When shareholders go to the court: a note on the valuation of a Portuguese subsidiary as a going concern in the context of industrial dislocation

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Abstract

The purpose of this paper is to discuss the complex questions arising from the use of Discounted Cash Flow method in the context of the valuation of a Portuguese subsidiary of a German firm that ended up in court.

Two points are of particular relevance. First, if the going concern hypothesis should be assumed, given that the German parent company had been opening new factories in India, China, Romania and Slovakia, and its presence in Portugal was far from guaranteed. Second, given the past performance of the company and the external environment it faced, what would be a reasonable growth rate for free cash flow in the residual value period. The main point of the paper is to highlight the effect on business valuation of potential industrial dislocation. Portuguese shareholders in foreign controlled joint ventures, and all the other stakeholders, are facing new challenges from a new world economic order, and this case clearly illustrates some characteristics of this trend.

Resumo

Este texto procura ilustrar a relevância do designado "valor terminal" ou "valor residual" em avaliação de empresas. Essa ilustração é efectuada a partir do estudo de um caso de oferta de aquisição das acções de uma subsidiária portuguesa de um grupo alemão, a qual foi sujeita a avaliação por uma consultora e, depois, por um grupo de peritos designados no âmbito de um processo judicial.

O enfoque básico reside no impacto das hipóteses assumidas sobre o valor residual no valor das acções da empresa, num contexto de deslocalização industrial.

1.   Introduction

The valuation of privately held small firms is a complex task. Financial tools that have been developed with big, public firms in mind are not easily adapted to closely held businesses.

Rules of thumb are used as proxies for the fair value when transactions are being discussed. However, these rules – usually based on multiples of revenues, profits or assets – do not present a clear rationale.

In our view, the discounted cash flow (DCF) method, even with its known limitations, is the most appropriate to compute the fair value of a closely held business. It is (or should be) based on a previous due diligence of the firm under valuation, expected free cash flows are taken as the future financial benefits accruing to investors, and those cash flows are discounted with a risk-adjusted cost of capital (see Damodaran, 1996; Osteryoung et al, 1997 and Copeland et al, 2000).

Although the DCF method has a sound basis for estimating the fair value of a business, it also presents some important caveats. One of them is the impact on valuation of the "residual value". This means, as it is well known, the portion of value that is explained by assuming the company will operate as a going concern after the period of explicit forecast of annual cash-flows.

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Even with a five year period of explicit forecasting, it is not uncommon that around 75% of total value is based on that "residual" or "terminal" value, which is usually computed assuming a constant growth rate for cash flows and a constant cost of capital. In particular, assumptions about the perpetual growth rate are crucial to explain the impact of residual value in the total value of the company under valuation.

The purpose of this paper is to discuss the complex questions arising from the use of the DCF method in the context of the valuation of a Portuguese subsidiary of a German firm. In 2003 a closely held German parent company had 90% of the equity of a (also closely held) Portuguese firm; the other 10% being held by Portuguese individual shareholders. The German firm made an offer for the remaining 10% at 72,3 € per share. One of the individual shareholders went to the court and filled a lawsuit, asking for 155 € per share. Each of the litigants named an expert witness, and the court also named an independent expert in valuation issues to try reaching an agreement on the fair price to pay.

In the course of the experts' work, the most relevant topic to discuss was on what assumptions should the fair value of the firm be based, given that they agree that the DCF method should be the one used.

Two points were of particular importance. First, if the going concern hypothesis should be assumed, given that the German parent company had been opening new factories in India, China, Romania and Slovakia, and its presence in Portugal was far from guaranteed. Second, given the part performance of the company and the external environment it faced, what would be a reasonable growth rate for free cash flows in the residual value period.

The main point of the paper, based on a case study, is to highlight the effect on business valuation of potential industrial dislocation. Portuguese shareholders in foreign controlled joint ventures and all the other stakeholders are facing new challenges from a new world economic order, and this case clearly illustrates some angles of this trend.

