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CAPITAL STRUCTURE AND FIRM PERFORMANCE: AN ANALYSIS OF MANUFACTURING FIRMS IN TURKEY

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Abstract

Capital structure is one of the most important issues for firms in order to achieve better financial and market performance. The main objective of this study is to examine the relationship between capital structure and firm performance. We investigate 130 manufacturing firms listed on Borsa Istanbul for the period of 2008-2013 using panel data analysis. We utilize short term debt to total asset (STDTA) and long term debt to total asset (LTDTA) as proxies of financial leverage (independent variables). Return on equity (ROE), return on asset (ROA), earnings per share (EPS) and Tobin's Q ratio were used as proxies of firm performance (dependent variables). Sales growth rate and firm size were used as control variables in the study. We find that STDA has a significant negative relationship with ROA, EPS and Tobin's Q ratio. Besides, we find that LTDTA has a significant negative relationship with ROE, EPS and Tobin's Q ratio, while it is positively and significantly correlated with ROA.

Keywords: Capital Structure, Return on Equity, Return on Asset, Earning per Share, Tobin's Q

1. Introduction

Capital structure has been one of the popular and the argumentative topics among the scholars in finance. Capital structure is defined as ''the mix of debt and equity financing'' Brealey *et al*. (2009, p.366). Capital structure theories enlighten to which extent debt is suitable and also explain if there is a relationship between the capital structure and the cost of capital as well as the value of the firm. Although there are some well-known and useful theories such as Modigliani-Miller theory, Trade off theory and Pecking Order theory regarding capital structure choice, ''there is no universal theory of the debt-equity choice, and no reason to expect one'' (Myers, 2001, p.81).

Choosing the appropriate capital structure is one of the important decisions of the financial management, as it is closely related to the value of the firm. A good decision of capital structure can affect financial performance and value of company, while a bad decision may lead to financial distress and eventually to bankruptcy Eriotis *et al*. (2007).

Considering the significance of capital structure decisions and probable impacts on the performance and value of firms, this study attempts to examine the relationship between capital

structure and firm performance of 130 manufacturing firms listed on Borsa Istanbul for the period 2008-2013.

The remainder of the paper is organized as follows: The following section gives a summary review of the related literature. Section 3 discusses methodology, Section 4 presents results and Section 5 provides discussion of the results.

2. Literature Review

Capital structure and how it influences firm value has been discussed by finance scholars and researchers for years. Modigliani and Miller (1958) were the first scholars to theorize the concept of capital structure. Their first theory was called “MM theory” or “Irrelevance theory”. MM theory was based on several key assumptions such as homogenous expectations, no taxes, no transaction costs, no bankruptcy costs, no insider information, and no retained earnings. Through these assumptions, they stated that the capital structure of a firm has not any relationship or irrelevant to its value. MM theory has been criticized for their unrealistic assumptions, since in the real world companies are compelled to pay taxes and financial markets are not perfect. Modigliani and Miller (1963) revised the basic propositions in their original theory by incorporating tax benefit as a determinant of capital structure. This theory suggests that firms should use more debt and try to benefit from the tax shield to increase the firm value.

Agency theory of Jensen and Meckling (1976) explains the relationship of principal (shareholders of the firm) with agent (managers or management of the firm) in the decision making process about capital structure. Agency problems between principal and agent play key role in optimal capital structure decisions. The conflict between shareholders and managers arises when the shareholders choose the manager as an agent in order to maximize their wealth, and the chosen agent may make decisions to pursue his own interests which may conflict with the best interests of the shareholders. Jensen (1986) suggests that this problem can be somehow controlled by increasing the stake of managers in the business or by increasing debt in the capital structure, thereby reducing the amount of “free” cash available to managers.

Trade-off theory suggests that optimal capital structure is achieved by using an optimal level of leverage where the benefits of debt in the form of tax shield obtained becomes almost equal to the costs of financial distress incurred by using debt (Myers, 2001). The trade-off theory predicts that safe firms, firms with more tangible assets and more taxable income to shield should have high debt ratios. While risky firms, firms with more intangible assets that the value will disappear in case of liquidation, ought to rely more on equity financing (Okuyan and Tasci, 2010).

