

EVA and MVA Performance of Turkish Nonfinancial Firms listed on BIST

by

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PLAGIARISM

I hereby declare that all information in this document has been obtained and presented in accordance with academic rules and ethical conduct. I also declare that, as required by these rules and conduct, I have fully cited and referenced all material and results that are not original to this work.

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ABSTRACT

Until the 1990s, companies' profit/loss status was addressed with accountancy-based financial performance measurement methods, and investors were also applying their orientation in this direction. However, as of the end of the 1980s and the beginning of the 1990s, with globalization and the acceleration of globalization, competition between companies has increased, and the concept of efficiency has gained importance due to resource constraints. This situation has brought the idea of company value to the fore rather than the profitability of the companies in terms of accounting. It has caused companies to shift the concept of performance and performance measurement from accountancy-based measurement methods to value-based measurement methods. At this point, the two of the value-based measurement methods, Economic Value-Added and Market Value-Added performance measurement methods, which were developed by Joel M. Stern and G. Bennett Stewart III as a trademark of the consulting company Stern Stewart & Co., has been interested in both the markets and academic circles since the day they entered the market and gained popularity in a short time.

In the first part of this study, first, financial performance measurement methods from the past to the present are discussed as accountancy-based and value-based financial measurement methods, the most used accountancy-based and value-based financial performance measurement methods are discussed with their general lines, strengths, and weaknesses, and accountancy-based and value-based financial measurement methods have been tried to be compared.

Subsequently, two of the value-based financial performance measurement methods and the concepts of Economic Value Added and Market Value Added, the main subject of this study, were examined in detail. And the Borsa Istanbul companies in the "Construction and Public Works" and "Transportation, Storage and Telecommunication" sector were selected as examples, and the Economic Value-Added and Market Value-Added of these companies for the quarter periods between 2015-2020 were measured.

In this study, with the model outlined above; whether companies create Economic Value-Added/Market Value-Added, whether their Economic Value-Added has any effect on Market Value-Added, likewise, whether the Market Value-Added of them has any impact on Economic Value-Added, whether there is a significant relationship between these two terms and finally, whether these two criteria have a relationship with stock performance separately or not, is aimed to be examined for each sector.

In this context, a total of 216 observations were made for the 24-quarter periods between 2015-2020 of nine companies registered in the 'Construction and Public Works' sector in Borsa Istanbul, according to which 29 positive EVA, 190 negative EVA and 112 positive MVA, 104 negative MVA were obtained. Then, another sector of the research sample, "Transportation, Storage and Telecommunication", was examined. In this sector, it is detected that eight of the 11 companies' data is fully available between 2015-2020; in this context, a total of 192 observations were made for the 24-quarter periods between 2015-2020 for those eight companies. According to the results, 40 positive EVA, 152 negative EVA, and 130 positive MVA, and 62 negative MVA were obtained. As a result of the simple regression analysis of the hypotheses with the SPSS 20.0 program, formed within the framework of the research model and in line with the research questions, it has been determined that; EVA had a significant effect on MVA and MVA on EVA; however, both EVA and MVA had no impact on stock performance.

Keywords: Economic Value-Added, Market Value-Added, Financial Performance Measurement Methods.

ÖZET

1990'lı yıllara kadar muhasebe tabanlı finansal performans ölçüm metotları ile şirketlerin kar/zarar durumları ele alınmakta, yatırımcılar da yönelimlerini bu doğrultuda uygulamaktaydı. Ancak 1980'lerin sonu ve 1990'ların başı itibarı ile küreselleşme ve küreselleşmenin hızlanması ile şirketlerin arasındaki rekabet artmış, aynı zamanda kaynak kısıtlılığına bağlı olarak da verimlilik kavramı önem kazanmıştır. Bu durum şirketlerin muhasebe açısından karlılığından ziyade şirket değeri kavramını ön plana çıkarmış ve beraberinde şirketlerin performans ile performans ölçümü kavramının, muhasebe tabanlı ölçüm metotlarından değer tabanlı ölçüm metotlarına doğru değişmesine neden olmuştur. Bu noktada değer tabanlı ölçüm metotlarından, Joel M. Stern ve G. Bennett Stewart III tarafından "Stern Stewart & Co." danışmanlık şirketinin ticari markası olarak geliştirilen Ekonomik Katma Değer ile Pazar Katma Değer performans ölçüm metodu piyasaya girdiği günden itibaren hem piyasalarda hem de akademik çevrelerce oldukça rağbet görmüş kısa sürede popülerlik kazanmıştır.

Bu çalışmanın ilk bölümünde öncelikle geçmişten günümüze finansal performans ölçüm metotları muhasebe tabanlı ve değer tabanlı finansal ölçüm metotları olarak ele alınmış, muhasebe tabanlı ve değer tabanlı finansal performans ölçüm metotlarından en sık kullanılanlar genel hatları, güçlü ve zayıf yönleri ile ele alınarak, muhasebe tabanlı ve değer tabanlı finansal performans ölçüm metotları mukayese edilmeye çalışılmıştır.

Müteakiben değer tabanlı finansal performans ölçüm metotlarından ikisi ve bu çalışmanın ana konusu olan Ekonomik Katma Değer (EKD) ve Piyasa Katma Değer (PKD) kavramları detaylı olarak incelenmiş ve Borsa İstanbul nezdinde "İnşaat ve Bayındırlık" ile "Ulaştırma, Depolama ve Haberleşme" sektöründe bulunan firmalar örnek olarak seçilerek, söz konusu firmaların 2015-2020 yılları arasındaki çeyreklik dönemlerinin Ekonomik Katma Değer ve Piyasa Katma Değerleri ölçülmüştür.

Bu çalışmada yukarıda çerçevesi çizilen model ile; firmaların pozitif mi yoksa negatif mi Ekonomik Katma Değer/Piyasa Katma Değeri oluşturdukları, Ekonomik Katma

Değerin Piyasa Katma Değeri üstünde herhangi bir etkisi olup olmadığı, aynı şekilde Piyasa Katma Değeri Ekonomik Katma Değer üstünde herhangi bir etkisi olup olmadığı, söz konusu iki değer arasında herhangi bir anlamlı ilişki olup olmadığı ve son olarak bu iki ölçütün ayrı ayrı hisse performansı ile bir ilişkisi olup olmadığı her bir sektör için araştırılmak istenmiştir.

Bu kapsamda öncelikle Borsa İstanbul’da “İnşaat ve Bayındırlık” sektöründe kayıtlı dokuz firmanın 2015-2020 yılları arasında bulunan 24 çeyrek dönemi ile ilgili toplam 216 gözlem yapılmış, buna göre 29 adet pozitif EKD ve 187 adet negatif EKD ile, 112 adet pozitif PKD ve 104 adet negatif PKD elde edilmiştir. Daha sonra araştırma örneğinin diğer sektörü olan “Ulaştırma, Depolama ve Haberleşme” sektörü incelenmiş, bu sektörde bulunan 11 firmadan sekizinin 2015-2020 verilerinin tam olduğu tespit edilmiş, bu kapsamda söz konusu sekiz firmanın 2015-2020 yılları arasında bulunan 24 çeyrek dönemi ile ilgili toplam 192 gözlem yapılmış, buna göre 40 adet pozitif EKD ve 152 adet negatif EKD ile, 130 adet pozitif PKD ve 62 adet negatif PKD elde edilmiştir. Araştırma modeli çerçevesinde ve araştırma soruları doğrultusunda oluşturulan hipotezlerin SPSS 20.0 programı ile yapılan basit regresyon analizi sonucunda ise her iki sektörde de EKD’nin PKD üzerinde ve PKD’nin de EKD üzerinde anlamlı etkisi olduğu, ancak hem EKD’nin hem de PKD’nin hisse performansı üzerinde bir etkisi olmadığı tespit edilmiştir.

Anahtar Sözcükler: Ekonomik Katma Değer, Piyasa Katma Değer, Finansal Performans Ölçüm Metotları.

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LIST OF ABBREVIATIONS

BIST	: Borsa Istanbul
CAPM	: Capital asset pricing model
CEO	: Chief of executive officer
CFROI	: Cash Flow Return on Investment
Co./Comp.	: Company
CVA	: Cash Value Added
D	: Market value of the firm's debt
DCF	: Discounted Cash Flow
E	: Market value of the firm's equity
EBIT	: Earnings before interest and taxes
EBITDA	: Earnings before interest, taxes, depreciation, and amortization
EPS	: Earnings per share
EVA	: Economic value-added
FIFO	: First in first out
GAAP	: Generally Accepted Accounting Principles
GCF	: Gross Cash Flow
GCI	: Gross Cash Investment
IRR	: Internal rate of return
ISE	: Istanbul Stock Exchange
PDP	: Public Disclosure Platform
LIFO	: Last in first out
MVA	: Market value-added
NOPAT	: Net operating profit after tax
NOPLAT	: Net operating profit less adjusted taxes

NPV	: Net present value
NYSE	: New York Stock Exchange
OCF	: Operating Cash Flow
OCFD	: Operating Cash Flow Demand
P/E	: Price-to-Earnings
PM	: Profit margin
R&D	: Research and Development
Rd	: Cost of debt
Re	: Cost of equity
Rf	: Risk-free interest Rate
REVA	: Refined economic value-added
RI	: Residual income
ROA	: Return on assets
ROCE	: Return on Capital Employed
ROE	: Return on equity
ROI	: Return on investment
ROIC	: Return on invested capital
RONA	: Return on Net Assets
SME	: Small and medium sized enterprise
SPSS	: Statistical Package for the Social Sciences
SVA	: Shareholder Value Added
t	: Tax rate
TRY	: Turkish Lira
TV	: Terminal Value
US/USA	: United States of America

V : Total market value of the firm's financing

WACC : Weighted average cost of capital



1. INTRODUCTION

The existence of a company has always been the primary matter for the owners of the company. To provide that, a company must continue its profitability. However, current technological advancements, especially in communication and transportation, enable customers to reach anything quickly wherever they live globally, which is one of the main reasons for globalization and its acceleration. And this globalization forces companies to use their limited resources efficiently, which causes an increase in the intensity of the competition among the same market, which was already problems for them.

Depending on the reasons above, understanding a corporate's efficiency or a better definition, a corporate's performance and measuring are obligations. The analytical way of understanding a corporate's performance is hidden in their financial statements like balance sheets, income statements, etc. However, in today's investment world, understanding corporates' initial financial reports and positioning according to them is an apparent obstacle for corporate decision-makers, especially for those who are not rooted in finance and accounting. For "Sales &Marketing" rooted executives, for instance, to be able to read and understand financial reports become an inevitable element at a specific management level (Follet, 2012).

The situation stated above is a problematic issue for corporates and their managers and the individuals who want to evaluate his/her capital in the stock market. Any capital-holder would wish to predict before they want to invest their capital. Hence, investment decisions are vital decisions to make for any capital-holders.

In this aspect, the primary objective is to read its financial ratios located in its financial statements to understand corporate performance. However, as for managers, both financial and non-financial rooted, it is not adequate to read these ratios; it is

also needed to acquire these ratios with their function and understand their relation. Even if executive officers/decision-makers catch these financial terms and connections between them, there will be difficulties while making decisions in the middle and extended period of financial targets. This situation increased more and more the importance of “Performance Measurement.”

Until the 1980s, the performance measurement could be made with some formulas or ratios such as Return on Investment (ROI), Return on Equity (ROE), Earnings per Share (EPS), Price-to-Earnings Ratio (P/E Ratio), Net Present Value (NPV), Internal Rate of Return (IRR), etc. However, those methods categorized today as “Accountancy-Based (Traditional) Performance Measurement Methods” have become insufficient in measuring companies’ values. At the beginning of the 1990s, value-based performance measurement methods gain importance, and it still maintains their significance today.

In this study, Economic Value-Added (EVA) and Market Value-Added (MVA), the two value-based performance measurement methods, which are developed by Joel M. Stern and G. Bennett Stewart III as a trademark of “Stern Stewart & Co.” is examined in detail and applied to a sample of companies on BIST Istanbul.

This study consists of seven chapters. This chapter contains the plot of the study. In this chapter, the purpose, importance, and framework of this study are explained.

The second chapter of this study specifies the framework of the performance. It explains performance, performance measurement, performance measurement in finance, financial performance measurement methods, and their ranges, definition, and traits of these sub-ranges, comparing the financial performance measurement methods.

The third chapter of the study is about EVA and its conceptional framework, history and reviving, definition, calculation, calculation of its components, accounting adjustments, advantages, disadvantages, restrictions, and finally, literature review about it.

The fourth chapter of the study belongs to MVA. Like in the EVA, MVA is also coming up with its conceptional framework, history and reviving, definition, calculation, calculation of its components, the relationship between EVA, and literature review.

The fifth part of the study is research design and methodology. In this chapter, a compilation of the sample and its data is explained. And then, the research design is set, and measurement instruments (EVA and MVA calculations) are introduced. Afterward, research questions, research hypotheses, and research models are constituted.

In the sixth chapter, findings of the research are exhibited as "EVA&MVA Results" and outputs of the regression analysis is indicated under the topic of "Testing of the Hypothesis". The study's findings and conclusions are discussed in the final chapter, and with those acquired findings of the research, an additional significance is tried to be put to the literature.

1.1.Purpose of the Study

The purpose of this study is to indicate which of the sample companies listed on BIST have positive or negative EVA and MVA, whether EVA of the companies listed on BIST has any effect on the MVA of those companies and vice versa MVA of the companies has any impact on EVA of those companies, either to improve or to weaken the correlation between the EVA and MVA, and how do these two-measurement methods relate to the companies' stock performance.

In the study conducted by Saçıcı (2014:124), it is suggested to focus on testing the relationship between EVA and MVA for Turkish Non-Metallic Mineral Products Industrial companies listed at BIST and indicated that it could be extended investigations to other industries of BIST. And in this study, another sector of BIST companies is examined in terms of EVA and MVA.

1.2.Importance of the Study

By the end of this study, it can be understood how to apply the two of the value-based performance methods EVA and MVA, to a sample group of a company and make comparisons on them.

Secondly, in the theoretical framework part, there is an intense study to explain performance and financial performance measurement methods and their widely known methods, EVA and MVA. In this context, this study also a quick guideline to the searchers, and gathering all these different subjects under the roof of this study is believed to be useful for future studies.

It is observed that there are limited theoretical and experiential studies previously held in Turkey between EVA and MVA (Aktaş, 2012:2). For this reason, this study can be considered a contributing study to the literature.

2. FINANCIAL PERFORMANCE MEASUREMENT METHODS

In general meaning, performance is the qualitative or quantitative outcome of a purposed and planned activity. In business, this definition is not much different. The version of a business station is the outcome or result of a particular part of the time. This outcome should be perceived as the percentage of the success of the mission of an operation. In this perspective, performance is the evaluation of total activities to realize the aims of the business. To express simpler, the degree to which a company, investment, financial market, etc., is profitable is the basic definition of business performance.

In business administration and management, performance is the quality of functionality for business administration, and for management, it is associated with the quality of governance. Thus, corporates know that there is no possibility to manage and develop a value without measuring it. Based on this fact, they also understand the importance of performance measurement in identifying its aims and enhancing its performance expectations.

Besides, corporates are forced to use their resources efficiently due to intense competition worldwide in recent years. To be successful, corporations need to see their performance in their competition field, compare, evaluate, and determine the scale that they must be in. Managers need measurement and valuations to observe deviations of planned aims and positions among the other rivals in the market in different periods. For this reason, performance measurement and assessment of the results play a vital role in managing and making necessary decisions in business performance. (Ata and Yakut, 2009: 81). The performance measurement results affect

the decisions taken by managers, investors, shareholders, creditors, and those inside or outside the organization.

Those should be emphasized in terms of the necessity of the performance measurement (Ergun, 2002);

- 
- A value cannot be managed without measuring,
 - Revealing the general success of the business,
 - To prevent making decisions according to assumptions, take them based on valid data,
 - Tracking of the levels of workers,
 - Determining the components that cause loss of value, the bottlenecks and expose the problems,
 - To build standardization and make comparisons,
 - To be able to set appropriate goals for the organization.

For many reasons, including the reasons stated above, corporates need applications to measure; internal reporting system evaluating individual performance, external reporting measuring organizational performance, and financial ratio applications. Corporates also use other performance measurement tools other than their internal and external reporting system.

Another subject that is needed to be emphasized together with performance measurement is performance measurement tools. Measurement tools today should carry those requirements to be used as a performance measurer (Young and O'Byrne, 2001);

- It should be related to corporate's value,
- It shouldn't just be valid for general measuring of the company; it should also enable measuring through levels of the company,
- It should be for a particular part of the time or another saying, it shouldn't just be for a stock measurement but reflecting a period of performance as a flow measurement.

Selecting performance measurement criteria or method is vital for corporates since poorly chosen performance measurement methods cost too much. Above all, poorly chosen performance measurements cause incorrect decisions by sending a misleading signal to decision-makers, owners, and workers. As a result, there may be a loss of value for corporates reasoned by wrong decisions.

In terms of the evaluation of companies, several performance measurement methods are used. These methods can be named in two subjects as financial and non-financial. However, performance measurement means generally financial performance measurement (Coşkun, 2006: 122-123).

Non-financial performance measurement is based on factors that are not considered financial factors like customer relations, human resources, information systems, and public relations. Quality and control measurement, stock and inventory control measurement, production flow control measurement, and machinery performance control measurement can be examples of non-financial performance measurements.

On the other hand, financial performance measurement is based on the company's story's financial information and analysis. Financial statements like balance sheets, income statements, and a company's cash flows are frequently used to measure

financial performance. Analyzing those financial statements means; determining the changes between items, relations of those items, and trends of the associations of those items within a specific period to demonstrate the company's financial condition whether its economic development is adequate or not.

Financial performance measurement is an application to understand whether a firm can use its primary assets to generate income or not. This application is also used to evaluate the financial situation of a firm during a particular period. Financial analysts use this application to compare companies in the same sector or industry if it is worthy of investing or not. And managers use financial performance measurement as a management tool in their decision-making process.

Measuring a corporation's financial performance is critical for any corporate's success since it tells a company how well it's doing in its belonged sector. Measuring economic performance can also reveal whether its response to its market or industry changes makes financial performance measurement even more crucial.

Financial performance is the oldest and the unchanged version of performance since a corporate initially has an economic structure that needs to be profitable and sustainable, apart from the social-based companies. This profitableness shouldn't be perceived as the organization's aim but as a necessary component to continue its life. Another saying, considering and construing total profit as a performance measurer, does not reflect its actual financial situation. The gain should be measured and related to the companies' assets, sales, economic conditions, and capital, including investments.

As it is known, there are many stakeholders in a company. For instance, creditors, bondholders, investors, employees, managers can be defined as the main groups of stakeholders. And each group has a way of evaluating the company. However, companies' annual financial statements are the main door to understanding corporate economic performance, especially for managers and analysts.

There are initially two measurement methods for measuring financial performance and evaluating operations' execution at the end of a particular period. "Accountancy-Based" also named "Traditional-Based", and the other is called "Value-Based" performance measurement methods. Those methods for measuring financial performance are explained in continuing chapters.

It is important to emphasize that there may be more than one method measuring the financial performance for cross-checking and confirming the economic analysis's validity.

2.1.Accountancy-Based (Traditional) Performance Measurement Methods

The concept of "Accountancy-Based (Traditional) Performance Measurement Methods" bases on the company's financial data, contrary to the stakeholder-focused understanding. In other words, this performance measurement is initially applied according to the items in companies' accountancy reports.

In the last century, beginning and developing the corporate world, companies' organizational aim is maximizing their profitableness. Until the late 1980s, the understanding of profitableness maintains its position. Return on Investment (ROI), Return on Equity (ROE), Return on Asset (ROA), Earnings Per Share (EPS), Net Present Value (NPV), Internal Rate of Return (IRR) are applied in terms of

performance measurement, which of those are accepted as accountancy based. Despite all the criticism, companies still use those traditional methods when evaluating their performance. Moreover, companies use those measurements in their internal promotion and bounty system, even in today's business world.

Net Present Value (NPV), Internal Rate of Return (IRR) can be shown as the most frequently used accountancy-based methods. Those methods are initially about discounting. And discounting is about the "time value of the money". To be more specific, discounting is the present value of the amount of money received in the future. This can be suggested as one of the most damaging and insufficient traits of accountancy-based performance measurement since a company cannot be considered successful just because the items on its statements are raised.

Accountancy-based performance measurement is more related to "Definite Business Performance" rather than "Subjective Business Performance" that is based on the expectations of the investors. In this perspective, those measurements are to be used evaluating results and the actual performance of the whole business (Çelik, 2002: 5). Accountancy-based performance measurement, followed by a company's financial statements or managerial accounting system, shows its past performance. Financial analysis with this data does not predict its future position (Gökbulut, 2009: 54).

One thing that must be emphasized about the accountancy-based performance measurement is that those measurement methods are performance-focused methods for companies; however, they do not provide information about the value a company created.

The ideal performance measurer should consider the company's past performance and future performance and predictions about it.

Some of the frequently used accountancy-based performance measurement methods are explained with their pros and cons in the following;

2.1.1. Return on Investment

Return on Investment (ROI) measures the amount of return on a particular investment, following this investment's cost, in terms of making a profit. To calculate ROI, the return of an asset is divided by the cost of the investment. The result is expressed as a percentage or a ratio. The ROI formula is stated as follows:

$$\text{ROI} = \frac{\text{Current Value of Investment} - \text{Cost of Investment}}{\text{Cost of Investment}}$$

"Current Value of Investment" means the gains obtained from the sale of the investment. This measurement method can be used to measure and compare companies' returns on different investments. It can also be used to compare different companies' assets in the same market. Since ROI is calculated as a percentage, it can be easily compared with other investments.

The ROI can be calculated and named in different versions: Return on Invested Capital (ROIC), Return on Capital Employed (ROCE), Return on Net Assets (RONA), Return on Assets (ROA), etc.

The Return on Assets (ROA) is the most frequently used version of ROI. However, despite being in the same category, ROI and ROA have a slight difference. While ROI measures the income generated from the investment, ROA calculates the revenue

generated from assets. And while ROI represents the profitability ratio, ROA represents the efficiency ratio.

With a brief definition, ROA indicates how efficient a company is relative to its assets in making a profit. The higher return means the higher efficiency of companies' assets. ROA is calculated by dividing a company's net income by total assets, and the result is shown as a ratio. The ROA formula is stated as follows;

$$\text{ROA} = \frac{\text{Net Income}}{\text{Total Assets}}$$

If it is needed to emphasize the disadvantage of this measurement method (in terms of measurement tool); the profitability/efficiency ratio is calculated without taking into consideration the cost of capital. So that the necessity that *"the profitability/efficiency ratio should be more significant than the cost of capital"*, is not considered. However, calculating the profitability/efficiency ratio should aim for an income minimally equal to the cost of invested capital (Makelainen, 1998: 27) since a corporation's initial purpose is to maintain its existing growth. Therefore, getting an income higher than the invested capital cost is vital for corporations to exist and thrive. However, this measurement does not provide any information about the "cost of capital". For this reason, this measurement method is inadequate for managers to decide on future planning.

The other insufficiency of this measurement is that its maximization does not provide or enhance shareholders' value. Another saying, this measurement method does not have a relation with shareholders' value. However, in today's business, ignoring shareholders' investment potential means ignoring a source of capital. This situation also creates an enormous gap for managers to decide on future planning.

To sum up, Return on Investment/Asset should be used locally and specifically since it changes according to companies' financial structure. Moreover, it can be helpful by comparing similar investments or companies' profitability/efficiency in the same market. However, managers or investors should be cautious while evaluating companies' profitability through this measurement. Results can be deceiving in terms of profitability if this measurement method is used alone.

2.1.2. Rate of Return on Equity

Equity or generally referred to as shareholder's equity, can be simply defined as the amount of money when all the company's assets are liquidated, then all the debts of the company are paid off. A balance sheet is calculated as total assets minus total liabilities. Equity represents the shareholder's stake in the company. That is why it is an essential indicator for analysts.

ROE is a financial performance measure calculated by dividing net income with shareholder's equity. And it is formulated as;

$$ROE = \frac{\text{Net Income}}{\text{Average Shareholder's Equity}}$$

In this formula, "Net Income" is the income statement's bottom line, which means the net profit after all the taxes and operational expenditures are subtracted from the total gains. Shareholder's equity is summarized from the balance sheet. To get beneficial results, it is better to use net income at the end of a specific period when total earning is definite, and average shareholder's equity is to prevent mismatches with the net income (especially for growing companies).

ROE demonstrates how effectively companies' assets are used in terms of making a profit. For this reason, ROE is an essential indicator in the aspect of the measurement of the return of those assets. And this is why it is one of the most exciting profitability ratios for the stakeholders. This ratio is also one of the accepted rates among shareholders in value creation, which is why managers are also interested. Another preference for users of this ratio is to be able to apply it skillfully.

However, ROE does not provide trustworthy information about value creation for managers. Thus, it is not a generally accepted financial performance measurement method for directing the company's activities. Evaluating companies' financial performance, according to ROE, has severe limitations since it is one of the performance measures of accountancy-based financial performance measurement methods. And it carries almost any limitations of accountancy-based financial performance measurement methods. Moreover, since ROE is affected by the changes in the debts and the equities used, it is hard to explain the increase/decrease in ROE, whether corporate activities or financial issues source it.

A high ROE rate is a good thing if net income is high, related to equity, and it can be said that this company's performance is robust. However, a high ROE rate is not always a good sign; on the contrary, a high ROE percentage despite the small equity account compared to net income should be perceived as a risk. This artificially high ROE rate can be reasoned by inconsistent profit, excess debt, or negative net income. The irregular gain, which after several periods of losses, can misleadingly result in a high rate of ROE. The excess debt of a company may result in a high ROE percentage since it lowers the equity. Finally, another reason for high ROE is negative

net income and negative shareholder equity. In such situations, ROE should not be calculated, and the reasons for it should be investigated.

2.1.3. Earnings Per Share

One of the other traditional accountancy measurement methods is called "Earnings per share (EPS)", calculated by its division of net income with the outstanding share of its common shares. To calculate EPS, net income, preferred dividend (if any), and end-of-period common shares of outstanding are needed. That information can be obtained from the balance sheet and the income statement. EPS are calculated; preferred dividends (paid to selected stock owners) are subtracted from net profit after taxes and then divided with the common shares of outstanding. And the formula of the EPS follows as;

$$\text{Earnings per Share} = \frac{\text{Net Income} - \text{Preferred Dividends}}{\text{End-of-Period Common Shares Outstanding}}$$

Any changes in the companies' paid capital structure during a specific period results in a difference in the number of common shares of understanding at the end of this particular period (SPK, 2000: 128). Thus, it is more accurate to use weighted average common shares of understanding for calculating EPS since common shares of understanding can change over a specific period, especially EPS calculations made for growing companies.

EPS is one of the most critical variables in determining the value of a company's share since EPS implies how much money a company makes for each share of its common stock. And it is a widespread-used metric for both managers and investors. A higher EPS indicates more value for a company. The investors are supposed to pick

those companies for investment among the other companies in the sector or the same market. It is also a significant component for calculating the price-to-earnings (P/E) valuation ratio where "E" is the EPS and "P" is the price.

In developed stock exchange countries, this ratio is essential for investors since the investors prefer to invest in companies that pay a high number of dividends. (Berk, 2007: 59). In such countries, investors are also closely interested in the number of preferred dividends as much as the earnings per share.

In paying all net income to the shareholders, the paid amount also means preferred dividends. However, companies, for several reasons, cannot distribute all the net income. Because of this, while earnings per share are evaluated, preferred dividends should be taken into consideration.

While comparing the increased EPS ratio, the amount of investment that causes the increase is not considered. For this reason, in some circumstances, there can be artificially high and irrelevant EPS ratios. Briefly, just by using a high amount of capital, increasing the EPS ratio is possible. For instance, if the return on additional money invested (equity) is positive, the EPS ratio is high. However, suppose this additional capital invested is provided with debt. In that case, the EPS ratio is high again only if the efficiency of the cost of capital is higher than the cost of debt. Another possibility is the additional capital is a mix of equity and debt. In this situation, if the return on the extra money is between zero and the cost of debt, then the EPS ratio is high.

Another aspect of EPS that is usually ignored is the capital of the company. Two companies may have the same EPS; however, one company may gain the same net

income with much less capital. In this situation company with less capital is more efficient compared with the other company. And in terms of efficiency, a company with less capital is a "better" company. ROE is one metric that can measure and compare the companies' efficiency.

With a similar understanding, two companies with the same size and net income may result in a higher EPS ratio just because having fewer common shares of understanding. For this reason, comparing companies with only their EPS ratio can be deceiving, and it requires extra attention while assessing the EPS ratio. It is more convenient to compare a company with its yearly progress in terms of the EPS ratio.

One of the most criticized traits of traditional-based performance measurement methods is that accounting profit, in those methods, does not consider the cost of capital. Since capital cost is not considered, managers' expectations according to the risk they bring cannot be measured. Thus, companies accounting for profit in a specific period cannot indicate that a company is whether valuable or not. Nevertheless, those companies accounting profits may be even lower than the cost of capital (Argun, 2004: 118). Another criticized issue of traditional-based performance measurement methods is that accounting profit and capital amounts may vary according to companies' financial structure and different accounting policies.

EPS is a valuable and straightforward tool when calculating the ratio of the returns on investments. However, here the lacking trait of the EPS is not that if it shows the actual cash flow diagram, the problem is that it does not give any clue about the usage of invested capital. Consequently, an evaluation of a company without considering the cost of capital cannot provide beneficial results, so EPS is inadequate in

measuring the company's performance (Makelainen, 1998: 28). Thus, earnings per share (EPS) should be considered an indicator rather than a definite measurer.

2.1.4. Price-to-Earnings (P/E) Ratio

The price-to-earnings ratio (P/E ratio) is a ratio in the company's valuation that measures the current share price in terms of its earnings per share (EPS). It indicates how often the stock price is the earnings per share and is calculated by dividing the stock's cost by the earnings per share. It is a rate used to measure the return that capital owners expect from the stocks they invest in their capital. The formula of the (P/E) Ratio follows as;

$$P/E = \frac{\text{Market Value per Share}}{\text{Earnings per Share}}$$

To determine the P/E value, it is merely sufficient to divide the current stock price by the EPS. The current stock price (P) can be obtained by placing the stock's symbol on any financial website. While this tangible value reflects how much investors must pay for a stock right now, EPS is a slightly more uncertain figure and requires some steps to calculate (explained in the previous chapter).

The price-to-earnings ratio, or P/E, is one of the most widely used stock analysis tools among investors and analysts to determine stock valuation. It indicates whether a company's share price is overvalued or undervalued; moreover, the P/E ratio can show how a stock's valuation compares to its industry group. The price-to-earnings ratio indicates the amount of money an investor can expect to invest in a company to get one unit of money from its earnings. The P/E rate advises investors to determine the market value of a stock compared to the company's profits. Briefly, the P/E ratio

indicates what the market is ready to pay today, based on its past or future earnings. Reversely, a low P/E could suggest that the current stock price is lower than earnings.

If the price-to-earnings ratio is high, it can be interpreted that the share price is high; if the rate is low, the share price is low. In the high price-to-earnings ratio, either the market expects that future profits will be higher, or the stock is overvalued. However, to reach this conclusion, it is necessary to examine the average price-to-earnings ratio of the sector and the general market and the firm's price-to-earnings ratio (Karan, 2001: 356). If a company has no earnings or records a loss, the P/E will be expressed as "N/A" in both cases. Although it is possible to calculate a negative P/E, this is not a common situation.

Many investors say that it is better to buy shares in companies with a lower P/E ratio, which means paying less for every money of earnings received. In this aspect, a lower P/E is like a lower price label, making it attractive to investors looking for a bargain. However, in practice, it is essential to understand the reasons behind a company's P/E ratio. For example, if a company's business model has a low P/E because it's downward, then the plain bargaining might be a delusion.

The main determinants of the price-to-earnings ratio are the growth rate of the firm's earnings and the degree of risk it has. The ratio is directly proportional to the firm's riskiness and inversely proportional to the growth in profit. The higher the firm's stock prices, the higher the risk of making a profit for the investors who buy the stock, so that the higher the risk, the higher the rate. Conversely, when the price falls, the risk decreases, so the rate decreases. Besides, this ratio allows calculating the return of the price to be paid by the investor as a dividend to the investor, assuming

that the amount of earnings per share remains constant and that all profits obtained will be distributed (Brealey, Myers, Marcus: 1999: 478).

A fundamental limitation of using P/E ratios arises when comparing the P/E ratios of different companies. Companies' valuations and growth rates can vary enormously between industries because of the companies' different ways of making money and the different timelines where companies earn that money. Therefore, P/E should only be used as a comparative tool when dealing with companies in the same industry. Nevertheless, this type of comparison is the only type that will provide productive insight. For instance, comparing the P/E ratios of a telecommunications company and an energy company could lead one to believe that one of them is a better investment; however, this is not a reliable assumption.

The price-to-earnings ratio is a suitable method for stock selection. However, it is not an effective ratio that can measure its performance since it focuses only on market price and return. It is impossible to use the price-to-earnings rate as a financial performance measurement criterion in stock exchanges where speculative shares act independently of companies' financial performance. In this case, this criterion loses its significance, especially in markets that do not have sufficient efficiency (Saldanlı, 2006: 8).

Another essential disadvantage of using the price-to-earnings ratio is that the profit figures used in calculating the P/E ratio are affected by accounting practices and can cause misleading results, especially in companies with high non-operating income/expense items.

2.1.5. Net Present Value

Net present value (NPV) can be briefly defined as the difference between the current value of cash inflow and cash outflow over a specific period. It is a financial measure aimed at capturing the total value of a potential investment opportunity. The concept of NPV is to estimate all the future cash inflows and outflows related to an investment, discounting all those future cash flows today and then putting them together. The score after adding all the positive and negative cash flows together is the NPV of the investment.

Another definition for the net present value (NPV) method is the difference between the discounted values of the net cash inflows to be provided during the economic life of a project at a predetermined discount rate, and the sum of the cash outflows required by the investment discounted to date with the same discount rate (Özdemir, 1999: 221). The formula for the net present value (NPV) follows as;

$$NPV = \sum_{t=1}^T \frac{C_t}{(1+r)^t} - C_0$$

Where;

C_t = Net cash inflow during the period t

C_0 = Total initial investment costs (Cash outflow in time)

r = Discount rate

T = The number of periods

t = Specific future period

A positive NPV means that estimated earnings gained from an investment (in present value) are higher than the probable cost (in present value) so that it is considered that an investment with a positive NPV is profitable, and investment with a negative NPV

means loss. As a result, for a project to be acceptable under this method, the net present value must be equal to or greater than zero.

The most important advantage of this method is that it considers the time value of money. In this way, there can be made a comparison between similar investment alternatives and more profitable ones can be preferred.

The discount rate is the appropriate discount rate that equates cash outflows to cash inflows. The average cost of capital rate is generally used as the discount rate. However, this condition changes economies with uncertainties. In this case, the risk premium should be added to the average cost of capital rate. In determining the cost of capital, the costs of different capital resources used in the project are found one by one. Then, by using the shares of these resources in the total, the weighted average cost of capital is calculated. Finally, the average rate found is used as the discount rate. The discount rate should be based on the real interest rate in the capital market and the opportunity cost of using the invested capital in possible alternatives to reflect the time preference (Üstündağ, 2005: 6).

Since the discount rate, which is critical in the NPV method, is open to subjective discretion to some extent, it is possible that the priority order among the investments may be affected if this rate is changed (Akgüç, 1998: 371). Since different results will be obtained with varying ratios of discount in the valuation of investment projects with the net present value method, it is crucial to determine the discount rate without being subjective (Türko, 1999: 331). In this case, the net present value criterion cannot provide success as a financial performance measurement method.

In the NPV method, the cost of capital is assumed to remain constant throughout the investment's economic life, and the future money inflows are reduced to today at a fixed discount rate. In other words, in this method, the "r" ratio in the equations is

taken as a single value throughout the investment life. However, over time, the cost of resources, namely the minimum profitability rate expected from investments, may change. Therefore, applying a fixed discount rate loses its meaning (Akgüç, 1998: 371).

Measuring the profitability of an investment with NPV is primarily based on assumptions and predictions to be a significant area for errors. Those assumed factors include investment costs, discount rates, and estimated returns. In addition, a project can often require unpredictable expenses to get ready or require additional fees until the project's end.

To sum up, net present value is a calculation method used to find a future payment flow's current value. It describes the time value of money and can be used to compare similar investment alternatives. NPV is based on a discount rate that can be harvested from the investment cost, and any project/investment with a negative NPV should be rejected. A significant disadvantage of using an NPV analysis is that it makes unreliable assumptions about future events.

2.1.6. Internal Rate of Return

Internal rate of return is defined as the discount rate that equates to the sum of the present values of the cash inflows obtained from an investment and the current cash outflows related to the investment (Chambers, 2005: 298). This ratio is the discount rate that makes the net present value of a project zero (Üstündağ, 2005: 7). The discount rate that equalizes the deposited money inflow and outflow is calculated (Akgüç, 1998: 310-312). Another saying is that the internal rate of return (IRR) is a discount rate that makes the net present value (NPV) of all cash flows equal to zero in discounted cash flow analysis. IRR calculations are based on the same formula as

NPV so that its math works with the same logic as the NPV except that it equates the NPV to zero.

To calculate the IRR using the formula expressed below, NPV will be equal to zero and solve for the discount rate, which is IRR. However, due to the nature of the procedure, the IRR cannot be easily calculated analytically. Therefore, either it must be calculated through trial-and-error or using software programmed to calculate the IRR. IRR formula follows as;

$$0 = NPV = \sum_{t=1}^T \frac{C_t}{(1 + IRR)^t} - C_0$$

Where;

C_t = Net cash inflow during the period t

C_0 = Total initial investment costs

IRR = The internal rate of return

t = The number of periods

The Internal rate of return (IRR) is used to predict potential investments' profitability. Therefore, it is ideal for analyzing capital budgeting projects to understand and compare the possible annual rates of returns over time. There are several methods to calculate the expected returns of investments made by companies. And it can be said that IRR is one of the ideal calculation methods in detecting the probable return of a companies' investment or a project.

Many internal rates of return analyses are carried out in close coordination with the cost of capital and the net present value of the investment planned by the company. The logic here is that for a company's investment project in the planning phase to be

accepted, its internal rate of return must be greater than its capital cost. Thus, it can be said that the investment project in question is profitable. Furthermore, if the company has more than one draft investment project, it can be said that the highest internal rate of return is the most beneficial. In this case, the company can use the internal rate of return in the decision-making process.

Calculation of the internal rate of return is somewhat complicated compared to other methods. It can be concluded by trial and error. For this purpose, a reasonable discount rate and net present value are found at the beginning. If the net current value is positive, the net present value is seen again with a significant discount rate that will be negative. If the net present value is negative, a positive net current value is obtained with a discount rate that can make it positive. After this stage, a genuine internal rate of return is calculated (Brealey, Myers, Marcus, 1999: 72).

A project can be accepted in terms of NPV; on the other hand, the same task can be rejected with the IRR concept. This is because of the calculations of both methods. Although, both approaches are very similar in terms of their calculation method. IRR differs by equating the NPV of an investment/project to zero.

One of the internal rate of return method's weaknesses is that there is more than one internal rate of return in businesses with negative net cash flow from time to time throughout the operating period, although there is an approximate solution. Because both the rate found is an approach and is not the firm's actual internal rate of return, selecting the discount rate used to correct the net cash flows would affect the results. Besides, the method may cause misleading results as it does not consider the businesses' size in a business-to-business ranking.

In this case, this method gives priority to small-scale enterprises with a high rate of profitability. However, it may be possible to generate more income from large-scale enterprises with lower profitability rates. On the other hand, the method is also subject to criticism as it does not take market interest rates into account (Brealey, Myers, Marcus, 1999: 73). In addition to these, the difficulties encountered in calculation reduce the usability of this criterion. There is the possibility of realizing more than one internal rate of return, even though the internal rate of return is accepted as constant during the firm's investment period.

For some investment projects, it is impossible to calculate a single internal rate of return. The necessary condition for calculating a single internal rate of profitability for an investment project is that this positive value can continue until the end of the investment's economic life, after the money flow to be provided by the investment receives a positive value. The money inflow supplied by the acquisition does not negatively value after getting a favorable deal by hanging the money outflow, which is necessary for calculating a single internal profitability ratio (Akgüç, 1998: 350). Suppose there is negative net cash flow in the operational phase of the project life. In that case, it is not possible to use the internal rate of return method reliably under these conditions. If negative ones and positive ones follow positive cash flows, the IRR can have multiple values. Also, when comparing more than one number of projects not applied simultaneously with this method, incorrect results may be given. If the project's economic life is extended, calculating this ratio becomes very tiring and monotonous work (Üstündağ, 2005: 7).

2.2.Value-Based Performance Measurement Methods

Accountancy-based (traditional) performance measures are one-dimensional calculations based on the financial elements of companies. On the other hand, value-based performance measurement methods are multidimensional performance evaluations that consider all aspects of companies, not just their financial indicators. In addition, value-based performance measures enable companies to have predictions based on past data (Bourne et al., 2000).

Accountancy-based (traditional) performance measures cannot respond to company shareholders' expectations by evaluating the companies' activities in the light of their actions. However, value-based performance measures consider the shareholders' expectations (Martin and Petty, 2000). Value-based performance measures that consider the shareholders' expectations also provide benefits in maximizing the profits of the shareholders by considering the shareholders' expectations in making strategic decisions of the company (Erasmus, 2008).

Cavlak and Ataman (2019) explain value-based performance criteria methods. The improved version edited by Cavlak and Ataman (2019) is presented in Table 2.1.

Table 2.1 Value-Based Performance Metrics

Value-Based Performance Metrics
Economic Value Added
Sustainability Performance Measurement Systems
Skandia Business Navigator
Integrated Performance Measurement System
Balanced Scorecard
Quantum Performance Measurement Model
Performance Prism
Performance Pyramid
Tableau de Bord

Cash Value Added
Cash Flow Return on Investment
Shareholder Value Added
Market Value-Added

The application of EVA and MVA methods, which are value-based measurement methods, is included within the scope of this thesis. At the same time, Cash Value Added, Cash Flow Return on Investment, Shareholder Value Added, Balanced Scorecard methods are also explained.

2.2.1. Cash Value-Added

Cash Value Added (CVA) is a metric developed by research firm Boston Consulting Group that measures a company's ability to generate cash flow above and beyond the cost of capital. Generally, a high CVA indicates the power of a company to create liquid profits from one fiscal period to another.

Among the value-based measurements of companies, there is also a cash value-added measurement method. With this method, companies rely on cash flows based on their accounting records. It differs from other alternative value measurement methods since only cash flow data are used to apply the technique (Ottoson&Wissenrieder, 1996).

Business investment decisions made by companies affect the cash flows of companies. For this reason, examining the effect of the investment on cash flows and making evaluations based on this effect are described as a cash value-added measurement (Strack&Villis, 2002). Another objective in cash value-added size is to measure the impact of the investment made on the cash flow and its effect on the shareholder value. This measurement method aims to determine the effects of business

investments on shareholder value and evaluate the business investment profitability from shareholders' perspective. The issue to be considered in cash value-added calculations is the board of directors' ethical behavior, which ensures that business investment decisions are made and presents the evaluation reports of investment results to the shareholders and financiers (Makelainen, 1998). As a result of these healthy calculations made by the senior management boards, the board of directors will determine the planned, implemented, and completed investments to their market value. This determination will provide advantages for the boards of directors to review and revise their investment decisions.

The mathematical expression of cash value-added calculations in the study conducted by Weissenrieder (1997) is as follows;

$$\text{Cash Value-Added (CVA)} = \text{Operating Cash Flow (OCF)} - \text{Operating Cash Flow Demand (OCFD)}$$

$$\text{Operating Cash Flow} = \text{Operating Profit} - \text{Working Capital Requirement} - \text{Non-Strategic Investments}$$

$$\text{Operating Profit} = \text{Sales} - \text{Costs}$$

There are two most important variables for Cash Value-Added calculations. These are Operating Cash Flow (OCF) and Operating Cash Flow Demand (OCFD). The Operating Cash Flow (OCF) value is calculated by deriving from the financial statements. Therefore, it is necessary to deduct the working capital requirement and non-strategic investments from the operating profit in this context. However, to calculate the Operating Cash Flow Demand (OCFD), the following mathematical equation is used.

$$OCFD = \frac{\text{Investment Amount}}{\frac{1}{WACC - \text{inflation}} - \frac{\frac{(1 + \text{inflation})^n}{WACC - \text{inflation}}}{(1 + WACC)^n}}$$

The Operating Cash Flow Demand (OCFD) value determination helps companies provide information on the required level of the Operating Cash Flow (OCF) value to be obtained cash value-added, another saying to be positive. Hezaji et al. (2007) explain that for companies to provide cash value-added, the Operating Cash Flow (OCF) value must be higher than the Operating Cash Flow Demand (OCFD).

The cash value-added calculation method has not only its strengths but also some criticisms. Öztürk and Şahin (2013) compiled cash value-added measurement objections and revealed them in their study. These criticisms are as follows;

- Since the cash flows cannot be determined from the financial statements; the cash value-added measurement values have a margin of error.
- Since cash flows are taken as a basis in cash value-added calculations, balance sheet values are not considered. Therefore, as time passes, updates may be required, taking into account the balance sheet values.
- In addition to the fact that the Operating Cash Flow values are obtained from the financial statements as actual values, it is criticized that the importance of the Operating Cash Flow Demand is estimated and artificial values. Within the scope of this criticism, it is thought that using actual shareholder demands instead of Operating Cash Flow Demand will give more accurate results.

- The investment values obtained from the investments are considered fixed under this method. However, the investment value changes over time. Therefore, these changes are not considered in this measurement method.
- With Cash Value-Added, companies do not disclose a net value gain regarding the returns on their investments. However, it provides information to managers and other company stakeholders about the investment's economic acceptability and economic life.
- Based on the results obtained with the cash value-added method, information can be brought about by managers' success based on the cash flow levels obtained from investment decisions. However, the cash value-added method is insufficient in presenting a net market value to companies.

CVA differs from the Economic Value-Added (EVA), which deals with companies' total value considering the cost of invested capital. On the other hand, CVA simply focuses the companies' cash flow.

2.2.2. Cash Flow Return on Investment

The Cash Flow Return on Investment (CFROI) method, which is among the value-based performance measurement techniques, is an alternative measurement tool to the economic value-added performance measurement technique. The Cash Flow Return method on Investment reveals the internal consistency of companies. The Cash Flow Return on Investment method, developed by HOLT Value Associates to determine the value of companies based on cash flows, was acquired by Credit Suisse First

Boston, which operates in the investment sector, and started to be used in 2002 (Mert and Yıldırım, 2019).

The Cash Flow Return on Investment method helps companies determine the internal return rate by gaining an internal perspective (Venanzi, 2012: 24). The Cash Flow Return on Investment method's main objective is to determine the return rate according to its investment capital cost and determine its accurate market value increase or decrease, as is the case with the economic value-added measurement. In this method, the shareholders' cash investments according to their cash flow returns are explained. If the cash investment rate of return is higher than the cost of capital, it can be inferred that the company gains value, and if it is low, the company loses value (Young, 2000: 383).

Considering the benefits of performance evaluation based on cash flows; taking the “discounted cash flow” approach, which accepts that more cash is better, in this technique, enables the company to do a valuation based on the cash flow situation, which is considered to be the real power of the firm. By evaluating the cash flows according to the capital cost, the investors will be able to transparently see the cost of the investment made by the investors and the cash flows and the appreciation status according to this cost and thus evaluate the investment decisions according to the actual situation of the company (Damodaran, 1999). With the Cash Flow Return on Investment method, companies will make rate-based analysis rather than value analysis over their currencies. A study based on rates allows companies to compare. One of the other pros for CFROI is that it takes into account the effect of inflation.

The principles of the discounted cash flow approach are also accepted in the application of this technique. Also, the information required to calculate the Cash Flow Return of the Investment appears as follows (Madden, 1999);

- The average lifetime of the assets is subject to depreciation, after the assets are classified as “subject to depreciation” and “not subject to depreciation”,
- The total amount of all assets,
- Cash flow conditions of all assets considering inflation,
- The residual value of the assets that are not subject to depreciation when their lives are completed.

Considering the inputs presented above, the mathematical expressions of the Cash Flow Return on Investment calculation appear as follows (Ameels et al., 2002: 19);

$$CFROI = \frac{\text{Gross Cash Flow} - \text{Economic Depreciation}}{\text{Gross Cash Investment}}$$

$$\text{Economic Depreciation} = \frac{WACC}{(1 + WACC)^n - 1} \times \text{Depreciable Assets}$$

$$\text{Gross Cash Investment} = \sum_{i=1}^n \frac{GCF_t}{(1/r)^n} + \frac{TV_{n+1}}{(1/r)^{n+1}}$$

GCI: Gross Cash Investment

t: Year

GCF: Gross Cash Flow

TV: Terminal Value

One of the issues to be considered in the Cash Flow Return on Investment calculations is that the estimates are made for the whole company. Calculations are not made for a specific department or unit of the company. Since it is a cash flow-based valuation system, this method can be calculated based on cash flow transactions, and other financial statement data are not considered.

2.2.3. Shareholder Value-Added

Different measurement methods are handled with varying approaches while revealing the market values of the companies. The perspective of the Shareholder Value-Added method is the shareholder-based evaluation method owned by companies. The shareholder value-added method was defined for the first time by Rappaport (1986), working in shareholder value measurements. The shareholder value-added method adopts value-oriented measurement philosophy such as economic value-added and market value-added measurement methods.

Chari (2009) explains the shareholder value-added as the present value of the current cash flow and the total liquidation value at the end of the forecast period. On the otherhand, Rappaport (1986) distinguishes the shareholder value-added measurement method from other measurement methods, explaining that the risk is considered in the shareholder value-added measurement; it is free from traditional accounting mistakes and tries to measure the change in value. For this reason, it keeps it ahead of other calculations in value measurement.

The primary purpose of shareholder value-added measurement is to determine the most suitable investment among the investments with the same risk level to realize

the shareholders' desire to benefit from their assets' return at the highest level (Largani et al., 2012).

The mathematical expression for the shareholder value-added measurement is as follows:

$$SVA = NOPAT - (WACC \times CAPITAL)$$

SVA: Shareholder Value Added

NOPAT: Net Operation Profit After Taxes

WACC: Weighted Average Cost of Capital

The steps for the shareholder value added calculation are as follows:

- Net operating profit after tax is calculated.
- The capital to be used is estimated.
- The weighted average cost of capital is estimated.
- The capital fee is calculated.
- Shareholder added value is calculated.

After multiplying the capital for the investment and the cost of money, it is subtracted from the net operating profit after tax to calculate the shareholder value-added. Thus, the real value gain of the shareholders can be determined.

Rappaport (1986) explains the network structure that affects the shareholders' value status, which is considered in shareholder value-added calculations, as seen in figure 2.1. When figure 2.1 is examined, it is noted that the investment, operation, and financial decisions are essential in management decisions to achieve the company's

goals. At the same time, it is observed that the value components of the triggering factors that provide value creation directly affect shareholder value-added.

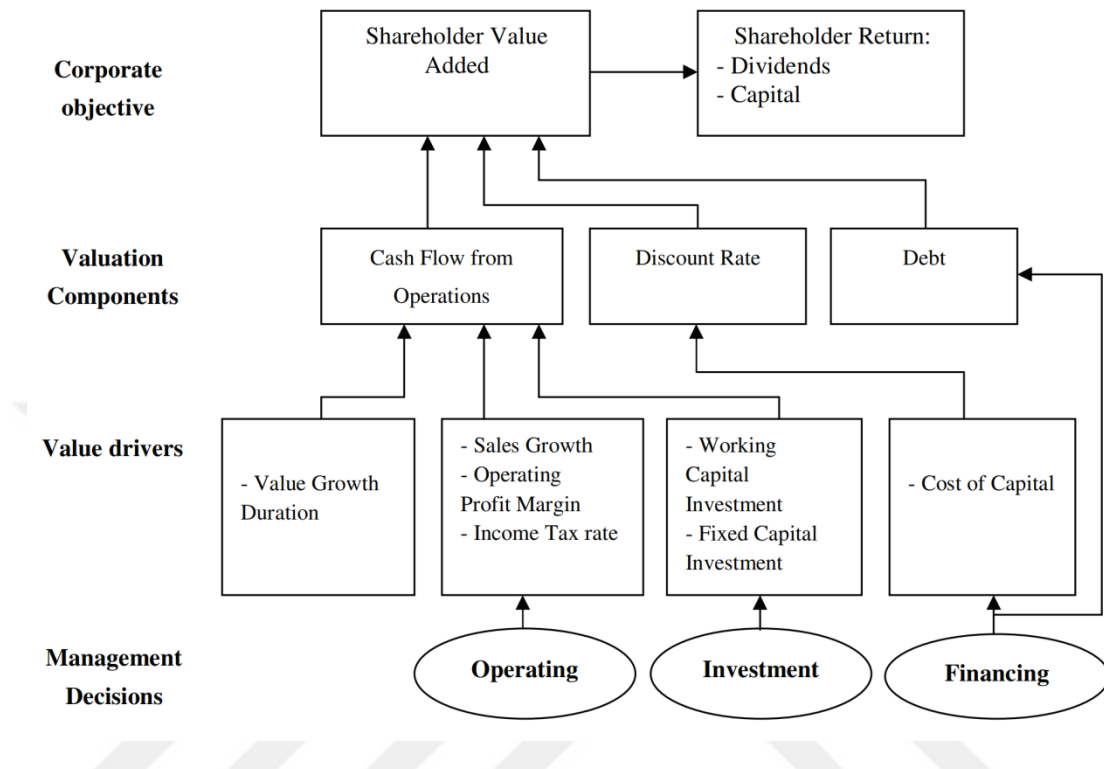


Figure 2.1 Shareholder Value Network Structure

Source: Rappaport, 1986

Shareholder value-added measurement is different from traditional accounting calculations and deals with determining the actual value situation. Also, it provides benefits in the interpretation of balance sheets and income statements and in determining actual investment returns. Furthermore, estimating the value of the investment before making investment decisions helps managers in making management decisions. Simultaneously, knowing the shareholder value likely to be gained by the shareholders regarding investment decisions increases the shareholders' level of trust in the investment made (Largani et al., 2012).

The main objective in shareholder value-added calculations is to create value and activate the capital and business strategy structures in this direction. The steps to be

applied to develop shareholder value-added are explained in figure 2.2 (Largina et al., 2012). First of all, companies should build their financial model structures based on capital and business management strategies. Then, the strategic analysis should be made, critical value calculations should be taken into consideration, and the plan that will create value should be determined and implemented. Finally, as a result of these transactions, the desired shareholder value-added level can be achieved.

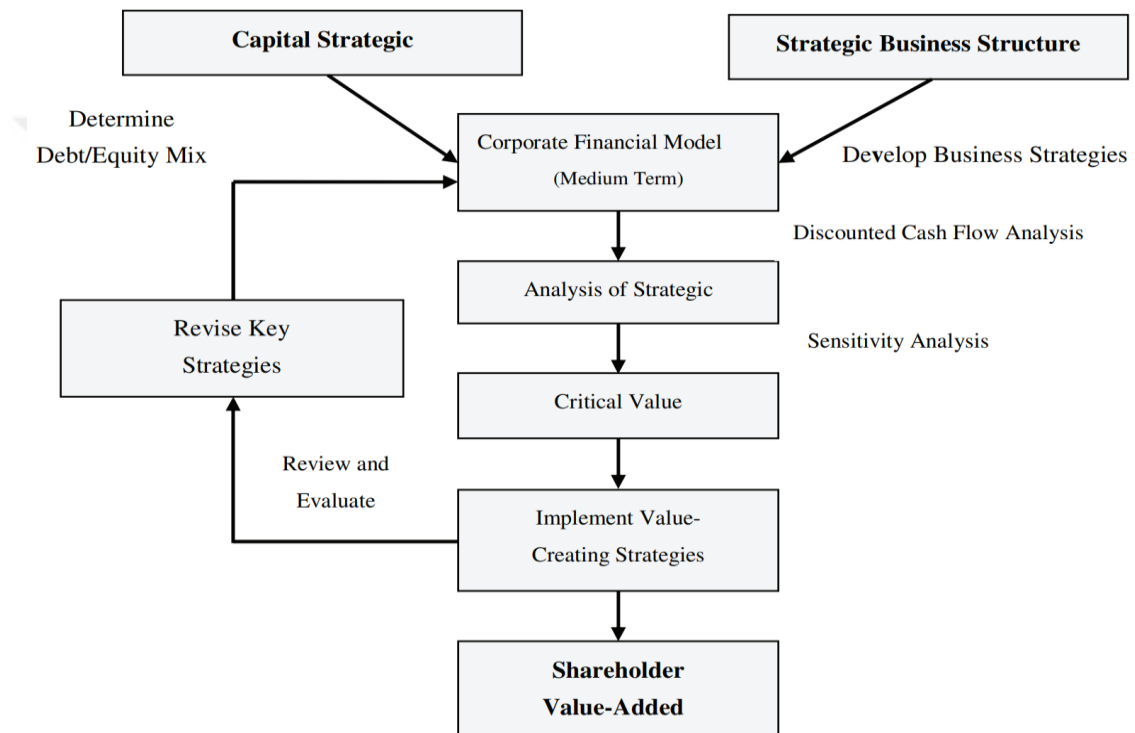


Figure 2.2 Shareholder Value Creation Process

Source: Largina et al., 2012

2.2.4. Balanced Scorecard

The balanced scorecard method, developed to evaluate organizational structures' performance, was first introduced by Kaplan and Norton (1992). The Balanced scorecard method's primary goal is to determine whether the companies can perform at the desired level while progressing to the purpose they have set.

Kaplan (2007) adds three dimensions to the balanced scorecard performance measurement method; *customer, internal process, learning, and development*, in addition to determining the financial performance of companies. The same study also explains that the Kaplan balanced scorecard method's foundations are based on the methodology developed for performance measurement by personnel working at the General Electric company. This method is based on one financial and seven non-financial performance evaluation criteria. These are as follows; “profitability (measured by residual income), market share, productivity, product leadership, public responsibility, personnel development, employee attitudes, a balance between short-range and long-range objectives. The original balanced scorecard created by Kaplan and Norton (1992) is presented in figure 2.3.

