PROS AND CONS IN ADJUSTING PUBLIC COMPANY MULTIPLES FOR RISK. THE CASE OF BUCHAREST STOCK EXCHANGE

Daniel Manațe, Assoc. Prof., Dr., ”Aurel Vlaicu” University of Arad and Ioan Bircea, Assoc. Prof., Dr., ”Petru Maior” University of Târgu-Mureș

Abstract: One of the major economic advances in the last century was the unprecedented enhancement of capital markets as a major mean and support of public enterprise development. Together with this trend came along the rise of a new science and art alike, the discipline of enterprise appraisal. Among the most significant techniques used by sophisticated investors and value analysts was the relative valuation based on company multiples (valuation ratios) derived from firms similar and relevant with the subject enterprise, the so called guideline companies. Practically, since there are no perfect identical entities comparative to any firm, one needs to adjust the valuation ratios observed in recent market transactions. Among many qualitative differences a key correction would be the one for different risk factors, such as: operating, business, economic, financial, market, asset, product and so on. Hereinafter, the paper presents and discus practical issues, with pros and cons, in risk adjusting techniques applied on subjects listed at the Bucharest Stock Exchange.

Keywords: multiples, valuation ratios, guideline companies, risk factors, adjusting techniques, comparative analysis.

I. Introduction

One of the major economic advances in the last century was the unprecedented enhancement of capital markets as a major mean and support of public enterprise development. Together with this trend came along the rise of a new science and art alike, the discipline of enterprise appraisal. Among the most significant techniques used by sophisticated investors and value analysts was the relative valuation based on company multiples (valuation ratios) derived from firms similar and relevant with the subject enterprise, the so called guideline companies. Practically, since there are no perfect identical entities comparative to any firm, one needs to adjust the valuation ratios observed in recent market transactions. Among many qualitative differences a key correction would be the one for different risk factors, such as: operating, business, economic, financial, market, asset, product and so on.

The delimitation of appraisal topics from a methodologically perspective can be done funded on the source of valuation ratios used. In this respect we shall have, firstly, ratios build upon the stock prices directly observable on the comparable selected from a population of listed companies on securities exchanges. Secondly, we shall have multiples derived from analysing historical transaction registered on the relevant mergers & acquisitions market.

The paper challenges the first case, when the comparable selection is performed out of the population of companies listed on Bucharest Stock Exchange. As in Romanian specific literature there is no such in extenso approach about how to adjust for risk the multiples based on quotations from different stock exchanges, we bring to the attention of the academics and the practitioners in business valuation from The National Association of Authorised

Romanian Valuers (ANEVAR) one of the first papers dedicated to this aspect, that ourselves we think being insufficiently treated. We hope this being a germ, among many others to come seeded by others professionals from the Association or national academic environment, the source for the developing of a solid package of advanced techniques for adjusting market multiples for the benefit of the entire body of authorised appraisers form Romania.

II. The current paradigm regarding the multiples adjusting techniques as currently reflected by the specialised Romanian literature – works promoted by ANEVAR

One of the entities directly interested in developing, promoting and applying of some effective methods and techniques of relative valuation is ANEVAR. An enumeration not exhaustive of diverse topics of importance for the Association comprises: identifying similar and relevant comparable companies (guideline companies), the correct construction of market multiples (valuation ratios) in a manner consistent with the implied result, and, the adequate adjusting of the ratios in a way to capture the differences between the subject and the guideline companies.

View the limited historical period of only 22 years of developing of the business valuation discipline in Romania, the promoted speciality literature authored and promoted within the continuous training programs of the Association by the scientific organisms of ANEVAR[1], or different foreign significant works translated by the Association to the assistance of its members, focuses on basic knowledge regarding the market approach in enterprise valuation. Yet, the major topic of adjusting multiples used in mature capital markets were not treated at all, which rises a sum of practical issues for practitioners in enterprise appraisal using market approach. Among these we state the less trust granted both by appraisers, customers and users towards results obtained using the relative valuation methods.