Myers and Majluf (1984) introduced the pecking order theory, which incorporates the assumptions of information asymmetries and transaction costs. The pecking order theory claims that internal funds are used first and only when all internal finances have been depleted, firms will opt for debt. When it is not sensible to issue any more debt, they will eventually turn to equity as a last financing resource. Pecking order theory assumes that there is no optimal structure where companies prefer internal financing rather than external financing (Roshaiza and Azura, 1991). The theory argues that the highly profitable firms that generate high earnings are expected to use less debt capital than those that are not very profitable, which means that the financial leverage has a negative relationship with profitability.

Here are some of the findings of several recent studies which reveal conflicting results regarding capital structure and firm performance relationship.

Zeitun and Tian (2007) studied the effect the capital structure on corporate performance using a sample of 167 Jordanian companies during 1989-2003. They found that a firm’s capital structure had a significantly negative impact on the firm’s performance.

Using data from retailers in 14 European countries, Gleason and Mathur (2000) analyzed capital structure and its influences on firm performance. Using both financial and operational measures of performance, they found that the capital structure has a significant, negative impact on performance. This negative relationship suggests that agency issues may

lead to use of higher than appropriate levels of debt in the capital structure, thereby producing lower performance.

Khan (2012) studied relationship between capital structure decisions and firm performance on engineering sector of Pakistan during the period 2003-2009. The results show that financial leverage measured by short term debt to total assets (STDTA) and total debt to total assets (TDTA) has a significant negative relationship with the firm performance measured by Return on Assets (ROA), and Tobin's Q, while it has a negative and insignificant relationship with (ROE).

Margaritis and Psillaki (2010) investigated the relationship between capital structure, ownership structure and firm performance using a sample of French manufacturing firms over the period of 2003-2005. The study found that leverage has positive effect on firms' efficiency over the entire sample.

Using panel data consisting of 257 South African firms over the period 1998 to 2009, Fosu (2013) found that financial leverage has a positive and significant effect on firm performance.

Tianyu (2013) examined the impact of capital structure on firm's performance in both developed and developing markets. A sample of 1200 listed firms in Germany and Sweden and 1000 listed firms in China for the period 2003-2012 was used in his study. The study revealed that capital structure has a significant negative effect on firm performance in China, whereas significant positive effect in two European countries, (Germany and Sweden) before the financial crisis of 2008.

Salim and Yadav (2012) investigated the relationship between capital structure and firm performance. Analysis of 237 Malaysian firms listed on Bursa Malaysia Stock exchange during 1995-2011 indicate that firm performance, which is measured by ROA, ROE and EPS has a negative relationship with Short term debt (STDTA), long term debt (LTDTA), total debt (TDTA). Tobin's Q is reported to have a significant and positive relationship with STDTA and LTDTA.

Kabakci (2008) investigated the relationship between capital structure and profitability of listed firms in the Istanbul Stock Exchange during a six-year period. He found that the short term debt to equity and long term debt to equity has a negative relationship with ROE.

Toraman *et al*. (2013) analyzed the effects of capital structure decisions on financial performance. The study used a sample of 28 manufacturing companies listed on Borsa Istanbul over periods 2005-2011. The study found that there is a significant and negative relationship between short term debt to total assets, long term debt to total assets and ROA and insignificant relationship between total debt to equity ratio and ROA.

3. Methodology

The data of the study was obtained from the website of Public Disclosure Platform in Turkey. There are 190 manufacturing firms listed on Borsa İstanbul. From those 190 firms, 130 firms were selected on the basis of availability of Annual Reports of the period 2008-2013. Firm performance is the main response variable of the study and it is explored by four variables. ROE and ROA are used to measure financial performance, while EPS and Tobin's Q ratio are used to measure market performance.

ROE: Calculated by dividing a firms net income by its total equity.
ROA: Calculated by dividing a firms net income by its total assets.
EPS: Calculated by dividing a firms net income by its outstanding shares.
Tobin's Q: Calculated by dividing a firms total market value by its total asset value.

Capital Structure is the main explanatory variable and it has been explored by two financial ratios:

STDTA: Short term debt to total assets
LTDTA: Long term debt to total assets

Two variables are used as control variables:

Growth (Sales Growth Rate): (Current year's sales - Previous year's sales) / (Previous year's sales)* 100

Size (Firm Size): log of sales.

We test the following hypothesis:

H1:- There is a significant relationship between Short-term debt and ROE.