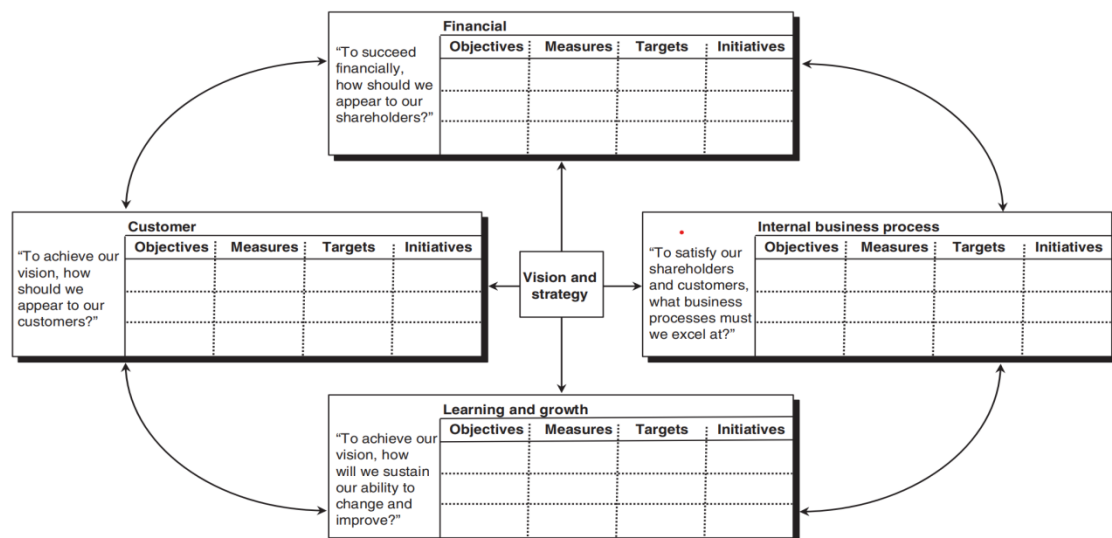


Figure 2.3 Balanced Scorecard

Source: Kaplan and Norton, 1992

Drury (2008) expresses the balanced scorecard performance evaluation method as a technique that enables the performance to be measurable by converting strategies into operational targets to achieve its strategy and vision.

The Balanced Scorecard method's primary goal is to add value to the companies' shareholders in the long term. In this process, companies advance the process in four different perspectives: learning and development perspective, process perspective, customer perspective, and financial perspective, and these sub-processes act as a continuation of each other. A diagram covering all processes and approaches of the Balanced Scorecard method is shown (Kaplan, 2007).

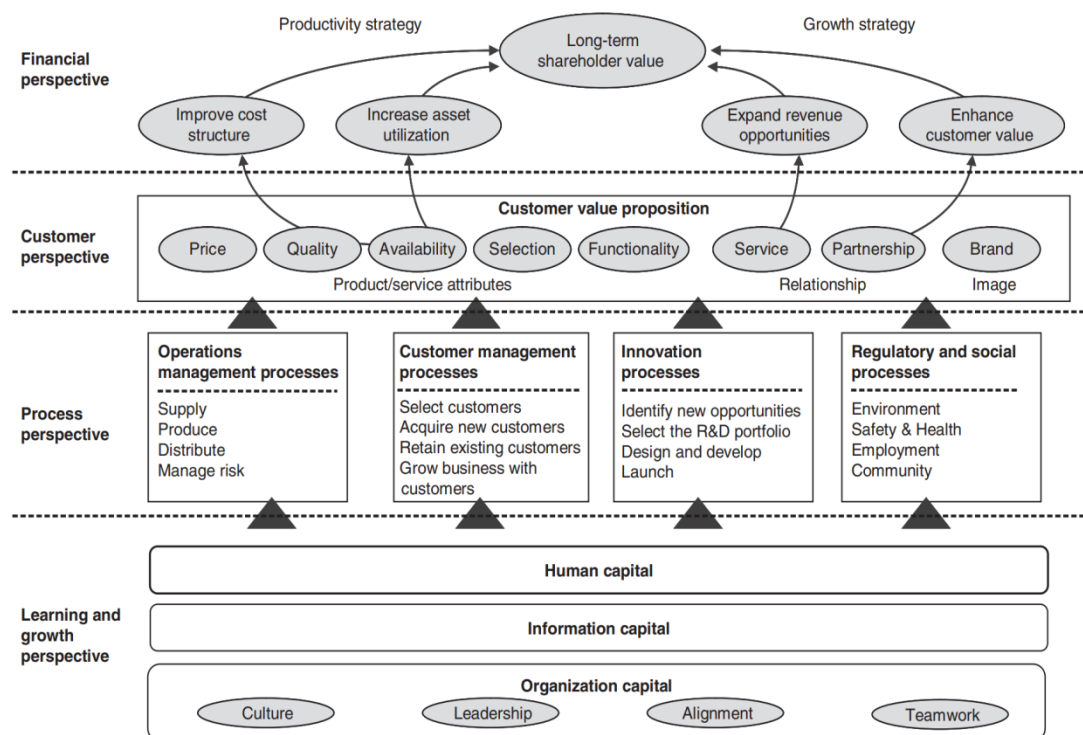


Figure 2.4 Long-Term Shareholder Value Creation Network with Balanced Scorecard

Source: Kaplan, 2007

In the Balanced Scorecard's performance evaluation, the financial perspective considers the economy-oriented measures to ensure its economic continuity and gain shareholder value (Al-Najjar and Kalaf, 2012).

The customer perspective focuses on keeping the quality of goods and services produced by the company at a high level, ensuring delivery efficiency, and keeping customer satisfaction high (Kairu et al., 2013).

The internal transaction process perspective ensures that the company improves internal transaction processes and takes necessary measures to ensure customer satisfaction and support forming the desired financial situation (Kairu et al., 2013).

The learning and development perspective develops a perspective based on observing and developing the skills of the employees of the company, improving the quality of information system structures to ensure effective communication, and creating a harmonious design within the organization to develop an effective working environment (Kairu et al., 2013). With this perspective, it is aimed to meet the learning and development needs of the organization.

Finally, balanced scorecard performance evaluation measurement is considered among value-oriented performance evaluation methods and contributes to realizing companies' long-term goals and strategies.

2.2.5. Economic Value-Added

The measurement method of EVA is discussed in detail in Chapter 3.

2.2.6. Market Value-Added

The measurement method of MVA is discussed in detail in Chapter 4.

2.3.An Evaluation of Accountancy-Based (Traditional) and Value-Based Performance Methods

Firms handle performance evaluation criteria with different approaches over time. Until the 1980s, accountancy-based (traditional) performance measures were included in the literature. It is seen that value-based performance measures started to be used in the literature after the 1980s (Ghalayini et al., 1997). Cavlak and Ataman (2019) point to 1980 as the breaking point of performance evaluation methods. After the 2000s, it is seen that alternative performance evaluation systems have also emerged.

Cavlak and Ataman (2019) explain the characteristics of accountancy-based (traditional) performance measures as in Table 2.2.

Table 2.2 Characteristics of Accountancy-Based (Traditional) Performance Methods

Feature	Accountancy-Based (Traditional) Performance Methods
Data	Numeric and Simple Data
Source	Financial Statements, Reports with Financial Content
Scope	Financial Transactions, One-Dimensional
Calculation	Simple
Relevant Stakeholders	Internal Stakeholders (Especially Shareholders)
Goal	Analyzing Past Results
Benefit	Short and Medium Term
Relevant Department	Accounting and Finance

Cavlak and Ataman (2019) explain the features of value-based performance measures as in Table 2.3.

Table 2.3 Characteristics of Value-Based Performance Methods

Feature	Value-Based Performance Methods
Data	Digital, Verbal, and Big Data
Source	Financial Statements, Reports of All Kinds
Scope	Financial and Non-Financial Transactions, Multidimensional
Calculation	Complex
Relevant Stakeholders	All Internal and External Stakeholders
Goal	Analyzing Past Results and Shedding Light on the Future
Benefit	Medium and Long Term
Relevant Department	All Departments in the Business

Comparing the accountancy-based and value-based financial measures in the light of the tables presented above:

- Data belonging to traditional accounting calculations are collected with simple data collection methods. In contrast, value-based accounting calculations are collected with verbal and extensive data collection methods and numerical calculations.
- Financial reports are used to collect the data of traditional accounting calculations. However, in value-based performance measures, all accounts belonging to the company are used.
- In traditional accounting calculations, the scope of data is one-dimensional. However, the content of data in value-based performance measures is multidimensional.

- Simple calculation methods are applied in traditional accounting calculations. However, complex calculations are used in value-based performance measures.
- In traditional accounting calculations, the relevant stakeholders are only internal. However, in value-based performance measures, the relevant stakeholders are both internal and external stakeholders.
- In traditional accounting calculations, the target is to analyze the past. However, value-based performance measures provide insights into the future as well as examining the history.
- Short- and medium-term benefits are gained in traditional accounting calculations. However, medium and long-term benefits are achieved in value-based performance calculations.
- In traditional accounting calculations, the accounting department is the relevant department. However, in value-based performance calculations, all departments of the company constitute the relevant departments.

3. ECONOMIC VALUE-ADDED (EVA)

In the previous chapter, the terms performance measurement, primary and sub-varieties, are explained. In this chapter, "Economic Value-Added (EVA)" which is an instrument of "Value-Based Performance Measurement Methods", and one the main topic of this study is discussed in detail.

3.1. Conceptional Framework of Economic Value-Added (EVA)

Change in market competition conditions and increasing concentration pressure companies to change companies' performance measurement methods. For this reason, firms are changing from a cost-based performance evaluation approach to a value-based performance measurement approach. Capital investments made by companies are not taken into account in the cost-based performance measurement approach. This situation causes companies to misinterpret their performance, causing companies to be mistaken in terms of performance. On the other hand, value-based performance measurements provide benefits for companies to make more accurate investment decisions.

Economic value-added performance measurement is one of the value-based performance measurements. As a performance measurement method, economic value-added is used to determine the enterprise's value (Erden, 2003a). Used for the first time at 'Stern Stewart & Co.,' the economic value-added measurement was used to focus on shareholder value (Otley, 1999). Reflecting the companies' profit and loss situation to the capital at the end of the period does not indicate whether a company has gained value in real terms. The genuine appreciation and depreciation of firms can only be determined by considering the cost of invested capital (Drucker, 1995:59). Economic value-added gives companies more accurate information in this

direction, giving companies an advantage over other performance measurements (Yılgör, 2005).

Shareholder value theory places shareholders at the top of the economic performance measures of businesses. In evaluating the performance of economic value-added, taking into account the capital in the measurement of arrangement ensures that the shareholders' investments are taken into account (Banerjee, 2000). This situation shows that the economic value-added approach is theoretically based on the shareholder value theory. Stewart (1991) explains the economic value-added as the difference between its profit at the end of the period and its capital. Besides, Stewart explains that economic value-added represents the net present value and is the most effective measurement tool in increasing its market value.

In the literature, economic value-added is also described as the "measure of real profit" (Kara, 2005:8). The economic value-added performance measure, which enables the determination of actual profits, guides the managers to increase the shareholder value and clearly express its profitability (Yao and Liu, 2006: 54). In addition, economic value-added measurement provides firms with a net "economic profit" situation by deducting the capital cost and its costs (El Mir and SouadSeboui, 2008: 50).

Economic value-added has been used for performance measurement in both production and service businesses by providing benefits in establishing the relationship between production, management, and marketing within business models that have changed from the 1980s to the present (Çelik, 2002: 21). The economic value-added performance measurement, which is used to determine the entire enterprise's actual profitability status, can also measure its real profitability status (Hacıüstemoğlu et al., 2002: 2). While economic value-added performance refers to

the economic profit obtained by deducting the capital cost from the net operating profit after the firms' taxes in terms of accounting, it is considered the firm's market value-added in finance (Ehrbar and Stewart, 1999: 21).

Ehrbar (1988:47) emphasizes the necessity of evaluating the business activities in terms of their potential to add value to the shareholders by stating that the enterprises' success in terms of economic efficiency should not only be considered profit. This way of understanding leads companies to work on which activities will add value to shareholders' investment decisions. It is seen in the literature that economic value-added performance measurement is applied for different purposes. These purposes; determining how much value companies gain depending on the investment resources they use (Çelik, 2002: 22), how much the value obtained by companies as a result of their financial investment decisions affects investor welfare (Sonal, 2002: 16) and investment successes accurately and understandably and determination of investment successes accurately and understandably (Erden, 2003b: 90).

Firms that measure economic value-added consider their investment decisions based on capital rather than activity-based. Performance values, which are determined by taking the capital-based approach, provide benefits by creating awareness in choosing the companies' risk level (Yook, 2004: 69). Besides, in traditional (accountancy-based) financial performance measurement, firms make performance evaluations based on short and long-term debt sources for their investments. In contrast, performance evaluation is based on the invested capital source in the economic value-added performance model (Korkmaz and Özdemir, 2003: 33).

Value-based management models include the value creation process within the strategic management model, primarily developing strategies, setting targets based on the system, making budgetary plans, and evaluating implementation performance

(Young and O'byrne, 2000: 109). With the economic value-added performance measurement, companies can determine the value they have obtained due to their strategies and determine the level of achieving the desired value to be created. This situation provides benefits for companies in re-evaluating and updating their plan focused on creating value.

In summary, the concept of economic value-added performance emerges as an approach that takes firm profitability focusing on investors and aims to determine the value created by activities for shareholders.

3.2. History of Development and Reviving of EVA

An aspect of the history of development and reviving of EVA, it is convenient to emphasize that the Economic Value Added (EVA) is modified (with a few changes) and commercialized version of "residual income (RI)", rather than an invention. In managerial accounting, residual income is calculated by deducting the cost of invested capital of operating assets from the operating income. Whereas EVA is the difference between net operating profit after taxes and the firm's cost of capital. To compare the two subjects as formulas;

- $\text{Residual Income (RI)} = \text{Operating Income} - (\text{Minimum Required Return} \times \text{Operating Assets})$
- $\text{Economic Value Added (EVA)} = \text{Net Operating Profit Less Adjusted Taxes (NOPLAT)} - (\text{Capital} \times \text{Weighted Average Cost of Capital})$

The initial difference between EVA and RI is calculating 'income' and 'capital.' Alfred Marshall is one of RI's first definers (Wallace, 1997), and Marshall defined economic profit as total net gains less the interest on invested capital at the current rate (Marshall, 1890). In Marshall's "Principle of Economics," the notion is to

calculate and determine the actual profit. Thus, subtracting the capital cost from the earnings after tax can only define the stakeholders' actual gross earnings.

The concept of RI was transferred to accountancy literacy by Church in 1917 and Scovell by 1924. However, its actual transference to managerial accounting is approximately the 1960's (Dodd and Chen, 1996: 41). General Motors can be considered the first applier of the RI concept in the 1920s. General Electric names RI and applies it among its strategic administrative divisions in performance assessment (Biddle, Bowen, Wallace, 1997: 301-302). In the 1970s, it was observed that RI is not a widespread performance measurement method used among corporates.

In the late 20th century, shareholder/stakeholder-focused management principal gains importance owing to capitalization and globalization. Another saying, shareholder value maximization-based and value creation-based corporate strategies aim to enhance corporates shares are developed, and an understanding of value creation is highlighted in assessing managers' performance. For this reason, corporates have to interiorize value-based management angles. Naturally, value-based management requires value-based performance measurement to make a healthier assessment and apply the decision-making process successfully.

It is known that companies' performance measurements to gain value are handled with different calculation techniques in the historical process. For example, in the 1920s; Du Pont model and ROI, in the 1970s; EPS and price/earnings ratio, in the 1980s; ROE, RONA, cash flow and market value/book value ratio, in 1990s; economic value-added (EVA), MVA, EBITDA, balance scorecard and shareholder value-added can be suggested chronologically (Yıldız, 2008: 113). With the economic value-added approach, the value-based goal that companies want to achieve is to maximize the company's profit, which is obtained above the costs of the companies'

capital through their shareholders (Roztock, 1998). Also, developments and changes in the capital market, audit, and evaluation approaches are among the reasons that benefit the formation of the economic value-added technique (Young, 2000: 335).

In the historical process, which has changed from the capital-oriented residual income to economic profit and economic profit to economic value-added, the characteristics gained with economic value-added are as follows (Young and O'byrne, 2001: 105);

- Economic value-added performance measurement provides more focus on capital costs than past measurement techniques.
- While company managers and shareholders are misled in determining its value in traditional accounting approaches, more realistic performance indicators are reached with economic value-added calculations.
- Accurate information obtained through economic value-added calculations also helps shareholders gain more.

Sipahi (2005: 107), who put forward the criticisms made to traditional accounting approaches to distinguish between the economic value-added technique and traditional accounting performance measures, expresses the advantages of economic value-added as follows;

- While traditional approaches offer short-term and limited views, the economic value-added system helps obtain long-term and broad perspectives.
- While traditional approaches reveal the whole company's performance status, the economic value-added system helps determine its performance status and the departments and enterprises.

- While traditional approaches are insufficient to explain the causes of low-performance situations, the economic value-added system also presents low-performance sources.
- While traditional approaches enable identifying past situations based on accounting data, the economic value-added system also benefits in making predictions.

Within this scope, EVA is (also) appeared in terms of value creation and measured value creation performance like other value-based performance measurement methods. EVA was first developed as a trademark of "Stern Stewart & Co.," a consulting company founded by Joel M. Stern and G. Bennett Stewart III. in 1989. However, its actual usage as a financial tool began in 1993. Furthermore, it becomes popular among the academic and finance world when it is used by huge companies like AT&T, Briggs and Stratton, Eastman Chemical, Compaq Computer, SPY Corp, IBM, Duracell, and Coca-Cola. According to Stewart, enhancing EVA should be the most crucial aim of any business. Profit, earnings per share, growth on profit, rate of return, dividends, and even cash flows should not be considered; on the other hand, what makes a difference is EVA (Stewart G. Bennett III, 1999: 177).

It is seen that in the world literature, economic value-added applications started to be used in the 1980s. However, in Turkey in 1995, the economic value-added applications connected to KordsaSabanci Holding is known to be implemented (Öztürk, 2004; Bengü and Demirgüneş, 2006). Therefore, although economic value-added practices have increased recently, it cannot be said that they are widely applied in our country.

As stated above, EVA is not a brand-new term; on the contrary, a new, specific, and adjusted version of another known accounting term, residual income. At

this phase, Stewart's immense contribution is that the calculation of net profit and the capital and the adjustment of these two subjects to get more realistic results.

3.3. Definition and Calculation of EVA

Economic value-added calculations express the difference between net operating profit after taxes and the total cost of capital. However, this simple statement contains accounting records that need to be edited. For this reason, in this section, first of all, a mathematical explanation of the calculation of the economic value-added will be made. Then it will be explained how the data required for the analysis can be obtained from the accounting records.

The primary purpose of the economic value-added calculation is to reveal the state of being economic profit. For example, suppose that the difference between the net operating profit after taxes and the total cost of capital is favorable. In that case, it is determined that the firms earn an economic profit, and if it is negative, they cannot earn an economic profit (Öztürk, 2004). Therefore, apart from traditional accounting measurements, with economic value-added measures, the capital cost is considered additionally.

The economic value-added calculation is expressed in two ways in the literature (Ercan et al., 2003: 85). These methods are as follows:

Method One:

Economic Value-Added (EVA) = NOPLAT - (WACC * CAPITAL)

Where;

NOPLAT is Net Operating Profit Less Adjusted Taxes,

WACC is the Weighted Average Cost of Capital (%),

CAPITAL is invested in capital.

Method Two:

$$\text{Economic Value-Added (EVA)} = (\text{ROIC} - \text{WACC}) * \text{CAPITAL}$$

Where;

ROIC is Return on Invested Capital (%) = NOPLAT / Invested Capital,

WACC is the Weighted Average Cost of Capital (%),

CAPITAL is invested in capital.

3.3.1. Calculation of Net Operating Profit Less Adjusted Taxes (NOPLAT)

After deducting operating expenses, adjustments, and taxes from operating income, the remaining amount is the net operating profit less adjusted taxes (NOPLAT) and is one of the essential components of the EVA calculation. The net operating profit after tax of an enterprise is the measurement of the enterprise's cash generation capacity from its ongoing activities, regardless of its capital structure (Roztock, 1999).

NOPLAT separates financial decisions from operational decisions and reveals the operating performance more clearly by eliminating its economic structure's effects on the return rate (leverage effect). As a result, net operating profit less adjusted taxes are not affected by the debt/equity mix (Yıldız, 2008: 183). However, for NOPLAT calculation, the accounting records' data are not used directly and need to be arranged. There are two approaches in the literature for calculating NOPLAT (Grant, 2003: 170). Those are the Bottom-Up Approach and Top-Down Approach.

Bottom-Up Approach:

$$\text{NOPLAT} = \text{Adjusted Operating Profit Before Taxes} - \text{Cash Operating Taxes}$$

$$\text{Adjusted Operating Profit Before Taxes} = \text{Operating Profit After Depreciation and Amortization} + \text{Operating Profit Adjustments}$$

$$\text{Operating Profit Adjustments} = \text{Interest expenses incurred for operating leases} + \text{Increase in LIFO reserve} + \text{Increase in accumulated goodwill amortization} + \text{Increase in provision for doubtful receivables} + \text{Increase in capitalized research and}$$

development + Increase in extraordinary expenses and losses + Other operating income

Top-down approach:

NOPLAT = Adjusted Operating Profit Before Taxes - Cash Operating Taxes

Adjusted Operating Profit Before Taxes = Sales – (Cost of goods sold + Selling, general, and administrative expenses + Depreciation) + Operating Profit Adjustments

Operating Profit Adjustments = Interest expenses incurred for operating leases + Increase in LIFO reserve + Increase in accumulated goodwill amortization + Increase in provision for doubtful receivables + Increase in capitalized research and development + Increase in extraordinary expenses and losses + Other operating income.

Table 3.1 Calculation of NOPLAT in Financial Statements

I. Bottom-Up Approach		
A. Operating Profit After Depreciation and Amortization		XX
B. Operating Profit Adjustments		X
1. Interest expenses incurred for operating leases	+	
2. Increase in LIFO reserve	+	
3. Increase in accumulated goodwill amortization	+	
4. Increase in provision for doubtful receivables	+	
5. Increase in capitalized research and development	+	
6. Increase in extraordinary expenses and losses	+	
7. Other operating income	+	
C. Adjusted Operating Profit Before Taxes		A+B
D. Cash Operating Taxes		X
E. NOPLAT		C-D
II. Top-down approach		
A. Sales		XX
1. Cost of goods sold	(-)	
2. Selling, general, and administrative expenses	(-)	
3. Depreciation	(-)	
B. Operating Profit Adjustments		X
1. Interest expenses incurred for operating leases	+	
2. Increase in LIFO reserve	+	
3. Increase in accumulated goodwill amortization	+	

4. Increase in provision for doubtful receivables	+	
5. Increase in capitalized research and development	+	
6. Increase in extraordinary expenses and losses	+	
7. Other operating income	+	
C. Adjusted Operating Profit Before Taxes		A+B
D. Cash Operating Taxes		X
E. NOPLAT		C-D

3.3.2. Invested Capital

Another main component of EVA calculation is invested capital. Invested capital refers to the total investment made for the enterprise to profit: the total of the invested resources that the company uses in its activities. The amount of invested capital is calculated by adding net tangible fixed assets and net other assets to the net working capital (Üreten and Ercan, 2000: 85-86).

Two different approaches are mentioned in the literature in calculating the invested capital. These approaches are as follows (Grant, 2003: 173-174);

1. Asset Approach,
2. Financing Resources Approach.

Stewart has shown the asset approach's equality and the financing resources approach in calculating invested capital (Öztürk, 2010: 50). The amount of invested capital calculated according to both methods represents the sum of equity, long-term liabilities, and adjustment items.

In the asset approach, the invested capital calculation begins with short-term net working assets (mainly net working capital). Subsequently, the net amount of fixed assets is reached by adding the relevant items due to the corrections. This approach defines capital as all the money invested in a company regardless of its source (debt and equity are not differentiated) (Roztock and Needy, 1998).

Adjustments to be made when determining the amount of capital invested; the amounts paid for buildings, land, machinery, equipment, other costs (R&D, training, etc.) that require long-term payments are also included in the calculation. Although these are expenses, according to Generally Accepted Accounting Principles (GAAP), as EVA is an internal management accounting technique, such fees must also be added to the cost as part of the investment made (Hacıüstemoğlu et al., 2002). The calculation of the capital item required in the EVA formulation is shown below;

$$\text{Invested Capital} = \text{Net Working Capital} + \text{Fixed Assets}$$

$$\text{Net Working Capital} = \text{Current Assets} - \text{Short Term Interest-Free Liabilities}$$

It can be expressed as (Ercan, Öztürk, Demirgüneş, 2003: 88).

The invested capital in the EVA formula is the sum of the current assets exceeding the non-interest-bearing short-term liabilities and the fixed assets (Bengü&Demirgüneş, 2006). In other words, the firm's capital, which consists of all money and money-like money invested in the firm, is calculated by adding the long-term debts to the owners' equity (Otlı and Karaca, 2006).

In the financing resources approach, the capital calculation begins with the book value of the stocks. Then, the capital amount is calculated by adding capital and debts and other debt items to ordinary shares' book value. Approaches for the invested capital are shown in Table 3.2.

Table 3.2 Calculation of Invested Capital in Financial Statements

I. Asset Approach		
A. Short-Term Net Operating Assets		XX
B. Net Fixed (Tangible + Intangible) Assets		XX
C. Other Assets		XX
D. LIFO Provisions		XX
E. Accumulated Goodwill Amortization		XX
F. Provision for Doubtful Receivables		XX
G. Research and Development Investments		XX

H. Present Value of Operating Leases		XX
INVESTED CAPITAL		A+B+C+....+H
II. Financing Resources Approach		
A. Book Value of Equity (Ordinary Stocks)		XX
B. Capital Items		XX
1. Preferred Stocks	+	
2. Minority Shares	+	
3. Deferred Income Tax	+	
4. LIFO Provisions	+	
5. Accumulated Goodwill Amortization	+	
6. Research and Development Investments (Net)	+	
7. Provision for Doubtful Receivables	+	
8. Present Value of Operating Leases	+	
C. Debts and Debt Items		XX
1. Short Term Interest Liabilities	+	
2. Sections of Long-Term Debts Converting to Short Term	+	
3. Long Term Debts	+	
4. Financial Lease Obligations	+	
INVESTED CAPITAL		A+B+C

3.3.3. Cost of Capital

Companies' resources to carry out their activities mainly consist of equity and debts borrowed, provided that they are repaid at the end of a specific period. Equity cost appears by subtracting external/foreign resources' costs from companies' total costs to be carried out for their activities.

Çakıcı (2008: 159) expresses the capital cost as the minimum expected return on the investment. Thus, after deducting all expenses of an investment made for an activity, if the rate of profit obtained is higher than the cost of capital, economic gain is received; however, if it is lower than the cost of capital, economic profit cannot be obtained.

Makelainen (1998) also explains as follows:

- If the income obtained as a result of the investment is less than the cost arising from the activities, it means negative profitability, another saying loss,
- If the income obtained as a result of the investment is more than the cost arising from the activities but less than the minimum expected return from the capital cost, it means positive but insufficient profitability,
- If the income obtained as a result of the investment is more than the cost arising from the activities and equal to the minimum return expected from the capital cost, it means positive and sufficient profitability,
- If the income obtained as a result of the investment is more than the minimum return expected from the cost of operations and capital cost, in that case, it means economic value profitability occurs.

Capital used by firms in their activities; consists of foreign resources and equity. At this point, the equity invested in realizing the action cannot be determined, causing the capital cost to be evaluated as an alternative cost.

The mathematical expression of resource cost is as follows (Akgüç, 1998: 439);

$$I_0 = \sum_{t=0}^n \frac{C_t}{(1+i)^t}$$

Where;

$I_0 = t_0$ during inflow cash provided to firms

$C_t = t$ cash outflow required during the period

i = cost of funding

Since the financial resources that constitute the cost of capital are based on debt and equity, both the cost of foreign borrowings and the equity cost should be calculated to calculate the capital cost.

3.3.3.1. Cost of External Resources (Liabilities)

Firms cannot carry out and develop their activities only with their equity capital. For this reason, companies continue their activities by borrowing in addition to their equity. Resources obtained by borrowing bring the cost of getting the resource according to the risk and market conditions (Berk, 1999: 265). Besides, creating resources by borrowing gives firms the advantage of decreasing their equity capital usage to a certain point. However, the resources obtained by borrowing bring along risks (Brealey et al., 1999: 306).

Firms use loan and bond financial instruments to obtain resources by borrowing. Loans are obtained as foreign resources, and money flow and private bonds of the company and investors' resources are divided into the long term and the short term. The cost is calculated by considering the term length.

Calculation of Cost of Loans:

$$BK_f = \sum_{t=1}^n \frac{C_t(1-v)}{(1+i)^n} + \frac{P_t}{(1+i)^n}$$

Where;

BK_f = amount of initially used funds through a loan

C_t = interest paid in t periods

P_t = principal payment in period t

v = Tax rate

i = true cost of debt

Calculation of Cost of Bonds:

$$BK_f = \sum_{t=1}^n \frac{C_t(1-v)}{(1+i)^n} + \frac{P_t}{(1+i)^n}$$

Where;

I_b = The money inflow provided by the issue of bonds

C_t = interest paid in t periods

P = nominal value of bonds

v = Tax rate

i_b = the after-tax cost of funds raised through issuing bonds

3.3.3.2. Cost of Equity

The company's equity is the sum of the investments made by owners of the company and those who buy the company's shares. The lowest expected profit rate in return for the allocation of companies' operating investments on equity capital means the cost of equity. The expected return rates of individuals who buy stocks are also considered the cost of equity (Chambers. 2009:61). The following mathematical expression is used to determine the expected return of stocks:

$$I_e = \frac{D_1}{P_0} + \frac{P_1 - P_0}{P_0}$$

Where;

I_e = The expected return on the stock

P_0 = Current market value of the stock

P_1 = The expected price of the stock one year from today

D_1 = Expected dividend per share

There are different model structures in the calculation of equity cost. These model structures:

- Determination of equity cost by capital asset pricing model
- Determining the equity cost with the dividend growth model

Determination of Equity Cost by Capital Asset Pricing Model (CAPM)

Stock investors develop behaviors towards portfolio diversification to reduce the risk situation. However, even though there is a diversification policy, the market risk, which is a natural structure of the market, cannot be eliminated by investors. Market risk is also referred to as systematic risk in the literature. Systematic risk generally refers to investors' chance not to intervene and have to bear (Okumuş,2004).

The mathematical expression for calculating the equity cost based on the capital asset pricing model structure appears as follows (Chambers, 2009: 87):

$$k_e = r_f + \beta(r_m - r_f)$$

Where;

k_e = Equity cost

r_f = Risk-free interest rate

r_m = Expected return of the market

$(r_m - r_f)$ = Market risk premium

β = Systematic risk of stock (Beta)

Risk Premium = $\beta \times$ Market risk premium

Determining the Equity Cost with the Dividend Growth Model

There are different approaches to calculate the cost of equity within the scope of the dividend growth model—these approaches; Cost of Common Stocks, Cost of Retained Profits, Cost of New Stocks.

Cost of Common Stocks

Ordinary shares belonging to the primary beneficiaries of the firm are named common stocks. The remaining dividend is distributed to the holders of ordinary shares after distributing the company's profit from the claims to other stakeholders and paying the taxes required (Chambers, 2009).

Differences in the dividend distribution approach to calculate the cost of ordinary shares plays an active role in directly calculating the cost. In this context, according to the current market value of the common stock, then the dividend distribution status; the distribution of fixed dividends is explained as the distribution of dividends increasing at a constant rate, first above average and then according to the regular increase rate (Chambers, 2009: 63-71).

- Common Stock Current Market Value is shown as;

$$P_0 = \sum_{t=0}^{\infty} \frac{D_t}{(1 + i_e)^t}$$

Where;

P_0 = Common stock current market value

D_t = dividend to be paid per share in period t

i_e = The cost of common stocks

- Current Market Value of Common Stocks Based on Fixed Dividend

Distribution shown as;

$$P_0 = \frac{D}{i_e}$$

Where;

P_0 = Common stock current market value

D_t = dividend to be paid per share in period t

i_e = *The cost of common stocks*

- Current Market Value of Common Stocks Based on a Constantly Increasing Dividend Distribution shown as;

$$i_e = \frac{D_1}{P_0} + g$$

$$D_1 = D_0(1 + g)^1$$

Where;

P_0 = *Common stock current market value*

D_1 = *dividend to be paid per share in the next year*

D_0 = *Current profit share amount*

g = *Constant growth rate of profit share each year*

- Current Market Value of Ordinary Stocks Based on First Above Normal Then Normal Increase Rate shown as;

$$P_0 = \sum_{t=1}^N \frac{D_0(1 + g_s)^t}{(1 + i_e)^t} + \sum_{t=N+1}^N \frac{D_N(1 + g_n)^t}{(1 + i_e)^t}$$

Where;

D = *dividend to be paid per share in period t*

g_n = *Normal increase in dividends*

g_s = *Above average increase in dividends*

n = *The period during which the average growth rate will continue*

N = *The period during which above the average growth rate will continue*

P_0 = *Common stock current market value*

Cost of Retained Profits

Companies' retention of profits before they are distributed to stock investors and equity investors and instead its usage in the company's future investment plans cause an increase in equity. This situation returns as the cost of the profits retained to the firm. The mathematical expression of the cost of retained profits appears as follows (Chambers, 2009: 75):

$$i_r = i_e \frac{(1 - t_p)}{(1 - t_g)}$$

i_e = Profitability rate expected to be achieved by partners as minimum

t_p = The tax rate to be paid by the partner in case of profit distribution

t_g = The tax rate to be paid by the partner in the absence of profit distribution

i_r = Calculated cost of undistributed profit including partner's tax status

New Issued Stocks Cost

The companies' decision to issue new stocks brings the cost burden of new stocks to the companies. The mathematical expression of the cost of new stocks appears as follows (Chambers, 2009: 83):

$$i_e = \frac{D_0}{P_0(1 - b)} + g$$

i_e = cost of new stock

D = dividend to be paid per share in period t

$P_0(1 - b)$ = Net money inflow provided to the company by issuing new stock

b = Expenses for issuing new stock

g = expected growth rate in dividends

3.3.3.3. Calculation of Weighted Average Cost of Capital (WACC)

Another vital calculation component in the EVA formula is the “Weighted Average Cost of Capital (WACC)”. The capital of the firms is formed by the combination of more than one capital element. It is improbable that a firm's wealth cannot be created solely with equity capital, nor can it be created solely by borrowing. Those capital elements obtained from various sources have separate costs. The cost of money formed by the combination of capital elements is calculated with the weighted average cost of capital (WACC). Those capital elements can be named as; common stocks, preferred stocks, bonds, and any other long-term debt in the WACC calculation. WACC Formula and Calculation follows as;

$$\text{WACC} = \{ E/V * Re \} + \{ D/V * Rd * (1 - Tc) \}$$

where:

Re = Cost of equity

Rd = Cost of debt

E = Market value of the firm's equity

D = Market value of the firm's debt

V = E + D = Total market value of the firm's financing

E/V = Percentage of equity's financing

D/V = Percentage of debt's financing

Tc = Corporate tax rate

This calculation is done in three stages. These stages are listed below (Brealey, Myers, Marcus, 1999: 295);

Stage 1: The weight (share) of each capital element in the total capital is calculated.

Stage 2: The cost of each capital element is calculated individually.

Stage 3: The weight of capital elements in the capital is multiplied by their costs. Finally, the sum of the amounts found constitutes the weighted average cost of capital.

Some of the key takeaways for WACC are;

- Calculation of a firm's cost of capital should be calculated by proportionally weighing each capital category.
- It must include all of a company's capital resources, including common shares, preferred stocks, bonds, and other long-term debt.
- It can be used as an obstacle rate by which companies and investors can measure ROIC performance.
- WACC is widely used in Discounted Cash Flow (DCF) analysis as the discount rate for future cash flows.
- WACC of a firm increases as its beta and return on equity rate increase because an increase in WACC signifies a decrease in valuation and increased risk.

3.4 Accounting Adjustments Related to Calculation of EVA

Accounting information in financial statements based on traditional accounting principles does not directly present companies' economic value-added. Ehrbar (1998: 165) explains the calculated economic value-added based on conventional accounting principles as an unadjusted flat economic value-added calculation. The economic value-added analysis made after accounting corrections is expressed as adjusted economic value added.

Türker (2005: 139) states that basically, two regulations should be made to the corrected economic value-added calculations. These;

- Adjusting the net profit for the period: It refers the adding the expenses that are not cash outflows to the profit and subtracting the income not yet reflected in profit from the profit.
- Correction of tax provision items: Tax adjustments are made and reflected in the profit situation.

Stern et al. (1996) suggest that approximately 160 accounting regulations should be made while explaining the necessary adjustments regarding accounting adjustments to calculate the economic value-added. However, when looking at the application areas, it is evaluated that the accounting corrections to be made between 5-10 will be sufficient for a healthy economic value-added calculation.

The accounting regulations required for the adjusted calculation of the economic value-added according to Birkan (2015), are; provision expenses, deferred taxes, depreciation, restructuring expenses, R&D cost, operating lease, strategic investments, company acquisition and goodwill, stock valuation methods, and intellectual capital.

3.4.1. Provision Expenses

Provisions account based on traditional accounting principles are carried out in two ways. The first of those is "Active value decrease provisions." The purpose of the provision for asset loss is to make value adjustments. Accounts that fall into these value adjustments are; provision for doubtful trade receivables, failure from the decline in value of inventory, provision for a decrease in value of marketable securities, and provisions for guarantees. The second provision accounts are "provisions for debt and expense." The provision accounts in which the companies' debts and expenses for the future but whose time is unknown are recorded.

Provision accounts need to be corrected in economic value-added calculations. For this purpose, the increases in the current period and that occur in the provisions account should be added to the net operating profit after tax, and the decreases should be deducted from the net operating profit after tax (Goldberg, 1999). Also, doubtful receivables should be added to the capital in the calculation of the capital cost.

3.4.2. Deferred Taxes

Firms engaged in business activities under the tax procedure law account for their tax debts following their legal regulations. Therefore, tax liabilities related to commercial activities are accounted for in the same period. However, a deferred tax situation arises when reflecting the accounting regulations regarding taxes to the next period. In this case, a deferred tax liability may occur, as well as a tax asset. While deferred tax liability refers to the tax liability to be paid in the future, deferred tax asset refers to the income tax amount expected to be recovered in the future (Örten et al., 2008: 158).

Adjustments should be made in the tax period, mainly traded in the income statement, to make the accounting adjustments of deferred taxes for calculating economic value-added. This arrangement, if there is an increase in deferred taxes, it is deducted from the current tax. If there is a decrease in deferred taxes, it should be added to the current tax.

Calculation of cash operating taxes for the period calculated, taking into account the deferred taxes, is as follows:

Cash Operating Income = Reported Income or Corporate Tax + Tax Adjustments

Tax Adjustments = Increase (decrease) in deferred taxes - (+) Tax of extraordinary income - Tax advantage of interest expenses + Tax advantage of financial leasing interest expenses + Tax advantage of extraordinary expenses.

3.4.3. Depreciation

Depreciation is explained as the acquisition costs of the firms' tangible fixed assets are reflected in the balance sheet based on the periods of use and the basis of a particular depreciation approach. The reflection of depreciation loss in the balance sheet is not determined according to the companies' wishes; contrarily, it is realized by legal regulations determined by the governments. The procedural tax law in the Republic of Turkey Article 315, 316, and 317 describes the procedures to determine the depreciation charge.

Since the application of the economic value-added method is carried out by the NOPAT method, the economic value must be calculated after the depreciation cost is reduced to determine the financial profit of the net period (Okumuş, 2004). The regular depreciation application is a depreciation method that is not applied during the fixed asset's useful life. The depreciation application decreasing over its useful life is also known as the diminishing balances method. Besides, depreciation fee applications are made according to their usage.

Birkan (2015: 43-48) presents examples of economic value-added calculations according to regular (Table 3.3), decreasing (Table 3.4), and annuity depreciation (Table 3.5) values as follows;

Table 3.3 Economic Value-Added Based on Regular Depreciation

000 TL - Years	0	1	2	3	4	5
Net Sales		2000	2000	2000	2000	2000
Cost of Goods Sold		(800)	(800)	(800)	(800)	(800)
Gross Sales Margin		1200	1200	1200	1200	1200
Operating Expenses		(600)	(600)	(600)	(600)	(600)
Depreciation Expense		(100)	(100)	(100)	(100)	(100)
Operating Income		500	500	500	500	500
Tax (%30)		(150)	(150)	(150)	(150)	(150)
NOPAT		350	350	350	350	350
Fixed Assets	500	500	500	500	500	500

Accumulated Depreciation	-	(100)	(200)	(300)	(400)	(500)
Net Fixed Assets	500	400	300	200	100	0
Invested Capital		500	400	300	200	100
Cost of Capital (%25)		125	100	75	50	25
Economic Value-Added		225	250	275	300	325
Present Value of EVA	710	180	160	141	122	107

Table 3.4 Economic Value-Added Based on Declining Balances Amortization

000 TL - Years	0	1	2	3	4	5
Net Sales		2000	2000	2000	2000	2000
Cost of Goods Sold		(800)	(800)	(800)	(800)	(800)
Gross Sales Margin		1200	1200	1200	1200	1200
Operating Expenses		(600)	(600)	(600)	(600)	(600)
Depreciation Expense		(200)	(120)	(72)	(43)	(65)
Operating Income		400	480	528	557	535
Tax (%30)		(120)	(144)	(156)	(167)	(161)
NOPAT		280	336	370	390	374
Fixed Assets	500	500	500	500	500	500
Accumulated Depreciation	-	(200)	(320)	(392)	(435)	(500)
Net Fixed Assets	500	300	180	108	65	0
Invested Capital		500	300	180	108	65
Cost of Capital (%25)		125	75	45	27	16
Economic Value-Added		155	261	325	363	358

Table 3.5 Economic Value-Added Based on Annuity Depreciation

000 TL - Years	0	1	2	3	4	5
Net Sales		2000	2000	2000	2000	2000
Cost of Goods Sold		(800)	(800)	(800)	(800)	(800)
Gross Sales Margin		1200	1200	1200	1200	1200
Operating Expenses		(600)	(600)	(600)	(600)	(600)
Depreciation Expense		(61)	(76)	(95)	(119)	(149)
Operating Income		539	524	505	481	451
Tax (%30)		(150)	(150)	(150)	(150)	(150)
NOPAT		389	374	355	331	301
Fixed Assets	500	500	500	500	500	500
Accumulated Depreciation	-	(61)	(137)	(232)	(351)	(500)
Net Fixed Assets	500	439	363	268	149	0
Invested Capital		500	439	363	268	149
Cost of Capital (%25)		125	110	91	67	37
Economic Value-Added		264	264	264	264	264

	710	211	169	135	108	87
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Looking at the economic value-added in the three different tables above creates differences depending on the depreciation method. The application of diminishing balances creates significant differences between periods in economic value-added. In the annuity depreciation application, it is observed that the economic value-added remains constant. Therefore, it can be said that the annuity application, one of the depreciation applications, is an effective method to find the true economic value-added.

3.4.4. Research and Development (R&D) Costs

Research and development activities include the activities undertaken by businesses to gain in the future. As a natural result of these activities, there are costs incurred for the realization of the activities. The reflection of these costs in the balance sheet and income statements cannot be clearly expressed. Due to the ambiguous situation about obtaining a clear and concrete gain from the research and development activities in the future, enterprises reflect the expenses of their research and development-based expenditures into the period of payment (Ehrbar, 1998: 169).

As a result of research and development activities, obtaining intangible fixed assets has two aspects. While research activities are accounted as an expense during the period due to the lack of a net asset acquisition, with the realization of the asset status obtained due to development activities, the recognition process is carried out in intangible fixed assets.

Procedures for adjustment of R&D activities in economic value-added calculations include the inclusion of expenses made on behalf of R&D to NOPAT and capital for the previous periods (Türker, 2005: 144). What should be done to calculate the

economic value-added clearly; after declaring the costs of R&D expenditures as expenses, these expenses are added to the adjusted profit before tax (Young and O'Byrne, 2000: 218). This process is the activation of R&D studies that appear as an expense in a passive state.

Young (2000) explains the situation regarding expense and capitalization of R&D expenditures as seen in the table.

Table 3.6 Accrual of R&D Expenditures

	2009	2010	2011	2012	2013
NOPAT (Except R&D)	12	12	12	12	12
2008 R&D	2	2	2	2	2
2009 R&D	-5	2	2	2	2
2010 R&D		-5	2	2	2
2011 R&D			-5	2	2
2012 R&D				-5	2
2013 R&D					-5
NOPAT (Including R&D)	9	11	13	15	17
Cost of Capital (80*%10)	8	8	8	8	8
EVA	1	3	5	7	9
Rate of Return on Net Assets	%11.3	%13.8	%16.3	%18.8	%21.3

Table 3.7 Activation of R&D Expenditures

	2009	2010	2011	2012	2013
NOPLAT	14	16	18	20	22
2009 R&D	-1	-1	-1	-1	-1
2010 R&D		-1	-1	-1	-1
2011 R&D			-1	-1	-1
2012 R&D				-1	-1
2013 R&D					-1
NOPLAT (Including R&D)	13	14	15	16	17
Cost of Capital (80*%10)	8,5	8,9	9,2	9,4	9,5
EVA	4,5	5,1	5,8	6,6	7,5
Rate of Return on Net Assets	%11.3	%13.8	%16.3	%18.8	%21.3

When the tables above are examined, the recognition of R&D expenditures just as an expense prevents the economic value-added's correct determination in the first table. However, in the second table, the economic value-added is determined more clearly with the capitalization of R&D expenditures.

3.4.5. Restructuring Expenses

Restructuring expenditures arising from the companies' changes in a particular region and period and shifting these investments to another area due to managerial decision changes are shown as expenses in the income statement. This situation creates a constraint in calculating the real value in economic value-added calculations. For this reason, the costs offered for restructuring should be added to NOPLAT and the capital cost (Ergincan, 2001: 68).

Showing the expenditures made within the scope of restructuring expenses only as an expense decreases the net profit obtained in that period. Thus, it causes the economic value-added to appear lower. These expenses should be added to the adjusted operating profit before tax in the restructuring periods to determine the economic value-added clearer.

3.4.6. Strategic Investments

The strategic level indicates the level at which long-term plans are made, and strategic investments suggest that the investments made will be gained at the end of the long term. Therefore, companies' strategic investments based on long-term strategic decisions play a preventive role in the accurate calculation of economic value-added.

Suppose the expenditures made for strategic investments are included in the accounting records by only being expensed. In that case, it will be a misleading element in calculating the economic value-added for that period. The values obtained from strategic investments should be added to NOPAT and capital again to calculate the adjusted economic value-added. Thus, a value received in return for the investment made will be shown, and the economic value-added will be obtained in the net (Iyer, 2009).

3.4.7. Leasing

The leasing transactions made by the enterprises are evaluated in two groups as operational leasing and financial leasing. Failure to reflect the leased elements' values, obtained from operational leasing and adding value to the company, on the balance sheet causes deterioration in accounting records. Therefore, the loaning value of the assets subject to lease should be brought to the present value and shown in the active group, and the resource status obtained in return should be entered into the passive group to regulate the deterioration in these accounting records.

Financial leases are essentially recorded in accounting records. However, the accounting records of financial leases that appear to be operating leases should also be disclosed in footnotes. It is more accurate to include the accounting records of leasing to the NOPAT and the cost of capital to determine the adjusted economic value-added (Young and O'Byrne, 2000: 248).

3.4.8. Stock Valuation Methods

The products' values, the semi-finished products, and the company's stocks' raw materials are included in the companies' balance sheets. Therefore, stock valuation methods are essential as the values of the inventories in the balance sheet directly affect the balance sheet.

Stock valuation methods are FIFO, LIFO, and Average Weighted Methods. FIFO principle means first in first out, LIFO principle is the last in first out, and the average weighted is obtained by dividing the total stock value by the total amount (Sonal, 2002: 45).

In FIFO accounting, the materials' stock values are calculated over the costs they enter into the company. Since the first in, first out, value is output over the actual costs of the materials. In LIFO accounting, the materials' stock values are calculated

over the expenses they enter into the company and are evaluated on the final entry costs (Seçkin, 2003: 63).

Differences in accounting for FIFO and LIFO methods; changes the firm's sales profit. For this reason, it can mislead the calculators in the calculation of economic value-added. The LIFO method shows low yields and avoids taxes when used in countries with high inflation and rapid price increases. For this reason, to determine the economic value-added correctly, it is necessary to apply the FIFO principle, or if the LIFO principle is used, it should be added to the net operating profit after tax by editing the accounting records.

3.4.9. Intellectual Capital

Intellectual capital, also known as intangible capital, is known as the capital that depends on the value of companies' human resources. Firm-owned software, informatics, etc., intangible features but add value to the firm are also considered within the intellectual capital.

For the intellectual capital situation to be applied in calculating the economic value-added, the intellectual capital value must be calculated and added to NOPAT. Thus, the economic value arising from the intellectual capital will be used to calculate the economic value-added (Ercan et al., 2003).

3.5. Advantages of EVA

According to traditional accounting standards, the companies' income-expense statements are called accounting-based profits. The profit obtained by economic value-added calculations is explained as economic profit. Value-oriented economic profit provides advantages to companies in determining companies' profit-loss situation and how much value they have achieved in investors' eyes. Within the scope of economic value-added calculations, especially accounting corrections and making

accounting data more understandable and usable, it is also beneficial to reveal the implicit information in the economic value-added accounting records. In addition to these primary benefits, the benefits obtained through economic value-added applications are as follows:

- The economic value-added approach helps employees and managers act like company owners and develop a sense of belonging, as it takes the investors and shareholders to focus.
- It provides benefits for managers to make quick and correct decisions in investment decisions by enabling economic value calculation to correct traditional accounting records (Sharma, 2005).
- In economic value-added calculations, the capital cost is reduced from the net operating profit after tax so that the economic value profit is obtained instead of the accounting profit. This situation provides benefits in terms of value determination.
- It provides an advantage in correcting misleading information obtained based on traditional accounting records and making successful decisions based on updated accounting records instead of making decisions based on accounting records.
- Comparing companies with the economic value-added approach; enables a more successful comparison due to the difference between the direct comparison of the firms' profits and the comparison by considering the cost of capital.
- The level of internal control is increased with the help of economic value-added, and the motivation and desire to succeed increases with

the more practical information obtained. Thus, economic value-added applications provide an advantage in increasing personnel motivation.

- By calculating with the managers' economic value-added benefits in explaining and explaining the managers' activities to present the actual value of the success achieved due to the company managers' investments and commercial activities to the capital owners and shareholders.
- The economic value-added method provides companies with ease of use in accessing factual information due to its understandable and easily applicable features among value methods.
- Economic value-added helps understand the business units' real situations by calculating the business units' economic value and the whole company's economic value calculation.
- The economic value-added method helps realize the company managers' targets to increase its market value and determine the current situation. Economic value-added calculations provide accurate and simultaneous information explaining the value changes in stocks (Gökçen, 2004: 107).
- A calculation standard can be provided with the economic value-added measurement method. This situation helps to prepare calculations based on a single financial measurement approach and prevents errors from calculation differences (İşeri, 2003).
- A successful financial management infrastructure can be established with the economic value-added method (Hacırüstemoğlu et al., 2002).

- Pioneers in the preparation of stock valuation methods based on economic value-added, since economic value-added indicators have higher importance by buyers in stock sales (Ehrbar, 1998).
- Economic value-added is an essential indicator of the increase and decrease in the value of stocks. Positive economic value-added indicates the appreciation of stocks, while negative economic value-added indicates the depreciation of stocks (Kara, 2005).
- The economic value-added method helps managers make calculations based on activity, even on the product and customer basis (Gökçen, 2004).
- It provides information about how much value the companies gain or lose each year by making economic value-added calculations every year (Gürüz and Ergincan, 2004: 261).
- Making economic value-added calculations based on business departments helps identify managers and team members who contribute to actual value creation among business departments (Korkmaz and Özdemir, 2003: 34).

3.6. Restrictions of EVA

In addition to the benefits of economic added value, some limitations are based on calculation methods. These limitations are as follows:

- There are many accounting corrections regarding economic decision-making methods, and at the same time, essential standards for them cannot be established. Therefore, it is among the constraints that the calculation of economic value by managers can be manipulated.

- In the decision-making of project investments, decisions are taken with adjusted economic value-added calculations by managers and investors. Economic value-added analyses put the risk factor in the background. Making decisions based on modified accounting records affects managers in making investments in higher-risk projects that aim to gain more economic value instead of choosing low-risk projects (Parlakkaya, 2003).
- Economic value-added calculations are insufficient in capital budgeting decisions. Net present value and internal rate of return calculations give more successful results than capital budgeting decisions. This situation constrains the managers in decision-making (Parlakkaya, 2003).
- Economic value-added calculations are calculated only by adjusting the accounting records and considering the cost of capital. However, it has shortcomings in considering quality and time conditions (Parlakkaya, 2003).
- Relationships between the book value of a stock and economic value-added data are not correct. Although there is a strong link between this relationship, economic value-added data are insufficient due to many external factors in the change of stocks' book values (Öztürk, 2004: 359).
- A favorable economic value-added situation of the company does not necessarily mean an increase in its economic value and stock prices. The firm's position in the sector in which it operates as a determining effect is an important constraint (Saban and Erdoğan, 2007: 131-132).

3.7. Disadvantages of EVA

It has been explained above those economic value-added calculations provide various benefits to companies, managers, and employees and include some limitations. However, there are criticisms made in the literature regarding the inaccuracy of both calculation and perspective of economic value-added practices and disadvantages based on these criticisms. The objections made in the literature and the disadvantages resulting from these criticisms are as follows:

Scale differences: Businesses are divided into various scales according to their size. There are large and small-scale enterprises based on these scales. Since the economic value-added calculation method does not have standards according to different scale groups, it recommends the same calculation methods to enterprises of all sizes. Therefore, huge differences occur between large and small enterprises (Brewer et al., 1999: 7). For example, Stewart (1991: 167) determined the capital for a year to be referenced primarily to make the economic value-added indicators relative, i.e., comparable, and then the financial results obtained were divided by this capital and expanded by 100. Although this method, developed by Stewart, seems to be a solution to the significant differences arising from scale differences, it does not eliminate the differences revealed by scale differences. This situation creates a disadvantage in the economic value-added calculations of small enterprises.

Financial harmonization: Due to the lack of standards for accounting adjustments in economic value-added calculations, and there are many accounting adjustments, accounting adjustments create differences according to managers' and accounting experts' perspectives. This situation allows managers to change and manipulate financial indicators in making the desired economic value. For this reason, the economic value-added calculation method can create a disadvantage as an approach

left in the hands of managers since it is not based on a standard financial calculation (Brewer et al., 1999: 8).

One-way perspective: Economic value-added calculations are used to determine companies' economic values based entirely on financial data (Bengü and Demirgüneş, 2006: 61). Ignoring the economic value contribution of non-financial indicators to the firm creates a disadvantage on the economic value-added calculation method. Companies develop a one-sided perspective with only the economic value-added calculation method, making the companies' indifference against other non-financial indicators, creating quality, customer satisfaction, Etc. This situation results in the disadvantage of not obtaining the data obtained from non-financial indicators (Dodd and Johns, 1999).

Short-term harmonization: Economic value-added calculations are calculated based on the financial statements obtained in the previous period. These inferences, based on past data, develop short-term solutions to determine the economic values of companies. However, to make economic value gain long-term and sustainable, it is necessary to look at possible future value gains and historical data. At this point, economic value-added calculations emerge as a past-oriented and short-term calculation method that has a disadvantage in obtaining long-term solutions (Bengü and Demirgüneş, 2006: 67).

Industry difference: The fact that economic value-added calculations do not have different calculation approaches based on industrial differences enables them to evaluate all industry types in the same category. However, the value obtained from economic value-added calculations in various industrial areas according to labor-intensive or finance-intensive capital types does not reflect the real economic value. In industries based on human and intellectual capital, low capital financial data and

ignoring the human factor can mislead the calculators in determining companies' actual economic values (Çam, 2006: 103). Therefore, it can be said that economic value-added has a disadvantage in that it does not make calculations based on industrial differences and does not develop solutions.

The difficulty of calculation: "Net operating profit after tax" and "cost of capital" used in economic value-added analyses can be easily calculated by obtaining net capital and equity positions of large-scale companies whose stocks are traded in the stock exchange. However, since the capital and equity status of small-scale companies whose stocks are not sold on the stock exchange cannot be obtained clearly, their economic value-added cannot be calculated easily (Çelik, 2002: 28). For this reason, this capital-based calculation method does not offer solutions to small enterprises with its calculation difficulties. Therefore, it has a disadvantage due to its low applicability in small businesses.

Weak relationship with stock value: Economic value-added presents the annual economic profit status of companies. However, the stocks traded in the market are continuously changing (Korkmaz and Özdemir, 2003: 36). For this reason, the data obtained from economic value-added calculations do not fully explain the changes in the value of stocks and provide general opinions (Öztürk, 2004: 359). This situation supports the weak relationship between stock value and economic value. It creates a disadvantage to the economic value-added method in terms of not choosing the economic value-added method.

3.8. Literature Review of EVA

In the study conducted by Ismail (2011), positive EVA and negative EVA values on firm performance were examined. As a result of the research, it has been seen that both negative EVA and positive EVA have no significant effect on stock returns.

Kumar and Sharma (2011) compared traditional performance measures with EVA performance measurement in their study on 873 non-financial companies in India. According to the findings, it was concluded that EVA performance calculation is superior to traditional performance calculation methods.

De Wet (2012) calculated and compared the EVA, MVA, ROA, and ROE values to determine the companies' performance values to reveal the executive performances and wages in South Africa. Looking at the findings obtained, there is a statistically significant relationship between manager wages and EVA and MVA. This relationship is higher than the relationship between manager wages and ROA and ROE.

Patel and Patel (2012) applied the EVA performance evaluation system in the study to determine the shareholder value of private sector banks in 5 years between 2005-2010. According to the results of the research, it is seen that there is a significant relationship between the stock market value of private banks and their EVA values.

Awan et al. (2014) conducted a study on 59 firms included in the KSE-100 index. They examined whether there was a relationship between the firms' stock values and their EVA values in the 2006-2010 period. Considering the obtained findings, it was determined that there is a significant relationship between EVA and share value at a 10% confidence interval.

In the study conducted by Al-Mamun (2014), the relationship between audit committee independence and audit quality and performance using the 2008-2010 data of 75 companies operating in Malaysia is analyzed. The performance status of the companies has been obtained by the EVA performance evaluation method. Considering the results obtained, it was determined that there is a significant positive relationship between audit committee independence and performance and a meaningful negative relationship between audit quality and performance.

In their study on ten steel companies, Chang and Chen (2014), although the EVA is a thriving economic performance measurement method, criticized that it does not consider cash flows and proposes a performance measurement that takes cash flow into account. However, they pointed out that this method is accepted and used as an entrepreneurial performance evaluation method.

Owusu-Antwi et al. (2015) examined the period between 1988-2011 and evaluated economic performance in Ghana's current banking system. As a result of the research, they proposed EVA as the most successful performance evaluation system measuring economic performance.

