Two Valuation Models applied to Coca-Cola Hellenic in relation to Geographic Regions and Product Categories

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ABSTRACT

In this paper, the valuation task at Coca -Cola Hellenic Bottling Company S.A. presented to determine the intrinsic value of its stock. The intrinsic value of an asset is its value given a hypothetically complete understanding of the asset's investment characteristics, seeking the intrinsic value of a company, and making further assumptions regarding aspects of combined operations. It provides real-world insight on the application in practice, as a part of an equity research report which received excellent reviews competing in the CFA Institute Research Challenge representing the University of Macedonia. The finance and valuation analyses were implemented in Excel spreadsheets.

Keywords: Free Cash Flow to Equity, Cost of Equity, FCFE Growth Patterns, Multiples, EV/EBIT, P/E.

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Δύο μοντέλα αποτίμησης εφαρμοσμένα στην Coca Cola 3E σε σχέση με Γεωγραφικές Περιοχές και Κατηγορίες Προϊόντων

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ΠΕΡΙΛΗΨΗ

Στο παρόν άρθρο, η αποτίμηση της Coca Cola Ελληνικής Εταιρείας Εμφιαλώσεως παρουσιάζεται για να προσδιοριστεί η εσωτερική αξία της μετοχής της. Η εσωτερική αξία ενός περιουσιακού στοιχείου είναι η αξία του, δεδομένης μιας υποθετικής πλήρους κατανόησης των επενδυτικών χαρακτηριστικών του περιουσιακού στοιχείου, επιδιώκοντας την εσωτερική αξία μιας εταιρείας και κάνοντας περαιτέρω παραδοχές σχετικά με τις πτυχές των συνδυασμένων πράξεων. Παρέχει πραγματική εικόνα της εφαρμογής στην πράξη, ως μέρος μιας ερευνητικής έκθεσης αποτίμησης που έλαβε εξαιρετικές αξιολογήσεις στην Ερευνητική Πρόκληση του Ινστιτούτου CFA εκπροσωπώντας το Πανεπιστήμιο Μακεδονίας. Η χρηματοοικονομική ανάλυση και αποτίμηση εφαρμόστηκε σε υπολογιστικά φύλλα του Excel.

Λέξεις – Κλειδιά: Ελεύθερες Ταμειακές Ροές σε Ίδια Κεφάλαια, Κόστος των Ιδίων Κεφαλαίων, Ρυθμοί Ανάπτυξης, Πολλαπλασιαστές, EV/EBIT, P/E.

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INTRODUCTION

In recent years, many articles are written about the valuation models. Valuations are required for countless reasons and from different perspectives in the business world as they provide interested parties with valuable information necessary to the decision-making process.

Coca-Cola Hellenic groups its markets into three following segments: a)Established markets (in West Europe): Austria, Cyprus, Greece, Italy, Northern Ireland, Republic of Ireland, Switzerland), b) Developing markets (in East Europe): (Baltics (Estonia, Latvia, Lithuania), Croatia, Czech Republic, Hungary, Poland, Slovakia, Slovenia) and c) Emerging markets (in East Europe & West Africa): Armenia, Belarus, Bosnia, and Herzegovina, Bulgaria, FYROM, Moldova, Montenegro, Romania, Russia, Serbia, Ukraine, Nigeria). (See http://www.coca-colahellenic.com). This paper examines the intrinsic value of Coca Cola Hellenic (CCH) as a sum of the parts analysis in geographic regions and product categories level, as it operates in regions with different levels of growth, margin, and risk, without making an investment recommendation. This approach can indicate the value of three main businesses of the company separately as well as their contribution.

The literature suggests that there are two broad types of valuation: absolute valuation models and relative valuation models when valuing a business as a going concern. The broad criteria for selecting a valuation model are that the valuation model is: consistent with the characteristics of the company being valued, appropriate given the availability and quality of the data, and consistent with the analyst's valuation purpose and perspective. All the above models should be considered before choosing the most appropriate valuation model (or models) to use.

