Economic Value Added Approach in Measurement of Financial Performance: An Investigation on Economic Added Values of Holdings and Investment Companies Processed in BIST 100 in Turkey

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Abstract

Objective of this study is to examine the economic value added (EVA) approach, which is a value-based performance measurement method, and the calculation of this approach from the methods used to measure financial performance. In this context, an application has been presented for the examination and comparison of holdings and investment companies in terms of economic value, using annual financial statement data for holding companies and investment companies traded in Stock Exchange Istanbul 100 index in Turkey in 2016. In the application part, 9 holding and investment companies were examined and compared in terms of economic added value. In the practice part of the study, companies that can access paid dividend data for the last five years are included in the holding companies and investment companies sector, while the other companies are excluded from the research. According to the findings of the study, when the holdings and investment companies examined in the study are evaluated in general for 2016, Hacı Ömer Sabancı Holding Joint Stock Company, which has the highest EVA value and the best financial performance. (-787.415.407,65) and Eczacıbaşı Investment Holding Partnership Joint Stock Company (-117.686.290,15) cannot create value for their shareholders with EVA value, whereas the existing Have consumed their capital. It has been found that they cannot create shareholder value with EVA value and consume their existing capital instead of creating value.

1. Introduction

It is obligatory nowadays for companies to survive in the face of increasing competition conditions and to measure their performance in financial investment decisions via various analyzes correctly. This obligation has put value-based financial performance measurement methods at the forefront of performance measurement, taking account of market capitalization value and shareholder expectations, as well as accounting information and non-accounting data, instead of traditional accounting-based traditional approaches focusing on company and performance. Value-based measurement methods to determine the company's value can be classified as periodic value measures and measures that express a certain time point of the values of the periods. Among these periodic value measures, economic profit, economic added value (EVA), shareholder value added and cash value added measures can be considered. The value of firms at a certain time point consists of market value, net present value and market value added (Ehrbar, 1998: 194). Among these value-based measurement methods, the economic value added approach provides information on whether companies create economic value and whether the shareholders' capital increases. There are some studies in the literature on the economic value added (EVA) approach. Houle (2008: 3, 30), economic value added approach that implements the companies in the study that compared with this approach, application companies, shareholder value of companies that applied the correct approach, strategic thinking, capital investment, which affected in areas such as daily work decisions, value creation has become visible in the institutions of the importance Has reached the end. He also noted that the economic value added approach represented much more of a performance measure than the focal point of the management system and mind. Susan et all. (2002: 59) Economic Value Added (EVA) of the relative effectiveness of future accounting gains and predicting earnings per share and the work that they deal with the development of their accuracy, EVA's have reached the conclusion that include information on increasing earnings per share in predicting future earnings. In addition, although EVA adds an increased value without anticipating future earnings, analysts have come to the conclusion that the information obtained from EVA has not been appropriately used. Woods et all. (2012) The importance of the economic value in determining the cost targeted in the electronics industry, their study has analyzed over multinational companies in Europe, EVA

and strategic product profitability method, the attribution and the calculated target cost stated that quite difficult. He also noted that it is very difficult to use the EVA approach to calculate the targeted cost-of-return when the accounting costs are complex and the capital is large. Farsio et al. (2000: 115) Standard & Poor's 500 (S & P 500) and the Dow Jones Industrial Average (DJIA) stock indices in companies involved in their study examined the relationship between EVA and stock returns, EVA's stock is not a good indicator of performance and stock In this aspect, which explains only a part of the variability of the surplus fluctuation of the sen, the economic value added approach has been criticized by reaching the result that it is missing. Young (1997: 335, 342) also stated that the economic value added method is easy to conceptualize but requires information on market risk, company premiums, company-specific and forward-looking estimates. Young has also criticized the economic value added approach in this respect by arguing that the evaluation of investor requests at auction for past returns always leads to imperfect results in estimating the cost of self-capital.

In the study, general information regarding the literature on the concept of economic value added and the equations for calculating the economic value added were provided first. Following to that, an application was given to examine the holding companies and investment companies traded on the BIST 100 index in terms of economic value added.

1.1. Objectives of the Study

The main objective of this study is to examine the EVA measure, a value-based performance criterion. The specific objectives that support the main objective are;

- Investigation of whether the companies listed in Table 1 operating in the BIST 100 index create value for shareholders and, together with this,

Companies listed in Table 1;

- Comparison of weighted average capital costs,

- Comparing the cost of self-capital,

- The comparison of the dividend growth values of next year,

- Comparing the values of the dividend growth,

- Comparison of growth rates,

- Comparisons of self-referrals,

- Comparison of re-investment rates,

- Comparison of profit distribution ratios,

- It is aimed to compare the total share prices.

