



RESEARCH ARTICLE

Changes in Capital Structure in Seasoned Equity Offerings: BIST Implementation

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Abstract

This study evaluates changes in firms' capital structures after a seasoned equity offering by testing the effects of firm-specific factors on leverage ratios. The relationship between the determined dependent variables and firm-specific factors is associated with the predictions of pecking order and trade-off theory. In 3 different models in which leverage ratios are determined as dependent factors and firm-specific factors as independent variables, 10 basic hypotheses are proposed, and the relationship between the variables is examined using panel data analysis. According to the results obtained in the analyses, as the number of seasoned equity offerings increases, firms' leverage ratios decrease, and firms tend to use more debt because of the corporate tax base discount granted to seasoned equity offerings. In addition, it has been determined that rather than choosing to source resources through equity or borrowing, the view of benefiting from both sources of funds is dominant in the face of the resource requirements of seasoned equity offering firms.

Keywords: Capital structure, Leverage ratios, Firm-specific factors, Seasoned equity offerings, Panel data analysis

Introduction

Modern capital structure theories take into account some benefits and costs and seek an answer to the question, “*Whether debt or equity issuance provides the most benefit with the least cost in the face of resource requirements?*”. These theories are consistent with the view that the issuance of equity capital is the last choice of funding source, despite differences in source preferences. Another common view of both theories is that of turning to sources of funds that provide the greatest benefit at the lowest cost. Many studies have stated that the source of funds that can provide the most appropriate choice as an external fund source among benefits and costs is borrowing. It is emphasized in many studies that interest expenses arising from debt are subject to corporate tax base deductions, making debt advantageous compared to equity capital. Borrowing is the most basic external, cost-effective fund source,

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and some firms turn to equity issuance as an external fund source. Moreover, it is observed that some firms periodically repeat their equity issuance with seasoned public offering (SEO) practices. This situation reveals that some firms prefer the tax advantage provided by the issuance of equity capital rather than borrowing. In this context, the reasons for firms' debt-equity changes in Turkey are considered factors worth investigating.

In this context, the reasons for firms' debt-equity changes in Turkey are considered factors worth investigating. In this study, the capital structure and modern capital structure theories are evaluated in terms of firm-specific factors, and their relationship with SEO is then outlined. By providing a literature review on SEOs; the purpose, importance, and scope of the study, the models and hypotheses created, and the method applied are explained. The findings related to the model were evaluated, and suggestions for future studies were made.

Capital Structure and Related Theories

Capital structure decisions are the first step in determining how a firm's assets are to be financed. The capital structure is how a firm finances its assets through a combination of equity and debt that includes various costs and benefits (Titman and Wessels, 1988: 1). Equity and debt composition indicates firm leverage. This combination works as a balance to minimize resource costs. The main objective is to minimize resource costs as much as possible, in line with the target leverage level.

It should be stated that capital structure decisions will be affected by a wide range of general economic conditions and firm-specific factors, and there cannot be a fixed formula that will show which factors affect the optimal leverage level target and in what direction. Therefore, different views will continue to be proposed in studies on this subject.

Evaluation of Modern Capital Structure Theories

Modern theories of capital structure outline steps towards maximizing firm value and shareholder wealth. Both theories that form a financial resource triangle between the use of a firm's internal funds, equity issuance, and borrowing have been the subject of many studies as rivals to each other. In both theories, the orientation towards the least costly resource is the main means of meeting financing needs. As a matter of fact, trade off theory argues that the optimal balance can be reached with the least cost at the target leverage level; the pecking order theory pushes aside orientation to external financing sources, taking into account the costs of borrowing. According to the theory, internal resources are the safest and least costly. Although trade-off theory directly constructs the target leverage level, the pecking order theory explains the leverage level that changes according to firm managers' financial resource preferences. Although the goal is to create a cheap financing source, the effect of the preferred

method on leverage ratios is undeniable. The firm's selection of financial resources and, thus, resource costs create leverage ratios. The combination of long-term debt and equity is a key component of the target leverage level.

According to both theories, while resource costs are of great importance, the priority order of debt differs depending on the perspective of the theories. According to the trade-off theory, the benefits of borrowing are based on the view that the tax advantage created by the corporate tax base reduction will also reduce the costs of representation between managers and shareholders. The costs of borrowing include costs related to bankruptcy and financial distress, and it is stated that these costs will increase the costs of representation. Tax advantage is the strongest pillar at the target leverage level. The pecking order theory, on the other hand, does not evaluate the benefits and costs of resources. The theory guides capital structure decisions by comparing the benefits and costs of resources. According to this theory, the costs of issuing equity capital create a huge cost pool alongside debt costs. Therefore, firms' last financial resource preference is equity issuance. The priority is internal funding sources, and the second priority is to meet the source requirement based on the tax shield effect of debt. The last option is equity issuance. However, the tax shield effect created by equity capital issuance under certain conditions is ignored.

In their study, Rajan and Zingales (1995) evaluated the question "*Borrowing or financing through equity issuance?*" according to firm-specific factors. Although the importance of firm-specific factors is emphasized for both theories in this study, the approaches of the theories to fundamental factors are also different from each other.

Although the trade-off theory sees market to book (M/B) as the representative of the firm's growth opportunities, the pecking order theory expresses M/B as the determinant of profitability due to differences in growth expectations. While the desire to take advantage of profitable and risky investment opportunities in the future increases debt appetite in some firms, the desire to reduce representation costs in others causes firms to abstain from debt. According to pecking order theory, the point to be considered in this case is the direction of the relationship between the amount of investment to be incurred in the face of growth opportunities and the variability in profitability. Frank and Goyal (2003) stated that leverage ratios increase as growth opportunities increase. However, considering firms that adopt a more conservative borrowing policy according to trade-off theory, while shareholders' profit share expectations increase because of high investment expenditures, agency costs also increase, and the firm becomes more sensitive to resource costs. For this reason, Titman and Wessels (1988) stated that leverage ratios decrease as growth opportunities increase. According to Rajan and Zingales (1995) and Cortez and Susanto (2012), firms with high growth opportunities tend to use less debt, although it is thought that growth opportunities may increase the future debt capacity of the firm.

According to trade-off theory, leverage ratios increase as firm size increases. This prediction is also expressed in Rajan and Zingales (1995) and Fama and French (2002). According to them, these firms can conduct long-term borrowing with much easier and cheaper costs. According to the pecking order theory, as the size of a firm increases, transaction costs and information asymmetry decrease; thus, firms' external financing requirements decrease, and due to increasing growth requirements, the tendency towards equity issuance increases. Frank and Goyal (2008) stated that leverage ratios decrease as firm size increases.

According to trade-off theory, a high ratio of tangible fixed assets is the main collateral indicator of debt supply. As a strong collateral indicator, it minimizes the representation cost of debt, that is, the risk of the lender. Therefore, leverage ratios are expected to increase as the ratio of tangible fixed assets increases. Scott (1979), Harris and Raviv (1990), Rajan and Zingales (1995), Shenoy and Koch (1996), Hirota (1999), Gaud et al. (2005), Huang and Song (2006), Antoniou et al. (2008), Frank and Goyal (2008), and Fan et al. (2012) confirmed these expectations. According to the pecking order theory, firms with high tangible assets already have sufficient internal financing resources and do not require external financing. Marsh (1982) and Harris and Raviv (1990) stated in their studies that leverage ratios decrease as the ratio of tangible fixed assets increases, according to the pecking order theory.