An absolute valuation model is a model that specifies an asset's intrinsic value. Such models can supply a point estimate of value that can be compared with the asset's market price. Present value models, the most important type of absolute equity valuation model, are regarded in academic finance theory as the fundamental approach to equity valuation. The logic of such models is that the value of an asset to an investor must be related to the returns that an investor expects to receive from holding that asset. Such models are also referred to as discounted cash flow models.

A present value model or discounted cash flow model of equity valuation views the value of a common stock as being the present or discounted value of its expected future cash flows. One familiar type of cash flow is dividends. Dividends represent cash flows at the shareholder level in the sense that they are paid directly to shareholders. Present value models based on dividends are called dividend discount models; it is not the subject of this application. Rather than defining cash flows like dividends, analysts frequently define cash flows at the company level. The two main company-level definitions of cash flow in current use are free cash flow and residual income. Free cash flow is based on cash flow from operations but takes into account the reinvestment in fixed assets and working capital necessary for a going concern. Present value models based on a free cash flow concept include models known as the free cash flow to equity model, the subject of this application, and the free cash flow to the firm model. However, free cash flow to the firm model and residual income models are not the subjects of this application.

On the other hand, relative valuation models often called the method of comparables (or just comparables), the second chief type of going-concern valuation, specify an asset's value relative to that of another asset. The idea underlying relative valuation is that similar assets should sell at similar prices, and relative valuation is typically implemented using price multiples. Perhaps the most familiar price multiple, reported in most newspaper stock quotation listings, is the price-earnings multiple (P/E), which is the ratio of a stock's market price to the company's earnings per share.

PURPOSE

Although valuation models are thoroughly discussed, the purpose of the paper is to investigate an improved and more practical understanding of the valuation models applied to CCH in relation to geographic regions and product categories and the way they contribute to value CCH's stock

separately and totally. Instead of describing the mathematical form of these expressions, the paper intends to observe how they are used by whom and in which context.

RESEARCH QUESTION/S

In order to make the above relation clear, the function of each valuation model should be made clear. The following are the questions to be asked:

- Which are the two recognized valuation models that have been applied?
- Why were these valuation models chosen in relation to geographic regions and product categories?
- When and how are these valuation models used? What are the effects of these models?
- How accurate are associated with geographic regions and product categories?
- Do any of the valuation models make the security look better (or worse)?

RELEVANT BACKGROUND LITERATURE AND CCH'S STOCK VALUATION

CCH's valuation attracted business and finance student's attention when students participated in the CFA Institute Research Challenge in 2011 with the object of the Security Analysis. Before and since then, similar to the development of research on CCH's valuation in Local, European and global level, both multiple-based and discounted cash flow models have been performed. According to Damodaran (2002) "discounted cash flow approach is the foundation on which all other approaches are built upon".

1.Discounted Cash Flow Analysis with Assumptions

As for CCH's stock, two recognized valuation models had been applied. One is an important group of equity present value or discounted cash flow models based on a free cash flow concept known as the free cash flow to equity model. The DCF model is based on a sum-of-the-parts approach that values the three main geographic businesses of the company separately. We deem this approach to be appropriate as the Group operates in regions with different levels of growth, margin, and risk.

Applying the Discounted Cash Flow model

In practice, however, the application of present value models to common stock typically involves two critical inputs—the cash flows and the discount rate(s). In valuing a stock, an analyst must define the specific cash flow stream to be valued—free cash flow here. These valuation models strongly suggest growth patterns or discount rates; they are often used to depict different scenarios of growth or discount rates. Evaluating business, financial, technological, and other risks, the analyst must then forecast the amounts of the chosen flows.

Furthermore, the forecasts must extend into the indefinite future because common stock has no maturity date. The present value approach applied to stock valuation, therefore, presents a high order of complexity. Present value models are ambitious in what they attempt—an estimate of intrinsic value—and offer contemporary challenges.

In particular, the discounted cash flow model is based on the following key elements: Free cash flows (represents cash flows from operations, independent of leverage and nonoperating investments) and terminal value (represents the estimated value of a company from the end of the discrete projection period into perpetuity). There are numbers of different discounted cash flow models one can use, however in this paper we will focus on Equity Valuation using Free Cash Flow to Equity (FCFE) since we are only interested in valuing the stock price.