Trandafir (2015) applied the EVA technique to determine seaside hotels' financial performance serving in Romania. The economic performance of the sampled hotels was determined by both EVA and traditional performance evaluation methods. The use of EVA is recommended in the study because EVA performance measurement considers the actual stock cost values.

Shad and Lai (2015) used EVA to determine economic performance in their study, in which they examined the relationship between entrepreneurial risk management and economic performance. According to the study results, it has been determined that entrepreneurial risk management has a significant positive effect on companies' financial performance.

In the study conducted by Muraleetharan (2017) in Sri Lanka, it was determined whether there is a relationship between EVA and financial performance. Return on equity, return on assets, return on investment, and conversion of liquid assets to liabilities are accepted as financial performance criteria. According to the results of the research, it has been found that there is a significant relationship between EVA and financial performance.

Kadar and Rikumahu (2017) discussed the relationship between EVA, EPS, ROA, ROE values, and MVA values of companies operating in the telecommunications sector. The data belonging to the years 2011-2016 of the firms accepted as samples were used. According to the analysis results made within the research scope, there is a significant relationship between EVA and ROE and MVA, and there is no meaningful relationship between EPS and ROA and MVA.

Apriyani and Pulungan (2020), in their study on retail sector companies traded on the Indonesian stock exchange; It has been examined whether corporate ownership has an intermediary effect on EVA's impact on companies' book value. Analysis was conducted based on data obtained from a total of 12 companies between 2015-2019. Considering the research findings, it was concluded that EVA has a significant negative effect on book value, EVA does not have a substantial impact on corporate ownership, corporate ownership has a significant negative impact on book value, and corporate ownership does not have an intermediary role between EVA and book value price.

4. MARKET VALUE-ADDED (MVA)

4.1. Conceptual Framework of MVA

Companies apply value calculations made with economic value-added to determine companies' economic value. However, the understanding of calculating economic values does not constitute the ultimate goal of firms in economic performance measurements. Firms also want to know the economic values' net present values created by economic values and act accordingly. Therefore, market value-added calculations are used to determine the future economic value's net present value (Alp et al., 2010).

It is known that Stern Stewart applied the first applications of market value-added calculations as in economic value-added applications. Yook et al. (2001) explain the market value-added concept as the difference between the firm's total market value and the sum of the capital put forward by the investors. To put it more clearly, the market value-added concept is the difference between the company's market value and the book value it owns (Okumuş, 2004: 23). As in economic value-added calculations, firms are concerned with whether their market value-added is negative or positive (Makelainen, 1998: 10). For this reason, companies also make market value-added calculations.

With market value-added calculations, firms can understand shareholders' wealth and determine the company managers' absolute investment values, the efficiency of the investments, and the management's success and quality in managerial decisions (Ertuğrul, 2005: 154). In addition, with the market value-added calculation that incorporates a value-oriented approach, companies can see the net present value of the company's real value in the investors' eyes determined by the economic value-

added calculations. Moreover, utilizing market value-added calculation, companies can also visualize the conversion of the total value to the net present value in the shareholders' eyes throughout the firm's life (Keef and Roush, 2002: 21).

Market value-added calculations, which help determine the external economic indicators, provide benefits to the companies and the managers in their investment decisions regarding planning and applications to increase shareholder welfare by presenting objective and instantaneous criteria (Özevren, 2008: 37). Market value-added is also emphasized in the literature as the preferred value calculation for companies aiming to increase shareholder value by calculating the market value over book value (Quintiliani, 2018: 122). Also, market value-added is the core of a comprehensive system that includes resource management processes in the strategic planning dimension and can contribute effectively to creating value over time (Elgharbawy& Abdel-Kader, 2013).

The value of the firm obtained through market value-added calculations is calculated in different periods. It provides benefits to the companies to understand the firm's value gained or lost between those periods. With this help supplied by the market value-added, companies can learn the future value situations and the past value situations and value differences of their own (Topal, 2008: 254). Çakıcı (2008) explains the periodic change in market value-added as;

- If the firm has produced more value-added than the previous market value-added, it has gained positive value.
- On the other hand, if the firm produced lower value-added than the previous market value-added, it gained negative value, meaning it lost weight.

While economic value-added helps companies determine both the company's value as a whole and departments, the market value-added only helps calculate the whole firm's value (Horasan&Yılmaz, 2018). Although the market value-added calculation does not benefit the determination of the departments' values, it helps determine the purchase-sale value of the companies traded in the stock exchange in the eyes of investors (Ataman and Kibar, 1999). Through market value-added calculations, it can be determined how much value the firm can create with its limited resources (Sullivan and Needy, 2000: 11) and how effectively these values can be used.

4.2.History of Development of MVA

The essence of market value-added calculations is based on economic value-added analyses. As mentioned before, utilizing economic value-added calculations, firms reveal their investments and the status of profits gained at the end of their commercial activities as economic profits. While making this calculation, the primary approach involves evaluating the profit obtained in a certain period according to the capital cost. If the profit obtained in a certain period is above the capital cost, it is concluded that there is a favorable economic profit situation. On the other hand, if it is below the capital cost, it is a negative profit situation. Stewart developed the market value-added calculation method to calculate its market value, as the EVA calculation model developed by Stewart was incomplete to explain the market situation (Çakıcı, 2008).

The significant relationship between the market value-added and the economic value-added calculations made by Stern and Stewart Company also supports the relationship between economic value-added and market value-added (Ehrbar, 1998: 57). In the study conducted by the Stern and Stewart company, the market value-added of 1000 companies operating in the USA was determined and added to the literature (Üç, 2005: 38).

Companies' benefit by market value-added calculations is increasing and maximizing shareholder value and presenting the information obtained by market value-added measures to the shareholders simultaneously. Also, to raise awareness in maximizing the market value-added by managers with this basic approach (Ercan et al., 2003.: 18). In addition, market value-added calculations provide benefits in calculating the firms' economic size's net present value based on the accounting data, as in the economic value-added calculations (Bayrakdaroğlu and Ünlü, 2009).

Market value-added calculations, which complement economic value-added calculations in economic value calculations, are used by Coca-Cola, IBM, Wal-Mart Stores, Etc. Applying it to more than 300 companies, those companies' market value-added could be determined (Hartman, 2000).

By implementing market value-added calculations, the companies' external success becomes measurable (Şamiloğlu, 2004: 164). This calculation method has become increasingly used by companies traded on the stock exchange and has become widespread. It is seen in the literature that economic value-added calculations and market value-added calculations are used within the scope of academic study subjects.

4.3.Definition of MVA

Revealing firms' market values based on traditional accounting records prevents the understanding of firms' actual market values. For this reason, two methods have been developed, namely economic value-added and market value-added, to determine the accurate market values of companies. The market value-added performance measurement technique developed by Stern and Stewart Company was created to measure companies' actual market values.

Market value-added performance measurement is calculated in the periods that the company takes as a basis. The calculations made give the accurate market value of the firm for the relevant period. The market value-added performance evaluation results of the two periods are compared to understand an increase or decrease in the firm's actual market value. In this comparison, the increase in the firm's market value compared to the previous period explains that its market value increased. Conversely, compared to the last period, its market value decreased, demonstrating that its market value decreased (Çakıcı, 2008: 67).

Market value-added performance measurement can simply be explained as the difference between the book value of the sum of all the capital and debt values owned by the firm and the market value of this total (Okumuş, 2004: 23). Although the main goal in economic value-added calculations is to maximize profit, economic value-added calculations are insufficient in maximizing future profits. Market value-added calculations enable the future values of economic value-added calculations to be converted into present values (Alp et al., 2009: 60).

Economic value-added calculations can be applied to the minor units of companies. Thus, even in the smallest units, future values of the unit can be calculated. However, the market value-added model is realized by converting the future values composed of all small units, the firm's total future value, into present value (Berzakova, 2015: 321).

Market value-added reflects the total value of the shareholders owned by the firm as it reveals the market value of the firm (Ertuğrul, 2005: 154). One of the main features that distinguish market value-added performance measurement from traditional measurements is that it helps determine the firm's market performance value from an outside perspective. Thus, firms will assess their firms' actual market conditions and

the managers' investment success who make the investment decision. Simultaneously, the fact that the shareholders, who are the companies' partners, see the company's accurate market value plays an active role in investing in the company and buying the stocks.

Ultimately, the market value-added performance measure is obtained by subtracting the book value from the market value to determine its actual value. Thus, it is possible to define this approach as one of the modern performance tools that provide advantages to the company in providing accurate information to investors by looking at companies from shareholders and financiers.

4.4.Calculation and Measurement of MVA

The market value-added performance measure is among the value-based measurements and offers companies and stakeholders an information advantage in determining their actual values. When making market value-added calculations, companies' values are the market value of the company's stock price, the company's paid-in capital value, and the firm's total equity. By using these values, market value-added calculations of companies can be made.

Mortaş and Orman (2019) explains the calculation method for the market value-added of companies as follows;

$$\text{Market Value-Added} = \text{Total Market Value of the Company} - \text{Total Equity Value of the Company}$$

In this equation, the company's total capital value is taken from the company's accounting records. The following equation is used to calculate the total market value of the company.

$$\text{Total Market Value of the Company} = \text{Market Value of the Stock Owned by the Company} \times \text{Company's Paid-in Capital Value}$$

The paid-in capital value of the company is obtained from the financial statements. Furthermore, the market value of the stock owned by the company is the value formed under market conditions. To apply the equations shown above, first of all, the company's stock market value is multiplied by the company's paid-in capital value. Then, the company's total equity value is subtracted from this value so that the company's market value-added is obtained.

4.5.Relationship between EVA and MVA

The main objective of economic value-added and market value-added methods, which are among the value-oriented performance measurement methods developed to measure companies' market values, is to determine the companies' current market value and share them with stakeholders. Although economic value-added and market value-added measurement methods have the same target, they differ in the application scope.

The economic added value measurement is taken from the company's perspective and determines its internal effectiveness. The market value-added measurement method is based on an external perspective and tries to reveal its market value from the market perspective (Şamiloğlu, 2004: 164).

With the economic value-added measurement, companies determine the possible value of their investments in the future. Thus, it informs the investors by revealing the future value of the investments. In the market value-added measurement, companies display the profit-loss situation they will make to their investors by combining the future values of their investments' returns on the net present value. Thus, the investor can obtain detailed information about the investment by learning the return on the present value of the investment made cumulatively (Yılgör, 2005: 229).

The point to be measured in the economic value-added measurement is to determine the difference between the capital's market value and the cost created by the capital. If this result is positive, the return of the invested capital is above its cost, and if it is negative, the return is below the cost of capital. The point to be measured in market value-added measurement determines the difference between the book value of the company's capital and debts and the market value. Thus, if the market value is high, it is concluded that the company has market value-added; if it is negative, it does not (Okumuş, 2004: 23).

In the economic value-added approach, the values that are likely to be obtained in the future from the investments of companies are determined. This measurement provides information about the future of the company to companies, managers, and shareholders. On the other hand, in the market value-added approach, companies' market values are calculated cumulatively, giving their present value and helping inferences for the future. The benefit of this measurement is that although the market value of the company is not very successful in the present time, its success from the past period can be reflected in the current period, and the actual market value of the company can be revealed (Çetin, 2005: 369).

To explain the relationship between market value-added and economic value-added calculations, the relationship state put forward by Makelainen is presented in figure 4.1 (Çakıcı, 2008: 77). When figure 4.1 is examined, the economic value-added gives future values, and the collection of these values by bringing them to the present values enables the calculation of the market value-added. Likewise, if the economic value-added is negative, the total negative market value situation can be calculated by reducing the negative values to the present values. Besides, while the sum of capital

and market value-added constitutes the market value, it is also observed that market depreciation causes capital depreciation.

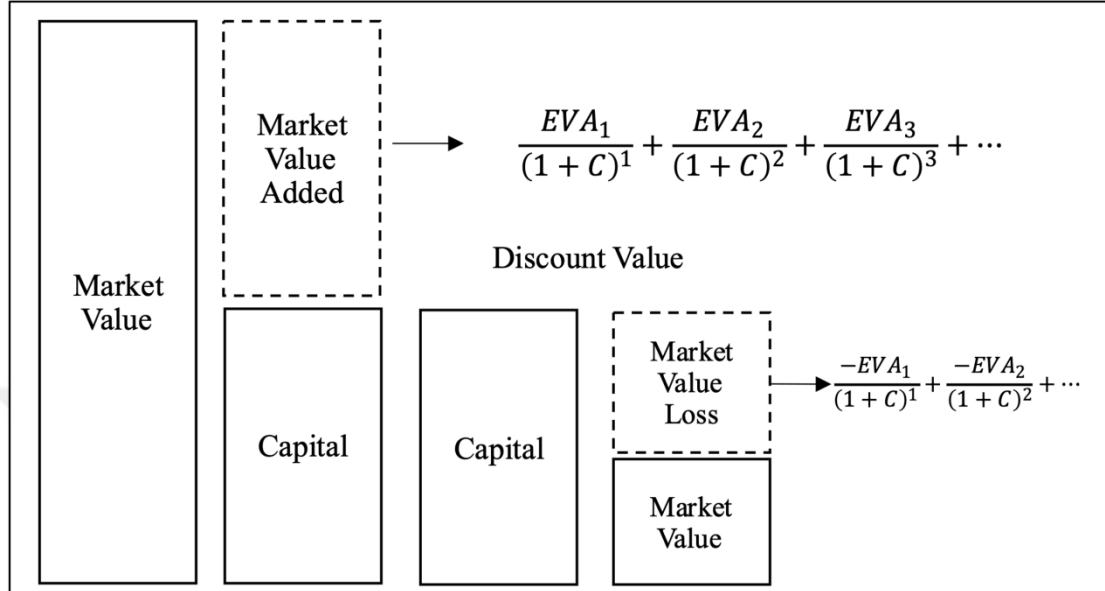


Figure 4.1Relation of EVA-MVA

When figure 4.1 presented above is examined, the economic value-added plays an essential role in calculating the market value-added. Therefore, due to the improvements in economic value-added, it is expected to increase the market value-added improvement, which reveals the net present value. Likewise, it is expected that the decrease in the value-added on the economic value-added will adversely affect the market value-added of the company.

Instead of using the economic value-added and market value-added methods alone to calculate the actual market value of the companies, it is evaluated that market value calculations made by using both at the same time can be obtained with higher accuracy (Stewart, 1991: 154; Akyüz, 2013: 353).

4.6.Literature Review of MVA

Hijriah et al. (2019), on all companies listed in Indonesia Stock Exchange 2015-2017, the effects of corporate social responsibility disclosures of companies on the market

value-added through intellectual capital management were examined. Looking at the findings, it is seen that intellectual capital strengthens corporate social responsibility and market value-added.

In the study conducted by Sareewiwatthana and Wanidwaranan (2019), the market value-added (MVA) of companies traded in Thailand's stock exchange was examined. Two different techniques were applied within the scope of the research, and both methods were deemed appropriate. In the first technique, MVA change and market return are used by adjusting for the three-year growth rate of MVA. In the second technique, MVA was interpreted and applied in the Thai market between 1999-2018. EVA and MVA values were examined in the study conducted by Sunardi (2019) on the cement company operating in Indonesia and traded on the Indonesian stock exchange. As a result of the examination conducted within the scope of the 2013-2018 period, it was determined that the market value-added of the company was at a weak level according to the MVA results.

Augustinus (2019) examined the relationship between corporate social responsibility and MVA. The sample was selected among the companies traded on the Indonesian stock exchange between 2010 and 2016. According to the results, a positive relationship was found between the corporate social responsibility variable and MVA. Silitonga et al. (2019) examined the ratio of economic value-added, market value-added, total assets turnover, and price-earnings to stock returns. The data were selected among the companies operating in the Indonesian stock market between 2015-2017. According to the research results, it has been determined that economy value-added and market value-added do not significantly affect stock returns.

Saputra et al. (2019) determined the MVA values of companies traded on the Indonesian stock exchange between 2017-2018. According to the result obtained PT.

Kedawung Setia Industrial, Tbk. PT. Suparma, Tbk. and PT. Kertas Basuki Rachmat, Tbk., it is concluded that firms' MVA values are unstable.

Hertina et al. (2020) examined the MVA and Refined EVA values of nine mining companies traded between 2010 and 2017. According to their examination results, it was determined that MVA and REVA affect stock returns simultaneously.

Pernamasari (2020) determined the economic value-added (EVA), market value-added (MVA), Return on Equity (ROE), and Earnings Per Share (EPS) values of the companies in their study on 33 companies traded on the Indonesian Stock Exchange between 2015-2018.

Hamzh et al. (2019) calculated the companies' MVA values based on the data of 2004-2018 periods in their study on tourism companies operating in Iraq.

Kurnianingsih and Rahayu (2020) determined the MVA and EVA values of companies between 2013-2017 to determine companies' financial performance in the cosmetic and home care sector. The MVA of PT. Akasha Wira International Tbk. is positive for 2013-2016 and negative for 2017. The MVA of PT. Martina Berto Tbk is negative for 2013-2017. PT. Unilever Indonesia Tbk company's MVA is positive for 2013-2017.

The study conducted by Nakhaei (2016) on 395 non-financial companies operating in Malaysia between the years 2002-2011 concluded that the financial performance values obtained by MVA calculations are more reliable than traditional financial calculations.

Pandya (2016) investigated the effect of financial leverage on MVA in a study conducted on 197 companies operating in the Indian Bombay markets between 2010

and 2014. Looking at the findings, there is a statistical relationship between debt-equity, debt ratios, and MVA.

Das (2015) aimed to determine whether there is a mutually significant relationship between EVA and MVA in a study conducted on companies operating in the Indian stock exchange (BSE S&P Sensex Companies) in 2016-2017. Considering the findings of the study, there was no significant correlation between EVA and MVA.

Santos et al. (2015), due to the study conducted on 57 non-financial companies traded on the São Paulo stock exchange between 2001-2012, the companies' MVA values were determined to determine the accurate market value of the companies.

The potential synergistic impact of environmental sustainability and the improvement of a firm's corporate reputation on market performance in terms of equity value (market value-added or MVA) were investigated by Lee and Kwon (2019).

In the study conducted by Nakhaei et al. (2013), the relationship between market value-added (MVA) and economic value-added (EVA), return on assets (ROA), return on equity (ROE) of 87 non-financial companies traded in Tehran stock exchange for the period 2004-2008 was determined by Pearson correlation and regression analysis applications. According to the findings, it was concluded that there is a significant correlation between ROE, EVA, and MVA, but not a significant correlation between ROA and MVA.

In the study conducted by Pourali and Roze (2013), the relationship between REVA, ROA, ROE, EPS, and MVA values of companies traded in the Tehran stock exchange was determined by panel data analysis, and according to the findings, a statistically positive correlation was found between MVA and all other variables.

In the study conducted by Gulo and Ermawati (2011), they determined the firm's EVA and MVA values considered a sample for the years 2008-2009. Studies' results concluded that the MVA of 2009 increased by 379.42% compared to the MVA of 2008.

In the study conducted by Huang and Liu (2010), they determined the EVA and MVA values of high technology companies operating in Taiwan and China. According to the study results, it was concluded that both EVA and MVA methods play an active role in determining financial performance.

Biddle et al. (1997) are pretty comprehensive, especially in terms of sample size. In this study, which uses data of 600 American firms for the ten years between 1983-1994, in disclosure of operating profit, it has been determined that the EVA explains the change in stock returns relative to residual income and operating cash flows more strongly.

In the study conducted by Sun and Kim (2013), accommodation and tourism companies were selected as the sample area. In the study, the relationship between customer satisfaction and firm profitability, and firm value is discussed. They accepted the performance indicators of firm value and profitability as market added value (MVA), profit margin (PM), return on assets (ROA), return on equity (ROE). As a result of the study, it was concluded that the relationship between customer satisfaction and firm profitability and firm value is significant.

Jalal-Karim and Hamdan (2010) investigated whether there is a significant relationship between information technologies and MVA, ROI, EPS, NPV, ROA, and P/E of a Jordanian bank operating in Jordan in 2003-2007. The study results concluded a significant relationship between information technologies and MVA, EPS, ROA, and NPV.

Bayrakdaroglu et al. (2012) discussed the relationship between EVA, MVA, and CVA of 41 companies operating in the Istanbul Stock Exchange between 1998-2007 whether CEOs of the company are members of the board of the directors or not. As a result, it has been determined that there is no significant relationship between the presence of CEOs on the board of directors and the company's MVA values.

In the study conducted by Muraleetharan and Kosalathevi (2014), it was examined whether there is a significant relationship between EVA and MVA by determining the MVA and EVA values of private banks operating Sri Lanka between 2006-2012. As a result of the examination, it was concluded that there was a significant relationship between EVA and MVA.

Uyemura et al. (1996) and Grant (1996) used data sets consisting of financial information of companies operating in the United States of America. Empirical findings obtained from these studies support the results of previous studies. In both studies, it was determined that the independent variable that best explains the change in MVA is EVA.

In the study conducted by Bayrakdaroglu and Yalçın (2012), the financial performance status of the manufacturing companies operating in BIST 30 for the years 1998-2011 was examined with the multi-criteria decision making VIKOR model, and the ranking of the companies was made in this context. The criteria considered within the study's scope; EVA, REVA, MVA, CFROI, and companies' CVA performance indicators.

In the study of Milunovich and Tsuei (1996), the data of the companies operating in the American computer technology sector between 1990 and 1995 were used. This study concluded that EVA is a healthier financial performance evaluation tool compared to traditional measurement. Accordingly, ensuring the continuity of the

increase in EVA may cause an increase in MVA and, consequently, the firm's (shareholder's) value.

Shiri et al. (2012) applied the panel data method in their study, examining the relationship between intellectual capital and MVA. According to the study's findings, it is concluded that there is a significant relationship between all sub-dimensions of intellectual capital and MVA.

In the study conducted by Banerjee (2000), 200 firms were taken as a sample in five years. The relationship between EVA and MVA has been analyzed by calculating the companies' EVA and MVA values. According to the results of the research, it has been observed that the firm's MVA value plays an active role in determining the future EVA value of a company.

In the study conducted by Thenmozhi (2000), the MVA values were determined by considering BSE Sensex companies. In the study, the relationship between MVA values and stock price is examined. According to the findings, it is concluded that there is a significant relationship between stock price and MVA.

5. RESEARCH DESIGN AND METHODOLOGY

Until this stage of the study, firstly, Financial Performance Measurement Methods are examined. Furthermore, Financial Performance Measurement Methods are discussed in two sub-headings: Accountancy-Based (Traditional) Performance Measurement Methods and Value-Based Performance Measurement Methods. Subsequently, two of the Value-Based Performance Measurement Methods and the main subject of this study, Economic Value-Added and Market Value-Added, are examined in detail.

In this section, an application covering Borsa İstanbul's non-financial companies will be exhibited in line with the above research.

5.1. Scope of the Research

This study examines which companies create positive/negative EVA and MVA, whether there is a relationship between EVA and MVA, and whether EVA and MVA performance affect stock performance. Aktaş (2012:124), in her study on the EVA and MVA calculations, suggested to future researchers that the studies had better be applied to the firms in the same sector, especially in the countries with a developing economy like Turkey, to get significant results. For this reason, EVA and MVA calculations are to be applied to the firms in the sector of "Construction and Public Works" and "Transportation, Storage and Telecommunication" in Borsa Istanbul as a sample. In this context, the six years between 2015-2020 (including those years) of the mentioned sector companies are measured.

5.2. Compilation of Sample

There are initially nine companies in the sector of "Construction and Public Works" in Borsa Istanbul. The sample data for the period 2015-2020 is fully available for this sector examined. For the other sector, "Transportation, Storage and

Telecommunication”, there are eleven companies available. However, in this sector, the data between 2015-2020 is not fully available. Beyaz Filo Oto Kiralama A.Ş., Trabzon Liman İşletmeciliği A.Ş. and TureksTurizmTaşımacılık A.Ş.; three companies of this sector are not fully available in terms of sample period. So that, the remaining eight companies will be examined in this study. The complete list of these companies for the current study is as the following:

Table 5.1 The List of the Sample Companies of the Study

SECTOR	STOCK CODE	COMPANY NAME
CONSTRUCTION AND PUBLIC WORKS	ANELE	ANEL ELEKTRİK PROJE TAAHHÜT VE TİCARET A.Ş.
	EDİP	EDİP GAYRİMENKUL YATIRIM SANAYİ VE TİCARET A.Ş.
	ENKAI	ENKA İNŞAAT VE SANAYİ A.Ş.
	KUYAS	KUYUMCUKENT GAYRİMENKUL YATIRIMLARI A.Ş.
	ORGE	ORGE ENERJİ ELEKTRİK TAAHHÜT A.Ş.
	SANEL	SAN-EL MÜHENDİSLİK ELEKTRİK TAAHHÜT SANAYİ VE TİCARET A.Ş.
	TURGG	TÜRKER PROJE GAYRİMENKUL VE YATIRIM GELİŞTİRME A.Ş.
	YAYLA	YAYLA ENERJİ ÜRETİM TURİZM VE İNŞAAT TİCARET A.Ş.

	YYAPI	YEŞİL YAPI ENDÜSTRİSİ A.Ş.
TRANSPORTATION STORAGE AND TELECOMMUNICATION	CLEBI	ÇELEBİ HAVA SERVİSİ A.Ş.
	DOCO	DO & CO AKTIENGESELLSCHAFT
	GSDDE	GSD DENİZCİLİK GAYRİMENKUL İNŞAAT SANAYİ VE TİCARET A.Ş.
	PGSUS	PEGASUS HAVA TAŞIMACILIĞI A.Ş.
	RYSAS	REYSAŞ TAŞIMACILIK VE LOJİSTİK TİCARET A.Ş.
	TCELL	TURKCELL İLETİŞİM HİZMETLERİ A.Ş.
	THYAO	TÜRK HAVA YOLLARI A.O.
	TTKOM	TÜRK TELEKOMÜNİKASYON A.Ş.

5.3. Compilation of Data

The sample companies' quarterly financial statements (balance sheet and income statement) between 2015-2020 are used in this study. This data is extracted from the Public Disclosure Platform (PDP) (<https://www.kap.org.tr/tr/>) and the FINNET companies' data analysis program called "Stock Expert" (an analysis program that works over Excel and retrieves data from the original database). The data in the study includes nine companies in the sector of "Construction and Public Works" and eight companies in the sector of "Transportation, Storage and Telecommunication" companies in Borsa İstanbul, covering their quarterly disclosure period of 2015 to 2020. With this data, there are 216 observations each of EVA and MVA for the sector of "Construction and Public Works", and there are 192 observations each of EVA and MVA for the sector of "Transportation, Storage and Telecommunication".

5.4. Research Design

Quantitative data are obtained from the financial statements and disclosures of the sample companies. Those financial statements and disclosures are obtained from the PDP, and the finance program named "Stock Expert" is used to extract the data. Finally, these secondary data are transferred to the Microsoft Excel program to apply the necessary formulas to calculate variables.

In this study, EVA and MVA are used as dependent and independent variables; the end-of-quarter period stock values, representing the stock performance, are used as dependent variables. The analyses are executed with the SPSS 20.0 in this research, and the basic regression analysis is used through SPSS. The data from the calculations are transferred to the SPSS program to test how dependent and independent variables correlate with each other.

5.5. Measurement Instruments

5.5.1. Calculation of EVA

The calculation of EVA is explained in detail in Chapter 3. As is mentioned, there are two methods in the calculation of EVA. In this study, the first calculation method, which is expressed below, will be used.

$$\text{Economic Value-Added (EVA)} = \text{NOPLAT} - (\text{WACC} * \text{CAPITAL})$$

(1) NOPLAT is Net Operating Profit Less Adjusted Taxes in which its calculation is explained in Chapter 3.3.1, and there are two methods to calculate NOPLAT; one is "Bottom-Up Approach", and the other is "Top-Down Approach". In this study, "Top-Down Approach" is used in this methodology section. According to the "Top-Down Approach" NOPLAT is calculated as;

$$\text{NOPLAT} = \text{Adjusted Operating Profit Before Taxes} - \text{Cash Operating Taxes}$$

Consequently, in this application, the formula stated above will be used in this converted way which is;

$$\text{NOPLAT} = \text{Operating Income or EBIT} \times (1 - \text{Tax Rate})$$

The operating Income/EBIT of the companies are directly gotten from their income statement. Furthermore, "Tax Rate" is considered as "%20" for the years 2015-2016-2017 and "%22" for the years 2018-2019-2020, which is the scope of this study. The yearly tax rate¹ information, which is applied in Turkey, is obtained from the official site of the "Revenue Administration". In addition, NOPLAT calculations are available in Appendix-A.

(2) WACC is the Weighted Average Cost of Capital (%), WACC Formula and Calculation follows as (also previously explained in Chapter 3.3.3.3);

$$\text{WACC} = \{ E/V * R_e \} + \{ D/V * R_d * (1 - T_c) \}$$

where:

R_e = Cost of equity

R_d = Cost of debt

E = Market value of the firm's equity

D = Market value of the firm's debt

$V = E + D$ = Total market value of the firm's financing

E/V = Percentage of equity's financing

D/V = Percentage of debt's financing

T_c = Corporate tax rate

In chapter 3.3.3.2; it is emphasized that there are different models to calculate "Cost of equity (R_e)" and one of these models is named as "Capital Asset Pricing Model

¹https://www.gib.gov.tr/sites/default/files/fileadmin/user_upload/Yararli_Bilgiler/KV_Oranlari.html

(CAPM)”, and the other is named as “Dividend Growth Model”. In this application, CAPM has been used for the cost of equity calculation, and its formula follows as;

$$R_e = r_f + \beta(r_m - r_f)$$

Where;

R_e = Equity cost

r_f = Risk-free interest rate

r_m = Expected return of the market

$(r_m - r_f)$ = Market risk premium

β = Systematic risk of stock (Beta)

Risk Premium = $\beta \times$ Market risk premium

In this application, for the calculation of “Cost of Equity”, the “risk-free interest rate (r_f)” obtained from the official website of the “Central Bank of the Turkish Republic” (<https://www.tcmb.gov.tr/>). The data’s route in obtaining through its website and its transformation to quarterly “risk-free interest rate (r_f)” are explained in detail in Appendix-B.

The expected return of the market (r_m) is considered as %7 as it is the average value used by the intermediary investment institutions.

The systematic risk of stock (Beta) is obtained from the finance program called “Matriks” for each company. The companies' Beta data are assumed that there is no change between the 2015-2020 five-year period.

Finally, utilizing all the values stated above, calculating the cost of equity could be done under its formula and demonstrated in Appendix-D.

The cost of equity is one requirement for the calculation of WACC. Another component in the calculation of the WACC is the cost of debt (R_d). In obtaining the rates of cost of debt, data of the “Central Bank of the Turkish Republic” is used as it is

used in the risk-free market rate. The data's route in obtaining through its website and its transformation to quarterly "cost of debt rate (R_d)" are explained in Appendix-C.

Lastly, the market value of the firm's equity (E) and debt (D) is detected from companies' balance sheets. Then the total market value of the firm's financing (V) is calculated. The market value of the firm's equity (E) is equal to the firm's "Equity". The market value of the firm's debt (D) is the sum of the current and non-current liabilities. The corporate tax rate is calculated as it is described in the "NOPLAT" section above. Calculation related to WACC is also shown in Appendix-D.

(3) CAPITAL is invested in capital. In this study, invested capital is calculated with the formula expressed below, and related calculations are demonstrated in Appendix-E.

$$\text{Invested Capital} = \text{Net Working Capital}_{(\text{Previous Period})} + \text{Long-Term (Non-Current) Assets}_{(\text{Previous Period})}$$

$$\text{Net Working Capital} = \text{Current Assets}_{(\text{Previous Period})} - \text{Current Liabilities}_{(\text{Previous Period})}$$

Since the beginning amount of the invested capital is considered in this calculation, the period-end amount of the previous period is the beginning of the current period.

Finally, after getting all the necessary components, EVA calculations can be made and shown in Appendix-F.

5.5.2. Calculation of MVA

As explained in its calculation in Chapter 4.4., MVA is calculated with the formula expressed below in this study.

$$\text{Market Value-Added} = \text{Total Market Value of the Company} - \text{Total Equity Value of the Company}$$

“Total Market Value of the Company” is directly quoted from the data analysis program “Stock Expert”, and “Total Equity Value of the Company” is the total equity of the company in which calculated previously in EVA calculations. MVA calculations are indicated in Appendix-G.

5.6. Research Questions

The empirical questions addressed within the scope of this research are as in the following:

- a. Which companies have created positive or negative value of EVA between 2015 and 2020 for “Construction and Public Works” and “Transportation, Storage and Telecommunication” companies?
- b. Which companies have created positive or negative value of MVA between 2015 and 2020 for “Construction and Public Works” and “Transportation, Storage and Telecommunication” companies?
- c. Is there any effect of EVA on MVA for “Construction and Public Works” and “Transportation, Storage and Telecommunication” companies?
- d. Is there any effect of MVA on EVA for “Construction and Public Works” and “Transportation, Storage and Telecommunication” companies?
- e. Is there any effect of EVA on corporate stock performance for “Construction and Public Works” and “Transportation, Storage and Telecommunication” companies?
- f. Is there any effect of MVA on corporate stock performance for “Construction and Public Works” and “Transportation, Storage and Telecommunication” companies?

5.7. Research Hypothesis

Within the scope of this study, the EVA and MVA values of the “Construction and Public Works” and “Transportation, Storage and Telecommunication” companies

operating in BIST are determined, and the EVA and MVA values are demonstrated to be positive or negative. Subsequently, it is aimed to determine whether there is a significant relationship between EVA and MVA values obtained. In addition, determining whether there is a significant relationship between EVA and MVA values and the stock performance of companies constitutes the other purpose of the research.

Within the scope of the realization of the aims determined within the scope of the research, the hypotheses belonging to the research are created. The hypotheses of the research are also formed based on research questions. The hypotheses established within the scope of the research are as follows:

H₁: EVA values of Construction and Public Works companies operating in BIST significantly affect their MVA values.

H₂: MVA values of Construction and Public Works companies operating in BIST significantly affect their EVA values.

H₃: EVA values of Construction and Public Works companies operating in BIST significantly affect their stock performance.

H₄: MVA values of Construction and Public Works companies operating in BIST significantly affect their stock performance.

H₅: EVA values of Transportation, Storage and Telecommunication companies operating in BIST significantly affect their MVA values.

H₆: MVA values of Transportation, Storage and Telecommunication companies operating in BIST significantly affect their EVA values.

H₇: EVA values of Transportation, Storage and Telecommunication companies operating in BIST significantly affect their stock performance.

H₈: MVA values of Transportation, Storage and Telecommunication companies operating in BIST significantly affect their stock performance.

5.8. Research Model

A total of eight models are created according to the previous section. The following figures summarize the significant effect of EVA on MVA of Construction and Public Works companies (Figures 5.1), the significant effect of MVA on EVA of Construction and Public Works companies (Figures 5.2), the significant effect of EVA on the stock performance of Construction and Public Works companies (Figures 5.3), and the significant effect of MVA on the stock performance of Construction and Public Works companies (Figures 5.4), the significant effect of EVA on MVA of Transportation, Storage and Telecommunication companies (Figures 5.5), the significant effect of MVA on EVA of Transportation, Storage and Telecommunication companies (Figures 5.6), the significant effect of EVA on the stock performance of Transportation, Storage and Telecommunication companies (Figures 5.7), and the significant effect of MVA on the stock performance of Transportation, Storage and Telecommunication companies (Figures 5.8)

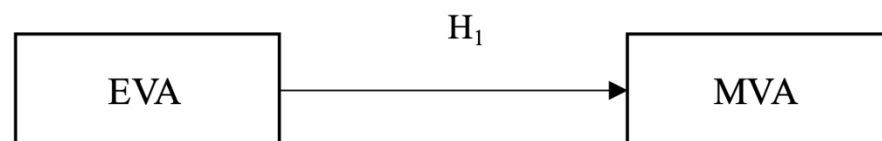


Figure 5.1 First Research Model for Construction and Public Works companies

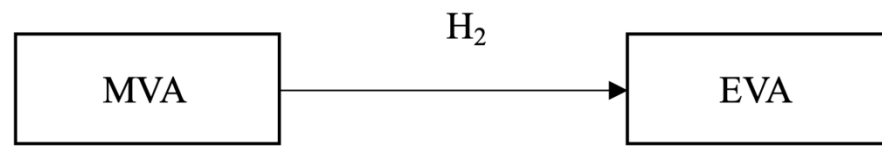


Figure 5.2Second Research Model for Construction and Public Works companies

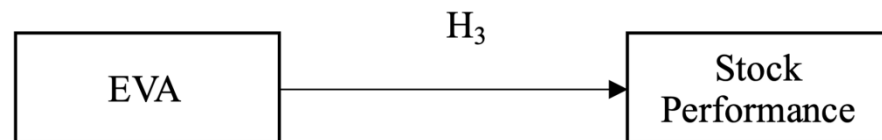


Figure 5.3Third Research Model for Construction and Public Works companies

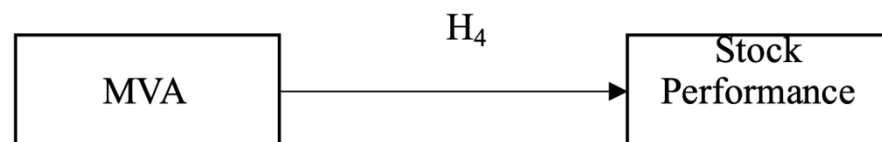


Figure 5.4Fourth Research Model for Construction and Public Works companies

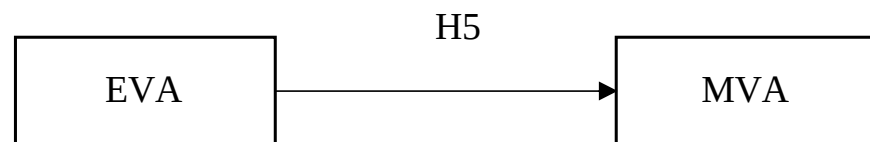


Figure 5.5Fifth Research Model for Transportation, Storage and Telecommunication companies

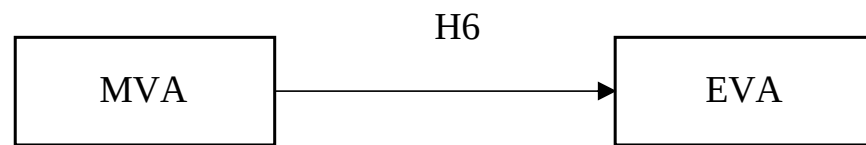


Figure 5.6Sixth Research Model for Transportation, Storage and Telecommunication companies

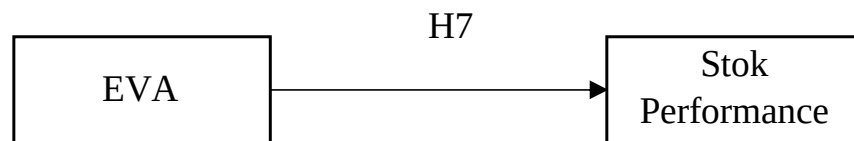


Figure 5.7Seventh Research Model for Transportation, Storage and Telecommunication companies

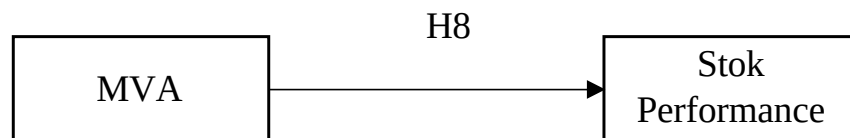


Figure 5.8Eight Research Model for Transportation, Storage and Telecommunication companies

6. FINDINGS OF RESARCH

6.1.EVA Results

6.1.1 EVA Results of "Construction and Public Works" Sector

EVA Results of "Construction and Public Works" Sector is exhibited below in Table

6.1.

Table 6.1 EVA Results of "Construction and Public Works" Sector

EVA RESULTS					
STOCK CODE PERIOD	ANELE	EDIP	ENKAI	KUYAS	ORGE
2015/03	-30.623.514,30	-35.191.758,04	-906.058.064,91	-11.417.384,84	-159.007,60
2015/06	-37.663.645,78	-33.340.626,69	-758.149.839,67	-9.063.749,02	1.395.321,37
2015/09	-24.672.091,06	-30.518.498,27	-488.268.738,19	-13.169.981,20	3.858.648,47
2015/12	-95.746.953,38	14.862.601,93	-443.461.843,29	-12.414.933,74	6.577.628,41
2016/03	-17.612.728,69	-44.697.515,33	-1.296.227.864,93	-14.981.050,98	1.724.261,23
2016/06	-31.043.905,02	-39.484.650,45	-971.648.878,01	-13.739.811,96	6.236.124,23
2016/09	-24.572.300,76	-33.441.601,90	-634.360.449,80	-12.401.017,52	11.722.772,16
2016/12	-5.404.831,43	1.032.642,60	-230.431.286,61	-12.156.656,65	16.081.210,60
2017/03	-27.919.867,39	-26.437.774,93	-1.729.540.846,46	-19.531.790,51	765.152,64
2017/06	-27.807.506,89	-24.331.170,28	-1.630.727.537,38	-19.781.943,15	8.455.252,31
2017/09	5.356.998,66	-33.087.174,61	-1.161.980.611,48	-17.561.689,28	17.754.494,33
2017/12	10.522.364,08	-6.147.821,75	-648.476.917,26	-16.830.071,44	21.316.899,62
2018/03	-50.138.004,13	-61.113.469,35	-2.170.730.130,90	-6.895.931,75	-1.974.248,26
2018/06	-37.002.273,01	-63.907.098,96	-1.995.862.776,80	-7.405.915,91	5.611.725,83
2018/09	-47.851.786,94	-100.283.085,96	-2.018.996.277,20	-11.099.917,04	9.786.753,96
2018/12	-105.930.036,54	24.696.265,95	-3.170.228.519,94	-5.241.070,86	22.506.152,09
2019/03	-95.833.152,18	-100.426.871,39	-4.361.110.624,43	-24.544.942,84	-7.638.611,66
2019/06	-77.636.273,19	-103.503.872,33	-4.540.811.592,10	-42.493.863,43	-19.276,42
2019/09	-56.987.470,26	-73.594.631,13	-3.890.602.845,84	-36.821.235,84	13.766.375,73
2019/12	-34.686.742,90	18.869.923,63	-2.775.774.079,27	-30.344.223,85	28.444.317,18
2020/03	-50.392.534,74	-62.021.764,00	-3.165.234.641,07	-14.887.167,03	-9.366.025,59
2020/06	-38.530.774,57	-54.186.128,72	-2.590.848.090,16	-8.989.600,75	1.851.534,56
2020/09	-109.591.262,75	-59.676.102,43	-2.673.609.920,14	-11.473.038,87	10.330.283,60
2020/12	-161.924.971,70	-112.973.809,06	-3.431.347.586,74	-22.172.403,30	22.262.069,50
STOCK CODE PERIOD	SANEL	TURGG	YAYLA	YYAPI	
2015/03	-2.333.300,78	-13.271.713,29	-4.834.672,03	-16.223.373,12	
2015/06	-2.403.420,95	-13.747.683,32	-5.703.930,34	24.870.547,96	
2015/09	-2.060.802,74	-14.364.812,80	-5.501.504,15	19.253.475,92	
2015/12	-1.882.322,03	-9.599.946,63	-12.196.046,89	3.028.800,08	
2016/03	-2.347.608,17	-14.071.527,96	-6.628.552,87	-34.146.737,50	
2016/06	-2.495.107,46	-14.545.184,32	-6.908.964,14	-28.329.176,75	
2016/09	-2.190.052,02	-13.913.014,94	-7.061.783,75	-22.088.583,80	
2016/12	-2.148.462,87	-11.511.737,38	-5.424.630,86	-28.619.231,85	
2017/03	-2.606.521,31	-13.523.498,20	-6.953.074,86	-32.039.865,22	
2017/06	-3.710.675,48	-13.931.307,76	-7.294.561,90	-28.903.008,71	
2017/09	-4.025.282,05	-14.092.129,88	-9.037.454,98	-30.958.097,09	
2017/12	-2.730.774,40	-3.112.916,33	-17.679.428,31	-50.680.741,18	
2018/03	-3.149.543,25	-14.675.336,23	-8.813.712,32	-38.707.841,77	
2018/06	-4.993.128,64	-15.599.128,29	-6.262.215,90	-24.160.553,88	
2018/09	-6.608.195,40	-18.224.018,44	-13.037.361,56	-31.366.401,86	
2018/12	-11.504.041,10	-32.876.631,14	-21.104.879,18	-31.355.355,30	
2019/03	-3.289.828,86	-13.277.667,95	-11.556.439,71	-35.128.204,63	
2019/06	-4.399.827,73	-14.518.386,91	-13.383.374,58	-53.719.562,73	
2019/09	-1.699.187,73	-13.844.800,01	-10.339.370,69	-47.161.277,44	
2019/12	2.774.016,15	-11.732.314,66	-9.383.820,43	-99.545.410,14	
2020/03	-1.265.231,80	-12.526.527,05	-6.540.571,60	-7.209.181,03	
2020/06	-6.481.581,59	-13.042.235,17	-6.734.255,51	-7.965.100,18	
2020/09	-6.858.122,28	-14.361.726,84	-8.902.706,22	-10.574.781,57	
2020/12	-12.285.435,67	-9.546.522,37	-14.343.814,55	-38.466.832,45	

According to the findings of EVA Results of "Construction and Public Works" Sector (Table 6.1);

1. Anel ElektrikProjeTaahhütveTicaret A.Ş. results in negative EVA except for 2017/9 and 2017/12.
2. EdipGayrimenkulYatırım Sanayi veTicaret A.Ş. results in negative EVA except for 2015/12, 2016/12, 2018/12, and 2019/12.
3. Enka İnşaatve Sanayi A.Ş. results in negative EVA for all periods.
4. KuyumcukentGayrimenkulYatırımlari A.Ş. results in negative EVA for all periods.
5. OrgeEnerjiElektrikTaahhüt A.Ş. results in positive EVA except for 2015/3, 2018/3, 2019/3, 2019/6, and 2019/12.
6. San-El MühendislikElektrikTaahhüt Sanayi veTicaret A.Ş. results in negative EVA except for 2019/12.
7. TürkerProjeGayrimenkulveYatırımGeliştirme A.Ş. results in negative EVA for all periods.
8. YaylaEnerjiÜretimTurizmveİnşaatTicaret A.Ş. results in negative EVA for all periods.
9. YeşilYapıEndüstrisi A.Ş. results in negative EVA except for 2015/6, 2015/9, 2015/12.

6.1.2 EVA Results of “Transportation, Storage and Telecommunication” Sector

EVA Results of “Transportation, Storage and Telecommunication” Sector is exhibited below in Table 6.2.

Table 6.2 EVA Results of “Transportation, Storage and Telecommunication” Sector

EVA RESULTS				
STOCK CODE PERIOD	CLEBI	DOCO	GSDDE	PGSUS
2015/03	-28.180.308,76	-78.410.101,31	-21.605.896,95	-254.635.932,46
2015/06	-8.829.157,88	2.909.668,90	-25.715.119,43	-300.229.671,85
2015/09	45.672.058,32	55.622.802,93	-29.985.292,40	-51.146.769,39
2015/12	43.669.469,47	133.776.047,24	-36.222.462,68	-142.007.965,61
2016/03	-39.082.496,48	-120.833.123,85	-34.889.904,64	-537.484.637,18
2016/06	-30.102.768,83	13.106.087,52	-33.981.668,60	-589.004.255,00
2016/09	9.481.052,78	19.564.358,01	-33.068.098,57	-286.503.996,87
2016/12	6.424.783,90	196.335.184,55	-36.919.353,19	-481.913.359,01
2017/03	-37.458.426,65	-147.289.683,25	-25.327.829,41	-678.060.135,12
2017/06	-23.628.674,35	39.888.938,13	-30.707.781,59	-636.370.683,15
2017/09	41.100.248,46	88.371.206,64	-32.310.607,99	-33.018.294,68
2017/12	49.804.972,57	166.381.331,34	-26.772.235,84	-221.038.329,18
2018/03	-58.119.028,99	-239.313.081,87	-41.336.910,92	-846.684.679,26
2018/06	-14.788.189,62	-110.443.523,46	-39.248.250,10	-854.060.542,90
2018/09	62.100.692,25	-188.041.468,07	-41.509.787,56	-803.964.940,76
2018/12	-33.765.669,65	-63.792.897,28	-46.773.902,11	-1.674.333.321,48
2019/03	-145.414.346,99	-403.165.917,02	-28.931.572,41	-1.656.367.433,81
2019/06	-218.675.001,08	-262.564.124,09	-31.583.242,50	-1.888.321.213,14
2019/09	-13.832.918,83	70.022.888,43	-21.466.720,99	-357.178.312,81
2019/12	85.300.329,22	58.410.806,28	-13.947.327,45	146.898.080,41
2020/03	-84.571.222,21	-689.614.218,27	-18.708.023,83	-1.604.488.635,94
2020/06	-106.520.769,70	-357.291.983,43	-23.399.636,47	-2.302.070.087,53
2020/09	-20.261.756,45	-346.544.011,30	-21.653.544,56	-2.720.924.090,68
2020/12	-48.886.916,35	-360.841.212,16	-25.146.164,16	-4.027.447.023,68
STOCK CODE PERIOD	RYSAS	TCELL	THYAO	TTKOM
2015/03	-45.001.556,95	-767.897.113,31	-2.110.761.698,55	-891.711.610,29
2015/06	-41.376.623,35	231.314.398,59	-2.164.657.063,80	-203.655.196,82
2015/09	-43.545.296,31	875.827.308,92	-1.153.396.890,42	-1.128.469.508,24
2015/12	-37.804.345,01	1.193.085.090,42	-2.133.680.894,40	580.756.544,51
2016/03	-74.534.684,82	-1.419.491.538,73	-4.669.419.475,38	-1.579.615.546,10
2016/06	-56.950.732,67	-990.854.364,06	-5.245.160.356,34	-1.259.798.198,32
2016/09	-43.808.770,57	-521.117.302,20	-4.656.368.232,76	-474.541.000,80
2016/12	-35.728.713,79	544.549.201,34	-5.158.331.023,92	-267.490.317,36
2017/03	-70.948.186,51	-1.571.225.524,77	-5.799.249.112,48	-1.398.175.933,25
2017/06	-45.460.334,62	-1.213.755.360,45	-5.433.821.269,26	-769.499.694,63
2017/09	-37.046.896,80	-103.106.237,69	-2.427.593.566,15	-40.179.446,18
2017/12	-19.162.116,34	270.617.787,19	-2.602.621.674,39	408.293.278,46
2018/03	-89.553.286,91	-1.964.552.795,04	-5.929.552.808,11	-1.742.977.147,10
2018/06	-82.541.416,79	-944.441.546,04	-5.943.351.525,30	-1.439.133.769,41
2018/09	-137.409.335,42	-739.142.601,26	-6.957.833.038,03	-1.452.101.696,96
2018/12	-82.863.157,40	-1.183.934.845,81	-12.188.952.214,80	-1.513.443.999,86
2019/03	-122.104.720,96	-3.810.127.333,87	-13.220.431.298,80	-2.768.104.249,28
2019/06	-89.102.815,49	-3.333.159.870,51	-16.534.225.345,63	-2.678.310.047,22
2019/09	-5.125.846,36	-1.141.533.754,47	-10.069.467.277,85	25.610.823,41
2019/12	73.090.933,63	1.673.058.471,17	-5.912.409.473,16	2.080.416.664,38
2020/03	-24.730.730,84	-1.238.784.222,32	-11.322.281.387,66	-1.123.886.730,40
2020/06	22.359.085,18	404.570.177,88	-12.062.786.757,27	470.986.000,22
2020/09	51.247.486,06	2.338.084.358,79	-13.396.855.838,60	1.538.969.107,52
2020/12	103.847.627,98	1.927.598.726,85	-18.256.360.101,49	2.219.181.177,53

According to the findings of EVA Results of “Transportation, Storage and Telecommunication” Sector (Table 6.2);

1. ÇelebiHavaServisi A.Ş. results in negative EVA except for 2015/9, 2015/12, 2016/9, 2016/12, 2017/9, 2017/12, 2018/9, and 2019/12.
2. DO & CO Aktiengesellschaft results in negative EVA except for 2015/6, 2015/9, 2015/12, 2016/6, 2016/9, 2016/12, 2017/6, 2017/9, 2017/12, 2019/9, and 2019/12.
3. GSD Denizcilik Gayrimenkul İnşaat Sanayi ve Ticaret A.Ş. results in negative EVA for all periods.
4. Pegasus Hava Taşımacılığı A.Ş. results in negative EVA except for 2019/12.
5. Reysaş Taşımacılık ve Lojistik Ticaret A.Ş. results in negative EVA except for 2019/12, 2020/6, 2020/9, and 2020/12.
6. Turkcell İletişim Hizmetleri A.Ş. results in negative EVA except for 2015/6, 2015/9, 2015/12, 2016/12, 2017/12, 2019/12, 2020/6, 2020/9, and 2020/12.
7. Türk Hava Yolları A.O. results in negative EVA for all periods.
8. Türk Telekomünikasyon A.Ş. results in negative EVA except for 2015/12, 2017/12, 2019/9, 2019/12, 2020/6, 2020/9, and 2020/12.

6.2.MVA Results

6.2.1 MVA Results of "Construction and Public Works" Sector

MVA Results of "Construction and Public Works" Sector is exhibited below in Table

6.3.

Table 6.3 MVA Results for "Construction and Public Works" Sector

MVA RESULTS					
STOCK CODE PERIOD	ANELE	EDIP	ENKAI	KUYAS	ORGE
2015/03	-220.404.199,00	-164.144.561,00	4.985.955.000,00	-16.195.866,43	4.413.594,00
2015/06	-245.815.341,00	-159.098.003,00	6.050.792.000,00	-5.200.571,10	453.319,00
2015/09	-273.378.957,00	-137.722.584,00	4.072.076.000,00	-13.153.518,25	5.155.867,00
2015/12	-173.054.087,00	-188.710.079,00	3.026.334.000,00	-26.080.137,36	40.027.369,00
2016/03	-235.999.065,00	-189.664.779,00	4.072.895.000,00	5.173.033,67	29.218.424,00
2016/06	-243.687.466,00	-192.483.344,00	2.411.597.000,00	470.531,84	37.178.369,00
2016/09	-189.587.646,00	-185.612.690,00	1.613.900.000,00	-11.392.624,46	55.342.686,00
2016/12	-168.255.691,00	-190.150.738,00	2.436.255.000,00	-5.642.496,76	57.023.667,00
2017/03	-143.115.697,00	-171.085.861,00	3.800.357.000,00	9.386.030,43	74.194.421,00
2017/06	-81.507.939,00	-148.722.595,00	3.626.007.000,00	33.774.874,83	98.767.875,00
2017/09	-57.431.404,00	-152.330.034,00	1.873.520.000,00	13.301.879,56	97.084.603,00
2017/12	368.570,00	-152.812.605,00	4.036.087.000,00	37.490.971,36	113.652.033,00
2018/03	-63.112.659,00	-131.798.554,00	-22.372.000,00	50.819.792,08	92.150.354,00
2018/06	-182.930.940,00	-130.325.503,00	-4.648.972.000,00	7.960.377,48	33.211.077,00
2018/09	-344.466.528,00	-42.453.481,00	-10.590.245.000,00	-31.034.548,70	40.366.936,00
2018/12	-338.432.139,00	-195.512.555,00	-9.618.771.000,00	-17.416.857,16	18.867.558,00
2019/03	-325.272.485,00	-183.362.989,00	-13.040.540.000,00	7.560.033,67	21.545.249,00
2019/06	-308.420.766,00	-167.035.690,00	-9.826.226.000,00	-10.240.348,31	19.067.482,00
2019/09	-285.131.171,00	-178.827.213,00	-8.977.162.000,00	-3.382.694,56	25.042.161,00
2019/12	-154.429.697,00	-184.160.719,00	-7.325.622.000,00	17.954.953,93	62.173.195,00
2020/03	-225.286.736,00	-138.881.033,00	-9.252.813.000,00	10.490.704,66	14.088.811,00
2020/06	-54.040.696,00	-55.942.731,00	-9.830.021.000,00	90.667.565,32	129.343.866,00
2020/09	110.688.762,00	91.032.683,00	-10.296.189.000,00	111.493.299,00	161.918.078,00
2020/12	191.548.988,00	143.134.221,00	-8.424.135.000,00	58.240.963,00	127.595.995,00
STOCK CODE PERIOD	SANEL	TURGG	YAYLA	YYAPI	
2015/03	38.692.760,00	143.698.558,23	20.973.440,00	118.963.313,70	
2015/06	9.631.071,00	138.359.363,54	9.884.513,00	44.343.525,10	
2015/09	1.721.803,00	133.771.491,44	6.032.416,00	-2.356.117,75	
2015/12	4.079.247,00	150.076.724,27	-3.493.140,00	-14.347.043,75	
2016/03	3.463.884,00	134.754.812,37	-4.400.559,00	-17.426.018,45	
2016/06	2.440.851,00	140.657.289,39	-14.884.592,00	-11.974.224,75	
2016/09	1.673.974,00	120.021.898,14	-10.511.051,00	-204.465.100,05	
2016/12	1.175.208,00	102.476.929,76	-15.437.403,00	-163.920.551,65	
2017/03	1.445.876,00	116.306.044,72	-13.699.764,00	-104.687.821,60	
2017/06	2.848.453,00	144.433.560,33	-14.768.882,00	-47.960.776,00	
2017/09	2.138.829,00	137.112.926,47	-12.297.577,00	-131.543.332,40	
2017/12	332.016,00	112.136.662,50	-8.439.157,00	-125.900.456,70	
2018/03	357.840,00	122.371.945,54	-640.133,00	-109.650.629,25	
2018/06	-2.125.766,00	82.065.798,97	-14.935.173,00	-224.552.331,00	
2018/09	-1.153.075,00	50.737.672,11	-28.807.633,00	-305.372.640,55	
2018/12	11.821.257,00	84.925.781,94	-23.187.872,00	-288.067.151,10	
2019/03	9.607.781,00	42.351.578,53	-29.115.883,00	-298.884.787,25	
2019/06	27.350.110,00	31.817.196,49	-25.798.364,00	-278.896.884,10	
2019/09	52.851.970,00	53.225.148,91	-20.484.385,00	-272.181.663,20	
2019/12	33.525.961,00	152.817.613,12	8.599.130,00	-154.736.089,10	
2020/03	24.021.513,00	72.411.658,90	439.958,00	-235.420.698,30	
2020/06	56.752.159,34	209.230.320,41	74.856.038,00	-66.843.917,10	
2020/09	50.674.249,13	442.925.109,62	82.759.177,00	-81.596.841,85	
2020/12	50.737.253,86	652.271.224,59	150.229.717,00	117.596.106,60	

According to the findings of MVA Results of "Construction and Public Works" (Table 6.3);

1. Anel Elektrik Proje Taahhüt ve Ticaret A.Ş. results in negative MVA except for 2017/12, 2020/9, and 2020/12.
2. Edip Gayrimenkul Yatırım Sanayi ve Ticaret A.Ş. results in negative MVA except for 2020/9 and 2020/12.
3. Enka İnşaat ve Sanayi A.Ş. results in negative MVA for the periods between 2015/3 and 2017/12, positive MVA for the periods between 2018/3 and 2020/12.
4. Kuyumcukent Gayrimenkul Yatırımları A.Ş. results in negative MVA except for 2015/3, 2015/6, 2015/9, 2015/12, 2016/9, 2016/12, 2018/9, 2018/12, 2019/6, and 2019/9 periods.
5. Orge Enerji Elektrik Taahhüt A.Ş. results in positive MVA for all periods.
6. San-El Mühendislik Elektrik Taahhüt Sanayi ve Ticaret A.Ş. results in positive MVA except for 2018/6 and 2018/9.
7. Türker Proje Gayrimenkul ve Yatırım Geliştirme A.Ş. results in positive MVA for all periods.
8. Yayla Enerji Üretim Turizm ve İnşaat Ticaret A.Ş. results in negative MVA except for 2015/3, 2015/6, 2015/9, 2019/12, 2020/3, 2020/6, 2020/9, and 2020/12 periods.
9. Yeşil Yapı Endüstrisi A.Ş. results in negative MVA except for 2015/3, 2015/6, 2020/12.

