Case Study: Henkel – ROCE versus earnings per share by Dr Dirk Holbach, CSCO Consumer Brands

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When discussing ROCE with Dr Dirk Holbach, the CSCO of Henkel Consumer Brands, he mentioned 'We use ROCE at the board level, but at the management level we are incentivized on earnings per share. If you could prove me that ROCE drives earnings per share then I might get the interest from our CFO.'

In a simple version earnings per share = net income / Nr of shares. Earnings per share (EPS) is as such driven by the return on equity = net income / equity. If the ROE goes up, then the EPS will go up. That could be done by increasing the net income or by reducing the equity, for instance by a share buy back and subsequent destruction of the shares.

In the previous section we have introduced that the difference between the return on equity and the return on capital employed is the 'leverage', the

amount of debt versus the amount of equity, typically measured through the debt/equity or D/E ratio. We explained that the ROE can be boosted by 'increasing the leverage' if the net interest (interest after accounting for the tax advantage) is lower than the starting ROE. So question is whether we can 'prove' that ROCE and D/E together define the ROE.

To study the relationship between ROCE, D/E and ROE, we analysed a set of 30 FMCG companies[1] for which we have calculated a 10-year average ROCE, ROE and D/E ratio[2]. Figure 11.1 shows the regression output for the unfiltered data set. On the top left we see the linear regression where we try to explain ROE based on ROCE. For a regression model to have predictive power, the R^2 should be at least 80 per cent, in this case it is close to zero which means, with ROCE alone, we can basically not explain any of the variance in the ROE.

On the top right in Figure 11.1, we see the linear regression where we try to explain ROE based on D/E. The R^2 is now 0.9, which is good. For this unfiltered data set, around 90 per cent of the variability in the ROE is explained by the D/E alone. However, in both graphs you can notice outliers. There seems to be a nucleus of points with a ROCE of up to 0.4 and a ROE of up to 1.6 and some more isolated points scattered around that. Figure 11.2 shows the results when we remove these outliers. We want to build a model for the core, not for the outliers.

When filtering for the outliers, we have 23 of the 30 companies left. ROCE is now between 5 per cent and 35 per cent, which are common percentages. The ROE is now between 0 and 1.2, the D/E between 0.5 and 8. Zooming in on the core reveals a different behaviour. The importance of ROCE as an explanatory variable has increased, whereas the importance of D/E is reduced. With an R^2 of 0.53 (graph on the left) and 0.34 (graph on the right) none of the two (ROCE and D/E) are satisfactory on their own, so what we can do next is build a multiple linear regression where we take both ROCE and D/E as inputs trying to model the ROE. That result is shown in Figure 11.3.

If you're not used to reading a regression output, let me help you through it. The most important thing is to look at the R^2, that is the predictive power of the regression model for the data set at hand. If there are multiple input variables you look at the adjusted R^2 which in this case is 0.82. It means that the model explains 82 per cent of the variance in the ROE. So where individually ROCE and D/E were explaining 0.53 and 0.34, together they are explaining 0.82, which is useful. The other interesting elements to look at are the 'coefficients'.