H2:- There is a significant relationship between Long-term debt and ROE.

H3:- There is a significant relationship between Short-term debt and ROA.

H4:- There is a significant relationship between Long-term debt and ROA.

H5:- There is a significant relationship between Short-term debt and Earnings per Share.

H6:- There is a significant relationship between Short-term debt and Earnings per Share.

H7:- There is a significant relationship between Short-term debt and Tobin's Q ratio.

H8:- There is a significant relationship between Long-term debt and Tobin's Q ratio.

We conduct multiple regression modelling by Stata 12.0 software package. Log linear model is used as most of the independent variables of this study do not exhibit linear relations with the dependent variables. In order to investigate or estimate the relationship between capital structure and a firm performance, we use the following regression models:

$$ROE_{it} = \beta_0 i + \beta_1 (STDTA)_{it} + \beta_2 (LTDTA)_{it} + \beta_3 (Growth)_{it} + \beta_4 (Size)_{it} + u_{it}$$

$$ROA_{it} = \beta_0 i + \beta_1 (STDTA)_{it} + \beta_2 (LTDTA)_{it} + \beta_3 (Growth)_{it} + \beta_4 (Size)_{it} + u_{it}$$

$$EPS_{it} = \beta_0 i + \beta_1 (STDTA)_{it} + \beta_2 (LTDTA)_{it} + \beta_3 (Growth)_{it} + \beta_4 (Size)_{it} + u_{it}$$

$$Tobin's\ Q_{it} = \beta_0 i + \beta_1 (STDTA)_{it} + \beta_2 (LTDTA)_{it} + \beta_3 (Growth)_{it} + \beta_4 (Size)_{it} + u_{it}$$

Hausman test, Breusch-Pagan Lagrange multiplier (LM) test and F-test were used to select the appropriate model among pooled OLS model, random effects model, and fixed effects model.

If the individual specific effect is correlated to the independent variable Fixed effect model is the efficient and the consistent model, but if the individual specific effects are uncorrelated with the independent variables, random effects will be the efficient model (Hausman and Taylor, 1981).

4. Results

Table 1 provides a summary of the descriptive statistics for the variables and Table 2 provides the annual average values of the variables used in the study.

Table 1. Descriptive Statistics

Statistics	ROE	ROA	EPS	Tobin's q	STDTA	LTDTA	Growth	Size
Average	0.01	0.03	0.16	0.88	0.37	0.14	0.18	8.17
St.Deviation	0.51	0.27	0.74	1.35	0.47	0.18	1.48	0.78
Max.	7.09	6.80	2.94	14.63	8.62	2.47	35.50	9.84
Min.	(4.78)	(1.11)	(4.86)	0.00	0.00	0.00	(3.00)	0.69
N	780	780	780	780	780	780	780	780

Table 2. Annual Average Value of the Variables

Year	ROE	ROA	EPS	Tobin's Q	STDTA	LTDTA	Growth	Firm Size
2008	(0.14)	(0.01)	0.00	0.41	0.37	0.15	0.20	8.14
2009	0.02	0.02	0.08	0.80	0.33	0.14	(0.08)	8.14
2010	0.03	0.03	0.21	1.22	0.38	0.11	0.15	8.13
2011	0.04	0.03	0.21	0.93	0.40	0.12	0.25	8.20
2012	0.07	0.03	0.23	1.09	0.41	0.12	0.43	8.21
2013	0.03	0.08	0.20	0.84	0.36	0.17	0.12	8.19
Total	0.01	0.03	0.16	0.88	0.37	0.14	0.18	8.17

Turkish manufacturing firms has a mean debt ratio of 51% in the period analyzed. 37.39% of the assets are financed with short term debt, while 13.62% are financed with long term debt. STDA has been increasing since 2009 except for 2013. Although LTDA fell down between 2008 and 2010, it has been increasing since then and the rise is steep especially in 2013.

