et al. (2005) examined the relationship between the balance sheets of Swedish firms and the development of Swedish economy and concluded that macroeconomic variables were important for explaining the changing default frequency. Kohsaka, Enya (2005), examined the sudden rise and fall process in asset prices like the one experienced in Asian Pacific economic crisis of 1990's and Asian economic crisis of 1997. After that, balance sheet developments of corporate, household, financial and public sector were observed during two periods in terms of price increase and decrease respectively. Due to different development processes, it was seen that each sector displayed different responses and macroeconomic behaviours. The macroeconomic policies adopted in the balance sheet adjustments during the Asian crisis of 1997 were analysed. In addition, some correlation patterns between price

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shocks and macroeconomic variables of the Pacific regions were identified.

Kesriyeli et al. (2005), examined the reasons of liability dollarization of non-financial sectors in Turkey as well as the results of balance sheet effect by using the Company Account data bases prepared by the Central Bank of the Republic of Turkey. The results obtained from panel EGLS and GMM methods reveal that both sector specific variables such as tangible asset, leverage rate, export share and macroeconomic conditioned variables including inflation, real exchange rate change, budget deficits and trust are significant for explaining the corporate sector debt dollarization. In addition, they showed that the macroeconomic instability accepted as an indicator for budget deficits and inflation has a significant negative effect on non-financial firm investments, sales and profit performances.

Irungu (2010), analysed the relationship between the accrues obtained from the balance sheet and financial statements of fifteen firms registered in NSE and such macroeconomic variables as inflation, interest, money supply and exchange rate between 2005-2009 and the findings revealed a poor relation between the data. Meh and Moran (2010), assumed that within the frame of Dynamic Stochastic General Equilibrium model, the capital structures of the banks affected the ability to withdraw loanable funds and hence the worker efficiency and the firms activities through the capital transfer channel.

Mishra (2013), analysed the relationship between the balance sheet validity (according to Z score model) of the firms operating in the manufacturing sector in India during 1990-2009 and macroeconomic variables. The obtained macroeconomic variables include bank rate, GDP, inflation and trade openness. The long term relations were defined by means of panel unit root test, panel co-integration analysis and panel long term causality. The findings of the study revealed the bidirectional causality relation between Z score and GDP, Z score and Bank rate, Z score and SLAY and Z score and trade openness.

Giroud and Mueller (2015), researched whether the balance sheets of the companies play a role in the dissemination of consumer demand shocks during Great Depression. The results indicate that the job loss observed during the Great Depression resulted from the interrelation between the decreasing consumer demand and the poor balance sheets of the firms.

3. DATA ANALYSIS AND STATISTICAL METHOD

This study aims to identify the macroeconomic indicators affecting balance sheet size (performance) of the firms operating in Turkey's manufacturing industry. For this reason, the study first obtained the firms' balance sheet performance values and then tried to determine whether there exists a correlation between various macroeconomic indicators (labour force participation rate, real exchange rate and discount rate) and balance sheet performance by means of multiple regression analysis. In order to identify the balance sheet performance values, working capital, retained profits, profit before and debt-equity ratio indicators were used. With these aforementioned variables, Explanatory Factor Analysis was carried out. In explaining the factor structure, Principal Components Method expected to provide information on maximum variance of all the variables was adopted. Z-scores obtained from this analysis were accepted as values that represent the average balance sheet size (performance) and the following regression analyses were made by turning the values of this variable into T-scores. The data used in the study refer to the period between 1996-2015 and was obtained from Turkish Republic Central Bank's data bank. In line with the results obtained from the analyses, the annual change in the balance

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sheet performances of the firms in Turkey's manufacturing sector was examined.

A. Factor Analysis of the Balance Sheet Performance

In this section, the results of Factor Analysis including working capital, retained profits, profit before and debt-equity ratio variables were evaluated in order to determine the values to be obtained to measure the balance sheet performance. The result outputs of this analysis are given below in Table 1.

Table 1: Factor Analysis Result Table

Item No	Name of Value	Factor Loading
1	Working Capital	0.916
2	Retained Profits	-0.710
3	Profit Before	0.850
4	Debt-Equity Ratio	0.932
	Eigen Value	2.933
	% of Variance	73.334

Bartlett's Test of Sphericity: Chi-Square (846,32),Prob.(0,000)
Kaiser-Meyer-Olkin Measure of Sampling: 0,582

As a result of factor analysis, the variables were summed under one factor (Table 1). When the factor loading of these variables summed up under this factor is examined, it is seen that the most important variable is debt-equity ratio. The factor loading of this variable is very high (0,932).

