# The Importance of Price Earnings Ratio in Equity Valuation on Stock Exchange Market

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**Abstract:** There are many methods used to value equity and companies. Most of them fail to give a realistic value to the firm being valuated. The most used technique is discounted cash flow method. Because of its weaknesses, the investors are using more and more another approach to rate companies. This is relative valuation. The essence of this methodology depends critically on two components: the multiple that is used and the comparables that are chosen. Depending on what multiple we use we may be able to determine the Value of Equity or the Global Value of Enterprise. This paper focuses on equity valuation using multiples. We present the methodology of valuing equity of a non- listed company with the purpose of establishing a share price for the first time on the stock exchange market. The multiple selected is price earnings ratio, calculated as a median for the peer group. The comparable companies are defined as being those who are listed on the stock exchange market in the same class as the company for which we want to find a share value. Further studies on the subject refer to other multiples used in relative valuation.

**Keywords:** relative valuation; multiples; peer group; mean

**JEL Classification:** D46; G11; L25; L74; M41

## Introduction

Business evaluation it's an important tool in overcoming the economic and financial crisis. Nowadays, it is crucial to estimate adequate corporation value in different moments such as: when we intend to list company's shares on the capital market for determining the price or fair value of shares, for determining the sale or the purchase price of a corporation, when we are changing the capital structure of a business, when we intend to compare two enterprises, when we need to chose between two investment plans. Another field of appliance for this area of knowledge is represented by merges and acquisitions of companies. All this process is needed in order to decrease uncertainty on the market. According to Damodaran, valuation plays a significant role in portfolio management, in acquisition analysis and in corporate finance (Damodaran, 2002). Abrams gives

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another connotation to the business valuation. He says that it is needed for "planning retirement and exist strategies" (Abrams, 2005, p. 5) "for making an initial public offering, litigations of various types, spinning off a portion of your business, entity restructuring" (Abrams, 2005, p. 6). Arnaud Thauvron states that corporate valuation is necessary also for fiscal use. (Thauvron, 2007, p. 13).

Business evaluation techniques are needed because the value of an enterprise is changing over time depending on the following aspects: existence of free prices leading to changes in the internal information available to management of an enterprise for making economic decisions; fluctuations in the exchange ratio, meaning changes in the value of all goods and hence the whole enterprise; internal management of each company in terms of depreciation and accounting policies may lead to another value of enterprise; CEO experience in terms of staff motivation; employees competence, the strategy applied, the company management structure, size and quality of assets held and used.

The objective of any company is the value maximization and this can be achieved only by knowing the accurate present value. Analysts use a wide range of methods to value a corporation that share common characteristics. The three valuation approaches are: asset approach which measure value through the calculation of assets net of liabilities, income approach which measure value by converting future benefits to present amount and market approach which calculate value by comparing the enterprises with similar ones. (Abrams, 2005, p. 31) . Using classical and neoclassical business valuation methods has not led to expected results and their validity was put into question during economic and financial crisis. Therefore, in the recent years, analysts have intensified their efforts, at both theoretical and practical level, on the development of new methods of valuation or revision of existing ones. Most used methods, nowadays, are the following ones: discounted cash flow valuation that relates the value of a company to the present value of expected cash flows, relative valuation that estimates the value of a company by comparing it to some similar corporate and the contingent claim valuation that uses option pricing models to measure the value of assets that share option characteristics (Damodaran, 2002, p. 16).

The purpose of this paper is to present one of the most relevant evaluation method discussed in recent years which is relative valuation technique using multiples.

## Related Work

Even though this method is very used, there are few those who wrote a theory on the application of multiples. Regarding theoretical approach to the subject, through the authors that devote space in their book to discussing the multiples valuation

method are: Damodaran (2002), Palepu, Healy & Bernard (2000), Thauvron (2007), Pratt (2008).

Damodaran is the one who develops this area of knowledge. In his book "Investment Valuation: Tools and Techniques for Determining the Value of Any Asset" (2002) he presents a theoretical approach to valuation using multiples and in the same time a more practically orientated one. He presents the relative valuation using multiples as being the most important and most used valuation method. He puts the fundamental principles of relative valuation, defines and calculates earnings multiples, book value multiples revenue and sector- specific multiples. In his work he explains the characteristics and the determinants of comparable firms and multiples using data from different countries and industries.