We start the analysis with the first valuation material presented in Romania immediately after 1989 (CEGOS, 1991). Regarding the market approach the only multiple included was PER[2] and no adjusting technique was described. The seminary was held by CEGOS company from Paris during 04-19.12.1991 in Bucharest and was the first block at the foundation of the impressive body ok knowledge that ANEVAR was trying to build, valorising also the full support of The National Agency of Privatisation (ANP). This is the way it came to birth in 1992 the first Romanian course of business valuation (ANEVAR / ANP, 1992). Among the authors of the manual we have to mention some brilliant personalities such as: Gheorghe Bădescu, the founder and also the first chairman of ANEVAR, Alexandru Gheorghiu, the honoured chairman of the Association, Corina Cernea, Constantin Coțovanu, Nicolae Popescu or Adriana Gheorghiu. Viewing the initial inspiration source, and, especially, the relative valuation paradigm manifested at that time, this first

[1] The scientific organism of the Association is The Romanian Institute for Research in Valuation – IROVAL. Other structures for realising course and seminary materials are: The Scientific and Standards Commission, The Commission for Professional Qualification and Attestation, and also all the collectives of specialists functioning upon divers specific projects.

[2] PER or PE or P/E (price earnings ratio) = share price divided by net profit per share

course did covered only a couple of notions on value multiples, and, the next two editions also didn't bring any notable supplements to this topic.

The first respectable manual, covering almost all the areas of interest, reached the Association via the program of forming lectors in enterprise valuation held in Bucharest by Coopers & Lybrand Romania, under the lead of remarkable Jean Pierre Vigroux (C&L, ICAS, ESSEC, 1993). The market approach was exemplified through PER and DY[3]. The corrections presented were empirically, based rather on observed coefficients, such as a discount for the lack of liquidity (marketability discount) stated at 30%, the discount for small size 20%, a prime for some valuable assets of the subject company 10% or some prime for control 30%.

In 1996 the house of editing Teora publishes a book (S.V. Stan, 1996) were the author was described right on the cover as belonging to IROVAL. Market approach was mentioned in Chapter 5. *Stock exchange valuation methods*, and the PER valuation ratio was presented, without details about eventual corrections. Next year, at the continuous training seminary The Valuation of shares and bonds (Bădescu, 1997) it is also mentioned the multiple PER.

The year 1998 came along with a new manual for business appraisal (Crivii, Vascu, 1998). The course was restructured as a consequence of a merger between the theoretical knowledge accumulated during the last seven years and the direct practicing by other members when valuing state owned companies for the purpose of privatisation. The market approach is treated at *4.4.2 Valuation methods for public companies compared to unquoted companies* of the fourth chapter *Valuation of big companies*. Except for PER, named multiplier coefficient, there are presented P/S[4] și P/CF[5]. In *5.3.2.1 The benchmarks' method* from the fifth chapter *Valuation of small companies* send the reader to a benchmark coefficient (K) used to multiply the sales, net profit or daily average cash of the subject company. The size of K depends on the specific of the activities of the valuation object. None of these cases, still, does comprise the rationing behind the adjustments of the multipliers coefficients or benchmarks.

2001 is a special year for valuation Romanian theory due to a distinctive work printed by IROVAL in the highly acclaimed Collection of ANEVAR's Library, a series that will keep the pace with numerous professional works, most of which proved to be of a great help for the valuation practitioners. The book presents the most important correlations and coherences in business valuation (S.V. Stan, 2001) consecrating the name of multiples, but still, using the alternate form of multiplier coefficients. An essential adjustment in estimating the market value of shareholders equity through market comparison of the unlisted, or illiquid company subject with publicly traded firms, similar and relevant is the treatment of the net market value of non-operating assets, this being the first written indication in an official paper of the Association. More, there were included a lot of other multiples, such as PER, P/CF, P/S, PBV[6], P/D[7] or P/Gross profit. Another issue was regarding the calculus and the selection of multiples, along with the most frequent corrections for risks associated with small unlisted

[3] DY (dividend yield) = dividend per share divided by share price
[4] P/S (price per sales) = share price divided by sales per share, in Romanian noted as P/CA
[5] P/CF (price per cash-flow) = share price divided by cash flow per share
[6] PBV (price per book value) = share price divided by equity per share
[7] P/D (price per dividend) = share price divided to dividend per share

subject company (general economic risk, technological risk, operating risk, financial risk and so on) even if only theoretical and not practical indications were provided.