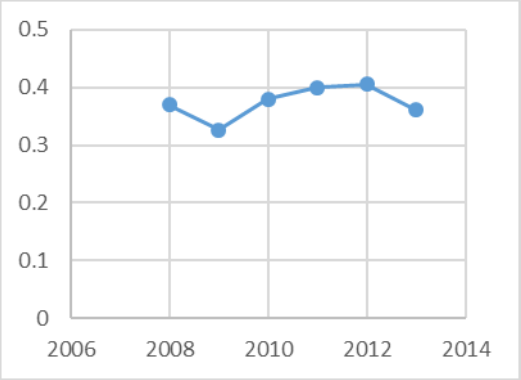

Figure 1. Trend of STDTA

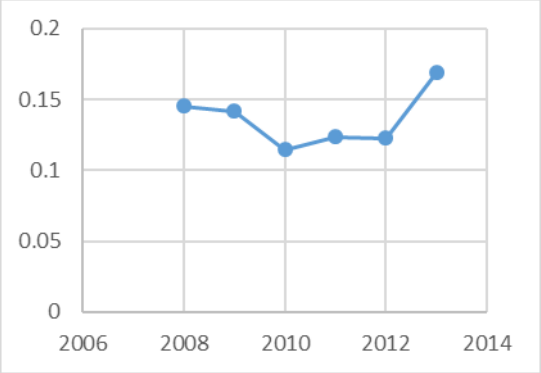

Figure 2. Trend of LTDTA

We first employ LM test and F test to decide between pooled OLS and fixed and random panel models.

Table 3. LM Test and F Test Results

Variables	LM test (p values)	F test (p values)	Appropriate model
ROE	0.0051	0.0011	Fixed and Random
ROA	0.0183	0.0044	Fixed and Random
EPS	0.0000	0.0000	Fixed and Random
Tobin's q	0.0000	0.0000	Fixed and Random

As shown in Table 3, both models (fixed and random) seem appropriate and efficient. Therefore, in order to select the consistent and the efficient model, we utilize the Hausman test.

Table 4. Hausman Test Results

Variables	p values	Efficient and consistent model
ROE	0.0132	Fixed effects
ROA	0.0000	Fixed effects
EPS	0.1915	Random effects
Tobin's Q	0.7722	Random effects

Based on the results given in Table 4, fixed effects model was selected as the efficient and consistent model for the models where ROE and ROA are dependent variables, while random effects model was selected as the efficient and consistent model for the outcome variables of EPS and Tobin's Q ratio.

On the other hand, we observe heteroscedasticity problems arising from cross-sectional data and autocorrelation problems arising from time series. Thus, in order to control and remove these problems, we employ Generalized Least Square (GLS) regression models and obtain the results by GLS method (Wooldridge, 2002).

5. Discussion

Based on Generalized Least Square (GLS) models; with respect to the association between financial leverage and ROE and (see Table 5), we find that STDTA does not exhibit a significant relationship with ROE. However, LTDTA seems to have a significant negative relationship with ROE. Abor, (2005) and Khan (2012) found similar results. On the other hand, Ahmad *et al.* (2012) and Myers and Majluf (1984) stated that LTDA is significantly and positively correlated with ROE

Table 5. Capital Structure and ROE with GLS Model

```
Cross-sectional time-series FGLS regression

Coefficients:  generalized least squares
Panels:        homoscedastic
Correlation:   no autocorrelation

Estimated covariance      =         1          Number of obs      =       780
Estimated autocorrelations =        0          Number of groups   =       130
Estimated coefficients    =         5          Time periods       =         6
                                               Wald chi2 (4)      =     26.62
Log likelihood            = 288.1881          Prob > chi2        =    0.0000
------------------------------------------------------------------------------
       lnROE |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
     lnSTDTA |  -.0825693   .0940938    -0.88   0.380    -.2669898    .1018512
     lnLTDTA |  -.8571778   .1876618    -4.57   0.000    -1.224988   -.4893675
    lnGrowth |   .0647436   .0478956     1.35   0.176      -.02913    .1586172
        Size |   .0043894   .0077015     0.57   0.569    -.0107053    .0194841
       _cons |   2.979525   .3422724     8.71   0.000     2.308683    3.650367
```

Source: Stata 12.0

As for ROA, based on the GLS model (see Table 6), there seems to be a significant negative association between STDTA and ROA. This finding is consistent with the findings of Ebaid, (2009), Zeitun and Tian, (2007), while it contradicts with the findings of San and Heng, (2011). On the other hand, LTDTA appears to be significantly and positively correlated with ROA, which is consistent with the studies of Frank and Goyal (2003), Hadlock and James (2002), and Berger and Bonaccorsi di Patti (2006).This finding contradicts with the studies of Ahmad *et al.* (2012), Salim and Yadav (2012), Zeitun and Tian (2007) and Hasan *et al.* (2014).