Palepu, Healy and Bernard, in their book "Business Analysis & Valuation Using Financial Statements-Test and Cases"( 2000), they talk about the steps involved in a relative valuation process, about the comparable firms, the area of multiples used for firms with poor performance, about the way we should adjust multiplesand about determinants of multiples. They aproach this area of kwnoledge in a theoretical and in a practical way.

Arnaud Thauvron has an important contribution to the area of firm valuation. Using a new method, in his book "Evaluation d'Entreprise", he shares information about variables and multiples used in relative valuation, about the comparable firm. His work is significant because he explain the method by applying it.

Other important names in the area of multiple based valuation of the enterprise are: Lundholm& Sloan. They provide a better understanding of determinants of multiples and their mathematical connection with the accounting field. Richter goes forward and presents a theoretical approach on how to link multiples to the discounted cash flow model. Arzac and Koller, Goedhart & Wessels concentrate on the development of criteria for the identification of comparable firms. Benninga & Sarig point another important aspect, the one of using the same data definition for calculating multiples. Spremann raises another issue, the one of distinction between trading and transaction multiples. (Schreiner, 2007, pp. 14,15).

Shannon P. Pratt, is a notorious name in the area of business and equity valuation and has written several books that speak about many of the notions and methods used in contemporary business valuation around the world. His most recent work is "Valuing a Business: The Analysis and Appraisal of Closely Held Companies" (2008).

The books listed above are very important in business and equity valuation field. Starting with Damodaran and ending with Shannon Pratt, all these studies give alternativ answers to questions that persist in business valuation field.

On the subject of valuation using multiples at the empirical level most studies are based on a limited set of firms or years and consider only a limited number of multiples.

Regarding the accurateness of estimation using multiples for valuing a company important studies belong to Kaplan and Ruback, Gilson, Hotchkiss and Ruback. In their work, they provide evidence that discounted cash flow method and valuation approaches using companies in similar industries provide reliable estimates of market value. They deduce that estimates based on multiples and comparable companies underestimate transaction value with a media estimation error of -18,1%. In the same way they deduce that using multiples for comparable companies from the same industry and area of transactions it's more accurate. Another field of study concerning multiples is to estimate the terminal value of the firm by using comparable EBITDA multiple and the EBITDA forecast. They discover that the estimated value exceed transaction values by more than 10%. Even though evaluation using multiples doesn't give a fair value, according to the findings of their study it's more accurate than patrimonial methods of evaluation (Kaplan & Ruback, 1995). Gilson, Hotchkiss and Ruback compare the market value of firms that reorganize in bankruptcy with estimates of value based on management's published cash flow projections and also based on projected EBITDA in the first forecast year. Even though the estimation error for the value obtain through discounted cash flow and multiples it's preeminent, those two methods have a higher accuracy than others in estimating value for bankrupt firm (Gilson, Hotchkiss, & Ruback, 2000).

In what has to do with the identification of comparable firms, significant research papers belong to Boatsman & Baskin (they show that valuation errors are smaller when comparable firms are matched on the basis of similar historical earnings growth), Alford and Bhojraj& Lee (they discover that valuation errors are smaller if the comparable firms are matched upon underlying economic variables instead of industry membership) (Schreiner, 2007).

On the topic of specific multiples for some industries, Barker and Tasker agree that practitioners prefer using PE and price to book value multiples in the financial industry, price to operating cash flow multiples in the consumer services industry (Schreiner, 2007, p. 19).

As regards the combinations of multiples, Cheng and McNamare combine price to earnings multiples and price to book value multiples in valuation of the companies. They conclude that their method it's more accurate that by using separate those two multiples (Schreiner, 2007, p. 20). In the same way, Stephen Penman calculates value as a multiple of combined earnings and book value. He defines comparable firms as groups based on the spread between capitalized earnings and book value and by the firm itself with its own historical weights (Penman, 1998).

## Concepts and Terms Regarding Relative Valuation

In order to develop this subject we believe necessary to establish some theoretical considerations. To achieve this we should define the following terms: value, business evaluation, relative valuation.

Starting with Adam Smith, who was the first one who gave a definitions for value, there where many those who tried to identify the meaning of it. In essence, it means "a fair return or equivalent in goods, services, or money for something exchanged the monetary worth of something" (Abrams, 2005, p. 6). Regarding business value there are many ways of defining it: fair market value, fair value, investment value.

Business evaluation consists in calculating a value for those enterprises by using one or more methods, whit the objective of establishing a price. (Thauvron, 2007, p. 11). It developed from real estate valuation.