1.2. Scope and Limitations of the Study

Briefly, scope of the study consists of 9 holding and investment companies that are traded at BIST 100 in Turkey and can access the dividend payments paid for the last five years. Other holdings and investment companies that have not been able to access the paid dividend data for the last five years are excluded from the survey. In addition, the financial information used in this study is based solely on the information provided by the companies to BIST.

1.3. Data and the Methodology Used in the Study

Data of the companies included in the study were obtained from the data published by BIST in Turkey. The related 9 BIST holding and investment companies that are able to access the annual (12-month) balance sheet and income table data announced by the companies for the years 2012-2016 and to be able to access the dividend tax paid for the last five years were included in the analysis and their EVA values and financial performances were compared. In comparison, TL, the national currency of Turkey, is used.

Companies considered in the scope of the study are presented in Table 1 as below.

Table1. Companies considered in the study.

No	Company Name	Process Code
1	Alarko Holding Joint Stock Company	ALARK
2	Borusan Investment and Marketing Joint Stock Company	BRYAT
3	Eczacıbaşı Investment Holding Partnership Joint Stock Company	ECZYT
4	EIS Eczacıbaşı Phar., Indus. and Finan. Inv. Ind. and Trade JSC.	ECILC
5	Hacı Ömer Sabancı Holding Joint Stock Company	SAHOL
6	Hedef Venture Capital Investment Trust Joint Stock Company	HDFGS
7	TAV Airports Holding Joint Stock Company	TAVHL
8	Tekfen Holding Joint Stock Company	TKFEN
9	Verusaturk Venture Capital Investment Trust Joint Stock Company	VERTU

In the application section of the study, the total EVA values created by the companies listed in Table 1 in the BIST 100 index in Turkey were calculated and compared. In this context, in terms of EVA values, companies were asked to answer questions such as which companies create value for their shareholders, which companies generate the highest and lowest value, or create no value.

2. Investigation and Calculation of Economic Value Added Concept

2.1. Economic Value Added (EVA) Concept

The concept of economic value added was first developed in 1896 by Alfred Marshall, who came to the concept of "surplus profit" and made some adjustments on capital (Bayrakdaroğlu and Ünlü, 2009: 290). According to Marshall, the concept of "surplus profit", which can also be expressed as "economic profit", is calculated by subtracting the amount of interest to be paid by the capital invested from the total net earnings over the current interest rates applied (rep. Öztürk, 2004: 352).

here are many definitions of EVA in the literature. For example; Joel M. Stern and his partner Bennett Stewart, who are considered creators of EVA, describe EVA as "the difference between economic profit and the alternative cost of investing at similar risk levels of investors" (Stewart, 1991: 118). According to Weissenrieder (1997: 10), the economic value added is simply the portion of the net profit after tax that exceeds the total annual capital cost. Walker (1999: 2) also defines EVA as an instrument that is used or should be used in an organization, especially in decisions related to the cost of capital equipment. According to Öztürk (2004: 353), EVA measures whether the company's earnings meet the weighted average capital cost and is defined as the difference between the post-tax return on the capital invested by the company and the cost of capital. The common definition of EVA is that economic value added is a measure of the company's value as a performance tool.

2.2. General Information about EVA

The amount of profit calculated according to Generally Accepted Accounting Principles is called accounting profit, but this does not take into account the opportunity cost of capital investments. The economic profit is calculated by subtracting the total income from the total cost, where the total cost also includes the opportunity cost of the production factors. In this context, Generally Accepted Accounting Principles are generally insufficient to

measure the financial performance of a company. For this reason, according to Stewart, the value created by an enterprise should be measured by economic profit rather than accounting profits. In addition, according to Stewart, in order to adequately reveal the financial performance of a company, it is necessary to make 164 corrections that are caused by the inadequacies in the generally accepted accounting principles, so that the distortions in the company's after-tax profits and capital can be eliminated (rep. Otlu and Karaca, 2011: 142).

The economic value added approach also examines the value created by the company, the value created by the company and the profitability of the companies, which are developed in the 1980s and which do not take into account the inflation effect and the operating cost of the enterprise. In this method, it is argued that the revenues of the companies as a result of their activities should meet the cost of the capital invested in these activities (Gücenme and Arsoy, 2006: 72).

The most important goal of profit-making organizations is to create acceptable earnings in terms of shareholders (Otlu and Karaca, 2011: 142). The economic value added approach is based on the idea that an operator should make at least as much profit as the cost of capital. However, the economic value added approach helps to make strategic decisions about the company as a performance measurement tool and points out where the shareholder wealth is being created or destroyed (rep. Otlu and Karaca, 2011: 142).