Table 6. Capital Structure and ROA with GLS Model

```
Cross-sectional time-series FGLS regression

Coefficients:  generalized least squares
Panels:        homoscedastic
Correlation:   no autocorrelation

Estimated covariance       =         1          Number of obs      =       780
Estimated autocorrelations =         0          Number of groups   =       130
Estimated coefficients     =         5          Time periods       =         6
                                                Wald chi2 (4)      =     39.28
Log likelihood             =   1428.87          Prob > chi2        =    0.0000

------------------------------------------------------------------------------
       lnROA |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
     lnSTDTA |  -.0612118   .0217993    -2.81   0.005    -.1039377   -.0184858
     lnLTDTA |   .2377347   .0434769     5.47   0.000     .1525217    .3229478
    lnGrowth |   .0201889   .0110963     1.82   0.069    -.0015595    .0419372
        Size |   .0021524   .0017843     1.21   0.228    -.0013447    .0056495
       _cons |   1.267051   .0792965    15.98   0.000     1.111633     1.42247
```

Source: Stata 12.0

Regarding EPS, as the GLS model reveals (see Table 7), STDTA has a significant negative relation with EPS. Our finding is consistent with the study of San and Heng (2011), while it conflicts with the studies of Saeedi and Mahmoodi, (2011) and Hasan *et al.* (2014), which claim that EPS has significant positive relation with STDTA. Similarly, our results demonstrate a significant negative correlation between LTDTA and EPS, which is consistent with the results of Salteh and Ghanavati (2012), however contradictory to the results of Hasan *et al.* (2014).

Table 7. Capital Structure and EPS with GLS Model

```
Cross-sectional time-series FGLS regression

Coefficients:  generalized least squares
Panels:        homoskedastic
Correlation:   no autocorrelation

Estimated covariances      =         1          Number of obs      =       780
Estimated autocorrelations =         0          Number of groups   =       130
Estimated coefficients     =         5          Time periods       =         6
                                                Wald chi2(4)       =     25.42
Log likelihood             =  80.59365          Prob > chi2        =    0.0000

------------------------------------------------------------------------------
       lnEPS |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
     lnSTDTA |  -.3866566   .1227855    -3.15   0.002    -.6273118   -.1460014
     lnLTDTA |  -.7007851   .2448848    -2.86   0.004     -1.18075   -.2208197
    lnGrowth |   .0569092   .0625002     0.91   0.363     -.065589    .1794073
        Size |   .0093127   .0100499     0.93   0.354    -.0103848    .0290101
       _cons |   3.203938   .4466404     7.17   0.000     2.328539    4.079337
```

Source: Stata 12.0

According to the results (see Table 8), there is significant and negative relationship between STDTA and Tobin's Q. This result is consistent with the findings of Khan (2012), while it contradicts with the studies of Zeitun and Tian (2007), Manawaduge *et al.* (2011) and Salim

and Yadav (2012). Moreover, we find that LTDTA is significantly and negatively correlated with Tobin's Q. Our findings are consistent with the result of Khan (2012)), whereas they are inconsistent with the findings of Salim and Yadav (2012) and Ebrati *et al.* (2013).

Table 8. Capital Structure and Tobin's with GLS Model

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Cross-sectional time-series FGLS regression


Coefficients:  generalized least squares
Panels:        homoskedastic
Correlation:   no autocorrelation

Estimated covariances      =         1          Number of obs      =       780
Estimated autocorrelations =         0          Number of groups   =       130
Estimated coefficients     =         5          Time periods       =         6
                                                Wald chi2(4)       =     32.42
Log likelihood             =  319.3973          Prob > chi2        =    0.0000

