Does the hotel industry create value for owners? The empirical analysis of residual income: The case of Slovenia and Croatia

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Abstract

This paper aims to analyze the residual income of the Slovenian and Croatian hotel industry for the period covering 2005–2008. The residual income not only looks at return on invested funds, but also implicitly compares it with the risk adjusted opportunity cost of such an investment. This parameter is therefore a better performance measure than simply accounting performance measures. The results of the analysis prove that residual incomes of Slovenian and Croatian hotels were far from being positive during the whole period. The obtained findings demonstrate that hotel companies in aggregate did not create value for their owners and that they did not generate enough profits to cover the appropriate cost of capital i.e. the cost of capital that takes into consideration the risk adjusted opportunity cost.

Key Words: residual income, hotel industry, tourism, risk-adjusted cost of capital, performance measure

1 Introduction

In the last decade, we were faced with significant growth and demand in the tourism sector. However, according to official statistics published by UNWTO (2009), international tourism experienced a 1% decline just in the second half of 2008. In the year 2008, the Slovene tourism industry employed 3.46% of active labor force and produced 2.03% of the GDP (SURS, 2009). On the other hand, in 2008 Croatia's tourism industry employed 5.8% of the active labor force and produced approximately 20% of the GDP (Statistical information, 2009). In accordance with the aforementioned basic statistics, it is obvious that the tourism industry represents an important branch in the case of the Slovenian and Croatian economy. This is an argument in favor of performing an empirical analysis on the residual income of Slovene and Croatian hotel enterprises. Therefore the basic research question is whether these hotel enterprises have positive or negative residual income. For the purpose of empirical analysis we will test the null hypothesis (H_o) against the alternative hypothesis (H_1):

- H_o = The Slovene and Croatian hotel industry has a positive residual income and adds value for their owners.

- H_1 = The Slovene and Croatian hotel industry does not have a positive residual income and does not add value for their owners.

To test the above hypotheses the residual income model will be used. The analysis will be performed for the period of 2005–2008 for Slovene and Croatian hotels. The necessary data were collected from the aggregated balance sheet and aggregated statement of income.

This paper is organized as follows. After the introduction, the theoretical background of the research is presented where the methodology of residual income and cost of equity capital is explained. The third part presents the data used. The obtained results of the analysis and the discussion constitute the fourth part. The fifth part concludes the paper.

2 RIV model as an investment decision-making measure

When an investor analyses the efficiency of invested capital, she/he can use typical accounting measures such as return-on-equity or similar measures. These measures, however, lack of one crucial factor of analysis: what is the opportunity cost of equity capital. A positive return-on-equity is not enough to satisfy investors; investors expect to be rewarded according to the risk involved in the investment and relatively to the overall level of interest rate in the economy. Only if an investment's return is higher than desired (or normal!), does the investment add value for the company.

It is normal for investors and managers to want to know what the value of their business is. The postulate of financial management theory is that the managers' primary objective should be to increase the value of investors' (i.e. owners') equity capital. But how to select the appropriate decision-making measures and find factors that influence stock prices? Glen (2005, 308) argues that without being aware of these factors, managers will not be able to define the consequences of their managerial decisions. One of the possible solutions is the concept of residual income as a performance measure and valuation tool.

One of the possible solutions is the concept of residual income as a performance measure and valuation tool. The concept was introduced in the early 1920s; however, it has not been frequently used since, despite its interesting basis. The stimulus for its return to the management financial horizon was Stewart's publication in 1991, in which the authors presented their "modernized" version of residual income: Economic Value Added or EVA® (Christensen and Feltham, 2002). According to this model, a company's profits (as accounting category) do not necessary imply that a company is creating value for its owners.

2.1 Residual Income

The Residual Income Valuation model (RIV) has become prominent in accounting literature during the past decade. The reason is its apparent ability to

give a constructive role to accounting data in equity valuation. And what is the efficiency of the RIV model compared to other possible methods? The valuation based on the future cash flows by contrast suggests a general irrelevance of future earnings and other accounting data (Ohlson, 2005, 323). In addition Jamin (2005) found that – in contrast to the theoretical prediction – the performance of the RIV models is not much better than simple ratios analysis.