The paper is organized as follows: section 2 briefly discusses possible methods for valuing private firms; section 3 focuses on the strengths and shortcomings of DCF method in valuing firms; used by the consulting firm which firstly valued the company and arrived at the 72,3 € offer price; section 6 describes the points of agreement and disagreement amongst the three experts; section 7discusses the going concern hypothesis in equity valuation to this particular firm; section 8 concludes.

2.   On valuing a private business

If we discard the "adjusted book value"[1] as an equity valuation method based on its irrelevancy for a going concern, two methods are left for valuing a business: the comparables method and the DCF method (Weston et al, 1998, Dukes et al, 1996, Dukes 2001).

The comparables method (also called "multiples method"), consists of basing the valuation of a company on prices paid in transactions of comparable firms. By identifying transactions of similar firms and observing ratios like Price/Sales; Price/Book, Price/Earnings or Price /EBITDA a multiple can be derived and applied to the firm under valuation (Sliwoski; 1999; Weston et al, 1996).

The main advantage of the method is its simplicity. However, if no truly comparable firm is available, it is of very limited usefulness. In the process of valuing a privately held firm, it is not easy to find a comparable business with identical growth prospects, and operating and financial leverage. On top of this, in most privately held firms a personal factor is also an important source of value. The skills of the entrepreneur/manager are usually business specific and quite unique, and can be a highly significant source of (non transferable) value. (Rocha, 2001). The comparable method is often used as a basis for business valuation (Bathala et al, 2003), but is usually applied as a check on the DCF based estimates.

The DCF is generally presented by the financial literature as the most consistent method of valuation (she Brealey and Myers, 2003; Ross et al 2002). Its practical application is, nonetheless, fraught with difficulties. In the several steps required to apply the DCF approach to a privately held company, lack of information or the unsuitability of standard theoretical tools are problems that must be solved, sometimes by compromising solutions.

Beginning with the due diligence process that should be previous to DCF valuation, it must be stressed that privately held companies do not have such a vast array of disclosed financial and non financial information as a public company. When an outside consultancy is called to do the valuation estimate, the ability to assess and audit relevant information is lower than when valuing public firms, and it must rely on management goodwill to have acess to important data about historical performance and future

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[1] By " adjusted book value" I mean taking assets and liabilities of the firm, computing market values for both, and calculate equity value as the difference. Although being an appropriate method for valuing firms in liquidation, it is not adequate to value a business as a going concern.

plans. Areas like contingent liabilities, customer and supplier relations, reputation within capital suppliers (banks, lessors) are not easy to appraise.

The next steps involve establishing assumptions related to all the variables that influence expected cash flows (sales growth, cost structure, taxes, fixed and working capital investment), cost of capital (capital structure, interest rates, equity risk premium) and the assumptions underlying the terminal value (investments and perpetual growth rate).

Regarding the forecasting of cash flows, Damodaran (1997) notes that at the operating expense level, some entrepreneur/manager expenses can, in reality, be return to invested capital. Moreover, if a private business income is taxed under the personal income tax and not under the corporate income tax, its fiscal treatment can have significant differences regarding a public corporation.

But it is on computing the cost of capital that most differences to public firms appear. It is well known that most small business owners are not well diversified (Damodaran, 1987, Rocha, 2001). Therefore, the standard CAPM (capital asset pricing model) model, by assuming well-diversified investors, ignores specific risk, and is generally not suited to derive the opportunity cost of equity capital for small businesses. Several methods have been proposed to compute the appropriate risk premium related to equity investment in small, non-publicly traded, businesses. Damodaran (1997) uses sector "total beta". Supposing that a closely held company belongs to a sector characterized by a "beta" of 0.8, and assuming that the regression between (rm-rf) and (ri-rf) has a R^2 of 0.4, then total β is 0.8/0.4=2. "Total Beta" incorporates thus systematic and non systematic risk, and increases the cost of equity, by using the sectoral beta a a aproxy for total risk level.

Eduardo et al (1999) propose a method called "build up approach", where the standard equity risk premium – based on a comparable public company – is topped up with two types of additional premia, based on "iliquidity" and "small business risk".