The value of equity by discounting expected Cash Flows to equity

In the FCFE valuation model, the value of equity is obtained by discounting expected cash flows to equity at the cost of equity, i.e., the rate of return required by equity investors in the firm (Aswath Damodaran, 2002, p. 17).

$$\text{Value of Equity} = \sum_{t=1}^{t=n} \frac{\text{CF to Equity}_t}{(1+k_e)^t}$$

Where,

CF to Equity_t = Expected Cash flow to Equity in period t

k_e = Cost of Equity

Dividing the total value of equity by the number of outstanding shares gives the value per share.

The required rate of return on equity

The most commonly accepted method for calculating the required rate of return on equity comes from the Nobel Memorial Prize-winning capital asset pricing model (CAPM), where:

Cost of Equity (Ke) = Rf + Beta (Rm-Rf).

The elements of this formula are:

Rf - Risk-Free Rate - This is the amount obtained from investing in securities considered free from credit risk, such as government bonds from developed countries.

ß - Beta - This measure how much a company's share price moves against the market as a whole. A beta of one, for instance, indicates that the company moves in line with the market. If the beta is more than one, the share is exaggerating the market's movements; less than one means the share is more stable. Occasionally, a company may have a negative beta (e.g. a gold mining company), which means the share price moves in the opposite direction to the broader market.

(Rm – Rf) = Equity Market Risk Premium - The equity market risk premium (EMRP) represents the returns investors expect, over and above the risk-free rate, to compensate them for taking extra risk by investing in the stock market. In other words, it is the difference between the risk-free rate and the market rate. It is a highly contentious figure. Many commentators argue that it has gone up due to the notion that holding shares has become riskier.

Clarifying Free Cash Flow to an Equity growth pattern

Our use of models in this study will involve Free Cash Flow to Equity models with different growth stages clarifying their growth pattern. So, the constant growth model is used to value firms that are only growing at a stable rate. Important to this model is that the growth rate is reasonable since “it continues forever”. The growth rate should be set to the nominal growth rate in the economy in which the company operates or close to this if it could be justified. If a constant growth FCFE model is chosen, it is also implied that the firm is stable and that it has the characteristics of a stable firm. (Damodaran, A. 2002)

$$\text{Value} = \frac{\text{FCFE}_1}{k_e - g_n}$$

Where,

Value = Value of stock today

FCFEt= Expected FCFE next year

ke = Cost of Equity

gn = Growth rate in FCFE for the firm forever

Two-stage FCFE model used to value a firm that first has a high growth that, after some years will turn in to stable growth. We do not have to determine in what way the change from high growth to low growth occurs. A firm will not go from high to low growth immediately, this would happen over time, and we can show this decline better in a three-stage model.

$$\text{Value} = \text{PV of FCFE} + \text{PV of terminal price}$$

$$\text{Value} = \sum_{t=1}^{t=n} \frac{\text{FCFE}_t}{(1+k_{e,hg})^t} + \frac{P_n}{(1+k_{e,hg})^n}$$

Where,

$$P_n = \frac{\text{FCFE}_{n+1}}{k_{e,st} - g_n}$$

Where,

FCFEt = Free cash flow to equity in year t

Pn= Price at the end of the extraordinary growth period

Ke,hg = Cost of equity high growth phase

ke,st = Cost of equity stable growth

gn = Growth rate in FCFE for the firm forever

A three-stage model has three separate phases; first there is the high growth phase where the firm experience abnormal growth. Second we have the change from high growth to normal growth; something called the transition stage. Last is normal or low growth.

$$P_0 = \sum_{t=1}^{t=n1} \frac{\text{FCFE}_t}{(1+k_e)^t} + \sum_{t=n1+1}^{t=n2} \frac{\text{FCFE}_t}{(1+k_e)^t} + \frac{P_{n2}}{(1+k_{e,})^{n2}}$$

Where,

$$P_{n2} = \frac{\text{FCFE}_{n2+1}}{k_{e,st} - g_n}$$

Where,

Po= Value of stock today

FCFEt = Free cash flow to equity in year t

ke = Cost of Equity

ke,st = Cost of equity stable growth

Pn2= Terminal price at the end of the transitional period

n1= End of initial high-growth period

n2= End of the transition period

The Free Cash flow to Equity Formulae

Free Cash flow to Equity = Net Income - (1- DR) (Capital Expenditures - Depreciation) - (1- DR) Working Capital Needs

