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What Kind of Cycle Do Seasoned Equity Offerings Create on The Company's Financial Structure? BIST Application with Panel ARDL Error Correction Model

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Dönemsel Halka Arzlar Firma Finansal Performansı Üzerinde Ne Tür Bir Döngü Yaratır? Panel Hata Doğrulama Modelli BIST Uygulaması

Abstract

This study examines the effects of fundamental public offering indicators in seasoned public offering companies on current ratio, return on equity and financial leverage ratio in the long and short term. For this reason, the Panel ARDL error correction model was applied by using the data of 40 stocks between 2005-2022. The analysis results are consistent with the literature, and it is found that the degree of financial leverage decreased and liquidity increased after the public offering; it was emphasised that this financial recovery has regressed in the long term. In this context, a perspective supporting the literature within this spectrum could be presented about the effects of fundamental public offering indicators on the current ratio, return on equity and financial leverage ratio in seasoned public offering companies in the long and short term.

Keywords : Seasoned Equity Offering, Debt and Equity, Panel ARDL Error Correction Model.

JEL Classification Codes : G32, O16.

Öz

Bu çalışmanın amacı, dönemsel halka arz firmalarında temel halka arz göstergelerinin, uzun ve kısa dönemde cari oran, öz sermaye karlılığı ve finansal kaldıraç oranı üzerindeki etkilerini incelemektir. Bu sebeple 2005-2022 yılları arasındaki 40 hissenin verilerinden yararlanılarak Panel ARDL hata düzeltme modeli uygulanmıştır. Analiz sonuçları literatür ile uyumlu olup, halka arz sonrası finansal kaldıraç derecesinin düştüğü, likiditenin yükseldiği; uzun vadede ise bu finansal iyileşmenin gerilediği vurgulanmıştır. Bu kapsamda çalışmanın amacı ile dönemsel halka arz firmalarında temel halka arz göstergelerinin, uzun ve kısa dönemde cari oran, öz sermaye karlılığı ve finansal kaldıraç oranı üzerindeki etkilerine bu yelpaze içerisinde literatürü destekler nitelikte bir bakış açısı sunulabilmiştir.

Anahtar Sözcükler : Dönemsel Halka Arz, Borç ve Öz Sermaye, Panel ARDL Hata Düzeltme Modeli.

1. Introduction

Although the reasons why companies turn to public offerings may vary in line with different goals, the main reason is to create capital to achieve other goals. This goal may be to create growth potential within the scope of investment or growth expectations or to accelerate this growth potential further. Or, it may be possible to create a source of funds without borrowing in the face of a funding requirement, thereby achieving greater recognition and access to investors and creating more borrowing capacity by avoiding the burden of principal and interest. Whatever the reason, a successful initial public offering (IPO) will signal that the next offering attempt is not far away. An IPO facilitates the infusion of external funding into a company by expanding its cash capital, thereby inducing a surge in its financial performance. The studies on the subject found that liquidity increased while the degree of financial leverage decreased in the short term after the IPO. In the long run, it is emphasised that this financial recovery has regressed. Welch (2004), Dudley and James (2018), Koçdemir and Küçükçolak (2021) are some of these studies. Lemmon et al. (2008) described this decline in financial recovery as a return to the pre-IPO financial structure.

According to Jegadeesh and Titman (1993), the financial performance of companies will be shaped by the financial performance of the previous period. In their study, Harjoto and Garen (2003) stated that unexpected growth after the offering increased the tendency towards public offering again in the following four years. In other words, these companies prioritise the issuance of stocks over-borrowing. Of course, the stable economic structure will also have a significant share in these repeat public offerings. A predictable and stable economy will further pave the way for growth targets and increase the appetite for capital.

Many academic studies have studied whether companies will borrow to meet their funding needs or issue new stocks by increasing their paid-in capital. While most companies prefer debt, some like to issue stocks predominantly; the effects of debt or stock issuance on the target of the financial leverage ratio is a subject that has been studied with interest in the field literature. The fact that there is no consensus on how the decisions to be taken in the face of funding requirements are shaped, even though they are frequently questioned in the finance literature, can be interpreted that the theoretical findings will be discussed extensively in the future. The basis of the differences of opinion on the subject is based on the difference in the fund preference order between the trade-off theory and pecking order theories, which constitute the basic building block of modern capital structure theories. The starting point of the differences of opinion is the trade-off theory, which always prioritises borrowing by calculating the balance between the tax shield effect created by interest expenses and costs, and the pecking order theory, which suggests that internal fund sources are the most reliable source of funds. Although they put forward different views in their fund source preferences, the question of "which funding source can I achieve the most benefit with the least cost" forms the basis of both theories. Studies in the literature have also pioneered many views based on these two theories. Most studies advocate that borrowing is the only external funding source that can provide benefit and cost balances. The main point of the studies is the tax base reduction that will be created by borrowing. It has been claimed

that meeting the requirement of external funding through the issuance of stocks is highly costly. Myers (1984), Myers and Majluf (1984), Stulz (1988), Mehran (1992), and Ruutu (2010) are some of these studies. Some studies have stated that obtaining funds from outside with the issuance of new stocks constitutes an alternative to borrowing. Rajan and Zingales (1995), Carpenter and Petersen (2002), Frank and Goyal (2003), Brau and Fawcett (2006), Johansson and Lundblad (2011), Stamou et al. (2020) are some of these studies.

Although there is no clear foresight on the subject, the general opinion is that companies that exceed the upper limit of the target of the financial leverage ratio will tend to issue stocks, while companies that fall below the lower limit of the target of the financial leverage ratio will inevitably resort to borrowing. Of course, the existence of other factors cannot be ignored. In particular, tax reduction appears to be the most critical factor. The ability to deduct interest expenses incurred due to borrowing from the tax base highlights the tax shield effect of debt. Companies that go public by re-issuing stocks through capital increase receive tax deductions on the amount of capital increased in cash at specific rates. This provides an alternative to the tax advantage of borrowing. It can be accepted that both fundraising tools have advantages over each other.