The publishing house IROVAL launces on the market in 2002, also in The Collection of ANEVAR's Library, a more extended work, with a pronounced methodological character, *The diagnosis and valuation of public companies and of closely held companies* (D. Manațe, 2002). The chapter dedicated to market approach is the largest till now within the literature promoted by the Association, containing 51 pages. The market approach in the case of publicly traded firms is treated synthetically, altogether with the analysis of stock market ratios, with a lot of detailed descriptions targeting the interpretation of ratios' evolution related to the comparison between intrinsic value and stock market price. This chapter contains some of the most significant stock market ratios, from Tobin's Q[8] to TSR[9]. The multiples presented (earning or profit ratios, income or sales and equity ratios) are distinctly treated, depending upon the valuation topic, either the market value of shareholders equity, either the market value of invested capital. For each ratio there is an extended interpretation of its size, components or evolution. Even if the work gives a good start to properly assess these ratios in order to conclude about the eventual overvaluation or undervaluation of the public subject company, there is no separate methodology for correcting the multiples for differences between risk factors or growth prospects of subject firm and guideline companies. The book was re-edited by IROVAL in 2005.

The fruit of cooperation between 15 co-authors, the book *Enterprise valuation* (S. V. Stan coordinator, 2003) treats the market approach in only 20 pages of the eight' chapter versus the 100 pages allocated to the asset based approach. The book supports new names for market multiples, respectively multipliers or valuation ratios. There was no notable news regarding the selection or calculus of multipliers except for the adjustment for country risk. The work was reprinted several years, the last edition, the fifth, dating from 2013 (S. V. Stan, I. Anghel, 2013). The number of co-authors decreased to 13, a new coordinator appearing, Mr Ion Anghel. The only significant differences between the fifth and the first edition were the placing of the chapter *Market approach* as the first chapter among those regarding valuation methodology compared to the first version, when this chapter was the last methodological one, respectively the comeback to the old name of multiples instead of multipliers.[10].

The cooperation between the publishing houses IROVAL and ECONOMICA leaded to the printing of a brave new book *Valuation of enterprises equity stock* (V. Dragotă, 2006). Linked to our topic of interests the work presents some considerations for estimating the sectorial PER and also the use of PER in estimating the discount rate, with no information on the adjustment of this multiple.

The first Guide of IROVAL published with the intention to complete the business valuation standard GN 6 from the International Valuation Standards (IVS) was issued only in 2008 (S. V. Stan, 2008). The guide describes the principles of market approach in 5.14.1,

[8] Tobin's Q = prețul acțiunii raportat la dividendul pe acțiune
[9] TSR (total shareholder return) = dividend yield + capital growth return
[10] We consider that the translated term in Romanian '*multiplii*' being more adequate for the English term '*multiple*', word for which the translation '*multiplicator*' seems inappropriate, being rather associated to the English term '*multiplier*'. Also we think less adequate the translation from English '*valuation ratios*' in Romanian '*rate de valoare*', o more suitable translation being in Romanian '*rate de evaluare*'.

recommending the use of median, rather than the mean of guideline multiples. Some corrections for differences between the risk factors of the subject firm and guideline firms were mentioned (in ex. economic general risk, operating risk, financial risk, technological risk and so on). But as a methodological indication were mentioned only some percentages corrections derived from the differences in divers risk factors. In the Annex no 6 the guide presents an example of how to determine the discount rate that reflects the cost of shareholders equity for an unlisted company through deriving it from the PER multiple.

The most prominent translation linked with business valuation achieved by ANEVAR's IROVAL was the celebre *Market approach in business valuations* (S. P. Pratt, 2008; S. P. Pratt, Alina V. Niculiță, 2008). The adjustments suggested in Chapter 10. *Selecting, averaging and adjusting market multiples* refers to the adjustment of the median of guideline companies selected based on both, risk dissimilarities, and, the expected growth differential compared to the subject firm. Very interesting, this book recommends averaging techniques between two or more multiples used in estimating the market value of equity or invested capital. There are detailed also corrections of the financial situations, unexpected events or non-operating assets.