Concerning relative valuation, in this method the value of a business or equity is drawn from the pricing of "comparable" enterprises, standardized using a common variable such as earnings, cash flows, book value or revenues (Damodaran, 2002, p. 25) and a set of multiples. This method is a part of market approach which is a general way of determining a value of a business by using a method that compares the subject to similar business (Abrams, 2005, p. 44). The most common multiples used to value a firm are price-earnings ratio, price to book value ratio, price to sales ratio, price to cash-flow ratio, price to dividends ratio, market value to replacement value (Tobin's Q). By using this method we assume that the other firms in industry are comparable to the company being valued, we must make some adjustments and we must apply the multiple derived from the similar companies to the subject firm. There are many manners of putting into practice this approach. Some of the analysts make a cross sectional comparison of multiples across similar companies, while others use time series comparison of the multiple of a company to the multiples it used to trade in the past (Damodaran, 2002, p. 25). Others choose to estimate multiples by using the same strategy applied in discounted cash flow analyze. In the last case, even if they use cross sectional or time series comparation, they relate to the future establishing growth rates in earnings and cash flows, payout ratio and risk (Damodaran, 2002, p. 27). Relative valuation using multiples is simple and easy to work with when there are a large number of comparable firms working in the industry. Some problems may appear if we must value a unique firm or if the comparables firms are being overvalued or undervalued.

Performing a valuation using multiples involves the following steps:

1. Selecting a measure of performance or value for multiples calculations.

There are four types of multiples used in valuation: earnings multiples, book value multiples, revenue multiples, sector-specific multiples. The aim of this article is to study earnings multiples and value a company using one of this multiples.

Earnings multiples are the most used multiples in relative valuation. Even though it is widespread, valuation using earnings multiples does not have any meaning if a firm has a negative or a low net income, if comparable firms use different accounting policies and if the companies don't have similar capital structure (Schreiner, 2007, p. 41). In this category there are multiples such as: price earnings ratio (PE), PEG (defined to be the price earnings ratio divided by the expected growth rate in earnings), relative PE ratio, price to future earnings and price to earnings before R&D expenses, enterprise value to EBITDA. There are several methods of applying this multiples in enterprise valuation: first one is to compare earnings multiples across a peer group and to control for differences in growth, risk and payout and second one is to expand the definition of comparable firm to the entire sector (Damodaran, 2002, p. 714).

Book value multiples are used to determine how much a stock is over or under valuated. In this area we will find multiples such as: price to book equity, return on equity, Tobin's Q. The price –book value of a firm is determined by its expected payout ratio, growth and riskiness (Damodaran, 2002, p. 755).

Revenue multiples are especially used to compare firms in different markets, with different accounting systems. They are also useful to value equity and firms that have negative earnings. One of these multiples is price to sale ratio.

Sector specific multiples refers to those multiples used only for a small category of firms. By applying this multiple we will use as a denominator some operating units that generate revenues and profits for the firm. For example for commodity companies we will use number of units of the commodity in reserves, for manufacturing companies- number of units produced, for subscription based firms( cable companies, internet service providers, information providers)- number of subscriptions. (Damodaran, 2002, p. 792)

2. Estimating multiples for comparable firms using the measure of performance or value:

Next step is to identify the comparables firm. Doing this represents a challenge. At first stage we must organize the companies into industry groups. This is difficult because most firms have more activities fields (Bernard, Palepu, & Healy, 2000). So we must determine which the principal activity that influences the performance is. After that, in the industry area where the firm that is valued is placed, we must identify companies that are most similar according to a number of dimensions. Damodaran identifies those dimensions: cash flows, growth potential and risk (Damodaran, 2002, p. 650). Some define comparable firms as those who are in the same industry. Because those companies have different strategies, growth

opportunities and profitability which create comparability problems, the analyst put into equation an average across all firms in the industry (Bernard, Palepu, & Healy, 2000, p. 412). Others define some additional dimensions such as: asset size, number of employees, growth in revenues and earnings (Drake, p. 2).

3. Application of the comparable firm multiple to the performance or value measure of the firm being analyzed. (Bernard, Palepu, & Healy, 2000, p. 412)

The final step is to apply the multiplicator to a value measure or value driver of the company being evaluated. Depending on what value driver (inductor) we use we will obtain the Value of Equity to Investors or the Global value of the Company (Thauvron, 2007, p. 150).