When the orientations of companies in Turkey regarding their funding requirements are examined, striking figures are encountered. When the BIST-2022 Integrated Activity Report was reviewed, 40 companies held their initial public offering in Turkey in 2021 and raised 19.3 Billion TL of funds. It is seen that 20 companies whose stocks were offered to the public through paid-up capital increase by going to seasoned equity offering (SEO) after the initial public offering collected 5.11 billion TL of funds. The number of debt instrument issues was 1855 for 2022, and 361.6 billion TL issuance revenue was obtained. It can be said that the number of IPO stock issuances, the number of SEO stock issuances, and the revenue obtained are almost a big difference. However, there is also a gap between the number of debt instrument issues and revenues versus stock issues. Considering the number of debt instrument issues and the issue revenue obtained, it can be said that debt instrument issuance may have been more attractive to companies. Then, suppose the debt instrument is more attractive. Why did the companies return to public offering after the initial public offering, even when there was a more attractive issue instrument?

Modigliani and Miller (1958), who pioneered the studies on capital structure with the view that the capital structure is independent of the value of the company in perfect market conditions without tax, stated that the choice of debt or new stock issuance is not important in the face of the need for funds. Because the company's value is not affected by fund selections or capital structure decisions, in 1963, Modigliani and Miller argued that maximum benefit could be achieved with maximum debt utilisation, considering the tax effect. However, he criticised the view that there is a greater tendency towards debt because the costs of issuing stocks are much higher in the face of fund requirements. It was emphasised that the only factor differentiating the cost in both funding sources is the tax shield and that this difference is only approximately 25%. They stated that in a position where there are no taxes, this cost difference would be negligible. The study results show

that as the interest rate decreases, the tax base for interest expense will also decrease, so the tax advantage of the debt will become insignificant. Since the tax base deduction right for both fund sources is granted to companies in Turkey, it is evident that they can replace each other. According to Modigliani and Miller (1958), a current or recent means of earning will attract the company in the near future. In this case, a company that has started to go public by issuing stocks will likely want to go public by reissuing stocks soon.

However, the number of companies in Turkey that turned to SEOs again after IPO is minimal compared to the number of companies traded on BIST. Although they are small in number, the main reason why companies choose SEOs in response to their funding requirements is in their public offering prospectuses. It is based on reasons such as meeting working capital needs, renewal or capacity increase in production facilities, and obtaining funds for new investment decisions. Companies turn to SEOs to raise funds. How does the liquidity structure of these companies change as their supply density and free float ratio increase? How are return on equity and financial leverage structures affected by this situation? This study will seek answers to the mentioned research questions.

Considering that the tendency towards debt is more common in the literature on the subject and that the evaluations are in this direction, it is aimed to reach the decision-makers with the view that the final goal can be achieved with SEO. Companies should guide capital structure decisions to balance the advantages and disadvantages of debt and SEO against funding requirements. In this respect, it is thought that the study will significantly contribute to the literature to highlight the importance and necessity of SEO. The study aimed to examine the short- and long-term financial effects of fundamental public offering indicators by identifying the companies that turn to SEOs. In this context, the study examines the impact of fundamental public offering indicators in seasoned equity offering companies on current ratio, return on equity and financial leverage ratio in the long and short term. According to the study results, companies that turn to SEOs experience a financial improvement as the number of SEOs increases and the financial leverage ratio decreases. At the same time, these results are consistent with changes in the financial structure of companies that prefer to borrow instead of SEO.

A literature review on the subject was conducted, and then research methodology, hypotheses, and findings were included. Suggestions were made for future studies.

2. Literature Review

Studies on SEO companies in Turkey are scarce. However, SEOs occupy a lot of international literature. In particular, the short- and long-term financial performance of companies turning to SEO before and after SEO and why companies turn to SEO more arouse curiosity among researchers. Whether companies use the sales proceeds from SEOs for the purposes stated in their public offering prospectuses; The success of SEO applications of companies that have come to the point of being unable to fulfil their debt obligations; Effects of SEO practices on optimal capital structure and target of financial leverage ratio;

What may be the factors that trigger SEO decisions; The role of SEOs in corporate finance management and their impact on success in corporate management; The relationship between SEO and stock return performance is among the main issues guiding academic studies. For this study, this section will briefly include findings on the effects of SEOs on the financial leverage ratio, return on equity and liquidity structure, and the balanced relationship between them.

The market timing theory put forward by Baker and Wurgler (2002) emphasises that increases will activate this balance and decreases in market value. According to general opinion, when there is an increase in market value, it is preferable to raise funds by issuing new stocks; when there is a decrease in market value, the choice to raise funds through debt comes to the fore. Several studies suggest that the tendency to issue debt or new stocks in response to funding requirements weakens the preference for another fund (Jensen & Meckling, 1976; Frieder & Martell, 2006; Udomsirikul et al., 2011; Mohamed & Seelanatha, 2014; Andres et al., 2014; Sivathaasan, 2016; Nadarajah et al., 2018). This view is based on the benefit-cost balance shaped by the choice between the cost of debt and equity capital proposed in the trade-off theory. Achieving this balance is entirely shaped by understanding minimum cost and maximum benefit. For this reason, liquidity is important. The liquidity power of stocks reduces the cost of equity capital, and raising funds through the issuance of new stocks is preferable to the cost of debt. Liquidity will not reach the expected levels as the stock transaction volume remains shallow in companies with low free float ratios. In this case, since the cost of equity capital will increase, it will be preferable to bear the cost of debt. Although there is no consensus on the subject, when the standard views in the literature are examined, it is seen that the fund preferences of companies cannot be separated by the fine lines stated by Baker and Wurgler (2002). Another general opinion on the subject is that the liquidity creation capacity of publicly traded stocks and the company's ability to obtain debt support each other positively and can substitute for each other. Another general opinion on the subject is that the liquidity creation capacity of publicly traded stocks and the company's ability to obtain debt support each other positively and can substitute for each other. A high free-float ratio increases liquidity power and paves the way for debt financing. Then, there is a linear connection between the free float and financial leverage ratios (Ding et al., 2016). Al-Shboul et al. (2022), if the added value created by both fund preferences is positive in choosing funds through debt or equity, the possibility of a linear connection between them is, of course, powerful, and they can be considered as a corporate finance strategy that is complementary to each other. However, if these fund choices create opposite added value, then it would be more reasonable to consider them as two balancing corporate finance strategies rather than complementing each other. According to Mahrt-Smith (2005), substantial debt enables strong equity capital. Still, the advantages of a dispersed or concentrated ownership structure cannot be substituted for a good monetary incentive plan. When the relevant literature is examined, it is seen that companies' funding preferences are based on the connection between corporate debt, new stock issuance, and ownership structure, and there is no consensus on the advantages created by fund preferences. While Fu and Smith (2021) explained why companies turn to SEOs, they stated that market timing,