Illustrating the ANEVAR's involvement in the educative process at academic level the Association has actively contributed to the publishing of two books within a MECAEV project, financed through European funds. One is dealing with valuation of financial instruments (D. Matiș, D. Manațe, I. Anghel, 2013) and the other is containing case studies in properties valuation (Adela Deaconu, D. Manațe, 2013). Within the first book sixth chapter *Valuation of equity stock*, the sub-chapter 6.2 *Market approach* offers an extended treating of profit and equity multiples, yet, without a developing of adjustment topic. The fifth chapter *Valuation of company BETA* of the second book gives a good view of the practical issues in using multiples to estimate the terminal value and also in assessing if one stock would under or overvalued.

We conclude that our analyse of the works promoted directly by ANEVAR or through IROVAL during 1992 – 2013, inclusive the first valuation material of CEGOS dating from 1991, enforce the existence of a single book, in two volumes, one theoretical and one applicative, in which some multiples adjusting techniques are detailed (S. P. Pratt, 2008; S. P. Pratt, Alina V. Niculiță, 2008).

III. Practical solutions for risk adjusting techniques of the multiples obtained from publicly traded companies at the Bucharest Stock Exchange (BSE)

The main steps in market comparison method using public companies multiples usually are:

1. Identifying publicly traded companies at Bucharest Stock Exchange (BSE) comparable with the subject company in terms of risk and return, the so called guideline companies;
2. Assessing the way in which divers risk factors or other significant areas mainly derived from economic, financial and business characteristics of guideline companies affect their activity, results, and finally their market multiples;
3. Select appropriate valuation ratios;

4. Adjust, if needed, the selected multiples for relevant differences in risk, expected growth or other significant issues, such as non-operating assets;
5. Apply the adjusted valuation ratios to the proper figures in the financial statements of the subject company in order to estimate either its equity market value or its enterprise market value.

Of interest for the present paper are the steps two and four.

In order to properly asses the way in which diverse risk factors mainly derived from economic, financial and business characteristics of guideline companies affect their activity, results, and finally their market multiples we have to define what are the utterly relevant risk factors. The key issue in any correction is to focus on how the analysed factor of the subject firm differs from the guideline companies.

Economic risk is perhaps the most important, that is the way in which a company reacts to some substantial changes of its environment. A good example is the way in which the war in former Yugoslavia republic positively affected a lot of foreign companies from borderline countries in industries such as constructions or building materials, since after the war there was a lot of demand coming from the new born ex-Yugoslavian states. There is no description on how we could correct for significant differences in economic risk a multiple derived from a guideline company, nor in the literature promoted by ANEVAR and nor in the broad globally specialized valuation literature that we investigated during the last 22 years. In other words, a candidate in healthcare that produces generics will never be an acceptable comparable for a subject in healthcare that produces niche highly specialized drugs for a very rare and grave disease. Since this seems to be true we really do not perceive other solution than dealing with it in the comparable selection stage. Practically, if we cannot identify benchmark firms that respond significantly in the same manner as the subject of valuation to major alterations of economic conditions, then, the market relative valuation through multiples derived from guideline companies cannot be trusted as a method capable to offer a good indication of the market value of equity or invested capital.

Dealing in this mode with economic risk we solve not only this matter but also those brought by other risk factors, like regulatory or legal / litigation, in the meaning that companies that similarly respond to the economic changes, that are those in the same lines of activities / products / services would probably respond similarly to regulatory modifications, like for example the environmental preserving or sustainability apprehensions.

So, in our discussion we put at first the business risk, as one of the major concerns for our debate. It can be quantified using measures such as the volatility of revenues / sales / profits / growth, the interpretation being that business risk is greater as the volatility is larger. We stress upon the importance of selecting comparable companies that have as much similar as possible pattern of growth, and especially the most alike growth prospects. This is how the business risk adjustment relates directly to growth, and the reason why risk and growth are connected in the correction of market multiples derived from benchmark companies. The process starts by studying the historical volatility of the relevant economic indicators of both, the subject, and the candidates for guideline, and continues by eliminating the enterprises with significant dissimilarities.

Together with business risk we must assess the operating risk, that is the risk encumbering from the specifics of cost structure, mainly the fixed versus variable costs. One

of the alternate solutions on how to do it is identifying the breakeven point or computing the operating leverage for each benchmark candidate and comparing it to the one of subject. For more information on this topic and also on how to compute risk ratios of first and second degree one can consult from the reviewed literature (Manate, 2002).