The RIV model is theoretically equivalent to the model of free cash flows that belongs to equity capital and to the dividend discount model. Both models (RIV and FCF) are derived from the dividend discount model, which has the following mathematical specification (Halsey, 2001, 258):

$$V_0 = \sum_{\tau=1}^{\infty} (1+k)^{-\tau} \cdot Div_{\tau}, \qquad [1]$$

where:

– V_o = present value of equity capital,
– k = cost of equity capital,
– Div_{τ} = cumulative expected dividends at time τ,
– τ = time.

The model defines the value of equity capital as the present value of expected dividends, where the book value of equity capital can be calculated as:

$$BV_0 = BV_{-1} + E_0 - Div_0. \qquad [2]$$

where:

– BV_o = present book value of equity capital,
– BV_{-1} = book value of equity capital for the previous period,
– E_o = net income for the current period,
– Div_o = cumulative dividends for the current period.

Finally, residual income at the present time can be estimated according to the following equation:

$$RI_0 = E_0 - k \cdot BV_{-1}, \qquad [3]$$

where:

– RI_o = present value of residual income,
– E_o = net income for the current period,
– k = cost of equity capital of the company,
– BV_{-1} = book value of equity capital in the previous period.

If we substitute [2] and [3], we obtain the following equation:

$$Div_0 = (1+k) \cdot BV_{-1} - BV_0 + RI_0, \qquad [4]$$

which determines dividends by the book value of equity capital and residual income. Furthermore, if we substitute [4] and [1], we obtain the dividend discount model that expresses the value of equity capital as the sum of the book value of equity capital and the present value of residual income (Halsey, 2001, 258):

$$V_0 = BV_0 + \sum_{\tau=1}^{\infty} (1+k)^{-\tau} \cdot (RI_{\tau}), \qquad [5]$$

where:

– V_o = present value of equity capital,
– BV_o = present book value of equity capital,
– k = cost of equity capital,
– RI_{τ} = expected residual income at time τ.

Assuming a stable growth rate of net incomes, the model can be simplified into a constant growth model as follows: value of the equity is derived from the infinite future flows of constantly growing net incomes. According to this, the expected residual income is:

$$RI_1 = E_1 - k * BV_0,$$ [6]

The value of expected residual incomes can be expressed as:

$$\frac{RI_1}{k} = \frac{E_1 - k * BV_0}{k}.$$ [7]

Finally, if we substitute [5] and [6], the value of equity capital with constant growth expected residual income can be calculated as:

$$V_0 = BV_0 + \frac{RI_1}{k - g_{RI}} = BV_0 + \frac{E_1 - k \cdot BV_0}{k - g_{RI}},$$ [8]

where:

– RI_1 = expected residual income,
– E_1 = expected net income,
– BV_o = book value of equity capital,
– k = cost of equity capital,
– g_{RI} = expected growth rate of residual incomes.

Following the assumption that a company adds value for its owners the residual income has to be positive.

2.2 Cost of equity capital

The cost of equity capital is an essential parameter in the calculation of residual income. It is the minimum return that investors request on their invested capital; hence it is profitability that investors demand for the risk they bear. This is therefore is used as a discount factor for the future earnings and cash flow from the new investment opportunities. Even a small change in the cost of capital causes a rather extensive change of equity capital value.

Many models and techniques have been developed to estimate the cost of equity capital, such as the well known and oft-used Capital Asset Pricing Model (CAPM) (Black, 1972; Lintner, 1965; Ross, 1976; Sharpe, 1964), the Fama and French Three Factor Model (Koller et al., 2005; Estrada, 2005), and others. The primary conclusion of the CAPM is that the relevant risk of an individual stock is its contribution to the risk of a well diversified portfolio. According to CAPM a required rate of return for an *i*-th share is calculated as follows:

$$r_i = r_f + \beta_i \cdot (r_m - r_f),$$ [9]

where:

– r_i – required rate of return,
– r_f – risk free rate,
– β_i – beta coefficient,
– r_m – market rate of return
– $(r_m - r_f)$ – market risk premium.

Several shortcomings arise from the assumptions of the model (see e.g. Gunnlaugsson, 2006; McNulty et al., 2002; Zellweger, 2007), but many surveys have found that the CAPM approach is by far the most widely used method (Brigham & Ehrhardt, 2005).

2.3 Model used

The above described residual income and cost of capital frameworks constitutes our empirical methodology. The basis of this methodology is the equation [3]. By applying this method we will obtain data on net income and the book value of equity capital from the aggregated[1] balance sheet and aggregated statement of income. The cost of equity capital will be estimated by using the CAPM model [10]. Three input variables have to be estimated:

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1 I.e. data were collected for the entire Slovene and Croatian hotel industry.