trade-off and pecking order theories are insufficient and that the fund preference reasons of SEO companies contradict these theories. According to the trade-off theory, SEO companies have moved away from the optimal financial leverage ratio rather than trying to achieve balance with the optimal financial leverage ratio. Contrary to the Pecking Order theory, they pushed aside high financial leverage by using the advantage of debt at the lowest level. According to market timing theory, they tried to reach capital requirements to implement investment projects rather than the suitability of market conditions. According to them, SEO companies implement a unique financial strategy by addressing the beneficial aspects of all three theories. In this case, the advantages of debt or new stock issuance and funding cannot be mentioned similarly.

Past studies on the link between the liquidity creation capacity of publicly traded stocks and the free float ratio seem to be based on the relationship between entitlement and information asymmetry. According to the general opinion in research, as ownership concentration increases, information asymmetry will increase, stock transaction speed will slow down, and liquidity will decrease. Ownership concentration can be considered a harbinger of a shallow market and low liquidity. Christensen et al. (2015), agency costs decrease as the free float ratio increases, and the information asymmetry problem becomes more controllable. Thus, the liquidity power of publicly traded stocks will accelerate further. All (2016) stated that since it is known that publicly traded stocks increase liquidity, it is inevitable that there will be a linear connection between the free float rate and liquidity. According to them, the liquidity advantage provided by public offering will also create a distinct advantage in economic fluctuations. Rezaei and Tahernia (2013) frequently included this view in their studies. According to them, the stocks will be traded more, creating more fundraising capacity as the free float ratio increases. In other words, as the free float ratio decreases, the trading volume of publicly traded stocks will decrease, and the liquidity of the stocks will decrease. According to El-Nader (2018), the high liquidity that comes with an increase in the free float ratio can be observed much more clearly, even if company-specific factors come into play. In this case, as the free float ratio increases, the public offering density will also increase, and with the acceleration of liquidity, the public market value will also increase. Another opinion is that in the case of block ownership, the trading intensity decreases, and, as a result, the liquidity decreases. Ginglinger and Hamon (2012) evaluated this situation as block ownership slows down the liquidity speed of stocks. Therefore, dispersed ownership can be considered a liquidity prerequisite in companies with a high free-float ratio. The lower the block ownership, the more the number of publicly traded stocks that can be actively traded can be increased (Rubin, 2007; Brockman et al., 2009; Yosra & Sioud, 2011; Wang & Zhang, 2015; Prommin et al., 2016). Narayan et al. (2015) stated that stock liquidity is driven, at least partially, by the market, which may indirectly affect the ownership structure significantly. This review was first published by Chordia et al. (2000), which expressed the concept of "liquidity partnership" and emphasised that liquidity cannot arise due to a feature of a single asset. According to Chordia et al. (2000), liquidity is much more than a single feature of an asset. Therefore, the relationship between liquidity and free float cannot be evaluated with a single factor. While the free float

ratio affects liquidity, company-specific factors affecting liquidity, the country's economy and market conditions will also play an active role in the free float ratio.

Return on equity, which can be considered as a measure of how much added value can be created with the total capital invested by the company owners and shareholders, can also be considered a market performance indicator of publicly traded stocks with the success of the company management in SEOs and fund management. The increase in return on equity increases the liquidity of publicly traded stocks, thereby increasing the public market value. For this reason, the relationship between the added value created by equity capital through SEOs and the free float rate has been discussed many times in the literature. One of the general opinions is that publicly traded stocks add value to the effective management of equity capital and shareholder wealth by increasing liquidity. According to Adebiyi and Sunday (2011) and Mohammed and Fadzil (2018), a low free float rate indicates ownership concentration. According to them, the return on equity decreases as ownership density increases. It is known that the equity capital of companies that turn to SEO increases and that publicly traded stocks provide more returns in the short term with the price increase, which is expressed as a measure of return on equity. However, in the long run, the price performance of publicly traded stocks tends to decline rapidly. For this reason, there is a long-term negative relationship between the increase in free float ratio and return on equity (Lukose & Sapar, 2003; Wang et al., 2006; Jiang et al., 2013). Another opinion is that the period following the SEO announcement and the stock issuance was perceived as a negative signal by investors and caused a negative impact by significantly reducing the SEO stock prices. This effect resulted in poor financial performance in the long term. According to Chen and Liu (2022), SEOs cause capital increases, but since stock prices will decrease after the SEO announcement, earnings per stock will also decrease, and liquidity will decrease. Therefore, it will not be possible to talk about return on equity in the short or long term. However, to increase the success of SEOs, increasing the return on equity and capital is a priority condition. Because if the return on equity does not increase along with the capital increase, earnings per stock will also tend to decline. According to Netiniyom (2016), even if the stock liquidity and transaction volume of companies with low free float rates are low, whether the equity capital is used efficiently or not can be effectively evaluated in the long term, depending on the dividend payment speed and the expectation of obtaining returns from future investments. For this reason, the free float ratio cannot be expected to affect return on equity significantly. According to Eckbo et al. (1999), SEOs reduce companies' risk exposure against economic fluctuations by reducing the financial leverage ratio. As the risk decreases, the stock return will also decrease. For this reason, it is predicted that SEOs reduce financial performance in the short and long term, and there is no capital return due to public offering. According to Ogabo et al. (2021), a low free-float ratio and high block ownership do not significantly affect the return on equity capital. According to Sailendra et al. (2019), the free float ratio does not affect the return on equity capital.