According to trade-off theory, the ability to pay off debt increases as profitability increases because firms with high profitability can obtain debt at a lower cost. Firms can act on their targets of higher leverage ratios because increased profitability also minimizes the costs of bankruptcy and financial distress. Mehrotra et al. (2005) stated that leverage ratios increase as profitability increases. Brealey et al. (2017), however, stated that some firms with high profitability and technology incur relatively less borrowing. Profitable firms' tendency to borrow less can be expressed as their tendency to use internal fund sources. In the pecking order theory, on the other hand, because the priority is always to use internal funding sources, internal funding sources increase as profitability increases. Therefore, as profitability increases, the tendency to borrow decreases, and leverage ratios decrease. Ross (1977), Friend and Lang (1988), Rajan and Zingales (1995), Megginson (1997), Booth et al. (2001), Drobetz and Fix (2003), and Huang and Song (2006) confirmed in their studies that leverage ratios decrease as profitability increases.

According to trade-off theory, firms with higher liquidity ratios are more capable of meeting short-term financial obligations. Therefore, they tend to borrow at higher rates. Bradley et al. (1984) stated that leverage ratios increase as liquidity increases. The pecking order theory, known for its prioritization of orientation to internal funds, argues that leverage ratios decrease as liquidity increases. Deesomsak et al. (2004), Mazur (2007), Sheikh et al. (2011), and Babu et al. (2014) supported these. Because a firm tends to meet its fund needs with existing internal resources. Therefore, according to this theory, firms having higher liquidity use less debt.

Although many studies have examined the effect of ownership structure on capital structure, no clear consensus has been reached. Because of different ownership structures, capital structures are driven by different financial preferences. Friend and Lang (1988) and Berger et al. (1997) stated that borrowing is not preferred to avoid risk. According to Huang and Song's (2006), ownership structure and leverage ratios are not connected. In fact, a framework for the capital structure has been proposed in both theories. However, some firms operate outside this framework. Although theories regarding leverage ratios and firm-specific factors exist, the basic view is that firms interact differently with regard to equity issuance and debt demand.

SEO and Capital Structure Relationship

Although the initial public offering (IPO) causes the ownership structure to open up to the outside environment and the ownership to be dispersed at certain rates, it also offers some sanctions to the firm. These sanctions incur different costs depending on the firm's management practices. These costs will decrease or increase exponentially depending on the success momentum of the firm in its corporate investment and financing policies.

After the IPO, the firms that gained public company status may return to the public offering. One of the most important advantages of public offerings to firms is that they can initiate the public offering process repeatedly. After the IPO, the firm that gains the status of a publicly traded company increases its equity capital by the stipulated amount and offers shares related to the increased amount to the public by limiting all or part of the pre-emptive rights of the existing partners. This transaction is referred to as SEO. SEO is expressed as a long-term and low-cost alternative financing source that can guide firms' capital structure decisions.

The success of the firm's IPO will also affect the direction and success of subsequent SEO decisions. Indeed, Barclay et al. (2021) stated in their studies that SEOs have a wide range of effects, including a number of financial components, such as leverage ratios, dividend distribution decisions, stock repurchases, maturity structures, priority and convertible structures of securities, liquidity policies, and corporate investment decisions. No matter how wide the area of influence is, when considered in terms of capital structure theories, borrowing and fund requirements were preferred to SEOs, and it was stated that SEOs create additional costs and disadvantage for the firm. The need for additional funds for investment projects, debt repayments, a balance instrument to achieve target leverage ratios, firms' acquisitions or provision of R&D expenses, or funds for daily operating expenses, regardless of the purpose of debt financing, is a clear indication that the use of debt should stop at some point.

Jung et al. (1996) stated that the need to create additional funds to implement future investment projects or to repay debt is the basis for firms' SEO decisions. Regardless of the purpose, the target leverage level of a firm is dynamically affected before and after SEO

implementation, and leverage ratios tend to increase or decrease. However, Iqbal et al. (2014) emphasized in their studies that the leverage structure and financial performance of firms that engage in SEOs differ from firms that perform very few SEOs throughout their lifecycle. In addition to these differences, the basic view is that leverage ratios decrease in the short term after SEOs and increase systematically after offers.

Method of Research

In this section, the literature on SEO practices is examined, the purpose, importance, and scope of the study are discussed, the models and hypotheses are explained, the method applied is explained, and the findings of the study are presented.

Literature Review

When the relevant literature is examined, it can be seen that very few studies exist on SEOs in Turkey. It has been observed that these studies highlighted the return performance of IPOs and the changes in financial performance. It can be seen that the international literature on SEOs has been handled very extensively. The main research topics of the studies in the international literature focused on the compatibility of assumptions about reasons for firms to turn to SEOs, the purpose of using funds obtained from SEOs, short and long-term return performance before and after SEO, changes in the financial performance of firms that go to consecutive SEOs and those that do not, and SEO and capital structure theories. In this study, basic studies that highlight the effects of SEOs on the capital structure are included.

Walker et al., (2016); in their studies that deal with the effect of specified uses of SEO revenues on the next SEOs, formed the sampling frame with 670 SEOs conducted by 276 firms operating in the USA between 1995 and 2012. According to the findings of this study, firms that disclose details about the appropriate use of SEO revenues reach higher returns in their next public offering transactions. In addition, it has been stated that firms that use funds collected through SEOs to cover the costs of investment projects have relatively more successful returns in their future public offering announcements.

Walker et al., (2019); in their studies on the provision of funds through equity issuance for firms in financial distress, formed a sampling frame with 3692 SEOs carried out by industrial firms in the United States between 1994 and 2015. According to the findings of this study, it has been stated that after the issuance of equity capital, firms in financial distress have a tendency to grow in their corporate ownership, R&D structures, and market values; they have better abnormal returns; they tend to invest following SEO; and their business performance is on the way to improvement.

Asad et al. (2020), in their studies on measuring market responses to capital structure adjustments through SEOs, formed a sampling frame with 1725 SEOs of 1016 firms operating

in various industries in the United States between 2004 and 2013. According to the findings of this study, cash requirements and growth opportunities have a significant effect on SEO decisions; the desire to reach the optimal leverage ratio, and stocks' valuations have a stronger effect on the orientation to SEO. In addition, it has been stated that firms using excessive debt with SEOs approach the debt rate target and a more optimal capital structure and do not deteriorate the target capital structure for at least 3 years after the offering.

Le et al. (2020), in their studies on the factors affecting SEO decisions, formed a sampling frame with the SEO of 99 firms traded on the Vietnam Stock Exchange between 2014 and 2018. According to the findings of this study, an increase in corporate earnings and growth in the scale of a firm increase the tendency towards SEOs; an increase in dividend payment rates reduces this tendency.

Stamou et al. (2020), in their studies on the changes in the debt structures of firms that go to SEO consecutively and firms that go to SEO once, created a sampling frame with the SEO of 1033 firms operating in the London market between 1999 and 2015. According to the findings of this study, it has been stated that firms that go to consecutive SEOs have a higher debt ratio and do not tend to decrease their existing debt ratios despite obtaining additional funds due to the issuance of equity capital; thus, they maintain a higher debt level, they have a growth trend, and short-term debt levels are very low compared to firms that go the same way.

Li and Wang (2021), in their studies on the role of corporate social responsibility strategies on public offering costs, formed the sampling frame with 1163 SEOs conducted in 38 countries between 2002 and 2018. According to the findings of this study, it has been stated that corporate social responsibility practices reduce equity issuance costs; the higher the corporate social responsibility performance, the less uncertainty in the value of firm assets; thus, solid steps have been taken to strengthen the capital market with a stronger, more stable corporate structure.