Another important variable with a high factor loading (0,916) is working capital. Profit before variable together with these two variables have a positive effect on the factor representing the balance sheet performance. The second item given in Table 2 and showing the retained profits of the enterprise is in a negative relationship with the balance sheet performance. It is possible to conclude that the retained profits of an enterprise affect the balance sheet performance in a negative way. It has been seen that the eigenvalue statistics of the balance sheet performance factor is above 1. As a result, it is possible to mention that this factor is significant in terms of representing and measuring the balance sheet size. When the explaining percentage of the factor is examined, it is seen that the variance-explaining rate is 73%. This means that variables are successful in terms of explaining the factor.

B. Analysis of the Effect of Macro Economic Variables on Balance Sheet Performance Through Regression Analysis

In the previous section, a factor analysis was made in order to identify the firm performance and Z-scores were obtained. Turning the Z-scores into T-scores (TS) whose average point is 50 and standard deviation point is 10, an index variable concerning balance sheet performance was obtained. The transformation operation of T-scores was carried out by using the equation of T=(50+Z*10). Three separate models in which T-Score was an independent variable was predicted. These models are linear, full logarithmic and linear logarithmic while their functional structure is as follows:

$$Y_t = \beta_0 + \beta_1 X_{1t} + \beta_2 X_{2t} + \beta_3 X_{3t} + \varepsilon_t \quad \text{(model 1)}$$

$$Y_t = \beta_0 \, {X_{1t}}^{\beta_1} {X_{2t}}^{\beta_2} {X_{3t}}^{\beta_3} {e_t}^{\varepsilon_t} \quad \text{(model 2)}$$

$$Y_t = \beta_0 + \beta_1 lnX_{1t} + \beta_2 lnX_{2t} + \beta_3 lnX_{3t} + ln\varepsilon_t \quad \text{(model 3)}$$

The variables of the models are defined as follows:

$1t$: Labour Force Participation Rate-LRFP
$2t$: Real Exchange Rate- RER
$3t$: Discount Rate- DR

As Model 1 and Model 3 are linear, prediction method can be applied to these models directly. For Model 3, on the other hand, the prediction of parameters will be carried out after taking the logarithm of all variables, in order words making the model linear. The coefficients of three models

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were predicted through Ordinary Least Squares (OLS). Estimation results of these three models taking labour force participation rate, exchange rate, discount as independent variable are given in Table 2. When the results of the analysis are examined in general terms, it is seen that the estimated parameters are significant for all models at 1% and 5% levels. The values given in parenthesis under parameter values show standard errors. All of the explanatory variables have positive effect on balance sheet performance. This means that the increase in labour force participation, exchange rate and discount rate respectively increases balance sheet performance.

Table 2: Table Showing the Regression Results of Balance Sheet Performance

Model 1 - (TS)			Model 2 - log(TS)			Model 3 – TS		
Values	Parameter	Prob.	Values	Parameters	Prob.	Values	Parameters	Prob.
	-						-	
Constant	149.1196*	0.0003	Constant	-17.7020*	0.0017	Constant	956.7261*	0.0006
	(32.6451)			(4.7082)			(226.5592)	
LFPR	3.1283*	0.0000	Log(LFPR)	5.2468*	0.0003	Log(LFPR)	243.6969*	0.0005
	(0.5693)			(1.1533)			(55.4987)	
RER	13.1265*	0.0023	Log(RER)	0.1311**	0.0393	Log(RER)	6.1708**	0.0433
	(3.6244)			(0.0584)			(2.8118)	
DR	0.6246*	0.0000	Log(DR)	0.2710*	0.0022	Log(DR)	13.7232*	0.0014
	(0.1098)			(0.0742)			(3.5736)	
Observation (N)	20		Observation (N)	20		Observation (N)	20	
R^2	0.8283		R^2	0.7070		R^2	0.7142	
F-test	25.7397		F-test	12.8697		F-test	13.332	
Prob.(F)	0.0000		Prob.(F)	0.0001		Prob.(F)	0.0001	

* and ** refer to coefficients significant at 1% and 5% levels respectively.

However, these effects are not at the same level for different models. When we examine Model 1, it is seen that the most important variable is real exchange variable. However, this variable is relatively less significant for model 2 and model 3 when compared to model 1. For model 2 and 3, the most important variable is labour force participation rate. While 1% increase in labour participation rate increases balance sheet performance by 5% for model 2, 1% increase in this variable for model 3 increases balance sheet performance index (243/100) by about 2.4 point. Among all models, model 3 is the one for which the effect of exchange rate is the least. 1% increase in exchange rate increases the balance sheet performance index (6.17/100) by about 0.06 point. When we look at the models, it is obvious that the effect of all variables on balance sheet is positive.

REFERENCES

1. Acar F. (2013), Türkiye Ekonomisine Genel Bakış (A General Outlook of Turkey's Economy) (2001 - 2013), ÇSGB, Çalışma Dünyası Dergisi, Volume 1, No 2, pp. 15-32.
2. Agenor R. P., Montiel J. P. (2015), Development Macroeconomics, Princeton University Press, Oxford.
3. Altman I. E. (1968), Financial Ratios, Discriminant Analysis and The Prediction of Corporate Bankruptcy, The Journal of Finance, Volume 23, Issue 4, pp. 589–609.