3. Development of Theory and Hypothesis

According to Modigliani and Miller (1958), SEOs represent a small proportion of outstanding capital. For this reason, it cannot be expected to cause a significant change in the financial leverage ratio. Therefore, the ability to change this expectation depends on maximising the public market value with the increase in the free float rate. Considering that there is no fixed optimal leverage structure for companies, even if they operate in the same sector with the same transaction capacity, it should be regarded that a different capital structure for each company will represent this expectation. Of course, the company's choice of issuing debt or new stock and the weight of these preferences will play an important role in the company's financial leverage, profitability and liquidity flow. However, the most fundamental debate in academic studies is whether these preferences will be shaped by the issuance of new stocks, which is presented as the last choice by the pecking order theory, or by the optimal financial leverage structure, which emphasises minimum cost-maximum value by the trade-off theory. Although a general opinion on the subject cannot be reached, the fact remains that debt and stock issues are the only sources of funds that can replace each other. Balanced use of these resources is inevitable to maximise optimal financial leverage, minimum cost of capital, and maximum shareholder and company value. This balance, which will vary according to the company-specific factors, will create a cycle of liquidity, financial leverage and profitability.

When the relevant literature is examined, it is seen that this cycle is handled within the framework of modern capital structure theories and that company-specific factors and financial leverage ratios are associated with the change in the capital structure of companies. According to capital structure theories, funding through borrowing was preferred instead of SEO in response to funding requirements, and the view that providing funding through SEO was more costly was brought to the fore. Many studies based on this view have evaluated the changes in the financial leverage ratio within the company's financial framework, focusing on the role of debt in capital structure decisions. Changes in liquidity and profitability structure due to changes in financial leverage ratio are one of these evaluations. In these evaluations, it is seen that the differences of opinion regarding the relationship between financial leverage, liquidity and profitability dominate the literature. As a matter of fact, unlike Bradley et al. (1984), who suggests that the solvency of companies increases as their liquidity increases, Sheikh and Wang (2011), Babu and Chalam (2014), Umer (2014), Kiracı and Aydın (2018) stated that companies with high liquidity do not need to obtain funds from outside and that there is no linear relationship between financial leverage and liquidity.

Rajan and Zingales (1995) and Huang and Song (2006), who suggest that as profitability increases, the solvency of companies will increase and there will be less need for borrowing, are some of the studies that support this view. According to the studies of Mehrotra et al. (2005) and Cole (2013), as profitability increases, the appetite for borrowing also increases along with the increasing debt payment ability. Titman and Wessels (1988), Frank and Goyal (2009), Chakraborty (2010), Oino and Ukaegbu (2015), Hang et al. (2018),

Özcan (2023) stated in their studies that profitability decreases and liquidity improves as financial leverage increases. According to Salawu (2009), Yegon et al. (2014), and Chipeta (2016), the relationship between financial leverage ratio and profitability differs in the long and short term. According to their studies, there is a positive relationship between financial leverage ratio and profitability in the short term and a negative relationship in the long term. In summary, the provision of the need for external funding through borrowing has guided the research questions evaluated in the studies. Different evaluations were put forward according to the sector, economic conditions, company-specific factors and the method applied in the study.

This study will determine how this orientation will affect the financial leverage, liquidity and profitability ratios of companies that turn to SEO in the face of fund needs. The basis of the studies in the literature is modern capital structure theories, and the primary purpose is how to achieve the balance of benefit and cost. As a source of external funding, the issue of how the tendency of some companies to turn to seasoned equity offerings instead of borrowing in the face of funding requirements will make a difference in this cost-benefit balance will guide the hypotheses of this study. Basic public offering indicators are among the most active components in this cycle. For this reason, basic public offering indicators were determined as explanatory variables in the study.

This study investigates the effects of basic public offering indicators in SEO companies on financial leverage ratio, current ratio and return on equity in the long and short term. Although many studies in the literature on the financial performance of companies that tend to borrow as a source of external funding, studies on the financial status of companies that fund through new stock issuance are extremely limited in Turkey. Although there are few studies on the subject, it can be said that the study results are parallel to the financial situation of the companies that tend to borrow. Rajan and Zingales (1995), Koçdemir and Küçükçolak (2021), and Soesetio (2024) stated in their studies that there was no general improvement in profitability ratios after public offerings. Still, there was a significant improvement in the liquidity structure, and the financial leverage ratio decreased. In this context, the study's first hypothesis is on the relationship of basic public offering indicators with the financial leverage structure that represents the company's choice of issuing debt or new stock's capital structure. The basic basis of the hypothesis is based on the tendency to obtain maximum benefit with minimum cost by issuing new stocks for the optimal financial leverage target suggested by the trade-off theory. Companies' tendency to issue new stock will reduce their tendency to borrow by increasing their debt payment ability, reduce the financial leverage ratio by providing new fund inflows, and increase capital gains, return on equity and liquidity. Then, the hypotheses of the study can be expressed as follows.