Fu and Smith (2021) proposed an integrated theory of capital structure that addresses the beneficial aspects of these theories. They created a sampling framework with 8000 SEOs of 7072 industrial firms operating in the United States between 1970 and 2017. In this study, an integrated theory of the capital structure called "*strategic financial management*" has been proposed by considering the beneficial aspects of the theories. According to the proposed theory, it has been stated that strategic financial management theory represents a structure that is reached with the optimal leverage level and that turns to SEO choices to finance the firm's long-term investment opportunities and incentives.

Barclay et al. (2021), within the scope of corporate investment and financing policies, in their studies on the target leverage ratio and management of investment projects in SEOs,

formed the sampling frame with 8608 SEOs carried out by firms operating in the US and the public sector between 1970 and 2015. According to the findings of this study, a strong interaction between firms' future investment projects and capital structure decisions. They stated that the main reason that firms turn to SEOs is to generate large and new investment projects rather than reach the target leverage ratio in capital structure decisions.

Zhu and Li (2022), in their studies in which they investigated how SEOs and firm management affect corporate investment success, formed a sampling frame with SEO firms operating in China between 2009 and 2020. According to the findings of this study, SEOs generally cause a decrease in investment efficiency; it has been stated that the advanced age of management and the fact that they have an overseas background increase the efficiency of investments. Instead of increasing the number of female managers, it was suggested that they should be developed to increase their level of competence.

Chen and Liu (2022) formed a sampling frame with 1061 firms outgoing that examined the effect of increased capital from SEOs and the partial cancellation of issued shares, the effect of reduced capital on the financial structure, and the role of representation costs in this effect. According to these findings, capital decreases due to partial cancellation of issued stocks increase long-term firm performance, whereas SEOs decrease firms' performance regardless of the short and long-term. In addition, they stated that increased free cash flows due to SEOs increase the costs of representation and that representation cost, albeit partially, decrease firm performance.

Hernholm and Wormsen (2023); in their studies, they investigated the prediction that SEOs have a negative impact on firm market value. Between 2010 and 2020, they created the sample frame with 6930 SEO transactions from 630 US firms. Study; It was divided into 3 stages: pre-SEO, SEO year, and post-SEO, and the change in stock returns over time was observed. Although there was an increase in the stock returns of firms before and during the SEO period, there was a decrease in stock returns during the post-SEO period. Firms predicted to have an SEO orientation were evaluated separately, and no meaningful results were obtained. For this reason, it has been suggested that different factors may explain why SEOs reduce their return performance. According to the study, these factors are bankruptcy risk, company size, and debt ratio. For this reason, no convincing evidence has been found regarding the predictions that SEOs have a negative impact on stock returns and reduces market value.

Sanchez et al. (2023) investigated whether firms acting within the scope of corporate social responsibility tend to employ earnings manipulation practices in SEO transactions. A sampling frame was created with 4027 SEO transactions conducted by non-financial firms in France, Germany, Italy, and Spain, representing the largest EU economies between 2011 and 2020. According to the findings, there are differences between countries despite having

the same legal framework and currency. In all countries except Spain, there is cash flow manipulation before SEO. However, it has been stated that firms that attach importance to social responsibility principles are less involved in earnings manipulation.

Ashour and Atik (2024) conducted a comprehensive literature review on the subject, discussing earnings management practices before SEO, which were discussed in 1998. In this context, 846 articles on the subject were scanned between 1998 and 2022, and 38 on earnings management practices were examined. It has been stated that most articles on this subject are published in the United States. For this reason, a recommendation has been made to disseminate studies on the subject in other markets. The common point between the articles is that firms manipulated the pre-SEO earnings management approach as an opportunistic approach. As a matter of fact, pre-SEO earnings were manipulated upwards.

Gad et al. (2024) stated in their study that the ultimate purpose of seasoned equity offerings is to reduce the ratio of financial leverage through the issuance of equity capital and to evaluate new investment opportunities with newly acquired funds and emphasized the importance of the desired effect on financial performance. However, they stated that specific effects will arise along with financial effects. In this context, 903 seasoned equity offering transactions conducted by US non-financial firms between 2002 and 2017 are discussed. They suggested that firms that turn to seasoned equity offerings may cut or increase their workplace health and safety expenses to increase the success of their public offerings. According to the findings, as seasoned equity offerings approach, workplace health and safety expenses are limited, albeit in the short term. The firm-specific effects of this limitation are felt in the medium and long term as a decrease in financial performance and efficiency and failure in the next public offering attempt.

He et al. (2024) opposed the view that banks should focus on increasing equity capital in response to their fund requirements. On the contrary, they stated that banks voluntarily tend to have equity capital that exceeds the legal minimum. In this context, the aim of this study is to reveal banks' motives for acquiring SEOs. In this study, among 2141 US banks between 1985 and 2013, banks that tended to offer SEOs and those that did not were examined comparatively. According to these findings, there was a significant increase in the total assets of banks that opted for SEOs compared to those that did not engage in SEOs. This increase continued to increase 5 years after the start of SEO. It has been stated that banks that turn to SEO make more purchases than those that do not. Accordingly, funds obtained through SEO are invested in loans for sale and other types of loans. This situation shows that banks are turning to SEOs, especially for asset expansion.

Ho et al. (2024) stated that firms exposed to negative environmental and social events tend to decrease their SEO. In this context, a sample frame was created using 1999 SEO transactions of 991 firms from 25 countries between 2009 and 2017. Firm managers calculate the loss

of reputation of the institution and find that investors have higher return expectations in return for the loss of trust. Despite this, it has been stated that firms turning to SEO face restrictions even in obtaining funds through debt.

Purpose and Importance of the Research

Studies on the relationship between SEOs and capital structure in Turkey generally focus on the short and long-term return performance of IPOs and changes in financial performance. It can be seen that the international literature on SEOs has been handled very extensively. The main research topics of the studies in the international literature focused on the reasons for firms to turn to SEOs, the purpose of the use of funds obtained from SEOs, short- and long-term return performance before and after SEO, the difference between the capital structure of firms that perform consecutive SEOs and those that do not, and the compatibility of the assumptions of SEO and capital structure theories. This study is considered an important step in evaluating firms' capital structures after conducting SEOs by testing the effect of firm-specific factors on leverage ratios in SEOs, and it is thought that this study will make a significant contribution to the literature. In this context, the main purpose of this study is to evaluate changes in the capital structure of firms after conducting SEOs by testing the effect of firm-specific factors on leverage ratios.

Scope of the Research

In this study, an unbalanced panel data analysis was used to explain the effect of firm-specific factors on leverage ratios in SEOs, and the Stata/MP 14.0 package program was used for the analysis. In the application part of the study, sports services and financial leasing firms, real estate investment trusts, insurance firms, investment firms, institutions operating in the banking sector, and securities investment trusts; firms that do not go to the SEO despite being traded in the BIST All Index and firms that have zero public offering density, have been transferred, have missing data in their financial statements, and have reduced their capital within the scope of the period covered in the study are not included in the analysis. SEOs of 41 manufacturing firms that were traded in the BIST All Index over the 16-year period between 2005 and 2020 were included in this study. It was determined that the 41 firms included in the analysis made 52 SEOs over a 16-year period. All numerical data obtained are published by the Public Disclosure Platform (KAP), Borsa Istanbul (BIST), and provided by FINNET Electronic Publishing. The calculation methods of the variables used in this study and their abbreviated symbols of the variables are summarized in Table 1. Please refer to the Appendices to Table 1.