2.3. Calculating the Economic Value Added (EVA)

EVA is an accounting-based method for measuring company performance. However, EVA calculations use variables not included in accounting reports as well as accounting data. The EVA method is measured in terms of financial performance, net operating profit after tax and investment assets (weighted average capital cost) needed for obtaining these profits, taking into account the cost of capital (Brewer et al., 1999: 11). There are many equations in the literature regarding the calculation of economic value added. Young (1997: 334), however, has formulated the EVA as follows.

Net Sales
 − Activity Expenses (including the tax)
 = Activity Profit
 − Capital Fees
 = EVA

The economic value added can also be obtained by multiplying the difference between the total capital contribution and the capital cost by the committed capital amount. In this context, another equation for the calculation of economic value added is expressed as below (Stewart, 1991: 136):

EVA = Capital x (r - c)

In the equation above;
r: means total capital return.
c: means capital cost.

With a clearer presentation, it is possible to express EVA, which measures the increase in the activity of a company during the year concerned, as below (Topal, 2008: 254):

EVA = [Profit before interest and tax x (1-tax ratio)] – [Capital invested x Weighted average capital cost]   (1)

In the functionalization of the EVA model, it is first necessary to estimate some of the key determinants listed as below (Firer, 1994: 57):

        - Profit before interest and tax,

        - Tax rate,

        - Growth in income,

        - Investment required for the operating capital,

        - Fixed capital investments,

- The life of the predicted strategy,

The determinants of the discount rate (or cost of capital) as:

- Self-capital cost,

- Cost of debt,

- Leverage.

In this context, measuring EVA value as well as some other values of companies that are presented in the equations below will make the EVA model functional and provide better health outcomes in the measurement of financial performance. Some equations for the measurement of EVA and some other financial performance indicators are also presented below.

According to the EVA approach, one of the most important factors in determining firm value is the weighted average capital cost (Gücenme and Arsoy, 2006: 72). However, in order to calculate the EVA, the weighted average capital cost, which expresses the actual capital costs of firms, must be calculated (Başçı, 2008: 11). The weighted average capital cost can be formulated as follows (Yılmaz and Bastı, 2013: 87);

$$\text{Weighted Average Capital Cost (WACC)} = \frac{De}{S + De} \times C_b \times (1\text{-}T) + \frac{S}{S + De} \times C_c \quad (2)$$

In the equation above;

WACC: is the Weighted average capital cost,

S: is the book value of the self-capital

De: is the book value of debt,

C_c: is the cost of self-capital,

C_b: is the pre-tax cost of borrowing and

T: is the tax rate.

In order to calculate the WACC cost, capital costs of the companies have to be firstly calculated. According to the Gordon Growth Model, the cost of self-capital in ordinary shares can be calculated as follows (Başçı, 2008: 4);

$$\text{Cost of self-capital } (C_c) = D_1 / P_0 + g \tag{3}$$

In the equation above;

D_1: is the dividend growth for the next year,

P_0: is the total share price,

g: is the growth rate.

Another equation for calculating the cost of self-capital is presented as below (Sharma and Kumar, 2010: 201);

$$\text{Cost of self-capital } (C_c) = R_i + b_s \times (R_m - R_i)$$

In the equation above;

C_c : is the cost of self-capital,

R_i : is the risk-free interest rate,

R_m : is the expected return of the market,

b_s : is the beta coefficient of the stock.

In order to calculate the cost of self-capital, it is necessary firstly to calculate the dividend growth value of the next year. The dividend growth of the next year can be calculated by using the equation provided as below (Şahin, 2017);

$$\text{Dividend growth of the next year } (D_1) = D_0 \times (1+ g) \tag{4}$$

The average growth of the dividends paid in the past is obtained by subtracting the dividend payment of the previous year from the dividend payment of the current year and

dividing the difference into dividend payment of the previous year. This expression can be formulated as follows (Şahin, 2017);

$$\text{Average Dividend Growth} = D_1 - D_0 \,/\, D_0 \tag{5}$$

It is necessary to also have growth rate for calculating the cost of self-capital. The growth rate can be formulated as follows (Doğanay and Aktaş, 2005: 10);

$$g = \text{Return on Self-capital} \times (1 - \text{Profit Distribution Ratio}) \tag{6}$$

The return on self-capital, which is included in the equation of growth rate, can be calculated as follows (Saraç, 2015: 19);

$$\text{Return on Self-capital} = \text{Net Profit} \,/\, \text{Self-capital} \tag{7}$$

The reinvestment rate can be calculated as follows, by using the growth rate equation;

$$\text{Reinvestment Rate} = (1 - \text{Profit Distribution Ratio}) \tag{8}$$

The profit distribution ratio, which is included in the reinvestment rate equation, is measured with sum of the price the investor will pay for the stock and the present value of the profit share amounts to be obtained. According to this expression, the profit distribution ratio can be calculated by using the equation given as below (Brealey, 2001: 448-449);

$$P_0 = \sum_{t=1}^{\infty} \frac{D_t}{(1+C_c)^t} \tag{9}$$

In the equation above;