6.2.2 MVA Results of “Transportation, Storage and Telecommunication” Sector

MVA Results of “Transportation, Storage and Telecommunication” Sector is exhibited below in Table 6.4.

Table 6.4 MVA Results for “Transportation, Storage and Telecommunication” Sector

MVA RESULTS				
STOCK CODE PERIOD	CLEBI	DOCO	GSDDE	PGSUS
2015/03	595.394.502,00	1.670.568.000,00	-26.211.099,43	1.368.991.384,00
2015/06	745.935.395,00	1.597.352.000,00	-27.682.802,10	1.271.519.145,00
2015/09	678.026.882,00	2.204.750.000,00	-46.963.016,01	135.540.340,00
2015/12	725.654.741,00	2.303.147.600,00	-41.779.867,35	343.164.691,00
2016/03	683.500.582,00	1.618.441.200,00	-34.860.484,47	479.017.707,00
2016/06	489.781.380,00	1.487.873.600,00	-43.257.847,04	91.587.621,00
2016/09	435.410.343,00	1.312.260.800,00	-35.271.570,03	-384.243.881,00
2016/12	457.203.236,00	1.050.829.600,00	-38.941.058,80	-122.172.545,00
2017/03	460.606.198,00	1.422.094.400,00	-32.054.356,12	26.478.048,00
2017/06	571.531.233,00	642.082.000,00	-15.080.993,55	277.684.869,00
2017/09	663.744.279,00	918.328.800,00	-6.033.907,98	249.319.737,00
2017/12	729.758.826,00	812.304.400,00	-21.764.844,89	972.155.394,00
2018/03	674.806.195,00	1.371.085.200,00	-14.704.482,31	1.127.768.685,00
2018/06	778.846.974,00	3.558.826.400,00	-48.952.633,13	-188.246.433,00
2018/09	907.889.081,00	3.163.357.200,00	-84.457.867,35	-1.759.303.108,00
2018/12	1.187.532.486,00	2.597.138.000,00	-70.543.016,01	-1.370.738.363,56
2019/03	1.172.609.965,00	3.728.201.600,00	-65.415.036,33	-687.621.895,60
2019/06	2.022.886.712,00	3.460.640.400,00	-59.795.142,21	712.932.207,20
2019/09	1.896.957.365,00	3.698.306.000,00	-49.833.822,42	1.447.728.214,90
2019/12	1.908.593.036,00	569.903.600,00	-6.879.009,56	3.496.525.477,80
2020/03	855.154.610,00	2.094.507.600,00	-46.520.671,61	-1.446.983.328,60
2020/06	1.542.611.865,00	1.800.287.200,00	55.400.593,69	951.788.361,85
2020/09	1.341.237.984,00	4.862.720.000,00	55.473.744,50	-1.138.745.819,60
2020/12	4.046.772.525,00	4.957.022.000,00	89.940.512,43	2.245.140.504,20
STOCK CODE PERIOD	RYSAS	TCELL	THYAO	TTKOM
2015/03	-170.859.087,00	16.464.041.000,00	930.309.753,00	19.753.622.000,00
2015/06	-183.214.570,00	13.692.534.000,00	150.510.992,00	20.097.030.000,00
2015/09	-152.150.726,00	9.432.666.000,00	-3.644.215.224,00	16.934.444.000,00
2015/12	-162.919.016,00	7.380.746.000,00	-3.891.800.000,00	14.116.632.000,00
2016/03	-155.522.715,00	11.187.516.000,00	-1.953.800.000,00	18.078.715.000,00
2016/06	-160.885.519,00	7.923.302.000,00	-4.958.400.000,00	16.520.070.000,00
2016/09	-144.154.848,00	5.916.716.000,00	-6.809.800.000,00	15.152.108.000,00
2016/12	-97.845.699,00	5.381.603.000,00	-10.985.200.000,00	15.093.379.000,00
2017/03	-85.079.355,00	9.797.597.000,00	-9.436.400.000,00	17.178.742.000,00
2017/06	-68.735.288,00	11.274.850.000,00	-5.026.000.000,00	17.495.520.000,00
2017/09	-12.135.850,00	13.101.246.000,00	-6.791.000.000,00	19.116.221.000,00
2017/12	-17.432.790,00	19.010.912.000,00	1.481.200.000,00	17.984.913.000,00
2018/03	-14.369.400,00	19.082.382.000,00	6.297.800.000,00	18.308.181.000,00
2018/06	8.475.805,00	11.821.714.000,00	-6.257.800.000,00	13.390.134.000,00
2018/09	152.786.678,00	10.497.108.000,00	-10.294.800.000,00	7.217.358.000,00
2018/12	30.074.079,00	10.720.446.000,00	-9.052.200.000,00	6.196.397.000,00
2019/03	55.743.971,00	9.495.719.000,00	-15.327.600.000,00	7.332.415.000,00
2019/06	50.168.953,00	10.829.450.000,00	-15.486.800.000,00	9.453.695.000,00
2019/09	43.794.405,00	11.191.234.000,00	-20.443.600.000,00	11.350.065.000,00
2019/12	459.374.144,00	12.277.056.000,00	-20.840.200.000,00	16.352.147.000,00
2020/03	833.399.832,00	8.426.407.000,00	-28.826.400.000,00	13.501.952.000,00
2020/06	706.534.080,00	16.629.850.000,00	-23.537.400.000,00	17.674.734.000,00
2020/09	834.136.217,00	13.151.025.000,00	-29.500.000.000,00	14.267.097.000,00
2020/12	519.892.035,00	14.635.062.000,00	-21.695.200.000,00	17.852.624.000,00

According to the findings of MVA Results of "Transportation, Storage and Telecommunication" Sector (Table 6.4);

1. ÇelebiHavaServisi A.Ş. results in positive MVA for all periods.
2. DO & CO Aktiengesellschaft results in positive MVA for all periods.
3. GSD Denizcilik Gayrimenkul İnşaat Sanayi ve Ticaret A.Ş. results in negative MVA except for 2020/6, 2020/9, and 2020/12.
4. Pegasus Hava Taşımacılığı A.Ş. results in positive MVA except for 2016/9, 2016/12, 2018/6, 2018/9, 2018/12, 2019/3, 2020/3, and 2020/9.
5. Reysaş Taşımacılık ve Lojistik Ticaret A.Ş. results in negative MVA between 2015/3 and 2018/3 and positive MVA between 2018/6 and 2020/12.
6. Turkcell İletişim Hizmetleri A.Ş. results in positive MVA for all periods.
7. Türk Hava Yolları A.O. results in negative MVA except for 2015/3, 2015/6, 2017/12, and 2018/3.
8. Türk Telekomünikasyon A.Ş. results in positive MVA for all periods.

6.3. Testing of the Hypothesis

Average, standard deviation and correlation relations of EVA, MVA, and Stock performance values of the "Construction and Public Works" Sector are presented in Table 6.5.

When the correlation relationship of the "Construction and Public Works" Sector is examined, it is seen that the relationship between EVA and MVA is significant and the highest (0.742, $p < 0.01$). However, it has been determined that there is no significant relationship between EVA and stock performance ($p > 0.01$) and between MVA and Stock performance ($p > 0.01$). The correlation relationship between EVA and MVA is 0.742. This relationship level explains that the relationship level between EVA and MVA is high and significant. This situation supports the H_1 and H_2 hypotheses created within the scope of the research. However, H_3 and H_4 hypotheses are not significant since the correlation relationship is meaningless.

Table 6.5 Correlation Matrix for "Construction and Public Works" Sector

Variables	Mean	S.S.	EVA	MVA	Stock Performance
EVA	-237970581.6	751066919.6	1		
MVA	-297148971.5	2299061000.3	0.742*	1	
Stock Performance	6.37	13.9	0.43**	0.36**	1

* $p < 0.01$

** $p > 0.01$

Average, standard deviation, and correlation relations of EVA, MVA, and Stock performance values of the "Transportation, Storage and Telecommunication" Sector, which is the second sample group for this study, are presented in Table 6.6.

When the correlation relationship is examined, it is seen that the relationship between EVA and MVA is significant and the highest (0.611, $p < 0.01$). However, it has been determined that there is no significant relationship between EVA and stock performance ($p > 0.01$) and between MVA and Stock performance ($p > 0.01$). The

correlation relationship between EVA and MVA is 0.611. This relationship level explains that the relationship level between EVA and MVA is high and significant. This situation supports the H₅ and H₆ hypotheses created within the scope of the research. However, H₇ and H₈ hypotheses are not significant since the correlation relationship is meaningless.

Table 6.6Correlation Matrix for “Transportation, Storage and Telecommunication” Sector

Variables	Mean	S.S.	EVA	MVA	Stock Performance
EVA	-1186401092.6	2990275064.3	1		
MVA	2510766823.8	8274482337.2	0.611*	1	
Stock Performance	55.48	117.79	0.125**	-0.009**	1

* p < 0.01

** p > 0.01

Simple regression analysis was applied to test the hypotheses created within the scope of the research. Regression analysis findings for the “Construction and Public Works” Sector are presented in Table 6.7. When the table is examined, it is seen that a total of first four models were applied in the research.

Table 6.7 Regression Analysis Outputs for “Construction and Public Works” Sector

Models	Dependent Variables	Independent Variables	R	Adjusted R ²	B	S.E.	F	Sig.
Model 1	MVA	EVA	0.742	0.548	2.27	0.140	261.372	.000*
Model 2	EVA	MVA	0.742	0.548	0.24	0.150	261.372	.000*
Model 3	Stock Performance	EVA	0.043	-0.003	0.00	0.00	0.404	.526**
Model 4	Stock Performance	MVA	0.036	-0.003	0.00	0.00	0.280	.597**

* p < 0.01, ** p > 0.01

Model 1: Simple regression analysis was performed within the model's scope to determine the effect of EVA on MVA. According to the simple regression analysis results, EVA has a statistically significant positive effect on MVA ($F_{(1,214)} = 261.372$, $p < 0.01$). The equation for Model 1 is “ $MVA = 242992958.885150 + 2.27 \text{ EVA}$ ”. This finding explains that H₁ hypothesis is supported.

Model 2: Simple regression analysis was performed within the model's scope to determine the effect of MVA on EVA. According to the results of simple regression analysis, MVA has a statistically significant positive effect on EVA ($F_{(1,214)} = 261.372$, $p < 0.01$). The equation for Model 2 is "EVA = $-165990036.533692 + 0.24$ MVA". This finding explains that H_2 hypothesis is supported.

Model 3: Simple regression analysis was performed within the model's scope to determine the effect of EVA on stock performance. According to simple regression analysis results, EVA has no statistically significant effect on stock performance ($F_{(1,214)} = 0.404$, $p > 0.01$). Equation for Model 3 is "Stock Performance = $6.567504 + 0.00$ EVA". This finding explains that H_3 hypothesis is not supported.

Model 4: Simple regression analysis has been performed within the model's scope to determine the effect of MVA on stock performance. According to the simple regression analysis results, MVA does not have a statistically significant effect on stock performance ($F_{(1,214)} = 0.280$, $p > 0.01$). Equation for Model 4 is "Stock Performance = $6.441215 + 0.00$ MVA". This finding explains that H_4 hypothesis is not supported.

Regression analysis findings for "Transportation, Storage and Telecommunication" Sector are presented in Table 6.8. When the table is examined, it is seen that a total of second part of four models were applied in the research.

Table 6.8 Regression Analysis Outputs for "Transportation, Storage and Telecommunication" Sector

Models	Dependent Variables	Independent Variables	R	Adjusted R^2	B	S.E.	F	Sig.
Model 5	MVA	EVA	0.611	0.370	1.69	0.159	112.972	.000*
Model 6	EVA	MVA	0.611	0.370	0.22	0.021	112.972	.000*
Model 7	Stock Performance	EVA	0.125	0.010	3168179.620440	1827212.079789	3.006365	.085**
Model 8	Stock Performance	MVA	0.009	-0.005	-621563.512477	5095779.923050	0.015	.903**

* $p < 0.01$, ** $p > 0.01$

Model 5: Simple regression analysis was performed within the model's scope to determine the effect of EVA on MVA. According to the simple regression analysis results, EVA has a statistically significant positive effect on MVA ($F_{(1,190)} = 112.972$, $p < 0.01$). The equation for Model 5 is "MVA = 4515449408.964767 + 1.69 EVA". *This finding explains that H_5 hypothesis is supported.*

Model 6: Simple regression analysis was performed within the model's scope to determine the effect of MVA on EVA. According to the results of simple regression analysis, MVA has a statistically significant positive effect on EVA ($F_{(1,190)} = 112.972$, $p < 0.01$). The equation for Model 6 is "EVA = -1740466547.216974 + 0.22 MVA". *This finding explains that H_6 hypothesis is supported.*

Model 7: Simple regression analysis was performed within the model's scope to determine the effect of EVA on stock performance. According to simple regression analysis results, EVA has no statistically significant effect on stock performance ($F_{(1,190)} = 3.006365$, $p > 0.01$). Equation for Model 7 is "Stock Performance = -1362202554.705226 + 3168179.620440 EVA". *This finding explains that H_7 hypothesis is not supported.*

Model 8: Simple regression analysis has been performed within the model's scope to determine the effect of MVA on stock performance. According to the simple regression analysis results, MVA does not have a statistically significant effect on stock performance ($F_{(1,190)} = 0.015$, $p > 0.01$). Equation for Model 8 is "Stock Performance = 2545257221.329926 - 621563.512477 MVA". *This finding explains that H_8 hypothesis is not supported.*

7. DISCUSSION AND CONCLUSION

EVA is one of the most popular financial performance measurement methods among the value-based measurement methods. EVA expresses the difference between net operating profit after less adjusted taxes and the total cost of capital. The primary idea behind this calculation is that the income from the activities from the business performance should cover the cost of the capital invested in those activities. In this aspect, the most distinguishing feature of EVA is that it considers the cost of capital, unlike the accountancy-based financial performance measurement methods. It is a new perception for the corporates or individual investors who evaluate profitability or valuableness with some income ratios. It reminds the idea that the capital invested is not free; quite the contrary, it has a cost.

MVA, another value-based financial performance measurement method, has emerged where EVA calculations become insufficient about explaining companies' market situation. This measurement method aims to determine a companies' external success while EVA calculations measure its internal success. The distinguishing feature of MVA is to help a company determine its market performance value from an outside perspective. MVA can be summarized as the difference between the company's total market value and the company's total equity.

In this study, EVA and MVA performance of non-financial firms listed in BIST is aimed to be examined. Since previous studies suggest choosing a research sample based on sector, "Construction and Public Works" and "Transportation, Storage and Telecommunication" sectors in Borsa Istanbul is considered as the sample. Furthermore, the six years between 2015-2020 (including those years) of the companies in these sectors are examined.

There are nine companies in "Construction and Public Works" sector, and all their financial data are available. According to this specified working area, there are 24-quarter periods, and 216 observations are made for each EVA and MVA calculation.

There are eleven companies for the "Transportation, Storage and Telecommunication" sector, the other sector to be examined in the sample working area. In this sector, all the sector companies' financial data are not available. Eight of the sector companies' financial data are available for the periods between 2015-2020. Therefore, there are 24-quarter periods in this specified working area, and 192 observations are made for each EVA and MVA calculation.

As a result of the EVA calculations of the "Construction and Public Works" sector, 29 positive EVA and 187 negative EVA are obtained. The total value of the specified period of the EVA is -51.401.645.629,99. The most negative result belongs to the Enka İnşaatve Sanayi A.Ş. in 2019/6 and obtained as -4.540.811.592,10. The best positive result belongs to OrgeEnerjiElektrikTaahhüt A.Ş. in 2019/12 and obtained as 28.444.317,18.

As a result of the MVA calculations of the "Construction and Public Works" sector, 112 positive MVA and 104 negative MVA are obtained. The total value of the specified period of the MVA is -64.184.177.863,14. The most negative result belongs to the Enka İnşaatve Sanayi A.Ş. in 2019/3 and obtained as -13.040.540.000,00. The best positive result belongs to again Enka İnşaatve Sanayi A.Ş. in 2015/6 and obtained as 6.050.792.000,00.

As a result of the EVA calculations of the "Transportation, Storage and Telecommunication" sector, 40 positive EVA and 152 negative EVA are obtained. The total value of the specified period of the EVA is -227.789.009.781,85. The most negative result belongs to the TürkHavaYollari A.O. in 2020/12 and obtained as -18.256.360.101,49. The best positive result belongs to TurkcellİletişimHizmetleri A.Ş. in 2020/9 and obtained as 2.338.084.358,79.

As a result of the MVA calculations of the "Transportation, Storage and Telecommunication" sector, 130 positive MVA and 62 negative MVA are obtained. The total value of the specified period of the MVA is 482.067.230.186,51. The most negative result belongs to the TürkHavaYollari A.O. in 2020/9 and obtained as -29.500.000.000,00. The best positive result belongs to TürkTelekomünikasyon A.Ş. in 2015/6 and obtained as 20.097.030.000,00.

The results of the EVA and MVA of both sectors are transferred to the SPSS 20.0 program, and the hypotheses of the study composed through the research questions are tested with the basic regression analysis method. The one percent confidence interval applies regression analysis. According to the results, it is determined that; EVA has a significant effect on MVA and MVA has a significant effect on EVA; however, both EVA and MVA has no impact on stock performance (stock value) for both "Construction and Public Works" and "Transportation, Storage and Telecommunication" sectors.

Some of the literature reviews of which have similarities with this study follows as:

- In the study conducted by Ismail (2011), positive EVA and negative EVA values on firm performance were examined. As a result of the

research, it has been seen that both negative EVA and positive EVA have no significant effect on stock returns.

- Aktaş (2012) examined EVA and MVA methods on stock returns in BIST-30 companies between 2001-2009 and concluded that EVA and MVA do not have any effect on stock returns.
- Kadar and Rikumahu (2017) has discussed the relationship between EVA, EPS, ROA, ROE values, and MVA values of companies operating in the telecommunications sector. The data belonging to the years 2011-2016 of the firms accepted as samples were used. According to the analysis results made within the research scope, there is a significant relationship between EVA and ROE and MVA, and there is no meaningful relationship between EPS and ROA and MVA.
- Silitonga et al. (2019) has examined the ratio of economic value-added, market value-added, total assets turnover, and price-earnings to stock returns. The data were selected among the companies operating in the Indonesian stock market between 2015-2017. According to the research results, it has been determined that economy value-added and market value-added do not significantly affect stock returns.

In this study, a growing and robust sector (Construction and Public Works) recognized in Turkey and some European and Asian countries and another strong sector (Transportation, Storage, and Telecommunication) in BIST are chosen as the sample experiential subjects. The main reasons for those sectors to be chosen as the sample experiential subjects can be sequenced as;

- Those sectors registered to BIST are categorized as non-financial firms, which is the main experimental area of this study, in terms of their activities.
- The construction and public works sector, which is covered within the scope of the research, is a driving force in Turkey's economy and has a vast area in the world (Ertaş ve Peşmen, 2020). For this reason, this sector is chosen as the first sample area among the non-financial BIST companies.
- On the other hand, the growth rate of the transportation, storage, and communication sector, which is the other sector covered in the research, in the last ten years and the growth rate of Gross Domestic Product (GDP) show parallelism (Arabacı ve Yücel, 2020). In addition, this sector in Turkey is known as the sector with the highest share in public investment programs. For this reason, this sector is chosen as the second sample area among the non-financial BIST companies.
- Companies that belong to those sectors are in solid positions in Turkey's economy and BIST, both sectors growing and robust. Moreover, their financial and income statements are bulky and so that, in the phase of preparing research questions, these sectors are considered suitable for EVA and MVA calculations.

After applying EVA and MVA performance measurement methods, more than the expected number of negative EVA and MVA results were obtained. This may mean non-financial companies in Turkey are not value-based performance orientated and have not acquired the understanding of value-based management. It can be said that companies are still accountancy and short-term focused. Another observation is about

EVA, MVA, and stock performance. Since EVA and MVA is a measurement tool of value-based performance approach. It is supposed that there could be a relation between EVA, MVA, and the stock value of a company. However, this study demonstrates that EVA and MVA has no relation with the stock performance of the companies.

When these two sectors are compared in the context of EVA-MVA calculations and companies' stock performance, it is observed that these two sectors acted similarly during the sample period. However, the "Transportation, Storage and Telecommunication" sector have a more significant number of EVA and MVA score as a percentage, comparing to "Construction and Public Works" sector.

This study is conducted in the context of "Construction and Public Works" and "Transportation, Storage and Telecommunication" in BIST for the quarterly period of 2015-2020. There have been difficulties in calculating invested capital and the weighted average cost of capital since there is not a standard structure for calculating invested capital, and each company's financial structure and the way of finding money for investment differs and this also automatically affect the calculation of the weighted average cost of capital. Moreover, the scale of the companies is observed to affect the measurement applied. For instance, when Enka İnşaatve Sanayi A.Ş.'s and TürkHavaYollari A.O.'s financial and income statement is examined, it is observed that they are too big compared to other firms in their sector and that much difference becomes another limitation.

Another conflict is that beginning at the end of 2020/3; the COVID-19 pandemic has arisen worldwide. Pandemic is a definite factor that impacts all the markets worldwide. Thus, it also affected this study's experimental data to be out of "under

normal conditions". Moreover, through the COVID-19 pandemic, while transportation companies' (especially for air traveling companies, not for land logistic companies) EVA and MVA scores were affected negatively beginning from the end of the period 2020/3, telecommunication companies' EVA and MVA scores were affected positively beginning from that period. On the other hand, there is no such implication about the construction and public works sector in terms of EVA and MVA scores.

Since the research sample of this study, in the context of those sectors, do not give expected outcomes, for future studies, it can be suggested to examine different sectors of BIST, especially financial firms. Since financial firms in BIST are considered more value-based orientated so that it can be more fruitful in terms of value-based performance methods for future studies. Also, future studies with EVA and MVA could incorporate other value-based performance measurement methods such as Cash Value Added (CVA) and Cash Flow Return on Investment (CFROI).

APPENDICES

APPENDIX A

STOCK CODE	PERIOD	OPERATING INCOME/EBIT	NOPLAT
ANELE	2015/03	12.611.466,00	10.089.172,80
ANELE	2015/06	30.050.855,00	24.040.684,00
ANELE	2015/09	50.620.145,00	40.496.116,00
ANELE	2015/12	-20.792.874,00	-20.792.874,00
ANELE	2016/03	24.195.726,00	19.356.580,80
ANELE	2016/06	27.381.639,00	21.905.311,20
ANELE	2016/09	33.590.606,00	26.872.484,80
ANELE	2016/12	58.983.095,00	47.186.476,00
ANELE	2017/03	12.309.453,00	9.847.562,40
ANELE	2017/06	40.023.322,00	32.018.657,60
ANELE	2017/09	64.115.728,00	51.292.582,40
ANELE	2017/12	72.261.473,00	57.809.178,40
ANELE	2018/03	15.734.408,00	12.272.838,24
ANELE	2018/06	26.086.269,00	20.347.289,82
ANELE	2018/09	49.032.188,00	38.245.106,64
ANELE	2018/12	22.879.204,00	17.845.779,12
ANELE	2019/03	12.809.302,00	9.991.255,56
ANELE	2019/06	18.880.349,00	14.726.672,22
ANELE	2019/09	26.559.277,00	20.716.236,06
ANELE	2019/12	30.904.504,00	24.105.513,12
ANELE	2020/03	12.106.484,00	9.443.057,52
ANELE	2020/06	18.160.379,00	14.165.095,62
ANELE	2020/09	-49.333.340,00	-49.333.340,00
ANELE	2020/12	-86.349.274,00	-86.349.274,00
EDIP	2015/03	4.385.373,00	3.508.298,40
EDIP	2015/06	8.186.837,00	6.549.469,60
EDIP	2015/09	15.559.197,00	12.447.357,60
EDIP	2015/12	71.830.315,00	57.464.252,00
EDIP	2016/03	7.250.947,00	5.800.757,60
EDIP	2016/06	12.533.547,00	10.026.837,60
EDIP	2016/09	18.109.623,00	14.487.698,40
EDIP	2016/12	59.933.912,00	47.947.129,60
EDIP	2017/03	6.228.162,00	4.982.529,60
EDIP	2017/06	9.856.142,00	7.884.913,60
EDIP	2017/09	35.094.261,00	28.075.408,80
EDIP	2017/12	71.149.417,00	56.919.533,60
EDIP	2018/03	7.674.571,00	5.986.165,38
EDIP	2018/06	14.280.663,00	11.138.917,14
EDIP	2018/09	23.683.097,00	18.472.815,66
EDIP	2018/12	164.860.583,00	128.591.254,74
EDIP	2019/03	8.282.649,00	6.460.466,22
EDIP	2019/06	16.378.655,00	12.775.350,90
EDIP	2019/09	24.824.122,00	19.362.815,16
EDIP	2019/12	113.436.041,00	88.480.111,98
EDIP	2020/03	6.438.098,00	5.021.716,44
EDIP	2020/06	7.823.179,00	6.102.079,62
EDIP	2020/09	14.541.741,00	11.342.557,98
EDIP	2020/12	-17.820.895,00	-17.820.895,00

STOCK CODE	PERIOD	OPERATING INCOME/EBIT	NOPLAT
ENKAI	2015/03	455.933.000,00	364.746.400,00
ENKAI	2015/06	872.040.000,00	697.632.000,00
ENKAI	2015/09	1.358.984.000,00	1.087.187.200,00
ENKAI	2015/12	1.688.142.000,00	1.350.513.600,00
ENKAI	2016/03	515.108.000,00	412.086.400,00
ENKAI	2016/06	943.186.000,00	754.548.800,00
ENKAI	2016/09	1.364.296.000,00	1.091.436.800,00
ENKAI	2016/12	1.895.109.000,00	1.516.087.200,00
ENKAI	2017/03	491.559.000,00	393.247.200,00
ENKAI	2017/06	984.767.000,00	787.813.600,00
ENKAI	2017/09	1.585.384.000,00	1.268.307.200,00
ENKAI	2017/12	2.326.605.000,00	1.861.284.000,00
ENKAI	2018/03	644.508.000,00	502.716.240,00
ENKAI	2018/06	1.287.384.000,00	1.004.159.520,00
ENKAI	2018/09	2.434.616.000,00	1.899.000.480,00
ENKAI	2018/12	3.194.703.000,00	2.491.868.340,00
ENKAI	2019/03	601.075.000,00	468.838.500,00
ENKAI	2019/06	993.400.000,00	774.852.000,00
ENKAI	2019/09	1.392.065.000,00	1.085.810.700,00
ENKAI	2019/12	1.843.927.000,00	1.438.263.060,00
ENKAI	2020/03	836.233.000,00	652.261.740,00
ENKAI	2020/06	1.199.244.000,00	935.410.320,00
ENKAI	2020/09	1.526.969.000,00	1.191.035.820,00
ENKAI	2020/12	2.078.985.000,00	1.621.608.300,00
KUYAS	2015/03	162.978,00	130.382,40
KUYAS	2015/06	2.446.023,00	1.956.818,40
KUYAS	2015/09	566.115,00	452.892,00
KUYAS	2015/12	2.417.310,00	1.933.848,00
KUYAS	2016/03	236.596,00	189.276,80
KUYAS	2016/06	2.682.619,00	2.146.095,20
KUYAS	2016/09	6.410.862,00	5.128.689,60
KUYAS	2016/12	6.421.919,00	5.137.535,20
KUYAS	2017/03	-880.517,00	-880.517,00
KUYAS	2017/06	973.284,00	778.627,20
KUYAS	2017/09	568.218,00	454.574,40
KUYAS	2017/12	645.944,00	516.755,20
KUYAS	2018/03	10.515.189,00	8.201.847,42
KUYAS	2018/06	11.614.310,00	9.059.161,80
KUYAS	2018/09	13.627.974,00	10.629.819,72
KUYAS	2018/12	20.594.943,00	16.064.055,54
KUYAS	2019/03	-2.031.033,00	-2.031.033,00
KUYAS	2019/06	-13.375.432,00	-13.375.432,00
KUYAS	2019/09	-15.162.162,00	-15.162.162,00
KUYAS	2019/12	-11.847.256,00	-11.847.256,00
KUYAS	2020/03	102.199,00	79.715,22
KUYAS	2020/06	2.406.991,00	1.877.452,98
KUYAS	2020/09	-499.236,00	-499.236,00
KUYAS	2020/12	-2.843.187,00	-2.843.187,00

STOCK CODE	PERIOD	OPERATING INCOME/EBIT	NOPLAT
ORGE	2015/03	2.521.228,00	2.016.982,40
ORGE	2015/06	6.060.462,00	4.848.369,60
ORGE	2015/09	9.260.323,00	7.408.258,40
ORGE	2015/12	12.929.314,00	10.343.451,20
ORGE	2016/03	7.192.361,00	5.753.888,80
ORGE	2016/06	13.759.568,00	11.007.654,40
ORGE	2016/09	20.884.604,00	16.707.683,20
ORGE	2016/12	26.917.389,00	21.533.911,20
ORGE	2017/03	8.473.884,00	6.779.107,20
ORGE	2017/06	19.259.498,00	15.407.598,40
ORGE	2017/09	31.349.391,00	25.079.512,80
ORGE	2017/12	37.166.348,00	29.733.078,40
ORGE	2018/03	8.038.298,00	6.269.872,44
ORGE	2018/06	19.890.863,00	15.514.873,14
ORGE	2018/09	30.399.812,00	23.711.853,36
ORGE	2018/12	49.043.211,00	38.253.704,58
ORGE	2019/03	9.761.257,00	7.613.780,46
ORGE	2019/06	22.817.823,00	17.797.901,94
ORGE	2019/09	38.769.966,00	30.240.573,48
ORGE	2019/12	56.122.269,00	43.775.369,82
ORGE	2020/03	9.330.057,00	7.277.444,46
ORGE	2020/06	23.616.661,00	18.420.995,58
ORGE	2020/09	39.262.767,00	30.624.958,26
ORGE	2020/12	60.510.338,00	47.198.063,64
SANEL	2015/03	-325.483,00	-325.483,00
SANEL	2015/06	-310.123,00	-310.123,00
SANEL	2015/09	161.897,00	129.517,60
SANEL	2015/12	493.106,00	394.484,80
SANEL	2016/03	46.943,00	37.554,40
SANEL	2016/06	-40.508,00	-40.508,00
SANEL	2016/09	253.809,00	203.047,20
SANEL	2016/12	204.886,00	163.908,80
SANEL	2017/03	-200.179,00	-200.179,00
SANEL	2017/06	-1.088.376,00	-1.088.376,00
SANEL	2017/09	-1.130.194,00	-1.130.194,00
SANEL	2017/12	561.240,00	448.992,00
SANEL	2018/03	466.540,00	363.901,20
SANEL	2018/06	-1.165.015,00	-1.165.015,00
SANEL	2018/09	-1.710.226,00	-1.710.226,00
SANEL	2018/12	-6.432.841,00	-6.432.841,00
SANEL	2019/03	352.163,00	274.687,14
SANEL	2019/06	-144.475,00	-144.475,00
SANEL	2019/09	2.122.021,00	1.655.176,38
SANEL	2019/12	7.136.359,00	5.566.360,02
SANEL	2020/03	1.098.197,00	856.593,66
SANEL	2020/06	-4.117.175,00	-4.117.175,00
SANEL	2020/09	-5.121.991,00	-5.121.991,00
SANEL	2020/12	-10.030.239,00	-10.030.239,00

STOCK CODE	PERIOD	OPERATING INCOME/EBIT	NOPLAT
TURGG	2015/03	-409.587,00	-409.587,00
TURGG	2015/06	-779.601,00	-779.601,00
TURGG	2015/09	-1.173.123,00	-1.173.123,00
TURGG	2015/12	4.767.016,00	3.813.612,80
TURGG	2016/03	-247.234,00	-247.234,00
TURGG	2016/06	-911.073,00	-911.073,00
TURGG	2016/09	-1.142.162,00	-1.142.162,00
TURGG	2016/12	1.622.586,00	1.298.068,80
TURGG	2017/03	-412.817,00	-412.817,00
TURGG	2017/06	-776.199,00	-776.199,00
TURGG	2017/09	-1.016.539,00	-1.016.539,00
TURGG	2017/12	12.444.499,00	9.955.599,20
TURGG	2018/03	-486.643,00	-486.643,00
TURGG	2018/06	-988.415,00	-988.415,00
TURGG	2018/09	-1.501.888,00	-1.501.888,00
TURGG	2018/12	-16.793.561,00	-16.793.561,00
TURGG	2019/03	-409.042,00	-409.042,00
TURGG	2019/06	-877.328,00	-877.328,00
TURGG	2019/09	-1.332.759,00	-1.332.759,00
TURGG	2019/12	74.616,00	58.200,48
TURGG	2020/03	-461.527,00	-461.527,00
TURGG	2020/06	-919.406,00	-919.406,00
TURGG	2020/09	-1.462.007,00	-1.462.007,00
TURGG	2020/12	5.151.341,00	4.018.045,98
YAYLA	2015/03	729.329,00	583.463,20
YAYLA	2015/06	448.329,00	358.663,20
YAYLA	2015/09	1.179.251,00	943.400,80
YAYLA	2015/12	-5.337.657,00	-5.337.657,00
YAYLA	2016/03	-387.704,00	-387.704,00
YAYLA	2016/06	-674.685,00	-674.685,00
YAYLA	2016/09	-1.200.941,00	-1.200.941,00
YAYLA	2016/12	564.873,00	451.898,40
YAYLA	2017/03	-79.220,00	-79.220,00
YAYLA	2017/06	-135.660,00	-135.660,00
YAYLA	2017/09	-2.732.648,00	-2.732.648,00
YAYLA	2017/12	-10.184.999,00	-10.184.999,00
YAYLA	2018/03	-2.092.483,00	-2.092.483,00
YAYLA	2018/06	2.593.474,00	2.022.909,72
YAYLA	2018/09	2.164.990,00	1.688.692,20
YAYLA	2018/12	-6.303.453,00	-6.303.453,00
YAYLA	2019/03	1.538.612,00	1.200.117,36
YAYLA	2019/06	711.552,00	555.010,56
YAYLA	2019/09	1.050.127,00	819.099,06
YAYLA	2019/12	-454.527,00	-454.527,00
YAYLA	2020/03	1.829.989,00	1.427.391,42
YAYLA	2020/06	1.023.552,00	798.370,56
YAYLA	2020/09	-1.119.868,00	-1.119.868,00
YAYLA	2020/12	-5.265.976,00	-5.265.976,00

STOCK CODE	PERIOD	OPERATING INCOME/EBIT	NOPLAT
YYAPI	2015/03	926.970,00	741.576,00
YYAPI	2015/06	52.801.707,00	42.241.365,60
YYAPI	2015/09	56.083.007,00	44.866.405,60
YYAPI	2015/12	44.836.236,00	35.868.988,80
YYAPI	2016/03	3.887.950,00	3.110.360,00
YYAPI	2016/06	13.684.815,00	10.947.852,00
YYAPI	2016/09	8.281.635,00	6.625.308,00
YYAPI	2016/12	1.238.561,00	990.848,80
YYAPI	2017/03	-1.859.523,00	-1.859.523,00
YYAPI	2017/06	2.679.680,00	2.143.744,00
YYAPI	2017/09	676.054,00	540.843,20
YYAPI	2017/12	-16.071.133,00	-16.071.133,00
YYAPI	2018/03	-3.494.590,00	-3.494.590,00
YYAPI	2018/06	15.166.004,00	11.829.483,12
YYAPI	2018/09	21.532.769,00	16.795.559,82
YYAPI	2018/12	15.912.332,00	12.411.618,96
YYAPI	2019/03	124.040,00	96.751,20
YYAPI	2019/06	-16.258.968,00	-16.258.968,00
YYAPI	2019/09	-17.117.177,00	-17.117.177,00
YYAPI	2019/12	-70.006.944,00	-70.006.944,00
YYAPI	2020/03	20.953.712,00	16.343.895,36
YYAPI	2020/06	20.294.714,00	15.829.876,92
YYAPI	2020/09	19.912.241,00	15.531.547,98
YYAPI	2020/12	-7.791.692,00	-7.791.692,00

STOCK CODE	PERIOD	OPERATING INCOME/EBIT	NOPLAT
CLEBI	2015/03	8.549.535,00	6.839.628,00
CLEBI	2015/06	38.533.763,00	30.827.010,40
CLEBI	2015/09	112.979.556,00	90.383.644,80
CLEBI	2015/12	121.272.860,00	97.018.288,00
CLEBI	2016/03	11.538.170,00	9.230.536,00
CLEBI	2016/06	23.284.219,00	18.627.375,20
CLEBI	2016/09	59.440.093,00	47.552.074,40
CLEBI	2016/12	59.777.676,00	47.822.140,80
CLEBI	2017/03	11.283.926,00	9.027.140,80
CLEBI	2017/06	47.986.952,00	38.389.561,60
CLEBI	2017/09	126.569.140,00	101.255.312,00
CLEBI	2017/12	148.362.023,00	118.689.618,40
CLEBI	2018/03	26.000.506,00	20.280.394,68
CLEBI	2018/06	90.856.480,00	70.868.054,40
CLEBI	2018/09	273.660.227,00	213.454.977,06
CLEBI	2018/12	275.930.515,00	215.225.801,70
CLEBI	2019/03	44.997.903,00	35.098.364,34
CLEBI	2019/06	133.190.884,00	103.888.889,52
CLEBI	2019/09	244.428.549,00	190.654.268,22
CLEBI	2019/12	295.423.078,00	230.430.000,84
CLEBI	2020/03	49.017.596,00	38.233.724,88
CLEBI	2020/06	19.249.595,00	15.014.684,10
CLEBI	2020/09	142.024.020,00	110.778.735,60
CLEBI	2020/12	205.735.543,00	160.473.723,54
DOCO	2015/03	66.910.000,00	53.528.000,00
DOCO	2015/06	161.210.000,00	128.968.000,00
DOCO	2015/09	259.180.000,00	207.344.000,00
DOCO	2015/12	363.330.000,00	290.664.000,00
DOCO	2016/03	94.550.000,00	75.640.000,00
DOCO	2016/06	218.820.000,00	175.056.000,00
DOCO	2016/09	223.530.000,00	178.824.000,00
DOCO	2016/12	458.380.000,00	366.704.000,00
DOCO	2017/03	98.020.000,00	78.416.000,00
DOCO	2017/06	298.510.000,00	238.808.000,00
DOCO	2017/09	382.800.000,00	306.240.000,00
DOCO	2017/12	504.700.000,00	403.760.000,00
DOCO	2018/03	123.510.000,00	96.337.800,00
DOCO	2018/06	251.290.000,00	196.006.200,00
DOCO	2018/09	408.360.000,00	318.520.800,00
DOCO	2018/12	576.490.000,00	449.662.200,00
DOCO	2019/03	212.230.000,00	165.539.400,00
DOCO	2019/06	550.690.000,00	429.538.200,00
DOCO	2019/09	799.310.000,00	623.461.800,00
DOCO	2019/12	686.340.000,00	535.345.200,00
DOCO	2020/03	-56.980.000,00	-56.980.000,00
DOCO	2020/06	68.050.000,00	53.079.000,00
DOCO	2020/09	241.430.000,00	188.315.400,00
DOCO	2020/12	426.740.000,00	332.857.200,00

STOCK CODE	PERIOD	OPERATING INCOME/EBIT	NOPLAT
GSDDE	2015/03	398.000,00	318.400,00
GSDDE	2015/06	-2.631.000,00	-2.631.000,00
GSDDE	2015/09	-4.318.000,00	-4.318.000,00
GSDDE	2015/12	-6.326.000,00	-6.326.000,00
GSDDE	2016/03	-4.129.000,00	-4.129.000,00
GSDDE	2016/06	-6.421.000,00	-6.421.000,00
GSDDE	2016/09	-7.862.000,00	-7.862.000,00
GSDDE	2016/12	-9.291.000,00	-9.291.000,00
GSDDE	2017/03	290.000,00	232.000,00
GSDDE	2017/06	-195.000,00	-195.000,00
GSDDE	2017/09	-2.069.000,00	-2.069.000,00
GSDDE	2017/12	3.939.000,00	3.151.200,00
GSDDE	2018/03	2.110.000,00	1.645.800,00
GSDDE	2018/06	4.345.000,00	3.389.100,00
GSDDE	2018/09	14.823.000,00	11.561.940,00
GSDDE	2018/12	18.531.000,00	14.454.180,00
GSDDE	2019/03	2.509.000,00	1.957.020,00
GSDDE	2019/06	2.859.000,00	2.230.020,00
GSDDE	2019/09	3.916.000,00	3.054.480,00
GSDDE	2019/12	5.925.000,00	4.621.500,00
GSDDE	2020/03	-2.115.000,00	-2.115.000,00
GSDDE	2020/06	-7.174.000,00	-7.174.000,00
GSDDE	2020/09	-8.006.000,00	-8.006.000,00
GSDDE	2020/12	-5.364.000,00	-5.364.000,00
PGSUS	2015/03	-10.916.128,00	-10.916.128,00
PGSUS	2015/06	-47.970.757,00	-47.970.757,00
PGSUS	2015/09	280.339.655,00	224.271.724,00
PGSUS	2015/12	269.357.082,00	215.485.665,60
PGSUS	2016/03	-205.893.307,00	-205.893.307,00
PGSUS	2016/06	-285.398.673,00	-285.398.673,00
PGSUS	2016/09	-4.994.546,00	-4.994.546,00
PGSUS	2016/12	-105.954.803,00	-105.954.803,00
PGSUS	2017/03	-202.058.502,00	-202.058.502,00
PGSUS	2017/06	-167.431.789,00	-167.431.789,00
PGSUS	2017/09	556.171.496,00	444.937.196,80
PGSUS	2017/12	461.742.202,00	369.393.761,60
PGSUS	2018/03	-132.169.187,00	-132.169.187,00
PGSUS	2018/06	19.489.063,00	15.201.469,14
PGSUS	2018/09	781.697.485,00	609.724.038,30
PGSUS	2018/12	791.721.574,00	617.542.827,72
PGSUS	2019/03	-55.595.749,00	-55.595.749,00
PGSUS	2019/06	349.375.395,00	272.512.808,10
PGSUS	2019/09	1.879.084.262,00	1.465.685.724,36
PGSUS	2019/12	2.061.983.008,00	1.608.346.746,24
PGSUS	2020/03	-229.414.023,00	-229.414.023,00
PGSUS	2020/06	-1.024.157.454,00	-1.024.157.454,00
PGSUS	2020/09	-1.021.477.376,00	-1.021.477.376,00
PGSUS	2020/12	-1.360.923.789,00	-1.360.923.789,00

STOCK CODE	PERIOD	OPERATING INCOME/EBIT	NOPLAT
RYSAS	2015/03	12.061.886,00	9.649.508,80
RYSAS	2015/06	27.534.398,00	22.027.518,40
RYSAS	2015/09	40.323.025,00	32.258.420,00
RYSAS	2015/12	50.314.191,00	40.251.352,80
RYSAS	2016/03	13.896.813,00	11.117.450,40
RYSAS	2016/06	29.799.663,00	23.839.730,40
RYSAS	2016/09	52.669.077,00	42.135.261,60
RYSAS	2016/12	60.843.704,00	48.674.963,20
RYSAS	2017/03	28.200.147,00	22.560.117,60
RYSAS	2017/06	58.396.607,00	46.717.285,60
RYSAS	2017/09	85.662.562,00	68.530.049,60
RYSAS	2017/12	110.942.909,00	88.754.327,20
RYSAS	2018/03	27.770.513,00	21.661.000,14
RYSAS	2018/06	50.533.533,00	39.416.155,74
RYSAS	2018/09	94.077.145,00	73.380.173,10
RYSAS	2018/12	155.546.749,00	121.326.464,22
RYSAS	2019/03	43.378.660,00	33.835.354,80
RYSAS	2019/06	95.889.724,00	74.793.984,72
RYSAS	2019/09	147.026.015,00	114.680.291,70
RYSAS	2019/12	203.162.694,00	158.466.901,32
RYSAS	2020/03	56.625.958,00	44.168.247,24
RYSAS	2020/06	103.317.387,00	80.587.561,86
RYSAS	2020/09	175.870.033,00	137.178.625,74
RYSAS	2020/12	255.614.885,00	199.379.610,30
TCELL	2015/03	1.102.964.000,00	882.371.200,00
TCELL	2015/06	1.842.415.000,00	1.473.932.000,00
TCELL	2015/09	2.794.806.000,00	2.235.844.800,00
TCELL	2015/12	3.400.659.000,00	2.720.527.200,00
TCELL	2016/03	767.636.000,00	614.108.800,00
TCELL	2016/06	1.375.860.000,00	1.100.688.000,00
TCELL	2016/09	2.138.640.000,00	1.710.912.000,00
TCELL	2016/12	3.450.746.000,00	2.760.596.800,00
TCELL	2017/03	1.030.720.000,00	824.576.000,00
TCELL	2017/06	1.885.123.000,00	1.508.098.400,00
TCELL	2017/09	3.055.548.000,00	2.444.438.400,00
TCELL	2017/12	3.745.603.000,00	2.996.482.400,00
TCELL	2018/03	1.236.466.000,00	964.443.480,00
TCELL	2018/06	3.010.186.000,00	2.347.945.080,00
TCELL	2018/09	5.706.628.000,00	4.451.169.840,00
TCELL	2018/12	6.238.822.000,00	4.866.281.160,00
TCELL	2019/03	1.576.611.000,00	1.229.756.580,00
TCELL	2019/06	3.289.392.000,00	2.565.725.760,00
TCELL	2019/09	4.660.344.000,00	3.635.068.320,00
TCELL	2019/12	6.596.452.000,00	5.145.232.560,00
TCELL	2020/03	2.183.653.000,00	1.703.249.340,00
TCELL	2020/06	4.055.156.000,00	3.163.021.680,00
TCELL	2020/09	7.079.046.000,00	5.521.655.880,00
TCELL	2020/12	8.188.484.000,00	6.387.017.520,00

STOCK CODE	PERIOD	OPERATING INCOME/EBIT	NOPLAT
THYAO	2015/03	42.000.000,00	33.600.000,00
THYAO	2015/06	517.000.000,00	413.600.000,00
THYAO	2015/09	2.523.000.000,00	2.018.400.000,00
THYAO	2015/12	2.486.000.000,00	1.988.800.000,00
THYAO	2016/03	-630.000.000,00	-630.000.000,00
THYAO	2016/06	-1.206.000.000,00	-1.206.000.000,00
THYAO	2016/09	-444.000.000,00	-444.000.000,00
THYAO	2016/12	-865.000.000,00	-865.000.000,00
THYAO	2017/03	-664.000.000,00	-664.000.000,00
THYAO	2017/06	39.000.000,00	31.200.000,00
THYAO	2017/09	3.339.000.000,00	2.671.200.000,00
THYAO	2017/12	3.568.000.000,00	2.854.400.000,00
THYAO	2018/03	156.000.000,00	121.680.000,00
THYAO	2018/06	1.081.000.000,00	843.180.000,00
THYAO	2018/09	5.949.000.000,00	4.640.220.000,00
THYAO	2018/12	6.192.000.000,00	4.829.760.000,00
THYAO	2019/03	-809.000.000,00	-809.000.000,00
THYAO	2019/06	-735.000.000,00	-735.000.000,00
THYAO	2019/09	3.079.000.000,00	2.401.620.000,00
THYAO	2019/12	5.042.000.000,00	3.932.760.000,00
THYAO	2020/03	-2.005.000.000,00	-2.005.000.000,00
THYAO	2020/06	-2.812.000.000,00	-2.812.000.000,00
THYAO	2020/09	-2.272.000.000,00	-2.272.000.000,00
THYAO	2020/12	-1.382.000.000,00	-1.382.000.000,00
TTKOM	2015/03	766.143.000,00	612.914.400,00
TTKOM	2015/06	1.554.667.000,00	1.243.733.600,00
TTKOM	2015/09	645.547.000,00	516.437.600,00
TTKOM	2015/12	3.039.488.000,00	2.431.590.400,00
TTKOM	2016/03	574.125.000,00	459.300.000,00
TTKOM	2016/06	1.175.648.000,00	940.518.400,00
TTKOM	2016/09	1.821.195.000,00	1.456.956.000,00
TTKOM	2016/12	2.139.984.000,00	1.711.987.200,00
TTKOM	2017/03	851.205.000,00	680.964.000,00
TTKOM	2017/06	1.859.294.000,00	1.487.435.200,00
TTKOM	2017/09	2.892.807.000,00	2.314.245.600,00
TTKOM	2017/12	3.624.465.000,00	2.899.572.000,00
TTKOM	2018/03	1.108.053.000,00	864.281.340,00
TTKOM	2018/06	2.096.697.000,00	1.635.423.660,00
TTKOM	2018/09	3.168.185.000,00	2.471.184.300,00
TTKOM	2018/12	4.578.245.000,00	3.571.031.100,00
TTKOM	2019/03	1.429.811.000,00	1.115.252.580,00
TTKOM	2019/06	2.933.161.000,00	2.287.865.580,00
TTKOM	2019/09	4.747.899.000,00	3.703.361.220,00
TTKOM	2019/12	6.248.419.000,00	4.873.766.820,00
TTKOM	2020/03	1.528.205.000,00	1.191.999.900,00
TTKOM	2020/06	3.381.983.000,00	2.637.946.740,00
TTKOM	2020/09	5.294.451.000,00	4.129.671.780,00
TTKOM	2020/12	7.463.514.000,00	5.821.540.920,00

APPENDIX B

Risk-free Interest Rate (Rf)									
Period	Interest Rate (Rf)	Quarter	Month	Year	Period	Interest Rate (Rf)	Quarter	Month	Year
2020-12	13,51%	Q4	12	2020	2017-12	13,53%	Q4	12	2017
2020-11	10,57%	Q4	11	2020	2017-11	13,53%	Q4	11	2017
2020-10	10,02%	Q4	10	2020	2017-10	13,50%	Q4	10	2017
2020-09	8,66%	Q3	09	2020	2017-09	13,37%	Q3	09	2017
2020-08	8,73%	Q3	08	2020	2017-08	13,21%	Q3	08	2017
2020-07	8,96%	Q3	07	2020	2017-07	12,90%	Q3	07	2017
2020-06	9,52%	Q2	06	2020	2017-06	12,39%	Q2	06	2017
2020-05	10,15%	Q2	05	2020	2017-05	11,71%	Q2	05	2017
2020-04	10,78%	Q2	04	2020	2017-04	11,12%	Q2	04	2017
2020-03	11,58%	Q1	03	2020	2017-03	10,71%	Q1	03	2017
2020-02	12,72%	Q1	02	2020	2017-02	10,42%	Q1	02	2017
2020-01	13,25%	Q1	01	2020	2017-01	10,34%	Q1	01	2017
2019-12	14,56%	Q4	12	2019	2016-12	10,33%	Q4	12	2016
2019-11	17,42%	Q4	11	2019	2016-11	10,17%	Q4	11	2016
2019-10	18,48%	Q4	10	2019	2016-10	10,21%	Q4	10	2016
2019-09	20,13%	Q3	09	2019	2016-09	10,57%	Q3	09	2016
2019-08	21,10%	Q3	08	2019	2016-08	10,91%	Q3	08	2016
2019-07	21,42%	Q3	07	2019	2016-07	11,13%	Q3	07	2016
2019-06	21,74%	Q2	06	2019	2016-06	11,43%	Q2	06	2016
2019-05	22,23%	Q2	05	2019	2016-05	11,57%	Q2	05	2016
2019-04	22,96%	Q2	04	2019	2016-04	11,63%	Q2	04	2016
2019-03	23,77%	Q1	03	2019	2016-03	11,65%	Q1	03	2016
2019-02	23,73%	Q1	02	2019	2016-02	11,51%	Q1	02	2016
2019-01	23,24%	Q1	01	2019	2016-01	11,10%	Q1	01	2016
2018-12	22,31%	Q4	12	2018	2015-12	10,72%	Q4	12	2015
2018-11	21,34%	Q4	11	2018	2015-11	10,50%	Q4	11	2015
2018-10	18,99%	Q4	10	2018	2015-10	10,46%	Q4	10	2015
2018-09	16,77%	Q3	09	2018	2015-09	10,38%	Q3	09	2015
2018-08	15,65%	Q3	08	2018	2015-08	10,17%	Q3	08	2015
2018-07	15,19%	Q3	07	2018	2015-07	9,85%	Q3	07	2015
2018-06	14,86%	Q2	06	2018	2015-06	9,62%	Q2	06	2015
2018-05	13,91%	Q2	05	2018	2015-05	9,45%	Q2	05	2015
2018-04	13,80%	Q2	04	2018	2015-04	9,35%	Q2	04	2015
2018-03	13,70%	Q1	03	2018	2015-03	9,30%	Q1	03	2015
2018-02	13,67%	Q1	02	2018	2015-02	9,25%	Q1	02	2015
2018-01	13,62%	Q1	01	2018	2015-01	9,23%	Q1	01	2015

Average Risk-free Interest Rate (Rf) (Quarterly)								
Average Interest Rate			Average Interest Rate			Average Interest Rate		
Year	Quarter	Average	Year	Quarter	Average	Year	Quarter	Average
2015	Q1	9,26%	2016	Q1	11,42%	2017	Q1	10,49%
	Q2	9,47%		Q2	11,54%		Q2	11,74%
	Q3	10,13%		Q3	10,87%		Q3	13,16%
	Q4	10,56%		Q4	10,24%		Q4	13,52%
Total 2015		9,86%	Total 2016		11,02%	Total 2017		12,23%

Average Risk-free Interest Rate (Rf) (Quarterly)								
Average Interest Rate			Average Interest Rate			Average Interest Rate		
Year	Quarter	Average	Year	Quarter	Average	Year	Quarter	Average
2018	Q1	13,66%	2019	Q1	23,58%	2020	Q1	12,52%
	Q2	14,19%		Q2	22,31%		Q2	10,15%
	Q3	15,87%		Q3	20,88%		Q3	8,78%
	Q4	20,88%		Q4	16,82%		Q4	11,37%
Total 2018		16,15%	Total 2019		20,90%	Total 2020		10,70%

NOTE: In this application, to get a quarterly risk-free interest rate, those steps stated below are followed:

1. After entering the main site of the "Central Bank of the Turkish Republic" (<https://www.tcmb.gov.tr/>), the route "Main Menu / Statistics / Interest Rate Statistics / Weighted Average Interest Rates for Deposits (Monthly, Stock) / Data" is followed.
2. The page indicates the monthly interest rate data, and these data can be transferred to Excel.
3. After transferring the data to Excel, the line "Up to 1 Year (TRY Deposits) " is selected, and monthly interest rates' average is calculated according to quarter period and noted as "Quarterly Interest Rate".