Research Hypotheses

Within the framework of the purpose of this study, 10 basic hypotheses and 37 sub-hypotheses were developed. The hypotheses established in this framework are supported by the literature.

Table 1: Variables of the Study

Symbol	Dependent Variables	Calculation Method
$D_{ST/E}$	Short-Term Debt to Equity Ratio	Short-Term Debt / Total Equity
$D_{LT/E}$	Long-Term Debt to Equity Ratio	Long-Term Debt / Total Equity
D/E	Debt to Equity Ratio	Total Debt / Total Equity
Independent Variables		
AGR	Growth Asset Ratio	$((\text{Assets at The End of The Period} - \text{Assets at The Beginning of The Period}) / \text{Assets at The Beginning of The Period}) * 100$
M/B	Market to Book Ratio	$(\text{Market Capitalization} / \text{Total Book Value})$
TA	Tangible Asset Ratio	$\text{Fixed Assets} / \text{Total Assets}$
NPM	Net Profit Margin	$\text{Net Profit} / \text{Net Sales}$
ROE	Return On Equity	$\text{Net Profit} / \text{Total Equity}$
QR	Quick Ratio	$(\text{Current Assets} - \text{Inventories} - \text{Other Current Assets}) / \text{Short-Term Debts}$
DPO	Density of Public Offering	$\text{Number of SEOs} / \text{Age of Firm}$
PMV_{\log}	Public Market Value of Firms	$\text{Total Market Value} * \text{Free Float Ratio (Included in the Analysis by Taking Natural Logarithm)}$
FFR	Free Float Rate	$\text{Amount of Publicly Held Capital} / \text{Total Equity}$
GRE	Growth Rate of Equity	$((\text{Equity at The End of The Period} - \text{Equity at The Beginning of The Period}) / \text{Equity at The Beginning of The Period}) * 100$
GRNS	Growth Rate of Net Sales	$((\text{Net Sales at The End of The Period} - \text{Net Sales at The Beginning of The Period}) / \text{Net Sales at The Beginning of The Period}) * 100$
Dummy Variables		
TD	Tax Discount	Firms that have increased their cash capital have been entitled to a discount in their corporate tax returns since July 2015, if they meet certain conditions. Firms are divided into two groups those that receive tax deductions and those that do not.
ICC	Increasing Cash Capital	Firms are divided into two groups as those that increase cash capital and those that do not.

Footnotes to the table: This table contains abbreviated symbols for all variables used in the research article and explanations for their calculation methods.

According to the pecking order theory, as profitability increases, demand for borrowing decreases and leverage ratios decrease. Therefore, as profitability ratio increase, leverage ratios are expected to decrease. Within the scope of profitability ratios, NPM and ROE are included in the analysis as independent variables. In this context, the first hypothesis of the study and the sub-hypotheses are as follows:

H₁: In SEOs, leverage ratios decrease as profitability ratios increase.

- **H_{1a}:** As ROE increases, $D_{ST/E}$ decreases.
- **H_{1b}:** As NPM increases, $D_{ST/E}$ decreases.
- **H_{1c}:** As ROE increases, $D_{LT/E}$ decreases.
- **H_{1d}:** As NPM increases, $D_{LT/E}$ decreases.

- **H_{1c}**: As ROE increases, D/E decreases.
- **H_{1f}**: As NPM increases, D/E decreases.

According to the pecking order theory, leverage ratios are expected to increase as growth opportunities arise. Within the scope of growth opportunities, M/B and PMV are included as independent variables. In this context, the second hypothesis of the study and the sub-hypotheses are as follows:

H₂: In SEOs, leverage ratios increase as growth opportunities increase.

- **H_{2a}**: As PMV increases, D_{ST}/E increases.
- **H_{2b}**: As M/B increases, D_{LT}/E increases.
- **H_{2c}**: As PMV increases, D_{LT}/E increases.
- **H_{2d}**: As PMV increases, D/E increases.

According to trade-off theory, the collateral nature of tangible assets paves the way for low-cost borrowing. Therefore, it is expected that borrowing will increase as tangible assets increase. Alves and Ferreira (2011) evaluated borrowing in two ways: long-term and short-term. According to them, as the ratio of tangible assets increases, the long-term debt ratio increases, whereas the short-term debt ratio decreases.

In this study, expectations overlap with the general assumption of the trade-off theory and the findings of Alves and Ferreira (2011). The TA representing the firm's asset structure is included in the analysis as an independent variable. In this context, the third hypothesis of the study and the sub-hypotheses are as follows:

H₃: In SEOs, leverage ratios increase as tangible asset ratio increases.

- **H_{3a}**: As TA increases, D_{ST}/E decreases.
- **H_{3b}**: As TA increases, D_{LT}/E increases.
- **H_{3c}**: As TA increases, D/E increases.

According to trade-off theory, leverage ratios are expected to increase as firm size increases. Because a firm's assets increase, it can engage in long-term borrowing at easy and cheap costs. According to the pecking order theory, as the size of a firm increases, the tendency to issue equity capital increases; thus leverage ratios are predicted to decrease. In this study, the GAR, GRE and GRNS were included in the analysis, representing the size of the firm. In line with the expectation trade-off theory in the findings of this study, the leverage ratios will increase as the GAR and GRNS increase; in line with the pecking order theory, the leverage

ratios will decrease as the GRE increases. In this context, the sub-hypotheses established by the fourth and fifth hypotheses of this study are as follows:

H₄: In SEOs, leverage ratios increase as growth rates increase.

- **H_{4a}:** As GAR increases, D_{ST}/E increases.
- **H_{4b}:** As GRNS increases, D_{ST}/E increases.
- **H_{4c}:** As GAR increases, D_{LT}/E increases.
- **H_{4d}:** As GRNS increases, D_{LT}/E increases.
- **H_{4e}:** As GAR increases, D/E increases.
- **H_{4f}:** As GRNS increases, D/E increases.

H₅: In SEOs, leverage ratios decrease as GRE increases.

- **H_{5a}:** As GRE increases, D_{ST}/E decreases.
- **H_{5b}:** As GRE increases, D_{LT}/E decreases.
- **H_{5c}:** As GRE increases, D/E decreases.

According to the pecking order theory, leverage ratios are expected to decrease as liquidity ratios increase. The expectation regarding the findings of this study conforms to the pecking order theory. In this context, the sixth hypothesis of this study and the sub-hypotheses are as follows:

H₆: In SEOs, leverage ratios decrease as liquidity ratio increase.

- **H_{6a}:** As QR increases, D_{ST}/E decreases.
- **H_{6b}:** As QR increases, D_{LT}/E decreases.
- **H_{6c}:** As QR increases, D/E decreases.

In this study, FFR and DPO were included in the analysis, representing the ownership structure. Although no general conclusion could be drawn regarding the relationship between ownership structure and leverage ratios in academic studies, the expectation regarding the findings in this study is that leverage ratios decrease as FFR increases. This expectation is in line with the findings of Sayılğan and Sayman (2012) that as ownership density decreases, FFR increases, and Stulz (1988) and Mehran (1992) that leverage ratios increase as ownership density increases. Therefore, the expectation is that leverage ratios will decrease as FFR increases. Another expectation is that leverage ratios decrease will decrease as the density

of offer increases. The more the firm raises funds by investing in SEOs, the less its debt orientation will be. In this context, the sub-hypotheses established from the seventh and eighth hypotheses of this study are as follows:

H₇: In SEOs, leverage ratios decrease as FFR increases.