- risk-free rate of return,
- market risk premium and,
- beta coefficient.

The risk free rate was calculated as the sum of the yield to maturity of a thirty-year inflation indexed US Treasury Bond plus the inflation:

$$r_{ft} = YTM_{at} + i_t \qquad [10]$$

- where:
- r_{ft} = risk-free rate for the observed year,
- YTM_{at} = Yield to Maturity of a thirty-year inflation indexed US Treasury bond (Federal Reserve Bank of St. Louis 2009) for the observed year,
- i_t = the inflation for the observed year.

Risk premium will be calculated by using the Damodaran (2009) as the market risk premium of a mature US market plus country risk premium.

The last step in calculation of the cost of capital is the beta coefficient. Because data for the systematic risk factor cannot be calculated for non-public Slovenian and Croatian hotel companies, we used the betas from the Damodaran website (2009) for the hotel and gambling industry as the best possible estimator for these companies in Slovenia and Croatia.

It is worthwhile to notice that we have used estimated cost of equity capital in the end of the year for calculating the residual income of that year. This decision may be debatable, but we would argue that we evaluated the profitability of the investment in t he terms of residual income based on the past performance (from the net income for that year), so we use the cost of capital for end of the year.

By applying the described methodological framework we will express residual income in relative terms. Therefore we have to advance the equation [3] as follows:

$$RI_t(\%) = \frac{RI_t}{BV_{t-1}} = ROE_t \cdot k_t \qquad [11]$$

where:

- ROE_t = return on equity capital for year t,
- E_t = net income for year t,
- BV_{t-1} = book value of equity capital at the end of the year $t-1$,
- k_t = cost of equity capital for year t.

To apply the equation [11], we need ROE values that will be calculated by using the following algorithm:

$$ROE_t = \frac{E_t}{BV_{t-1}} \cdot 100, \qquad [12]$$

where:

- ROE_t = return on equity capital for year t,
- E_t = net income for year t,
- BV_{t-1} = book value of equity capital at the end of the year $t-1$.

3 Data used

The data were collected from the aggregated[2] balance sheet and aggregated statement of income for Slovene and Croatian companies for the period covering 2004–2008. The data were obtained from the Agency of the Republic of Slovenia for Public Legal Records and Related Services (AJPES) and Croatian Financial Agency (FINA). The collected data are presented in Table 1.

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2 I.e. data were collected for the entire Slovene and Croatian hotel industry.

Table 1: *Data used*

Variable / Year	2004	2005	2006	2007	2008
Number of hotels and similar companies					
Slovenia	196	203	217	251	274
Croatia	406	457	509	564	666
Net income in 000 €					
Slovenia	- 9,550	- 3,093	16,423	15,445	- 20,595
Croatia	1,548	44,773	16,404	-34,417	- 123,235
Book value of equity capita in 000 €					
Slovenia	645,747	674,206	677,575	805,165	808,611
Croatia	2,283,522	2,720,291	2,868,395	3027855	3,166,023

Source: AJPES and FINA, 2009

4 Results and discussion

Table 2: *Calculation of the cost of equity capital estimation*

Slovenia		2005	2006	2007	2008
risk free rate %	1	4.40	5.09	8.21	4.20
market risk premium %	2	5.70	5.66	5.54	6.50
Beta	3	0.82	0.77	1.25	1.70
cost of equity capital %	= 1+2×3	9.07	9.45	15.14	15.25
Croatia					
risk free rate %	1	4.28	3.33	7.80	3.92
market risk premium %	2	6.45	6.41	6.29	8.38
Beta	3	0.82	0.77	1.25	1.70
cost of equity capital %	= 1+2×3	9.57	8.26	15.66	18.16

The described methodology (see 2.3) was applied on data described in Chapter 3. Table 2 summarizes data on all regarded variables.

According to the obtained empirical results, it is obvious that the cost of equity capital increased significantly in 2007 and 2008. This was caused by the growing value of beta coefficient, which increased from 0.82 in 2005 to 1.7 in 2008. Furthermore, the ROE for the Slovene and Croatian hotel industry was extremely low (Figure 1), even negative. The average ROE in Slovenia and Croatia in the period 2005–2008 was, respectively, 0.42% and -0.68% (with highest values of 2.44% and 1.96%). Even without further analysis we could conclude that the Slovenian and Croatian hotel industry is not a profitable one.