Cootner and Fletcher (1999) suggest the "analytical hierarchy process". Briefly, this method is based on management appraisal of the relative importance of several risk sources for a business (revenues, costs, strategy, management quality) and subjective estimations of risk levels for each factor. A weighted average of those factors allows the computation of total risk to be used as the firm´s cost of capital.

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These methods present several drawbacks. In the end, given the subjectivism of results, most small business managers rely on rules of thumb, (say, use a 10% or 15% rate) and give up the search for more sophisticated ways of computing the equity cost of capital.

Some difficulties are also unavoidable when the cost of debt for small firms must be computed, if the valuation of a firm is based on free cash flows to the firm and WACC (weighted average cost of capital). Firstly, for the great majority of closely held firms debt is not traded, and thus a market value is not available. Given that the WACC expression is based on market values, this requires adjustments in its use.

Secondly, for a privately held firm, the cost of debt is more difficult to estimate than for a public traded company with outstanding financial debt.

When applying the DCF method, it is well known that a high percentage of firm value is derived from the terminal value (Copeland et al, 2000). The shortest the explicit forecasting period (which usually can go from 3 to 10 years), the higher is the impact of residual value on company valuation.

Given its general relevance and its particular role in the case underlying this paper, it is the topic of next section.

3. Valuation by the DCF method and terminal value

Terminal value – also called continuing value or residual value – is the present value of cash flows after the explicit forecasting period. Assuming that the firm under valuation operates as a going concern, terminal value depends on:

        a. the projected rate of growth of operating cash flows (g)

        b. the investment needs forecasted for the period (I)

        c. the relevant cost of capital (r)

In a general formulation, using the DCF method, the value of a company (V_0) can be stated as the sum of two parts. The present value of cash flows (CF) for the explicit forecasting period (V_1), and the

present value of residual cash flows after the last year of that period, assuming the company operates as a going concern (V_2).

Thus:

$$V_0 = \sum_{t=1}^{K} \frac{CF_t}{(1+r)^t} + \frac{\dfrac{CF_{K+1}}{r-g}}{(1+r)^K} \quad (1)$$

$$\underbrace{\qquad\qquad}_{V1} \quad \underbrace{\qquad\qquad}_{V2}$$

This general formula is sometimes modified. Copeland et al (2000) present an alternative way, where the terminal value part includes an assumption about re-investment of cash flows in order to sustain growth. This alternative formulation is given by:

$$V_0 = V_1 + \frac{\dfrac{NOPLAT_{t+1}\left(1-\dfrac{g}{ROIC}\right)}{(WACC-g)}}{(1+WACC)^t} \quad (2)$$

Where:

NOPLAT, net operating profit adjusted for taxes, which is taken as cash flow

g – growth rate of cash flows

WACC – weighted average cost of capital

ROIC – expected return on new invested capital

By using (1) or (2) to estimate residual value, the rationale underlying both expressions is that the firm reaches a steady state, where g is a key factor.

In formula (2), ROIC is also a crucial assumption, because the higher the rate of return on new invested capital the higher the residual value. In expression (2) we must consider an additional assumption: what is the portion of reinvested cash flow needed to generate the assumed growth (g).

As Copeland et al (2000) state, many forecasts are made using the assumption that, in the continuing value period, new investments have zero net present value, thus ROIC=WACC. This is seen as a characteristic of a business in a steady state, where competition erodes sources of economic profits.

The cost of capital used in this period should reflect a optimal and sustainable capital structure, and forecasted risk premia should be consistent with industry conditions.

The growth rate is affected by forecasted demand for the company's products or services and the expected inflation rate.

In most cases, valuation is done by using the nominal rate of GDP growth as the firm's long term growth rate. In our view, this procedure must be applied with caution, because in some mature industries it can overstate residual value. Given the sensivity of V_2 to the hypothesized growth rate, a scenario analysis should be done, to assess its impact on the firm value. In most cases, when several parts are discussing assumption in a valuation case, it all comes down to g, especially when the business plan that is used during the explicit forecasting period, to calculate V1, is seen as reasonable.

As we shall see later, this is of particular relevance to the case presented in this paper.