Moreover, a good tip on analysing business and operating risk is to study not only the operating margin but correspondingly its coefficient of variation (Duff & Phelps, 2012 / 2013). From another perspective, we can't correctly weigh business and operating risk for any company if, before starting it, we don't identify and isolate the main non-operating assets of the subject and the guideline candidates. Next step would be the separation of income and expenses from non-operating assets and adjusting accordingly the revenues / profits / margins and so on. Only after these manoeuvres are done we should go on with the risk analysis descried above.

The next risk we bring into discussion is the financial one that means the capital structure or the proportion between equity and financial debt. Computing the financial leverage would be an option, see also (Manate, 2002). The key of this analysis is to keep in mind that the relevance comes only from companies with proper capital structures, and not from candidates over or under-capitalised (Trugman, 2013).

The last theme we enlighten would be the comparability between the size of the subject and the size of the benchmark candidates, and, accordingly, the adjustment the guideline multiples for size.

Since the analysts and researchers witnessed in the case of mature markets higher historical arithmetic mean returns for small companies than for large or median firms, in time were measured differences, more or less significant, between the cost of equity for small caps and large or medium caps. Let's name this differential Δ_{EqCost}. One possible method to adjust for size when estimating the market value of equity of a subject company that we qualify '*small*' using a multiple of some form of profits (like PER) from a public company qualified as large is presented next. If we name the adjusted multiple of the guideline public firm - M_{Adj} and its initial computed value – M, then we have the following formula (Hitchner, 2003; Trugman, 2013):

$$M_{Adj} = \frac{1}{\frac{1}{\mathrm{M}} + \Delta\mathrm{EqCost}}$$

Another method to adjust, this time not only for size, but also for growth is to use a real astute formula, this time for estimating directly the discount (FD) to be applied to the initial constructed guideline multiple. The name for this procedure is the fundamental discount method and the formula is presented next (Hitchner, 2003; Trugman, 2013):

$$FD = 1 - \frac{(k-g)_{guideline}}{(k-g)_{subject}}$$, where

- k is the discount rate or investors' required rate of return (ex. in estimating the equity market value would be the cost of equity)
- g is the perpetual growth rate

Developing the formula, for a multiple like PER, we obtain (Hitchner, 2003):

$$PER_{subject\ growth\ adjusted} = \frac{1}{\frac{1}{PER_{guideline}} + g_{guideline} - g_{subject}}$$

The problem with the Romanian capital market and especially with the most liquid public companies listed at Bucharest Stock Exchange is that a series of works, starting from 2007 until 2012 evidenced no risk premium in the case of large companies versus the small or medium companies and neither from the perspective of large versus medium or medium versus small. Actually, the discount rates of the large companies proved to be superior to those of the medium or small companies, along with betas or arithmetic mean returns, see the table below (Manate, Farcas, 2012), where the results are extracted from the mentioned paper.

		2006	2007	2008	2009	2010	2011
Cost of equity for companies listed at BSE	Large	14.46%	12.31%	16.82%	15.87%	12.75%	12.62%
	Medium	12.38%	11.81%	15.30%	15.48%	11.94%	12.62%
	Small	10.20%	11.00%	15.67%	13.54%	12.48%	11.60%

IV. Conclusions

The first conclusion of our work is that we strongly recommend for business valuers trying selecting guideline companies out of those listed at BSE that they pick up only the firms really close with the subject in terms of dimensions, in order to avoid the current size bias manifested at BSE through a larger cost of equity for larger companies than the medium or small ones. Otherwise, in the process of corrections for size they will lack the foremost of this adjustment that is *the positive differential in return* over time between small and large public companies listed at BSE.

Furthermore, in judging the size differences, one should take in consideration not only the market capitalization (Duff & Phelps, 2012/2013), but also other factors relevant to size, such as revenues, profit and profit margins or number of employees.

Business valuation practitioners need continuous insights on the Romanian capital market, and sometimes other equity markets such as European or World. In this respect, the usefulness of studies on hot topics like equity prime over risk free rate, arithmetic or geometric mean returns of public stocks or their volatilities series is no longer argued. Since the Association cannot randomly rely upon hypothetical academic papers it must constantly demand and stimulate such works either from its members or from the academic community.