P_0 = Stock market price at t_0,

D_t = Amount of profit expected to be earned per year till t. year,

C_c = Cost of self-capital,

If the total share price in the profit distribution ratio formula is in other words the stock market price, the profit distribution ratio formula can be used to formulate as follows:

Total Share Price = Value per Share x Total Share Value   (10)

3. An Application of Holding Companies and Investment Companies Treated in BIST 100 in Turkey

3.1. Alarko Holding Joint Stock Company

The five-year average dividend growth value of Alarko Holding Joint Stock Company can be calculated as given below by using the Equation 5;

2016: average dividend growth in 2016 = 31 - 26 / 26 = 0,19

2015: average dividend growth = 26 - 6,18 / 6,18   = 3,21

2014: average dividend growth = 6,18 - 6,80 / 6,80   =(-0,09)

2013: average dividend growth = 6,80 - 5,40 / 5,40   = 0,26

2012: average dividend growth = 5,40 - 2,67 / 2,67   = 1,02

$$4,59 / 5 = 0,918$$

The future dividend growth value of 2018 can be calculated by using the Equation 4, as follows;

Dividend growth of the next year (D_1) = 31 x (1+ 0,918) = 59,458 TL

The return on self-capital is calculated by using Equation 7, as follows;

Return on Self-capital = 151.469.315 / 223.467.000 = 0,68

The total share price can be calculated as follows, by using Equation 10;

Total Share Price = 0,260 x 223.467.000 = 58.101.420 TL

The profit distribution ratio is calculated as follows, by using Equation 9;

Profit distribution ratio = 58.101.420 / 29.743.134 = 1,95

The reinvestment rate is calculated as follows, by using Equation 8;
Reinvestment rate = (1- 1,95) = 0,95

The expected growth rate is calculated as follows, via Equation 6;
Expected growth rate (g) = 0,68 x 0,95 = 0,646

The cost of self-capital is calculated by using Equation 3, as follows;
Cost of Self-capital (Cc) = (0,31 / 5,72) + (0,646) = 0,70

By using the above calculated data, weighted average capital cost is calculated via Equation 2, as follows:

$$\text{WACC} = \left[\frac{1.005.754.504}{2.343.846.633} \times (0,12) \times (1 - 0,20)\right] + \left[\frac{1.338.092.129}{2.343.846.633} \times (0,70)\right] = 0,40254$$

EVA is calculated via Equation 1, as follows;
EVA = [(195.095.770) x (1-0,20)] – [(2.343.846.633 x 0,40254)] =
156.076.616 – 943.492.023,65 = (-787.415.407,65)

3.2. Borusan Investment and Marketing Joint Stock Company

The five-year average dividend growth value of Borusan Investment and Marketing Joint Stock Company can be calculated as given below by using the Equation 5;

2016: average dividend growth = 35,2 - 37,33 / 37,33 = (-0,06)

2015: average dividend growth = 37,33 - 74,67 / 74,67 = (-0,50)

2014: average dividend growth = 74,67 - 53,87 / 53,87 = 0,39

2013: average dividend growth = 53,87 - 61,07 / 61,07 = (-0,12)

2012: average dividend growth = 61,07 - 33,40 / 33,40 = 0,83

0,54 / 5 = 0,108

The future dividend growth value of 2018 can be calculated by using the Equation 4, as follows;

Dividend growth of the next year (D_1) = 35,2 x (1+ 0,108) = 39,0016 TL

The return on self-capital is calculated by using Equation 7, as follows;

Return on Self-capital = 31.237.363 / 28.125.000 = 1,11

The total share price can be calculated as follows, by using Equation 10;

Total Share Price = 0,011107 x 2.812.500.000 = 31.238.437,5 TL

The profit distribution ratio is calculated as follows, by using Equation 9;

Profit distribution ratio = 31.238.437,5 / 31.237.363 = 1,00003

The reinvestment rate is calculated as follows, by using Equation 8;

Reinvestment rate = (1- 1,00003) = 0,00003

The expected growth rate is calculated as follows, via Equation 6;

Expected growth rate (g) = 1,11x 0,00003= 0,0000333

The cost of self-capital is calculated by using Equation 3, as follows;

Cost of Self-capital (Cc) = (0,35 / 43,56) + (0,0000333) = 0,0081

By using the above calculated data, weighted average capital cost is calculated via Equation 2, as follows:

$$WACC = \left[\frac{24.247.489}{798.975.498} \times (0,12) \times (1- 0,20) \right] + \left[\frac{774.728.009}{798.975.498} \times (0,0081) \right] =$$