4.   **The company: history, performance and industry trends**

4.1   The evolution of "POR"

The company – hereafter named with the fictitious designation of "POR" – was set up in 1964, as a joint venture between a German firm – hereafter named with the fictitious designation "GER" – and some Portuguese individual investors, who owned 12,5% of equity.

It was, and still is, a local factory, producing bearings. The GER group does all the "R & D", marketing and the strategic decisions. POR is thus a production facility that sells to GER customs worldwide.

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At the setting up time Portugal was a low cost location for this facility. Given the appropriate technology, the wage differential between Germany and Portugal was a sensible reason to locate a plant in Portugal.

Tables 1, 2 and 3 present data about POR's evolution.

Table 1

Financial data from "POR", 1983-2003 (in euro)

Year	Revenues	Operating profit	EBT	Net income	Depreciation	Inv. in fixed assets	Operating profit/ revenues
1983	4,695,084.57	592,293.65	338,208.65	241,981.35	650,609.32	574,100.35	12.6%
1984	7,378,013.54	1,045,918.36	875,966.74	631,835.54	959,630.39	3,302,919.34	14.2%
1985	8,984,957.99	1,130,064.32	939,740.52	744,889.25	1,027,005.14	2,073,373.04	12,6&
1986	10,867,333.96	1,294,762.03	1,080,084.50	821,876.52	1,524,724.12	5,489,865.02	11.9%
1987	12,653,477.13	1,056,131.13	618,153.40	529,339.60	1,598,857.17	1,854,604.83	8.3%
1988	14,338,067.44	830,218.34	1,480,391.04	1,465,663.85	2,518,570.32	6,621,339.46	5.8%
1989	16,961,133.23	1,491,255,93	639,970.59	598,632.12	2,350,731.84	3,094,878.95	8.8%
1990	21,201,916.52	3,598,961.53	2,709,447.84	1,704,325.85	2,632,915.93	3,065,365.41	17.0%
1991	17,814,940.91	1,646,450.42	1,143,806.21	596,235.85	3,201,965.62	2,837,931.74	9.2%
1992	16,575,805.48	983,894.16	753,052.16	360,344.17	3,363,970.86	1,492,751.26	5.9%
1993	17,155,076.96	1,893,859.58	1,946,504.52	948,693.90	2,802,933.42	188,216.91	11.0%
1994	20,801,465.40	3,963,673.37	3,398,963.37	1,630,610.84	2,310,704.79	228,617.37	19.1%
1995	26,138,685.18	4,357,508.09	5,096,380.05	3,113,526.01	2,023,246.73	380,266.83	16.7%
1996	24,995,844.18	5,383,982.78	5,826,140.18	3,718,919.37	1,516,281.83	1,998,601.18	21.5%
1997	20,562,614.72	1,873,553.66	2,209,863.28	1,307,412.81	1,737,769.93	2,069,804.69	9.1%
1998	26,896,837.40	2,118,973.83	2,244.610.95	1,331,782.61	1,826,514.44	2,341,138.27	7.9%
1999	27,289,661.62	1,662,564.37	1,885,850.22	1,099,831.17	1,800,769.64	1,606,925.84	6.1%
2000	30,676,456.05	2,348,174.09	2,541,217.71	1,595,742.71	1,742,728.80	2,387,801.35	7.7%
2001	27,807,124.61	835,644.43	1,008,163.46	636,436.47	1,1,836,210.39	1,352,229.32	3.0%
2002	21,326,017.40	144,646.79	37.390.90	12,008.59	1,948,532.43	1,025,527.57	0,7%
2003	23,711,551.45	547,583.43	636,667.98	411,220.38	1,543,372.92	1,026,645.11	2.3%