------------------------------------------------------------------------------
   lnTobinsq |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
     lnSTDTA |  -.2597345   .0904033    -2.87   0.004    -.4369217   -.0825473
     lnLTDTA |  -.7361798   .1803013    -4.08   0.000    -1.089564   -.3827957
    lnGrowth |  -.0167387    .046017    -0.36   0.716    -.1069304     .073453
        Size |  -.0106053   .0073994    -1.43   0.152    -.0251079    .0038974
       _cons |   3.562654   .3288479    10.83   0.000     2.918124    4.207184
------------------------------------------------------------------------------
```

Source: Stata 12.0

As the results of the study reveal, sales growth rate has no significant relationship with firm performance. Similarly, firm size seems to have no significant relationship with firm performance.

To sum up briefly, we demonstrate that short term leverage (STDTA) has a negative relationship with ROA, EPS and Tobin's Q ratio. Moreover, we find that long term leverage (LTDTA) has a negative relationship with ROE, EPS and Tobin's Q ratio, whereas it is positively correlated with ROA. It seems that sales growth rate and firm size has no significant relation with firm performance. Table 9 provides a summary of the results of our study.

Table 9. Summary of the Results (Beta Coefficients of the GLS Models)

Variables	ROE	ROA	EPS	Tobin's Q
STDTA	-.083	-.061***	-.387***	-.260***
LTDTA	-.857***	.238***	-.701***	-.736***

Notes: * p<0.05; ** p<0.01; *** p<0.001.

In short, it can be concluded that financial leverage (STDTA and LTDTA) has a significant and negative association with firm performance in general for the data analyzed. Using debt financing rather than equity financing may lead to lower firm performance. Making wise capital decisions to utilize optimal capital structure is crucial in order to strengthen financial performance and market performance. Firms may prefer equity financing rather than debt financing and long term debt rather than short term debt to enhance profitability and firm value. As a limitation, this study analyzes only manufacturing firms listed on Borsa İstanbul. Thus, further research should be conducted to examine the capital structure and firm performance relationships in different industries in Turkey.

References

Abor, J., 2005. The effect of capital structure on profitability: An empirical analysis of listed firms in Ghana. *The Journal of Risk Finance*, 6, pp.438-445. http://dx.doi.org/10.1108/15265940510633505

Ahmad, Z., Mohd, N., Abdullah, H., and Roslan, S., 2012. Capital structure effect on firms performance: Focusing on consumers and industrials sectors on Malaysian firms. *International Review of Business Research Papers*, 8(5), pp.137-155.

Berger, A.N. and Bonaccorsi di Patti, E., 2006. Capital structure and firm performance: A new approach to testing agency theory and an application to the banking industry. *Journal of Banking & Finance*, 30, pp.1065-1102. http://dx.doi.org/10.1016/j.jbankfin.2005.05.015

Brealey, R.A., Myers, S.C., and Marcus, A.J., 2009. *Fundamentals of corporate finance*. Sixth edition. Boston: McGraw-Hill Irwin.

Ebaid, I., 2009. The impact of capital-structure choice on firm performance: Empirical evidence from Egypt. *The Journal of Risk Finance*, 10, pp.477-487. http://dx.doi.org/10.1108/15265940911001385

Ebrati, M.R., Emadi, F., Balasang, R.S., and Safari, G., 2013. The impact of capital structure on firm performance : Evidence from Tehran stock exchange. *Australian Journal of Basic and Applied Scienc*e, 7(4), pp.1-8.

Eriotis, N., Vasiliou, D., and Neokosmidi, Z., 2007. How firm characteristics affect capital structure: An empirical study. *Managerial Finance*, 33(5), pp.321-331. http://dx.doi.org/10.1108/03074350710739605

Fosu, S., 2013. Capital structure, product market competition and firm performance : Evidence from South Africa. *The Quarterly Review of Economics and Finance*, 53(2), pp.140-151. http://dx.doi.org/10.1016/j.qref.2013.02.004

Frank, M.Z., and Goyal, V.K., 2003. Testing the pecking order theory of capital structure. *Journal of Financial Economics*, 67, pp.217-248. http://dx.doi.org/10.1016/S0304-405X(02)00252-0

Gleason, K.C., and Mathur, L.K., 2000. The interrelationship between culture, capital structure, and performance: Evidence from European retailers. *Journal of Business Research*, 2963(99), pp.185-191. http://dx.doi.org/10.1016/S0148-2963(99)00031-4