Where,

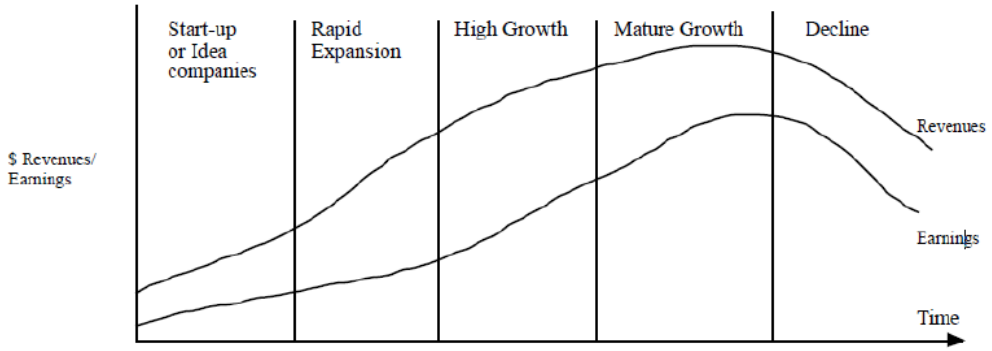
CF to Equityt = Expected Cash flow to Equity in period t

ke = Cost of Equity

DR = Debt/Equity Ratio

Future Growth and Stages of the life cycle

When predicting future growth for a corporation, it important to realize in what stage of the life cycle the corporation is. As firms grow larger the cash flow and risk exposure is relatively predictable which makes valuation easier. Depending on what stage the company belongs to, the company is faced with different choices. Damodaran (2001) mentions that most usual is to divide the life cycle into five different stages:



1. Start-up: This is the first stage after a firm is started; usually, a firm in this stage is funded by owner's equity or by loans. Under this stage, a firm is trying to build up a client base and get established.

2. Expansion: When a company has managed to build up a client base and established a presence in the market, the funding needs to increase to be able to expand the company further. Firms in this stage are unlikely to generate high internal cash flows, but at the same time, investment needs are likely to be high. Firms are likely to turn to private equity or venture capital; some might even go public to raise the extra capital.

3. High growth: As firms transition into publicly traded firms, the financial choices in-creases. In this stage, a firm's revenues are overgrowing, but earnings are likely to lag, and internal cash flow lags behind the reinvestment needs. The most commonly publicly traded firm will use equity issues to raise the capital needed, while when using debt as financing they will most likely use convertible debt to raise the capital.

4. Mature growth: When corporations mature. The growth will start to level off when this happens; the earnings and cash flows that have been lagging will rapidly increase, and the need to invest in new projects will decrease accordingly. During this period, most corporations also change their financing from mainly equity-based financing to debt financing to fund future projects.

5. Decline: The last stage in the life cycle is the decline. This means that both revenues and earnings will start to decline as the business mature and new competitors take market share from them. Their existing investments will continue to produce cash flows, but this decline over time. No new financing of the company is likely; instead, companies will probably start to retire debt and buy back stock; in a way, the company has started to liquidate itself.

Important to realize is that not all companies go through all five stages, and the choices are not the same for all of them, neither are the opportunities. A major part of the companies that are

started never makes it past the first stage and are closed down; also, many companies continue as small companies without or with small expansion potential. Not all companies choose to go public; many choose to be private and can continue to grow at a healthy rate, Damodaran, A (2001).

Separate valuation of West European, East European & Russia and Nigerian operations with assumptions

We value Coca Cola Hellenic by applying two techniques: Discounted Cash Flow (DCF) and Multiple Analysis. The DCF model is based on a sum-of-the-parts approach that values the three main geographic businesses of the company separately. We deem this approach to be appropriate as the Group operates in regions with different levels of growth, margin, and risk. The Multiple Analysis is used to correct our results at geographic and aggregate levels.