Table 2

Yearly changes in some financial aggregates

Year	Revenues	Operating profit	EBT	Net income	Depreciation	Inv. in fixed assets
1983						
1984	57%	77%	159%	161%	47%	475%
1985	22%	8%	7%	18%	7%	-37%
1986	21%	15%	15%	10%	48%	165%
1987	16%	-18%	-43%	-36%	5%	-66%
1988	13%	-21%	139%	177%	58%	257%
1989	18%	80%	-57%	-59%	-7%	-53%
1990	25%	141%	323%	185%	12%	-1%
1991	-16%	-54%	-58%	-65%	22%	-7%
1992	-7%	-40%	-34%	-40%	5%	-47%
1993	3%	92%	158%	163%	-17%	-87%
1994	21%	109%	75%	72%	-18%	21%
1995	26%	10%	50%	91%	-12%	66%
1996	-4%	24%	14%	19%	-25%	426%
1997	-18%	-65%	-62%	-65%	15%	4%
1998	31%	13%	2%	2%	5%	13%
1999	1%	-22%	-16%	-17%	-1%	-31%
2000	12%	41%	35%	45%	-3%	49%
2001	-9%	-64%	-60%	-60%	5%	-43%
2002	-23%	-83%	-96%	-98%	6%	-24%
2003	11%	279%	1603%	3324%	-21%	0%

Table 3

Economic and financial data for the period 1998-2003 (in euro)

	1998	1999	2000	2001	2002	2003
Equity	16.896.655,45	16.874.191,36	14.440.145,86	10.622.475,21	10.634.483,80	11.045.704,18
Assets	21.912.430,04	21.777.214,70	19.962.046,39	18.150.340,29	14.973.972,23	16.638.402,37
Revenues	26.896.837,40	27.289.661,62	30.676.456,05	27.807.124,61	21.326.017,40	23.711.551,45
Operating profit	2.118.973,83	1.662.564,37	2.348.174,09	835.644,43	144.646,79	547.583,43
Net profit	1.331.782,61	1.099.831,17	1.595.742,71	636.436,47	12.008,59	411.220,38
Number of shares	175.000	175.000	175.000	175.000	175.000	175.000
E.P.S.	7,61	6,28	9,11	3,64	0,07	2,35
Depreciation	1.826.514,44	1.800.769,64	1,742,728.80	1.836.210,39	1.948.532,43	1.543.372,92

Inv. in fixed assets	2.341.138,27	1.606.925,84	2,387,801.35	1.352.229,32	1.025.527,57	1.026.645,11
Employees	398	393	405	406	350	352
Return on capital (NOPLAT$_t$/ (D+E)$_{t-1}$		0,067	0,0952	0,04120	0,0020	0,0386

Table 1 presents data showing a marked cyclical pattern in revenues.

Bearings main customers (auto, aircraft and machine tool industries) are very sensitive to general economic conditions. Booms and recessions have a strong repercussion in POR's activity. Thus, recessions at the beginning of 1990's and 2000 reduced revenues and income. Table 1 also shows a very uneven investment pattern. In some years (e.g. 1986, 1988, 1996) investment in fixed assets jumps from the previous year. The relation between investment and depreciation is also unstable, showing a pattern of investment needs followed by decreasing capital expenditures.

Table 2 reinforces this finding, by presenting annual percent variations in revenues, profits, depreciation and investment. The marked swings in all these variables during a 20 year period is a sign of a company that has no steady pattern of evolution, being exposed to significant changes in its main financial indicators.

And the source of these pronounced swings was not only the world market conditions of its industry. Although bearings are a very cyclical industry, POR was also affected by group decisions. GER could be booking orders, and choose the location of production in other countries, depriving its Portuguese affiliate from a steady flow of activity. Fims in GER group faced double competition: from other groups and from other companies belonging to GER.

Table 3 also shows – for period 1998-2003 – some relevant data. The company greatly reduced its equity and asset base in 2000 and 2001. GER was expanding in other world markets (Asia, Eastern Europe) and the financial structure of POR was also seen as non optimal. Debt was, for the first time, added to the capital structure, and a reduction in equity freed capital that GER could employ elsewhere. The deterioration of the economic outlook in Portugal was also a major factor in a reappraisal of the GER strategy regarding its Portuguese subsidiary. Its return on invested capital was very low in 2002 and 2003.

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A growing atractiveness of other geographic areas coincided with a downturn in the Portuguese economic outlook. This decade has been very rough for industrial subsidiaries located in Portugal, and after a boom folowing EU entry, plant closures began to rise. Easten Europe, in particular, was eagerly exploiting its new acess to EU markets and had a fiscal environment that was very competitive in relation to Portugal.

