Mehmet Akif Ersoy Üniversitesi Uygulamalı Bilimler Dergisi

Journal of Applied Sciences of Mehmet Akif Ersoy University

UBD

The Impact of Firm Growth and Profitability on Debt Policy

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ABSTRACT

Debt policy is one of the decisions that a firm should consider. Managers should set a sound debt policy, taking the right risks and ratios into consideration to ensure the growth of the firm. There are factors that need to be taken into consideration when determining debt policy. These are the asset structure of the firm, firm size and profitability. The aim of this study is to determine the impact of firm growth, asset structure, and profitability on debt policy. Financial statement data of 312 firms traded on the BIST between 2012 and 2021 were used. Panel data analysis was conducted as the methodology in the study. According to the findings of the analysis, firm growth has a positive and statistically significant impact on debt policy. However, other independent variables have no statistically significant impact on the dependent variable.

Keywords: Debt Policy, Firm Growth, Asset Structure, Profitability.

Firma Büyümesi ve Karlılığın Borç Politikasına Etkisi

ÖZET

Borç politikası, bir firmanın dikkate alması gereken kararlardan biridir. Yöneticiler, firmanın büyümesini sağlamak için doğru riskleri ve oranları dikkate alarak iyi bir borç politikası belirlemelidir. Borç politikası belirlenirken dikkate alınması gereken unsurlar bulunmaktadır. Bunlar firmanın aktif yapısı, firma büyüklüğü ve karlılık başlıca unsurlar arasındadır. Bu araştırmanın amacı, firma büyümesinin, aktif yapısının ve karlılığın borç politikasına etkisini saptamaktır. 2012-2021 yılları arasında BİST'te işlem gören 312 firmanın finansal tablo verileri kullanılmıştır. Araştırmada yöntem olarak panel veri analizi kullanılmıştır. Analizden elde

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edilen bulgulara göre, firma büyümesinin borç politikası üzerinde pozitif ve istatistiksel olarak anlamlı bir etkisi tespit edilmiştir. Bununla beraber, diğer bağımsız değişkenlerin bağımlı değişken üzerinde istatistiksel olarak anlamlı bir etkisi bulunamamıştır.

Anahtar kelimeler: Borç Politikası, Firma Büyümesi, Aktif Yapısı, Karlılık.

1. INTRODUCTION

Firms always have the objective of making a profit, and if they are managed properly, they will achieve their objectives. The management of firms, including the setting of financing policies, is also the responsibility of managers. Financing policy is the policy of firms to identify funds to finance their business activities. Wiliandri (2011) explained corporate finance as internal and external sources of finance. Internal sources consist of paid-up shares, retained earnings, ordinary share capital and preference shares, while external sources are external sources, i.e. third parties or debts and receivables (Agustina, 2017). If firms are to survive in an evolving economic environment, each firm must have its own strict rules. No matter which firm wants to continue its activities, it will unquestionably need funds. One of these funding needs is debt policy (DP) (Triyono, 2023).

DP is the policy of firms in determining funds from external sources. DP is a firm's policy of using financial debt or financial leverage. To increase the firm value, firm managers can prevent the risks arising from excessive borrowing by setting DP appropriately. However, the distortion or inconsistency of the DP may negatively affect the firm's assets and reduce the firm value (Afiezan et al., 2020). Nonetheless, the firm's DP serves as a mechanism for managers to monitor the actions they take in managing the firm (Nugraha et al., 2020).

The factors that should be taken into account when deciding on DP are the firm's asset structure (AS), firm size, and profitability. A change in total assets is a sign of firm growth (FG). AS compares fixed assets with the total assets owned by the firm. Accordingly, the larger the tangible fixed assets, the more likely the firm would use long-term debt to finance itself. Creditors or other lending institutions analyze AS when deciding whether or not to lend money. This is because substantial wealth or assets that may be utilized as corporate guarantees will facilitate their lending (Prathiwi & Yadnya, 2017). FG is the process in which the firm experiences significant improvements in comparison between the previous year and the current year. Increased growth of the firm will enable the firm to obtain the funds it needs for its activities more easily. External funds also affect the growth of the firm. Making good use of

funds and maximizing returns on investments will positively affect the firm's growth rate (Hardiningsih & Oktaviani, 2012). Profitability is the firm's capability to earn profit from its operational activities. The profitability of firms may be measured using the return on assets (ROA), which shows the firm's net profit after tax and its ability to utilize its existing assets. Firms with high profitability will use internal resources instead of borrowing to meet their funding needs (Brigham & Houston, 2010). Therefore, the firm will be able to better utilize its internal resources and meet its financing needs with its own resources.