Figure 11.1 ROCE versus ROE – D/E versus ROE – uncleaned raw data

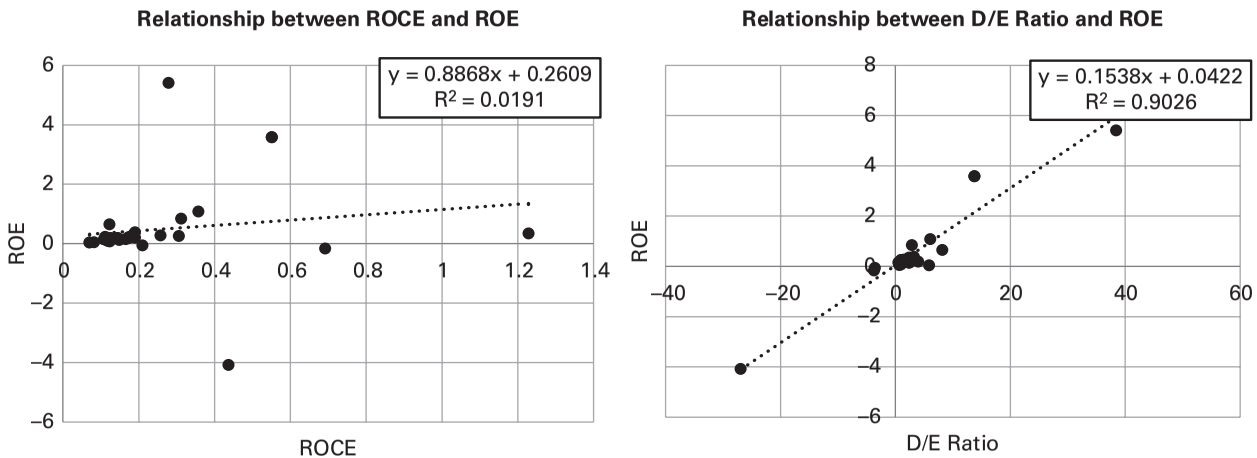

Figure 11.2 ROCE versus ROE – D/E versus ROE – cleaned data – outliers removed

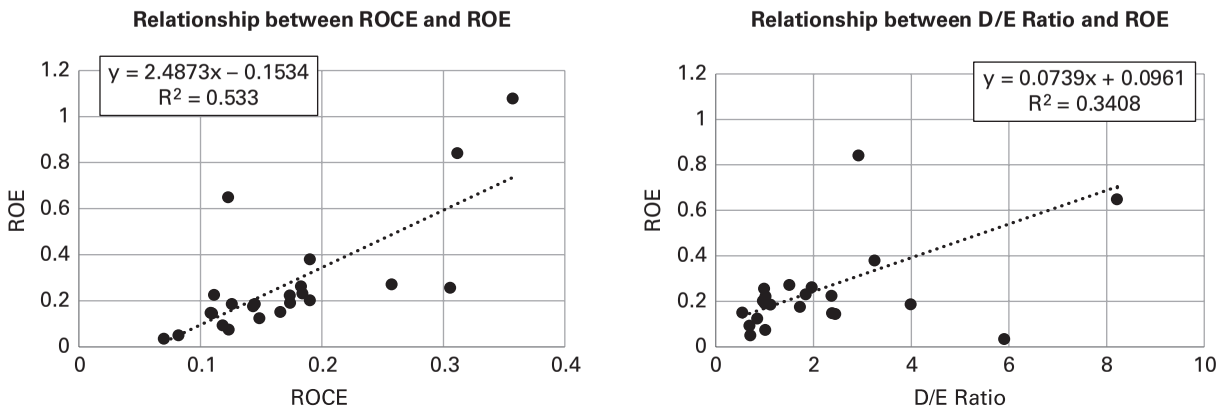

Figure 11.3 ROCE and D/E versus ROE – cleaned data – outliers removed

Relationship between ROCE, D/E ratio and ROE

Regression Statistics						
Multiple R	0.91					
R Square	0.83					
Adjusted R Square	0.82					
Standard Error	0.11					
Observations	23					
ANOVA						
	df	*SS*	*MS*	*F*	*Significance F*	
Regression	2	1.18	0.59	50.18	0.00	
Residual	20	0.23	0.01			
Total	22	1.41				
	Coefficients	*Standard Error*	*t Stat*	*P–value*	*Lower 95%*	*Upper 95%*
Intercept	–0.30	0.06	–4.82	0.00	–0.43	–0.17
Average of ROCE	2.40	0.31	7.70	0.00	1.75	3.04
Average of D/E Ratio	0.07	0.01	6.02	0.00	0.05	0.09

Based on the coefficients we can build the linear regression equation which in this case is:

ROE = –0.30 + 2.40 × ROCE + 0.07 × D/E ratio

Using this regression formula, we can predict the ROE, starting from the ROCE and the D/E. If the p-values shown next to the coefficients are less than 0.05 we say they are statistically significant, which is the case here. This means our regression model has practical relevance.