4.2 Industry trends

Table 4 presents the growth rate of worldwide demand for bearings from 1992-2012.

It can be seen that different world regions present distinct patterns of evolution. China and other Asia/Pacific have the stronger projections, not being severely affected by the 1997-2002 slowdown. Japan was expected to recover after 2002, and the USA show a blip in the 1997-2002 period, recovering thereafter. Western Europe had a very modest growth in 1992-97, recovering thereafter. Latin America had a marked slowdown in 1997-2002, followed by a strong recovery.

Table 4

Worldwide demand bearing (growth rate)

	1992-1997	1997-2002	2002-2007E	2007-2012E
World	2,9 %	2,7 %	5,7 %	5,5 %
North America	5,9 %	1,7 %	4,6 %	4,3 %
USA	5,9 %	0,9 %	4,2 %	4,0 %
Canada & Mexico	5,6 %	6,7 %	6,8 %	5,8 %
Western Europe	1,8 %	3,8 %	4,3 %	4,2 %
Asia/Pacific	3,7 %	2,8 %	7,0 %	6,9 %
Japan	-0,1 %	-0,5 %	3,4 %	3,3 %
China	7,5 %	7,3 %	10,5 %	10,3 %
Other Asic	9,4 %	4,4 %	8,2 %	6,8 %
Other	-2,7 %	2,7 %	6,9 %	6,4 %
Latin America	10,4 %	0,3 %	8,3 %	7,1 %
Eastern Europe	-8,4 %	3,0 %	6,3 %	6,1 %

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Africa / Middle East	6,4 %	5,8 %	6,7 %	6,2 %

Source: The Fredonia Group, Inc, World Bearings, July 2003   E - expected

Table 5 and 6 present some evidence on industry major players and the evolution of the price of bearings.

Table 5

Industry major players (2003) by world market share

	Market share (%)
SKF	13 %
INA-SCHAEFLER	12 %
Timken	10 %
NSK	10 %
NTN	7 %
Koyo	6 %
Other	42 %

Source: The Fredonia Group

Table 6

Evolution of the bearings price in world market

	1992-1997	1997-2002	2002-2007E	2007-2012E
Price change	2,8 %	1,1 %	1,1 %	1,1 %

E - expected

Data regarding price expected changes show that this is a very tough business. Due to highly competitive conditions, the projected expansion in demand for 2002-2012 was not linked to significant changes in prices.

Consumers have great market power, and producers must stay profitable at these price levels. Cost structures and consequent operating leverage are critical factors to be managed.

In the case of POR, its cost structure was absolutely critical to compete for new orders inside the GER group. The company´s management had to find ingenious ways to circunvent some restrictions in rough bargains with trade unions.It must be said that fear of dislocation was an important factor when critical situations were reached.

5. Valuation in the context of a tender offer. Methodology used in DCF approach

In 2001 the original foreigner shareholder "GER" was acquired by a rival-hereafter designated by the fictitious name of "GER_2".

One of the repercussions of this acquisition was that GER2 instructed POR's management to propose a tender offer to the Portuguese minority shareholders to enable GER_2 to have 100% of the equity in POR. As POR was not listed in the Portuguese stock market, no market price was available to base the tender price. A consulting firm was hired to value "POR". Tables 7 and 8 show, respectively, cash flow projections and value.

Table 7

Financial forecasts (2004-2008)

K EUR

	2004	2005	2006	2007	2008
Sales	25.784	26.346	26.937	27.483	28.048
Other revenues	32	-16	21	122	148
Total revenues	25.816	26.330	26.958	27.605	28.196

Cost of row material	10.520	10.670	10.909	11.131	11.416
Gross margin	15.296	15.660	16.048	16.474	16.781
Other services bought	4.797	4.804	4,911	5.011	5.114
Personal costs	7.542	7.693	7.841	7.931	8.093
Taxes	19	19	19	19	19
Other operational costs	5	5	5	5	5
Other revenues	53	53	52	51	50
EBITDA	2.987	3.193	3.325	3.560	3.601
Depreciation	2.149	2.007	1.981	2.049	1.703
EBIT	838	1.186	1.343	1.511	1.898
Financial revenue	5	6	8	8	8
Financial cost	44	57	38	42	53
Financial result	-39	-51	-30	-34	-45
EBT	799	1.135	1.313	1.477	1.853
Tax	237	324	361	406	510
Net income	562	811	952	1.071	1.343

Net income forecasts in table 7 are mainly influenced by two assumptions: 2% annual sales growth, and a constant cost structure based on 1998-2003 averages.