> **Hypothesis 1.** "*As the public offering density, public market value and free float ratio, which are among the basic public offering indicators, increase, the financial leverage ratio decreases.*"

Hypothesis 2. "*As the public offering density, public market value and free float ratio, which are among the basic public offering indicators, increase, return on equity and current ratio increase.*"

4. Research Methodology and Data

The panel error correction model established in this study used the data of 40 stocks traded in the BIST index manufacturing sector between 2005 and 2022. All data were obtained from the Finnet Electronic Publishing database, and the companies consist of companies that go to public offering more than once. The primary purpose of not including companies that do not go public again after the initial public offering is to see the effect of the increasing number of public offerings on the company's financial performance. For this reason, a data set was created with companies that went to public offering more than once. The companies consist of companies that tend to issue new stocks through paid capital increases after the IPO, and companies that turn to public offerings with the sale of existing stocks are not included in the analysis. Public offering sales methods were not considered and can be expressed as the limitation of the study. Information on all variables used in the study is seen in Table 1.

Table: 1
The Variables in the Study

Name of Variables	Symbol of Variables	Data Source	Definition of Variable
Leverage Ratio	LevR	FINNET Financial Information News Network	The leverage ratio shows how much of a company's funding needs are met through borrowing. It is the ratio of the company's total debt to its total assets.
Return on Equity	ROE		The return on equity predicts how much return shareholders will receive for one unit of capital. It is the ratio of total net income to average equity.
Current Ratio	CR		The current ratio measures the company's ability to meet its short-term liabilities. It is current assets divided by short-term total debt.
Public Offering Density	POD		The density of the public offering indicates the ratio of the number of seasoned public offerings of the companies to their age.
Public Market Value	PMV		The publicly traded market value represents the publicly traded portion of the company's total market value. It is calculated by multiplying the company's total market value by the free float ratio.
Free Float Ratio	FFR		The free float ratio is the ratio of publicly traded stocks to the total number of stocks.

5. Empirical Models

This study examines the effects of basic public offering indicators on company liquidity, profitability, and financial leverage structure in the short and long term. POD, PMV, and FFR were determined as independent variables. LevR, ROE, and CR are dependent variables, and each dependent variable was analysed using a separate model. The fact that the model has a heterogeneous structure and all variables are stationary at different levels (I(0), I(1)) led the study to the Panel ARDL error correction model. For this, a choice was made between the pooled mean group estimator (PMG) model developed by Pesaran (1999) and the mean group (MG) estimator model developed by Pesaran and Smith (1995) with the help of the Hausman test (1978). The PMG estimator was determined to be the most effective estimator. According to the estimator model, heterogeneity is allowed except for long-term parameters. The panel ARDL error correction model established in this context was expressed statistically in Model 1, Model 2 and Model 3, showing the short and long-term coefficients of the variables and the error correction coefficient.

$$\Delta LevR_{it} = \alpha_i + \varphi_i LevR_{i,t-1} + \gamma_i' POD_{it} + \delta_i' PMV_{it} + \theta_i' FFR_{it} + \sum_{j=1}^{pi-1} \beta_{ij}^* \Delta LevR_{i,t-j} + \sum_{j=0}^{qi-1} \gamma'^*_{ij} POD_{i,t-j} + \sum_{j=0}^{ki-1} \delta'^*_{ij} PMV_{i,t-j} + \sum_{j=0}^{li-1} \theta'^*_{ij} FFR_{i,t-j+} + \vartheta_i + \varepsilon_{it} \quad \text{(Model 1)}$$

$$\Delta ROE_{it} = \alpha_i + \varphi_i ROE_{i,t-1} + \gamma_i' POD_{it} + \delta_i' PMV_{it} + \theta_i' FFR_{it} + \sum_{j=1}^{pi-1} \beta_{ij}^* \Delta ROE_{i,t-j} + \sum_{j=0}^{qi-1} \gamma'^*_{ij} POD_{i,t-j} + \sum_{j=0}^{ki-1} \delta'^*_{ij} PMV_{i,t-j} + \sum_{j=0}^{li-1} \theta'^*_{ij} FFR_{i,t-j+} + \vartheta_i + \varepsilon_{it} \quad \text{(Model 2)}$$

$$\Delta CR_{it} = \alpha_i + \varphi_i CR_{i,t-1} + \gamma_i' POD_{it} + \delta_i' PMV_{it} + \theta_i' FFR_{it} + \sum_{j=1}^{pi-1} \beta_{ij}^* \Delta CR_{i,t-j} + \sum_{j=0}^{qi-1} \gamma'^*_{ij} POD_{i,t-j} + \sum_{j=0}^{ki-1} \delta'^*_{ij} PMV_{i,t-j} + \sum_{j=0}^{li-1} \theta'^*_{ij} FFR_{i,t-j+} + \vartheta_i + \varepsilon_{it} \quad \text{(Model 3)}$$

While the stocks of 40 companies included in the data set represent the units (i); the time dimension (t) covers the 18-year period between 2005-2022. The ε_{it} term seen in the model represents the error term; The term $\boldsymbol{\varphi_i}$ is the error correction parameter, which is assumed to vary from unit to unit; The terms $\boldsymbol{\gamma'}$, $\boldsymbol{\delta'}$, $\boldsymbol{\theta'}$ represent long-term coefficients; The terms β^*, $\boldsymbol{\gamma'^*}$, $\boldsymbol{\delta'^*}$, $\boldsymbol{\theta'^*}$ represent short-term coefficients.

6. Findings of the Research

Table 2 shows the data of 40 stocks traded in the BIST in all the index manufacturing sectors between 2005 and 2022. Although the number of observations for the variables is 720, there is no missing data in the number of observations in the variables. For this reason, the data set is a balanced panel.