WACC = 0,010767

EVA is calculated via Equation 1, as follows;

EVA = [(38.509.347) x (1 - 0,20)] - [(798.975.498 x 0,010767)] =

= 30.807.477,6 - 8.602.569,18 = 22.204.908,42

3.3. Eczacıbaşı Investment Holding Partnership Joint Stock Company

The five-year average dividend growth value of Eczacıbaşı Investment Holding Partnership Joint Stock Comp. can be calculated as given below by using the Equation 5;

2016: average dividend growth = 1,15 - 120 / 120 = (-0,99)
2015: average dividend growth = 120 - 11 / 11 =   9,91
2014: average dividend growth = 11 - 11 / 11 =   0
2013: average dividend growth = 11 - 15 / 15 =   (-0,27)
2012: average dividend growth = 15 - 15 / 15 =   0
$\qquad\qquad\qquad\qquad\qquad\qquad\qquad$ 8,65 / 5 = 1,73

The future dividend growth value of 2018 can be calculated by using the Equation 4, as follows;

Dividend growth of the next year (D_1) = 1,15 x (1+ 1,73) = 3,1395 TL

The return on self-capital is calculated by using Equation 7, as follows;

Return on Self-capital = 140.010.841 / 105.000.000 = 1,33

The total share price can be calculated as follows, by using Equation 10;

Total Share Price = 1,334 x 103.547.077 = 138.131.800,72 TL

The profit distribution ratio is calculated as follows, by using Equation 9;

Profit distribution ratio = 138.131.800,72 / 140.010.841 = 0,99

The reinvestment rate is calculated as follows, by using Equation 8;

Reinvestment rate = (1- 0,99) = 0,01

The expected growth rate is calculated as follows, via Equation 6;

Expected growth rate (g) = 1,33 x 0,01= 0,01333

The cost of self-capital is calculated by using Equation 3, as follows;

Cost of Self-capital (Cc) = (1,15 / 9,73) + (0,0133) = 0,1315

By using the above calculated data, weighted average capital cost is calculated via Equation 2, as follows:

$$
WACC = \left[\frac{51.848.970}{1.565.373.455} \times (0,12) \times (1- 0,20) \right] + \left[\frac{1.513.524.485}{1.565.373.455} \times (0,1315) \right] =
$$

WACC = 0,130324

EVA is calculated via Equation 1, as follows;

EVA = [(152.899.300) x (1 - 0,20)] - [(1.565.373.455 x 0,130324)] =

122.319.440 - 240.005.730,15 = (-117.686.290,15)

3.4. EIS Eczacıbaşı Pharmaceutical, Industrial and Financial Investments Industry and Trade Joint Stock Company

The five-year average dividend growth value of EIS Eczacıbaşı Pharmaceutical, Indus. and Financial Inv. Industry and Trade JSC. can be calculated as given below by using the Equation 5;

2016 average dividend growth = 50 - 40 / 40   = 0,25

2015 average dividend growth = 40 - 8 / 8   =   4

2014 average dividend growth = 8 - 9,60 / 9,60 = (-0,17)

2013 average dividend growth = 9,60 - 10 / 10 = (-0,04)

2012 average dividend growth = 10 -10 / 10   =   0

                                         4,04 / 5 = 0,808

The future dividend growth value of 2018 can be calculated by using the Equation 4, as follows;

Dividend growth of the next year (D_1) = 50 x (1+ 0,808) = 90,4 TL

The return on self-capital is calculated by using Equation 7, as follows;

Return on Self-capital = 167.557 / 685.260 = 0,24

The total share price can be calculated as follows, by using Equation 10;

Total Share Price = 0,2736 x 67.546.552.900 = 18.480.736.873,44 TL

The profit distribution ratio is calculated as follows, by using Equation 9;

Profit distribution ratio = 18.480.736.873,44 / 167.557 = 110.295,22

The reinvestment rate is calculated as follows, by using Equation 8;

Reinvestment rate = (1- 110.295,22) = (-110.294,22)

The expected growth rate is calculated as follows, via Equation 6;

Expected growth rate (g) = 0,24 x (-110.294,22) = (-26.470,608)

The cost of self-capital is calculated by using Equation 3, as follows;

Cost of Self-capital (Cc) = (0,5 / 4,75) + (-26.470,608) = (-26.470,50)

By using the above calculated data, weighted average capital cost is calculated via Equation 2, as follows:

$$WACC = \left[\frac{748.213}{3.992.703} \times (0,12) \times (1-0,20) \right] + \left[\frac{3.250.755}{3.992.703} \times (-26.470,50) \right]$$