Table 1. DCF and Sensitivity Analysis. Source: personal estimates using Excel

DCF models characteristics	
West Europe	
Model	Stable growth
East Europe & Russia, Nigeria	
Model	Two-stage
	Analytic stage
	Perpetuity

DCF Analysis	
Variable	**Base case estimate**
Beta	0,85
Risk-free rate	7%
Equity risk premium	3,40%
FCFE perpetuity growth rate	0,5%
FCFE 1st stage growth	1,5%
FCFE 2nd stage perpetuity growth	1,0%
Cost of Equity	9,9%
Target Price	11,12

DCF Analysis					
(€ '000)	**2010**	**2011**	**2012E**	**2013E**	**2014E**
Net Income	423,2	321,6	328,1	334,6	348,0
- (1- d) (Capital Exp. - Deprec'n)	-46,06	-60,98	-12,87	-19,64	-40,41
- (1- d) Change in Work. Capital	-151,03	202,16	106,05	127,00	152,27
Free Cash flow to Equity (FCFE)	620,29	180,45	234,88	227,27	236,16
d	29,03%	31,91%	31,56%	31,06%	30,13%

Reported growth		9,92%	30,16%	-3,24%	3,9%
Operating Cash Flow	895,9	792,9	809,9	834,5	869,1
Western Europe	313,6	277,5	283,5	292,1	304,2
Eastern Europe & Russia	545,2	482,6	492,9	507,9	528,9
West Africa	37,1	32,8	33,5	34,5	36,0
Capital Spending CAPEX	322,9	309,9	392,6	395,3	378,6
Western Europe	113,0	108,5	137,4	138,3	132,5
Eastern Europe & Russia	196,5	188,6	238,9	240,6	230,4
West Africa	13,4	12,8	16,3	16,4	15,7
Free Cash flow to Equity (FCFE)	620,29	180,45	234,88	227,27	236,16
Western Europe	217,10	63,16	82,21	79,54	82,65
Eastern Europe & Russia	377,51	109,82	142,95	138,32	143,72
West Africa	25,68	7,47	9,72	9,41	9,78
PV Western Europe		63,16	74,81	65,87	1168,09
PV Eastern Europe & Russia, Nigeria		117,29	138,93	122,33	2291,32
			1	2	3
Equity Value		180,5	213,7	188,2	3459,4
					4041,81
					11,12

Discounted cash flow analysis:

Our DCF values Coca Cola Hellenic at € 11,12 per share for the start of 2012. We estimate this price with the separate valuation of West European, East European, and Nigerian operations. Figures are broken down across the regions according to the following assumptions:

Sales: Western Europe reaches approximately 28% of total sales by 2014 while Eastern European, and Nigeria account for the remaining 72%.

Capex: the € 1.35 bn CAPEX outlined in CCHBC's industrial plan is divided across the regions according to their relative contribution to sales, in line with management's allocation history in the forecast period 2011-2014.

Change in net working capital will increase in 2011-14. We divide the total change in net working capital across regions according to the relative sales growth.

Table 2. Assumptions and results of the sum-of-the-parts analysis (2010-2014). Source: http://www.taxrates.cc/html/nigeria-tax-rates.html

	Western Europe	**Eastern Europe**	**Nigeria**	**Aggregate**
Revenues CAGR	-2,4%	3,7%		1,3%
Volume CAGR	-3,2%	4,1%		1,8%
EBITDA margin	12,3%→ 12,7%	12,8%→13,2%		13,5%
Tax rate*	43%	13%	25%	38,0%
Cost of Equity	9,9%			9,9%

Equity Value (€ '000)	1469	2862	4332
Price (€)	4,04	7,87	11,92

*Tax rates in Italy, Russia, and Nigeria respectively

More detailed assumptions are made on each business region, based on the forecasted competitive scenario described below:

In Eastern Europe & Russia, volume and net sales revenues per unit increase because of product line expansion in the juice market and exceptional heat in summer 2010. EBITDA margin is higher than the company's average but slightly decreasing over time because of competitive pressures by Pepsico after the acquisition of 66% of Russian Wimm-Bill-Dann. As far as the sparkling category is concerned, we do not expect significant margin improvements except from the launch of coca-cola zero and light as there is a trend for healthier beverages.