Table: 2
Descriptive Statistics

Variable	Symbol	Obs	Mean	Std. Dev.	Min	Max
Leverage Ratio	LevR	720	0.54	0.27	0.06	3.24
Return on Equity	ROE	720	0.12	0.88	-15.72	12.36
Current Ratio	CR	720	0.02	0.02	0.00	0.11
Public Offering Density	POD	720	0.25	0.13	0.00	0.82
Public Market Value	PMV	720	18.14	1.71	14.91	24.89
Free Float Ratio	FFR	720	0.39	0.21	0.03	0.99

When the value range of the variables is examined, it is seen that there are large differences between the minimum and maximum values of some variables. While the average value of the LevR, which shows how much of the fund needs of companies are met through borrowing, is 54%, the value range is between 6% and 324%, while the CR, which measures the ability of businesses to meet their short-term obligations, is 2% on average and a maximum of 11%. It is seen that the general average of the ROE, which shows how much profit share partners can earn in return for one unit of capital, is 12%, and its value range varies between -1572% and 1236%. The negative/positive gap between these values can be considered an indicator of the company's power to dissolve its debts without losing its equity capital and make more profits with less capital, as well as its success in managing this power. The POD, which shows the ratio of the number of seasoned equity offerings of the company after the initial public offering to the company's age, is 25% on average, while the maximum

is 82%. This can be interpreted as some companies increasing their frequency of public offerings by going public at specific periods, while some companies have a much weaker tendency towards public offerings. The natural logarithm of PMV, which represents the publicly traded portion of the total market value of companies, was taken and included in the analysis. It can be seen that while the PMV average is 18.14, the value range is between 14.91 and 24.89. The FFR, which expresses the percentage of circulation of publicly held stocks, is 39% on average, while the value range varies between 3% and 99%. The FFR reveals a measure of companies' ability to raise funds by going public rather than meeting their funding requirements by borrowing.

Table 3 shows the correlation relationship between the variables. To avoid multicollinearity problems, it is generally preferred that the correlation relationship between variables is not 0.60 or above. The fact that this ratio is high indicates that the variables are similar.

Table: 3
Correlation Analysis

Variables	LevR	ROE	CR	POD	PMV	FFR
LevR	1.00					
ROE	-0.15	1.00				
CR	-0.59	0.09	1.00			
POD	-0.08	-0.08	-0.03	1.00		
PMV	-0.09	0.08	0.04	-0.02	1.00	
FFR	-0.08	-0.05	0.16	-0.07	0.04	1.00

According to the Pesaran CD test results in Table 4, all variables have cross-sectional dependence. This dependence can be interpreted as a change that may occur in stocks and also affect other stocks.

Table: 4
Cross-Section Dependence

Variables	CD-Test	P-Value	Corr	Abs(Corr)
LevR	16.89	0.00***	0.14	0.39
ROE	9.10	0.00***	0.08	0.28
CR	10.07	0.00***	0.09	0.33
POD	66.32	0.00***	0.56	0.72
PMV	92.55	0.00***	0.78	0.78
FFR	20.97	0.00***	0.18	0.37

**** There is a correlation between units at the 1% significance level.*

Since all variables are cross-sectionally dependent, the existence of a unit root was tested with the Cross-Section Extended Im, Pesaran and Shin (CIPS) test, which is the second-generation panel unit root test and two different stationarity tests: intercept and intercept-trend. The results of the unit root test are shown in Table 5.

Table: 5
Unit Root Test

Variables	CIPS I(0)		CIPS Δ I(1)	
	Intercept	Intercept and Trend	Intercept	Intercept and Trend
LevR	-2.38 0.00***	-2.44 **0.17**	-2.73 0.00***	-2.86 0.00***
ROE	-1.60 **0.80**	-2.29 **0.51**	-3.27 0.00***	-3.42 0.00***
CR	-2.27 0.00***	-2.34 **0.37**	-2.99 0.00***	-3.14 0.00***
POD	-3.10 0.00***	-3.23 0.00***	-3.42 0.00***	-3.85 0.00***
PMV	-2.21 0.03*	-2.76 0.00***	-2.97 0.00***	-2.97 0.01**
FFR	-1.99 **0.06**	-2.98 0.00***	-3.38 0.00***	-3.64 0.00***

*Optimal delay lengths were determined between 0-4 according to the Schwarz information criterion. * p<0.05, ** p<0.01, *** p<0.001.*

According to the CIPS intercept test results, the FFR and ROE variables are related to the intercept and trend test results, and it is seen that the PMV, CR, ROE, and LevR variables have unit roots and are not stationary. It can be said that the POD and PMV variables are stationary according to intercept and trend results. It is seen that the variables are stationary with the CIPS intercept and trend test after taking their first differences. According to the unit root test results, the panel autoregressive distributed lag (ARDL) panel error correction model is preferred because the series have different levels of stationarity. The most basic feature distinguishing the panel ARDL test from the cointegration test is that it does not require the series to be stationary at the same level and can simultaneously include both short-term and long-term relationships in the analysis.

The Swamy-S homogeneity test was applied to select the appropriate estimator method depending on whether the parameters were homogeneous or heterogeneous. Three models were created due to three different dependent variables, and each model's homogeneity test and cross-section dependence test were applied separately. Table 6 shows the homogeneity and cross-section dependence test results.

Table: 6
Homogeneity and Inter-Unit Correlation Test Results

	Model 1		Model 2		Model 3	
Cross-section Dependency and Homogeneity Tests	**Statistics**	**P-Value**	**Statistics**	**P-Value**	**Statistics**	**P-Value**
Pesaran and Yamagato (2008)	14.53	0.00	6.09	0.00	12.08	0.00
Δ_{adj} (Pesaran and Yamagato, 2008)	17.10	0.00	7.16	0.00	14.22	0.00
Pesaran (2015)	-0.84	0.40	-0.17	0.86	-1.51	0.13
Δ_{adj}(Pesaran, 2015)	-0.99	0.32	-0.20	0.84	-1.78	0.08
Swamy S	9870.49	0.00	861.20	0.00	2459.14	0.00

Model 1 dependent variable: LevR; Model 2 dependent variable: ROE; Model 3 dependent variable: CR independent variables: POD, PMV, FFR.