Data Link: <https://evds2.tcmb.gov.tr/index.php?/evds/portlet/lrcsQFWXtqo=/en>

APPENDIX C

Cost of Debt Rate (Rd)									
Year	Quarter	Month	Date (DD/MM/YY)	Interest Rate (Rd)	Year	Quarter	Month	Date (DD/MM/YY)	Interest Rate (Rd)
2020	Q4	12	25-12-2020	19,70%	2020	Q1	1	17-01-2020	11,92%
2020	Q4	12	18-12-2020	19,09%	2020	Q1	1	10-01-2020	11,71%
2020	Q4	12	11-12-2020	18,26%	2020	Q1	1	03-01-2020	13,00%
2020	Q4	12	04-12-2020	18,77%	2019	Q4	12	27-12-2019	12,62%
2020	Q4	11	27-11-2020	17,63%	2019	Q4	12	20-12-2019	13,65%
2020	Q4	11	20-11-2020	17,25%	2019	Q4	12	13-12-2019	13,86%
2020	Q4	11	13-11-2020	16,95%	2019	Q4	12	06-12-2019	14,06%
2020	Q4	11	06-11-2020	16,87%	2019	Q4	11	29-11-2019	13,54%
2020	Q4	10	30-10-2020	15,94%	2019	Q4	11	22-11-2019	13,96%
2020	Q4	10	23-10-2020	15,75%	2019	Q4	11	15-11-2019	12,72%
2020	Q4	10	16-10-2020	13,84%	2019	Q4	11	08-11-2019	14,50%
2020	Q4	10	09-10-2020	15,26%	2019	Q4	11	01-11-2019	15,21%
2020	Q4	10	02-10-2020	15,37%	2019	Q4	10	25-10-2019	14,81%
2020	Q3	9	25-09-2020	14,91%	2019	Q4	10	18-10-2019	16,25%
2020	Q3	9	18-09-2020	14,30%	2019	Q4	10	11-10-2019	15,48%
2020	Q3	9	11-09-2020	13,52%	2019	Q4	10	04-10-2019	16,89%
2020	Q3	9	04-09-2020	14,32%	2019	Q3	9	27-09-2019	15,49%
2020	Q3	8	28-08-2020	12,18%	2019	Q3	9	20-09-2019	17,65%
2020	Q3	8	21-08-2020	13,65%	2019	Q3	9	13-09-2019	18,90%
2020	Q3	8	14-08-2020	13,52%	2019	Q3	9	06-09-2019	20,30%
2020	Q3	8	07-08-2020	11,83%	2019	Q3	8	30-08-2019	20,07%
2020	Q3	7	31-07-2020	10,67%	2019	Q3	8	23-08-2019	20,33%
2020	Q3	7	24-07-2020	10,46%	2019	Q3	8	16-08-2019	15,48%
2020	Q3	7	17-07-2020	9,17%	2019	Q3	8	09-08-2019	20,86%
2020	Q3	7	10-07-2020	10,31%	2019	Q3	8	02-08-2019	21,96%
2020	Q3	7	03-07-2020	10,34%	2019	Q3	7	26-07-2019	20,08%
2020	Q2	6	26-06-2020	9,71%	2019	Q3	7	19-07-2019	24,05%
2020	Q2	6	19-06-2020	9,90%	2019	Q3	7	12-07-2019	25,43%
2020	Q2	6	12-06-2020	10,06%	2019	Q3	7	05-07-2019	26,22%
2020	Q2	6	05-06-2020	9,90%	2019	Q2	6	28-06-2019	27,31%
2020	Q2	5	29-05-2020	9,52%	2019	Q2	6	21-06-2019	27,23%
2020	Q2	5	22-05-2020	10,10%	2019	Q2	6	14-06-2019	27,62%
2020	Q2	5	15-05-2020	9,69%	2019	Q2	6	07-06-2019	27,86%
2020	Q2	5	08-05-2020	9,72%	2019	Q2	5	31-05-2019	26,89%
2020	Q2	5	01-05-2020	9,68%	2019	Q2	5	24-05-2019	27,96%
2020	Q2	4	24-04-2020	9,41%	2019	Q2	5	17-05-2019	25,40%
2020	Q2	4	17-04-2020	10,64%	2019	Q2	5	10-05-2019	27,03%
2020	Q2	4	10-04-2020	11,10%	2019	Q2	5	03-05-2019	26,95%
2020	Q2	4	03-04-2020	12,31%	2019	Q2	4	26-04-2019	22,10%
2020	Q1	3	27-03-2020	12,11%	2019	Q2	4	19-04-2019	26,53%
2020	Q1	3	20-03-2020	11,85%	2019	Q2	4	12-04-2019	24,91%
2020	Q1	3	13-03-2020	11,82%	2019	Q2	4	05-04-2019	25,42%
2020	Q1	3	06-03-2020	11,78%	2019	Q1	3	29-03-2019	24,41%
2020	Q1	2	28-02-2020	11,46%	2019	Q1	3	22-03-2019	23,22%
2020	Q1	2	21-02-2020	10,97%	2019	Q1	3	15-03-2019	21,30%
2020	Q1	2	14-02-2020	11,26%	2019	Q1	3	08-03-2019	23,14%
2020	Q1	2	07-02-2020	11,25%	2019	Q1	3	01-03-2019	23,31%
2020	Q1	1	31-01-2020	11,14%	2019	Q1	2	22-02-2019	23,31%
2020	Q1	1	24-01-2020	11,52%	2019	Q1	2	15-02-2019	21,54%

Cost of Debt Rate (Rd)									
Year	Quarter	Month	Date (DD/MM/YY)	Interest Rate (Rd)	Year	Quarter	Month	Date (DD/MM/YY)	Interest Rate (Rd)
2019	Q1	2	08-02-2019	24,19%	2018	Q1	2	23-02-2018	17,94%
2019	Q1	2	01-02-2019	24,62%	2018	Q1	2	16-02-2018	16,56%
2019	Q1	1	25-01-2019	24,81%	2018	Q1	2	09-02-2018	18,10%
2019	Q1	1	18-01-2019	26,86%	2018	Q1	2	02-02-2018	18,02%
2019	Q1	1	11-01-2019	26,01%	2018	Q1	1	26-01-2018	15,04%
2019	Q1	1	04-01-2019	27,62%	2018	Q1	1	19-01-2018	17,78%
2018	Q4	12	28-12-2018	27,24%	2018	Q1	1	12-01-2018	17,76%
2018	Q4	12	21-12-2018	27,80%	2018	Q1	1	05-01-2018	18,05%
2018	Q4	12	14-12-2018	28,81%	2017	Q4	12	29-12-2017	17,65%
2018	Q4	12	07-12-2018	29,20%	2017	Q4	12	22-12-2017	17,39%
2018	Q4	11	30-11-2018	28,59%	2017	Q4	12	15-12-2017	15,78%
2018	Q4	11	23-11-2018	29,88%	2017	Q4	12	08-12-2017	17,28%
2018	Q4	11	16-11-2018	26,43%	2017	Q4	12	01-12-2017	17,22%
2018	Q4	11	09-11-2018	31,88%	2017	Q4	11	24-11-2017	16,83%
2018	Q4	11	02-11-2018	32,13%	2017	Q4	11	17-11-2017	15,55%
2018	Q4	10	26-10-2018	28,49%	2017	Q4	11	10-11-2017	16,31%
2018	Q4	10	19-10-2018	34,31%	2017	Q4	11	03-11-2017	17,10%
2018	Q4	10	12-10-2018	35,36%	2017	Q4	10	27-10-2017	15,07%
2018	Q4	10	05-10-2018	34,99%	2017	Q4	10	20-10-2017	16,86%
2018	Q3	9	28-09-2018	35,85%	2017	Q4	10	13-10-2017	16,88%
2018	Q3	9	21-09-2018	35,36%	2017	Q4	10	06-10-2017	16,98%
2018	Q3	9	14-09-2018	34,15%	2017	Q3	9	29-09-2017	16,74%
2018	Q3	9	07-09-2018	32,56%	2017	Q3	9	22-09-2017	16,79%
2018	Q3	8	31-08-2018	32,22%	2017	Q3	9	15-09-2017	14,98%
2018	Q3	8	24-08-2018	28,79%	2017	Q3	9	08-09-2017	17,15%
2018	Q3	8	17-08-2018	28,89%	2017	Q3	9	01-09-2017	17,29%
2018	Q3	8	10-08-2018	25,97%	2017	Q3	8	25-08-2017	16,11%
2018	Q3	8	03-08-2018	25,00%	2017	Q3	8	18-08-2017	15,69%
2018	Q3	7	27-07-2018	21,58%	2017	Q3	8	11-08-2017	15,72%
2018	Q3	7	20-07-2018	24,30%	2017	Q3	8	04-08-2017	17,08%
2018	Q3	7	13-07-2018	23,98%	2017	Q3	7	28-07-2017	16,90%
2018	Q3	7	06-07-2018	23,94%	2017	Q3	7	21-07-2017	16,94%
2018	Q2	6	29-06-2018	23,52%	2017	Q3	7	14-07-2017	17,13%
2018	Q2	6	22-06-2018	23,56%	2017	Q3	7	07-07-2017	17,03%
2018	Q2	6	15-06-2018	22,72%	2017	Q2	6	30-06-2017	16,42%
2018	Q2	6	08-06-2018	21,28%	2017	Q2	6	23-06-2017	16,58%
2018	Q2	6	01-06-2018	21,28%	2017	Q2	6	16-06-2017	15,35%
2018	Q2	5	25-05-2018	19,53%	2017	Q2	6	09-06-2017	16,69%
2018	Q2	5	18-05-2018	17,02%	2017	Q2	6	02-06-2017	16,60%
2018	Q2	5	11-05-2018	17,23%	2017	Q2	5	26-05-2017	14,03%
2018	Q2	5	04-05-2018	18,19%	2017	Q2	5	19-05-2017	15,42%
2018	Q2	4	27-04-2018	16,25%	2017	Q2	5	12-05-2017	16,16%
2018	Q2	4	20-04-2018	17,60%	2017	Q2	5	05-05-2017	16,40%
2018	Q2	4	13-04-2018	17,52%	2017	Q2	4	28-04-2017	15,78%
2018	Q2	4	06-04-2018	17,79%	2017	Q2	4	21-04-2017	15,70%
2018	Q1	3	30-03-2018	17,88%	2017	Q2	4	14-04-2017	15,51%
2018	Q1	3	23-03-2018	17,67%	2017	Q2	4	07-04-2017	15,46%
2018	Q1	3	16-03-2018	16,56%	2017	Q1	3	31-03-2017	15,24%
2018	Q1	3	09-03-2018	17,82%	2017	Q1	3	24-03-2017	15,51%
2018	Q1	3	02-03-2018	18,13%	2017	Q1	3	17-03-2017	15,35%

Cost of Debt Rate (Rd)									
Year	Quarter	Month	Date (DD/MM/YY)	Interest Rate (Rd)	Year	Quarter	Month	Date (DD/MM/YY)	Interest Rate (Rd)
2017	Q1	3	10-03-2017	15,00%	2016	Q1	3	25-03-2016	16,10%
2017	Q1	3	03-03-2017	15,50%	2016	Q1	3	18-03-2016	16,86%
2017	Q1	2	24-02-2017	15,02%	2016	Q1	3	11-03-2016	15,94%
2017	Q1	2	17-02-2017	13,97%	2016	Q1	3	04-03-2016	16,63%
2017	Q1	2	10-02-2017	14,71%	2016	Q1	2	26-02-2016	14,40%
2017	Q1	2	03-02-2017	15,08%	2016	Q1	2	19-02-2016	16,72%
2017	Q1	1	27-01-2017	13,25%	2016	Q1	2	12-02-2016	16,49%
2017	Q1	1	20-01-2017	14,45%	2016	Q1	2	05-02-2016	16,33%
2017	Q1	1	13-01-2017	14,12%	2016	Q1	1	29-01-2016	16,05%
2017	Q1	1	06-01-2017	14,01%	2016	Q1	1	22-01-2016	15,87%
2016	Q4	12	30-12-2016	14,53%	2016	Q1	1	15-01-2016	14,31%
2016	Q4	12	23-12-2016	14,15%	2016	Q1	1	08-01-2016	16,28%
2016	Q4	12	16-12-2016	13,55%	2016	Q1	1	01-01-2016	16,02%
2016	Q4	12	09-12-2016	14,48%	2015	Q4	12	25-12-2015	15,78%
2016	Q4	12	02-12-2016	14,66%	2015	Q4	12	18-12-2015	16,10%
2016	Q4	11	25-11-2016	13,93%	2015	Q4	12	11-12-2015	15,04%
2016	Q4	11	18-11-2016	13,77%	2015	Q4	12	04-12-2015	15,85%
2016	Q4	11	11-11-2016	13,55%	2015	Q4	11	27-11-2015	13,98%
2016	Q4	11	04-11-2016	14,74%	2015	Q4	11	20-11-2015	15,86%
2016	Q4	10	28-10-2016	14,59%	2015	Q4	11	13-11-2015	15,88%
2016	Q4	10	21-10-2016	14,48%	2015	Q4	11	06-11-2015	16,04%
2016	Q4	10	14-10-2016	15,02%	2015	Q4	10	30-10-2015	16,23%
2016	Q4	10	07-10-2016	15,04%	2015	Q4	10	23-10-2015	15,73%
2016	Q3	9	30-09-2016	14,71%	2015	Q4	10	16-10-2015	14,81%
2016	Q3	9	23-09-2016	14,87%	2015	Q4	10	09-10-2015	16,13%
2016	Q3	9	16-09-2016	12,17%	2015	Q4	10	02-10-2015	16,34%
2016	Q3	9	09-09-2016	15,01%	2015	Q3	9	25-09-2015	17,01%
2016	Q3	9	02-09-2016	15,50%	2015	Q3	9	18-09-2015	15,71%
2016	Q3	8	26-08-2016	12,71%	2015	Q3	9	11-09-2015	14,57%
2016	Q3	8	19-08-2016	15,06%	2015	Q3	9	04-09-2015	15,36%
2016	Q3	8	12-08-2016	15,50%	2015	Q3	8	28-08-2015	14,96%
2016	Q3	8	05-08-2016	15,42%	2015	Q3	8	21-08-2015	14,64%
2016	Q3	7	29-07-2016	15,17%	2015	Q3	8	14-08-2015	14,61%
2016	Q3	7	22-07-2016	14,94%	2015	Q3	8	07-08-2015	14,43%
2016	Q3	7	15-07-2016	14,00%	2015	Q3	7	31-07-2015	11,21%
2016	Q3	7	08-07-2016	16,56%	2015	Q3	7	24-07-2015	14,01%
2016	Q3	7	01-07-2016	15,31%	2015	Q3	7	17-07-2015	14,76%
2016	Q2	6	24-06-2016	15,06%	2015	Q3	7	10-07-2015	14,14%
2016	Q2	6	17-06-2016	15,43%	2015	Q3	7	03-07-2015	14,32%
2016	Q2	6	10-06-2016	14,96%	2015	Q2	6	26-06-2015	11,85%
2016	Q2	6	03-06-2016	15,82%	2015	Q2	6	19-06-2015	14,49%
2016	Q2	5	27-05-2016	13,95%	2015	Q2	6	12-06-2015	14,17%
2016	Q2	5	20-05-2016	15,90%	2015	Q2	6	05-06-2015	13,78%
2016	Q2	5	13-05-2016	16,18%	2015	Q2	5	29-05-2015	13,39%
2016	Q2	5	06-05-2016	15,96%	2015	Q2	5	22-05-2015	13,49%
2016	Q2	4	29-04-2016	15,68%	2015	Q2	5	15-05-2015	12,51%
2016	Q2	4	22-04-2016	15,96%	2015	Q2	5	08-05-2015	13,99%
2016	Q2	4	15-04-2016	15,17%	2015	Q2	5	01-05-2015	13,10%
2016	Q2	4	08-04-2016	16,42%	2015	Q2	4	24-04-2015	13,28%
2016	Q2	4	01-04-2016	16,63%	2015	Q2	4	17-04-2015	12,94%
2015	Q2	4	10-04-2015	13,15%	2015	Q1	2	13-02-2015	12,95%
2015	Q2	4	03-04-2015	13,39%	2015	Q1	2	06-02-2015	12,99%
2015	Q1	3	27-03-2015	11,78%	2015	Q1	1	30-01-2015	12,72%
2015	Q1	3	20-03-2015	13,21%	2015	Q1	1	23-01-2015	13,15%
2015	Q1	3	13-03-2015	13,28%	2015	Q1	1	16-01-2015	11,62%
2015	Q1	3	06-03-2015	13,05%	2015	Q1	1	09-01-2015	13,29%
2015	Q1	2	27-02-2015	11,89%	2015	Q1	1	02-01-2015	13,05%
2015	Q1	2	20-02-2015	13,00%					

Average Cost of Debt Rate (R_d) (Quarterly)

Average Interest Rate			Average Interest Rate		
Year	Quarter	Average	Year	Quarter	Average
2015	Q1	12,77%	2016	Q1	16,00%
	Q2	13,35%		Q2	15,62%
	Q3	14,59%		Q3	14,78%
	Q4	15,67%		Q4	14,35%
Total 2015		14,10%	Total 2016		15,18%

Average Interest Rate			Average Interest Rate		
Year	Quarter	Average	Year	Quarter	Average
2017	Q1	14,71%	2018	Q1	17,49%
	Q2	15,85%		Q2	19,50%
	Q3	16,58%		Q3	28,66%
	Q4	16,68%		Q4	30,39%
Total 2017		15,96%	Total 2018		24,01%

Average Interest Rate			Average Interest Rate		
Year	Quarter	Average	Year	Quarter	Average
2019	Q1	24,18%	2020	Q1	11,68%
	Q2	26,40%		Q2	10,13%
	Q3	20,52%		Q3	12,24%
	Q4	14,43%		Q4	16,98%
Total 2019		21,38%	Total 2020		12,76%

NOTE: In this application, to get the quarterly cost of debt interest rate, those steps stated below are followed:

1. After entering the main site of the "Central Bank of the Turkish Republic" (<https://www.tcmb.gov.tr/>), the route "Main Menu / Statistics / Interest Rate Statistics / Weighted Average Interest Rates for Banks' Loans / Data" is followed.
2. The page indicates the monthly interest rate data, and these data can be transferred to Excel.
3. After transferring the data to Excel, the line "Commercial (TRY) (Flow Data, %)" is selected, and weekly interest rates' average is calculated according to quarter period and noted as "Quarterly Interest Rate".

Data

Link: <https://evds2.tcmb.gov.tr/index.php?/evds/portlet/K24NEG9DQ1s%3D/en>

APPENDIX D

STOCK CODE	PERIOD	Market Value of the Firm's Equity (E)	Cost of Equity (R _e)	r _f	r _m	β	CURRENT LIABILITIES (1)	NON CURRENT LIABILITIES (2)	Market Value of the Firm's Debt (D) (1+2)	Cost of Debt (R _d)	Total Market Value of the Firm's Financing (V=E+D)	WACC
ANELE	2015/03	349,104,199,00	7,66%	9,26%	7,00%	0,71	451,396,606,00	287,872,360,00	739,268,966,00	12,77%	1,088,373,165,00	9,39%
ANELE	2015/06	356,815,341,00	7,72%	9,47%	7,00%	0,71	435,854,177,00	273,077,611,00	708,931,788,00	13,35%	1,065,847,129,00	9,69%
ANELE	2015/09	400,978,957,00	7,91%	10,13%	7,00%	0,71	446,277,405,00	287,247,941,00	733,525,346,00	14,59%	1,134,504,303,00	10,34%
ANELE	2015/12	300,654,087,00	8,03%	10,56%	7,00%	0,71	490,115,863,00	31,124,353,00	521,240,216,00	15,67%	821,894,303,00	10,89%
ANELE	2016/03	360,299,065,00	8,28%	11,42%	7,00%	0,71	498,748,794,00	123,256,067,00	622,004,861,00	16,00%	982,303,926,00	11,14%
ANELE	2016/06	372,387,466,00	8,32%	11,54%	7,00%	0,71	513,465,200,00	119,092,937,00	632,558,137,00	15,62%	1,004,945,603,00	10,95%
ANELE	2016/09	380,987,646,00	8,12%	10,87%	7,00%	0,71	531,004,747,00	127,248,374,00	658,253,121,00	14,78%	1,039,240,767,00	10,47%
ANELE	2016/12	322,255,691,00	7,94%	10,24%	7,00%	0,71	650,356,184,00	37,614,054,00	687,970,238,00	14,35%	1,010,225,999,00	10,35%
ANELE	2017/03	393,015,697,00	8,01%	10,49%	7,00%	0,71	629,903,938,00	141,063,676,00	770,967,614,00	14,71%	1,165,983,311,00	10,49%
ANELE	2017/06	358,707,939,00	8,37%	11,74%	7,00%	0,71	618,336,618,00	37,131,258,00	655,967,876,00	15,85%	1,014,675,815,00	11,16%
ANELE	2017/09	368,731,404,00	8,79%	13,16%	7,00%	0,71	588,305,788,00	37,691,995,00	625,997,783,00	16,58%	994,729,187,00	11,60%
ANELE	2017/12	414,331,430,00	8,89%	13,52%	7,00%	0,71	541,935,565,00	121,851,445,00	663,787,008,00	16,68%	1,078,118,438,00	11,63%
ANELE	2018/03	415,112,639,00	8,93%	13,66%	7,00%	0,71	516,338,665,00	45,664,431,00	562,303,096,00	17,49%	977,415,755,00	11,64%
ANELE	2018/06	467,830,940,00	9,09%	14,19%	7,00%	0,71	516,560,680,00	52,325,753,00	569,086,433,00	19,50%	1,038,917,373,00	12,45%
ANELE	2018/09	586,466,528,00	9,57%	15,87%	7,00%	0,71	626,286,088,00	77,661,494,00	703,947,582,00	28,66%	1,290,414,110,00	16,55%
ANELE	2018/12	516,632,139,00	11,03%	20,88%	7,00%	0,71	627,001,367,00	148,788,335,00	775,789,702,00	30,39%	1,292,421,841,00	18,64%
ANELE	2019/03	500,172,485,00	11,81%	23,58%	7,00%	0,71	638,072,998,00	54,630,092,00	692,693,090,00	24,18%	1,192,865,575,00	15,90%
ANELE	2019/06	505,320,766,00	11,44%	22,31%	7,00%	0,71	616,639,008,00	50,599,431,00	667,238,439,00	26,40%	1,172,559,205,00	16,65%
ANELE	2019/09	501,831,171,00	11,03%	20,88%	7,00%	0,71	684,381,622,00	44,695,281,00	728,976,906,00	20,52%	1,230,808,077,00	13,98%
ANELE	2019/12	507,529,697,00	9,85%	16,82%	7,00%	0,71	768,425,086,00	163,186,710,00	931,611,796,00	14,43%	1,439,141,493,00	10,76%
ANELE	2020/03	546,486,736,00	8,60%	12,52%	7,00%	0,71	822,869,228,00	119,895,123,00	942,764,350,00	11,68%	1,489,251,086,00	8,92%
ANELE	2020/06	561,140,696,00	7,91%	10,15%	7,00%	0,71	846,304,840,00	112,841,954,00	959,146,794,00	10,13%	1,520,287,490,00	7,91%
ANELE	2020/09	508,611,238,00	7,52%	8,78%	7,00%	0,71	1,058,862,420,00	127,521,426,00	1,186,383,846,00	12,24%	1,694,995,084,00	8,94%
ANELE	2020/12	442,451,012,00	8,27%	11,37%	7,00%	0,71	1,034,189,723,00	141,345,563,00	1,175,535,286,00	16,98%	1,617,986,298,00	11,88%

STOCK CODE	PERIOD	Market Value of the Firm's Equity (E)	Cost of Equity (R_E)	r_f	r_m	β	CURRENT LIABILITIES (1)	NONCURRENT LIABILITIES (2)	Market Value of the Firm's Debt (D) (1+2)	Cost of Debt (Rd)	Total Market Value of the Firm's Financing (V=E+D)	WACC
EDIP	2015/03	220,694,561.00	6.91%	9.26%	7.00%	1.04	67,321,232.00	217,751,088.00	285,072,320.00	12.77%	505,766,881.00	8.77%
EDIP	2015/06	210,448,003.00	6.90%	9.47%	7.00%	1.04	69,877,241.00	222,623,476.00	292,500,717.00	13.35%	502,948,720.00	9.10%
EDIP	2015/09	184,522,584.00	6.87%	10.13%	7.00%	1.04	84,472,010.00	235,934,337.00	320,406,367.00	14.59%	504,928,951.00	9.92%
EDIP	2015/12	241,360,079.00	6.86%	10.56%	7.00%	1.04	74,260,578.00	254,036,577.00	328,297,155.00	15.67%	569,657,234.00	10.13%
EDIP	2016/03	241,664,779.00	6.82%	11.42%	7.00%	1.04	59,113,986.00	253,368,063.00	312,482,049.00	16.00%	554,146,828.00	10.19%
EDIP	2016/06	242,533,344.00	6.82%	11.54%	7.00%	1.04	58,197,047.00	250,877,220.00	309,074,267.00	15.62%	551,607,611.00	10.00%
EDIP	2016/09	233,712,690.00	6.85%	10.87%	7.00%	1.04	61,407,923.00	256,234,825.00	317,642,748.00	14.78%	551,355,438.00	9.71%
EDIP	2016/12	241,500,738.00	6.87%	10.24%	7.00%	1.04	266,401,576.00	77,241,404.00	343,642,980.00	14.35%	585,143,718.00	9.58%
EDIP	2017/03	230,235,861.00	6.86%	10.49%	7.00%	1.04	284,757,135.00	76,687,539.00	361,444,674.00	14.71%	591,680,335.00	9.86%
EDIP	2017/06	221,522,595.00	6.81%	11.74%	7.00%	1.04	32,658,589.00	340,769,427.00	373,428,016.00	15.85%	594,950,611.00	10.50%
EDIP	2017/09	225,130,034.00	6.75%	13.16%	7.00%	1.04	36,417,378.00	352,476,220.00	388,893,598.00	16.58%	614,023,632.00	10.88%
EDIP	2017/12	229,512,605.00	6.74%	13.52%	7.00%	1.04	32,651,248.00	352,276,384.00	394,927,632.00	16.68%	624,440,237.00	10.92%
EDIP	2018/03	209,148,554.00	6.73%	13.68%	7.00%	1.04	38,854,233.00	379,865,775.00	418,720,008.00	17.49%	627,868,562.00	11.34%
EDIP	2018/06	182,325,503.00	6.71%	14.19%	7.00%	1.04	42,221,298.00	403,061,318.00	445,282,616.00	19.50%	627,608,119.00	12.74%
EDIP	2018/09	82,753,481.00	6.65%	15.87%	7.00%	1.04	54,876,535.00	490,831,721.00	545,708,256.00	28.66%	628,461,737.00	20.29%
EDIP	2018/12	245,562,555.00	6.44%	20.88%	7.00%	1.04	49,118,076.00	463,158,694.00	512,276,770.00	30.39%	757,839,325.00	18.11%
EDIP	2019/03	228,862,989.00	6.34%	23.58%	7.00%	1.04	56,320,154.00	473,332,195.00	529,652,349.00	24.18%	758,515,338.00	15.08%
EDIP	2019/06	215,135,690.00	6.39%	22.31%	7.00%	1.04	43,093,192.00	499,480,428.00	542,573,620.00	26.40%	757,709,310.00	16.56%
EDIP	2019/09	237,977,213.00	6.44%	20.88%	7.00%	1.04	43,156,459.00	477,283,030.00	520,439,509.00	20.52%	758,416,722.00	13.01%
EDIP	2019/12	274,510,719.00	6.61%	16.82%	7.00%	1.04	44,520,386.00	519,526,501.00	564,046,887.00	14.43%	838,557,606.00	9.73%
EDIP	2020/03	239,631,033.00	6.78%	12.52%	7.00%	1.04	52,707,721.00	547,796,340.00	600,504,061.00	11.68%	840,135,094.00	8.44%
EDIP	2020/06	202,192,731.00	6.87%	10.15%	7.00%	1.04	68,529,242.00	569,192,344.00	637,721,566.00	10.13%	839,914,297.00	7.66%
EDIP	2020/09	111,117,317.00	6.93%	8.78%	7.00%	1.04	94,428,576.00	641,054,842.00	735,483,418.00	12.24%	846,600,735.00	9.21%
EDIP	2020/12	72,665,779.00	6.83%	11.37%	7.00%	1.04	38,289,413.00	678,675,977.00	716,965,390.00	16.98%	789,631,169.00	12.63%

STOCK CODE	PERIOD	Market Value of the Firm's Equity (E)	Cost of Equity (R _E)	r _f	r _m	β	CURRENT LIABILITIES (1)	NONCURRENT LIABILITIES (2)	Market Value of the Firm's Debt (D) (1+2)	Cost of Debt (R _D)	Total Market Value of the Firm's Financing (V=E+D)	WACC
ENKAI	2015/03	13,734,045,000,00	7,68%	9,26%	7,00%	0,7	3,378,233,000,00	3,160,842,000,00	6,539,175,000,00	12,77%	20,273,220,000,00	8,50%
ENKAI	2015/06	14,349,208,000,00	7,74%	9,47%	7,00%	0,7	2,942,229,000,00	3,143,999,000,00	6,086,228,000,00	13,35%	20,435,436,000,00	8,62%
ENKAI	2015/09	15,927,924,000,00	7,94%	10,13%	7,00%	0,7	2,997,343,000,00	3,363,474,000,00	6,360,817,000,00	14,59%	22,288,741,000,00	9,01%
ENKAI	2015/12	15,053,666,000,00	8,07%	10,56%	7,00%	0,7	2,773,370,000,00	2,947,143,000,00	5,720,513,000,00	15,67%	20,774,179,000,00	9,30%
ENKAI	2016/03	15,447,105,000,00	8,33%	11,42%	7,00%	0,7	2,557,620,000,00	2,875,848,000,00	5,433,468,000,00	16,00%	20,880,573,000,00	9,49%
ENKAI	2016/06	16,026,403,000,00	8,36%	11,54%	7,00%	0,7	2,552,177,000,00	2,955,040,000,00	5,507,217,000,00	15,62%	21,533,620,000,00	9,42%
ENKAI	2016/09	16,824,100,000,00	8,16%	10,87%	7,00%	0,7	2,775,900,000,00	2,956,344,000,00	5,732,244,000,00	14,78%	22,556,344,000,00	9,09%
ENKAI	2016/12	20,159,745,000,00	7,97%	10,24%	7,00%	0,7	2,997,435,000,00	3,541,652,000,00	6,539,087,000,00	14,35%	26,698,832,000,00	8,83%
ENKAI	2017/03	21,819,643,000,00	8,05%	10,49%	7,00%	0,7	3,326,064,000,00	3,734,329,000,00	7,060,393,000,00	14,71%	28,880,036,000,00	8,96%
ENKAI	2017/06	21,075,993,000,00	8,42%	11,74%	7,00%	0,7	3,391,601,000,00	3,434,439,000,00	6,826,040,000,00	15,85%	27,902,033,000,00	9,46%
ENKAI	2017/09	21,954,480,000,00	8,85%	13,16%	7,00%	0,7	3,629,165,000,00	3,367,071,000,00	6,996,236,000,00	16,58%	28,950,716,000,00	9,92%
ENKAI	2017/12	23,701,913,000,00	8,96%	13,52%	7,00%	0,7	3,581,843,000,00	3,009,870,000,00	6,591,713,000,00	16,68%	30,293,226,000,00	9,91%
ENKAI	2018/03	25,368,372,000,00	9,00%	13,66%	7,00%	0,7	3,893,729,000,00	3,161,388,000,00	7,055,117,000,00	17,49%	32,423,689,000,00	10,01%
ENKAI	2018/06	27,998,972,000,00	9,16%	14,19%	7,00%	0,7	4,758,822,000,00	3,343,359,000,00	8,102,181,000,00	19,50%	36,101,153,000,00	10,52%
ENKAI	2018/09	36,640,245,000,00	9,66%	15,87%	7,00%	0,7	6,056,092,000,00	4,501,834,000,00	10,557,926,000,00	28,66%	47,198,171,000,00	12,50%
ENKAI	2018/12	32,518,771,000,00	11,16%	20,88%	7,00%	0,7	4,804,519,000,00	3,692,165,000,00	8,496,684,000,00	30,39%	41,015,455,000,00	13,76%
ENKAI	2019/03	35,990,540,000,00	11,97%	23,58%	7,00%	0,7	4,847,306,000,00	4,045,162,000,00	8,892,468,000,00	24,18%	44,883,008,000,00	13,34%
ENKAI	2019/06	37,176,226,000,00	11,59%	22,31%	7,00%	0,7	4,426,855,000,00	4,132,780,000,00	8,559,635,000,00	26,40%	45,735,861,000,00	13,28%
ENKAI	2019/09	37,227,162,000,00	11,17%	20,88%	7,00%	0,7	4,238,581,000,00	4,046,028,000,00	8,284,609,000,00	20,52%	45,511,771,000,00	12,05%
ENKAI	2019/12	39,425,622,000,00	9,95%	16,82%	7,00%	0,7	5,773,096,000,00	4,213,261,000,00	9,984,357,000,00	14,43%	49,409,979,000,00	10,21%
ENKAI	2020/03	40,352,813,000,00	8,66%	12,52%	7,00%	0,7	6,382,403,000,00	4,077,094,000,00	10,459,497,000,00	11,68%	50,812,310,000,00	8,75%
ENKAI	2020/06	44,326,021,000,00	7,95%	10,15%	7,00%	0,7	7,119,503,000,00	4,309,899,000,00	11,429,202,000,00	10,13%	55,755,223,000,00	7,94%
ENKAI	2020/09	49,720,189,000,00	7,54%	8,78%	7,00%	0,7	8,078,002,000,00	4,659,786,000,00	12,737,788,000,00	12,24%	62,457,977,000,00	7,95%
ENKAI	2020/12	49,696,135,000,00	8,31%	11,37%	7,00%	0,7	7,891,277,000,00	4,466,407,000,00	12,357,684,000,00	16,98%	62,053,819,000,00	9,29%

STOCK CODE	PERIOD	Market Value of the Firm's Equity (E)	Cost of Equity (R _e)	r _f	r _m	β	CURRENT LIABILITIES (1)	NONCURRENT LIABILITIES (2)	Market Value of the Firm's Debt (D) (1+2)	Cost of Debt (R _d)	Total Market Value of the Firm's Financing (V=E+D)	WACC
KUYAS	2015/03	81.793.170,00	7,29%	9,26%	7,00%	0,87	48.360.481,00	38.145.097,00	86.505.578,00	12,77%	168.298.748,00	8,79%
KUYAS	2015/06	80.596.642,00	7,32%	9,47%	7,00%	0,87	43.017.525,00	57.555.681,00	100.573.206,00	13,35%	181.569.848,00	9,19%
KUYAS	2015/09	81.019.055,00	7,41%	10,13%	7,00%	0,87	44.743.262,00	61.836.102,00	106.579.364,00	14,59%	187.598.419,00	9,83%
KUYAS	2015/12	90.588.689,00	7,46%	10,56%	7,00%	0,87	39.413.297,00	54.300.335,00	93.713.632,00	15,67%	184.302.321,00	10,04%
KUYAS	2016/03	88.459.632,00	7,57%	11,42%	7,00%	0,87	45.382.926,00	64.568.673,00	109.951.599,00	16,00%	198.411.231,00	10,47%
KUYAS	2016/06	90.712.442,00	7,59%	11,54%	7,00%	0,87	34.373.531,00	85.099.365,00	119.472.896,00	15,62%	210.185.338,00	10,38%
KUYAS	2016/09	92.232.455,00	7,50%	10,87%	7,00%	0,87	40.039.075,00	82.729.746,00	122.768.821,00	14,78%	215.001.276,00	9,97%
KUYAS	2016/12	90.837.335,00	7,42%	10,24%	7,00%	0,87	51.168.784,00	89.429.854,00	140.598.638,00	14,35%	231.435.973,00	9,88%
KUYAS	2017/03	87.785.079,00	7,45%	10,49%	7,00%	0,87	76.786.782,00	102.006.183,00	178.792.965,00	14,71%	266.578.044,00	10,35%
KUYAS	2017/06	87.076.589,00	7,62%	11,74%	7,00%	0,87	80.999.601,00	70.436.623,00	151.436.224,00	15,85%	238.512.813,00	10,83%
KUYAS	2017/09	81.963.914,00	7,80%	13,16%	7,00%	0,87	95.932.315,00	67.267.871,00	163.200.186,00	16,58%	245.164.100,00	11,44%
KUYAS	2017/12	75.467.041,00	7,85%	13,52%	7,00%	0,87	110.590.819,00	54.759.885,00	165.350.704,00	16,68%	240.817.745,00	11,62%
KUYAS	2018/03	81.191.379,00	7,87%	13,66%	7,00%	0,87	101.477.235,00	46.490.068,00	147.967.303,00	17,49%	229.158.682,00	11,59%
KUYAS	2018/06	73.696.017,00	7,93%	14,19%	7,00%	0,87	112.461.200,00	45.530.108,00	157.991.308,00	19,50%	231.687.325,00	12,90%
KUYAS	2018/09	71.046.182,00	8,15%	15,87%	7,00%	0,87	131.746.495,00	41.336.712,00	173.283.207,00	28,66%	244.329.389,00	18,23%
KUYAS	2018/12	78.931.341,00	8,80%	20,88%	7,00%	0,87	103.667.405,00	63.342.253,00	167.009.658,00	30,39%	245.940.999,00	18,92%
KUYAS	2019/03	86.072.632,00	9,16%	23,58%	7,00%	0,87	108.728.283,00	80.340.243,00	189.068.526,00	24,18%	275.141.158,00	15,82%
KUYAS	2019/06	73.932.336,00	8,99%	22,31%	7,00%	0,87	118.335.439,00	84.993.396,00	203.228.835,00	26,40%	277.161.171,00	17,50%
KUYAS	2019/09	70.885.314,00	8,80%	20,88%	7,00%	0,87	33.915.268,00	109.702.572,00	143.617.840,00	20,52%	214.503.154,00	13,63%
KUYAS	2019/12	71.867.080,00	8,28%	16,82%	7,00%	0,87	39.886.983,00	99.957.873,00	139.844.856,00	14,43%	211.711.936,00	10,24%
KUYAS	2020/03	53.745.659,00	7,72%	12,52%	7,00%	0,87	48.363.977,00	86.166.116,00	134.530.093,00	11,68%	188.275.752,00	8,71%
KUYAS	2020/06	52.503.313,00	7,41%	10,13%	7,00%	0,87	60.577.492,00	76.134.971,00	136.712.463,00	10,13%	189.215.776,00	7,77%
KUYAS	2020/09	96.506.701,00	7,23%	8,78%	7,00%	0,87	21.338.425,00	101.650.528,00	122.888.953,00	12,24%	219.395.654,00	8,53%
KUYAS	2020/12	171.759.037,00	7,57%	11,37%	7,00%	0,87	22.737.327,00	84.999.836,00	107.737.163,00	16,98%	279.496.200,00	9,75%

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ORGE	2015/03	29,586,406.00	6.75%	9.26%	7.00%	1.11	11,399,508.00	10,896,660.00	22,196,168.00	12.77%	51,782,574.00	8.24%
ORGE	2015/06	32,346,681.00	6.73%	9.47%	7.00%	1.11	20,045,794.00	7,071,018.00	27,116,812.00	13.35%	59,463,493.00	8.53%
ORGE	2015/09	34,844,133.00	6.66%	10.13%	7.00%	1.11	23,028,612.00	7,630,017.00	30,658,629.00	14.59%	65,502,762.00	9.01%
ORGE	2015/12	37,972,631.00	6.61%	10.56%	7.00%	1.11	18,714,389.00	4,823,533.00	23,537,922.00	15.67%	61,510,553.00	8.87%
ORGE	2016/03	43,381,576.00	6.51%	11.42%	7.00%	1.11	31,583,245.00	6,685,209.00	38,268,454.00	16.00%	81,650,030.00	9.46%
ORGE	2016/06	48,021,631.00	6.50%	11.54%	7.00%	1.11	41,205,299.00	7,798,573.00	49,003,872.00	15.62%	97,025,503.00	9.53%
ORGE	2016/09	54,257,314.00	6.57%	10.87%	7.00%	1.11	33,312,273.00	10,854,324.00	44,166,597.00	14.78%	98,423,911.00	8.93%
ORGE	2016/12	62,576,333.00	6.64%	10.24%	7.00%	1.11	24,508,021.00	10,400,469.00	34,908,490.00	14.35%	97,484,823.00	8.37%
ORGE	2017/03	70,205,579.00	6.62%	10.49%	7.00%	1.11	20,910,710.00	11,441,973.00	32,352,683.00	14.71%	102,558,262.00	8.24%
ORGE	2017/06	72,832,125.00	6.48%	11.74%	7.00%	1.11	22,343,695.00	13,241,760.00	35,585,455.00	15.85%	108,417,580.00	8.52%
ORGE	2017/09	82,515,397.00	6.32%	13.16%	7.00%	1.11	21,736,212.00	16,233,000.00	37,969,212.00	16.58%	120,484,609.00	8.51%
ORGE	2017/12	88,547,967.00	6.28%	13.52%	7.00%	1.11	31,450,736.00	9,859,832.00	41,110,568.00	16.68%	129,658,535.00	8.52%
ORGE	2018/03	92,849,646.00	6.27%	13.66%	7.00%	1.11	27,007,673.00	10,861,981.00	37,869,654.00	17.49%	130,519,300.00	8.39%
ORGE	2018/06	102,788,923.00	6.21%	14.19%	7.00%	1.11	42,274,824.00	18,902,160.00	61,176,984.00	19.50%	163,965,907.00	9.57%
ORGE	2018/09	113,633,064.00	6.02%	15.87%	7.00%	1.11	36,235,251.00	20,190,642.00	56,425,893.00	28.66%	170,058,957.00	11.44%
ORGE	2018/12	137,132,442.00	5.47%	20.88%	7.00%	1.11	49,645,770.00	22,648,534.00	72,294,304.00	30.39%	209,426,746.00	11.77%
ORGE	2019/03	144,954,751.00	5.18%	23.58%	7.00%	1.11	43,850,350.00	24,150,091.00	68,000,441.00	24.18%	212,955,192.00	9.55%
ORGE	2019/06	154,432,518.00	5.32%	22.31%	7.00%	1.11	53,889,586.00	26,376,049.00	80,165,635.00	26.40%	234,598,153.00	10.54%
ORGE	2019/09	165,457,839.00	5.47%	20.88%	7.00%	1.11	58,774,386.00	28,689,074.00	87,463,460.00	20.52%	252,921,299.00	9.12%
ORGE	2019/12	185,826,805.00	5.92%	16.82%	7.00%	1.11	71,330,152.00	38,117,367.00	109,447,519.00	14.43%	295,274,324.00	7.90%
ORGE	2020/03	192,411,189.00	6.39%	12.52%	7.00%	1.11	81,478,789.00	37,820,896.00	119,299,685.00	11.68%	311,710,874.00	7.43%
ORGE	2020/06	202,656,134.00	6.65%	10.13%	7.00%	1.11	104,859,202.00	50,767,552.00	155,626,754.00	10.13%	358,282,888.00	7.20%
ORGE	2020/09	219,581,923.00	6.80%	8.78%	7.00%	1.11	119,127,451.00	52,308,436.00	171,435,887.00	12.24%	391,017,809.00	8.01%
ORGE	2020/12	241,404,005.00	6.52%	11.37%	7.00%	1.11	106,731,599.00	50,568,213.00	157,299,812.00	16.98%	398,703,817.00	9.17%

STOCK CODE	PERIOD	Market Value of the Firm's Equity (E)	Cost of Equity (R _e)	r _f	r _m	β	CURRENT LIABILITIES (1)	NONCURRENT LIABILITIES (2)	Market Value of the Firm's Debt (D) (1+2)	Cost of Debt (R _d)	Total Market Value of the Firm's Financing (V=E+D)	WACC
SANEL	2015/03	22.717.240,00	7,75%	9,26%	7,00%	0,67	18.358.381,00	383.570,00	18.641.951,00	12,77%	41.359.191,00	8,86%
SANEL	2015/06	21.712.179,00	7,82%	9,47%	7,00%	0,67	15.884.750,00	1.035.521,00	16.720.271,00	13,35%	38.432.450,00	9,06%
SANEL	2015/09	22.347.697,00	8,03%	10,13%	7,00%	0,67	16.286.711,00	1.124.232,00	17.410.943,00	14,59%	39.758.640,00	9,63%
SANEL	2015/12	22.503.003,00	8,17%	10,56%	7,00%	0,67	11.093.690,00	994.225,00	12.087.915,00	15,67%	34.590.918,00	9,70%
SANEL	2016/03	22.389.366,00	8,46%	11,42%	7,00%	0,67	13.296.242,00	1.133.270,00	14.429.512,00	16,00%	37.018.878,00	10,15%
SANEL	2016/06	22.554.399,00	8,50%	11,54%	7,00%	0,67	17.959.520,00	1.400.887,00	19.360.407,00	15,62%	41.914.806,00	10,35%
SANEL	2016/09	22.131.026,00	8,38%	10,87%	7,00%	0,67	19.039.542,00	1.620.426,00	20.659.968,00	14,78%	42.790.994,00	9,99%
SANEL	2016/12	22.233.042,00	8,07%	10,24%	7,00%	0,67	19.450.781,00	1.849.887,00	21.300.668,00	14,35%	43.533.710,00	9,74%
SANEL	2017/03	21.962.374,00	8,15%	10,49%	7,00%	0,67	20.351.684,00	2.419.111,00	22.770.795,00	14,71%	44.733.169,00	9,99%
SANEL	2017/06	21.088.797,00	8,56%	11,74%	7,00%	0,67	19.948.335,00	4.020.841,00	23.969.176,00	15,85%	45.057.973,00	10,76%
SANEL	2017/09	21.004.921,00	9,03%	13,16%	7,00%	0,67	24.568.960,00	5.664.042,00	30.233.002,00	16,58%	51.237.923,00	11,53%
SANEL	2017/12	22.382.734,00	9,15%	13,52%	7,00%	0,67	37.124.940,00	6.225.300,00	43.350.240,00	16,68%	65.632.974,00	11,92%
SANEL	2018/03	22.521.410,00	9,20%	13,66%	7,00%	0,67	47.527.416,00	6.034.256,00	53.561.672,00	17,49%	76.083.082,00	12,32%
SANEL	2018/06	21.566.516,00	9,37%	14,19%	7,00%	0,67	42.475.984,00	5.749.491,00	48.225.475,00	19,50%	69.791.991,00	13,41%
SANEL	2018/09	21.651.825,00	9,93%	15,87%	7,00%	0,67	33.699.666,00	5.466.059,00	39.165.725,00	28,66%	60.817.550,00	17,93%
SANEL	2018/12	17.009.243,00	11,58%	20,88%	7,00%	0,67	19.746.160,00	4.446.441,00	24.192.601,00	30,39%	41.201.844,00	18,70%
SANEL	2019/03	20.148.469,00	12,47%	23,58%	7,00%	0,67	33.158.659,00	3.981.645,00	37.140.304,00	24,18%	57.288.773,00	16,61%
SANEL	2019/06	19.466.390,00	12,05%	22,31%	7,00%	0,67	32.921.286,00	3.823.600,00	36.744.886,00	26,40%	56.211.276,00	17,64%
SANEL	2019/09	22.001.530,00	11,58%	20,88%	7,00%	0,67	34.747.673,00	3.885.789,00	38.633.462,00	20,52%	60.634.992,00	14,40%
SANEL	2019/12	20.035.289,00	10,24%	16,82%	7,00%	0,67	19.816.421,00	3.631.901,00	23.448.322,00	14,43%	43.483.611,00	10,79%
SANEL	2020/03	25.043.237,00	8,82%	12,52%	7,00%	0,67	20.819.517,00	4.685.848,00	25.505.365,00	11,68%	50.548.602,00	8,97%
SANEL	2020/06	15.904.066,00	8,04%	10,13%	7,00%	0,67	24.399.629,00	3.747.061,00	28.146.690,00	10,13%	44.050.756,00	7,95%
SANEL	2020/09	15.227.503,00	7,59%	8,78%	7,00%	0,67	22.696.121,00	3.807.593,00	26.503.714,00	12,24%	41.731.217,00	8,83%
SANEL	2020/12	11.695.985,00	8,44%	11,37%	7,00%	0,67	24.311.229,00	4.086.537,00	28.397.766,00	16,98%	40.293.751,00	11,85%

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TURGG	2015/03	139.705.137,00	6,71%	9,26%	7,00%	1,13	2.575.051,00	33.161.774,00	35.736.825,00	12,77%	175.441.962,00	7,42%
TURGG	2015/06	139.347.775,00	6,68%	9,47%	7,00%	1,13	3.034.886,00	33.076.523,00	36.111.409,00	13,35%	175.459.184,00	7,50%
TURGG	2015/09	138.951.160,00	6,59%	10,13%	7,00%	1,13	3.345.983,00	32.980.150,00	36.326.133,00	14,59%	175.477.293,00	7,65%
TURGG	2015/12	143.580.773,00	6,54%	10,56%	7,00%	1,13	4.174.826,00	34.144.632,00	38.319.458,00	15,67%	181.900.231,00	7,80%
TURGG	2016/03	143.237.154,00	6,43%	11,42%	7,00%	1,13	4.335.881,00	34.059.429,00	38.395.310,00	16,00%	181.832.464,00	7,78%
TURGG	2016/06	140.752.611,00	6,41%	11,54%	7,00%	1,13	6.814.108,00	30.662.904,00	37.477.012,00	15,62%	178.229.623,00	7,69%
TURGG	2016/09	141.165.226,00	6,50%	10,87%	7,00%	1,13	104.208,00	30.660.955,00	30.765.163,00	14,78%	171.930.389,00	7,45%
TURGG	2016/12	143.899.147,00	6,58%	10,24%	7,00%	1,13	38.616,00	31.304.134,00	31.342.750,00	14,35%	175.241.897,00	7,46%
TURGG	2017/03	143.884.182,00	6,55%	10,49%	7,00%	1,13	198.908,00	31.268.310,00	31.467.218,00	14,71%	175.351.400,00	7,48%
TURGG	2017/06	143.954.622,00	6,38%	11,74%	7,00%	1,13	66.580,00	31.295.309,00	31.361.889,00	15,85%	175.316.511,00	7,51%
TURGG	2017/09	144.154.560,00	6,20%	13,16%	7,00%	1,13	51.085,00	31.393.791,00	31.344.876,00	16,58%	175.499.436,00	7,46%
TURGG	2017/12	155.316.674,00	6,15%	13,52%	7,00%	1,13	41.999,00	34.086.810,00	34.128.809,00	16,68%	189.445.483,00	7,45%
TURGG	2018/03	155.335.193,00	6,13%	13,66%	7,00%	1,13	260.687,00	34.041.152,00	34.301.839,00	17,49%	189.637.032,00	7,49%
TURGG	2018/06	155.338.201,00	6,07%	14,19%	7,00%	1,13	114.287,00	34.083.819,00	34.198.106,00	19,50%	189.536.307,00	7,72%
TURGG	2018/09	155.477.680,00	5,83%	15,87%	7,00%	1,13	233.717,00	34.029.331,00	34.263.048,00	28,66%	189.740.728,00	8,83%
TURGG	2018/12	143.933.383,00	5,20%	20,88%	7,00%	1,13	40.782,00	31.083.973,00	31.124.755,00	30,39%	175.058.138,00	8,49%
TURGG	2019/03	144.210.653,00	4,84%	23,58%	7,00%	1,13	308.213,00	31.123.547,00	31.431.760,00	24,18%	175.642.413,00	7,35%
TURGG	2019/06	144.491.233,00	5,01%	22,31%	7,00%	1,13	90.416,00	31.151.478,00	31.241.894,00	26,40%	175.733.127,00	7,78%
TURGG	2019/09	144.730.196,00	5,20%	20,88%	7,00%	1,13	312.675,00	31.097.495,00	31.410.170,00	20,52%	176.140.366,00	7,12%
TURGG	2019/12	146.251.613,00	5,72%	16,82%	7,00%	1,13	80.851,00	31.513.011,00	31.593.862,00	14,43%	177.845.475,00	6,71%
TURGG	2020/03	146.193.704,00	6,28%	12,52%	7,00%	1,13	308.999,00	31.460.311,00	31.769.310,00	11,68%	177.963.014,00	6,79%
TURGG	2020/06	146.092.403,00	6,59%	10,13%	7,00%	1,13	84.053,00	31.463.982,00	31.548.035,00	10,13%	177.640.438,00	6,82%
TURGG	2020/09	145.956.438,00	6,77%	8,78%	7,00%	1,13	316.759,00	31.418.690,00	31.735.449,00	12,24%	177.691.887,00	7,27%
TURGG	2020/12	151.655.338,00	6,43%	11,37%	7,00%	1,13	94.811,00	32.849.294,00	32.944.105,00	16,98%	184.599.443,00	7,65%

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YAYLA	2015/03	45,360,310,00	7,23%	9,26%	7,00%	0,9	14,571,750,00	23,254,624,00	37,826,374,00	12,77%	83,186,684,00	8,58%
YAYLA	2015/06	44,878,237,00	7,25%	9,47%	7,00%	0,9	14,941,662,00	23,733,567,00	38,675,229,00	13,35%	83,553,466,00	8,84%
YAYLA	2015/09	46,335,834,00	7,31%	10,13%	7,00%	0,9	20,283,513,00	22,124,619,00	42,408,132,00	14,59%	88,943,966,00	9,39%
YAYLA	2015/12	40,699,890,00	7,36%	10,56%	7,00%	0,9	21,890,985,00	20,117,387,00	42,008,372,00	15,67%	82,708,262,00	9,99%
YAYLA	2016/03	39,313,059,00	7,44%	11,42%	7,00%	0,9	21,815,540,00	21,853,804,00	43,669,344,00	16,00%	82,982,403,00	10,26%
YAYLA	2016/06	38,924,342,00	7,45%	11,54%	7,00%	0,9	25,270,048,00	20,915,957,00	46,186,005,00	15,62%	85,110,347,00	10,19%
YAYLA	2016/09	37,742,801,00	7,59%	10,87%	7,00%	0,9	21,810,984,00	22,934,294,00	44,745,278,00	14,78%	82,488,079,00	9,79%
YAYLA	2016/12	37,980,903,00	7,52%	10,24%	7,00%	0,9	18,986,922,00	31,076,334,00	50,063,256,00	14,35%	88,044,159,00	9,68%
YAYLA	2017/03	37,041,264,00	7,35%	10,49%	7,00%	0,9	21,754,634,00	31,467,305,00	53,221,939,00	14,71%	90,263,203,00	9,95%
YAYLA	2017/06	38,110,382,00	7,47%	11,74%	7,00%	0,9	31,417,222,00	19,357,964,00	50,775,186,00	15,85%	88,885,588,00	10,45%
YAYLA	2017/09	36,038,077,00	7,62%	13,16%	7,00%	0,9	23,881,452,00	29,030,418,00	52,911,871,00	16,58%	88,749,948,00	10,97%
YAYLA	2017/12	27,491,407,00	7,65%	13,52%	7,00%	0,9	23,304,172,00	34,771,574,00	58,075,746,00	16,68%	85,567,153,00	11,52%
YAYLA	2018/03	43,332,633,00	7,67%	13,66%	7,00%	0,9	17,741,214,00	30,152,429,00	47,893,643,00	17,49%	91,426,276,00	10,79%
YAYLA	2018/06	60,321,423,00	7,72%	14,19%	7,00%	0,9	18,258,684,00	35,362,514,00	53,621,198,00	19,50%	113,942,621,00	11,24%
YAYLA	2018/09	55,989,508,00	7,89%	15,87%	7,00%	0,9	15,383,367,00	44,932,658,00	60,316,025,00	28,66%	116,305,533,00	15,39%
YAYLA	2018/12	70,070,372,00	8,39%	20,88%	7,00%	0,9	18,746,412,00	29,914,421,00	48,660,833,00	30,39%	118,731,205,00	14,67%
YAYLA	2019/03	70,013,383,00	8,66%	23,58%	7,00%	0,9	11,970,897,00	35,078,310,00	47,049,207,00	24,18%	117,062,590,00	12,76%
YAYLA	2019/06	67,693,364,00	8,53%	22,31%	7,00%	0,9	13,445,758,00	31,358,241,00	43,703,999,00	26,40%	111,397,363,00	13,26%
YAYLA	2019/09	67,366,885,00	8,39%	20,88%	7,00%	0,9	11,365,875,00	28,749,736,00	41,115,609,00	20,52%	108,482,494,00	11,28%
YAYLA	2019/12	71,699,620,00	7,98%	16,82%	7,00%	0,9	15,600,652,00	26,626,565,00	42,227,218,00	14,43%	113,926,838,00	9,19%
YAYLA	2020/03	73,375,042,00	7,55%	12,52%	7,00%	0,9	13,847,301,00	26,497,784,00	40,345,085,00	11,68%	113,720,127,00	8,10%
YAYLA	2020/06	71,277,712,00	7,32%	10,13%	7,00%	0,9	20,304,588,00	24,412,037,00	44,716,625,00	10,13%	115,994,337,00	7,54%
YAYLA	2020/09	68,660,823,00	7,18%	8,78%	7,00%	0,9	22,932,826,00	23,467,387,00	46,400,213,00	12,24%	115,261,036,00	8,13%
YAYLA	2020/12	69,220,283,00	7,44%	11,37%	7,00%	0,9	24,701,141,00	23,944,163,00	48,645,304,00	16,98%	117,865,587,00	9,83%

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YYAPI	2015/03	109,090,345.00	6.71%	9.26%	7.00%	1.13	308,844,431.00	73,641,090.00	382,485,521.00	12.77%	491,575,866.00	9.44%
YYAPI	2015/06	174,401,821.00	6.68%	9.47%	7.00%	1.13	346,687,397.00	73,895,430.00	420,582,827.00	13.35%	594,984,648.00	9.51%
YYAPI	2015/09	176,886,979.00	6.59%	10.13%	7.00%	1.13	359,677,542.00	124,426,521.00	484,104,063.00	14.59%	660,991,042.00	10.32%
YYAPI	2015/12	188,877,905.00	6.54%	10.56%	7.00%	1.13	354,381,135.00	147,757,263.00	502,138,398.00	15.67%	691,016,303.00	10.90%
YYAPI	2016/03	196,611,036.00	6.43%	11.42%	7.00%	1.13	368,619,575.00	158,184,552.00	526,804,127.00	16.00%	723,415,163.00	11.07%
YYAPI	2016/06	186,505,086.00	6.41%	11.54%	7.00%	1.13	440,804,800.00	167,361,724.00	608,166,524.00	15.62%	794,671,610.00	11.07%
YYAPI	2016/09	374,341,805.00	6.50%	10.87%	7.00%	1.13	149,799,146.00	13,388,960.00	163,188,106.00	14.78%	537,529,911.00	8.11%
YYAPI	2016/12	371,030,507.00	6.58%	10.24%	7.00%	1.13	98,337,537.00	3,855,803.00	102,193,340.00	14.35%	473,223,847.00	7.64%
YYAPI	2017/03	374,628,887.00	6.55%	10.49%	7.00%	1.13	148,834,208.00	2,805,396.00	151,639,604.00	14.71%	526,268,491.00	8.05%
YYAPI	2017/06	373,751,717.00	6.38%	11.74%	7.00%	1.13	151,928,790.00	2,519,222.00	154,448,012.00	15.85%	528,199,729.00	8.23%
YYAPI	2017/09	373,559,460.00	6.20%	13.16%	7.00%	1.13	161,709,696.00	4,115,103.00	165,824,799.00	16.58%	539,384,259.00	8.37%
YYAPI	2017/12	363,262,428.00	6.15%	13.52%	7.00%	1.13	259,680,248.00	1,792,202.00	261,472,450.00	16.68%	624,734,878.00	9.16%
YYAPI	2018/03	353,993,835.00	6.13%	13.68%	7.00%	1.13	310,010,902.00	1,396,182.00	311,407,084.00	17.49%	665,400,919.00	9.65%
YYAPI	2018/06	364,177,020.00	6.07%	14.19%	7.00%	1.13	287,228,331.00	3,799,637.00	291,027,968.00	19.50%	655,205,008.00	10.13%
YYAPI	2018/09	358,895,438.00	5.85%	15.87%	7.00%	1.13	275,865,533.00	4,580,070.00	280,445,603.00	28.66%	639,341,061.00	13.09%
YYAPI	2018/12	348,571,183.00	5.20%	20.88%	7.00%	1.13	196,948,248.00	7,605,685.00	204,553,933.00	30.39%	553,125,116.00	12.04%
YYAPI	2019/03	357,061,741.00	4.84%	23.58%	7.00%	1.13	193,261,673.00	7,551,294.00	200,812,967.00	24.18%	557,874,708.00	9.89%
YYAPI	2019/06	339,400,916.00	5.01%	22.31%	7.00%	1.13	168,893,140.00	4,264,420.00	173,157,560.00	26.40%	512,558,476.00	10.27%
YYAPI	2019/09	346,648,164.00	5.20%	20.88%	7.00%	1.13	165,080,175.00	4,123,214.00	169,203,389.00	20.52%	515,851,553.00	8.74%
YYAPI	2019/12	308,323,247.00	5.72%	16.82%	7.00%	1.13	285,711,455.00	7,980,011.00	293,691,466.00	14.43%	602,014,713.00	8.42%
YYAPI	2020/03	323,849,668.00	6.28%	12.52%	7.00%	1.13	220,278,981.00	6,571,198.00	226,850,179.00	11.68%	550,699,847.00	7.45%
YYAPI	2020/06	313,514,201.00	6.59%	10.15%	7.00%	1.13	264,004,143.00	8,448,900.00	272,453,043.00	10.13%	585,967,244.00	7.20%
YYAPI	2020/09	316,631,735.00	6.77%	8.78%	7.00%	1.13	287,445,181.00	6,795,176.00	294,240,357.00	12.24%	610,872,092.00	8.11%
YYAPI	2020/12	310,586,273.00	6.43%	11.37%	7.00%	1.13	244,388,167.00	7,964,275.00	252,352,442.00	16.98%	562,938,715.00	9.48%