Although common in many valuation reports, there is a striking difference between the steady growth in revenues and profits during the explicit forecasting period – the basis for V_1 as shown in section 3 – and the volatility of revenues and profits presented in tables 1 and 2. Given the expected price evolution presented in table 7 and the expected growth in demand (table 4), POR was expecting, at best, a very modest impact of improved demand. GER_2 had other productions facilities in more cost efficient places, like Asia or Eastern Europe, to assist worldwide demand, and the surge in euro was hurting producers located in the euro zone..

Table 8 presents the result of the valuation exercise.

Table 8

Valuation by the consulting firm

K EUR

	2004	2005	2006	2007	2008
EBIT	838	1.186	1.343	1.511	1.898
- Taxes on EBIT	-248	-339	-369	-416	-522
+ Depreciation	2.149	2.007	1.981	2.049	1.703
Operating cash flow	2.740	2.854	2.955	3.144	3.079
Working capital	253	-49	-252	102	33
Inv. in Fixed Assets	3.157	1.300	1.900	2.400	1.700
Total investment	3.140	1.251	1.648	2.502	1.733
Free-Cash-Flow	-671	1.603	1.307	642	1.346
Cost of capital	9 %	9 %	9 %	9 %	9 %
Discounted cash flow	-615	1.344	1.002	450	864

V_1	3.046
Residual value	
Noplat n+1	1.403
Cost of capital	9,3 %
g	2 %
Residual value in 2008	15.085
V_2	9.671
(V_1+V_2)	12.717
+ Cash	79
V_0	12.638
Financial debt	1.230
Other debt	200
Equity value	11.208

The operating cash flow is derived from table 7. Working capital needs are assumed to be a (constant) percent of sales, based on historical average. Investment in fixed assets was derived from the company business plan submitted to GER_2. It assumes high investment outlays in 2004 and 2007, in accordance with the variable nature of investment in fixed assets shown in tables 1 and 2.

The cost of capital was computed using the WACC formula. The objective capital structure was assumed to be 85 % equity and 15% debt. The cost of equity was calculated using the CAPM and the following parameters were used:

rf: 4,43%

β: 0,91

(rm-rf): 5,78%

Beta was computed using an average of betas from European listed companies of bearings industry. The interest rate on debt was assumed to be per 3,75%. WACC was 9,3%.

POR value in the explicit forecasting period (V_1) is 3.046 M Euros. (see table 8)

To arrive at the residual value, g was assumed to be 2%. Also, using the value driver formula proposed by Copeland et al (2000), stated in equation (2) in section 3 of this paper, it was assumed that ROIC was equal to WACC. All new investments would thus have NPV=0.

Based on these assumptions (see table 8):

$$V_2 = \frac{1403\left(1 - \frac{0,02}{}\right)}{\underline{0,093 - }} = 9.671 \text{ M Euro}$$
$$1,093^5$$

The enterprise value (EV) is 12.638, of which 76,2% come from residual value. As usual, and given the 5 year explicit forecasting period, a very high portion of EV comes from continuing value. Given that the number of outstanding shares were 155.000, and given that equity value was 11.208 M Euro, each share valued at 72,3 €. Regarding this price that was offered to the Portuguese individual shareholders, some additional comments are relevant.

Firstly, as was already noted, the forecasting of revenues for this company is very complex. It is certain – or, at least, highy expectable – that the uneven pattern of sales will repeat itself in the future. The evolution of world demand, the assignment of GER_2 orders within different facilities in 18 countries, and the local conditions of production will certainly originate a volatile scenario for future sales. In this respect, the forecast of future investment needs seems to be more close to the nature of the business than the smoothness underlying future revenues from 2004-2008.