According to the Swamy-S test and Pesaran and Yamagato (2008) test probability values results, all parameters are heterogeneous. According to Pesaran CD (2015), weak cross-sectional dependency test results show no correlation between units. For this reason, short and long-term relationships will be determined with first-generation error correction models that do not consider the correlation between units and take the heterogeneous

structure into account. First of all, a choice was made between the pooled mean group (PMG) and mean group (MG) estimators from heterogeneous panel error correction models with the help of the Hausman Test (1978). Hausman test results are seen in Table 7.

Table: 7
Hausman Test Results

Model	Error Correction Model	Statistics	P-Value	Forecast Decision
Model 1	mg-pmg	1.67	0.58	pmg
Model 2	mg-pmg	1.01	0.80	pmg
Model 3	mg-pmg	1.28	0.73	pmg

The Hausman test results show that the PMG estimator suits all models. The main feature of the PMG estimator is that it allows heterogeneity except for long-term parameters. According to the forecaster, all panel results are obtained by averaging units. Table 8 shows the PMG estimation results for all models.

Table: 8
PMG (1,0,0,0) Prediction Results

Variables	Model 1 LevR		Model 2 ROE		Model 3 CR	
	Coef./z	p-value	Coef./z	p-value	Coef./ z	p-value
POD	-5.62*** (-12.78)	0.00	0.14 (1.56)	0.12	0.03*** (4.86)	0.00
PMV	-0.06*** (-6.94)	0.00	0.05*** (9.93)	0.00	0.01*** (6.93)	0.00
FFR	0.57*** (6.60)	0.00	-0.23*** (-6.16)	0.00	-0.02*** (-3.94)	0.00
Error Correction Coefficient	-0.30*** (-6.45)	0.00	-0.80*** (-13.70)	0.00	-0.47*** (-9.74)	0.00
ΔPOD	-5.34*** (-2.75)	0.00	-3.17 (-1.14)	0.25	-0.03 (-0.27)	0.79
ΔPMV	-0.03*** (-3.22)	0.00	0.13* (2.32)	0.02	0.00 (0.37)	0.71
ΔFFR	-0.03 (-0.20)	0.84	-0.34 (-0.72)	0.47	0.00 (1.19)	0.23
Cons.	0.74*** (6.74)	0.00	-0.70*** (-9.70)	0.00	0.00 (-0.79)	0.43

*t statistics in parentheses * p<0.05, ** p<0.01, *** p<0.001.*

According to the estimation results, the error correction coefficient is negative and significant in all models. Therefore, there is a long-term relationship between the variables for all models.

In Model 1, in the long run, at a 10% significance level, a 1 unit increase in the POD variable led to a decrease of 5.62 units in the LevR variable; an increase of 1 unit in the PMV variable resulted in a reduction of 0.06 units in the LevR variable; an increase of 1 unit in the FFR variable causes a decrease of 0.57 units. According to short-term results, the POD and PMV variables have a short-term relationship with the LevR variable at a 10% significance level. In the short term, a 1 unit increase in the POD variable results in a 5.34 unit decrease in the LevR variable; a 1% increase in the PMV variable causes a 0.03% decrease in the LevR variable. The FFR variable has no short-term relationship with the LevR variable.

In Model 2, the PMV and FFR variables have a long-term significant relationship with the ROE variable at the 10% significance level. A 1% increase in the PMV variable results in a 0.05% increase in the ROE variable; a 1 unit increase in the FFR variable causes a 0.23 unit decrease in the ROE variable. The POD variable does not have a significant relationship with the ROE variable in the long and short term. According to the short-term results, only the PMV variable has a significant short-term relationship with the ROE variable at the 5% significance level. A 1% increase in the PMV variable increases the ROE variable by 0.13%.

In Model 3, all variables have a significant relationship with the CR variable at the 10% significance level in the long term; in the short term, no variable has a significant relationship with the CR variable. In the long term, a 1 unit increase in the POD variable results in a 0.03 unit increase in the CR variable; a 1% increase in the PMV variable results in a 0.01% increase in the CR variable; it can be stated that the FFR variable causes a 0.02 unit decrease in the CR variable against a 1 unit increase.

7. Conclusion

The changes in the company's capital structure in the short and long term with the public offering of stocks have been the subject of many studies since Modigliani and Miller (1958). Capital structure decisions, which start with the need to raise funds from external sources and direct the corporate life cycle of the company with the formation of the optimal capital structure, offer investors a wide range ranging from the effect of issue announcements on stock price movements, short and long-term price and return performance and financial performance cycle. Consistent with the literature results, according to the study, SEOs are an external funding source that companies turn to to meet their funding needs.

The density of public offerings and public market value reduces the financial leverage ratio in the short and long term. Conversely, the free float ratio reduced the financial leverage ratio only in the short term, as supported by the analysis results. This prediction was also supported in the studies of Stulz (1988), Mehran (1992), Sayılgan and Sayman (2012). This situation can be interpreted as a decrease in the tendency of SEO companies to borrow. It can be predicted that companies prefer SEOs over borrowing as a source of external financing. The tendency to turn to SEOs is also high in the face of re-capital requirements. Our results regarding the financial leverage cycle of companies are consistent with the prediction that orientation towards one funding requirement instrument weakens orientation towards the other.

The fact that basic public offering indicators do not have any relationship with the current ratio in the short term can be interpreted as the fact that, regardless of the supply density, the income obtained from SEOs in the short term is directed to meet the debt payments and working capital requirements or that the cash flow is directed outward in line with growth targets. In the long term, the current ratio increases as the public offering density and public market value increase. It can be said that companies with increasing current ratios

are much less inclined to borrow against their capital needs. This prediction was also supported in the studies of Deesomsak et al. (2004), Mazur (2007), Sheikh et al. (2011), Mateev et al. (2013), Babu and Chalam (2014), Antao and Bonfim (2014), Koçdemir and Küçükçolak (2021). In general, according to the analysis results, the view that the liquidity levels of the companies increased after SEO and that there was an improvement in the financial performance of the company with the decrease in financial leverage ratios is compatible with the results of the literature.