WACC = 0,017989 – 21.551,59 = (- 21.551.57)

EVA is calculated via Equation 1, as follows;

EVA = [(197.188) x (1 - 0,20)] - [(3.992.703 x (- 21.551,57)] =

157.750,4 + 86.049.018.193,71 = 86.049.175.944,11

3.5. Hacı Ömer Sabancı Holding Joint Stock Company

The five-year average dividend growth value of Hacı Ömer Sabancı Holding Joint Stock Company can be calculated as given below by using the Equation 5;

2016 average dividend growth = 20 – 15 / 15 = 0,33
2015 average dividend growth = 15 – 10 / 10 = 0,5
2014 average dividend growth = 10 – 10 / 10 = 0
2013 average dividend growth = 10 – 10 / 10 = 0
2012 average dividend growth = 10 – 10 / 10 = 0

$$\overline{0,83 / 5 = 0,166}$$

The future dividend growth value of 2018 can be calculated by using the Equation 4, as follows;

Dividend growth of the next year (D_1) = 20 x (1+ 0,166) = 23,32 TL

The return on self-capital is calculated by using Equation 7, as follows;

Return on Self-capital = 5.547.146 / 2.040.404 = 2,72

The total share price can be calculated as follows, by using Equation 10;

Total Share Price = 13,04 x 204.040.393.100 = 2.660.686.726.024 TL

The profit distribution ratio is calculated as follows, by using Equation 9;

Profit distribution ratio = 2.660.686.726.024 / 5.547.146 = 479.649,67

The reinvestment rate is calculated as follows, by using Equation 8;

Reinvestment rate = (1- 479.649,67) = (-479.648,67)

The expected growth rate is calculated as follows, via Equation 6;

Expected growth rate (g) = 2,72 x (-479.648,67) = (-1.304.644,38)

The cost of self-capital is calculated by using Equation 3, as follows;

Cost of Self-capital (Cc) = (0,2 / 10,84) + (-1.304.644,38) = (-1.304.644,36)

By using the above calculated data, weighted average capital cost is calculated via Equation 2, as follows:

$$WACC = \left[\frac{263.460.496}{308.267.839} \times (0,12) \times (1- 0,20) \right] + \left[\frac{44.807.343}{308.267.839} \times (-1.304.644,36) \right]$$

WACC = 0,082046 - 189.632,65 = (-189.632,57)

EVA is calculated via Equation 1, as follows;

EVA = [(6.830.104) x (1 - 0,20)] - [(308.267.839 x (-189.632,57)] =

5.464.083,2 + 58.457.622.557.916,23 = 58.457.628.021.999,43

3.6. Hedef Venture Capital Investment Trust Joint Stock Company

The five-year average dividend growth value of Hedef Venture Capital Investment Trust Joint Stock Company can be calculated as given below by using the Equation 5;

2016 average dividend growth = 1,5 – 2 / 2   = (-0,25)

2015 average dividend growth = 2 – 1,25 / 1,25 =   0,6

2014 average dividend growth =   -

2013 average dividend growth =   -

2012 average dividend growth =   -

0,35 / 5 = 0,07

The future dividend growth value of 2018 can be calculated by using the Equation 4, as follows;

Dividend growth of the next year (D_1) = 1,5 x (1+ 0,07) = 1,605 TL

The return on self-capital is calculated by using Equation 7, as follows;

Return on Self-capital = 1.523.933 / 20.000.000 = 0,076197

The total share price can be calculated as follows, by using Equation 10;

Total Share Price = 0,076 x 20.000.000 = 1.520.000 TL

The profit distribution ratio is calculated as follows, by using Equation 9;

Profit distribution ratio = 1.520.000 / 1.523.933 = 0,99

The reinvestment rate is calculated as follows, by using Equation 8;

Reinvestment rate = (1- 0,99) = 0,01

The expected growth rate is calculated as follows, via Equation 6;

Expected growth rate (g) = 0,076197 x 0,01 = 0,00076197

The cost of self-capital is calculated by using Equation 3, as follows;

Cost of Self-capital (Cc) = (0,01 / 4,50) + 0,00076197 = 0,045761

By using the above calculated data, weighted average capital cost is calculated via Equation 2, as follows:

$$WACC = \left[\frac{71.800}{32.636.765} \times (0,12) \times (1- 0,20) \right] + \left[\frac{32.564.965}{32.636.765} \times 0,045761 \right] =$$

WACC = 0,000211 – 0,045660 = (- 0,045449)

EVA is calculated via Equation 1, as follows;

EVA = [(1.523.933) x (1 - 0,20)] - [(32.636.765 x (- 0,045449)] =

1.219.146,4 + 1.483.308,3 = 2.702.454,7

3.7. TAV Airports Holding Joint Stock Company

The five-year average dividend growth value of TAV Airports Holding Joint Stock Company can be calculated as given below by using the Equation 5;