In Nigeria, sparkling beverages and water category volumes sharply increase as well as the net sales revenues increase along with the EBITDA margin because of the introduction of healthier beverages.

In Western Europe, sparkling beverages volumes and net sales revenues per unit decrease because of declining demand, while a new launch of coca-cola zero and juices growth in volumes sold but lower than expected because of a lower price model and offers in many categories of beverages and juices. EBITDA margin increases because of cost reductions.

Main conclusions of our analysis are that:

-Established Countries are at the moment Coca Cola HBC's cash cow, with high revenue contribution but modest growth potential and that

-The majority of CCHBC's value comes from Established and Emerging Markets. In fact, despite generating small volumes and revenues, operations in Developing markets have an extraordinary growth outlook and limited tax rate (Table 5). In emerging markets, Russia, size, and growth combined are by far the most significant source of value for CCHBC, following by Nigeria, even though it is penalized by substitution.

Sensitivity analysis

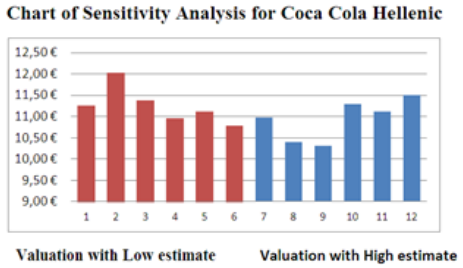
Table 3 shows our base case and the highest and lowest reasonable alternative estimates. The column "Valuation with Low Estimate" gives the estimated value of CCHBC based on the low estimate for the variable on the same row of the first column and the base–case estimates for the remaining variables. "Valuation with High Estimate" performs a similar exercise based on the high estimate for the variable at issue.

Table 3. The base case and the highest and lowest reasonable alternative estimates. Source: personal estimates using Excel

DCF Analysis				**Sensitivity Analysis**	
Variable	**Base case estimate**	**Low estimate**	**High estimate**	**Valuation with Low estimate**	**Valuation with High estimate**
Beta	0,85	0,8	0,9	11,26 €	10,98 €
Risk free rate	7%	6%	8%	12,03 €	10,39 €
Equity risk premium	3,40%	3,04%	4,73%	11,37 €	10,31 €
FCFE perpetuity growth rate	0,5%	0%	1%	10,96 €	11,30 €
FCFE 1st stage growth	1,5%	1,5%	1,5%	11,12 €	11,12 €
FCFE 2nd stage perpetuity growth	1,0%	0,5%	1,5%	10,78 €	11,49 €
Cost of Equity	9,9%				
Target Price	11,12				

As the above chart of sensitivity analysis shows, the value of CCHBC is very sensitive to the inputs. Of the four variables presented, the stock valuation is least sensitive to the range of estimates for the equity risk premium and beta. The range of estimates for these variables produces the smallest ranges of stock values (from € 10,31 to € 11,37 for the equity risk premium and € 10,98 to € 11,26 for beta). The stock value is most sensitive to the extreme values for the risk-free rate and the FCFE growth rate.

Figure 1. The chart of sensitivity analysis. Source: personal estimates using Excel



2. Multiple-Based Analysis

The other equally important group of equity valuation, relative valuation models often called the method of comparables (or just comparables), is used to correct the results at geographic and aggregate levels. Relative valuation involves a group of comparison assets, such as an industry group, rather than a single comparison asset, and the comparison value of the P/E might be the mean or median value of the P/E for the group of assets. In this section, we calculate a market-based range and a target price by comparing the valuation of companies in the sparkling and still beverage categories with that of Coca Cola HBC.

Defining comparable companies

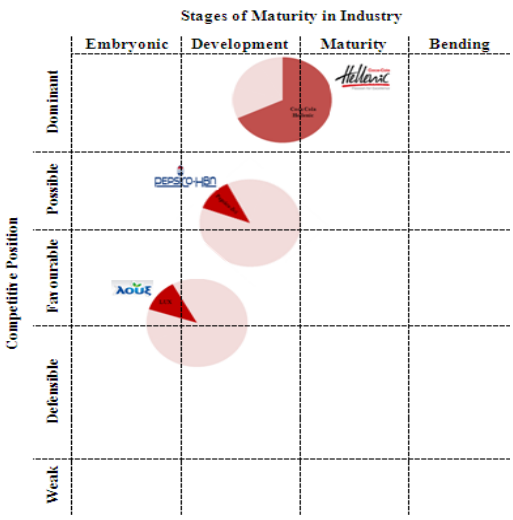
Valuation based on comparables

In this section, we calculate a market-based range and a target price by comparing the valuation of companies in the sparkling and still beverage categories with that of Coca Cola HBC.