- **H_{7a}:** As FFR increases, D_{ST}/E decreases.
- **H_{7b}:** As FFR increases, D_{LT}/E decreases.
- **H_{7c}:** As FFR increases, D/E decreases.

H₈: In SEOs, leverage ratios decrease as DPO increases.

- **H_{8a}:** As DPO increases, D_{ST}/E decreases.
- **H_{8b}:** As DPO increases, D_{LT}/E decreases.
- **H_{8c}:** As DPO increases, D/E decreases.

According to trade-off theory, leverage ratios increase as the rate of firms benefiting from corporate tax base reductions increase. Since firms benefit from corporate tax base reductions over the funds they obtain from SEOs, firms that receive tax reductions are included in the analysis as a dummy variable, and the leverage ratios of firms that receive tax reductions are expected to increase. However, leverage ratios are expected to decrease due to the funds collected during the SEO period, and the years of the SEO are included in the analysis as a dummy variable. In this context, the sub-hypotheses established with the ninth and tenth hypotheses of this study are as follows:

H₉: SEO practices that receive tax reductions increase firms' leverage ratios.

- **H_{9a}:** SEO practices that receive tax reductions increase firms' D_{ST}/E .
- **H_{9b}:** SEO practices that receive tax reductions increase firms' D_{LT}/E .
- **H_{9c}:** SEO practices that receive tax reductions increase firms' D/E .

H₁₀: Leverage ratios decrease during the year of SEO.

- **H_{10a}:** In the year of SEO, D_{ST}/E decreases.
- **H_{10b}:** In the year of SEO, D_{LT}/E decreases.
- **H_{10c}:** In the year of SEO, D/E decreases.

Econometric Model

Within the scope of the study, three dependent variables were used, and a separate panel data model was established for each. These models are separately analyzed for capital structure ratios, which attempt to express a firm's ability to meet its short and long-term debt obligations and its total debt obligations. In this context, three different models established to explain the relationship between leverage ratios and firm-specific factors in SEOs are statistically expressed as follows:

Model 1: One-Way Random Effects Model

$$D_{ST}/E = \beta_0 + \beta_1 GAR_{it} + \beta_2 TA_{it} + \beta_3 NPM_{it} + \beta_4 ROE_{it} + \beta_5 QR_{it} + \beta_6 DPO_{it} \\ + \beta_7 PMVlog_{it} + \beta_8 FFR_{it} + \beta_9 GRE_{it} + \beta_{10} GRNS_{it} + \beta_{11} TD_{it} + \beta_{12} ICC_{it} + u_{it}$$

Model 2: One-Way Fixed Effect Model

$$D_{LT}/E = \beta_0 + \beta_1 GAR_{it} + \beta_2 M/B_{it} + \beta_3 TA_{it} + \beta_4 NPM_{it} + \beta_5 ROE_{it} + \beta_6 QR_{it} + \beta_7 DPO_{it} \\ + \beta_8 PMVlog_{it} + \beta_9 FFR_{it} + \beta_{10} GRE_{it} + \beta_{11} GRNS_{it} + \beta_{12} TD_{it} + \beta_{13} ICC_{it} \\ + u_{it}$$

Model 3: One-Way Fixed Effect Model

$$D/E_{\square} = \beta_0 + \beta_1 GAR_{it} + \beta_2 TA_{it} + \beta_3 NPM_{it} + \beta_4 ROE_{it} + \beta_5 QR_{it} + \beta_6 DPO_{it} \\ + \beta_7 PMVlog_{it} + \beta_8 FFR_{it} + \beta_9 GRE_{it} + \beta_{10} GRNS_{it} + \beta_{11} TD_{it} + \beta_{12} ICC_{it} \\ + u_{it}$$

Research Findings

Descriptive statistics, which present the information about the variables in tabular form by showing the highest and lowest values, mean value, number of observations, and standard deviation, represent raw data. The descriptive statistics are presented in Table 2. Please refer to the appendices to Table 2.

Table 2: Descriptive Statistics

Variables	Number of Observations	Average	Standard Deviation	Smallest Value	Greatest Value
GAR	656	0.18	0.36	-0.94	4.33
M/B	653	1.77	8.37	-177.54	42.39
TA	656	0.46	0.19	0.01	0.98
D _{ST} /E	656	0.97	10.09	-202.74	42.47
NPM	656	0.00	0.25	-3.63	0.64
ROE	650	-0.01	0.92	-15.72	12.36
QR	656	1.18	1.19	0.02	9.11

Variables	Number of Observations	Average	Standard Deviation	Smallest Value	Greatest Value
DPO	656	0.25	0.14	0.00	0.82
PMV _{log}	656	17.83	1.50	14.91	23.12
FFR	656	0.38	0.21	0.04	0.98
D _{LT} /E	656	0.48	2.26	-46.30	21.38
D/E	656	1.45	11.53	-206.12	63.84
GRE	640	0.19	0.62	-0.81	9.30
GRNS	656	0.15	0.33	-0.79	4.69

Footnotes to the table: This table contains descriptive statistics for the variables used in the analysis.

These variables are the dependent variables used in the research article: "*D_{ST}/E: Short-Term Debt to Equity Ratio, D_{LT}/E: Long-Term Debt to Equity Ratio, D/E: Debt to Equity Ratio*". These independent variables are used in the research article: "*AGR: Growth Asset Ratio, M/B: Market to Book Ratio, TA: Tangible Asset Ratio, NPM: Net Profit Margin, ROE: Return On Equity, QR: Quick Ratio, DPO: Density of Public Offering, PMV_{log}: Public Market Value of Firms, FFR: Free Float Rate, GRE: Growth Rate of Equity, GRNS: Growth Rate of Net Sales*".

Average of the GAR 0.18; M/B 1.77; TA 0.46; the *D_{ST}/E* 0.97; NPM 0.00; ROE 0.01; QR 1.18; DPO 0.25; the PMV, which was included in the analysis by taking its natural logarithm, was 17.83; FFR 0.38; *D_{LT}/E* 0.48; D/E 1.45; GRE 0.19; and GRNS 0.15. It can be seen that the standard deviation values of all variables deviate from the mean values. This situation can be interpreted as the values of the variables within a group are not suitable for a homogeneous distribution, and the values are at different points from their mean values. It is necessary to determine appropriate analysis management by testing whether the dataset is homogeneous.

The correlation coefficient, which indicates the direction and strength of the relationship between variables, takes the value between -1 and +1. If the coefficient is positive, it indicates the same direction between the two variables; if it is negative, it indicates the opposite relationship between the two variables. The fact that the correlation coefficient between the two variables is close to 1 in absolute value indicates a strong relationship between them. For a significant correlation coefficient, the coefficient between variables is close to 0. Variables with a correlation coefficient of 0.60 or higher were excluded from the same model in this study. The correlation matrix used in this study is presented in Table 3. Please refer to the appendices to Table 3.