STOCK CODE	PERIOD	Market Value of the Firm's Equity (E)	Cost of Equity (R_e)	r_f	r_m	β	CURRENT LIABILITIES (1)	NONCURRENT LIABILITIES (2)	Market Value of the Firm's Debt (D) (1+2)	Cost of Debt (Rd)	Total Market Value of the Firm's Financing (V=E+D)	WACC
CLEBI	2015/03	119.025.498,00	7,25%	9,26%	7,00%	0,89	215.501.787,00	269.026.757,00	484.528.544,00	12,77%	603.554.042,00	9,63%
CLEBI	2015/06	85.124.605,00	7,27%	9,47%	7,00%	0,89	217.871.481,00	328.685.118,00	546.556.599,00	13,35%	631.681.204,00	10,22%
CLEBI	2015/09	142.098.118,00	7,34%	10,13%	7,00%	0,89	241.223.820,00	324.012.680,00	565.236.500,00	14,59%	707.334.618,00	10,80%
CLEBI	2015/12	144.285.259,00	7,39%	10,56%	7,00%	0,89	264.803.996,00	270.340.285,00	535.144.281,00	15,67%	679.429.540,00	11,45%
CLEBI	2016/03	144.643.418,00	7,48%	11,42%	7,00%	0,89	259.778.820,00	265.886.123,00	525.664.943,00	16,00%	670.308.361,00	11,65%
CLEBI	2016/06	74.950.620,00	7,49%	11,54%	7,00%	0,89	254.462.851,00	266.430.519,00	520.893.370,00	15,62%	595.843.990,00	11,87%
CLEBI	2016/09	99.189.657,00	7,42%	10,87%	7,00%	0,89	268.579.446,00	281.710.192,00	550.289.638,00	14,78%	649.479.295,00	11,15%
CLEBI	2016/12	101.696.764,00	7,35%	10,24%	7,00%	0,89	273.570.617,00	314.555.147,00	588.125.764,00	14,35%	689.822.528,00	10,87%
CLEBI	2017/03	108.013.802,00	7,38%	10,49%	7,00%	0,89	278.710.919,00	404.211.912,00	682.922.831,00	14,71%	790.936.633,00	11,17%
CLEBI	2017/06	89.428.767,00	7,52%	11,74%	7,00%	0,89	313.552.065,00	400.024.371,00	713.576.436,00	15,85%	803.005.203,00	12,11%
CLEBI	2017/09	145.931.721,00	7,67%	13,16%	7,00%	0,89	273.674.564,00	418.283.931,00	691.958.495,00	16,58%	837.890.216,00	12,29%
CLEBI	2017/12	168.855.174,00	7,71%	13,52%	7,00%	0,89	203.554.784,00	463.632.228,00	667.187.012,00	16,68%	836.042.186,00	12,21%
CLEBI	2018/03	188.815.805,00	7,72%	13,66%	7,00%	0,89	286.727.960,00	422.622.170,00	709.350.130,00	17,49%	898.165.935,00	12,40%
CLEBI	2018/06	176.629.026,00	7,78%	14,19%	7,00%	0,89	312.576.096,00	603.622.270,00	916.198.366,00	19,50%	1.092.827.392,00	14,01%
CLEBI	2018/09	343.560.919,00	7,97%	15,87%	7,00%	0,89	438.037.158,00	890.210.985,00	1.328.248.143,00	28,66%	1.671.809.062,00	19,40%
CLEBI	2018/12	353.087.514,00	8,51%	20,88%	7,00%	0,89	442.247.959,00	726.724.568,00	1.168.972.527,00	30,39%	1.522.060.041,00	20,18%
CLEBI	2019/03	487.080.035,00	8,80%	23,58%	7,00%	0,89	527.601.270,00	1.270.679.006,00	1.798.280.276,00	24,18%	2.285.360.311,00	16,72%
CLEBI	2019/06	407.113.288,00	8,67%	22,31%	7,00%	0,89	733.704.897,00	1.025.175.999,00	1.758.880.896,00	26,40%	2.165.994.184,00	18,35%
CLEBI	2019/09	514.817.635,00	8,51%	20,88%	7,00%	0,89	837.344.599,00	876.421.343,00	1.713.765.942,00	20,52%	2.228.583.577,00	14,28%
CLEBI	2019/12	572.436.964,00	8,07%	16,82%	7,00%	0,89	820.739.957,00	826.412.767,00	1.647.152.724,00	14,43%	2.219.589.688,00	10,43%
CLEBI	2020/03	554.245.390,00	7,60%	12,52%	7,00%	0,89	990.377.938,00	999.051.438,00	1.989.429.376,00	11,68%	2.543.674.766,00	8,78%
CLEBI	2020/06	373.443.135,00	7,34%	10,15%	7,00%	0,89	1.193.727.436,00	1.053.311.919,00	2.247.039.355,00	10,13%	2.620.482.490,00	7,82%
CLEBI	2020/09	454.532.016,00	7,19%	8,78%	7,00%	0,89	1.223.712.387,00	1.246.314.135,00	2.470.026.522,00	12,24%	2.924.558.538,00	9,18%
CLEBI	2020/12	446.297.475,00	7,48%	11,37%	7,00%	0,89	1.066.509.352,00	1.249.362.575,00	2.315.871.927,00	16,98%	2.762.169.402,00	12,31%

STOCK CODE	PERIOD	Market Value of the Firm's Equity (E)	Cost of Equity (R _e)	r _f	r _m	β	CURRENT LIABILITIES (1)	NONCURRENT LIABILITIES (2)	Market Value of the Firm's Debt (D) (1+2)	Cost of Debt (R _d)	Total Market Value of the Firm's Financing (V=E+D)	WACC
DOCO	2015/03	736.200.000,00	8,39%	9,26%	7,00%	0,38	538.890.000,00	546.920.000,00	1.085.810.000,00	12,77%	1.822.010.000,00	9,48%
DOCO	2015/06	819.160.000,00	8,53%	9,47%	7,00%	0,38	623.950.000,00	621.030.000,00	1.244.980.000,00	13,35%	2.064.140.000,00	9,82%
DOCO	2015/09	815.890.000,00	8,93%	10,13%	7,00%	0,38	558.940.000,00	586.670.000,00	1.145.610.000,00	14,59%	1.961.500.000,00	10,53%
DOCO	2015/12	989.350.000,00	9,20%	10,56%	7,00%	0,38	750.220.000,00	702.960.000,00	1.453.180.000,00	15,67%	2.442.530.000,00	11,19%
DOCO	2016/03	839.970.000,00	9,73%	11,42%	7,00%	0,38	745.840.000,00	583.060.000,00	1.328.900.000,00	16,00%	2.168.870.000,00	11,61%
DOCO	2016/06	869.200.000,00	9,80%	11,54%	7,00%	0,38	617.530.000,00	607.150.000,00	1.224.680.000,00	15,62%	2.093.880.000,00	11,38%
DOCO	2016/09	960.040.000,00	9,39%	10,87%	7,00%	0,38	626.300.000,00	669.430.000,00	1.295.730.000,00	14,78%	2.255.770.000,00	10,79%
DOCO	2016/12	1.247.780.000,00	9,00%	10,24%	7,00%	0,38	928.550.000,00	854.400.000,00	1.782.950.000,00	14,35%	3.030.730.000,00	10,46%
DOCO	2017/03	1.014.880.000,00	9,15%	10,49%	7,00%	0,38	860.360.000,00	699.580.000,00	1.559.940.000,00	14,71%	2.574.820.000,00	10,74%
DOCO	2017/06	1.043.630.000,00	9,92%	11,74%	7,00%	0,38	885.200.000,00	735.100.000,00	1.620.300.000,00	15,85%	2.663.930.000,00	11,60%
DOCO	2017/09	1.129.860.000,00	10,80%	13,16%	7,00%	0,38	815.990.000,00	793.770.000,00	1.609.760.000,00	16,58%	2.739.620.000,00	12,25%
DOCO	2017/12	1.575.950.000,00	11,02%	13,52%	7,00%	0,38	965.710.000,00	1.094.460.000,00	2.060.170.000,00	16,68%	3.636.120.000,00	12,34%
DOCO	2018/03	1.316.310.000,00	11,11%	13,66%	7,00%	0,38	874.330.000,00	920.820.000,00	1.795.150.000,00	17,49%	3.111.460.000,00	12,57%
DOCO	2018/06	1.586.980.000,00	11,44%	14,19%	7,00%	0,38	1.183.740.000,00	1.192.010.000,00	2.375.750.000,00	19,50%	3.962.730.000,00	13,70%
DOCO	2018/09	1.502.070.000,00	12,47%	15,87%	7,00%	0,38	1.047.890.000,00	1.046.950.000,00	2.094.840.000,00	28,66%	3.596.910.000,00	18,23%
DOCO	2018/12	1.855.870.000,00	15,56%	20,88%	7,00%	0,38	1.131.490.000,00	1.253.620.000,00	2.385.110.000,00	30,39%	4.240.980.000,00	20,14%
DOCO	2019/03	1.717.720.000,00	17,23%	23,58%	7,00%	0,38	1.298.980.000,00	1.889.850.000,00	3.188.830.000,00	24,18%	4.906.550.000,00	18,29%
DOCO	2019/06	1.646.190.000,00	16,45%	22,31%	7,00%	0,38	1.361.370.000,00	1.841.140.000,00	3.202.510.000,00	26,40%	4.848.700.000,00	19,18%
DOCO	2019/09	1.797.310.000,00	15,57%	20,88%	7,00%	0,38	1.611.720.000,00	2.316.120.000,00	3.927.840.000,00	20,52%	5.725.150.000,00	15,87%
DOCO	2019/12	2.006.410.000,00	13,06%	16,82%	7,00%	0,38	3.819.820.000,00	4.772.290.000,00	8.592.110.000,00	14,43%	10.598.520.000,00	11,59%
DOCO	2020/03	1.344.150.000,00	10,40%	12,52%	7,00%	0,38	2.638.270.000,00	3.750.130.000,00	6.388.400.000,00	11,68%	7.732.550.000,00	9,33%
DOCO	2020/06	1.281.740.000,00	8,94%	10,15%	7,00%	0,38	3.075.970.000,00	4.448.730.000,00	7.524.700.000,00	10,13%	8.806.440.000,00	8,06%
DOCO	2020/09	1.276.000.000,00	8,10%	8,78%	7,00%	0,38	3.007.840.000,00	4.237.790.000,00	7.245.630.000,00	12,24%	8.521.630.000,00	9,33%
DOCO	2020/12	1.551.970.000,00	9,69%	11,37%	7,00%	0,38	1.746.960.000,00	5.045.380.000,00	6.792.340.000,00	16,98%	8.344.310.000,00	12,58%

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GSDDE	2015/03	105.526.000,00	7,47%	9,26%	7,00%	0,79	57.465.000,00	134.746.000,00	192.211.000,00	12,77%	297.737.000,00	9,24%
GSDDE	2015/06	100.736.000,00	7,51%	9,47%	7,00%	0,79	49.130.000,00	147.886.000,00	197.016.000,00	13,35%	297.752.000,00	9,61%
GSDDE	2015/09	106.971.000,00	7,65%	10,13%	7,00%	0,79	45.952.000,00	165.698.000,00	211.650.000,00	14,59%	318.621.000,00	10,32%
GSDDE	2015/12	98.657.000,00	7,74%	10,56%	7,00%	0,79	27.443.000,00	174.651.000,00	202.094.000,00	15,67%	300.751.000,00	10,96%
GSDDE	2016/03	90.694.000,00	7,92%	11,42%	7,00%	0,79	37.802.000,00	158.234.000,00	196.036.000,00	16,00%	286.730.000,00	11,26%
GSDDE	2016/06	89.177.000,00	7,94%	11,54%	7,00%	0,79	50.013.000,00	145.498.000,00	195.511.000,00	15,62%	284.688.000,00	11,07%
GSDDE	2016/09	85.887.000,00	7,80%	10,87%	7,00%	0,79	54.767.000,00	178.172.000,00	232.939.000,00	14,78%	318.826.000,00	10,74%
GSDDE	2016/12	96.340.000,00	7,67%	10,24%	7,00%	0,79	123.434.000,00	142.048.000,00	265.482.000,00	14,35%	361.822.000,00	10,46%
GSDDE	2017/03	95.715.000,00	7,72%	10,49%	7,00%	0,79	105.440.000,00	169.296.000,00	274.736.000,00	14,71%	370.451.000,00	10,72%
GSDDE	2017/06	88.656.000,00	7,98%	11,74%	7,00%	0,79	105.778.000,00	162.012.000,00	267.790.000,00	15,85%	356.446.000,00	11,51%
GSDDE	2017/09	84.827.000,00	8,28%	13,16%	7,00%	0,79	106.096.000,00	161.657.000,00	267.753.000,00	16,58%	352.580.000,00	12,06%
GSDDE	2017/12	92.209.000,00	8,35%	13,52%	7,00%	0,79	33.140.000,00	256.224.000,00	289.364.000,00	16,68%	381.573.000,00	12,14%
GSDDE	2018/03	95.063.000,00	8,38%	13,66%	7,00%	0,79	61.410.000,00	227.279.000,00	288.689.000,00	17,49%	383.752.000,00	12,34%
GSDDE	2018/06	107.917.000,00	8,49%	14,19%	7,00%	0,79	72.805.000,00	185.168.000,00	257.973.000,00	19,50%	365.890.000,00	13,23%
GSDDE	2018/09	141.335.000,00	8,84%	15,87%	7,00%	0,79	102.459.000,00	206.024.000,00	308.483.000,00	28,66%	449.818.000,00	18,11%
GSDDE	2018/12	130.551.000,00	9,88%	20,88%	7,00%	0,79	86.548.000,00	79.900.000,00	166.448.000,00	30,39%	296.999.000,00	17,63%
GSDDE	2019/03	136.381.000,00	10,43%	23,58%	7,00%	0,79	54.295.000,00	84.037.000,00	138.332.000,00	24,18%	274.713.000,00	14,68%
GSDDE	2019/06	136.501.000,00	10,17%	22,31%	7,00%	0,79	80.780.000,00	53.566.000,00	134.346.000,00	26,40%	270.847.000,00	15,34%
GSDDE	2019/09	133.845.000,00	9,88%	20,88%	7,00%	0,79	78.474.000,00	51.825.000,00	130.299.000,00	20,52%	264.144.000,00	12,90%
GSDDE	2019/12	140.462.000,00	9,03%	16,82%	7,00%	0,79	55.095.000,00	53.374.000,00	108.469.000,00	14,43%	248.931.000,00	10,00%
GSDDE	2020/03	151.926.000,00	8,14%	12,52%	7,00%	0,79	58.767.000,00	57.208.000,00	115.975.000,00	11,68%	267.901.000,00	8,56%
GSDDE	2020/06	163.759.000,00	7,65%	10,15%	7,00%	0,79	118.008.000,00	945.000,00	118.953.000,00	10,13%	282.712.000,00	7,76%
GSDDE	2020/09	185.080.000,00	7,37%	8,78%	7,00%	0,79	123.405.000,00	10.748.000,00	134.153.000,00	12,24%	319.233.000,00	8,29%
GSDDE	2020/12	173.051.000,00	7,90%	11,37%	7,00%	0,79	111.097.000,00	10.038.000,00	121.135.000,00	16,98%	294.186.000,00	10,10%

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PGSUS	2015/03	1.111.104.616,00	6,61%	9,26%	7,00%	1,17	993.812.053,00	1.564.605.606,00	2.558.417.659,00	12,77%	3.669.522.275,00	9,12%
PGSUS	2015/06	1.213.690.455,00	6,57%	9,47%	7,00%	1,17	1.176.879.376,00	1.597.316.560,00	2.774.195.936,00	13,35%	3.987.886.391,00	9,43%
PGSUS	2015/09	1.669.560.460,00	6,45%	10,13%	7,00%	1,17	1.191.297.726,00	1.782.615.125,00	2.973.912.851,00	14,59%	4.643.473.311,00	9,80%
PGSUS	2015/12	1.452.731.629,00	6,38%	10,56%	7,00%	1,17	991.845.572,00	1.653.520.051,00	2.645.365.623,00	15,67%	4.098.097.252,00	10,36%
PGSUS	2016/03	1.279.037.973,00	6,23%	11,42%	7,00%	1,17	1.048.306.590,00	1.628.087.942,00	2.676.394.532,00	16,00%	3.955.432.505,00	10,67%
PGSUS	2016/06	1.296.243.419,00	6,21%	11,54%	7,00%	1,17	1.137.084.113,00	1.533.771.648,00	2.670.855.761,00	15,62%	3.967.099.180,00	10,44%
PGSUS	2016/09	1.608.439.721,00	6,32%	10,87%	7,00%	1,17	978.347.698,00	2.125.731.114,00	3.104.078.812,00	14,78%	4.712.518.533,00	9,95%
PGSUS	2016/12	1.569.321.345,00	6,43%	10,24%	7,00%	1,17	1.038.827.055,00	3.009.869.595,00	4.048.696.650,00	14,35%	5.618.017.995,00	10,07%
PGSUS	2017/03	1.442.147.872,00	6,39%	10,49%	7,00%	1,17	1.395.850.614,00	2.813.428.554,00	4.209.279.168,00	14,71%	5.651.427.040,00	10,39%
PGSUS	2017/06	1.641.960.571,00	6,17%	11,74%	7,00%	1,17	2.059.466.091,00	2.724.203.440,00	4.783.669.531,00	15,85%	6.425.630.102,00	11,02%
PGSUS	2017/09	2.299.298.503,00	5,92%	13,16%	7,00%	1,17	1.935.514.722,00	3.046.641.849,00	4.982.156.571,00	16,58%	7.281.455.074,00	10,95%
PGSUS	2017/12	2.484.638.206,00	5,86%	13,52%	7,00%	1,17	1.851.414.237,00	3.739.682.332,00	5.591.096.569,00	16,68%	8.075.734.775,00	11,04%
PGSUS	2018/03	2.519.250.835,00	5,84%	13,66%	7,00%	1,17	2.353.085.765,00	4.230.645.657,00	6.583.731.422,00	17,49%	9.102.982.257,00	11,48%
PGSUS	2018/06	2.706.183.073,00	5,74%	14,19%	7,00%	1,17	2.870.637.199,00	5.410.079.488,00	8.280.716.687,00	19,50%	10.986.899.760,00	12,88%
PGSUS	2018/09	4.528.828.868,00	5,45%	15,87%	7,00%	1,17	3.120.106.115,00	7.856.186.107,00	10.976.292.222,00	28,66%	15.505.121.090,00	17,42%
PGSUS	2018/12	3.715.447.648,00	4,58%	20,88%	7,00%	1,17	3.554.371.119,00	6.395.068.769,00	9.949.439.888,00	30,39%	13.664.887.536,00	18,51%
PGSUS	2019/03	3.470.173.926,00	4,11%	23,58%	7,00%	1,17	4.324.453.998,00	9.116.990.860,00	13.441.444.858,00	24,18%	16.911.618.784,00	15,83%
PGSUS	2019/06	3.951.934.432,00	4,33%	22,31%	7,00%	1,17	5.011.761.441,00	9.800.803.192,00	14.812.564.633,00	26,40%	18.764.499.065,00	17,17%
PGSUS	2019/09	4.761.864.000,00	4,58%	20,88%	7,00%	1,17	4.758.143.708,00	10.243.941.391,00	15.002.085.099,00	20,52%	19.763.949.099,00	13,25%
PGSUS	2019/12	5.342.169.207,00	5,29%	16,82%	7,00%	1,17	4.765.226.708,00	10.951.925.283,00	15.717.151.991,00	14,43%	21.059.321.198,00	9,74%
PGSUS	2020/03	4.945.633.308,00	6,04%	12,52%	7,00%	1,17	5.992.629.467,00	11.784.669.450,00	17.777.298.917,00	11,68%	22.722.932.225,00	8,44%
PGSUS	2020/06	4.730.960.362,00	6,45%	10,15%	7,00%	1,17	6.915.883.570,00	14.211.016.974,00	21.126.900.544,00	10,13%	25.857.860.906,00	7,64%
PGSUS	2020/09	5.864.992.283,00	6,69%	8,78%	7,00%	1,17	6.668.238.353,00	16.461.706.502,00	23.129.944.855,00	12,24%	28.994.937.138,00	8,97%
PGSUS	2020/12	5.386.417.638,00	6,24%	11,37%	7,00%	1,17	6.505.674.770,00	17.178.580.383,00	23.684.255.153,00	16,98%	29.070.672.791,00	11,94%

STOCK CODE	PERIOD	Market Value of the Firm's Equity (E)	Cost of Equity (R_e)	r_f	r_m	β	CURRENT LIABILITIES (1)	NONCURRENT LIABILITIES (2)	Market Value of the Firm's Debt (D) (1+2)	Cost of Debt (R_d)	Total Market Value of the Firm's Financing (V=E+D)	WACC
RYSAS	2015/03	267.659.087,00	7,11%	9,26%	7,00%	0,95	221.765.926,00	387.392.614,00	609.158.540,00	12,77%	876.817.627,00	9,27%
RYSAS	2015/06	263.514.570,00	7,12%	9,47%	7,00%	0,95	224.208.173,00	449.388.723,00	673.596.896,00	13,35%	937.111.466,00	9,68%
RYSAS	2015/09	227.341.226,00	7,16%	10,13%	7,00%	0,95	293.762.116,00	464.101.531,00	757.863.647,00	14,59%	985.204.873,00	10,63%
RYSAS	2015/12	240.496.516,00	7,18%	10,56%	7,00%	0,95	282.341.064,00	507.791.702,00	790.132.766,00	15,67%	1.030.629.282,00	11,29%
RYSAS	2016/03	245.035.215,00	7,22%	11,42%	7,00%	0,95	289.253.302,00	475.396.321,00	764.649.623,00	16,00%	1.009.684.838,00	11,45%
RYSAS	2016/06	246.817.519,00	7,23%	11,54%	7,00%	0,95	211.237.062,00	554.012.827,00	765.249.889,00	15,62%	1.012.067.408,00	11,21%
RYSAS	2016/09	242.021.848,00	7,19%	10,87%	7,00%	0,95	238.831.223,00	544.597.327,00	783.428.550,00	14,78%	1.025.450.398,00	10,73%
RYSAS	2016/12	192.132.199,00	7,16%	10,24%	7,00%	0,95	261.185.046,00	656.997.008,00	918.182.054,00	14,35%	1.110.314.253,00	10,73%
RYSAS	2017/03	182.946.355,00	7,18%	10,49%	7,00%	0,95	327.529.325,00	602.737.901,00	930.267.226,00	14,71%	1.113.213.581,00	11,01%
RYSAS	2017/06	198.826.788,00	7,24%	11,74%	7,00%	0,95	279.715.836,00	659.835.803,00	939.551.639,00	15,85%	1.138.378.427,00	11,73%
RYSAS	2017/09	193.547.850,00	7,31%	13,16%	7,00%	0,95	330.183.961,00	665.512.416,00	995.696.377,00	16,58%	1.189.244.227,00	12,30%
RYSAS	2017/12	170.200.790,00	7,33%	13,52%	7,00%	0,95	441.659.935,00	692.380.826,00	1.134.040.761,00	16,68%	1.304.241.551,00	12,56%
RYSAS	2018/03	150.428.400,00	7,34%	13,66%	7,00%	0,95	441.201.991,00	680.442.548,00	1.121.644.539,00	17,49%	1.272.072.939,00	12,89%
RYSAS	2018/06	96.552.195,00	7,36%	14,19%	7,00%	0,95	506.912.996,00	823.144.559,00	1.330.057.555,00	19,50%	1.426.609.750,00	14,68%
RYSAS	2018/09	-56.113.178,00	7,45%	15,87%	7,00%	0,95	596.524.884,00	942.756.404,00	1.539.281.288,00	28,66%	1.483.168.110,00	22,92%
RYSAS	2018/12	58.244.921,00	7,70%	20,88%	7,00%	0,95	538.025.357,00	780.791.593,00	1.318.816.950,00	30,39%	1.377.061.871,00	23,03%
RYSAS	2019/03	33.768.529,00	7,83%	23,58%	7,00%	0,95	546.068.959,00	775.145.326,00	1.321.214.285,00	24,18%	1.354.982.814,00	18,59%
RYSAS	2019/06	34.569.547,00	7,77%	22,31%	7,00%	0,95	566.777.814,00	736.747.672,00	1.303.525.486,00	26,40%	1.338.095.033,00	20,26%
RYSAS	2019/09	77.942.595,00	7,70%	20,88%	7,00%	0,95	589.192.646,00	692.177.348,00	1.281.369.994,00	20,52%	1.359.312.589,00	15,53%
RYSAS	2019/12	63.378.856,00	7,49%	16,82%	7,00%	0,95	667.408.072,00	696.256.758,00	1.363.664.830,00	14,43%	1.427.043.686,00	11,09%
RYSAS	2020/03	29.500.668,00	7,28%	12,52%	7,00%	0,95	706.010.776,00	707.801.824,00	1.413.812.600,00	11,68%	1.443.313.268,00	9,07%
RYSAS	2020/06	14.339.920,00	7,16%	10,15%	7,00%	0,95	653.581.817,00	882.572.939,00	1.536.154.756,00	10,13%	1.550.494.676,00	7,90%
RYSAS	2020/09	-18.975.717,00	7,09%	8,78%	7,00%	0,95	744.275.669,00	833.146.841,00	1.577.422.510,00	12,24%	1.558.446.793,00	9,58%
RYSAS	2020/12	582.901.965,00	7,22%	11,37%	7,00%	0,95	819.737.083,00	925.981.665,00	1.745.718.748,00	16,98%	2.328.620.713,00	11,73%

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TCELL	2015/03	12.905.959.000,00	7,66%	9,26%	7,00%	0,71	9.742.133.000,00	1.304.406.000,00	11.046.539.000,00	12,77%	23.952.498.000,00	8,84%
TCELL	2015/06	13.477.466.000,00	7,72%	9,47%	7,00%	0,71	5.774.330.000,00	1.385.035.000,00	7.159.365.000,00	13,35%	20.636.831.000,00	8,74%
TCELL	2015/09	13.777.334.000,00	7,91%	10,13%	7,00%	0,71	5.374.066.000,00	1.403.688.000,00	6.777.754.000,00	14,59%	20.555.088.000,00	9,15%
TCELL	2015/12	14.399.254.000,00	8,03%	10,56%	7,00%	0,71	6.304.417.000,00	5.480.552.000,00	11.784.969.000,00	15,67%	26.184.223.000,00	10,06%
TCELL	2016/03	14.882.484.000,00	8,28%	11,42%	7,00%	0,71	5.758.943.000,00	5.511.123.000,00	11.270.066.000,00	16,00%	26.152.550.000,00	10,23%
TCELL	2016/06	15.330.698.000,00	8,32%	11,54%	7,00%	0,71	6.103.184.000,00	7.139.024.000,00	13.242.208.000,00	15,62%	28.572.906.000,00	10,26%
TCELL	2016/09	15.445.284.000,00	8,12%	10,87%	7,00%	0,71	7.333.338.000,00	7.451.714.000,00	14.785.052.000,00	14,78%	30.230.336.000,00	9,93%
TCELL	2016/12	16.068.397.000,00	7,94%	10,24%	7,00%	0,71	7.358.858.000,00	8.172.903.000,00	15.531.761.000,00	14,35%	31.600.158.000,00	9,68%
TCELL	2017/03	16.536.403.000,00	8,01%	10,49%	7,00%	0,71	7.673.723.000,00	8.744.547.000,00	16.418.270.000,00	14,71%	32.954.673.000,00	9,88%
TCELL	2017/06	14.201.150.000,00	8,38%	11,74%	7,00%	0,71	9.193.571.000,00	8.519.536.000,00	17.713.107.000,00	15,85%	31.914.257.000,00	10,77%
TCELL	2017/09	14.816.754.000,00	8,79%	13,16%	7,00%	0,71	8.358.660.000,00	9.146.459.000,00	17.505.119.000,00	16,58%	32.321.873.000,00	11,21%
TCELL	2017/12	15.045.088.000,00	8,89%	13,52%	7,00%	0,71	9.223.843.000,00	9.713.538.000,00	18.937.381.000,00	16,68%	33.982.469.000,00	11,38%
TCELL	2018/03	14.247.618.000,00	8,93%	13,66%	7,00%	0,71	11.704.144.000,00	11.121.357.000,00	22.825.501.000,00	17,49%	37.073.119.000,00	11,83%
TCELL	2018/06	14.952.286.000,00	9,09%	14,19%	7,00%	0,71	12.451.012.000,00	13.622.860.000,00	26.073.872.000,00	19,50%	41.026.158.000,00	12,98%
TCELL	2018/09	14.890.892.000,00	9,57%	15,87%	7,00%	0,71	13.472.543.000,00	17.040.661.000,00	30.513.204.000,00	28,66%	45.404.096.000,00	18,16%
TCELL	2018/12	16.053.554.000,00	11,03%	20,88%	7,00%	0,71	11.740.048.000,00	14.971.673.000,00	26.711.721.000,00	30,39%	42.765.275.000,00	18,95%
TCELL	2019/03	17.102.281.000,00	11,81%	23,58%	7,00%	0,71	11.615.257.000,00	17.361.047.000,00	28.976.304.000,00	24,18%	46.078.585.000,00	16,24%
TCELL	2019/06	17.330.550.000,00	11,44%	22,31%	7,00%	0,71	11.739.630.000,00	16.541.714.000,00	28.281.344.000,00	26,40%	45.611.894.000,00	17,12%
TCELL	2019/09	17.430.766.000,00	11,03%	20,88%	7,00%	0,71	13.059.086.000,00	15.025.145.000,00	28.084.231.000,00	20,52%	45.514.997.000,00	14,10%
TCELL	2019/12	18.082.944.000,00	9,85%	16,82%	7,00%	0,71	12.655.525.000,00	14.976.506.000,00	27.632.031.000,00	14,43%	45.714.975.000,00	10,70%
TCELL	2020/03	18.677.593.000,00	8,60%	12,52%	7,00%	0,71	10.449.136.000,00	16.201.967.000,00	26.651.103.000,00	11,68%	45.328.696.000,00	8,90%
TCELL	2020/06	19.538.150.000,00	7,91%	10,15%	7,00%	0,71	10.657.707.000,00	16.846.112.000,00	27.503.819.000,00	10,13%	47.041.969.000,00	7,91%
TCELL	2020/09	20.288.975.000,00	7,52%	8,78%	7,00%	0,71	11.832.068.000,00	19.407.059.000,00	31.239.127.000,00	12,24%	51.528.102.000,00	8,75%
TCELL	2020/12	20.784.938.000,00	8,27%	11,37%	7,00%	0,71	11.565.262.000,00	19.148.193.000,00	30.713.455.000,00	16,98%	51.498.393.000,00	11,23%

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THYAO	2015/03	10.923.890.247,00	6,66%	9,26%	7,00%	1,15	10.344.188.239,00	16.138.688.101,00	26.482.876.340,00	12,77%	37.406.766.587,00	9,18%
THYAO	2015/06	11.993.489.008,00	6,63%	9,47%	7,00%	1,15	10.995.723.086,00	19.209.073.797,00	30.204.796.883,00	13,35%	42.198.285.891,00	9,53%
THYAO	2015/09	14.642.815.224,00	6,53%	10,13%	7,00%	1,15	11.537.702.372,00	23.734.593.004,00	35.272.295.376,00	14,59%	49.915.110.600,00	10,17%
THYAO	2015/12	14.090.000.000,00	6,46%	10,56%	7,00%	1,15	11.248.000.000,00	22.300.000.000,00	33.548.000.000,00	15,67%	47.638.000.000,00	10,74%
THYAO	2016/03	12.704.000.000,00	6,33%	11,42%	7,00%	1,15	11.572.000.000,00	24.073.000.000,00	35.645.000.000,00	16,00%	48.349.000.000,00	11,10%
THYAO	2016/06	12.852.000.000,00	6,31%	11,54%	7,00%	1,15	12.201.000.000,00	27.363.000.000,00	39.564.000.000,00	15,62%	52.416.000.000,00	10,98%
THYAO	2016/09	13.903.000.000,00	6,41%	10,87%	7,00%	1,15	13.251.000.000,00	28.562.000.000,00	41.813.000.000,00	14,78%	55.716.000.000,00	10,47%
THYAO	2016/12	17.899.000.000,00	6,51%	10,24%	7,00%	1,15	15.832.000.000,00	31.343.000.000,00	47.175.000.000,00	14,35%	65.074.000.000,00	10,11%
THYAO	2017/03	16.985.000.000,00	6,47%	10,49%	7,00%	1,15	17.886.000.000,00	32.332.000.000,00	50.218.000.000,00	14,71%	67.203.000.000,00	10,43%
THYAO	2017/06	16.135.000.000,00	6,28%	11,74%	7,00%	1,15	19.008.000.000,00	29.330.000.000,00	48.338.000.000,00	15,85%	64.473.000.000,00	11,08%
THYAO	2017/09	18.866.000.000,00	6,07%	13,16%	7,00%	1,15	17.477.000.000,00	29.889.000.000,00	47.366.000.000,00	16,58%	66.232.000.000,00	11,21%
THYAO	2017/12	20.171.000.000,00	6,01%	13,52%	7,00%	1,15	16.209.000.000,00	32.267.000.000,00	48.476.000.000,00	16,68%	68.647.000.000,00	11,19%
THYAO	2018/03	20.074.000.000,00	5,99%	13,66%	7,00%	1,15	19.453.000.000,00	33.602.000.000,00	53.055.000.000,00	17,49%	73.129.000.000,00	11,54%
THYAO	2018/06	24.943.000.000,00	5,91%	14,19%	7,00%	1,15	23.647.000.000,00	41.785.000.000,00	65.432.000.000,00	19,50%	90.375.000.000,00	12,64%
THYAO	2018/09	36.639.000.000,00	5,66%	15,87%	7,00%	1,15	30.051.000.000,00	56.294.000.000,00	86.345.000.000,00	28,66%	122.984.000.000,00	17,38%
THYAO	2018/12	31.284.000.000,00	4,90%	20,88%	7,00%	1,15	27.246.000.000,00	50.546.000.000,00	77.792.000.000,00	30,39%	109.076.000.000,00	18,31%
THYAO	2019/03	33.171.000.000,00	4,49%	23,58%	7,00%	1,15	33.909.000.000,00	61.974.000.000,00	95.883.000.000,00	24,18%	129.054.000.000,00	15,17%
THYAO	2019/06	33.275.000.000,00	4,68%	22,31%	7,00%	1,15	36.331.000.000,00	63.156.000.000,00	99.487.000.000,00	26,40%	132.762.000.000,00	16,61%
THYAO	2019/09	37.528.000.000,00	4,90%	20,88%	7,00%	1,15	33.577.000.000,00	64.398.000.000,00	97.975.000.000,00	20,52%	135.503.000.000,00	12,93%
THYAO	2019/12	40.795.000.000,00	5,51%	16,82%	7,00%	1,15	35.417.000.000,00	70.659.000.000,00	106.076.000.000,00	14,43%	146.871.000.000,00	9,66%
THYAO	2020/03	41.343.000.000,00	6,17%	12,52%	7,00%	1,15	40.523.000.000,00	80.836.000.000,00	121.359.000.000,00	11,68%	162.702.000.000,00	8,36%
THYAO	2020/06	40.815.000.000,00	6,52%	10,15%	7,00%	1,15	44.319.000.000,00	84.164.000.000,00	128.483.000.000,00	10,13%	169.298.000.000,00	7,57%
THYAO	2020/09	43.990.000.000,00	6,73%	8,78%	7,00%	1,15	47.844.000.000,00	99.187.000.000,00	147.031.000.000,00	12,24%	191.021.000.000,00	8,90%
THYAO	2020/12	39.511.000.000,00	6,34%	11,37%	7,00%	1,15	47.379.000.000,00	100.512.000.000,00	147.891.000.000,00	16,98%	187.402.000.000,00	11,79%

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TTKOM	2015/03	4.396.378.000,00	7,39%	9,26%	7,00%	0,83	6.091.656.000,00	10.185.234.000,00	16.276.890.000,00	12,77%	20.673.268.000,00	9,61%
TTKOM	2015/06	4.577.970.000,00	7,42%	9,47%	7,00%	0,83	4.728.434.000,00	10.496.385.000,00	15.224.819.000,00	13,35%	19.802.789.000,00	9,93%
TTKOM	2015/09	3.960.556.000,00	7,54%	10,13%	7,00%	0,83	5.490.174.000,00	12.016.143.000,00	17.506.317.000,00	14,59%	21.466.873.000,00	10,91%
TTKOM	2015/12	4.993.368.000,00	7,61%	10,56%	7,00%	0,83	8.552.927.000,00	12.227.609.000,00	20.780.536.000,00	15,67%	25.773.904.000,00	11,58%
TTKOM	2016/03	5.301.285.000,00	7,76%	11,42%	7,00%	0,83	8.992.014.000,00	13.546.494.000,00	22.538.508.000,00	16,00%	27.839.793.000,00	11,84%
TTKOM	2016/06	4.654.930.000,00	7,78%	11,54%	7,00%	0,83	9.209.288.000,00	12.761.524.000,00	21.970.812.000,00	15,62%	26.625.742.000,00	11,67%
TTKOM	2016/09	4.692.892.000,00	7,66%	10,87%	7,00%	0,83	8.565.557.000,00	13.331.601.000,00	21.897.158.000,00	14,78%	26.590.050.000,00	11,09%
TTKOM	2016/12	3.386.621.000,00	7,55%	10,24%	7,00%	0,83	8.351.705.000,00	15.136.125.000,00	23.487.830.000,00	14,35%	26.874.451.000,00	10,98%
TTKOM	2017/03	3.471.258.000,00	7,60%	10,49%	7,00%	0,83	7.672.896.000,00	15.557.458.000,00	23.230.354.000,00	14,71%	26.701.612.000,00	11,22%
TTKOM	2017/06	4.344.480.000,00	7,81%	11,74%	7,00%	0,83	6.670.977.000,00	14.717.570.000,00	21.388.547.000,00	15,85%	25.733.027.000,00	11,86%
TTKOM	2017/09	4.648.779.000,00	8,06%	13,16%	7,00%	0,83	6.636.432.000,00	15.233.339.000,00	21.869.771.000,00	16,58%	26.518.550.000,00	12,35%
TTKOM	2017/12	4.555.087.000,00	8,12%	13,52%	7,00%	0,83	8.661.581.000,00	15.931.867.000,00	24.593.448.000,00	16,68%	29.148.535.000,00	12,53%
TTKOM	2018/03	4.966.819.000,00	8,14%	13,66%	7,00%	0,83	8.401.425.000,00	16.567.965.000,00	24.969.390.000,00	17,49%	29.936.209.000,00	12,73%
TTKOM	2018/06	4.074.866.000,00	8,23%	14,19%	7,00%	0,83	11.262.800.000,00	15.163.216.000,00	26.426.016.000,00	19,50%	30.500.882.000,00	14,28%
TTKOM	2018/09	5.522.642.000,00	8,52%	15,87%	7,00%	0,83	14.448.271.000,00	18.973.661.000,00	33.421.932.000,00	28,66%	38.944.574.000,00	20,39%
TTKOM	2018/12	7.453.603.000,00	9,38%	20,88%	7,00%	0,83	13.496.359.000,00	15.248.549.000,00	28.744.908.000,00	30,39%	36.198.511.000,00	20,76%
TTKOM	2019/03	7.892.585.000,00	9,84%	23,58%	7,00%	0,83	13.382.153.000,00	19.298.711.000,00	32.680.864.000,00	24,18%	40.573.449.000,00	17,11%
TTKOM	2019/06	7.976.305.000,00	9,62%	22,31%	7,00%	0,83	12.128.561.000,00	17.469.687.000,00	29.598.248.000,00	26,40%	37.574.553.000,00	18,26%
TTKOM	2019/09	8.984.935.000,00	9,38%	20,88%	7,00%	0,83	12.051.728.000,00	17.256.806.000,00	29.308.534.000,00	20,52%	38.293.469.000,00	14,45%
TTKOM	2019/12	9.442.853.000,00	8,68%	16,82%	7,00%	0,83	13.693.647.000,00	16.772.786.000,00	30.466.433.000,00	14,43%	39.909.286.000,00	10,64%
TTKOM	2020/03	9.948.048.000,00	7,95%	12,52%	7,00%	0,83	14.533.801.000,00	17.794.271.000,00	32.328.072.000,00	11,68%	42.276.120.000,00	8,83%
TTKOM	2020/06	10.710.266.000,00	7,54%	10,15%	7,00%	0,83	13.106.565.000,00	18.034.746.000,00	31.141.311.000,00	10,13%	41.851.577.000,00	7,81%
TTKOM	2020/09	10.722.903.000,00	7,30%	8,78%	7,00%	0,83	14.129.623.000,00	19.902.865.000,00	34.032.488.000,00	12,24%	44.755.391.000,00	9,01%
TTKOM	2020/12	12.037.376.000,00	7,75%	11,37%	7,00%	0,83	14.228.270.000,00	18.456.874.000,00	32.685.144.000,00	16,98%	44.722.520.000,00	11,76%

APPENDIX E

STOCK CODE	PERIOD*	PERIOD**	CURRENT ASSETS	CURRENT LIABILITIES	NON-CURRENT ASSETS	INVESTED CAPITAL
ANELE	2015/03	2014/12	656.694.862,00	471.846.096,00	248.568.616,00	433.417.382,00
ANELE	2015/06	2015/03	694.128.022,00	451.396.606,00	394.245.143,00	636.976.559,00
ANELE	2015/09	2015/06	686.605.144,00	435.854.177,00	379.241.985,00	629.992.952,00
ANELE	2015/12	2015/09	741.470.114,00	446.277.405,00	393.034.189,00	688.226.898,00
ANELE	2016/03	2015/12	681.268.306,00	490.115.863,00	140.625.997,00	331.778.440,00
ANELE	2016/06	2016/03	720.537.909,00	498.748.794,00	261.766.017,00	483.555.132,00
ANELE	2016/09	2016/06	733.475.815,00	513.465.200,00	271.469.788,00	491.480.403,00
ANELE	2016/12	2016/09	759.438.635,00	531.004.747,00	279.802.132,00	508.236.020,00
ANELE	2017/03	2016/12	880.872.521,00	650.356.184,00	129.353.408,00	359.869.745,00
ANELE	2017/06	2017/03	887.349.256,00	629.903.938,00	278.634.055,00	536.079.373,00
ANELE	2017/09	2017/06	879.761.363,00	618.836.618,00	134.914.452,00	395.839.197,00
ANELE	2017/12	2017/09	864.133.835,00	588.305.788,00	130.595.352,00	406.423.399,00
ANELE	2018/03	2017/12	820.845.218,00	541.935.563,00	257.273.220,00	536.182.875,00
ANELE	2018/06	2018/03	844.099.483,00	516.638.665,00	133.316.272,00	460.777.090,00
ANELE	2018/09	2018/06	901.623.968,00	516.560.680,00	135.293.405,00	520.356.693,00
ANELE	2018/12	2018/09	1.153.138.431,00	626.286.088,00	137.275.679,00	664.128.022,00
ANELE	2019/03	2018/12	950.668.162,00	627.001.367,00	341.753.679,00	665.420.474,00
ANELE	2019/06	2019/03	1.012.829.211,00	638.072.998,00	180.036.364,00	554.792.577,00
ANELE	2019/09	2019/06	958.347.121,00	616.639.008,00	214.212.084,00	555.920.197,00
ANELE	2019/12	2019/09	1.013.309.655,00	684.281.625,00	217.498.422,00	546.526.452,00
ANELE	2020/03	2019/12	1.056.120.784,00	768.425.086,00	383.020.709,00	670.716.407,00
ANELE	2020/06	2020/03	1.179.019.029,00	822.869.228,00	310.232.057,00	666.381.858,00
ANELE	2020/09	2020/06	1.209.599.214,00	846.304.840,00	310.688.276,00	673.982.650,00
ANELE	2020/12	2020/09	1.388.958.517,00	1.058.862.420,00	306.036.567,00	636.132.664,00
EDIP	2015/03	2014/12	18.290.258,00	64.861.934,00	487.739.185,00	441.167.509,00
EDIP	2015/06	2015/03	18.140.666,00	67.321.252,00	487.626.215,00	438.445.629,00
EDIP	2015/09	2015/06	15.409.396,00	69.877.241,00	487.539.324,00	433.071.479,00
EDIP	2015/12	2015/09	17.494.562,00	84.472.010,00	487.434.389,00	420.456.941,00
EDIP	2016/03	2015/12	30.767.600,00	74.260.578,00	538.889.634,00	495.396.656,00
EDIP	2016/06	2016/03	15.133.253,00	59.113.986,00	539.013.575,00	495.032.842,00
EDIP	2016/09	2016/06	12.728.892,00	58.197.047,00	538.878.719,00	493.410.564,00
EDIP	2016/12	2016/09	12.661.553,00	61.407.923,00	538.693.885,00	489.947.515,00
EDIP	2017/03	2016/12	9.461.603,00	266.401.576,00	575.682.115,00	318.742.142,00
EDIP	2017/06	2017/03	16.199.751,00	284.757.135,00	575.480.784,00	306.923.400,00
EDIP	2017/09	2017/06	19.300.195,00	32.658.589,00	575.650.416,00	562.292.022,00
EDIP	2017/12	2017/09	38.023.509,00	36.417.378,00	576.000.123,00	577.606.254,00
EDIP	2018/03	2017/12	19.825.890,00	32.651.248,00	604.614.347,00	591.788.989,00
EDIP	2018/06	2018/03	23.172.242,00	38.854.233,00	604.696.320,00	589.014.329,00
EDIP	2018/09	2018/06	23.030.851,00	42.221.298,00	604.577.268,00	585.386.821,00
EDIP	2018/12	2018/09	24.160.932,00	54.876.535,00	604.300.805,00	573.585.202,00
EDIP	2019/03	2018/12	21.822.175,00	49.118.076,00	736.017.150,00	708.721.249,00
EDIP	2019/06	2019/03	22.451.322,00	56.320.154,00	736.064.016,00	702.195.184,00
EDIP	2019/09	2019/06	19.719.812,00	43.093.192,00	737.989.498,00	714.616.118,00
EDIP	2019/12	2019/09	20.609.379,00	43.156.459,00	737.807.343,00	715.260.263,00
EDIP	2020/03	2019/12	20.836.623,00	44.520.386,00	817.720.983,00	794.037.220,00
EDIP	2020/06	2020/03	22.506.513,00	52.707.721,00	817.628.581,00	787.427.373,00
EDIP	2020/09	2020/06	22.373.704,00	68.529.242,00	817.540.593,00	771.385.055,00
EDIP	2020/12	2020/09	29.132.614,00	94.428.576,00	817.468.121,00	752.172.159,00

STOCK CODE	PERIOD*	PERIOD**	CURRENT ASSETS	CURRENT LIABILITIES	NON-CURRENT ASSETS	INVESTED CAPITAL
ENKAI	2015/03	2014/12	7.586.470.000,00	3.159.422.000,00	10.530.557.000,00	14.957.605.000,00
ENKAI	2015/06	2015/03	8.340.457.000,00	3.378.233.000,00	11.932.763.000,00	16.894.987.000,00
ENKAI	2015/09	2015/06	7.841.313.000,00	2.942.229.000,00	12.594.123.000,00	17.493.207.000,00
ENKAI	2015/12	2015/09	8.695.890.000,00	2.997.343.000,00	13.592.851.000,00	19.291.398.000,00
ENKAI	2016/03	2015/12	7.819.062.000,00	2.773.370.000,00	12.955.117.000,00	18.000.809.000,00
ENKAI	2016/06	2016/03	7.958.215.000,00	2.557.620.000,00	12.922.358.000,00	18.322.953.000,00
ENKAI	2016/09	2016/06	7.288.147.000,00	2.552.177.000,00	14.245.473.000,00	18.981.443.000,00
ENKAI	2016/12	2016/09	7.817.366.000,00	2.775.900.000,00	14.738.978.000,00	19.780.444.000,00
ENKAI	2017/03	2016/12	8.686.127.000,00	2.997.435.000,00	18.012.705.000,00	23.701.397.000,00
ENKAI	2017/06	2017/03	9.486.119.000,00	3.326.064.000,00	19.393.917.000,00	25.553.972.000,00
ENKAI	2017/09	2017/06	8.654.204.000,00	3.391.601.000,00	19.247.829.000,00	24.510.432.000,00
ENKAI	2017/12	2017/09	8.083.739.000,00	3.629.165.000,00	20.866.977.000,00	25.321.551.000,00
ENKAI	2018/03	2017/12	7.869.248.000,00	3.581.643.000,00	22.423.978.000,00	26.711.583.000,00
ENKAI	2018/06	2018/03	9.098.084.000,00	3.893.729.000,00	23.325.605.000,00	28.529.960.000,00
ENKAI	2018/09	2018/06	10.333.956.000,00	4.758.822.000,00	25.767.197.000,00	31.342.331.000,00
ENKAI	2018/12	2018/09	15.418.565.000,00	6.056.092.000,00	31.779.606.000,00	41.142.079.000,00
ENKAI	2019/03	2018/12	13.265.106.000,00	4.804.519.000,00	27.750.349.000,00	36.210.936.000,00
ENKAI	2019/06	2019/03	14.783.249.000,00	4.847.306.000,00	30.099.759.000,00	40.035.702.000,00
ENKAI	2019/09	2019/06	14.453.568.000,00	4.426.855.000,00	31.282.293.000,00	41.309.006.000,00
ENKAI	2019/12	2019/09	14.701.503.000,00	4.238.581.000,00	30.810.268.000,00	41.273.190.000,00
ENKAI	2020/03	2019/12	17.362.926.000,00	5.772.096.000,00	32.047.053.000,00	43.637.883.000,00
ENKAI	2020/06	2020/03	19.468.152.000,00	6.382.403.000,00	31.344.158.000,00	44.429.907.000,00
ENKAI	2020/09	2020/06	21.568.168.000,00	7.119.503.000,00	34.187.055.000,00	48.635.720.000,00
ENKAI	2020/12	2020/09	25.257.366.000,00	8.078.002.000,00	37.200.611.000,00	54.379.975.000,00
KUYAS	2015/03	2014/12	89.778.917,00	57.046.142,00	98.568.511,00	131.301.286,00
KUYAS	2015/06	2015/03	68.046.518,00	48.360.481,00	100.252.230,00	119.938.267,00
KUYAS	2015/09	2015/06	81.939.093,00	43.017.525,00	99.630.755,00	138.552.323,00
KUYAS	2015/12	2015/09	83.103.093,00	44.743.262,00	104.495.326,00	142.855.157,00
KUYAS	2016/03	2015/12	75.797.991,00	39.413.297,00	108.504.330,00	144.889.024,00
KUYAS	2016/06	2016/03	71.508.800,00	45.382.926,00	126.902.431,00	153.028.305,00
KUYAS	2016/09	2016/06	72.649.014,00	34.373.531,00	137.536.324,00	175.811.807,00
KUYAS	2016/12	2016/09	75.542.112,00	40.039.075,00	139.459.164,00	174.962.201,00
KUYAS	2017/03	2016/12	86.639.814,00	51.168.784,00	144.796.159,00	180.267.189,00
KUYAS	2017/06	2017/03	104.447.553,00	76.786.782,00	162.130.491,00	189.791.262,00
KUYAS	2017/09	2017/06	105.582.133,00	80.999.601,00	132.930.680,00	157.513.212,00
KUYAS	2017/12	2017/09	107.138.782,00	95.932.315,00	138.025.318,00	149.231.785,00
KUYAS	2018/03	2017/12	103.077.824,00	110.590.819,00	137.739.921,00	130.226.926,00
KUYAS	2018/06	2018/03	91.909.306,00	101.477.235,00	137.249.376,00	127.681.447,00
KUYAS	2018/09	2018/06	94.715.907,00	112.461.200,00	136.971.418,00	119.226.125,00
KUYAS	2018/12	2018/09	98.577.229,00	131.746.495,00	145.752.160,00	112.582.894,00
KUYAS	2019/03	2018/12	90.420.700,00	103.667.405,00	155.520.299,00	142.273.594,00
KUYAS	2019/06	2019/03	90.299.155,00	108.728.283,00	184.842.003,00	166.412.875,00
KUYAS	2019/09	2019/06	89.641.729,00	118.235.439,00	187.519.442,00	158.925.732,00
KUYAS	2019/12	2019/09	79.336.581,00	33.915.268,00	135.166.573,00	180.587.886,00
KUYAS	2020/03	2019/12	59.028.826,00	39.886.983,00	152.683.110,00	171.824.953,00
KUYAS	2020/06	2020/03	50.257.591,00	48.363.977,00	138.018.161,00	139.911.775,00
KUYAS	2020/09	2020/06	50.896.526,00	60.577.492,00	138.319.250,00	128.638.284,00
KUYAS	2020/12	2020/09	88.012.899,00	21.238.425,00	131.382.755,00	198.157.229,00

STOCK CODE	PERIOD*	PERIOD**	CURRENT ASSETS	CURRENT LIABILITIES	NON-CURRENT ASSETS	INVESTED CAPITAL
ORGE	2015/03	2014/12	32.250.256,00	12.574.274,00	6.745.514,00	26.421.496,00
ORGE	2015/06	2015/03	37.722.952,00	11.299.508,00	14.059.622,00	40.483.066,00
ORGE	2015/09	2015/06	49.586.404,00	20.045.794,00	9.877.089,00	39.417.699,00
ORGE	2015/12	2015/09	55.722.006,00	23.028.612,00	9.780.756,00	42.474.150,00
ORGE	2016/03	2015/12	55.507.023,00	18.714.389,00	5.803.530,00	42.596.164,00
ORGE	2016/06	2016/03	74.922.507,00	31.583.245,00	6.727.523,00	50.066.785,00
ORGE	2016/09	2016/06	84.229.367,00	41.205.299,00	12.796.136,00	55.820.204,00
ORGE	2016/12	2016/09	79.685.774,00	33.312.273,00	18.738.137,00	65.111.638,00
ORGE	2017/03	2016/12	72.783.914,00	24.508.021,00	24.700.909,00	72.976.802,00
ORGE	2017/06	2017/03	77.611.874,00	20.910.710,00	24.946.388,00	81.647.552,00
ORGE	2017/09	2017/06	82.429.533,00	22.343.695,00	25.988.047,00	86.073.885,00
ORGE	2017/12	2017/09	91.818.596,00	21.736.212,00	28.666.013,00	98.748.397,00
ORGE	2018/03	2017/12	102.423.182,00	31.450.736,00	27.235.353,00	98.207.799,00
ORGE	2018/06	2018/03	102.533.430,00	27.007.673,00	27.985.870,00	103.511.627,00
ORGE	2018/09	2018/06	130.892.665,00	42.274.824,00	33.073.242,00	121.691.083,00
ORGE	2018/12	2018/09	136.733.392,00	36.235.251,00	33.325.565,00	133.823.706,00
ORGE	2019/03	2018/12	162.779.682,00	49.645.770,00	46.647.064,00	159.780.976,00
ORGE	2019/06	2019/03	165.043.053,00	43.850.350,00	47.912.139,00	169.104.842,00
ORGE	2019/09	2019/06	184.135.688,00	53.889.586,00	50.462.465,00	180.708.567,00
ORGE	2019/12	2019/09	202.031.192,00	58.774.386,00	50.890.107,00	194.146.913,00
ORGE	2020/03	2019/12	237.949.255,00	71.330.152,00	57.325.069,00	223.944.172,00
ORGE	2020/06	2020/03	256.481.877,00	81.478.789,00	55.228.997,00	230.232.085,00
ORGE	2020/09	2020/06	305.734.030,00	104.859.202,00	52.548.858,00	253.423.686,00
ORGE	2020/12	2020/09	341.219.464,00	119.127.451,00	49.798.345,00	271.890.358,00
SANEL	2015/03	2014/12	40.228.864,00	18.500.018,00	936.928,00	22.665.774,00
SANEL	2015/06	2015/03	40.298.706,00	18.258.381,00	1.060.485,00	23.100.810,00
SANEL	2015/09	2015/06	37.388.358,00	15.684.750,00	1.044.092,00	22.747.700,00
SANEL	2015/12	2015/09	38.623.540,00	16.286.711,00	1.135.100,00	23.471.929,00
SANEL	2016/03	2015/12	32.889.688,00	11.093.690,00	1.701.230,00	23.497.228,00
SANEL	2016/06	2016/03	35.145.386,00	13.296.242,00	1.873.492,00	23.722.636,00
SANEL	2016/09	2016/06	38.850.767,00	17.959.520,00	3.064.039,00	23.955.286,00
SANEL	2016/12	2016/09	39.644.447,00	19.039.542,00	3.146.547,00	23.751.452,00
SANEL	2017/03	2016/12	40.221.932,00	19.450.781,00	3.311.778,00	24.082.929,00
SANEL	2017/06	2017/03	41.193.718,00	20.351.684,00	3.539.451,00	24.381.485,00
SANEL	2017/09	2017/06	41.039.286,00	19.948.335,00	4.018.687,00	25.109.638,00
SANEL	2017/12	2017/09	46.686.966,00	24.568.960,00	4.550.957,00	26.668.963,00
SANEL	2018/03	2017/12	60.425.613,00	37.124.940,00	5.207.361,00	28.508.034,00
SANEL	2018/06	2018/03	70.659.717,00	47.527.416,00	5.423.365,00	28.555.666,00
SANEL	2018/09	2018/06	64.072.413,00	42.475.984,00	5.719.578,00	27.316.007,00
SANEL	2018/12	2018/09	55.087.922,00	33.699.666,00	5.729.628,00	27.117.884,00
SANEL	2019/03	2018/12	32.073.153,00	19.746.160,00	9.128.691,00	21.455.684,00
SANEL	2019/06	2019/03	40.278.098,00	33.158.659,00	17.010.675,00	24.130.114,00
SANEL	2019/09	2019/06	31.548.431,00	32.921.286,00	24.662.845,00	23.289.990,00
SANEL	2019/12	2019/09	35.612.822,00	34.747.673,00	25.022.170,00	25.887.319,00
SANEL	2020/03	2019/12	28.816.906,00	19.816.421,00	14.666.705,00	23.667.190,00
SANEL	2020/06	2020/03	30.176.753,00	20.819.517,00	20.371.849,00	29.729.085,00
SANEL	2020/09	2020/06	28.720.905,00	24.399.629,00	15.329.851,00	19.651.127,00
SANEL	2020/12	2020/09	25.799.991,00	22.696.121,00	15.931.226,00	19.035.096,00