CCHBC's peer group

It is critical to identify a set of listed peers that are comparable. Among the currently listed companies, we define three different groups of comparable companies. Table: (a) the companies that are direct competitors of Coca Cola HBC in Europe are subsidiaries of Pepsico and the growing entry of local competitors, for example Loux (Greek Anonymous Industrial Trading company) ; (b) those companies whose core business is the production of beverages (sparkling and still beverages portfolio of Pepsico, sparkling beverages and juices portfolio of Loux); and (c) those large corporations whose business is mostly diversified such as Pepsico business in food and snacks by 63% and Nestea in food processing by 73%. We conclude that there is no direct comparison for Coca Cola HBC.

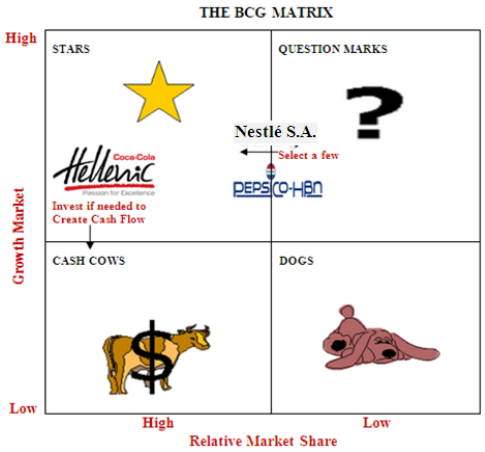
Figure 2. Life Cycle Matrix and Competitors. Source: personal estimates



As we can see from figure 2, Coca-Cola Hellenic is located in the phase of maturity, as the year's active in the industry and the wider environment. Concerning its position in the industry, the company is located in a very strong position and is expected to dominate a dominant position.

Global players. Coca Cola HBC (as the second bottler in terms of volume of The Coca Cola Company), Pepsico and Nestle have very different growth rates and profit margins. To highlight the disparity, we show in the matrix below (figure 3) for each company difference between those two measures from the same measures of Coca Cola HBC. Consequently, it is more realistic to compare Coca Cola HBC to sparkling beverages and juice categories. However, they have several different characteristics, such as positioning, market exposure, business diversification, and product range, which make them also imperfect companies with which to compare CCHBC.

Figure 3. BCG Matrix. Source: personal estimates



Star-CCHBC has a uniquely diverse geography and the world's most loved brands-stars that will leave the company very well placed to leverage the opportunities ahead. The ongoing rollout of its occasion-based brand, package, price, and channel strategy drove an improved package mix and net sales revenue across the Group that will become the next cash cow and ensure future cash generation. CCHBC generates large amounts of cash because of its strong market positions in 28 countries, but also of its high growth rate in Eastern Europe & Russia, in addition to its operations in West Africa (Nigeria).

Applying the method of comparables and assumptions

In applying the method of comparables, analysts compare a stock's price multiple to the price multiple of a similar stock or the average or median price multiple of some group of stocks. Although there are several price multiples that we can use when using a relative valuation, there is no correct valuation multiple. All multiples, including EV/EBITDA and P/E, have their uses in the process of valuation. P/E ratios are comprehensive in that they take account of differences in capital intensity and taxation but often are not comparable because of accounting and capital structure differences. Although EV/EBITDA multiples are less comprehensive, they do resolve many of the accounting and capital structure comparability problems.

Multiple Analysis

We consider the EV/EBITDA multiple to calculate our target price. We believe the EV/EBITDA to be the most significant multiple as it is a good proxy for cash flows, and on the contrary to EV/EBIT multiple, it is not influenced by differences in accounting of D&A. We also look at the P/E multiples. We estimated the enterprise value of CCHBC's business to be € 5,251 M. In our DCF valuation Western Europe is 34% of the total Equity Value and Eastern Europe and Nigeria, the remaining 66%. We assume the same for Multiple Analyses (Table 4).