Equation 1. Formula for Equity value

$$\text{Value of equity to investors} = \text{Equity Multiple} * \text{Value driver} \quad [1]$$

Equation 2. Formula for Global Value of the Enterprise

$$\text{Global Value of the Entreprise} = \text{Firm Multiple} * \text{Value driver} \quad [2]$$

**Empirical Study**

Our research represents a case study regarding equity valuation using price earnings ratio. We use financial and accounting theory and, off course, data for the companies involved, which is available on Bucharest Stock Exchange Market. In our study we will follow the next steps: problem statement, multiple selection and estimation, identification of comparable companies, accounting for differences, estimation of the peer group multiple, computation of equity value for company A.

***Problem Statement***

The aim of this study is to estimate a value for the company A using the relative valuation method. The company's owners intend to list the shares on the stock exchange market. About company A we know that it is part of Section F: Construction, Division 41: Construction of buildings, Group 412: Construction of residential and non-residential buildings, Class 4120: Construction of residential and non-residential buildings. The financial and economic indicators for the fiscal year ended at 31.12.N for the company A are:

Table 1. Financial indicators for company A

| Indicator* | AI | AC | Cpr | D | CA | RN | Nrang |
|---|---|---|---|---|---|---|---|
| A | 7752813 | 11212565 | 9100078 | 9865300 | 19560231 | 510724 | 125 |

** AI- fixed assets, AC- current assets; Cpr-equity, D- debts, CA-turnover, RN- net income, Nrang-number of employees.*

In our study we will give an answer to the following questions:

1. What represents comparable firms in terms of relative valuation?
2. What is the methodology of defining peer group?
3. Which average can be used to estimate peer group multiple?
4. Which is the more realistic estimation of equity value?

***Step 1: Multiple selection and estimation***

The first step in valuating company A using relative valuation techniques is to select a multiple. As shown in previous section, there are many ways of doing this valuation. For this case study we choose price earnings ratio as a multiple. According to Damodaran, price earnings ratio is the most widely used (Damodaran, 2002, p. 659). PER was for the first time defined in the early 1930 by Benjamin Graham (Schreiner, 2007, p. 41).

Price earnings ratio is the ratio between market price per equity and earnings per share.

Equation 3, Formula for Price Earnings Ratio

$$\mathbf{PER} = \frac{\mathbf{Market\ price\ per\ share}}{\mathbf{Earnings\ per\ share}} \quad [3]$$

The most important problem regarding PE formula is how we define Earnings per share. Price to earnings ratio can be calculated using three types of denominators:

- Current PER, where the earnings per share is the net income of the company for the last fiscal period, divided by number of share outstanding;
- Trailing PER, where the earnings per share is the net income of the company for the most recent 12 months divided by number of share outstanding;
- Forward PER, where we use estimated income for the next 12 months instead of net income for the last 12 months.

For this study we will use as a denominator current PER.

***Step 2: Identification of comparable companies***

Establishing a value for the company A represent the first step for its quotation on the stock market. Therefore, according to relative valuation method, we should define comparable companies quoted on the stock market.

First of all we define peer group using the industry classification system as a criteria. In Romanian economic system the business cataloging is set up in National Classification of Economic Activities of Romania, REV 2. Picking firms from a 4-digit industry code produces a more homogenous group of potential peers than a broad industry group (Schreiner, 2007, p. 73). On Bucharest stock exchange market there are 42 companies that match up Class 4120. As a result we define this group of 42 companies as being the one in which we will find comparable firms for enterprise A.

Only 40 companies of the previous match the size criteria. Each one of these companies is a part of the third Category of RASDAQ due to their performance and profitability indices. The next step is to find out which ones of this companies trade on the market. We will find out that we have only 37 companies that trade on the market, the other 3 suspended their tradable shares. All the firms are from Romania. We don't believe that it is necessary a more deep region criteria for detection of comparable firms.

An important factor for valuation of a company through relative valuation using PER is to set up a peer group where all the companies have positive net income. In order to analyze this condition we realize a database containing important financial and accounting information for all those companies using their Annual Financial Report for the fiscal year ended at 31.12.N, information available on the Bucharest Stock Exchange Market (bvb.ro). We evaluate net income for all those 37 companies and we reach out with a potential peer group of 30 companies.