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4. BIS, Basel Committee on Banking Supervision (2011), The transmission channels between the financial and real sectors: a critical survey of the literature, Working Paper No. 18.
5. Bonomo M., Martins B., Pinto R. (2003), Debt Composition and Exchange Rate Balance Sheet Effect in Brazil: a Firm Level Analysis, Emerging Markets Review, 4 (2003), pp. 368–396.
6. Carling K., Jacobson T., Lindé J., Roszbach K. (2003), Exploring relationships between Firms' Balance Sheets and the Macro Economy, Riskbank, pp. 1-42.
7. EBSO (2015),2014 Yılında Türkiye, Dünya Ekonomisi 2015 Yılından Beklentiler, Ekonomi Raporu.
8. Giroud X., Mueller M. H. (2015), Firm Leverage, Consumer Demand, and Unemployment during the Great Recession,http://www.mit.edu/~xgiroud/GR.pdf, Accessed: (23.02.2017).
9. Gönenç H., Buyukkara Z., G., Koyuncu O. (2003), Balance Sheet Exchange Rate Exposure, Investment and Firm Value: Evidence from Turkish Firms, Central Bank Review, Vol. 3, Issue 2, pages 1-25.
10. Gray F. D., Stone R. M. (1999), Corporate Balance Sheets and Macroeconomic Policy, Finance and Development, A quarterly Magazine of the IMF, September 1999, Volume 36, Number 3.
11. Irungu, A., M. (2010), The relationship between selected macroeconomic variables and earnings management for companies quoted at the NSE, http://erepository.uonbi.ac.ke:8080/handle/123456789/5453 (11.02.2017).
12. Jacobson, T, J Linde and K Roszbach (2005): "Exploring interactions between real activity and the financial stance", Journal of Financial Stability, vol 1, no 3, pp 308–41.
13. Kalkınma Bakanlığı, Ekonomik Kalkınma, Aralık 1998.
14. Kepenek Y., Yentürk N. (2010), Türkiye Ekonomisi (Turkey's Economy), 23rd Edition, Remzi Publishing House, İstanbul.
15. Kesriyeli M., Özmen E., Yiğit S. (2005), Corporate Sector Debt Composition and Exchange Rate Balance Sheet Effect in Turkey, TCMB, Research and Monetary Policy Department Working Paper No:05/16
16. Mishra P. S. (2013), Relationship Between Macroeconomic Variables and Corporate Health of Manufacturing Firms in India, Journal of Quantitative Economics, Vol. 11 Nos.1&2 (Combined), pp. 230-249.
17. Meh, C. and Moran K. (2010), "The Role of Bank Capital in the Propagation of Shocks", Journal of Economic Dynamics and Control, 34(3), pp. 555-576.
18. Schmukler S., Vesperoni E. (2001), Globalization and Firm's Financing Choices: Evidence from Emerging Economies, IMF Working Paper, WP/01/95.
19. TCMB (1996-1998), Sektör Bilançoları Değerlendirme Raporu, TCMB İstatistik Genel Müdürlüğü.
20. TCMB (1997-1999), Sektör Bilançoları Değerlendirme Raporu, TCMB İstatistik Genel Müdürlüğü.
21. TCMB (2000-2002), Sektör Bilançoları Değerlendirme Raporu, TCMB İstatistik Genel Müdürlüğü.
22. TCMB (2003-2005), Sektör Bilançoları Değerlendirme Raporu, TCMB İstatistik Genel Müdürlüğü.
23. TCMB (2008-2010), Sektör Bilançoları Değerlendirme Raporu, TCMB İstatistik Genel Müdürlüğü.

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DOI: 10.18535/afmj/v2i5.05
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24. TCMB (2010-2012), Sektör Bilançoları Değerlendirme Raporu, TCMB İstatistik Genel Müdürlüğü.
25. TCMB (2012-2014), Sektör Bilançoları Değerlendirme Raporu, TCMB İstatistik Genel Müdürlüğü.
26. TOBB (2015), Ekonomik Rapor, https://www.tobb.org.tr/Documents/yayinlar/2016/72GK/72GenelKurulEkonomikRapor2015.pdf
27. TSPAKB (2010), Turkish Economy, https://www.tspb.org.tr/wpcontent/uploads/2015/06/AIM_Yayin_ve_Raporlar_Yillik_Yayinlar_2010_ekonomi2010.pdf
28. Voyvoda E. (2012), Türkiye Ekonomisinde Kamu Maliye Politikaları ve Büyüme İlişkisi Üzerine Bir Değerlendirme (An Analysis on the Relationship between Public Monetary Policies and Growth in Turkey's Economy), Turkish Economic Institution, Discussion Text 2012/72.

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DOI: 10.18535/afmj/v2i5.05
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