A peer of multiple comparisons. We also calculate competitors' multiples to CCHBC, in order to estimate a market-based price range and multiple target price. We started before that CCHBC can be separated into two businesses, based on their geographic exposure. For the sake of this analysis, we assume multiples for the total Market. We estimate EV/EBITDA multiple calculated from market multiples of three multinational companies and assuming that sales being equal, and

we use the information about their sales to breakdown the EV/EBITDA. We look EV/EBITDA and P/E multiples and derive a price of € 17,52 and € 14,26, respectively (Table 4).

Table 4. Multiple Analysis. Source: personal estimates

	EV/EBITDA next 12 month	**P/E**
Coca-Cola HBC	**5,8**	**12,3**
PepsiCo	**9,18**	**15,2**
Nestlé	**10,43**	**19,9**
Average	**8,47**	**15,8**

	Valuation based on EV/EBITDA	**Valuation based on P/E**
EV	**7.648**	
Equity	**6.369**	**5.183**
Target Price	**17,5**	**14,3**

Target Price	**14,57 €**
DCF	**11,92 €**
Multiple EV/EBITDA	**17,52 €**
Multiple P/E	**14,26 €**

Conclusions

We estimate a target price € 14,57 that has been obtained from a base case estimate of the prices resulting from our DCF Model and Multiple Analysis (Table 4). Weights are the same. In our opinion, Coca Cola Hellenic offers further upside potential in the medium term, as long as the growth strategy in emerging markets proves to be successful. We believe that the market is still not entirely discounting the growth potential from East Europe and Nigeria, but we understand that there is an elevated degree of risk in executing strategy. 2012 results and business updates will be of particular importance to show that CCHBC can deliver on growth through, especially in East Europe and Russia.

SUMMARY AND RESULTS

This paper has provided the background and the paper's objectives and placed these as a part within the context of the massive project that was conducted from November 2011 to February 2012. The application of recognized valuation models combined with rigorous analysis. We evaluate Coca Cola Hellenic by applying two models: Discount Cash Flow and Multiple Analysis. As the group operates in regions with different levels of growth, margins, and risks, our DCF is based on a sum of the parts approach that values the main geographic business in each region separately: Western Europe and both Eastern Europe and West Africa as well as the main product categories. Also, the Sensitivity Analysis values Coca Cola Hellenic at a geographical and aggregate level. Our target price is the base case estimate of the prices resulting from our DCF and our Multiple Analysis. Weights are the same. Our valuation methods lead to a target price of 14,57 € by the start of 2012.

Anticipated Problems and Limitations

Since it is not realistic to cover all variations of valuation models, this study is limited to the Discount Cash Flow and Multiple-based valuation models given CCH's characteristics. By conducting the literature study, a deep understanding of the applied valuation models is established.

Significance of the Research

This research is not only based on the collected data to existing proven theories but also based on personal assumptions and understanding of the data to get more in-depth knowledge regarding the methodology concerning different valuation methods. In that sense, the qualitative method through observations and survey research gives us many advantages over the quantitative method. The present paper clarifies the valuation of region-related CCH's stock, including constructing the DCF, projecting the cash flow stream, choosing a discount rate, and DCF fact patterns in Eastern Europen & Russian, Western European and Nigerian operations and product categories of CCH. Besides, it clarifies Multiple-based valuation in relation to geographic regions and product categories of CCH. So, it has **Practical implications**. However, every situation is unique, and different facts and circumstances may result in variations of the applied models. Furthermore, valuation theory and models are continually evolving and, at a later date, may be different than what is presented here.

Suggestions for Future Research at ongoing Ph.D.'s research

2012 results and business updates will be of particular importance to show that CCHBC can deliver on growth through its geographic regions and product categories by collecting data from the annual report. Furthermore, by collecting data from annual reports, it will be of particular importance to compare personal predictions for the years 2012-2014. By doing this, we will see how accurate the predictions were. Finally, it will be of particular importance to define target price by the start of 2017, result in up to date data.

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