A critical stage in using Price Earning Ratio in business valuation is to understand how this multiple is distributed across firms in the sector. In this phase we examine the distribution of PE ratios across the sector (all those 37 firms). For companies that have negative net income price earnings ration is not a multiple that can be calculated. By using equation [3], we achieve the following distribution of PER for the possible peer group:

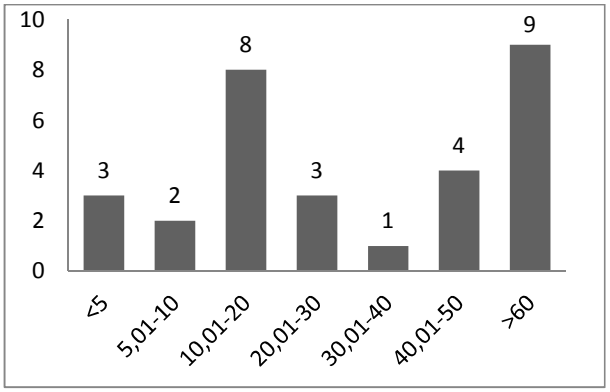


**Figure 1. Current PE ratio distribution across sector 4120. Bucharest Exchange Market- December N**

**Source: Our calculation based on data available on Bucharest stock exchange market (Companies Directory: BVB, 2011)*

Figure 1 presents the distribution of PE ratio for companies listed on Bucharest Exchange Market at Section F: Construction, Division 41: Construction of buildings, Group 412: Construction of residential and non-residential buildings, Class 4120: Construction of residential and non-residential buildings (companies with negative net income are not included).

PER is estimated as the ratio between share price and earnings per share recorded by the issuer of the shares. Earnings per share is determined as the ratio between the total profit over a period of one year (2N) and total number of shares outstanding of the issuer at the end of the year. PER value represents the duration (in years) of the recuperation of the investment in a share.

According to Benjamin Graham, a well know investment theorist, in general a price/earnings ratio (or "P/E" ratio) below 10 is considered low, between 10 and 20 is considered moderate, and greater than 20 is considered expensive (Graham & Zweig, 1973, p. 70). Therefore, a company with a PER below 10 is undervalued, between 10 and 20 the value of the company on the market is a fair value and higher than 20 the company is overvalued. In our opinion this perspective fails to take into account the company's growth prospects. PER ratio is more than a measure of the company's past performance, it takes into account market expectations for a company's growth. This is the reason why we will consider as being part of the peer group all the companies with a PER lower than 30. By doing that our potential peer group has 16 companies. PER values using equation [3] are shown below:

**Table 2. Value of PER for the comparable companies**

| Firm | PER | Firm | PER |
|---|---|---|---|
| SELC | 10,22 | CONK | 1,22 |
| CNBC | 4,53 | COSH | 6,32 |
| CIAC | 13,15 | COEL | 12,3 |
| COBJ | 26,54 | CNSI | 6,25 |
| COKJ | 3,76 | MOLE | 22,35 |
| CONN | 13,63 | URBN | 15,76 |
| ICSI | 13,35 | CONJ | 14,65 |
| PENT | 26,47 | FOND | 10,98 |

**Source: Our calculation based on data available on Bucharest stock exchange market. (Companies Directory: BVB, 2011)*

***Step 3: Differences between peer group and company A regarding assets, debts, growth rates, profitability and risk***

Even though we tried to define with precision peer group, each time there will be differences between the peer's group financial characteristics and those of the target firm as shown below:

**Table 3. Differences between peer group and company A**

| Indicators | Mean for peer group | A | Differences |
|---|---|---|---|
| AI | 7792460,06 | 7752813,00 | 39647,06 |
| AC | 14996816,50 | 11212565,00 | 3784251,50 |
| Cpr | 10184288,94 | 9100078,00 | 1084210,94 |
| D | 11200456,38 | 9865300,00 | 1335156,38 |
| CA | 24016414,31 | 19560231,00 | 4456183,31 |
| RN | 544945,81 | 510724,00 | 34221,81 |
| Nrang | 169,06 | 125,00 | 44,06 |
| GrowthRN | 0,72 | 0,53 | 0,19 |
| ROA % | 3,61 | 2,69 | 0,91 |
| RISK % | 177,49 | 108,41 | 69,08 |

**Source: Our calculation based on data available on Bucharest stock exchange market. For this part we used arithmetical mean. (Companies Directory: BVB, 2011)*

*** For calculation of the mean for peer group we used equation [5].*

There are two methods to define these differences: cross-sectional analysis and time-series analysis (Bernard, Palepu, & Healy, 2000). We use cross sectional analysis, which means that we compare mean for peer group with financial indicators of company A.