As adjusting for economic risk is almost impossible we conclude that the appraisers must carefully asses in detail the operations of the subject and guidelines companies in order to eliminate from the final benchmark list all enterprises who don't respond significantly alike to the same economic conditions alterations. The main suggestion on how to do this is to look not only to the CAEN code[11] but to the size and growth prospects too.

Finally, the most secured way to construct a good multiple is to select as benchmarks only companies with the same economic, business, operating and financial risk, that meaning similar activities / products / services, comparable volatility in results (in ex. revenues, profits, margins), alike coefficient of variation of the operating margin, analogous operating and financial leverage, and also close enough in size terms (market capitalization, book values, revenues, profits, number of employees and so on).

[11] Similar to SIC code.

V. Bibliography

[1] ANEVAR, ANP, *Evaluarea întreprinderii*, course, 1992, Bucharest

[2] Bădescu Gh., *Evaluarea acțiunilor și obligațiunilor – SPIC 01*, 1997, ANEVAR, Bucharest

[3] CEGOS Ingénierie Financière, *Tehnici de evaluare*, 1991, Bucharest, pp. 21-22

[4] Coopers & Lybrand, The Institute of Chartered Accountants of Scotland, L'Ecole Supérieure des Sciences Economiques et Commerciales, ANP (C&L, ICAS, ESSEC), *Programul de formare al evaluatorilor de întreprinderi*, 1993, Bucharest

[5] Crivii A., Vascu A., *Evaluarea întreprinderilor*, ediția a IV-a, ANEVAR, 1998, Bucharest, pp. 166-173, 178

[6] Deaconu Adela, Manațe D., coordinators, *Studii de caz pentru evaluarea proprietăților*, 2013, publishing house RISOPRINT, Cluj-Napoca, project MECAEV with the involvement of ANEVAR, pp. 105-115

[7] Dragotă V., *Evaluarea acțiunilor societăților comerciale*, 2006, publishing houses IROVAL and ECONOMICA, Collection Economica, Bucharest, pp. 134-139, 153-155

[8] Duff & Phelps, *Risk Premium Report*, 2013 / 2013

[9] Hitchner J. R., *Financial valuation. Applications and models*, 2003, publishing house John, Wiley & Sons, Hoboken

[10] Manațe D., *Diagnosticul și evaluarea întreprinderilor cotate și necotate*, 2002, publishing house IROVAL, Collection ANEVAR's Library, Bucharest, pp. 383-434

[11] Manațe D., Farcas P., *Aspects regarding the crisis impact over the risk prime on the Romanian capital market*, 2012, INEAG, Proceeding of 9th AFE International Conference on Applied Financial Economics, Samos - Greece, pp. 341-349

[12] Matiș D., Manațe D., Anghel I., coordinators, *Evaluarea instrumentelor financiare*, 2013, publishing house RISOPRINT, Cluj-Napoca, project MECAEV with the involvement of ANEVAR, pp. 138-149

[13] Pratt S. P., *Abordarea prin piață în evaluarea întreprinderii*, 2008, publishing house IROVAL, Bucharest

[14] Pratt S. P., Niculiță V. Alina, *Abordarea prin piață în evaluarea întreprinderii - Aplicații*, 2008, publishing house IROVAL, Bucharest

[15] Stan S. V., *Evaluarea întreprinderilor*, 1996, publishing house TEORA, Bucharest, pp. 85-87

[16] Stan S. V., *Corelații și coerențe în evaluarea întreprinderii*, 2001, publishing house IROVAL, Collection ANEVAR's Library, Bucharest, pp. 87-94

[17] Stan S. V., coordonator, *Evaluarea întreprinderii*, 2003, first edition, Editura IROVAL, Collection ANEVAR's Library, Bucharest, pp. 309-328

[18] Stan S. V., *Evaluarea întreprinderii – Ghid de interpretare și aplicare a GN 6*, 2013, publishing house IROVAL, Bucharest, pp. 32-40, 67-68

[19] Stan S. V., Anghel I., coordinators, *Evaluarea întreprinderii*, 2013, fifth edition, publishing house IROVAL, Bucharest, pp. 109-128

[20] Trugman G. R., *Understanding business valuation*, third edition, published by AICPA, 2013

[21] Bucharest Stock Exchange, *Monthly Bulletin*, April 2014