DP is a determinant of the appropriate capital structure and is a critical decision for every firm. The rapidly-changing nature of the business environment means that debt planning must be continuous (Latifi & Azami, 2010). Debt and equity are the two leading sources of financing firms' long-term operations. Millar and Moadigliani (1963) argued that the profitability of firms highly relies on the extent to which they utilize debt and equity in their operations. The DP debate has recently attracted considerable attention from both academics and practitioners.

In the literature, studies have been conducted to identify the factors affecting DP. This study focuses on how profitability, AS and FG affect DP. Profitability is one of the factors affecting a firm's DP. Anindhita (2017), Takengkeng et al. (2018) and Sari et al. (2021), Putri et al. (2023) concluded that profitability had significant impact on DP. Nonetheless, Peranginangin et al. (2018) found that profitability had a negative and insignificant impact on DP. Another factor that may affect a firm's DP is its AS. Ehikioya (2018) and Asiyah and Khuzaini (2019) found that AS had a positive and significant impact on DP. In contrast to these results, Desmintari and Yetty (2016), Nurdani and Rahmawati (2020) and Nurfathirani and Rhayu (2020) and Putri et al. (2023) found that AS has insignificant effect on DP. Another factor affecting DP is firm size. Nurdani and Rahmawati (2020), Sunardi et al. (2020) and Sari et al. (2021) and Putri et al. (2023) find that firm size has a significant and meaningful effect on DP, while Lumapow (2018), Umbarwati (2018), Afiezan et al. (2020) and Mukhibad et al. (2020) found that firm size had a statistically insignificant impact on DP.

Existing research findings in the literature are inconsistent. Firm risk and growth opportunities related to DP vary across countries and sectors due to country-specific and sector-specific factors. For this reason, this research is important in terms of revealing the relationship between FG, AS and profitability and DP, especially for firms operating in Turkey. The aim of the study is to determine the impact of FG, AS and profitability on DP. In this study, the impact

of FG, AS and profitability on DP of 312 firms traded on BIST between 2012-2021 will be analyzed using panel data analysis method. The findings of the study may contribute to the existing literature in determining the variables affecting DP.

2. CONCEPTUAL FRAMEWORK

Today's fast-paced business activities have necessarily positioned firms in a state of full competition. Firms compete not only in national markets but also in international markets. The availability of sufficient resources to finance firm activities has become a critical factor for the sustainability and development of the firm. Therefore, firms need to have sufficient financing (Lumapow, 2018).

In the theory developed by Modigliani and Miller (1958), they explained that the use of equity or debt or both in financing the company has no impact on the firm value. The reason for this is that the firm's cash flow remains unchanged in the event of a change in the debt-equity ratio. However, they argued that all companies have the same opportunity to borrow at the same rate. Following these theories, capital structure was categorized under three theories; hierarchy theory, barter theory and agency theory. According to the hierarchy theory, the first option for financing firms is internal financing through profit retention, debt financing in case of insufficient internal funds, and equity financing as the last resort. According to this theory, it is emphasized that firms should avoid equity financing as much as possible, thus illustrating the imperfect financial market where asymmetric information among managers and outside investors affects corporate financing decisions (Myers, 1984). Firms have the option of using trade-off theory to model the optimal capital structure. The trade-off theory recognizes the utility of debt financing and the existence of the bankruptcy cost of debt. Under this theory, the firm's inability to make interest payments may lead to bankruptcy costs. Therefore, firms aiming to achieve a balance between internal and external financing may take precautions against the possibility of financial distress and may also benefit from the tax advantage of high debt (Drobetz & Fix, 2003). Agency theory is defined as a contract between two parties, a manager as an agent and a shareholder as a principal, in which the manager fulfills the responsibilities of serving the shareholder (Jensen & Meckling, 1976). Accordingly, a conflict of interest exists between shareholders and firm management and managers make decisions in their own interests at the expense of shareholders' interests (Cahyani & Handayani, 2017). As asserted by Jensen (1986), the use of debt as an internal control mechanism would be beneficial

to mitigate the agency cost problem in case of insufficient cash flow. One of the factors to reduce the agency problem is DP.