2016 average dividend growth = 68,25 – 95,67 / 95,67 = (-0,29)

2015 average dividend growth = 95,67 - 84,25 / 84,25 = 0,14

2014 average dividend growth = 84,25 - 54,78 / 54,78 = 0,54

2013 average dividend growth = 54,78 - 39,34 / 39,34 = 0,39

2012 average dividend growth = 39,34 – 25 / 25   = 0,57

$$1,35 / 5 = 0,27$$

The future dividend growth value of 2018 can be calculated by using the Equation 4, as follows;

Dividend growth of the next year (D_1) = 68,25 x (1+ 0,27) = 86,68 TL

The return on self-capital is calculated by using Equation 7, as follows;

Return on Self-capital = 399.379 / 363.281 = 1,099366

The total share price can be calculated as follows, by using Equation 10;

Total Share Price = 1,17 x 363.281.250 = 425.039.062,5 TL

The profit distribution ratio is calculated as follows, by using Equation 9;

Profit distribution ratio = 425.039.062,5 / 399.379 = 1.064,25

The reinvestment rate is calculated as follows, by using Equation 8;

Reinvestment rate = (1- 1.064,25) = (-1.063,25)

The expected growth rate is calculated as follows, via Equation 6;

Expected growth rate (g) = 1,099366 x (-1.063,25) = (-1.168,90)

The cost of self-capital is calculated by using Equation 3, as follows;

Cost of Self-capital (Cc) = (0,76 / 21,42) + (-1.168,90) = (-1.168,86)

By using the above calculated data, weighted average capital cost is calculated via Equation 2, as follows:

$$WACC = \left[\frac{8.511.246}{11.505.470} \text{ x } (0,12) \text{ x } (1\text{-} 0,20)\right] + \left[\frac{2.994.224}{11.505.470} \text{ x } (\text{-}1.168,86)\right] =$$

WACC = 0,071016 – 304,188239 = (- 304,117223)

EVA is calculated via Equation 1, as follows;

EVA = [(702.051) x (1 - 0,20)] - [(11.505.470 x (- 304,117223)] =

561.640,8 + 3.499.011.585,71 = 3.499.573.266,5

3.8. Tekfen Holding Joint Stock Company

The five-year average dividend growth value of Tekfen Holding Joint Stock Company can be calculated as given below by using the Equation 5;

2016 average dividend growth = 30,69 – 16,24 / 16,24 = 0,89

2015 average dividend growth = 16,24 – 10,81 / 10,81 = 0,50

2014 average dividend growth =   = -

2013 average dividend growth =   0 – 35,74 / 35,74   = (-1)

2012 average dividend growth = 35,74 – 18,96 / 18,96 = 0,89

                                                          1,28 / 5 = 0,256

The future dividend growth value of 2018 can be calculated by using the Equation 4, as follows;

Dividend growth of the next year (D_1) = 30,69 x (1+ 0,256) = 38,55 TL

The return on self-capital is calculated by using Equation 7, as follows;

Return on Self-capital = 330.323 / 370.000 = 0,892764

The total share price can be calculated as follows, by using Equation 10;

Total Share Price = 0,877 x 370.000.000 = 324.490.000 TL

The profit distribution ratio is calculated as follows, by using Equation 9;

Profit distribution ratio = 324.490.000 / 330.323 = 982,34

The reinvestment rate is calculated as follows, by using Equation 8;

Reinvestment rate = (1- 982,34) = (-981,34)

The expected growth rate is calculated as follows, via Equation 6;

Expected growth rate (g) = 0,892764 x (-981,34) = (-876,11)

The cost of self-capital is calculated by using Equation 3, as follows;

Cost of Self-capital (Cc) = (0,31 / 10,30) + (-876,11) = (-876,08)

By using the above calculated data, weighted average capital cost is calculated via Equation 2, as follows:

$$
\text{WACC} = \left[\frac{4.289.352}{6.668.809} \text{ x } (0,12) \text{ x } (1\text{- } 0,20) \right] + \left[\frac{2.379.457}{6.668.809} \text{ x } (-876,08) \right] =
$$

WACC = 0,061747 – 312,588752 = (- 312, 53)

EVA is calculated via Equation 1, as follows;

EVA = [(438.938) x (1 - 0,20)] - [(6.668.809 x (- 312, 53)] =

351.150,4 + 2.084.202.876,77 = 2.084.554.027,17

3.9. Verusaturk Venture Capital Investment Trust Joint Stock Company

The five-year average dividend growth value of Verusaturk Venture Capital Investment Trust Joint Stock Company can be calculated as given below by using the Equation 5;