STOCK CODE	PERIOD*	PERIOD**	CURRENT ASSETS	CURRENT LIABILITIES	NON-CURRENT ASSETS	INVESTED CAPITAL
TURGG	2015/03	2014/12	68.922,00	2.072.858,00	175.330.293,00	173.326.357,00
TURGG	2015/06	2015/03	88.882,00	2.575.051,00	175.353.080,00	172.866.911,00
TURGG	2015/09	2015/06	106.864,00	3.034.886,00	175.352.320,00	172.424.298,00
TURGG	2015/12	2015/09	125.554,00	3.545.983,00	175.351.739,00	171.931.310,00
TURGG	2016/03	2015/12	216.087,00	4.174.826,00	181.684.144,00	177.725.405,00
TURGG	2016/06	2016/03	149.943,00	4.535.881,00	181.682.521,00	177.296.583,00
TURGG	2016/09	2016/06	20.272.386,00	6.814.108,00	157.957.237,00	171.415.515,00
TURGG	2016/12	2016/09	13.971.313,00	104.208,00	157.959.076,00	171.826.181,00
TURGG	2017/03	2016/12	14.022.552,00	38.616,00	161.219.345,00	175.203.281,00
TURGG	2017/06	2017/03	14.128.541,00	198.908,00	161.222.859,00	175.152.492,00
TURGG	2017/09	2017/06	14.095.747,00	66.580,00	161.220.764,00	175.249.931,00
TURGG	2017/12	2017/09	14.281.282,00	51.085,00	161.218.154,00	175.448.351,00
TURGG	2018/03	2017/12	14.264.362,00	41.999,00	175.181.121,00	189.403.484,00
TURGG	2018/06	2018/03	14.453.073,00	260.687,00	175.183.959,00	189.376.345,00
TURGG	2018/09	2018/06	14.352.742,00	114.287,00	175.183.565,00	189.422.020,00
TURGG	2018/12	2018/09	14.554.361,00	233.717,00	175.186.367,00	189.507.011,00
TURGG	2019/03	2018/12	14.772.671,00	40.782,00	160.285.467,00	175.017.356,00
TURGG	2019/06	2019/03	15.243.755,00	308.213,00	160.398.658,00	175.334.200,00
TURGG	2019/09	2019/06	15.346.378,00	90.416,00	160.386.749,00	175.642.711,00
TURGG	2019/12	2019/09	15.767.066,00	312.675,00	160.373.300,00	175.827.691,00
TURGG	2020/03	2019/12	15.637.746,00	80.851,00	162.207.729,00	177.764.624,00
TURGG	2020/06	2020/03	15.754.643,00	308.999,00	162.208.371,00	177.654.015,00
TURGG	2020/09	2020/06	15.449.641,00	84.053,00	162.190.797,00	177.556.385,00
TURGG	2020/12	2020/09	15.509.273,00	316.759,00	162.182.614,00	177.375.128,00
YAYLA	2015/03	2014/12	21.519.099,00	14.957.949,00	56.552.240,00	63.113.390,00
YAYLA	2015/06	2015/03	20.145.358,00	14.571.750,00	63.041.326,00	68.614.934,00
YAYLA	2015/09	2015/06	14.672.562,00	14.941.662,00	68.880.904,00	68.611.804,00
YAYLA	2015/12	2015/09	16.343.137,00	20.283.513,00	72.600.829,00	68.660.453,00
YAYLA	2016/03	2015/12	10.693.405,00	21.890.985,00	72.014.857,00	60.817.277,00
YAYLA	2016/06	2016/03	11.009.412,00	21.815.540,00	71.972.991,00	61.166.863,00
YAYLA	2016/09	2016/06	13.343.325,00	25.270.048,00	71.767.022,00	59.840.299,00
YAYLA	2016/12	2016/09	11.574.977,00	21.810.984,00	70.913.102,00	60.677.095,00
YAYLA	2017/03	2016/12	14.509.149,00	18.986.922,00	73.535.010,00	69.057.237,00
YAYLA	2017/06	2017/03	16.729.987,00	21.754.634,00	73.533.216,00	68.508.569,00
YAYLA	2017/09	2017/06	16.521.902,00	31.417.222,00	72.363.666,00	57.468.346,00
YAYLA	2017/12	2017/09	16.779.696,00	23.681.453,00	71.970.252,00	65.068.495,00
YAYLA	2018/03	2017/12	13.931.651,00	23.304.172,00	71.635.502,00	62.262.981,00
YAYLA	2018/06	2018/03	15.000.583,00	17.741.214,00	76.425.693,00	73.685.062,00
YAYLA	2018/09	2018/06	14.500.149,00	18.258.684,00	99.442.472,00	95.683.937,00
YAYLA	2018/12	2018/09	17.752.981,00	15.383.367,00	98.552.552,00	100.922.166,00
YAYLA	2019/03	2018/12	20.593.724,00	18.746.412,00	98.137.481,00	99.984.793,00
YAYLA	2019/06	2019/03	19.035.121,00	11.970.897,00	98.027.469,00	105.091.693,00
YAYLA	2019/09	2019/06	14.081.142,00	12.445.758,00	97.316.221,00	98.951.605,00
YAYLA	2019/12	2019/09	15.269.697,00	11.365.873,00	93.212.797,00	97.116.621,00
YAYLA	2020/03	2019/12	14.552.379,00	15.600.653,00	99.374.459,00	98.326.185,00
YAYLA	2020/06	2020/03	14.532.290,00	13.847.301,00	99.187.837,00	99.872.826,00
YAYLA	2020/09	2020/06	17.242.657,00	20.304.588,00	98.751.680,00	95.689.749,00
YAYLA	2020/12	2020/09	16.792.307,00	22.932.826,00	98.468.729,00	92.328.210,00

STOCK CODE	PERIOD*	PERIOD**	CURRENT ASSETS	CURRENT LIABILITIES	NON-CURRENT ASSETS	INVESTED CAPITAL
YYAPI	2015/03	2014/12	264.652.308,00	321.510.464,00	236.654.071,00	179.795.915,00
YYAPI	2015/06	2015/03	259.472.978,00	308.844.431,00	232.102.888,00	182.731.435,00
YYAPI	2015/09	2015/06	368.152.414,00	346.687.397,00	226.832.234,00	248.297.251,00
YYAPI	2015/12	2015/09	385.902.496,00	359.677.542,00	275.088.546,00	301.313.500,00
YYAPI	2016/03	2015/12	236.960.678,00	354.381.135,00	454.055.625,00	336.635.168,00
YYAPI	2016/06	2016/03	223.926.650,00	368.619.575,00	499.488.513,00	354.795.588,00
YYAPI	2016/09	2016/06	275.152.715,00	440.804.800,00	519.518.895,00	353.866.810,00
YYAPI	2016/12	2016/09	231.186.218,00	149.799.146,00	306.343.693,00	387.730.765,00
YYAPI	2017/03	2016/12	166.203.383,00	98.337.537,00	307.020.464,00	374.886.310,00
YYAPI	2017/06	2017/03	216.046.047,00	148.834.208,00	310.222.444,00	377.434.283,00
YYAPI	2017/09	2017/06	207.500.856,00	151.928.790,00	320.698.873,00	376.270.939,00
YYAPI	2017/12	2017/09	213.517.979,00	161.709.696,00	325.866.280,00	377.674.563,00
YYAPI	2018/03	2017/12	316.947.594,00	259.680.248,00	307.787.284,00	365.054.630,00
YYAPI	2018/06	2018/03	357.043.728,00	310.010.902,00	308.357.191,00	355.390.017,00
YYAPI	2018/09	2018/06	347.134.712,00	287.228.331,00	308.070.296,00	367.976.677,00
YYAPI	2018/12	2018/09	341.368.177,00	275.865.553,00	297.972.884,00	363.475.508,00
YYAPI	2019/03	2018/12	259.184.049,00	196.948.248,00	293.941.067,00	356.176.868,00
YYAPI	2019/06	2019/03	283.604.896,00	193.261.673,00	274.269.812,00	364.613.035,00
YYAPI	2019/09	2019/06	238.616.617,00	168.893.140,00	273.941.859,00	343.665.336,00
YYAPI	2019/12	2019/09	232.079.029,00	165.080.175,00	283.772.524,00	350.771.378,00
YYAPI	2020/03	2019/12	341.850.799,00	285.711.455,00	260.163.914,00	316.303.258,00
YYAPI	2020/06	2020/03	295.062.954,00	220.278.981,00	255.636.893,00	330.420.866,00
YYAPI	2020/09	2020/06	328.542.904,00	264.004.143,00	257.424.340,00	321.963.101,00
YYAPI	2020/12	2020/09	220.628.832,00	287.445.181,00	390.243.260,00	323.426.911,00

STOCK CODE	PERIOD*	PERIOD**	CURRENT ASSETS	CURRENT LIABILITIES	NON-CURRENT ASSETS	INVESTED CAPITAL
CLEBI	2015/03	2014/12	179.585.998,00	209.544.474,00	393.658.824,00	363.700.348,00
CLEBI	2015/06	2015/03	187.287.528,00	215.501.787,00	416.266.514,00	388.052.255,00
CLEBI	2015/09	2015/06	218.114.300,00	217.871.481,00	413.566.904,00	413.809.723,00
CLEBI	2015/12	2015/09	275.269.228,00	241.223.820,00	432.065.390,00	466.110.798,00
CLEBI	2016/03	2015/12	259.852.656,00	264.803.996,00	419.576.884,00	414.625.544,00
CLEBI	2016/06	2016/03	255.631.119,00	259.778.820,00	414.677.242,00	410.529.541,00
CLEBI	2016/09	2016/06	183.190.097,00	254.462.851,00	412.653.893,00	341.381.139,00
CLEBI	2016/12	2016/09	225.712.002,00	268.579.446,00	423.767.293,00	380.899.849,00
CLEBI	2017/03	2016/12	211.608.451,00	273.570.617,00	478.214.077,00	416.251.911,00
CLEBI	2017/06	2017/03	288.706.203,00	278.710.919,00	502.230.430,00	512.225.714,00
CLEBI	2017/09	2017/06	288.825.227,00	313.552.065,00	514.179.976,00	489.453.138,00
CLEBI	2017/12	2017/09	321.549.898,00	273.674.564,00	516.340.318,00	564.215.652,00
CLEBI	2018/03	2017/12	283.355.296,00	203.554.784,00	552.686.890,00	632.487.402,00
CLEBI	2018/06	2018/03	319.011.700,00	286.727.960,00	579.154.235,00	611.437.975,00
CLEBI	2018/09	2018/06	415.796.894,00	312.576.096,00	677.030.498,00	780.251.296,00
CLEBI	2018/12	2018/09	636.486.307,00	438.037.158,00	1.035.322.755,00	1.233.771.904,00
CLEBI	2019/03	2018/12	523.455.138,00	442.247.959,00	998.604.903,00	1.079.812.082,00
CLEBI	2019/06	2019/03	623.731.203,00	527.601.270,00	1.661.629.108,00	1.757.759.041,00
CLEBI	2019/09	2019/06	540.403.452,00	733.704.897,00	1.625.590.732,00	1.432.289.287,00
CLEBI	2019/12	2019/09	655.151.129,00	837.344.599,00	1.573.432.448,00	1.391.238.978,00
CLEBI	2020/03	2019/12	652.856.579,00	820.739.957,00	1.566.733.109,00	1.398.849.731,00
CLEBI	2020/06	2020/03	829.176.662,00	990.377.938,00	1.714.498.104,00	1.553.296.828,00
CLEBI	2020/09	2020/06	873.434.005,00	1.193.727.436,00	1.747.048.485,00	1.426.755.054,00
CLEBI	2020/12	2020/09	1.038.205.507,00	1.223.712.387,00	1.886.353.031,00	1.700.846.151,00
DOCO	2015/03	2014/12	657.840.000,00	498.770.000,00	1.232.850.000,00	1.391.920.000,00
DOCO	2015/06	2015/03	694.250.000,00	538.890.000,00	1.127.750.000,00	1.283.110.000,00
DOCO	2015/09	2015/06	760.320.000,00	623.950.000,00	1.303.800.000,00	1.440.170.000,00
DOCO	2015/12	2015/09	1.027.410.000,00	558.940.000,00	934.130.000,00	1.402.600.000,00
DOCO	2016/03	2015/12	1.293.950.000,00	750.220.000,00	1.148.560.000,00	1.692.290.000,00
DOCO	2016/06	2016/03	1.172.410.000,00	745.840.000,00	996.500.000,00	1.423.070.000,00
DOCO	2016/09	2016/06	1.063.030.000,00	617.530.000,00	1.030.840.000,00	1.476.340.000,00
DOCO	2016/12	2016/09	1.137.170.000,00	626.300.000,00	1.118.590.000,00	1.629.460.000,00
DOCO	2017/03	2016/12	1.499.410.000,00	928.550.000,00	1.531.340.000,00	2.102.200.000,00
DOCO	2017/06	2017/03	1.308.510.000,00	860.360.000,00	1.266.320.000,00	1.714.470.000,00
DOCO	2017/09	2017/06	1.278.100.000,00	885.200.000,00	1.385.850.000,00	1.778.750.000,00
DOCO	2017/12	2017/09	1.258.890.000,00	815.990.000,00	1.480.750.000,00	1.923.650.000,00
DOCO	2018/03	2017/12	1.603.330.000,00	965.710.000,00	2.032.770.000,00	2.670.390.000,00
DOCO	2018/06	2018/03	1.442.990.000,00	874.330.000,00	1.668.480.000,00	2.237.140.000,00
DOCO	2018/09	2018/06	2.145.970.000,00	1.183.740.000,00	1.816.750.000,00	2.778.980.000,00
DOCO	2018/12	2018/09	1.939.380.000,00	1.047.890.000,00	1.657.530.000,00	2.549.020.000,00
DOCO	2019/03	2018/12	2.207.930.000,00	1.131.490.000,00	2.033.030.000,00	3.109.470.000,00
DOCO	2019/06	2019/03	2.204.320.000,00	1.298.980.000,00	2.702.220.000,00	3.607.560.000,00
DOCO	2019/09	2019/06	2.131.410.000,00	1.361.370.000,00	2.717.290.000,00	3.487.330.000,00
DOCO	2019/12	2019/09	2.176.510.000,00	1.611.720.000,00	3.548.540.000,00	4.113.330.000,00
DOCO	2020/03	2019/12	5.211.540.000,00	3.819.820.000,00	5.386.940.000,00	6.778.660.000,00
DOCO	2020/06	2020/03	3.571.560.000,00	2.638.270.000,00	4.160.920.000,00	5.094.210.000,00
DOCO	2020/09	2020/06	4.141.920.000,00	3.075.970.000,00	4.664.520.000,00	5.730.470.000,00
DOCO	2020/12	2020/09	3.956.370.000,00	3.007.840.000,00	4.565.260.000,00	5.513.790.000,00

STOCK CODE	PERIOD*	PERIOD**	CURRENT ASSETS	CURRENT LIABILITIES	NON-CURRENT ASSETS	INVESTED CAPITAL
GSDDE	2015/03	2014/12	36.893.000,00	31.509.000,00	231.869.000,00	237.253.000,00
GSDDE	2015/06	2015/03	42.372.000,00	57.465.000,00	255.365.000,00	240.272.000,00
GSDDE	2015/09	2015/06	38.875.000,00	49.130.000,00	258.877.000,00	248.622.000,00
GSDDE	2015/12	2015/09	29.387.000,00	45.952.000,00	289.234.000,00	272.669.000,00
GSDDE	2016/03	2015/12	28.675.000,00	27.443.000,00	272.076.000,00	273.308.000,00
GSDDE	2016/06	2016/03	25.125.000,00	37.802.000,00	261.605.000,00	248.928.000,00
GSDDE	2016/09	2016/06	20.418.000,00	50.013.000,00	264.270.000,00	234.675.000,00
GSDDE	2016/12	2016/09	27.206.000,00	54.767.000,00	291.620.000,00	264.059.000,00
GSDDE	2017/03	2016/12	22.822.000,00	123.434.000,00	339.000.000,00	238.388.000,00
GSDDE	2017/06	2017/03	24.615.000,00	105.440.000,00	345.836.000,00	265.011.000,00
GSDDE	2017/09	2017/06	26.953.000,00	105.778.000,00	329.493.000,00	250.668.000,00
GSDDE	2017/12	2017/09	22.574.000,00	106.096.000,00	330.006.000,00	246.484.000,00
GSDDE	2018/03	2017/12	33.329.000,00	33.140.000,00	348.244.000,00	348.433.000,00
GSDDE	2018/06	2018/03	23.821.000,00	61.410.000,00	359.931.000,00	322.342.000,00
GSDDE	2018/09	2018/06	47.122.000,00	72.805.000,00	318.768.000,00	293.085.000,00
GSDDE	2018/12	2018/09	36.142.000,00	102.459.000,00	413.676.000,00	347.359.000,00
GSDDE	2019/03	2018/12	82.102.000,00	86.548.000,00	214.897.000,00	210.451.000,00
GSDDE	2019/06	2019/03	47.729.000,00	54.295.000,00	226.984.000,00	220.418.000,00
GSDDE	2019/09	2019/06	36.046.000,00	80.780.000,00	234.801.000,00	190.067.000,00
GSDDE	2019/12	2019/09	33.516.000,00	78.474.000,00	230.628.000,00	185.670.000,00
GSDDE	2020/03	2019/12	9.829.000,00	55.095.000,00	239.102.000,00	193.836.000,00
GSDDE	2020/06	2020/03	10.007.000,00	58.767.000,00	257.894.000,00	209.134.000,00
GSDDE	2020/09	2020/06	17.008.000,00	118.008.000,00	265.704.000,00	164.704.000,00
GSDDE	2020/12	2020/09	21.739.000,00	123.405.000,00	297.494.000,00	195.828.000,00
PGSUS	2015/03	2014/12	1.488.893.568,00	842.823.377,00	2.025.868.636,00	2.671.938.827,00
PGSUS	2015/06	2015/03	1.586.343.231,00	993.812.053,00	2.083.179.044,00	2.675.710.222,00
PGSUS	2015/09	2015/06	1.752.350.962,00	1.176.879.376,00	2.235.535.429,00	2.811.007.015,00
PGSUS	2015/12	2015/09	2.142.361.918,00	1.191.297.726,00	2.501.111.393,00	3.452.175.585,00
PGSUS	2016/03	2015/12	1.833.732.173,00	991.845.572,00	2.264.365.079,00	3.106.251.680,00
PGSUS	2016/06	2016/03	1.690.725.544,00	1.048.306.590,00	2.264.706.961,00	2.907.125.915,00
PGSUS	2016/09	2016/06	1.616.635.896,00	1.137.084.113,00	2.350.463.284,00	2.830.015.067,00
PGSUS	2016/12	2016/09	1.751.296.745,00	978.347.698,00	2.961.221.788,00	3.734.170.835,00
PGSUS	2017/03	2016/12	1.459.825.834,00	1.038.827.055,00	4.158.192.161,00	4.579.190.940,00
PGSUS	2017/06	2017/03	1.605.529.293,00	1.395.850.614,00	4.045.897.747,00	4.255.576.426,00
PGSUS	2017/09	2017/06	2.423.572.427,00	2.059.466.091,00	4.002.057.675,00	4.366.164.011,00
PGSUS	2017/12	2017/09	3.072.663.583,00	1.935.514.722,00	4.208.791.491,00	5.345.940.352,00
PGSUS	2018/03	2017/12	3.084.495.304,00	1.851.414.237,00	4.991.239.471,00	6.224.320.538,00
PGSUS	2018/06	2018/03	3.449.884.166,00	2.353.085.765,00	5.653.098.091,00	6.749.896.492,00
PGSUS	2018/09	2018/06	4.060.123.243,00	2.870.637.199,00	6.926.776.517,00	8.116.262.561,00
PGSUS	2018/12	2018/09	5.490.305.206,00	3.120.106.115,00	10.014.815.884,00	12.385.014.975,00
PGSUS	2019/03	2018/12	4.412.080.391,00	3.554.371.119,00	9.252.807.145,00	10.110.516.417,00
PGSUS	2019/06	2019/03	4.209.323.399,00	4.324.453.998,00	12.702.295.385,00	12.587.164.786,00
PGSUS	2019/09	2019/06	5.843.199.698,00	5.011.761.441,00	12.921.299.367,00	13.752.737.624,00
PGSUS	2019/12	2019/09	6.510.102.134,00	4.758.143.708,00	13.253.846.965,00	15.005.805.391,00
PGSUS	2020/03	2019/12	6.088.952.277,00	4.765.226.708,00	14.970.368.921,00	16.294.094.490,00
PGSUS	2020/06	2020/03	6.636.452.529,00	5.992.629.467,00	16.086.479.696,00	16.730.302.758,00
PGSUS	2020/09	2020/06	6.595.872.565,00	6.915.883.570,00	19.261.988.341,00	18.941.977.336,00
PGSUS	2020/12	2020/09	6.436.051.293,00	6.668.238.353,00	22.558.885.845,00	22.326.698.785,00

STOCK CODE	PERIOD*	PERIOD**	CURRENT ASSETS	CURRENT LIABILITIES	NON-CURRENT ASSETS	INVESTED CAPITAL
RYSAS	2015/03	2014/12	164.817.399,00	204.201.826,00	629.077.506,00	589.693.079,00
RYSAS	2015/06	2015/03	192.767.554,00	221.765.926,00	684.050.073,00	655.051.701,00
RYSAS	2015/09	2015/06	224.081.678,00	224.208.173,00	713.029.788,00	712.903.293,00
RYSAS	2015/12	2015/09	241.807.774,00	293.762.116,00	743.397.099,00	691.442.757,00
RYSAS	2016/03	2015/12	241.870.880,00	282.341.064,00	788.758.402,00	748.288.218,00
RYSAS	2016/06	2016/03	217.656.623,00	289.253.302,00	792.028.215,00	720.431.536,00
RYSAS	2016/09	2016/06	190.363.665,00	211.237.062,00	821.703.743,00	800.830.346,00
RYSAS	2016/12	2016/09	185.165.734,00	238.831.223,00	840.284.664,00	786.619.175,00
RYSAS	2017/03	2016/12	217.156.288,00	261.185.046,00	893.157.965,00	849.129.207,00
RYSAS	2017/06	2017/03	209.659.959,00	327.529.325,00	903.553.622,00	785.684.256,00
RYSAS	2017/09	2017/06	174.991.239,00	279.715.836,00	963.387.188,00	858.662.591,00
RYSAS	2017/12	2017/09	175.016.750,00	330.183.961,00	1.014.227.477,00	859.060.266,00
RYSAS	2018/03	2017/12	262.875.497,00	441.659.935,00	1.041.366.054,00	862.581.616,00
RYSAS	2018/06	2018/03	189.568.648,00	441.201.991,00	1.082.504.291,00	830.870.948,00
RYSAS	2018/09	2018/06	313.075.860,00	506.912.996,00	1.113.533.890,00	919.696.754,00
RYSAS	2018/12	2018/09	359.907.663,00	596.524.884,00	1.123.260.447,00	886.643.226,00
RYSAS	2019/03	2018/12	234.305.154,00	538.025.357,00	1.142.756.717,00	839.036.514,00
RYSAS	2019/06	2019/03	205.881.296,00	546.068.959,00	1.149.101.518,00	808.913.855,00
RYSAS	2019/09	2019/06	187.165.715,00	566.777.814,00	1.150.929.318,00	771.317.219,00
RYSAS	2019/12	2019/09	181.266.946,00	589.192.646,00	1.178.045.643,00	770.119.943,00
RYSAS	2020/03	2019/12	213.035.074,00	667.408.072,00	1.214.008.612,00	759.635.614,00
RYSAS	2020/06	2020/03	223.255.480,00	706.010.776,00	1.220.057.788,00	737.302.492,00
RYSAS	2020/09	2020/06	313.776.307,00	653.581.817,00	1.236.718.369,00	896.912.859,00
RYSAS	2020/12	2020/09	277.688.240,00	744.275.669,00	1.280.758.553,00	814.171.124,00
TCELL	2015/03	2014/12	13.307.712.000,00	4.991.169.000,00	10.360.605.000,00	18.677.148.000,00
TCELL	2015/06	2015/03	13.362.954.000,00	9.742.133.000,00	10.589.544.000,00	14.210.365.000,00
TCELL	2015/09	2015/06	9.422.685.000,00	5.774.330.000,00	11.214.146.000,00	14.862.501.000,00
TCELL	2015/12	2015/09	9.187.645.000,00	5.374.066.000,00	11.367.443.000,00	15.181.022.000,00
TCELL	2016/03	2015/12	8.794.857.000,00	6.304.417.000,00	17.389.366.000,00	19.879.806.000,00
TCELL	2016/06	2016/03	8.645.167.000,00	5.758.943.000,00	17.507.383.000,00	20.393.607.000,00
TCELL	2016/09	2016/06	9.951.882.000,00	6.103.184.000,00	18.621.024.000,00	22.469.722.000,00
TCELL	2016/12	2016/09	11.649.154.000,00	7.333.338.000,00	18.581.182.000,00	22.896.998.000,00
TCELL	2017/03	2016/12	13.350.846.000,00	7.358.858.000,00	18.249.312.000,00	24.241.300.000,00
TCELL	2017/06	2017/03	14.719.862.000,00	7.673.723.000,00	18.234.811.000,00	25.280.950.000,00
TCELL	2017/09	2017/06	13.401.956.000,00	9.193.571.000,00	18.512.301.000,00	22.720.686.000,00
TCELL	2017/12	2017/09	13.534.313.000,00	8.358.660.000,00	18.787.560.000,00	23.963.213.000,00
TCELL	2018/03	2017/12	14.069.106.000,00	9.223.843.000,00	19.913.363.000,00	24.758.626.000,00
TCELL	2018/06	2018/03	14.532.098.000,00	11.704.144.000,00	22.541.021.000,00	25.368.975.000,00
TCELL	2018/09	2018/06	17.690.806.000,00	12.451.012.000,00	23.335.352.000,00	28.575.146.000,00
TCELL	2018/12	2018/09	21.077.808.000,00	13.472.543.000,00	24.326.288.000,00	31.931.553.000,00
TCELL	2019/03	2018/12	18.337.109.000,00	11.740.048.000,00	24.428.166.000,00	31.025.227.000,00
TCELL	2019/06	2019/03	21.040.263.000,00	11.615.257.000,00	25.038.322.000,00	34.463.328.000,00
TCELL	2019/09	2019/06	20.303.603.000,00	11.739.630.000,00	25.308.291.000,00	33.872.264.000,00
TCELL	2019/12	2019/09	19.870.389.000,00	13.059.086.000,00	25.644.608.000,00	32.455.911.000,00
TCELL	2020/03	2019/12	19.332.144.000,00	12.655.525.000,00	26.382.831.000,00	33.059.450.000,00
TCELL	2020/06	2020/03	19.035.751.000,00	10.449.136.000,00	26.292.945.000,00	34.879.560.000,00
TCELL	2020/09	2020/06	20.031.169.000,00	10.657.707.000,00	27.010.800.000,00	36.384.262.000,00
TCELL	2020/12	2020/09	22.693.508.000,00	11.832.068.000,00	28.834.594.000,00	39.696.034.000,00

STOCK CODE	PERIOD*	PERIOD**	CURRENT ASSETS	CURRENT LIABILITIES	NON-CURRENT ASSETS	INVESTED CAPITAL
THYAO	2015/03	2014/12	6.565.000.000,00	8.506.000.000,00	25.311.000.000,00	23.370.000.000,00
THYAO	2015/06	2015/03	8.251.683.735,00	10.344.188.239,00	29.155.082.852,00	27.062.578.348,00
THYAO	2015/09	2015/06	9.562.380.160,00	10.995.723.086,00	32.635.905.731,00	31.202.562.805,00
THYAO	2015/12	2015/09	10.436.943.041,00	11.537.702.372,00	39.478.167.559,00	38.377.408.228,00
THYAO	2016/03	2015/12	9.148.000.000,00	11.248.000.000,00	38.490.000.000,00	36.390.000.000,00
THYAO	2016/06	2016/03	9.064.000.000,00	11.572.000.000,00	39.285.000.000,00	36.777.000.000,00
THYAO	2016/09	2016/06	9.429.000.000,00	12.201.000.000,00	42.987.000.000,00	40.215.000.000,00
THYAO	2016/12	2016/09	11.079.000.000,00	13.251.000.000,00	44.637.000.000,00	42.465.000.000,00
THYAO	2017/03	2016/12	12.673.000.000,00	15.832.000.000,00	52.401.000.000,00	49.242.000.000,00
THYAO	2017/06	2017/03	12.814.000.000,00	17.886.000.000,00	54.389.000.000,00	49.317.000.000,00
THYAO	2017/09	2017/06	14.217.000.000,00	19.008.000.000,00	50.256.000.000,00	45.465.000.000,00
THYAO	2017/12	2017/09	15.455.000.000,00	17.477.000.000,00	50.777.000.000,00	48.755.000.000,00
THYAO	2018/03	2017/12	13.699.000.000,00	16.209.000.000,00	54.948.000.000,00	52.438.000.000,00
THYAO	2018/06	2018/03	15.227.000.000,00	19.453.000.000,00	57.902.000.000,00	53.676.000.000,00
THYAO	2018/09	2018/06	22.704.000.000,00	23.647.000.000,00	67.671.000.000,00	66.728.000.000,00
THYAO	2018/12	2018/09	31.701.000.000,00	30.051.000.000,00	91.283.000.000,00	92.933.000.000,00
THYAO	2019/03	2018/12	23.706.000.000,00	27.246.000.000,00	85.370.000.000,00	81.830.000.000,00
THYAO	2019/06	2019/03	27.141.000.000,00	33.909.000.000,00	101.913.000.000,00	95.145.000.000,00
THYAO	2019/09	2019/06	27.898.000.000,00	36.331.000.000,00	104.864.000.000,00	96.431.000.000,00
THYAO	2019/12	2019/09	24.918.000.000,00	33.577.000.000,00	110.585.000.000,00	101.926.000.000,00
THYAO	2020/03	2019/12	28.339.000.000,00	35.417.000.000,00	118.532.000.000,00	111.454.000.000,00
THYAO	2020/06	2020/03	24.806.000.000,00	40.523.000.000,00	137.896.000.000,00	122.179.000.000,00
THYAO	2020/09	2020/06	28.568.000.000,00	44.319.000.000,00	140.730.000.000,00	124.979.000.000,00
THYAO	2020/12	2020/09	29.238.000.000,00	47.844.000.000,00	161.783.000.000,00	143.177.000.000,00
TTKOM	2015/03	2014/12	6.413.004.000,00	4.225.718.000,00	13.464.783.000,00	15.652.069.000,00
TTKOM	2015/06	2015/03	7.393.030.000,00	6.091.656.000,00	13.280.238.000,00	14.581.612.000,00
TTKOM	2015/09	2015/06	6.563.179.000,00	4.728.434.000,00	13.239.610.000,00	15.074.355.000,00
TTKOM	2015/12	2015/09	7.627.742.000,00	5.490.174.000,00	13.839.131.000,00	15.976.699.000,00
TTKOM	2016/03	2015/12	8.441.600.000,00	8.552.927.000,00	17.332.304.000,00	17.220.977.000,00
TTKOM	2016/06	2016/03	10.437.394.000,00	8.992.014.000,00	17.402.399.000,00	18.847.779.000,00
TTKOM	2016/09	2016/06	9.209.550.000,00	9.209.288.000,00	17.416.192.000,00	17.416.454.000,00
TTKOM	2016/12	2016/09	9.201.113.000,00	8.565.557.000,00	17.388.937.000,00	18.024.493.000,00
TTKOM	2017/03	2016/12	9.186.483.000,00	8.351.705.000,00	17.687.968.000,00	18.522.746.000,00
TTKOM	2017/06	2017/03	9.274.451.000,00	7.672.896.000,00	17.427.161.000,00	19.028.716.000,00
TTKOM	2017/09	2017/06	8.476.929.000,00	6.670.977.000,00	17.256.098.000,00	19.062.050.000,00
TTKOM	2017/12	2017/09	9.328.350.000,00	6.636.432.000,00	17.190.200.000,00	19.882.118.000,00
TTKOM	2018/03	2017/12	10.566.394.000,00	8.661.581.000,00	18.582.141.000,00	20.486.954.000,00
TTKOM	2018/06	2018/03	10.669.289.000,00	8.401.425.000,00	19.266.920.000,00	21.534.784.000,00
TTKOM	2018/09	2018/06	11.149.374.000,00	11.262.800.000,00	19.351.508.000,00	19.238.082.000,00
TTKOM	2018/12	2018/09	13.505.494.000,00	14.448.271.000,00	25.439.080.000,00	24.496.303.000,00
TTKOM	2019/03	2018/12	10.936.213.000,00	13.496.359.000,00	25.262.298.000,00	22.702.152.000,00
TTKOM	2019/06	2019/03	14.224.231.000,00	13.382.153.000,00	26.349.218.000,00	27.191.296.000,00
TTKOM	2019/09	2019/06	11.243.562.000,00	12.128.561.000,00	26.330.991.000,00	25.445.992.000,00
TTKOM	2019/12	2019/09	11.588.529.000,00	12.051.728.000,00	26.704.940.000,00	26.241.741.000,00
TTKOM	2020/03	2019/12	12.077.205.000,00	13.693.647.000,00	27.832.081.000,00	26.215.639.000,00
TTKOM	2020/06	2020/03	14.399.145.000,00	14.533.801.000,00	27.876.975.000,00	27.742.319.000,00
TTKOM	2020/09	2020/06	13.739.241.000,00	13.106.565.000,00	28.112.336.000,00	28.745.012.000,00
TTKOM	2020/12	2020/09	15.134.764.000,00	14.129.623.000,00	29.620.627.000,00	30.625.768.000,00

* It is the period that is to be measured through the scope of the study.

** It is the period that represents the actual values of the components of the invested capital. Since the invested capital is calculated according to the values of the previous period, this column is needed to be demonstrated separately to explain clearly.

APPENDIX F

STOCK CODE	PERIOD	NOPLAT	INVESTED CAPITAL	WACC	EVA
ANELE	2015/03	10.089.172,80	433.417.382,00	9,39%	-30.623.514,30
ANELE	2015/06	24.040.684,00	636.976.559,00	9,69%	-37.663.645,78
ANELE	2015/09	40.496.116,00	629.992.952,00	10,34%	-24.672.091,06
ANELE	2015/12	-20.792.874,00	688.226.898,00	10,89%	-95.746.953,38
ANELE	2016/03	19.356.580,80	331.778.440,00	11,14%	-17.612.728,69
ANELE	2016/06	21.905.311,20	483.555.132,00	10,95%	-31.043.905,02
ANELE	2016/09	26.872.484,80	491.480.403,00	10,47%	-24.572.300,76
ANELE	2016/12	47.186.476,00	508.236.020,00	10,35%	-5.404.831,43
ANELE	2017/03	9.847.562,40	359.869.745,00	10,49%	-27.919.867,39
ANELE	2017/06	32.018.657,60	536.079.373,00	11,16%	-27.807.506,89
ANELE	2017/09	51.292.582,40	395.839.197,00	11,60%	5.356.998,66
ANELE	2017/12	57.809.178,40	406.423.399,00	11,63%	10.522.364,08
ANELE	2018/03	12.272.838,24	536.182.875,00	11,64%	-50.138.004,13
ANELE	2018/06	20.347.289,82	460.777.090,00	12,45%	-37.002.273,01
ANELE	2018/09	38.245.106,64	520.356.693,00	16,55%	-47.851.786,94
ANELE	2018/12	17.845.779,12	664.128.022,00	18,64%	-105.930.036,54
ANELE	2019/03	9.991.255,56	665.420.474,00	15,90%	-95.833.152,18
ANELE	2019/06	14.726.672,22	554.792.577,00	16,65%	-77.636.273,19
ANELE	2019/09	20.716.236,06	555.920.197,00	13,98%	-56.987.470,26
ANELE	2019/12	24.105.513,12	546.526.452,00	10,76%	-34.686.742,90
ANELE	2020/03	9.443.057,52	670.716.407,00	8,92%	-50.392.534,74
ANELE	2020/06	14.165.095,62	666.381.858,00	7,91%	-38.530.774,57
ANELE	2020/09	-49.333.340,00	673.982.650,00	8,94%	-109.591.262,75
ANELE	2020/12	-86.349.274,00	636.132.664,00	11,88%	-161.924.971,70
EDIP	2015/03	3.508.298,40	441.167.509,00	8,77%	-35.191.758,04
EDIP	2015/06	6.549.469,60	438.445.629,00	9,10%	-33.340.626,69
EDIP	2015/09	12.447.357,60	433.071.479,00	9,92%	-30.518.498,27
EDIP	2015/12	57.464.252,00	420.456.941,00	10,13%	14.862.601,93
EDIP	2016/03	5.800.757,60	495.396.656,00	10,19%	-44.697.515,33
EDIP	2016/06	10.026.837,60	495.032.842,00	10,00%	-39.484.650,45
EDIP	2016/09	14.487.698,40	493.410.564,00	9,71%	-33.441.601,90
EDIP	2016/12	47.947.129,60	489.947.515,00	9,58%	1.032.642,60
EDIP	2017/03	4.982.529,60	318.742.142,00	9,86%	-26.437.774,93
EDIP	2017/06	7.884.913,60	306.923.400,00	10,50%	-24.331.170,28
EDIP	2017/09	28.075.408,80	562.292.022,00	10,88%	-33.087.174,61
EDIP	2017/12	56.919.533,60	577.606.254,00	10,92%	-6.147.821,75
EDIP	2018/03	5.986.165,38	591.788.989,00	11,34%	-61.113.469,35
EDIP	2018/06	11.138.917,14	589.014.329,00	12,74%	-63.907.098,96
EDIP	2018/09	18.472.815,66	585.386.821,00	20,29%	-100.283.085,96
EDIP	2018/12	128.591.254,74	573.585.202,00	18,11%	24.696.265,95
EDIP	2019/03	6.460.466,22	708.721.249,00	15,08%	-100.426.871,39
EDIP	2019/06	12.775.350,90	702.195.184,00	16,56%	-103.503.872,33
EDIP	2019/09	19.362.815,16	714.616.118,00	13,01%	-73.594.631,13
EDIP	2019/12	88.480.111,98	715.260.263,00	9,73%	18.869.923,63
EDIP	2020/03	5.021.716,44	794.037.220,00	8,44%	-62.021.764,00
EDIP	2020/06	6.102.079,62	787.427.373,00	7,66%	-54.186.128,72
EDIP	2020/09	11.342.557,98	771.385.055,00	9,21%	-59.676.102,43
EDIP	2020/12	-17.820.895,00	752.172.159,00	12,65%	-112.973.809,06

STOCK CODE	PERIOD	NOPLAT	INVESTED CAPITAL	WACC	EVA
ENKAI	2015/03	364.746.400,00	14.957.605.000,00	8,50%	-906.058.064,91
ENKAI	2015/06	697.632.000,00	16.894.987.000,00	8,62%	-758.149.839,67
ENKAI	2015/09	1.087.187.200,00	17.493.207.000,00	9,01%	-488.268.738,19
ENKAI	2015/12	1.350.513.600,00	19.291.398.000,00	9,30%	-443.461.843,29
ENKAI	2016/03	412.086.400,00	18.000.809.000,00	9,49%	-1.296.227.864,93
ENKAI	2016/06	754.548.800,00	18.322.953.000,00	9,42%	-971.648.878,01
ENKAI	2016/09	1.091.436.800,00	18.981.443.000,00	9,09%	-634.360.449,80
ENKAI	2016/12	1.516.087.200,00	19.780.444.000,00	8,83%	-230.431.286,61
ENKAI	2017/03	393.247.200,00	23.701.397.000,00	8,96%	-1.729.540.846,46
ENKAI	2017/06	787.813.600,00	25.553.972.000,00	9,46%	-1.630.727.537,38
ENKAI	2017/09	1.268.307.200,00	24.510.432.000,00	9,92%	-1.161.980.611,48
ENKAI	2017/12	1.861.284.000,00	25.321.551.000,00	9,91%	-648.476.917,26
ENKAI	2018/03	502.716.240,00	26.711.583.000,00	10,01%	-2.170.730.130,90
ENKAI	2018/06	1.004.159.520,00	28.529.960.000,00	10,52%	-1.995.862.776,80
ENKAI	2018/09	1.899.000.480,00	31.342.331.000,00	12,50%	-2.018.996.277,20
ENKAI	2018/12	2.491.868.340,00	41.142.079.000,00	13,76%	-3.170.228.519,94
ENKAI	2019/03	468.838.500,00	36.210.936.000,00	13,34%	-4.361.110.624,43
ENKAI	2019/06	774.852.000,00	40.035.702.000,00	13,28%	-4.540.811.592,10
ENKAI	2019/09	1.085.810.700,00	41.309.006.000,00	12,05%	-3.890.602.845,84
ENKAI	2019/12	1.438.263.060,00	41.273.190.000,00	10,21%	-2.775.774.079,27
ENKAI	2020/03	652.261.740,00	43.637.883.000,00	8,75%	-3.165.234.641,07
ENKAI	2020/06	935.410.320,00	44.429.907.000,00	7,94%	-2.590.848.090,16
ENKAI	2020/09	1.191.035.820,00	48.635.720.000,00	7,95%	-2.673.609.920,14
ENKAI	2020/12	1.621.608.300,00	54.379.975.000,00	9,29%	-3.431.347.586,74
KUYAS	2015/03	130.382,40	131.301.286,00	8,79%	-11.417.384,84
KUYAS	2015/06	1.956.818,40	119.938.267,00	9,19%	-9.063.749,02
KUYAS	2015/09	452.892,00	138.552.323,00	9,83%	-13.169.981,20
KUYAS	2015/12	1.933.848,00	142.855.157,00	10,04%	-12.414.933,74
KUYAS	2016/03	189.276,80	144.889.024,00	10,47%	-14.981.050,98
KUYAS	2016/06	2.146.095,20	153.028.305,00	10,38%	-13.739.811,96
KUYAS	2016/09	5.128.689,60	175.811.807,00	9,97%	-12.401.017,52
KUYAS	2016/12	5.137.535,20	174.962.201,00	9,88%	-12.156.656,65
KUYAS	2017/03	-880.517,00	180.267.189,00	10,35%	-19.531.790,51
KUYAS	2017/06	778.627,20	189.791.262,00	10,83%	-19.781.943,15
KUYAS	2017/09	454.574,40	157.513.212,00	11,44%	-17.561.689,28
KUYAS	2017/12	516.755,20	149.231.785,00	11,62%	-16.830.071,44
KUYAS	2018/03	8.201.847,42	130.226.926,00	11,59%	-6.895.931,75
KUYAS	2018/06	9.059.161,80	127.681.447,00	12,90%	-7.405.915,91
KUYAS	2018/09	10.629.819,72	119.226.125,00	18,23%	-11.099.917,04
KUYAS	2018/12	16.064.055,54	112.582.894,00	18,92%	-5.241.070,86
KUYAS	2019/03	-2.031.033,00	142.273.594,00	15,82%	-24.544.942,84
KUYAS	2019/06	-13.375.432,00	166.412.875,00	17,50%	-42.493.863,43
KUYAS	2019/09	-15.162.162,00	158.925.732,00	13,63%	-36.821.235,84
KUYAS	2019/12	-11.847.256,00	180.587.886,00	10,24%	-30.344.223,85
KUYAS	2020/03	79.715,22	171.824.953,00	8,71%	-14.887.167,03
KUYAS	2020/06	1.877.452,98	139.911.775,00	7,77%	-8.989.600,75
KUYAS	2020/09	-499.236,00	128.638.284,00	8,53%	-11.473.038,87
KUYAS	2020/12	-2.843.187,00	198.157.229,00	9,75%	-22.172.403,30

STOCK CODE	PERIOD	NOPLAT	INVESTED CAPITAL	WACC	EVA
ORGE	2015/03	2.016.982,40	26.421.496,00	8,24%	-159.007,60
ORGE	2015/06	4.848.369,60	40.483.066,00	8,53%	1.395.321,37
ORGE	2015/09	7.408.258,40	39.417.699,00	9,01%	3.858.648,47
ORGE	2015/12	10.343.451,20	42.474.150,00	8,87%	6.577.628,41
ORGE	2016/03	5.753.888,80	42.596.164,00	9,46%	1.724.261,23
ORGE	2016/06	11.007.654,40	50.066.785,00	9,53%	6.236.124,23
ORGE	2016/09	16.707.683,20	55.820.204,00	8,93%	11.722.772,16
ORGE	2016/12	21.533.911,20	65.111.638,00	8,37%	16.081.210,60
ORGE	2017/03	6.779.107,20	72.976.802,00	8,24%	765.152,64
ORGE	2017/06	15.407.598,40	81.647.552,00	8,52%	8.455.252,31
ORGE	2017/09	25.079.512,80	86.073.885,00	8,51%	17.754.494,33
ORGE	2017/12	29.733.078,40	98.748.397,00	8,52%	21.316.899,62
ORGE	2018/03	6.269.872,44	98.207.799,00	8,39%	-1.974.248,26
ORGE	2018/06	15.514.873,14	103.511.627,00	9,57%	5.611.725,83
ORGE	2018/09	23.711.853,36	121.691.083,00	11,44%	9.786.753,96
ORGE	2018/12	38.253.704,58	133.823.706,00	11,77%	22.506.152,09
ORGE	2019/03	7.613.780,46	159.780.976,00	9,55%	-7.638.611,66
ORGE	2019/06	17.797.901,94	169.104.842,00	10,54%	-19.276,42
ORGE	2019/09	30.240.573,48	180.708.567,00	9,12%	13.766.375,73
ORGE	2019/12	43.775.369,82	194.146.913,00	7,90%	28.444.317,18
ORGE	2020/03	7.277.444,46	223.944.172,00	7,43%	-9.366.025,59
ORGE	2020/06	18.420.995,58	230.232.085,00	7,20%	1.851.534,56
ORGE	2020/09	30.624.958,26	253.423.686,00	8,01%	10.330.283,60
ORGE	2020/12	47.198.063,64	271.890.358,00	9,17%	22.262.069,50
SANEL	2015/03	-325.483,00	22.665.774,00	8,86%	-2.333.300,78
SANEL	2015/06	-310.123,00	23.100.810,00	9,06%	-2.403.420,95
SANEL	2015/09	129.517,60	22.747.700,00	9,63%	-2.060.802,74
SANEL	2015/12	394.484,80	23.471.929,00	9,70%	-1.882.322,03
SANEL	2016/03	37.554,40	23.497.228,00	10,15%	-2.347.608,17
SANEL	2016/06	-40.508,00	23.722.636,00	10,35%	-2.495.107,46
SANEL	2016/09	203.047,20	23.955.286,00	9,99%	-2.190.052,02
SANEL	2016/12	163.908,80	23.751.452,00	9,74%	-2.148.462,87
SANEL	2017/03	-200.179,00	24.082.929,00	9,99%	-2.606.521,31
SANEL	2017/06	-1.088.376,00	24.381.485,00	10,76%	-3.710.675,48
SANEL	2017/09	-1.130.194,00	25.109.638,00	11,53%	-4.025.282,05
SANEL	2017/12	448.992,00	26.668.963,00	11,92%	-2.730.774,40
SANEL	2018/03	363.901,20	28.508.034,00	12,32%	-3.149.543,25
SANEL	2018/06	-1.165.015,00	28.555.666,00	13,41%	-4.993.128,64
SANEL	2018/09	-1.710.226,00	27.316.007,00	17,93%	-6.608.195,40
SANEL	2018/12	-6.432.841,00	27.117.884,00	18,70%	-11.504.041,10
SANEL	2019/03	274.687,14	21.455.684,00	16,61%	-3.289.828,86
SANEL	2019/06	-144.475,00	24.130.114,00	17,64%	-4.399.827,73
SANEL	2019/09	1.655.176,38	23.289.990,00	14,40%	-1.699.187,73
SANEL	2019/12	5.566.360,02	25.887.319,00	10,79%	2.774.016,15
SANEL	2020/03	856.593,66	23.667.190,00	8,97%	-1.265.231,80
SANEL	2020/06	-4.117.175,00	29.729.085,00	7,95%	-6.481.581,59
SANEL	2020/09	-5.121.991,00	19.651.127,00	8,83%	-6.858.122,28
SANEL	2020/12	-10.030.239,00	19.035.096,00	11,85%	-12.285.435,67

STOCK CODE	PERIOD	NOPLAT	INVESTED CAPITAL	WACC	EVA
TURGG	2015/03	-409.587,00	173.326.357,00	7,42%	-13.271.713,29
TURGG	2015/06	-779.601,00	172.866.911,00	7,50%	-13.747.683,32
TURGG	2015/09	-1.173.123,00	172.424.298,00	7,65%	-14.364.812,80
TURGG	2015/12	3.813.612,80	171.931.310,00	7,80%	-9.599.946,63
TURGG	2016/03	-247.234,00	177.725.405,00	7,78%	-14.071.527,96
TURGG	2016/06	-911.073,00	177.296.583,00	7,69%	-14.545.184,32
TURGG	2016/09	-1.142.162,00	171.415.515,00	7,45%	-13.913.014,94
TURGG	2016/12	1.298.068,80	171.826.181,00	7,46%	-11.511.737,38
TURGG	2017/03	-412.817,00	175.203.281,00	7,48%	-13.523.498,20
TURGG	2017/06	-776.199,00	175.152.492,00	7,51%	-13.931.307,76
TURGG	2017/09	-1.016.539,00	175.249.931,00	7,46%	-14.092.129,88
TURGG	2017/12	9.955.599,20	175.448.351,00	7,45%	-3.112.916,33
TURGG	2018/03	-486.643,00	189.403.484,00	7,49%	-14.675.336,23
TURGG	2018/06	-988.415,00	189.376.345,00	7,72%	-15.599.128,29
TURGG	2018/09	-1.501.888,00	189.422.020,00	8,83%	-18.224.018,44
TURGG	2018/12	-16.793.561,00	189.507.011,00	8,49%	-32.876.631,14
TURGG	2019/03	-409.042,00	175.017.356,00	7,35%	-13.277.667,95
TURGG	2019/06	-877.328,00	175.334.200,00	7,78%	-14.518.386,91
TURGG	2019/09	-1.332.759,00	175.642.711,00	7,12%	-13.844.800,01
TURGG	2019/12	58.200,48	175.827.691,00	6,71%	-11.732.314,66
TURGG	2020/03	-461.527,00	177.764.624,00	6,79%	-12.526.527,05
TURGG	2020/06	-919.406,00	177.654.015,00	6,82%	-13.042.235,17
TURGG	2020/09	-1.462.007,00	177.556.385,00	7,27%	-14.361.726,84
TURGG	2020/12	4.018.045,98	177.375.128,00	7,65%	-9.546.522,37
YAYLA	2015/03	583.463,20	63.113.390,00	8,58%	-4.834.672,03
YAYLA	2015/06	358.663,20	68.614.934,00	8,84%	-5.703.930,34
YAYLA	2015/09	943.400,80	68.611.804,00	9,39%	-5.501.504,15
YAYLA	2015/12	-5.337.657,00	68.660.453,00	9,99%	-12.196.046,89
YAYLA	2016/03	-387.704,00	60.817.277,00	10,26%	-6.628.552,87
YAYLA	2016/06	-674.685,00	61.166.863,00	10,19%	-6.908.964,14
YAYLA	2016/09	-1.200.941,00	59.840.299,00	9,79%	-7.061.783,75
YAYLA	2016/12	451.898,40	60.677.095,00	9,68%	-5.424.630,86
YAYLA	2017/03	-79.220,00	69.057.237,00	9,95%	-6.953.074,86
YAYLA	2017/06	-135.660,00	68.508.569,00	10,45%	-7.294.561,90
YAYLA	2017/09	-2.732.648,00	57.468.346,00	10,97%	-9.037.454,98
YAYLA	2017/12	-10.184.999,00	65.068.495,00	11,52%	-17.679.428,31
YAYLA	2018/03	-2.092.483,00	62.262.981,00	10,79%	-8.813.712,32
YAYLA	2018/06	2.022.909,72	73.685.062,00	11,24%	-6.262.215,90
YAYLA	2018/09	1.688.692,20	95.683.937,00	15,39%	-13.037.361,56
YAYLA	2018/12	-6.303.453,00	100.922.166,00	14,67%	-21.104.879,18
YAYLA	2019/03	1.200.117,36	99.984.793,00	12,76%	-11.556.439,71
YAYLA	2019/06	555.010,56	105.091.693,00	13,26%	-13.383.374,58
YAYLA	2019/09	819.099,06	98.951.605,00	11,28%	-10.339.370,69
YAYLA	2019/12	-454.527,00	97.116.621,00	9,19%	-9.383.820,43
YAYLA	2020/03	1.427.391,42	98.326.185,00	8,10%	-6.540.571,60
YAYLA	2020/06	798.370,56	99.872.826,00	7,54%	-6.734.255,51
YAYLA	2020/09	-1.119.868,00	95.689.749,00	8,13%	-8.902.706,22
YAYLA	2020/12	-5.265.976,00	92.328.210,00	9,83%	-14.343.814,55

STOCK CODE	PERIOD	NOPLAT	INVESTED CAPITAL	WACC	EVA
YYAPI	2015/03	741.576,00	179.795.915,00	9,44%	-16.223.373,12
YYAPI	2015/06	42.241.365,60	182.731.435,00	9,51%	24.870.547,96
YYAPI	2015/09	44.866.405,60	248.297.251,00	10,32%	19.253.475,92
YYAPI	2015/12	35.868.988,80	301.313.500,00	10,90%	3.028.800,08
YYAPI	2016/03	3.110.360,00	336.635.168,00	11,07%	-34.146.737,50
YYAPI	2016/06	10.947.852,00	354.795.588,00	11,07%	-28.329.176,75
YYAPI	2016/09	6.625.308,00	353.866.810,00	8,11%	-22.088.583,80
YYAPI	2016/12	990.848,80	387.730.765,00	7,64%	-28.619.231,85
YYAPI	2017/03	-1.859.523,00	374.886.310,00	8,05%	-32.039.865,22
YYAPI	2017/06	2.143.744,00	377.434.283,00	8,23%	-28.903.008,71
YYAPI	2017/09	540.843,20	376.270.939,00	8,37%	-30.958.097,09
YYAPI	2017/12	-16.071.133,00	377.674.563,00	9,16%	-50.680.741,18
YYAPI	2018/03	-3.494.590,00	365.054.630,00	9,65%	-38.707.841,77
YYAPI	2018/06	11.829.483,12	355.390.017,00	10,13%	-24.160.553,88
YYAPI	2018/09	16.795.559,82	367.976.677,00	13,09%	-31.366.401,86
YYAPI	2018/12	12.411.618,96	363.475.508,00	12,04%	-31.355.355,30
YYAPI	2019/03	96.751,20	356.176.868,00	9,89%	-35.128.204,63
YYAPI	2019/06	-16.258.968,00	364.613.035,00	10,27%	-53.719.562,73
YYAPI	2019/09	-17.117.177,00	343.665.336,00	8,74%	-47.161.277,44
YYAPI	2019/12	-70.006.944,00	350.771.378,00	8,42%	-99.545.410,14
YYAPI	2020/03	16.343.895,36	316.303.258,00	7,45%	-7.209.181,03
YYAPI	2020/06	15.829.876,92	330.420.866,00	7,20%	-7.965.100,18
YYAPI	2020/09	15.531.547,98	321.963.101,00	8,11%	-10.574.781,57
YYAPI	2020/12	-7.791.692,00	323.426.911,00	9,48%	-38.466.832,45

STOCK CODE	PERIOD	NOPLAT	INVESTED CAPITAL	WACC	EVA
CLEBI	2015/03	6.839.628,00	363.700.348,00	9,63%	-28.180.308,76
CLEBI	2015/06	30.827.010,40	388.052.255,00	10,22%	-8.829.157,88
CLEBI	2015/09	90.383.644,80	413.809.723,00	10,80%	45.672.058,32
CLEBI	2015/12	97.018.288,00	466.110.798,00	11,45%	43.669.469,47
CLEBI	2016/03	9.230.536,00	414.625.544,00	11,65%	-39.082.496,48
CLEBI	2016/06	18.627.375,20	410.529.541,00	11,87%	-30.102.768,83
CLEBI	2016/09	47.552.074,40	341.381.139,00	11,15%	9.481.052,78
CLEBI	2016/12	47.822.140,80	380.899.849,00	10,87%	6.424.783,90
CLEBI	2017/03	9.027.140,80	416.251.911,00	11,17%	-37.458.426,65
CLEBI	2017/06	38.389.561,60	512.225.714,00	12,11%	-23.628.674,35
CLEBI	2017/09	101.255.312,00	489.453.138,00	12,29%	41.100.248,46
CLEBI	2017/12	118.689.618,40	564.215.652,00	12,21%	49.804.972,57
CLEBI	2018/03	20.280.394,68	632.487.402,00	12,40%	-58.119.028,99
CLEBI	2018/06	70.868.054,40	611.437.975,00	14,01%	-14.788.189,62
CLEBI	2018/09	213.454.977,06	780.251.296,00	19,40%	62.100.692,25
CLEBI	2018/12	215.225.801,70	1.233.771.904,00	20,18%	-33.765.669,65
CLEBI	2019/03	35.098.364,34	1.079.812.082,00	16,72%	-145.414.346,99
CLEBI	2019/06	103.888.889,52	1.757.759.041,00	18,35%	-218.675.001,08
CLEBI	2019/09	190.654.268,22	1.432.289.287,00	14,28%	-13.832.918,83
CLEBI	2019/12	230.430.000,84	1.391.238.978,00	10,43%	85.300.329,22
CLEBI	2020/03	38.233.724,88	1.398.849.731,00	8,78%	-84.571.222,21
CLEBI	2020/06	15.014.684,10	1.553.296.828,00	7,82%	-106.520.769,70
CLEBI	2020/09	110.778.735,60	1.426.755.054,00	9,18%	-20.261.756,45
CLEBI	2020/12	160.473.723,54	1.700.846.151,00	12,31%	-48.886.916,35
DOCO	2015/03	53.528.000,00	1.391.920.000,00	9,48%	-78.410.101,31
DOCO	2015/06	128.968.000,00	1.283.110.000,00	9,82%	2.909.668,90
DOCO	2015/09	207.344.000,00	1.440.170.000,00	10,53%	55.622.802,93
DOCO	2015/12	290.664.000,00	1.402.600.000,00	11,19%	133.776.047,24
DOCO	2016/03	75.640.000,00	1.692.290.000,00	11,61%	-120.833.123,85
DOCO	2016/06	175.056.000,00	1.423.070.000,00	11,38%	13.106.087,52
DOCO	2016/09	178.824.000,00	1.476.340.000,00	10,79%	19.564.358,01
DOCO	2016/12	366.704.000,00	1.629.460.000,00	10,46%	196.335.184,55
DOCO	2017/03	78.416.000,00	2.102.200.000,00	10,74%	-147.289.683,25
DOCO	2017/06	238.808.000,00	1.714.470.000,00	11,60%	39.888.938,13
DOCO	2017/09	306.240.000,00	1.778.750.000,00	12,25%	88.371.206,64
DOCO	2017/12	403.760.000,00	1.923.650.000,00	12,34%	166.381.331,34
DOCO	2018/03	96.337.800,00	2.670.390.000,00	12,57%	-239.313.081,87
DOCO	2018/06	196.006.200,00	2.237.140.000,00	13,70%	-110.443.523,46
DOCO	2018/09	318.520.800,00	2.778.980.000,00	18,23%	-188.041.468,07
DOCO	2018/12	449.662.200,00	2.549.020.000,00	20,14%	-63.792.897,28
DOCO	2019/03	165.539.400,00	3.109.470.000,00	18,29%	-403.165.917,02
DOCO	2019/06	429.538.200,00	3.607.560.000,00	19,18%	-262.564.124,09
DOCO	2019/09	623.461.800,00	3.487.330.000,00	15,87%	70.022.888,43
DOCO	2019/12	535.345.200,00	4.113.330.000,00	11,59%	58.410.806,28
DOCO	2020/03	-56.980.000,00	6.778.660.000,00	9,33%	-689.614.218,27
DOCO	2020/06	53.079.000,00	5.094.210.000,00	8,06%	-357.291.983,43
DOCO	2020/09	188.315.400,00	5.730.470.000,00	9,33%	-346.544.011,30
DOCO	2020/12	332.857.200,00	5.513.790.000,00	12,58%	-360.841.212,16