According to Tanjung et al. (2021), DP is the financing decision from external sources. DP is the policy implemented by management to obtain a source of funds that can be used to finance firm operations. DP has a significant impact on managers' discipline to optimize the use of available funds. This is because the size of debt can lead to financial difficulties or bankruptcy risk. A firm is considered risky if it has a larger share of debt in its capital structure, but conversely, a firm is considered low risk if it has less or no debt (Özkan, 2001).

Many factors affect firms' DP. Halling et al. (2016), Koutmos et al. (2018), Michalski et al. (2018) explained that sales, AS, FG, profitability, tax, firm structure and macroeconomic factors affect DP. Husna (2016) stated that debt is low if the firm's profit is high. On the contrary, Viriya and Suryaningsih (2017) explained that when firms need more funds, they will first use retained earnings, so profitability has an adverse impact on DP. The AS of the firm determines the funds that firms receive from external sources. Firms generally use debt to finance fixed assets. According to Asiyah and Khuzaini (2019) and Carlin and Purwaningsih (2022), AS significantly and positively affects DP, while Utami and Ngumar (2019) emphasize that AS has little effect on DP. Increases in the assets of firms compared to the previous year will reveal the need for more financing for the firm's activities. In order for profits to be high, the firm must also grow. DP will also increase the growth rate of the firm (Hardiningsih & Oktaviani, 2012). Similarly, Irawan et al. (2016) found that DP is significantly affected by the firm growth. On the contrary, according to the hierarchy theory, high-growth firms have sufficient internal resources for their operations, as asserted by Vithessonthi and Tongurai (2015), Chaibi and Ftiti (2015), and Alhassan et al. (2015).

In this study, the impact of FG, AS and profitability on DP will be analyzed. The research is expected to contribute to the explanation of the relationship between AS, profitability, FG and DP of firms operating in Turkey, especially in BIST.

3. METHODOLOGY

In line with the objective of the study, the data set, methodology and findings from the analysis used to examine the possible impact of FG, AS and profitability on DP are as follows.

3.1. Purpose and Method of the Study

The aim of this study is to explicate the effects of FG, AS and profitability on DP. In this study, 312 firms traded on the BIST between 2012 and 2021, whose data are available in full, constitute the sample. Panel data analysis method is used in the study.

3.2. Research Dataset and Model

The aim of the study is to analyze the impact of FG, AS and profitability on DP. In line with this purpose, 132 firms whose data were accessed between the years 2012-2021 and traded on the BIST were included in the scope of the research. The financial statements of 132 firms were analyzed to obtain data. Information on the data of the firms was obtained from the Thomas Eikon database. The dependent variable of the study is debt-to-equity ratio (DER), while the independent variables are firm growth (GROWTH), AS, and return on assets (ROA).

As a result of the analysis, "Random Effects Model" was used to determine the impact of DP on the variables. The analysis of the model was performed using the "robust standard errors based" method. The data obtained from the financial statements of the firms in the analysis and their descriptive codes are shown in Table 1.

Table 1. Explanatory variables and codes

Variables	Description	Formula	Codes
Dependent Variable			
Debt Policy	Debt-to-Equity Ratio	Total Debt/Total Equity	DER
Independent Variables			
Firm Growth	Changes in total assets serve as a proxy for firm growth	$\dfrac{\text{Total Assets}_t - \text{Total Assets}_{t-1}}{\text{Total Assets}_{t-1}}$	GROWTH
Asset Structure	The ratio between noncurrent assets and total assets is used to calculate the asset structure variable.	Fixed Assets/Total Assets	AS
Return on Assets	Return on Assets is an indicator of a firm's profit or earnings.	Net Profit/Total Assets	ROA

The model comprised of the obtained variables was established as follows:

$$DER_{it} = \alpha_{it} + \beta 1 GROWTH_{it} + \beta 2 AS_{it} + \beta 3 ROA_{it} + \varepsilon_{it} \qquad (1)$$

3.3. Analysis and Findings of the Research

In order to decide on the method to be used in the research, some tests have been proposed first. Deciding according to the results of these tests increases the reliability of the analysis (Yerdelen Tatoglu, 2020, p.176). If the panel data model is to be used in the research, it is recommended to conduct "F test, Breuch-Pagan LM test and Likelihood Ratio Test (LR)" in order to investigate whether the classical model is valid or not, that is, unit and time effects.