Hadlock, C.J., and James, C.M., 2002. Do banks provide financial slack?. *Journal of Finance and Accounting*, 57, pp.1383-1420. http://dx.doi.org/10.1111/1540-6261.00464

Hasan, B., Ahsan, M., Rahaman, A., and Alam, N., 2014. Influence of capital structure on firm performance: Evidence from Bangladesh. *International Journal of Business and Management*, 9(5), 184-194. http://dx.doi.org/10.5539/ijbm.v9n5p184

Hausman, J.A., and Taylor, W.E., 1981. Panel data and unobservable individual effects. *Econometrica*, 49(6), pp.1377-1398. http://dx.doi.org/10.2307/1911406

Jensen, M.C., 1986. Agency costs of free cash flow, corporate finance, and takeovers. *American Economic Association*, 76(2), pp.323-329.

Jensen, M.C., and Meckling, W.H., 1976. Theory of the firm : Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3, pp.305-360. http://dx.doi.org/10.1016/0304-405X(76)90026-X

Kabakci, Y., 2008.Sermaye yapisi ile işletme performansi arasindaki iliişki : Gıda sektöründe bir uygulama [Capital structure and business performance relationship: An implemention on food industry]. *Ege Akademik Bakış*, 8(1), pp.167-182.

Khan, A.G., 2012. The relationship of capital structure decisions with firm performance: A study of the engineering sector of Pakistan. *International Journal of Accounting and Financial Reporting*, 2(1), pp.245-262. http://dx.doi.org/10.5296/ijafr.v2i1.1825

Manawaduge, A., Zoysa, A.De, and Chowdhury, K., 2011. Capital structure and firm performance in emerging economies : An empirical analysis of Sri Lankan firms. *Corporate Ownership & Control*, 8(4), pp.253-263.

Margaritis, D. and Psillaki, M., 2010. Capital structure, equity ownership and firm performance. *Journal of Banking and Finance*, 34(3), pp.621-632. http://dx.doi.org/10.1016/j.jbankfin.2009.08.023

Modigliani, F. and Miller, M.H., 1958. The cost of capital, corporation finance and the theory of investment. *The American Economic Review*, 48, pp.261-297.

Modigliani, F., and Miller, M.H., 1963. Corporate income taxes and the cost of capital : A correction. The American Economic Review, 53(3), pp.433-443.

Myers, S.C., 2001. Capital structure. *The Journal of Economic Perspectives*, 15(2), pp.81-102. http://dx.doi.org/10.1257/jep.15.2.81

Myers, S.C., and Majluf, N.S., 1984. Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics*, 13, pp.187-221. http://dx.doi.org/10.1016/0304-405X(84)90023-0

Okuyan, H.A. and Tasci, H.M., 2010. IMKB'de işlem gören reel sektör işletmelerinde sermaye yapisinin belirleyicileri [Determinants of capital structure: Evidence from real sector firms listed in ISE]. *Ekonomik Yaklaşım*, 21(76), pp.55-72. http://dx.doi.org/10.5455/ey.20043

Roshaiza, T. and Azura, S.N., 1991. Overview of capital structure theory. *Studies in Business and Economics*, 9(2), pp.108-116.

Saeedi, A. and Mahmoodi, I., 2011. Capital structure and firm performance: Evidence from Iranian companies. *International Research Journal of Finance & Economics*, 70, pp.21-28.

Salim, M. and Yadav, R., 2012. Capital structure and firm performance: Evidence from Malaysian listed companies. *Procedia - Social and Behavioral Sciences*, 65, pp.156-166. http://dx.doi.org/10.1016/j.sbspro.2012.11.105

Salteh, H. and Ghanavati, E., 2012. Capital structure and firm performance; Evidence from Tehran stock exchange. *International Proceedings of Economics Development & Research*, 43, pp.225-230.

San, O.T. and Heng, T.B., 2011. Capital structure and corporate performance of Malaysian construction sector. *International Journal of Humanities and Social Science*, 1(2), pp.28-36.

Tianyu, H., 2013. *The comparison of impact from capital structure to corporate performance between Chinese and European listed firms*. Unpublished Master Thesis. Jönköping University.

Toraman, C., Kilic, Y., and Reis, S.G., 2013. The effects of capital structure decisions on firm performance: Evidence from Turkey. *International Conference on Economic and Social Studies*, 1, pp.10-11.

Wooldridge, J., 2002. *Econometric analysis of cross section and panel data*. London: The MIT Press.

Zeitun, R. and Tian, G.G., 2007. Capital structure and corporate performance: Evidence from Jordan. *Australasian Accounting, Business and Finance Journal*, 1(4), pp.40-61.