STOCK CODE	PERIOD	NOPLAT	INVESTED CAPITAL	WACC	EVA
GSDDE	2015/03	318.400,00	237.253.000,00	9,24%	-21.605.896,95
GSDDE	2015/06	-2.631.000,00	240.272.000,00	9,61%	-25.715.119,43
GSDDE	2015/09	-4.318.000,00	248.622.000,00	10,32%	-29.985.292,40
GSDDE	2015/12	-6.326.000,00	272.669.000,00	10,96%	-36.222.462,68
GSDDE	2016/03	-4.129.000,00	273.308.000,00	11,26%	-34.889.904,64
GSDDE	2016/06	-6.421.000,00	248.928.000,00	11,07%	-33.981.668,60
GSDDE	2016/09	-7.862.000,00	234.675.000,00	10,74%	-33.068.098,57
GSDDE	2016/12	-9.291.000,00	264.059.000,00	10,46%	-36.919.353,19
GSDDE	2017/03	232.000,00	238.388.000,00	10,72%	-25.327.829,41
GSDDE	2017/06	-195.000,00	265.011.000,00	11,51%	-30.707.781,59
GSDDE	2017/09	-2.069.000,00	250.668.000,00	12,06%	-32.310.607,99
GSDDE	2017/12	3.151.200,00	246.484.000,00	12,14%	-26.772.235,84
GSDDE	2018/03	1.645.800,00	348.433.000,00	12,34%	-41.336.910,92
GSDDE	2018/06	3.389.100,00	322.342.000,00	13,23%	-39.248.250,10
GSDDE	2018/09	11.561.940,00	293.085.000,00	18,11%	-41.509.787,56
GSDDE	2018/12	14.454.180,00	347.359.000,00	17,63%	-46.773.902,11
GSDDE	2019/03	1.957.020,00	210.451.000,00	14,68%	-28.931.572,41
GSDDE	2019/06	2.230.020,00	220.418.000,00	15,34%	-31.583.242,50
GSDDE	2019/09	3.054.480,00	190.067.000,00	12,90%	-21.466.720,99
GSDDE	2019/12	4.621.500,00	185.670.000,00	10,00%	-13.947.327,45
GSDDE	2020/03	-2.115.000,00	193.836.000,00	8,56%	-18.708.023,83
GSDDE	2020/06	-7.174.000,00	209.134.000,00	7,76%	-23.399.636,47
GSDDE	2020/09	-8.006.000,00	164.704.000,00	8,29%	-21.653.544,56
GSDDE	2020/12	-5.364.000,00	195.828.000,00	10,10%	-25.146.164,16
PGSUS	2015/03	-10.916.128,00	2.671.938.827,00	9,12%	-254.635.932,46
PGSUS	2015/06	-47.970.757,00	2.675.710.222,00	9,43%	-300.229.671,85
PGSUS	2015/09	224.271.724,00	2.811.007.015,00	9,80%	-51.146.769,39
PGSUS	2015/12	215.485.665,60	3.452.175.585,00	10,36%	-142.007.965,61
PGSUS	2016/03	-205.893.307,00	3.106.251.680,00	10,67%	-537.484.637,18
PGSUS	2016/06	-285.398.673,00	2.907.125.915,00	10,44%	-589.004.255,00
PGSUS	2016/09	-4.994.546,00	2.830.015.067,00	9,95%	-286.503.996,87
PGSUS	2016/12	-105.954.803,00	3.734.170.835,00	10,07%	-481.913.359,01
PGSUS	2017/03	-202.058.502,00	4.579.190.940,00	10,39%	-678.060.135,12
PGSUS	2017/06	-167.431.789,00	4.255.576.426,00	11,02%	-636.370.683,15
PGSUS	2017/09	444.937.196,80	4.366.164.011,00	10,95%	-33.018.294,68
PGSUS	2017/12	369.393.761,60	5.345.940.352,00	11,04%	-221.038.329,18
PGSUS	2018/03	-132.169.187,00	6.224.320.538,00	11,48%	-846.684.679,26
PGSUS	2018/06	15.201.469,14	6.749.896.492,00	12,88%	-854.060.542,90
PGSUS	2018/09	609.724.038,30	8.116.262.561,00	17,42%	-803.964.940,76
PGSUS	2018/12	617.542.827,72	12.385.014.975,00	18,51%	-1.674.333.321,48
PGSUS	2019/03	-55.595.749,00	10.110.516.417,00	15,83%	-1.656.367.433,81
PGSUS	2019/06	272.512.808,10	12.587.164.786,00	17,17%	-1.888.321.213,14
PGSUS	2019/09	1.465.685.724,36	13.752.737.624,00	13,25%	-357.178.312,81
PGSUS	2019/12	1.608.346.746,24	15.005.805.391,00	9,74%	146.898.080,41
PGSUS	2020/03	-229.414.023,00	16.294.094.490,00	8,44%	-1.604.488.635,94
PGSUS	2020/06	-1.024.157.454,00	16.730.302.758,00	7,64%	-2.302.070.087,53
PGSUS	2020/09	-1.021.477.376,00	18.941.977.336,00	8,97%	-2.720.924.090,68
PGSUS	2020/12	-1.360.923.789,00	22.326.698.785,00	11,94%	-4.027.447.023,68

STOCK CODE	PERIOD	NOPLAT	INVESTED CAPITAL	WACC	EVA
RYSAS	2015/03	9.649.508,80	589.693.079,00	9,27%	-45.001.556,95
RYSAS	2015/06	22.027.518,40	655.051.701,00	9,68%	-41.376.623,35
RYSAS	2015/09	32.258.420,00	712.903.293,00	10,63%	-43.545.296,31
RYSAS	2015/12	40.251.352,80	691.442.757,00	11,29%	-37.804.345,01
RYSAS	2016/03	11.117.450,40	748.288.218,00	11,45%	-74.534.684,82
RYSAS	2016/06	23.839.730,40	720.431.536,00	11,21%	-56.950.732,67
RYSAS	2016/09	42.135.261,60	800.830.346,00	10,73%	-43.808.770,57
RYSAS	2016/12	48.674.963,20	786.619.175,00	10,73%	-35.728.713,79
RYSAS	2017/03	22.560.117,60	849.129.207,00	11,01%	-70.948.186,51
RYSAS	2017/06	46.717.285,60	785.684.256,00	11,73%	-45.460.334,62
RYSAS	2017/09	68.530.049,60	858.662.591,00	12,30%	-37.046.896,80
RYSAS	2017/12	88.754.327,20	859.060.266,00	12,56%	-19.162.116,34
RYSAS	2018/03	21.661.000,14	862.581.616,00	12,89%	-89.553.286,91
RYSAS	2018/06	39.416.155,74	830.870.948,00	14,68%	-82.541.416,79
RYSAS	2018/09	73.380.173,10	919.696.754,00	22,92%	-137.409.335,42
RYSAS	2018/12	121.326.464,22	886.643.226,00	23,03%	-82.863.157,40
RYSAS	2019/03	33.835.354,80	839.036.514,00	18,59%	-122.104.720,96
RYSAS	2019/06	74.793.984,72	808.913.855,00	20,26%	-89.102.815,49
RYSAS	2019/09	114.680.291,70	771.317.219,00	15,53%	-5.125.846,36
RYSAS	2019/12	158.466.901,32	770.119.943,00	11,09%	73.090.933,63
RYSAS	2020/03	44.168.247,24	759.635.614,00	9,07%	-24.730.730,84
RYSAS	2020/06	80.587.561,86	737.302.492,00	7,90%	22.359.085,18
RYSAS	2020/09	137.178.625,74	896.912.859,00	9,58%	51.247.486,06
RYSAS	2020/12	199.379.610,30	814.171.124,00	11,73%	103.847.627,98
TCELL	2015/03	882.371.200,00	18.677.148.000,00	8,84%	-767.897.113,31
TCELL	2015/06	1.473.932.000,00	14.210.365.000,00	8,74%	231.314.398,59
TCELL	2015/09	2.235.844.800,00	14.862.501.000,00	9,15%	875.827.308,92
TCELL	2015/12	2.720.527.200,00	15.181.022.000,00	10,06%	1.193.085.090,42
TCELL	2016/03	614.108.800,00	19.879.806.000,00	10,23%	-1.419.491.538,73
TCELL	2016/06	1.100.688.000,00	20.393.607.000,00	10,26%	-990.854.364,06
TCELL	2016/09	1.710.912.000,00	22.469.722.000,00	9,93%	-521.117.302,20
TCELL	2016/12	2.760.596.800,00	22.896.998.000,00	9,68%	544.549.201,34
TCELL	2017/03	824.576.000,00	24.241.300.000,00	9,88%	-1.571.225.524,77
TCELL	2017/06	1.508.098.400,00	25.280.950.000,00	10,77%	-1.213.755.360,45
TCELL	2017/09	2.444.438.400,00	22.720.686.000,00	11,21%	-103.106.237,69
TCELL	2017/12	2.996.482.400,00	23.963.213.000,00	11,38%	270.617.787,19
TCELL	2018/03	964.443.480,00	24.758.626.000,00	11,83%	-1.964.552.795,04
TCELL	2018/06	2.347.945.080,00	25.368.975.000,00	12,98%	-944.441.546,04
TCELL	2018/09	4.451.169.840,00	28.575.146.000,00	18,16%	-739.142.601,26
TCELL	2018/12	4.866.281.160,00	31.931.553.000,00	18,95%	-1.183.934.845,81
TCELL	2019/03	1.229.756.580,00	31.025.227.000,00	16,24%	-3.810.127.333,87
TCELL	2019/06	2.565.725.760,00	34.463.328.000,00	17,12%	-3.333.159.870,51
TCELL	2019/09	3.635.068.320,00	33.872.264.000,00	14,10%	-1.141.533.754,47
TCELL	2019/12	5.145.232.560,00	32.455.911.000,00	10,70%	1.673.058.471,17
TCELL	2020/03	1.703.249.340,00	33.059.450.000,00	8,90%	-1.238.784.222,32
TCELL	2020/06	3.163.021.680,00	34.879.560.000,00	7,91%	404.570.177,88
TCELL	2020/09	5.521.655.880,00	36.384.262.000,00	8,75%	2.338.084.358,79
TCELL	2020/12	6.387.017.520,00	39.696.034.000,00	11,23%	1.927.598.726,85

STOCK CODE	PERIOD	NOPLAT	INVESTED CAPITAL	WACC	EVA
THYAO	2015/03	33.600.000,00	23.370.000.000,00	9,18%	-2.110.761.698,55
THYAO	2015/06	413.600.000,00	27.062.578.348,00	9,53%	-2.164.657.063,80
THYAO	2015/09	2.018.400.000,00	31.202.562.805,00	10,17%	-1.153.396.890,42
THYAO	2015/12	1.988.800.000,00	38.377.408.228,00	10,74%	-2.133.680.894,40
THYAO	2016/03	-630.000.000,00	36.390.000.000,00	11,10%	-4.669.419.475,38
THYAO	2016/06	-1.206.000.000,00	36.777.000.000,00	10,98%	-5.245.160.356,34
THYAO	2016/09	-444.000.000,00	40.215.000.000,00	10,47%	-4.656.368.232,76
THYAO	2016/12	-865.000.000,00	42.465.000.000,00	10,11%	-5.158.331.023,92
THYAO	2017/03	-664.000.000,00	49.242.000.000,00	10,43%	-5.799.249.112,48
THYAO	2017/06	31.200.000,00	49.317.000.000,00	11,08%	-5.433.821.269,26
THYAO	2017/09	2.671.200.000,00	45.465.000.000,00	11,21%	-2.427.593.566,15
THYAO	2017/12	2.854.400.000,00	48.755.000.000,00	11,19%	-2.602.621.674,39
THYAO	2018/03	121.680.000,00	52.438.000.000,00	11,54%	-5.929.552.808,11
THYAO	2018/06	843.180.000,00	53.676.000.000,00	12,64%	-5.943.351.525,30
THYAO	2018/09	4.640.220.000,00	66.728.000.000,00	17,38%	-6.957.833.038,03
THYAO	2018/12	4.829.760.000,00	92.933.000.000,00	18,31%	-12.188.952.214,80
THYAO	2019/03	-809.000.000,00	81.830.000.000,00	15,17%	-13.220.431.298,80
THYAO	2019/06	-735.000.000,00	95.145.000.000,00	16,61%	-16.534.225.345,63
THYAO	2019/09	2.401.620.000,00	96.431.000.000,00	12,93%	-10.069.467.277,85
THYAO	2019/12	3.932.760.000,00	101.926.000.000,00	9,66%	-5.912.409.473,16
THYAO	2020/03	-2.005.000.000,00	111.454.000.000,00	8,36%	-11.322.281.387,66
THYAO	2020/06	-2.812.000.000,00	122.179.000.000,00	7,57%	-12.062.786.757,27
THYAO	2020/09	-2.272.000.000,00	124.979.000.000,00	8,90%	-13.396.855.838,60
THYAO	2020/12	-1.382.000.000,00	143.177.000.000,00	11,79%	-18.256.360.101,49
TTKOM	2015/03	612.914.400,00	15.652.069.000,00	9,61%	-891.711.610,29
TTKOM	2015/06	1.243.733.600,00	14.581.612.000,00	9,93%	-203.655.196,82
TTKOM	2015/09	516.437.600,00	15.074.355.000,00	10,91%	-1.128.469.508,24
TTKOM	2015/12	2.431.590.400,00	15.976.699.000,00	11,58%	580.756.544,51
TTKOM	2016/03	459.300.000,00	17.220.977.000,00	11,84%	-1.579.615.546,10
TTKOM	2016/06	940.518.400,00	18.847.779.000,00	11,67%	-1.259.798.198,32
TTKOM	2016/09	1.456.956.000,00	17.416.454.000,00	11,09%	-474.541.000,80
TTKOM	2016/12	1.711.987.200,00	18.024.493.000,00	10,98%	-267.490.317,36
TTKOM	2017/03	680.964.000,00	18.522.746.000,00	11,22%	-1.398.175.933,25
TTKOM	2017/06	1.487.435.200,00	19.028.716.000,00	11,86%	-769.499.694,63
TTKOM	2017/09	2.314.245.600,00	19.062.050.000,00	12,35%	-40.179.446,18
TTKOM	2017/12	2.899.572.000,00	19.882.118.000,00	12,53%	408.293.278,46
TTKOM	2018/03	864.281.340,00	20.486.954.000,00	12,73%	-1.742.977.147,10
TTKOM	2018/06	1.635.423.660,00	21.534.784.000,00	14,28%	-1.439.133.769,41
TTKOM	2018/09	2.471.184.300,00	19.238.082.000,00	20,39%	-1.452.101.696,96
TTKOM	2018/12	3.571.031.100,00	24.496.303.000,00	20,76%	-1.513.443.999,86
TTKOM	2019/03	1.115.252.580,00	22.702.152.000,00	17,11%	-2.768.104.249,28
TTKOM	2019/06	2.287.865.580,00	27.191.296.000,00	18,26%	-2.678.310.047,22
TTKOM	2019/09	3.703.361.220,00	25.445.992.000,00	14,45%	25.610.823,41
TTKOM	2019/12	4.873.766.820,00	26.241.741.000,00	10,64%	2.080.416.664,38
TTKOM	2020/03	1.191.999.900,00	26.215.639.000,00	8,83%	-1.123.886.730,40
TTKOM	2020/06	2.637.946.740,00	27.742.319.000,00	7,81%	470.986.000,22
TTKOM	2020/09	4.129.671.780,00	28.745.012.000,00	9,01%	1.538.969.107,52
TTKOM	2020/12	5.821.540.920,00	30.625.768.000,00	11,76%	2.219.181.177,53

APPENDIX G

STOCK CODE	PERIOD	Total Market Value of the Company	Total Equity Value of the Company	MVA
ANELE	2015/03	128.700.000,00	349.104.199,00	-220.404.199,00
ANELE	2015/06	111.100.000,00	356.915.341,00	-245.815.341,00
ANELE	2015/09	127.600.000,00	400.978.957,00	-273.378.957,00
ANELE	2015/12	127.600.000,00	300.654.087,00	-173.054.087,00
ANELE	2016/03	124.300.000,00	360.299.065,00	-235.999.065,00
ANELE	2016/06	128.700.000,00	372.387.466,00	-243.687.466,00
ANELE	2016/09	191.400.000,00	380.987.646,00	-189.587.646,00
ANELE	2016/12	154.000.000,00	322.255.691,00	-168.255.691,00
ANELE	2017/03	251.900.000,00	395.015.697,00	-143.115.697,00
ANELE	2017/06	277.200.000,00	358.707.939,00	-81.507.939,00
ANELE	2017/09	311.300.000,00	368.731.404,00	-57.431.404,00
ANELE	2017/12	414.700.000,00	414.331.430,00	368.570,00
ANELE	2018/03	352.000.000,00	415.112.659,00	-63.112.659,00
ANELE	2018/06	284.900.000,00	467.830.940,00	-182.930.940,00
ANELE	2018/09	242.000.000,00	586.466.528,00	-344.466.528,00
ANELE	2018/12	178.200.000,00	516.632.139,00	-338.432.139,00
ANELE	2019/03	174.900.000,00	500.172.485,00	-325.272.485,00
ANELE	2019/06	196.900.000,00	505.320.766,00	-308.420.766,00
ANELE	2019/09	216.700.000,00	501.831.171,00	-285.131.171,00
ANELE	2019/12	353.100.000,00	507.529.697,00	-154.429.697,00
ANELE	2020/03	321.200.000,00	546.486.736,00	-225.286.736,00
ANELE	2020/06	507.100.000,00	561.140.696,00	-54.040.696,00
ANELE	2020/09	619.300.000,00	508.611.238,00	110.688.762,00
ANELE	2020/12	634.000.000,00	442.451.012,00	191.548.988,00
EDIP	2015/03	56.550.000,00	220.694.561,00	-164.144.561,00
EDIP	2015/06	51.350.000,00	210.448.003,00	-159.098.003,00
EDIP	2015/09	46.800.000,00	184.522.584,00	-137.722.584,00
EDIP	2015/12	52.650.000,00	241.360.079,00	-188.710.079,00
EDIP	2016/03	52.000.000,00	241.664.779,00	-189.664.779,00
EDIP	2016/06	50.050.000,00	242.533.344,00	-192.483.344,00
EDIP	2016/09	48.100.000,00	233.712.690,00	-185.612.690,00
EDIP	2016/12	51.350.000,00	241.500.738,00	-190.150.738,00
EDIP	2017/03	59.150.000,00	230.235.861,00	-171.085.861,00
EDIP	2017/06	72.800.000,00	221.522.595,00	-148.722.595,00
EDIP	2017/09	72.800.000,00	225.130.034,00	-152.330.034,00
EDIP	2017/12	76.700.000,00	229.512.605,00	-152.812.605,00
EDIP	2018/03	77.350.000,00	209.148.554,00	-131.798.554,00
EDIP	2018/06	52.000.000,00	182.325.503,00	-130.325.503,00
EDIP	2018/09	40.300.000,00	82.753.481,00	-42.453.481,00
EDIP	2018/12	50.050.000,00	245.562.555,00	-195.512.555,00
EDIP	2019/03	45.500.000,00	228.862.989,00	-183.362.989,00
EDIP	2019/06	48.100.000,00	215.135.690,00	-167.035.690,00
EDIP	2019/09	59.150.000,00	237.977.213,00	-178.827.213,00
EDIP	2019/12	90.350.000,00	274.510.719,00	-184.160.719,00
EDIP	2020/03	100.750.000,00	239.631.033,00	-138.881.033,00
EDIP	2020/06	146.250.000,00	202.192.731,00	-55.942.731,00
EDIP	2020/09	202.150.000,00	111.117.317,00	91.032.683,00
EDIP	2020/12	215.800.000,00	72.665.779,00	143.134.221,00

STOCK CODE	PERIOD	Total Market Value of the Company	Total Equity Value of the Company	MVA
ENKAI	2015/03	18.720.000.000,00	13.734.045.000,00	4.985.955.000,00
ENKAI	2015/06	20.400.000.000,00	14.349.208.000,00	6.050.792.000,00
ENKAI	2015/09	20.000.000.000,00	15.927.924.000,00	4.072.076.000,00
ENKAI	2015/12	18.080.000.000,00	15.053.666.000,00	3.026.334.000,00
ENKAI	2016/03	19.520.000.000,00	15.447.105.000,00	4.072.895.000,00
ENKAI	2016/06	18.438.000.000,00	16.026.403.000,00	2.411.597.000,00
ENKAI	2016/09	18.438.000.000,00	16.824.100.000,00	1.613.900.000,00
ENKAI	2016/12	22.596.000.000,00	20.159.745.000,00	2.436.255.000,00
ENKAI	2017/03	25.620.000.000,00	21.819.643.000,00	3.800.357.000,00
ENKAI	2017/06	24.702.000.000,00	21.075.993.000,00	3.626.007.000,00
ENKAI	2017/09	23.828.000.000,00	21.954.480.000,00	1.873.520.000,00
ENKAI	2017/12	27.738.000.000,00	23.701.913.000,00	4.036.087.000,00
ENKAI	2018/03	25.346.000.000,00	25.368.372.000,00	-22.372.000,00
ENKAI	2018/06	23.350.000.000,00	27.998.972.000,00	-4.648.972.000,00
ENKAI	2018/09	26.050.000.000,00	36.640.245.000,00	-10.590.245.000,00
ENKAI	2018/12	22.900.000.000,00	32.518.771.000,00	-9.618.771.000,00
ENKAI	2019/03	22.950.000.000,00	35.990.540.000,00	-13.040.540.000,00
ENKAI	2019/06	27.350.000.000,00	37.176.226.000,00	-9.826.226.000,00
ENKAI	2019/09	28.250.000.000,00	37.227.162.000,00	-8.977.162.000,00
ENKAI	2019/12	32.100.000.000,00	39.425.622.000,00	-7.325.622.000,00
ENKAI	2020/03	31.100.000.000,00	40.352.813.000,00	-9.252.813.000,00
ENKAI	2020/06	34.496.000.000,00	44.326.021.000,00	-9.830.021.000,00
ENKAI	2020/09	39.424.000.000,00	49.720.189.000,00	-10.296.189.000,00
ENKAI	2020/12	41.272.000.000,00	49.696.135.000,00	-8.424.135.000,00
KUYAS	2015/03	65.597.303,57	81.793.170,00	-16.195.866,43
KUYAS	2015/06	75.396.070,90	80.596.642,00	-5.200.571,10
KUYAS	2015/09	67.865.536,75	81.019.055,00	-13.153.518,25
KUYAS	2015/12	64.508.551,64	90.588.689,00	-26.080.137,36
KUYAS	2016/03	93.632.665,67	88.459.632,00	5.173.033,67
KUYAS	2016/06	91.182.973,84	90.712.442,00	470.531,84
KUYAS	2016/09	80.839.830,54	92.232.455,00	-11.392.624,46
KUYAS	2016/12	85.194.838,24	90.837.335,00	-5.642.496,76
KUYAS	2017/03	97.171.109,43	87.785.079,00	9.386.030,43
KUYAS	2017/06	120.851.463,83	87.076.589,00	33.774.874,83
KUYAS	2017/09	95.265.793,56	81.963.914,00	13.301.879,56
KUYAS	2017/12	112.958.012,36	75.467.041,00	37.490.971,36
KUYAS	2018/03	132.011.171,08	81.191.379,00	50.819.792,08
KUYAS	2018/06	81.656.394,48	73.696.017,00	7.960.377,48
KUYAS	2018/09	40.011.633,30	71.046.182,00	-31.034.548,70
KUYAS	2018/12	61.514.483,84	78.931.341,00	-17.416.857,16
KUYAS	2019/03	93.632.665,67	86.072.632,00	7.560.033,67
KUYAS	2019/06	63.691.987,69	73.932.336,00	-10.240.348,31
KUYAS	2019/09	67.502.619,44	70.885.314,00	-3.382.694,56
KUYAS	2019/12	89.822.033,93	71.867.080,00	17.954.953,93
KUYAS	2020/03	64.236.363,66	53.745.659,00	10.490.704,66
KUYAS	2020/06	143.170.878,32	52.503.313,00	90.667.565,32
KUYAS	2020/09	208.000.000,00	96.506.701,00	111.493.299,00
KUYAS	2020/12	230.000.000,00	171.759.037,00	58.240.963,00

STOCK CODE	PERIOD	Total Market Value of the Company	Total Equity Value of the Company	MVA
ORGE	2015/03	34.000.000,00	29.586.406,00	4.413.594,00
ORGE	2015/06	32.800.000,00	32.346.681,00	453.319,00
ORGE	2015/09	40.000.000,00	34.844.133,00	5.155.867,00
ORGE	2015/12	78.000.000,00	37.972.631,00	40.027.369,00
ORGE	2016/03	72.600.000,00	43.381.576,00	29.218.424,00
ORGE	2016/06	85.200.000,00	48.021.631,00	37.178.369,00
ORGE	2016/09	109.600.000,00	54.257.314,00	55.342.686,00
ORGE	2016/12	119.600.000,00	62.576.333,00	57.023.667,00
ORGE	2017/03	144.400.000,00	70.205.579,00	74.194.421,00
ORGE	2017/06	171.600.000,00	72.832.125,00	98.767.875,00
ORGE	2017/09	179.600.000,00	82.515.397,00	97.084.603,00
ORGE	2017/12	202.200.000,00	88.547.967,00	113.652.033,00
ORGE	2018/03	185.000.000,00	92.849.646,00	92.150.354,00
ORGE	2018/06	136.000.000,00	102.788.923,00	33.211.077,00
ORGE	2018/09	154.000.000,00	113.633.064,00	40.366.936,00
ORGE	2018/12	156.000.000,00	137.132.442,00	18.867.558,00
ORGE	2019/03	166.500.000,00	144.954.751,00	21.545.249,00
ORGE	2019/06	173.500.000,00	154.432.518,00	19.067.482,00
ORGE	2019/09	190.500.000,00	165.457.839,00	25.042.161,00
ORGE	2019/12	248.000.000,00	185.826.805,00	62.173.195,00
ORGE	2020/03	206.500.000,00	192.411.189,00	14.088.811,00
ORGE	2020/06	332.000.000,00	202.656.134,00	129.343.866,00
ORGE	2020/09	381.500.000,00	219.581.922,00	161.918.078,00
ORGE	2020/12	369.000.000,00	241.404.005,00	127.595.995,00
SANEL	2015/03	61.410.000,00	22.717.240,00	38.692.760,00
SANEL	2015/06	31.343.250,00	21.712.179,00	9.631.071,00
SANEL	2015/09	24.069.500,00	22.347.697,00	1.721.803,00
SANEL	2015/12	26.582.250,00	22.503.003,00	4.079.247,00
SANEL	2016/03	26.053.250,00	22.589.366,00	3.463.884,00
SANEL	2016/06	24.995.250,00	22.554.399,00	2.440.851,00
SANEL	2016/09	23.805.000,00	22.131.026,00	1.673.974,00
SANEL	2016/12	23.408.250,00	22.233.042,00	1.175.208,00
SANEL	2017/03	23.408.250,00	21.962.374,00	1.445.876,00
SANEL	2017/06	23.937.250,00	21.088.797,00	2.848.453,00
SANEL	2017/09	23.143.750,00	21.004.921,00	2.138.829,00
SANEL	2017/12	22.614.750,00	22.282.734,00	332.016,00
SANEL	2018/03	22.879.250,00	22.521.410,00	357.840,00
SANEL	2018/06	19.440.750,00	21.566.516,00	-2.125.766,00
SANEL	2018/09	20.498.750,00	21.651.825,00	-1.153.075,00
SANEL	2018/12	28.830.500,00	17.009.243,00	11.821.257,00
SANEL	2019/03	29.756.250,00	20.148.469,00	9.607.781,00
SANEL	2019/06	46.816.500,00	19.466.390,00	27.350.110,00
SANEL	2019/09	74.853.500,00	22.001.530,00	52.851.970,00
SANEL	2019/12	53.561.250,00	20.035.289,00	33.525.961,00
SANEL	2020/03	49.064.750,00	25.043.237,00	24.021.513,00
SANEL	2020/06	72.656.225,34	15.904.066,00	56.752.159,34
SANEL	2020/09	65.901.752,13	15.227.503,00	50.674.249,13
SANEL	2020/12	62.433.238,86	11.695.985,00	50.737.253,86

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TURGG	2015/03	283.403.695,23	139.705.137,00	143.698.558,23
TURGG	2015/06	277.707.138,54	139.347.775,00	138.359.363,54
TURGG	2015/09	272.722.651,44	138.951.160,00	133.771.491,44
TURGG	2015/12	293.657.497,27	143.580.773,00	150.076.724,27
TURGG	2016/03	277.991.966,37	143.237.154,00	134.754.812,37
TURGG	2016/06	281.409.900,39	140.752.611,00	140.657.289,39
TURGG	2016/09	261.187.124,14	141.165.226,00	120.021.898,14
TURGG	2016/12	246.376.076,76	143.899.147,00	102.476.929,76
TURGG	2017/03	260.190.226,72	143.884.182,00	116.306.044,72
TURGG	2017/06	288.388.182,33	143.954.622,00	144.433.560,33
TURGG	2017/09	281.267.486,47	144.154.560,00	137.112.926,47
TURGG	2017/12	267.453.336,50	155.316.674,00	112.136.662,50
TURGG	2018/03	277.707.138,54	155.335.193,00	122.371.945,54
TURGG	2018/06	237.403.999,97	155.338.201,00	82.065.798,97
TURGG	2018/09	206.215.352,11	155.477.680,00	50.737.672,11
TURGG	2018/12	228.859.164,94	143.933.383,00	84.925.781,94
TURGG	2019/03	186.562.231,53	144.210.653,00	42.351.578,53
TURGG	2019/06	176.308.429,49	144.491.233,00	31.817.196,49
TURGG	2019/09	197.955.344,91	144.730.196,00	53.225.148,91
TURGG	2019/12	299.069.226,12	146.251.613,00	152.817.613,12
TURGG	2020/03	218.605.362,90	146.193.704,00	72.411.658,90
TURGG	2020/06	355.322.723,41	146.092.403,00	209.230.320,41
TURGG	2020/09	588.881.547,62	145.956.438,00	442.925.109,62
TURGG	2020/12	803.926.562,59	151.655.338,00	652.271.224,59
YAYLA	2015/03	66.333.750,00	45.360.310,00	20.973.440,00
YAYLA	2015/06	54.762.750,00	44.878.237,00	9.884.513,00
YAYLA	2015/09	52.568.250,00	46.535.834,00	6.032.416,00
YAYLA	2015/12	37.206.750,00	40.699.890,00	-3.493.140,00
YAYLA	2016/03	34.912.500,00	39.313.059,00	-4.400.559,00
YAYLA	2016/06	24.039.750,00	38.924.342,00	-14.884.592,00
YAYLA	2016/09	27.231.750,00	37.742.801,00	-10.511.051,00
YAYLA	2016/12	22.543.500,00	37.980.903,00	-15.437.403,00
YAYLA	2017/03	23.341.500,00	37.041.264,00	-13.699.764,00
YAYLA	2017/06	23.341.500,00	38.110.382,00	-14.768.882,00
YAYLA	2017/09	23.740.500,00	36.038.077,00	-12.297.577,00
YAYLA	2017/12	19.052.250,00	27.491.407,00	-8.439.157,00
YAYLA	2018/03	42.892.500,00	43.532.633,00	-640.133,00
YAYLA	2018/06	45.386.250,00	60.321.423,00	-14.935.173,00
YAYLA	2018/09	27.181.875,00	55.989.508,00	-28.807.633,00
YAYLA	2018/12	46.882.500,00	70.070.372,00	-23.187.872,00
YAYLA	2019/03	40.897.500,00	70.013.383,00	-29.115.883,00
YAYLA	2019/06	41.895.000,00	67.693.364,00	-25.798.364,00
YAYLA	2019/09	46.882.500,00	67.366.885,00	-20.484.385,00
YAYLA	2019/12	80.298.750,00	71.699.620,00	8.599.130,00
YAYLA	2020/03	73.815.000,00	73.375.042,00	439.958,00
YAYLA	2020/06	146.133.750,00	71.277.712,00	74.856.038,00
YAYLA	2020/09	151.620.000,00	68.860.823,00	82.759.177,00
YAYLA	2020/12	219.450.000,00	69.220.283,00	150.229.717,00

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YYAPI	2015/03	228.053.658,70	109.090.345,00	118.963.313,70
YYAPI	2015/06	218.745.346,10	174.401.821,00	44.343.525,10
YYAPI	2015/09	174.530.861,25	176.886.979,00	-2.356.117,75
YYAPI	2015/12	174.530.861,25	188.877.905,00	-14.347.043,75
YYAPI	2016/03	179.185.017,55	196.611.036,00	-17.426.018,45
YYAPI	2016/06	174.530.861,25	186.505.086,00	-11.974.224,75
YYAPI	2016/09	169.876.704,95	374.341.805,00	-204.465.100,05
YYAPI	2016/12	207.109.955,35	371.030.507,00	-163.920.551,65
YYAPI	2017/03	269.941.065,40	374.628.887,00	-104.687.821,60
YYAPI	2017/06	325.790.941,00	373.751.717,00	-47.960.776,00
YYAPI	2017/09	242.016.127,60	373.559.460,00	-131.543.332,40
YYAPI	2017/12	237.361.971,30	363.262.428,00	-125.900.456,70
YYAPI	2018/03	244.343.205,75	353.993.835,00	-109.650.629,25
YYAPI	2018/06	139.624.689,00	364.177.020,00	-224.552.331,00
YYAPI	2018/09	53.522.797,45	358.895.438,00	-305.372.640,55
YYAPI	2018/12	60.504.031,90	348.571.183,00	-288.067.151,10
YYAPI	2019/03	58.176.953,75	357.061.741,00	-298.884.787,25
YYAPI	2019/06	60.504.031,90	339.400.916,00	-278.896.884,10
YYAPI	2019/09	74.466.500,80	346.648.164,00	-272.181.663,20
YYAPI	2019/12	153.587.157,90	308.323.247,00	-154.736.089,10
YYAPI	2020/03	88.428.969,70	323.849.668,00	-235.420.698,30
YYAPI	2020/06	246.670.283,90	313.514.201,00	-66.843.917,10
YYAPI	2020/09	235.034.893,15	316.631.735,00	-81.596.841,85
YYAPI	2020/12	428.182.379,60	310.586.273,00	117.596.106,60

STOCK CODE	PERIOD	Total Market Value of the Company	Total Equity Value of the Company	MVA
CLEBI	2015/03	714.420.000,00	119.025.498,00	595.394.502,00
CLEBI	2015/06	831.060.000,00	85.124.605,00	745.935.395,00
CLEBI	2015/09	820.125.000,00	142.098.118,00	678.026.882,00
CLEBI	2015/12	869.940.000,00	144.285.259,00	725.654.741,00
CLEBI	2016/03	828.144.000,00	144.643.418,00	683.500.582,00
CLEBI	2016/06	564.732.000,00	74.950.620,00	489.781.380,00
CLEBI	2016/09	534.600.000,00	99.189.657,00	435.410.343,00
CLEBI	2016/12	558.900.000,00	101.696.764,00	457.203.236,00
CLEBI	2017/03	568.620.000,00	108.013.802,00	460.606.198,00
CLEBI	2017/06	660.960.000,00	89.428.767,00	571.531.233,00
CLEBI	2017/09	809.676.000,00	145.931.721,00	663.744.279,00
CLEBI	2017/12	898.614.000,00	168.855.174,00	729.758.826,00
CLEBI	2018/03	863.622.000,00	188.815.805,00	674.806.195,00
CLEBI	2018/06	955.476.000,00	176.629.026,00	778.846.974,00
CLEBI	2018/09	1.251.450.000,00	343.560.919,00	907.889.081,00
CLEBI	2018/12	1.540.620.000,00	353.087.514,00	1.187.532.486,00
CLEBI	2019/03	1.659.690.000,00	487.080.035,00	1.172.609.965,00
CLEBI	2019/06	2.430.000.000,00	407.113.288,00	2.022.886.712,00
CLEBI	2019/09	2.411.775.000,00	514.817.635,00	1.896.957.365,00
CLEBI	2019/12	2.481.030.000,00	572.436.964,00	1.908.593.036,00
CLEBI	2020/03	1.409.400.000,00	554.245.390,00	855.154.610,00
CLEBI	2020/06	1.916.055.000,00	373.443.135,00	1.542.611.865,00
CLEBI	2020/09	1.795.770.000,00	454.532.016,00	1.341.237.984,00
CLEBI	2020/12	4.493.070.000,00	446.297.475,00	4.046.772.525,00
DOCO	2015/03	2.406.768.000,00	736.200.000,00	1.670.568.000,00
DOCO	2015/06	2.416.512.000,00	819.160.000,00	1.597.352.000,00
DOCO	2015/09	3.020.640.000,00	815.890.000,00	2.204.750.000,00
DOCO	2015/12	3.292.497.600,00	989.350.000,00	2.303.147.600,00
DOCO	2016/03	2.458.411.200,00	839.970.000,00	1.618.441.200,00
DOCO	2016/06	2.357.073.600,00	869.200.000,00	1.487.873.600,00
DOCO	2016/09	2.272.300.800,00	960.040.000,00	1.312.260.800,00
DOCO	2016/12	2.298.609.600,00	1.247.780.000,00	1.050.829.600,00
DOCO	2017/03	2.436.974.400,00	1.014.880.000,00	1.422.094.400,00
DOCO	2017/06	1.685.712.000,00	1.043.630.000,00	642.082.000,00
DOCO	2017/09	2.048.188.800,00	1.129.860.000,00	918.328.800,00
DOCO	2017/12	2.388.254.400,00	1.575.950.000,00	812.304.400,00
DOCO	2018/03	2.687.395.200,00	1.316.310.000,00	1.371.085.200,00
DOCO	2018/06	5.145.806.400,00	1.586.980.000,00	3.558.826.400,00
DOCO	2018/09	4.665.427.200,00	1.502.070.000,00	3.163.357.200,00
DOCO	2018/12	4.453.008.000,00	1.855.870.000,00	2.597.138.000,00
DOCO	2019/03	5.445.921.600,00	1.717.720.000,00	3.728.201.600,00
DOCO	2019/06	5.106.830.400,00	1.646.190.000,00	3.460.640.400,00
DOCO	2019/09	5.495.616.000,00	1.797.310.000,00	3.698.306.000,00
DOCO	2019/12	2.576.313.600,00	2.006.410.000,00	569.903.600,00
DOCO	2020/03	3.438.657.600,00	1.344.150.000,00	2.094.507.600,00
DOCO	2020/06	3.082.027.200,00	1.281.740.000,00	1.800.287.200,00
DOCO	2020/09	6.138.720.000,00	1.276.000.000,00	4.862.720.000,00
DOCO	2020/12	6.508.992.000,00	1.551.970.000,00	4.957.022.000,00

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GSDDE	2015/03	79.314.900,57	105.526.000,00	-26.211.099,43
GSDDE	2015/06	73.053.197,90	100.736.000,00	-27.682.802,10
GSDDE	2015/09	60.007.983,99	106.971.000,00	-46.963.016,01
GSDDE	2015/12	56.877.132,65	98.657.000,00	-41.779.867,35
GSDDE	2016/03	55.833.515,53	90.694.000,00	-34.860.484,47
GSDDE	2016/06	45.919.152,96	89.177.000,00	-43.257.847,04
GSDDE	2016/09	50.615.429,97	85.887.000,00	-35.271.570,03
GSDDE	2016/12	57.398.941,20	96.340.000,00	-38.941.058,80
GSDDE	2017/03	63.660.643,88	95.715.000,00	-32.054.356,12
GSDDE	2017/06	73.575.006,45	88.656.000,00	-15.080.993,55
GSDDE	2017/09	78.793.092,02	84.827.000,00	-6.033.907,98
GSDDE	2017/12	70.444.155,11	92.209.000,00	-21.764.844,89
GSDDE	2018/03	80.358.517,69	95.063.000,00	-14.704.482,31
GSDDE	2018/06	58.964.366,87	107.917.000,00	-48.952.633,13
GSDDE	2018/09	56.877.132,65	141.335.000,00	-84.457.867,35
GSDDE	2018/12	60.007.983,99	130.551.000,00	-70.543.016,01
GSDDE	2019/03	70.965.963,67	136.381.000,00	-65.415.036,33
GSDDE	2019/06	76.705.857,79	136.501.000,00	-59.795.142,21
GSDDE	2019/09	84.011.177,58	133.845.000,00	-49.833.822,42
GSDDE	2019/12	133.582.990,44	140.462.000,00	-6.879.009,56
GSDDE	2020/03	105.405.328,39	151.926.000,00	-46.520.671,61
GSDDE	2020/06	219.159.593,69	163.759.000,00	55.400.593,69
GSDDE	2020/09	240.553.744,50	185.080.000,00	55.473.744,50
GSDDE	2020/12	262.991.512,43	173.051.000,00	89.940.512,43
PGSUS	2015/03	2.480.096.000,00	1.111.104.616,00	1.368.991.384,00
PGSUS	2015/06	2.485.209.600,00	1.213.690.455,00	1.271.519.145,00
PGSUS	2015/09	1.805.100.800,00	1.669.560.460,00	135.540.340,00
PGSUS	2015/12	1.795.896.320,00	1.452.731.629,00	343.164.691,00
PGSUS	2016/03	1.758.055.680,00	1.279.037.973,00	479.017.707,00
PGSUS	2016/06	1.387.831.040,00	1.296.243.419,00	91.587.621,00
PGSUS	2016/09	1.224.195.840,00	1.608.439.721,00	-384.243.881,00
PGSUS	2016/12	1.447.148.800,00	1.569.321.345,00	-122.172.545,00
PGSUS	2017/03	1.468.625.920,00	1.442.147.872,00	26.478.048,00
PGSUS	2017/06	1.919.645.440,00	1.641.960.571,00	277.684.869,00
PGSUS	2017/09	2.548.618.240,00	2.299.298.503,00	249.319.737,00
PGSUS	2017/12	3.456.793.600,00	2.484.638.206,00	972.155.394,00
PGSUS	2018/03	3.647.019.520,00	2.519.250.835,00	1.127.768.685,00
PGSUS	2018/06	2.517.936.640,00	2.706.183.073,00	-188.246.433,00
PGSUS	2018/09	2.769.525.760,00	4.528.828.868,00	-1.759.303.108,00
PGSUS	2018/12	2.344.709.284,44	3.715.447.648,00	-1.370.738.363,56
PGSUS	2019/03	2.782.552.030,40	3.470.173.926,00	-687.621.895,60
PGSUS	2019/06	4.664.866.639,20	3.951.934.432,00	712.932.207,20
PGSUS	2019/09	6.209.592.214,90	4.761.864.000,00	1.447.728.214,90
PGSUS	2019/12	8.838.694.684,80	5.342.169.207,00	3.496.525.477,80
PGSUS	2020/03	3.498.649.979,40	4.945.633.308,00	-1.446.983.328,60
PGSUS	2020/06	5.682.748.723,85	4.730.960.362,00	951.788.361,85
PGSUS	2020/09	4.726.246.463,40	5.864.992.283,00	-1.138.745.819,60
PGSUS	2020/12	7.631.558.142,20	5.386.417.638,00	2.245.140.504,20

STOCK CODE	PERIOD	Total Market Value of the Company	Total Equity Value of the Company	MVA
RYSAS	2015/03	96.800.000,00	267.659.087,00	-170.859.087,00
RYSAS	2015/06	80.300.000,00	263.514.570,00	-183.214.570,00
RYSAS	2015/09	75.190.500,00	227.341.226,00	-152.150.726,00
RYSAS	2015/12	77.577.500,00	240.496.516,00	-162.919.016,00
RYSAS	2016/03	89.512.500,00	245.035.215,00	-155.522.715,00
RYSAS	2016/06	85.932.000,00	246.817.519,00	-160.885.519,00
RYSAS	2016/09	97.867.000,00	242.021.848,00	-144.154.848,00
RYSAS	2016/12	94.286.500,00	192.132.199,00	-97.845.699,00
RYSAS	2017/03	97.867.000,00	182.946.355,00	-85.079.355,00
RYSAS	2017/06	130.091.500,00	198.826.788,00	-68.735.288,00
RYSAS	2017/09	181.412.000,00	193.547.850,00	-12.135.850,00
RYSAS	2017/12	152.768.000,00	170.200.790,00	-17.432.790,00
RYSAS	2018/03	136.059.000,00	150.428.400,00	-14.369.400,00
RYSAS	2018/06	105.028.000,00	96.552.195,00	8.475.805,00
RYSAS	2018/09	96.673.500,00	-56.113.178,00	152.786.678,00
RYSAS	2018/12	88.319.000,00	58.244.921,00	30.074.079,00
RYSAS	2019/03	89.512.500,00	33.768.529,00	55.743.971,00
RYSAS	2019/06	84.738.500,00	34.569.547,00	50.168.953,00
RYSAS	2019/09	121.737.000,00	77.942.595,00	43.794.405,00
RYSAS	2019/12	522.753.000,00	63.378.856,00	459.374.144,00
RYSAS	2020/03	862.900.500,00	29.500.668,00	833.399.832,00
RYSAS	2020/06	720.874.000,00	14.339.920,00	706.534.080,00
RYSAS	2020/09	815.160.500,00	-18.975.717,00	834.136.217,00
RYSAS	2020/12	1.102.794.000,00	582.901.965,00	519.892.035,00
TCELL	2015/03	29.370.000.000,00	12.905.959.000,00	16.464.041.000,00
TCELL	2015/06	27.170.000.000,00	13.477.466.000,00	13.692.534.000,00
TCELL	2015/09	23.210.000.000,00	13.777.334.000,00	9.432.666.000,00
TCELL	2015/12	21.780.000.000,00	14.399.254.000,00	7.380.746.000,00
TCELL	2016/03	26.070.000.000,00	14.882.484.000,00	11.187.516.000,00
TCELL	2016/06	23.254.000.000,00	15.330.698.000,00	7.923.302.000,00
TCELL	2016/09	21.362.000.000,00	15.445.284.000,00	5.916.716.000,00
TCELL	2016/12	21.450.000.000,00	16.068.397.000,00	5.381.603.000,00
TCELL	2017/03	26.334.000.000,00	16.536.403.000,00	9.797.597.000,00
TCELL	2017/06	25.476.000.000,00	14.201.150.000,00	11.274.850.000,00
TCELL	2017/09	27.918.000.000,00	14.816.754.000,00	13.101.246.000,00
TCELL	2017/12	34.056.000.000,00	15.045.088.000,00	19.010.912.000,00
TCELL	2018/03	33.330.000.000,00	14.247.618.000,00	19.082.382.000,00
TCELL	2018/06	26.774.000.000,00	14.952.286.000,00	11.821.714.000,00
TCELL	2018/09	25.388.000.000,00	14.890.892.000,00	10.497.108.000,00
TCELL	2018/12	26.774.000.000,00	16.053.554.000,00	10.720.446.000,00
TCELL	2019/03	26.598.000.000,00	17.102.281.000,00	9.495.719.000,00
TCELL	2019/06	28.160.000.000,00	17.330.550.000,00	10.829.450.000,00
TCELL	2019/09	28.622.000.000,00	17.430.766.000,00	11.191.234.000,00
TCELL	2019/12	30.360.000.000,00	18.082.944.000,00	12.277.056.000,00
TCELL	2020/03	27.104.000.000,00	18.677.593.000,00	8.426.407.000,00
TCELL	2020/06	36.168.000.000,00	19.538.150.000,00	16.629.850.000,00
TCELL	2020/09	33.440.000.000,00	20.288.975.000,00	13.151.025.000,00
TCELL	2020/12	35.420.000.000,00	20.784.938.000,00	14.635.062.000,00

STOCK CODE	PERIOD	Total Market Value of the Company	Total Equity Value of the Company	MVA
THYAO	2015/03	11.854.200.000,00	10.923.890.247,00	930.309.753,00
THYAO	2015/06	12.144.000.000,00	11.993.489.008,00	150.510.992,00
THYAO	2015/09	10.998.600.000,00	14.642.815.224,00	-3.644.215.224,00
THYAO	2015/12	10.198.200.000,00	14.090.000.000,00	-3.891.800.000,00
THYAO	2016/03	10.750.200.000,00	12.704.000.000,00	-1.953.800.000,00
THYAO	2016/06	7.893.600.000,00	12.852.000.000,00	-4.958.400.000,00
THYAO	2016/09	7.093.200.000,00	13.903.000.000,00	-6.809.800.000,00
THYAO	2016/12	6.913.800.000,00	17.899.000.000,00	-10.985.200.000,00
THYAO	2017/03	7.548.600.000,00	16.985.000.000,00	-9.436.400.000,00
THYAO	2017/06	11.109.000.000,00	16.135.000.000,00	-5.026.000.000,00
THYAO	2017/09	12.075.000.000,00	18.866.000.000,00	-6.791.000.000,00
THYAO	2017/12	21.652.200.000,00	20.171.000.000,00	1.481.200.000,00
THYAO	2018/03	26.371.800.000,00	20.074.000.000,00	6.297.800.000,00
THYAO	2018/06	18.685.200.000,00	24.943.000.000,00	-6.257.800.000,00
THYAO	2018/09	26.344.200.000,00	36.639.000.000,00	-10.294.800.000,00
THYAO	2018/12	22.231.800.000,00	31.284.000.000,00	-9.052.200.000,00
THYAO	2019/03	17.843.400.000,00	33.171.000.000,00	-15.327.600.000,00
THYAO	2019/06	17.788.200.000,00	33.275.000.000,00	-15.486.800.000,00
THYAO	2019/09	17.084.400.000,00	37.528.000.000,00	-20.443.600.000,00
THYAO	2019/12	19.954.800.000,00	40.795.000.000,00	-20.840.200.000,00
THYAO	2020/03	12.516.600.000,00	41.343.000.000,00	-28.826.400.000,00
THYAO	2020/06	17.277.600.000,00	40.815.000.000,00	-23.537.400.000,00
THYAO	2020/09	14.490.000.000,00	43.990.000.000,00	-29.500.000.000,00
THYAO	2020/12	17.815.800.000,00	39.511.000.000,00	-21.695.200.000,00
TTKOM	2015/03	24.150.000.000,00	4.396.378.000,00	19.753.622.000,00
TTKOM	2015/06	24.675.000.000,00	4.577.970.000,00	20.097.030.000,00
TTKOM	2015/09	20.895.000.000,00	3.960.556.000,00	16.934.444.000,00
TTKOM	2015/12	19.110.000.000,00	4.993.368.000,00	14.116.632.000,00
TTKOM	2016/03	23.380.000.000,00	5.301.285.000,00	18.078.715.000,00
TTKOM	2016/06	21.175.000.000,00	4.654.930.000,00	16.520.070.000,00
TTKOM	2016/09	19.845.000.000,00	4.692.892.000,00	15.152.108.000,00
TTKOM	2016/12	18.480.000.000,00	3.386.621.000,00	15.093.379.000,00
TTKOM	2017/03	20.650.000.000,00	3.471.258.000,00	17.178.742.000,00
TTKOM	2017/06	21.840.000.000,00	4.344.480.000,00	17.495.520.000,00
TTKOM	2017/09	23.765.000.000,00	4.648.779.000,00	19.116.221.000,00
TTKOM	2017/12	22.540.000.000,00	4.555.087.000,00	17.984.913.000,00
TTKOM	2018/03	23.275.000.000,00	4.966.819.000,00	18.308.181.000,00
TTKOM	2018/06	17.465.000.000,00	4.074.866.000,00	13.390.134.000,00
TTKOM	2018/09	12.740.000.000,00	5.522.642.000,00	7.217.358.000,00
TTKOM	2018/12	13.650.000.000,00	7.453.603.000,00	6.196.397.000,00
TTKOM	2019/03	15.225.000.000,00	7.892.585.000,00	7.332.415.000,00
TTKOM	2019/06	17.430.000.000,00	7.976.305.000,00	9.453.695.000,00
TTKOM	2019/09	20.335.000.000,00	8.984.935.000,00	11.350.065.000,00
TTKOM	2019/12	25.795.000.000,00	9.442.853.000,00	16.352.147.000,00
TTKOM	2020/03	23.450.000.000,00	9.948.048.000,00	13.501.952.000,00
TTKOM	2020/06	28.385.000.000,00	10.710.266.000,00	17.674.734.000,00
TTKOM	2020/09	24.990.000.000,00	10.722.903.000,00	14.267.097.000,00
TTKOM	2020/12	29.890.000.000,00	12.037.376.000,00	17.852.624.000,00

APPENDIX H

Stock Value of the Company (TL)									
STOCK CODE PERIOD	ANELE	EDIP	ENKAI	KUYAS	ORGE	SANEL	TURGG	YAYLA	YYAPI
2015/03	0,56	0,87	2,60	1,58	0,66	3,16	39,80	3,64	0,98
2015/06	0,49	0,79	2,88	1,84	0,63	1,67	39,00	3,00	0,94
2015/09	0,57	0,72	2,82	1,66	0,77	1,29	38,30	2,88	0,75
2015/12	0,57	0,81	2,58	1,38	1,50	1,42	41,24	2,04	0,75
2016/03	0,55	0,80	2,79	2,01	1,40	1,39	39,04	1,91	0,77
2016/06	0,57	0,77	2,68	1,96	1,65	1,34	39,52	1,32	0,75
2016/09	0,86	0,74	2,70	1,73	2,13	1,30	36,68	1,49	0,73
2016/12	0,69	0,79	3,33	1,83	2,32	1,28	34,60	1,24	0,89
2017/03	1,13	0,91	3,78	2,09	2,80	1,28	36,54	1,28	1,16
2017/06	1,24	1,12	3,71	2,62	3,43	1,31	40,50	1,28	1,40
2017/09	1,45	1,12	3,61	2,06	3,59	1,27	39,50	1,30	1,04
2017/12	1,93	1,18	4,23	2,45	4,04	1,24	37,56	1,04	1,02
2018/03	1,64	1,19	3,86	2,86	3,70	1,25	39,00	1,71	1,05
2018/06	1,33	0,80	3,64	1,77	2,72	1,06	33,34	1,81	0,60
2018/09	1,13	0,62	4,06	0,87	3,08	1,12	28,96	1,08	0,23
2018/12	0,89	0,77	3,60	0,77	3,12	1,58	32,14	0,94	0,26
2019/03	0,87	0,70	3,61	1,17	3,33	1,63	26,20	0,82	0,25
2019/06	0,98	0,74	4,44	0,80	3,47	2,56	24,76	0,84	0,26
2019/09	1,08	0,91	4,58	0,84	3,81	4,10	27,80	0,94	0,32
2019/12	1,76	1,39	5,33	1,12	4,96	2,93	42,00	1,61	0,66
2020/03	1,60	1,55	5,17	0,80	4,13	2,69	30,70	1,48	0,38
2020/06	2,53	2,25	5,89	1,79	6,64	3,98	49,90	2,93	1,06
2020/09	3,10	3,11	6,73	2,08	7,63	3,61	82,70	3,04	1,01
2020/12	3,17	3,32	7,04	2,30	7,38	3,42	112,90	4,40	1,84

Stock Value of the Company (TL)								
STOCK CODE PERIOD	CLEBI	DOCO	GSDDE	PGSUS	RYSAS	TCELL	THYAO	TTKOM
2015/03	19,46	182,22	1,52	24,25	0,45	8,89	8,59	5,72
2015/06	24,12	233,81	1,40	24,30	0,38	9,48	8,80	6,28
2015/09	23,80	238,25	1,15	17,65	0,35	8,10	7,97	5,32
2015/12	25,24	297,81	1,09	17,56	0,36	7,60	7,39	4,87
2016/03	24,03	324,61	1,07	17,19	0,42	9,10	7,79	5,95
2016/06	17,94	242,38	0,88	13,57	0,40	8,11	5,72	5,61
2016/09	16,99	235,37	0,97	11,97	0,46	7,45	5,14	5,26
2016/12	17,76	226,91	1,10	14,15	0,44	7,48	5,01	4,90
2017/03	18,07	229,54	1,22	14,36	0,46	9,19	5,47	5,47
2017/06	22,15	243,35	1,41	18,77	0,61	9,24	8,05	5,79
2017/09	27,14	168,33	1,51	24,92	0,85	10,49	8,75	6,30
2017/12	30,12	204,53	1,35	33,80	0,72	13,19	15,69	5,97
2018/03	28,95	238,49	1,54	35,66	0,64	12,90	19,11	6,17
2018/06	34,76	268,36	1,13	24,62	0,49	10,63	13,54	4,63
2018/09	45,53	522,73	1,09	27,08	0,45	10,35	19,09	3,38
2018/12	56,05	473,93	1,15	22,92	0,41	11,17	16,11	3,62
2019/03	60,38	452,35	1,36	27,20	0,42	11,10	12,93	4,04
2019/06	96,06	553,21	1,47	45,60	0,40	11,75	12,89	4,62
2019/09	95,34	524,10	1,61	60,70	0,57	11,94	12,38	5,39
2019/12	98,07	564,00	2,56	86,40	2,45	13,14	14,46	6,84
2020/03	55,71	264,40	2,02	34,20	4,05	11,73	9,07	6,22
2020/06	75,74	352,90	4,20	55,55	3,38	15,65	12,52	7,52
2020/09	72,95	316,30	4,61	46,20	3,82	14,47	10,50	6,77
2020/12	182,52	630,00	5,04	74,60	5,17	15,69	12,91	8,09

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