The most important ratios showed above are: growth rate of net income (GrowthRN-), return on assets (ROA) and debt to market value of common equity ratio (RISK). As we can see the company has a lower growth rate (difference 0,19), return on assets (difference 0,91) and risk (difference 69,08). In the same time it has minor total assets and debt. Net income is almost the same as the mean for the peer group.

All these differences have an important effect on equity value (Brealey & Myers, 2003). This is the reason why Schreiner believes that we should use an adjustment factor in equity value formula (Schreiner, 2007, p. 79):

Equation 4: Formula for Value of equity according to Schreiner

$$\textbf{Value of equity to investors} = \alpha * \textbf{Equity Multiple} * \textbf{Value driver}. \quad [4]$$

Where:

α= adjustment factor.

***Step 4: Estimation of the peer group multiple***

After the identification of the peer group and the calculation of the PER for each comparable company, the next step is the aggregation of the multiples into a single number (Schreiner, 2007, p. 52). For doing that we should use statistical method. Many studies prefer to use arithmetic mean. This represents the value obtained by dividing the sum of the set of indicators by the number of those indicators. The mean is the balance point of all values of a distribution. Arithmetical mean for the peer group is calculated as follows:

Equation 5. Formula for Arithmetical mean

$$\boldsymbol{\mu} = \frac{\mathbf{1}}{\boldsymbol{n}} \times \sum_{\boldsymbol{i=1}}^{\boldsymbol{n}} \boldsymbol{x_i}, \quad [5]$$

Where:

n=16 and represents the number of the comparable firms;

i= each of the company from the peer group;

$x_i$= PER for the company i. (Jaba & Grama, 2004, p. 120)

According to Shannon Pratt the arithmetic mean is not quite right for the estimation of synthetic PER for the group (Pratt & Niculita, 2008). Mihai Țarcă advises also

not to use arithmetic mean in the series which shows large variations between minimum and maximum (Ţarcă, 1997, p. 167). There are others aggregates that determine with greater accuracy the mean of the peer group. Such aggregates are: median, harmonic mean (Schreiner, 2007, p. 52). The first one is an average found by dividing the peer group into two and than selecting the value in the middle. Median for the peer group is calculated, after arrangement in ascending order the indicators, as follows:

Equation 6. Formula for Median

$$Me = \frac{X_{\frac{n}{2}} + X_{(\frac{n}{2}+1)}}{2}, \quad [6]$$

Where:

n=16 and represents the number of the comparable firms;

$x_i$= PER for the company i. (Jaba & Grama, 2004, p. 121)

According to Schreiner the harmonic mean represents a better solution to this problem. Harmonic mean gives equal weight to each data point compared with the arithmetic average that puts more emphasis on large values. This mean is calculates as follows:

Equation 7. Formula for Harmonic mean

$$Mh = \frac{\sum_{i=1}^{n} k_i}{\sum_{i=1}^{n} \frac{1}{x_i} \times k_i}, \quad [7]$$

Where:

n=16 and represents the number of the comparable firms;

$x_i$= PER for the company i;

$k_i$= frequency of occurrence of $x_i$. (Ţarcă, 1997, p. 169)

For this study we will choose only these three methods and we want to see what the difference is between. The table shown below presents summary descriptive statistics for current price earnings ratio. As presented in a section above, we will choose only 16 comparables companies that have PER below 30. The reason of doing that is to prevent outliers from having too large influence on the average. By using equation [3], [5], [6], [7] we have the following means:

**Table 4. Summary Statistics – PE Ratios for the peer group**

| | N | Minimum | Maximum | Mean | Median | Harmonic Mean |
|---|---|---|---|---|---|---|
| PER | 16 | 1,22 | 26,54 | 12,5925 | 12,725 | 6,748 |

**Source: Our calculation based on data available on Bucharest stock exchange market. (Companies Directory: BVB, 2011)*

Where: N-represents the number of companies that are component of the peer group; Minimum, Maximum- PER values of the group; Mean- represents the result of summing the ratios and dividing the result by the total number of ratios; Median- represents the value that separates PER values of the peer group into two; Harmonic Mean- is an inverted form of the arithmetic average

To determine the multiple we have a population of 16 companies (N) that have PER values between 1,22(Minimum) and 26,54(Maximum).