The coefficient of ROCE is 2.40 which we might interpret as ROCE being more influential than D/E for which the coefficient is 0.07. But don't be mistaken. The coefficient of ROCE is larger because the range of ROCE is smaller. The minimum ROCE is 0.07 and the maximum is 0.36. The coefficient for the D/E is smaller as the range of the D/E is wider, the minimum D/E is 0.55 and the maximum is 8.22. To better understand the relative importance of ROCE versus D/E in predicting ROE, we can look at what the minimum and maximum ROCE (and D/E) have as an impact on the ROE. For ROCE the minimum and maximum lead to an impact of 2.40 × 0.07 and 2.40 × 0.36 on ROE, which is 0.17 till 0.86 or a range of 0.69. For D/E the minimum and maximum lead to an impact of 0.07 × 0.55 and 0.07 × 8.22, which is 0.04 till 0.57 or a range of 0.53. So we can say that ROCE is slightly more influential to the ROE over the D/E ratio.

In summary, if we remove the outliers and focus on the core of the data set, we find good evidence that ROCE and D/E are explaining a significant part of the ROE. From the two variables, ROCE is slightly more influential. So, in answer to Dirk Holbach's question, yes, we believe ROCE is driving earnings per share, at least in the set of FMCG companies studied in this example. The underlying principles, that the difference between ROCE and ROE is the debt structure, makes us believe it can be generalized far beyond this example data set.

Endnotes

1 Following publicly companies were taken into account for the FMCG Benchmark: Anheuser-Busch InBev SA/NV, Avon Products Inc, Church & Dwight Co Inc, Clorox CO, Coca-Cola Co, Colgate-Palmolive, Coty, Ecolab Inc, Estee Lauder, Hain Celestial Group, Helen of Troy Ltd, Herbalife Nutrition Ltd, Imperial Brands, Inter Parfums Inc, Johnson & Johnson, Kraft Heinz, L Brands Inc, L'Oréal SA, Natures Sunshine Products Inc, Nestle SA, Nu Skin Enterprises Inc, PepsiCo Inc, Philip Morris International Inc, Procter and Gamble, Revlon Inc, Sealed Air Corp, Strauss Group Ltd, Tupperware Brands Corp, Unilever NV ADR

2 Table 11.1 with 10-year average ROCE, D/E ratio and ROE.

Table 11.1 10-year average ROCE, D/E ratio and ROE.

Ticker	ROCE	D/E Ratio	ROE	In Clean?
ABI	0.11	2.38	0.15	YES
AVP	0.18	1.84	0.23	YES
CELH	0.55	13.78	3.58	NO
CHD	0.17	1.01	0.19	YES
CI	0.44	−26.90	−4.08	NO
CLX	0.36	6.11	1.08	YES
COTY	0.07	5.91	0.03	YES
ECL	0.14	1.72	0.18	YES
EL	0.26	1.51	0.27	YES
HAIN	0.08	0.71	0.05	YES
HELE	0.12	0.69	0.09	YES
HLF	0.69	−3.71	−0.16	NO
IPAR	0.15	0.85	0.12	YES
ITB	0.13	3.99	0.19	YES
JNJ	0.19	0.97	0.20	YES
KHC	0.11	2.37	0.22	YES
KO	0.18	1.97	0.26	YES
LB	0.28	38.49	5.40	NO
LRLCF	0.17	0.55	0.15	YES
NATR	0.12	1.01	0.07	YES
NSRGF	0.17	1.02	0.22	YES
NUS	0.31	0.99	0.26	YES
PEP	0.19	3.25	0.38	YES
PG	0.14	1.12	0.19	YES

(*continued*)

Table 11.1 (Continued)

PM	0.55	13.78	3.58	NO
REV	0.21	–3.55	–0.06	NO
SEE	0.12	8.22	0.65	YES
SGLJF	0.11	2.45	0.14	YES
TUP	0.31	2.93	0.84	YES
UN	1.23	2.39	0.35	NO