Table 3: Results of Correlation Analysis

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
(1) GAR	1.000													
(2) M/B	0.026	1.000												
(3) TA	-0.030	-0.019	1.000											
(4) <i>D_{ST}/E</i>	0.031	0.920	-0.049	1.000										
(5) NPM	0.180	0.093	-0.213	0.042	1.000									
(6) ROE	0.090	0.004	-0.038	-0.041	0.216	1.000								
(7) QR	0.012	0.007	-0.197	-0.023	0.207	0.088	1.000							
(8) DPO	0.039	-0.071	-0.182	-0.063	-0.020	-0.075	-0.004	1.000						
(9) PMV _{log}	0.105	0.102	0.090	-0.006	0.174	0.045	0.129	0.023	1.000					
(10) FFR	-0.038	-0.033	0.073	-0.014	-0.160	-0.042	0.109	-0.068	0.069	1.000				
(11) <i>D_{LT}/E</i>	0.050	0.482	0.110	0.567	-0.004	-0.058	-0.070	-0.020	0.043	-0.059	1.000			

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
(12) D/E	0.037	0.899	-0.021	0.987	0.036	-0.047	-0.034	-0.060	0.003	-0.024	0.693	1.000		
(13) GRE	0.311	0.042	0.018	-0.057	0.070	0.056	-0.012	0.066	0.142	0.036	-0.040	-0.060	1.000	
(14) GRNS	0.464	0.040	-0.062	0.029	0.201	0.140	-0.048	0.026	0.120	-0.036	0.061	0.037	0.105	1.000

Footnotes to the table: This table includes the results of the correlation analysis for the variables used in the analysis. These variables are the dependent variables used in the research article: “ D_{ST}/E : Short-Term Debt to Equity Ratio, D_{LT}/E : Long-Term Debt to Equity Ratio, D/E : Debt to Equity Ratio”. These independent variables are used in the research article: “ AGR : Growth Asset Ratio, M/B : Market to Book Ratio, TA : Tangible Asset Ratio, NPM : Net Profit Margin, ROE : Return On Equity, QR : Quick Ratio, DPO : Density of Public Offering, PMV_{log} : Public Market Value of Firms, FFR : Free Float Rate, GRE : Growth Rate of Equity, $GRNS$: Growth Rate of Net Sales”.

According to Table 3, a high correlation between the M/B variable and the $D_{ST}/E - D/E$ variables. For this reason, M/B is not included among the independent variables in models 1 and 3. The high correlation between the D_{ST}/E and D/E was not considered because these variables were excluded from the same model.

In the application phase of the study, panel data were used, and all stages required by the panel data model were applied sequentially. The steps taken during the selection phase of the appropriate panel data model are illustrated in Chart 1.

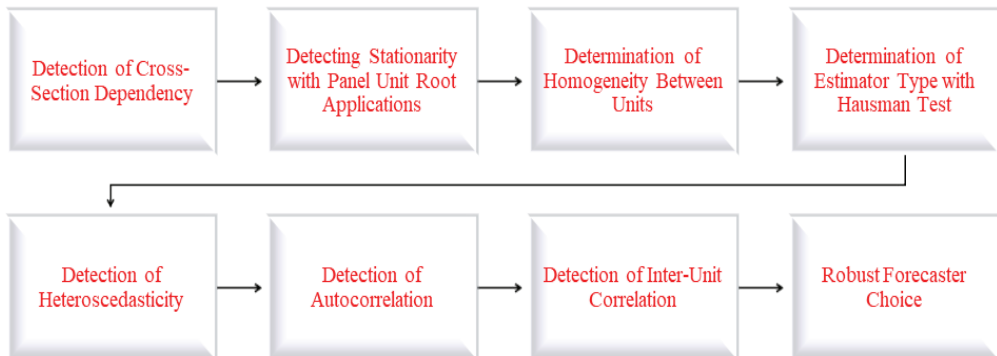


Chart 1: Steps to Apply the Panel Data Model

Cross-section dependence was determined by applying the Pesaran (2004) CD test, which is appropriate for small time dimensions and large unit sizes. The hypotheses for testing cross-sectional dependence are expressed as follows:

- H_0 : There is no dependence between units.
- H_1 : There is a dependence between units.

The cross-section dependence test is expressed as follows for the unbalanced panel:

$$CD = \sqrt{\frac{2}{N(N-1)}} \left[\sum_{i=1}^{N-1} \sum_{j=i+1}^N \sqrt{T_{ij}} \rho_{ij} \right]$$

According to this formula, “N” refers to the number of units. According to this formula, “N” refers to the number of units. “N(N-1)” calculates the correlation of each unit with all units other than itself. “Tij” correlation coefficient is the calculated number of observations; “Pij” refers to the correlation coefficient of the unit residues. Table 4 presents the cross-sectional dependency test results. Please refer to the Appendices to Table 4.

Table 4: Cross-Section Dependency Test Results for the Variables

Variables	Test Statistics	Probability Value	Variables	Test Statistics	Probability Value
GAR	7.64	0.00	QR	5.93	0.00
GRNS	12.07	0.00	DPO	66.8	0.00
M/B	41.30	0.00	PMV _{log}	70.34	0.00
TA	0.95	0.34	FFR	23.18	0.00
D _{ST} /E	11.83	0.00	D/E	14.89	0.00
NPM	3.23	0.00	D _{LT} /E	14.66	0.00
GRE	6.20	0.00	ROE	2.64	0.00

Footnotes to the table: This table contains the cross-section dependency test results.

These variables are the dependent variables used in the research article: “D_{ST}/E: Short-Term Debt to Equity Ratio, D_{LT}/E: Long-Term Debt to Equity Ratio, D/E: Debt to Equity Ratio”. These independent variables are used in the research article: “AGR: Growth Asset Ratio, M/B: Market to Book Ratio, TA: Tangible Asset Ratio, NPM: Net Profit Margin, ROE: Return On Equity, QR: Quick Ratio, DPO: Density of Public Offering, PMV_{log}: Public Market Value of Firms, FFR: Free Float Rate, GRE: Growth Rate of Equity, GRNS: Growth Rate of Net Sales”.

According to the results of the cross-section dependency test, the H₀ hypothesis, which is the main hypothesis, was established as “*there is no dependence between units*”. There is cross-sectional dependence in all variables except for the TA variable, and the H₀ hypothesis suggesting inter-unit independence is rejected. For this reason, while the second generation unit root test was applied to all variables with cross-sectional dependence; the first generation unit root test was applied to the TA variable, which has no cross-sectional dependence.

During the unit root tests, the Im–Pesaran and Shin (IPS) Panel Unit Root Test was used. The main feature of the IPS test is that it is based on the average of different unit root statistics. In the IPS test, the hypothesis that there is a unit root in at least one unit is tested against the hypothesis that there is a unit root in all units. The hypotheses established according to the IPS unit root test are expressed as follows:

- H₀: All units contain unit roots.
- H₁: Some units are stationary.

The IPS panel unit root test is expressed as follows:

$$\bar{t}_{bar} = \frac{1}{N} \sum_{i=1}^N t_{iT}$$

According to the formula, \bar{t} represents the arithmetic mean of the t-values, and the unit root is calculated according to the \bar{t}_{bar} statistic. Panel unit root test results are presented in Table 5. Please refer to the Appendices to Table 5.

Table 5: IPS Unit Root Test Results

Second Generation Variables	P Value	IPS Statistics	Second Generation Variables	P Value	IPS Statistics
GAR	0.00	-13.91	DPO	0.00	-3.57
GRNS	0.00	-15,16	PMV_{log}	0.00	-3.98
M/B	0.00	-11,04	D/E	0.00	-30.47
D_{ST}/E	0.00	-34,65	D_{LT}/E	0.00	-13,26
NPM	0.00	-5.78	ROE	0.00	-10.49
QR	0.00	-5.69	FFR	0.01	-2.22
First Generation Variables	P Value	IPS Statistics			
TA	0.00	0.00			

Footnotes to the table: This table contains the unit root test results.