The Mean for the peer group is 12,5925. That means that for a homogeneous group, each company will have a PER of 12,5925. If the companies for which price earnings ratio exceeds 30 would not have been eliminated, the average would have been 144.76, which results in an overvaluation of the company A. The mean has a value that is between 10 and 20. That implies that by applying this value to the net income of the company A we will not have an under or overvalued share price.

The Median for the peer group is 12,725. That means that half of the target group have PER values that exceed 12,725 and half have PER values that are below 12,725. If the companies for which price earnings ratio exceeds 30 would not have been eliminated, the median would have been 104,61, which result in an overvaluation of the company A. In the same way this value (12,725) guarantees a more realistic share value for the company A.

The harmonic mean for the peer group is 6,748. According to finance and statistics theory this is a more realistic mean for a group of variables.

***Step 5: Applying the formula to valuate equity for the company A***

By using price earnings ratio as a multiple and net income as the suitable value driver we will find out equity value, which divided by total number of shares will give the price of a share on the stock exchange market for company A. According to all the assumption made above, the equity value for company A , according to equation [1], is:

**Table 5. Value of Equity for Company A by multiple used and by average**

| Multiple | | Value driver-Net Income for company A | Equity Value |
|---|---|---|---|
| Name | Value | | |
| Mean | 12,5925 | 510724 | 6431292 |
| Median | 12,725 | 510724 | 6498963 |
| Harmonic Mean | 6,748 | 510724 | 3446366 |
| **Average Equity Value for company A** | | | **5458873** |

**Source: Our calculation based on data available on Bucharest stock exchange market and on annual report of company A. (Companies Directory: BVB, 2011)*

By using arithmetical mean for outline the price earnings ration for the peer group, the equity value is 6.431.292. There is no significant difference in using median, the equity value is 6.498.963. An important negative variation of the equity value is established by using harmonic mean. In the last case we have a smaller equity value of 3.446.366.

In our opinion, we should use an average of all these three means for estimating the equity value. By doing that, through equation [5], equity value for company A is 5.458.873. This last value is the one that is closest to the average equity value for the 16 companies (5.934.825).

From our point of view, some of the disadvantages of using one or another mean for price earnings ratio of the peer group are eliminated by using the final average. In this way, the equity value obtained falls within the capital market trend, and the share price will not be over or under valued.

## Conclusions

There are many reasons for using relative valuation tehniques: it can be made with fewer assumpions and more quickly that a discounted cash flow valuation; it is simplier to understand; it is much more likely to reflect the fair value (Damodaran, 2002, p. 637); does not require multiyear forecast on a variety of parameters including growth, profitability and cost of capital (Bernard, Palepu, & Healy, 2000, p. 407). Schreiner goes for this method in equity and firmvaluation because of its understandability, accessibility of the accounting through financial press (Schreiner, 2007, p. 54). For all of the authors mentioned above, relative valuation reflects current mood of the market in term of equity or business value.

In the same time there are some weaknesses regarding this method. First of all key variables in valuation such as risk, growth, cash flow are ignored. Secondly, it is posible to have an overvalued or an undervalued market that leads to a higher

respectivly a lower value of the business. By using this method we can easly manipulate the final value of the company (Damodaran, 2002, p. 638). Another chalange of this method is the identification of comparable firm (Bernard, Palepu, & Healy, 2000, p. 407). Failure of correcting the differences in risk can lead to incorect evaluations also (Abrams, 2005, p. 49). Schreiner observes two important weakness of this method: allows manipulation of values and is affected by market bubbles (Schreiner, 2007, p. 54)

This work presents an evidential approach of using multiples for valuing equity. We illustrate the methodology of relative valuation by presenting a literature review on the subject and in the same time by developing a case study. For this, we used data available on Bucharest Stock Exchange Market. In our research we intermix previous studies in terms of defining comparable firms. We also define a maximum value of price earning ratio that can be used in peer group. In terms of means used to calculate a PER for the entire group of comparable companies we operate with: arithmetical mean, median and harmonic mean. There are not significat differences between equity value achieved by using arithmetical mean and median. There is a major discrepancy by applying harmonic mean. In our opinion, the average of those three values illustrates the best choice.

## Future Research

Obviously, there is an important field of research in the area of equity and business valuation and for sure empirical exploration remains to be conducted. We intend to study the correlation between PER and growth, risk and performance, the value of equity and global value of enterprise using a mixture of multiples. Of course, we intend to study and other methods for valuing equity and companies.

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