Figure 1: *Return on equity (ROE) for the Slovene and Croatian hotel industry in the period covering 2005–2008 (in %)*
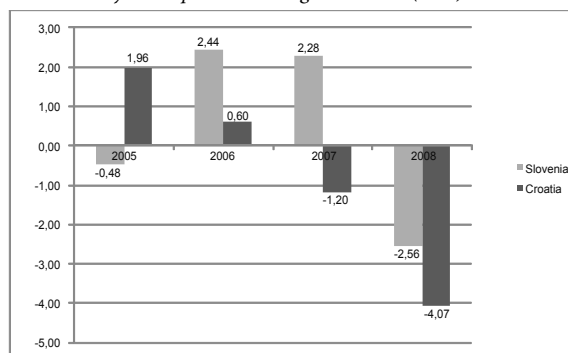
Table 3: *Residual income (in absolute and relative terms) for Slovene and Croatian hotels for the period 2005–2008*

Residual income in 000 €	2005	2006	2007	2008
Slovenia	-61,998.04	-47,712.40	-87,890.88	-143,717.61
Croatia	-174,737.24	-208,944.77	-486,797.41	-674,227.79
Residual income (ROE-k) %				
Slovenia	-9.60	-7.08	-12.97	-17.85
Croatia	-7.65	-7.68	-16.97	-22.27

Source: AJPES, FINA and own calculations

To that end the results of residual income are not surprising. The residual income (%) is negative in the whole analyzed period. These results simply indicate that the owners/investors of Slovene and Croatian hotels are losing value on their invested capital, accounting for risk-free rate and risk premium.

It is obvious that some changes incurred in the period covering 2005–2008. The reasons for extensive differences in negative residual incomes can arise from two sources:

a) the hotel industry might have substantially decreased net incomes relatively to the book value of the equity capital (ROE); and/or
b) the hotel industry have substantially increased the cost of capital.

In order to get a broader picture we have calculated the index rate of ROE change and the cost of capital. The results are presented in the table below.

Data show that companies have substantially decreased the returns on equity in the analyzed period. This means that they have decreased the net incomes relatively to the book value of equity capital. The decrease of ROE can result from: a) a decrease of net incomes, or b) an increase in the value of equity capital (the net income and the value of equity capital was presented in Table 2). A decrease of net incomes can be a result a decrease in revenues or an increase of cost of operations or financial expenses. However, a more detailed analysis of the reasons behind this finding was not possible due to lack of appropriate data.

A further analysis indicates that the revenues grew in the whole period (2005–2008) – the average growth rate in Slovenia and Croatia was 9,5% and 2,6%, respectively. The only exception was an insignificant decrease of revenues in 2006 for Croatian companies (Table 6). To that end a decrease of net income was a consequence of increasing costs of operations and financial expenses.

Figure 2: *The residual income for Slovene and Croatian hotel industry in the period covering 2004–2008 (in €)*
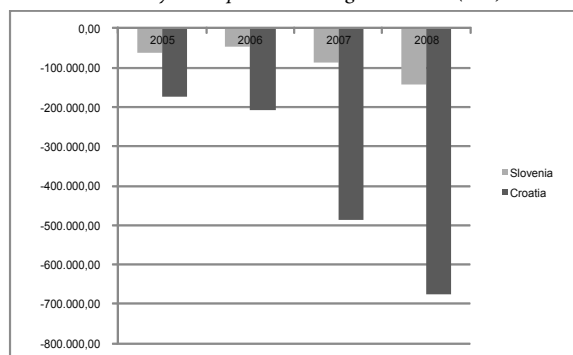
Table 5: *The rate of change of ROE and the estimated cost of capital for the hotel industry*

Slovenia	2006	2007	2008
C-ROE % points	2,91	-0,16	-4,84
C-k % points	0,39	5,74	0,04
Croatia	2006	2007	2008
C-ROE % points	-1,36	-1,80	-2,87
C-k % points	-1,33	7,49	2,43

Note: C-ROE is the percentage change of return of equity from the previous year and C-k is the percentage change of cost of equity capital from the previous year.