These variables are the dependent variables used in the research article: “*D_{ST}/E: Short-Term Debt to Equity Ratio, D_{LT}/E: Long-Term Debt to Equity Ratio, D/E: Debt to Equity Ratio*”. These independent variables are used in the research article: “*AGR: Growth Asset Ratio, M/B: Market to Book Ratio, TA: Tangible Asset Ratio, NPM: Net Profit Margin, ROE: Return On Equity, QR: Quick Ratio, DPO: Density of Public Offering, PMV_{log}: Public Market Value of Firms, FFR: Free Float Rate, GRE: Growth Rate of Equity, GRNS: Growth Rate of Net Sales*”.

According to the IPS unit root test results, the H_0 hypothesis was rejected in all variables, and the series was stationary. After determining stationarity, the Hausman test was applied in accordance with the fixed coefficient panel data model of the models for which homogeneity was determined, and the fixed and random effects models were estimated separately. The heteroscedasticity, autocorrelation, and correlation between units were determined, and the type of resistant estimator suitable for the models was determined.

In Table 6, model 1; in the presence of heteroscedasticity and autocorrelation, the estimation results show that robust standard errors with clustered standard errors are observed in the random-effects model. The F statistic is significant and R^2 is 31.4%. In other words, the independent variables explain 31.4% of the change in D_{ST}/E , which is the dependent variable. The TA, QR, and DPO have a negative relationship with D_{ST}/E , whereas the PMV has a positive relationship. One-unit changes in TA, QR, and DPO decrease by 2.66, 0.23, and 3.43 units, respectively. A 1% increase in PMV increases the D_{ST}/E by 0.34%.

In Table 6, model 2; in the presence of heteroscedasticity, autocorrelation, and inter-unit correlation, resistant standard error estimation results made with clustered standard errors are shown in the fixed-effects model. The F statistic is significant and R^2 is 46.6%. In other words, the independent variables explain 46.6% of the change in D_{LT}/E , the dependent variable. GAR, M/B, TA, GRNS, and tax deduction have a positive relationship with D_{LT}/E , whereas DPO and PMV have a negative relationship. One-unit changes in GAR, M/B, TA, and GRNS lead to increases of 0.18, 0.16, 1.65, and 0.21 units, respectively; A one-unit change in DPO causes a 1.9-unit decrease. A 1% increase in PMV reduced D_{LT}/E by 0.2%. The increase in D_{LT}/E of firms that receive tax deductions is 0.48 units higher than that of firms that do not receive tax deductions.

In Table 6, model 3; in the presence of heteroscedasticity, autocorrelation, and inter-unit correlation, resistant standard error estimation results made with clustered standard errors are shown in the fixed-effects model. The F statistic is significant and R² is 24.3%. In other words, the independent variables explain 24.3% of the change in D/E, which is the dependent variable. ROE, QR, and GRE have a negative relationship with D/E, whereas PMV and GRNS have a positive relationship. An increase of 1% in the PMV coefficient increases 0.48% in D/E. A one-unit change in GRNS leads to a 0.56' unit increase in D/E; A one-unit change in ROE, QR, and GRE causes a decrease of 4.05, 0.12, and 0.46 units, respectively. Please refer to the appendices to Table 6.

Evaluation of Findings

The expectations regarding the hypotheses put forward in this part of the study and the compliance of the analysis results with these expectations are summarized in Table 7. Please refer to the Appendices to Table 7.

The pecking order theory suggests that as profitability increases, the need for borrowing decreases. The analysis results are consistent with this theory. Ross (1977), Friend and Lang (1988), Rajan and Zingales (1995), Megginson (1997), Booth et al. (2001), Drobotz and Fix (2003), and Huang and Song (2006) support this theory. According to the findings of this study, as firms' ROEs increase, their D/E decreases. H_{1e} hypothesis has been accepted as "As ROE increases, D/E decreases". According to a general opinion, the primary preference

Table 7: Compatibility of Unbalanced Panel Data Analysis Test Results with Hypotheses

Variables	Model 1: D _{ST} /E		Model 2: D _{LT} /E		Model 3: D/E	
	Compliance of Findings with Hypotheses					
	Expectation	Conclusion	Expectation	Conclusion	Expectation	Conclusion
AGR	Positive	Meaningless	Positive	H _{4c} /Acceptance	Positive	Meaningless
M/B	-	-	Positive	H _{2b} /Acceptance	-	-
TA	Negative	H _{3a} /Acceptance	Positive	H _{3b} /Acceptance	Positive	Meaningless
NPM	Negative	Meaningless	Negative	Meaningless	Negative	Meaningless
ROE	Negative	Meaningless	Negative	Meaningless	Negative	H _{1c} /Acceptance
QR	Negative	H _{6a} /Acceptance	Negative	Meaningless	Negative	H _{6c} /Acceptance
DPO	Negative	H _{8a} /Acceptance	Negative	H _{8b} /Acceptance	Negative	Meaningless
PMV _{log}	Positive	H _{2a} /Acceptance	Positive	H _{2c} /Rejected	Positive	H _{2d} /Acceptance
FFR	Negative	Meaningless	Negative	Meaningless	Negative	Meaningless
GRE	Negative	Meaningless	Negative	Meaningless	Negative	H _{5c} /Acceptance
GRNS	Positive	Meaningless	Positive	H _{4d} /Acceptance	Positive	H _{4f} /Acceptance
ICC ₁	Negative	Meaningless	Negative	Meaningless	Negative	Meaningless
TD ₁	Positive	Meaningless	Positive	H _{9b} /Acceptance	Positive	Meaningless

Footnotes to the table: This table summarizes the Compatibility of Unbalanced Panel Data Analysis Test Results with Hypotheses.

These variables are the dependent variables used in the research article: "D_{ST}/E: Short-Term Debt to Equity Ratio, D_{LT}/E: Long-Term Debt to Equity Ratio, D/E: Debt to Equity Ratio". These independent variables are used in the research article: "AGR: Growth Asset Ratio, M/B: Market to Book Ratio, TA: Tangible Asset Ratio, NPM: Net Profit Margin, ROE: Return On Equity, QR: Quick Ratio, DPO: Density of Public Offering, PMV_{log}: Public Market Value of Firms, FFR: Free Float Rate, GRE: Growth Rate of Equity, GRNS: Growth Rate of Net Sales". These dummy variables are used in the research article: "TD: Tax Discount, ICC: Increasing Cash Capital".

in SEOs has been internal funds, and debt payments have remained below the accumulated earnings, thus reducing the total debt ratio.

According to the pecking order theory, as firm's PMV increases, growth and investment opportunities also increase, and there will be a greater tendency to borrow. According to the results of the analysis, which is consistent with the theory, as firm's PMV increased, the D_{ST}/E and D/E increased. The hypotheses H_{2a} "As PMV increases, D_{ST}/E increases" and H_{2d} "As PMV increases, D/E increases" are accepted. According to these findings, the relationship between the D_{LT}/E and PMV is negative, and the hypothesis of H_{2c} "As PMV increases, D_{LT}/E increases" can not be confirmed. This finding does not agree with the general opinion proposed by the pecking order theory. Titman and Wessels (1988), Rajan and Zingales (1995), and Cortez and Susanto (2012) stated that firms that adopt conservative leverage policies tend to borrow less despite high growth opportunities. For this reason, it has been suggested that as growth opportunities increase, borrowing requirements decrease. The findings are in line with this prediction. As PMV increases, firms' D_{LT}/E declines. It is observed that firms prefer short-term borrowing by structuring their long-term debts using funds obtained when the PMV increases after SEOs.