In order to determine which model will be used in the research, "F test, Breusch-Pagan LM (1980) and Likelihood Ratio Test (LR)" were performed first. After these tests, Hausman (1978) test was conducted to decide whether to use the fixed effects estimator or the random effects estimator.

The results of the F test, Breusch-Pagan LM (1980), and Likelihood Ratio Test (LR) analyses are presented in Table 2.

Table 2. Results of the analysis for prediction model identification

Tests	Statistics	p-value	Hypothesis	Results
F unit	1.40	0.0000	H_o: There is a time effect but no cross-section effect.	Unit Effect Exists
F time	1.45	0.1427	H_o: There is a cross-section effect but no time effect	No Time Effect
LM unit	20.78	0.0000	H_o: There is a time effect but no cross-section effect	Unit Effect Exists
LM time	0.00	1.0000	H_o: There is a cross-section effect but no time effect	No Time Effect
LR unit	17.34	0.0000	H_o: There is a time effect but no cross-section effect	Unit Effect Exists
LR time	0.47	0.2450	H_o: There is a cross-section effect but no time effect	No Time Effect

According to the analysis results in Table 2, the model should be estimated by pooled least squares method. However, Hausman (1978) test was performed to determine whether there are fixed effects or random effects.

The null and alternative hypotheses of the Hausman (1978) test are shown below.

H_0: No correlation exists between the components of the error term and the independent variables, i.e. estimation should be done with the random effects model (REM).

H_1: Correlation exists between error term components and independent variables, i.e., estimation should be done with the fixed effects model (FEM).

Table 3. Hausman (1978) test statistics

Chi-Square	6.66
P-value	0.0835

According to Table 3, since the Hausman p-value exceeds 0.05, H_0 cannot be rejected. Accordingly, it was decided to estimate the model created for the purpose of the research with the REM.

Estimation according to the REM in the research may reveal autocorrelation, heteroscedasticity, inter-unit correlation and multicollinearity problems. Therefore, it will cause the analysis not to reflect the true value. In relation to these problems, assumption violation tests and multicollinearity tests were conducted before estimating the model. Among these assumption violation tests; "heteroscedasticity, autocorrelation, and correlation tests" were performed. The basic assumption test results for the research model are as follows.

While F tests are recommended for estimating the Gaussian distribution and equality of variances, Levene (1960) proposed a robust heteroscedasticity test in cases with normal distribution variances. The test statistic proposed by Brown and Forsythe Levene is estimated based on the trimmed mean and median, which provides a structure resistant to deviant values instead of the mean value (Yerdelen Tatoglu, 2020, p.251). In this analysis, estimation was made with the Levene-Brown and Forsythe (1974) test, which is one of the heteroscedasticity assumption tests recommended for models estimated with the REM.

The main hypothesis of the test:

H_0: There is no heteroscedasticity problem.

H_1: There is an heteroscedasticity problem.

Table 4. Levene-Brown and Forsythe (1974) test

Model	
W0 = 4.6053790	p = 0.00000000
W50 = 1.6855799	p = 0.00000000
W10= 1.8083707	p = 0.00000000

In Table 4, Levene-Brown and Forsythe (W0 and W10) estimation results are comparec with the Snecedor F table with degrees of freedom. Accordingly, H_0 is rejected and H_1, which is established as "there is a heteroscedasticity problem", is accepted.

In the REM, it is common for error terms to be correlated over time. Studies conducted by ignoring autocorrelation lead to deviations in standard errors. Therefore, it should be tested whether there is autocorrelation in the estimations using the REM and the estimation method should be determined as a result (Yerdelen Tatoglu, 2020, pp.252-253).

LM and Adjusted LM Autocorrelation Test were used to test for autocorrelation.

H_0: There is no autocorrelation problem.

H_1: There is autocorrelation problem.