As the public market value increases, so does the return on equity in the long and short term. Interestingly, the free float rate in the short term and the density of public offerings in the short and long term have no significant effect on return on equity. This prediction can be supported by studies suggesting that the need for borrowing decreases as profitability increases. Rajan and Zingales (1995), Drobetz and Fix (2003), Huang and Song (2006), Frank and Goyal (2009), Yegon et al. (2014), and Hang et al. (2018) are some of these studies.

According to the results of the study, in line to provide the most benefit at the lowest cost, the public market value of the companies that prefer to turn to SEOs instead of borrowing in their funding requirements increases as the number of SEOs increases, increasing their return on equity and liquidity; as a result, it is seen that it reduces the financial leverage ratio. Considering that the triggering factor in capital structure decisions is the goal of maximising shareholder wealth by achieving the most benefit at the lowest cost, it can be said that companies that turn to SEOs generally achieve this goal. Companies should consider that borrowing is not their only option in the face of their funding needs and that SEOs can be regarded as a new alternative to borrowing. Companies that turn to SEOs have considered the issuance of new stocks as a balancing factor at the point of reaching the target financial leverage. In case of excessive use of financial leverage, SEOs should be seen as important balancing tools for returning to the target financial leverage point. As a result of the analysis, this study paves the way for SEOs to be seen as an important alternative to obtaining financing through borrowing and as a balancing tool in using excessive financial leverage.

As stated in many studies, optimal capital structure and maximum shareholder value, market conditions and different capital market depth it is seen that the investor, management and shareholder cycle is under the influence of many components from the perspective of corporate governance and earnings management to the cyclical fluctuations in the economy. Therefore, the results of the literature on optimal capital structure will be differentiated from those of future studies. The fact that the general opinions expressed in the literature are based on basic capital structure theories does not mean that the capital structure decisions of companies can be separated with clear lines. For this reason, it is thought that there are different predictions in the literature, and various opinions will continue to be put forward in future studies. Considering SEOs as an external funding source to achieve the optimal financial leverage ratio provides a general perspective. However, it should be taken into consideration that SEOs are much more than just a fund requirement and balance tool that

can crown the investment expenditures of the company in line with its future growth targets and pave the way for debt provision. SEOs should be considered a corporate governance strategy incorporating financial components such as financial leverage, liquidity, and return on equity.

In this context, in future studies, grouping companies according to their SEO orientation purposes, based on public offering prospectuses, including companies that focus on SEO in line with growth targets, in comprehensive research and investigating the effects of the public offering sales method on financing through information asymmetry may be a good step to avoid differences of opinion in the literature results. Separate evaluation of the pre- and post-SEO financial performances of companies that express the purpose of SEO orientation in their public offering prospects, such as working capital requirements or paying off financial debt, may pave the way for a more general view.

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ANNEX: 1
Information About The Companies Included In The Data Set

Sequence Number	Sector	Code of Stock	Name of Stock	Date of IPO	Number of SEOs
1	Manufacture	AFYON	Afyon Çimento	1991	3
2	Manufacture	ARCLK	Arçelik	1986	11
3	Manufacture	BAGFS	Bagfaş	1986	5
4	Manufacture	BTCIM	Batı Çimento	1995	2
5	Manufacture	BRMEN	Birlik Mensucat	1996	7
6	Manufacture	BURCE	Burçelik	1992	1
7	Manufacture	CEMTS	Çemtaş	1994	3
8	Manufacture	DERIM	Derimod	1991	6
9	Manufacture	DEVA	DEVA Holding	1986	13
10	Manufacture	DGKLB	Doğtaş Kelebek Mobilya	1990	11
11	Manufacture	DOKTA	Döktaş Dökümcülük	1986	9
12	Manufacture	DYOBY	DYO Boya	1987	9
13	Manufacture	EGGUB	Ege Gübre	1986	6
14	Manufacture	EGEEN	Ege Endüstri	1986	4
15	Manufacture	EMKEL	Emek Elektrik	1998	5
16	Manufacture	ERSU	Ersu Gıda	2000	1
17	Manufacture	GUBRF	Gübre Fabrik.	1986	8
18	Manufacture	HEKTS	Hektaş	1986	15
19	Manufacture	HURGZ	Hürriyet Gazetesi	1992	3
20	Manufacture	IHEVA	İhlas Ev Aletleri	1996	7
21	Manufacture	INTEM	İntema	1990	6
22	Manufacture	IZMDC	İzmir Demir Çelik	1986	10
23	Manufacture	KARSN	Karsan Otomotiv	2000	6
24	Manufacture	KAPLM	Kaplamin	1995	3
25	Manufacture	KNFRT	Konfrut Gıda	1996	2
26	Manufacture	KRSTL	Krsital Kola	1997	5
27	Manufacture	KARTN	Kartonsan	1986	8
28	Manufacture	LUKSK	Lüks Kadife	1991	7
29	Manufacture	MNDRS	Menderes Tekstil	2000	2
30	Manufacture	TIRE	Mondi Tire Kutsan	1991	6
31	Manufacture	PENGD	Penguen Gıda	1998	3
32	Manufacture	PINSU	Pınar Su	1987	7
33	Manufacture	SKTAS	Söktaş	1995	5
34	Manufacture	SISE	Şişecam	1986	6
35	Manufacture	TBORG	Tuborg	1989	11
36	Manufacture	TUKAS	Tukaş	1994	11
37	Manufacture	PRKAB	Türk Prysmian Kablo	1986	6
38	Manufacture	USAK	Uşak Seramik	1990	12
39	Manufacture	YATAS	Yataş	1996	2
40	Manufacture	YUNSA	Yünsa	1990	5