According to these findings, the relationship between the D_{LT}/E and M/B is consistent with pecking order theory. The H_{2b} hypothesis is accepted as "As M/B increases, D_{LT}/E increases". This finding is also expressed in Rajan and Zingales (1995), who suggested that leverage ratios decrease in firms with equity issuance.

These findings are in line with the prediction expressed in the studies of Mira (2005) and, Alves and Ferreira (2011) that tangible fixed assets that can be shown as collateral increase borrowing capacity and reduce the cost of long-term debt. H_{3a} "As TA increases, D_{ST}/E decreases" and H_{3b} "As TA increases, D_{LT}/E increases" hypotheses have been accepted. As firms' TA increased, the D_{LT}/E also increased, but D_{ST}/E decreased. These findings show that firms with increasing tangible assets prefer less costly, longer-term borrowing rather than short-term debt.

According to trade-off theory, when firms' growth rates are taken into consideration, growth based on assets and sales also causes trust and collateral factors to come to the fore. For this reason, depending on assets and sales growth rates, it is expected that firm's tendency to borrow money will increase. The analysis results agree with these expectations. As firm's GAR and the GRNS of firms increase, the D_{LT}/E also increases; as the GRNS increases, D/E also increases. For this reason, H_{4c} "As GAR increases, D_{LT}/E increases.", H_{4d} "As GRNS increases, D_{LT}/E increases", H_{4f} "As GRNS increases, D/E increases." hypotheses are accepted. Frank and Goyal (2003) and Delcoure (2007) stated that as the size of a firm increases, agency costs decrease; accordingly, long-term borrowing with easy and cheap costs is paved. This view is also expressed in Rajan and Zingales (1995), Fama and French (2002).

Rajan and Zingales (1995) stated that the need for borrowing decreased due to firms' growth tendencies due to the capital increases and preferred to turn to equity issuance due to increasing growth requirements. This view is in line with the pecking order theory. According to these findings, H_{5c} hypothesis "As *GRE* increases, *D/E* decreases" was accepted.

According to the pecking order theory, firms with high solvency tend to borrow less. This prediction was also supported by Deesomsak et al. (2004), Mazur (2007), Sheikh et al. (2011), and Babu et al. (2014). The analysis results are consistent with this prediction. For this reason, H_{6a} "As *QR* increases, *D_{ST}/E* decreases" and H_{6c} "As *QR* increases, *D/E* decreases" hypotheses are accepted. In SEOs, it can be stated that firms pay short-term debt with increased liquidity, but this view cannot be generalized for long-term debt. The relationship between the D_{LT}/E and *QR* could not be confirmed.

The relationship between *FFR* and leverage ratio could not be confirmed. This finding agrees with Huang and Song (2006) that ownership structure and leverage ratios are not connected.

According to these findings, as the *DPO* of the firms increased, the D_{ST}/E and D_{LT}/E decline. For this reason, H_{8a} "As *DPO* increases, *D_{ST}/E* decreases" and H_{8b} "As *DPO* increases, *D_{LT}/E* decreases" hypotheses are accepted. When firms' fund inflows from SEOs were repeated, their tendency to borrow decreased. Therefore, in SEOs, it can be stated that firms' tendency to default due to equity issuances has decreased. Short and long term funding requirements are met funds obtained from SEOs.

According to the findings of this study, the prediction that firms' leverage ratios decrease during the SEO period is meaningless. However, due to SEO practices, the D_{LT}/E of firms that receive tax deductions has increased. The increase in the D_{LT}/E for these firms is compatible with the trade-off theory. For this reason, H_{9b} "SEO practices that receive tax reductions increase firms' *D_{LT}/E*" hypothesis has been accepted. According to these findings, the D_{LT}/E of firms subject to corporate tax base reduction due to SEOs has increased. The tax factor, which has an important place in the optimal leverage level, can change the direction of firms' financial resource preferences. Although the first advantage that comes to mind is that the interest expenses incurred due to borrowing can be deducted from the corporate tax base when it comes to tax advantages, it is clear that SEOs made through capital increase also create a tax advantage.

Conclusion and Recommendations

Capital structure, which has been the subject of much research with the view that perfect competition conditions cannot always be met under all conditions and the tax factor cannot

be ignored, continues research on capital structure decisions. In the studies carried out, the debt and equity preferences in firms' capital structure decisions and the existence of the optimal leverage level have formed the main point of this research. In many studies, the superior aspects of the theories have been tried to be revealed, and it has been emphasized that both theories are rivals of each other, but there are differences in the fund source preferences of firms due to firm, sector, or country conditions. Although the studies developed under the leadership of modern capital structure theories have not been able to reach a consensus on debt or equity capital preferences against firms' fund requirements, the main view is that both theories contribute significantly to the literature, and these theories should be evaluated as a whole.

When the findings of this study are evaluated, they are found to be generally compatible with modern capital structure theories. While the prediction that firms' long-term borrowing rates will increase according to trade-off theory has been confirmed, as the guarantee nature of a firm's tangible assets paves the way for low-cost and long-term borrowing, according to pecking order theory, the prediction that increased equity profitability ratios due to SEOs will decrease total borrowing rates has also been confirmed in the analysis results. While some analysis results are compatible with the predictions of the trade-off theory, others are compatible with the pecking order theory. It can be stated that the firms that go to SEO do not comply with the financial hierarchical order, and the view of benefiting from both funding sources is dominant rather than choosing between equity capital or financing through borrowing in the face of fund requirements. Therefore, instead of seeing the theories as rivals by focusing on the shortcomings or superiorities of both theories, the view that firms' fund requirement preferences can be changed by taking into account firm-specific factors and evaluating both capital structure theories as a complementary whole comes to the fore.

It can be interpreted that the efforts of firms to meet their fund needs by issuing equity capital are replaced by the corporate tax base reduction advantage provided by SEOs compared with the corporate tax base reduction advantage provided by borrowing. As a matter of fact, subjecting the amount calculated over the cash increase due to SEOs to corporate tax base reductions, SEOs are an important external fund source that provides financing with equity capital. Therefore, it is expected that the probability of repeating SEO at certain intervals in the future will increase considering firms' fund requirements.

According to the results of the analysis, the assets and sales of firms that engage in SEOs in Turkey have increased, and this increase and the benefit of corporate tax base reduction due to SEOs increase their tendency to engage in long-term borrowing. It can be stated that firms with increased SEO density have decreased short and long-term leverage ratios and pay their short-term debts by giving priority to internal fund resources due to the increased liquidity ratio.

In future studies, considering leverage ratios and country-specific factors, not limiting the sector to manufacturing firms only, and comparing firm data from different sectors in SEOs, the time interval, including before and after the SEO evaluation quarterly, and including a longer time period in the research may be important to review the findings more generally.

There are no academic studies in Turkey on the capital structure of SEOs. For this reason, regarding SEO transactions, whether the changes in the capital structures of firms before and after public offering transactions cause a difference when certain maturities are considered and when the purposes of use of the funds obtained through SEOs are considered, it is possible to make a more comprehensive evaluation.

Considering the low number of SEOs in Turkey, it is seen that some firms do not conduct SEOs after the IPO, while some firms conduct SEOs and repeat their SEOs at regular intervals. Changes in the capital structures of firms that did not participate in SEO after the IPO and those that did participate are also seen among the subjects worth researching.

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