2016 average dividend growth = 9,5 – 30 / 30 = (-0,68)

2015 average dividend growth = 0 – 30 / 30   =   (-1)

2014 average dividend growth =   -

2013 average dividend growth =   -

2012 average dividend growth =   -

$$(-1,68) / 5 = (-0,336)$$

The future dividend growth value of 2018 can be calculated by using the Equation 4, as follows;

Dividend growth of the next year (D_1) = 0,2829 x [1 + (-0,336)] = 0,1878 TL

The return on self-capital is calculated by using Equation 7, as follows;

Return on Self-capital = 22.623.917 / 52.000.000 = 0,435248

The total share price can be calculated as follows, by using Equation 10;

Total Share Price = 0,44 x 52.000.000 = 22.880.000 TL

The profit distribution ratio is calculated as follows, by using Equation 9;

Profit distribution ratio = 22.880.000 / 22.623.917 = 1,01

The reinvestment rate is calculated as follows, by using Equation 8;

Reinvestment rate = (1- 1,01) = 0,01

The expected growth rate is calculated as follows, via Equation 6;

Expected growth rate (g) = 0,435248 x 0,01 = 0,00435248

The cost of self-capital is calculated by using Equation 3, as follows;

Cost of Self-capital (Cc) = (0,1 / 2,93) + 0,00435248 = 0,038482

By using the above calculated data, weighted average capital cost is calculated via Equation 2, as follows:

$$\text{WACC} = \left[\frac{8.806.491}{139.929.552} \times (0,12) \times (1-0,20) \right] + \left[\frac{131.303.061}{139.929.552} \times 0,038482 \right] =$$

WACC = 0,006042 – 0,036110= (-0,030068)

EVA is calculated via Equation 1, as follows;

EVA = [(22.623.917) x (1 - 0,20)] - [(131.303.061 x (- 0,030068))] =

18.099.133,6 + 3.948.020,44 = 22.047.154,04

Conclusions

Within the scope of measuring financial performance of companies, the economic value added (EVA) method provides information on whether a company creates economic value and whether the capital of its shareholders has increased. In this context, the annual financial state table, comprehensive income state table and the footnote data of nine companies, which can provide dividend data of the last five years and are among holding and investment companies traded in the Istanbul Stock Exchange 100 Index Turkey in 2016, were used. Considering the related data, holdings and investment companies were examined in terms of various performance indicators and finally economic value added. When the findings were evaluated, the value added by the related companies were calculated as -787.415.407,65 for Alarko Holding Joint Stock Company, 22.204.908,42 for Borusan Investment and Marketing Joint Stock Company, -117.686.290,15 for Eczacıbaşı Investment Holding Partnership Joint Stock Company, 86.049.175.944,11 for EIS Eczacıbaşı Pharmaceutical, Industrial and Financial Investments Industry and Trade Joint Stock Company, 58.457.628.021.999,43 for Hacı Ömer Sabancı Holding Joint Stock Company, 2.702.454,7 for Hedef Venture Capital Investment Trust Joint Stock Company, 3.499.573.266,5 for TAV Airports Holding Joint Stock Company, 2.084.554.027,17 for Tekfen Holding Joint Stock Company, and 22.047.154,04 for Verusaturk Venture Capital Investment Trust Joint Stock Company. Ergo, considering these data, Hacı Ömer Sabancı Holding Joint Stock Company is the one having the highest EVA and showing the best financial performance in 2016 as among holding companies and investment companies traded in Stock Exchange Istanbul 100 index in Turkey. Considering the EVA, the remaining companies rank as follows: EIS Eczacıbaşı Pharmaceutical, Industrial and Financial Investments Industry and Trade Joint Stock Company is on the second place with

86.049.175.944,11 TAV Airports Holding Joint Stock Company is on the third place with 3.499.573.266,5, Tekfen Holding Joint Stock Company is on the fourth place with 2.084.554.027,17, Borusan Investment and Marketing Joint Stock Company is on the fifth place with 22.204.908,42, Verusaturk Venture Capital Investment Trust Joint Stock Company is on the sixth row with 22.047.154,04, and finally, Hedef Venture Capital Investment Trust Joint Stock Company is on the seventh place with 2.702.454,7. On the other hand, Alarko Holding Joint Stock Company (with the EVA of -787.415.407,65) and Eczacıbaşı Investment Holding Partnership Joint Stock Company (with the EVA of -117.686.290,15) have not been able to create value for their shareholders, but they have consumed their existing capital.

It is clear that investors will reach optimal investment decisions by using EVA methodology and using high EVA value as compared to traditional valuation methods, while ultimately evaluating the financial performance of companies in the process of evaluating various investment decisions.

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