Table 5. LM and adjusted LM autocorrelation test

Model	Statistics	P value
LM (lambda=0)	7.52	0.0061
LM_A = (lambda = 0)	0.93	0.3347
LM (Var (u) = 0, lambda =0)	21.71	0.0000

According to Table 5, H_0 "there is no autocorrelation problem" is rejected and according to the estimation result, there is autocorrelation in the model.

Pesaran CD (2004) test was performed to estimate whether correlation exists in the model created within the scope of the research.

The main hypotheses of the Pesaran CD Test are as follows.

H_0: There is no correlation between units.

H_1: There is correlation between units.

Table 6. Pesaran CD (2004) correlation test

Chi-Square	24.190
P-value	0.0000

According to the Pesaran CD test result in Table 6, since the p-value is lower than 0.05, H_0 is rejected and H_1 "there is correlation between units" is accepted.

One of the tests used to investigate the multicollinearity problem in the model is the variance inflation factor (VIF) values. Table 7 shows the results of VIF values for multicollinearity.

Table 7. Multicollinearity VIF values

Variables	VIF	1/VIF
ROA	1.01	0.985349
GROWTH	1.01	0.985995
AS	1.01	0.990433
Mean VIF	1.01	

Upon analyzing the VIF values as analysis result in Table 7, it is determined that the VIF values of the independent variables used in the research assume a value of 1.01. Therefore, since it is lower than 5, it is determined that no multicollinearity problem exists.

According to the findings obtained from the basic assumptions related to the model created in line with the purpose of the research; there is a violation of the assumption as a result of three tests. Therefore, it would be appropriate to estimate the model with the "robust standard errors based" method. Thus, reliable estimation results will be obtained.

The estimation statistics based on robust errors for the model established to estimate the effect of FG, AS and profitability on DP are shown in Table 8.

Table 8. Estimation statistics based on robust standard errors

Variables	Coefficient	p-value
ROA	-.0080125	0.370
GROWTH	.1389337	0.027*
AS	.2520611	0.449
Cons.	.7516043	0.020
$R^2 = 0.0309$		

Note: * : denotes significance at 5% significance level.

According to the results obtained from the analysis, it is found that FG has a positive and statistically significant effect on DP at the 5% significance level. The other independent variables; "asset structure" and "ROA" have no statistically significant impact on the dependent variable, DER.

4. CONCLUSION

Today, firms are affected by the rapidly developing world economy. The main objective of firms is to increase the welfare of founders and shareholders and to engage in activities that will increase firm value. Firms that fail to achieve these objectives will have difficulty in obtaining financing. Firms experiencing difficulties in obtaining financing will commonly resort to DP as a funding decision.

In this study, the effects of FG, AS and profitability on DP are analyzed. In this study, financial statement data of 312 firms traded on the BIST between 2012 and 2021 were used. According to the findings of the study, FG has a positive and statistically significant impact on DP. While the result of this study is similar to the results of Nurjanah and Purnama (2021) and Carlin and Purwaningsih (2022), it contradicts the results of Halling et al. (2016) and Vithessonthi and Tongurai (2015), which show that FG has an adverse impact on DP.

AS is one of the determinants for a firm to implement its DP. According to the findings of this study, there is no significant relationship between AS and DP. While this result is in compliance with the research conducted by Prathiwi and Yadnya (2017), it contradicts the result of the research conducted by Indana (2015), which reveals that AS has an impact on DP.

However, no statistically significant impact of profitability on DP was found in this study. This result contradicts the research by Anindhita (2017), Takengkeng et al. (2018) and Sari et al. (2021), Putri et al. (2023) who found that profitability has a significant impact on DP and Peranginangin et al. (2018) who found that profitability has an adverse and insignificant impact on the DP.

The research has limitations. Accordingly, the data of all firms operating in the BIST could not be accessed. The results obtained in the study are expected to guide the approaches to the DP of FG, AS and profitability. In addition, the results of the research are expected to contribute positively to the steps that firms will follow in determining the factors that will affect their DP decisions. In addition, it is expected to contribute to firms' planning to improve their debt policies.

For future research, the sample size and observation methods can be increased and analyzed using other variables that may affect DP. It may also be suggested to determine the effects of DP on investor preferences, dividend policy and firm value.

CONFLICT OF INTEREST DECLARATION

There is no conflict of interest with any institution or person within the scope of the study.

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