Table 6: *Total revenues for Slovene and Croatian hotel industry (2005–2008)*

Total revenues	2005	2006	2007	2008	Average annual growth (in %)
Slovenia	355.889	389.603	472.780	512.412	9,5
Croatia	1.048.172	1.032.689	1.159.810	1.164.467	2,6

Source: AJPES and FINA, 2009

Table 7: *The cost of operations for Slovene and Croatian hotels (2005–2008)*

Cost of operations	2005	2006	2007	2008	Average annual growth (in %)
Slovenia	332.708	351.816	426.860	485.054	9,9
Croatia	845.169	883.783	1.179.302	1.270.003	10,7

Source: AJPES & FINA

Table 8: *Financial expenses in Slovene and Croatians hotels in the period from 2005–2008*

Financial expenses	2005	2006	2007	2008	Average annual growth (in %)
Slovenia	23.941	16.174	22.030	42.489	15,4
Croatia	128.505	134.411	134.498	195.947	11,1

Source: AJPES & FINA

The cost of operations for Slovene companies have been growing similar to revenues in Slovenia (see Table 7), while in Croatia average yearly growth rate was 4-times higher than growth of total revenues – 2,6%.

On the other hand, financial expenses have been growing in average 15,4% annually in Slovenia and 11,1% in Croatia. However, one can notice that the proportion of financial expenses relatively to the costs of operations is significantly lower and thus also the effect on the growth of total costs.

The results further demonstrate that the investments did not result in greater net incomes relative to the growth of equity capital, but led to even worse results. Obviously, companies failed to develop innovative solutions bringing a higher productivity of their operations and a higher value added per employee, as well as an increased selling price (Fatur & Likar, 2009).

An obvious question that arises after thorough examination of the results above is why is it that the hotel industry did not earn enough to compensate for a normal cost of equity for their owners? By analyzing the aggregate balance sheet and the aggregate statement of income in more detail, it was discovered that the principal reason for the poor results of the Slovene and Croatian hotel industry was the excessive cost of operations.

Besides that the cost of capital increased simultaneously, both in Slovenia and Croatia. As one can notice from Table 2 above the cost of equity capital has been increasing steadily in the analyzed period. The reasons are twofold. Market risk premium increased by almost 1% point in Slovenia and 2% points in Croatia. This increase was especially evident in 2008. Further branch specific factor (β) has been increasing as well – from 0.82 in 2005 to 1.7 in 2008. Both factors were most probably affected by increased uncertainty because of the financial crisis.

6 Conclusion

In this study we analyzed the residual income for the Slovene and Croatian hotel industry. This is an original study in the field of measuring performance of Slovene hospitality industry with residual income that not only looks at the return on invested funds, but also implicitly compares it with the risk adjusted opportunity cost of such investment. We found that residual income was far from being positive for the whole analyzed period covering 2005–2008, which means that companies did not create value for their owners and that they did not generate enough profits to cover the appropriate cost of capital.

These results raise many questions for further research. The comparative analysis with the American hotel industry indicates that the ROE is much higher than the Slovenian and Croatian one. To that end a comprehensive analysis of Slovene and Croatian hotel industry has to be done in the future. Ivankovič, Jerman and Janković (2009) have already discovered that the main problem concerns costs of operations and increasing costs of financing (share of debt financing is increasing). To that end, modern accounting methods shall be used. These are undoubtedly activity based costing, target costing, benchmarking, and management by objective. Furthermore a comprehensive framework for performance measurement (Ivankovič et al., 2010) and the introduction of internationally adopted standards USALI for more comparable results will be unavoidable. According to disadvantageous forecasts as the consequence of the current severe market conditions, performance improvements are inevitable. Otherwise owners will still lose the value of their invested capital.

Ali hotelska industrija povečuje lastniško vrednost? Empirična analiza na preostalem dobičku: primer Slovenije in Hrvaške

Povzetek

Prispevek analizira preostali dobiček slovenskih in hrvaških hotelirskih podjetij v obdobju 2005–2008. Metodološko gledano model preostalega dobička ne upošteva samo realiziranega donosa na investirana sredstva, temveč upošteva tudi tveganju prilagojeni oportunitetni strošek kapitala. Zato je preostali dobiček boljši kazalnik uspešnosti poslovanja podjetij kot zgolj računovodski dobiček. Rezultati pričujoče analize kažejo, da je bil v celotnem preučevanem obdobju preostali dobiček slovenskih in hrvaških podjetij negativen. To kaže na to, da hotelska industrija ni povečevala vrednosti za lastnike oziroma da ustvarjeni (računovodski) dobički niso zadoščali za pokritje tveganju prilagojenega stroška kapitala.

Ključne besede: preostali dobiček, hotelska industrija, turizem, tveganju prilagojeni strošek kapitala, merjenje učinkovitosti poslovanja.

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