Secondly, the cost of equity capital makes no provision for non systematic risk, and uses a proxy for the systematic risk of the company the beta of listed European bearing firms. POR is not a "true" company. It is just a factory, and does not control a number of essential functions, which are managed by GER_2.

Thirdly, in the residual value it is assumed that in order to induce a perpetual growth of cash flows of 2%, net additional investment (besides substitution investment) is needed, and the net investment will have NPV=0. It is obviously a point open to debate if such a growth rate is consistent with net additional outlays that do not create value.

Finally, the value per share of 72,3 € is marginally above its book value, which was 70 €. Thus, it was implied that the company had almost no goodwill.

The minority shareholders, faced with the 72,3€ offer, all but one sold at the tended price. The one that did not sell went to the court, filling a suit where it was argued that the fair value of POR was 155 € per share. In the suit, the valuation method used was the "adjusted book value". It consisted of taking the book values of fixed assets and revaluate them, especially land, buildings and equipment, and then from the adjusted net asset value deducting liabilities. A legal battle followed.

6.   Court procedures and expert valuation

After receiving the suit file, the judge in charge of the case named three experts. One representing the plaintif, other the defendant, and an independent one, all with technical expertise on valuation issues.

The experts agreed that the comparables method was not an option, given that no truly comparable firms existed. They also agreed that the valuation exercise made by the plaintif – based on bearing companies in the Bombay stock exchange - was not adequate, given the diferences between POR and bearing companies listed in the Indian exchange.

The experts analysed the consultancy valuation report that supported the tendered price and, after some discussion, agreed on the explicit forecast value (V_1). Regarding residual value, it was assumed that a different amount of investment would be needed – thus discarding the percentage represented by g/ROIC used in the consultancy valuation – and that the perpetual growth rate would be 2,75%. The cost of capital was maintained at the same level proposed by the consultancy. This produced a 90,5 € per share valuation. Residual value represented now 80,5% of the total value.

Thus, by accepting V1, by decreasing the investment needed in the perpetual growth period, and by increasing the perpetual rate of growth from 2% to 2,75% the per share value increased from 72,3 € from 90,5 €, which represents a 25,1% jump. And – it must be stressed again – the residual value stands for more than 80% of total value. The going concern asumption is therefore crucial in arriving at this valuation. In the case of POR this is a highly debatable hypothesis.

Only after several working sessions and different forecasts did the experts arrive at some consensus regarding the perpetual growth rate that should be used. The independent expert named by the court had to mediate what were very different initial perspectives between group members. (It was mentioned that as all other shareholders accepted the 72,3 € offer, the fair price was already found…) Even the final value of the perpetual growth rate of 2,75% was the "possible compromise" under the circumstances.

7. Is the going concern a "strong" assumption?

To discuss this point it is of particular interest data from table 9.

Table 9

GER_2 group worldwide

Countries where GER_2 group has subsidiaries (number of subs).	China (3)
	South Korea (3)
	India (2)
	Hungary (1)
	Czech Rep. (1)
	Slovakia (2)
	Romania (1)
	Germany (17)
	Austria (1)
	Spain (1)
	France (1)
	England (2)
	Italy (1)
	Portugal (1)
	Switzerland (1)
	USA (6)
	Canada (1)
	Brazil (2)
New factories and expansion of existing facilities	Romania (2004/05)
	Romania (2005/06)
	Slovakia (2004/05)
	Slovakia (2005/06)
	Slovakia (2006/07)
	Germany (2004/05)

	China (2005/06)
	China (2006/06)
	Hungary (2006/07)
	India (2006/06)

It becomes clear, that, besides the parent company home country, all the new investments were made or were scheduled for Asia and Eastern Europe.

Given that strategic orientation, the continuing operating of POR as a going concern was far from granted. But given the central role of this assumption in both valuations (the consultancy and the experts´) what arguments can be carried out in favour or against it?

Arguing for the assumption of continuing operations are three main reasons. Firstly, there is no intention of liquidation in the consultancy valuation, which was based in POR´s management perspectives. (However, POR´s management had not the ultimate power of determining a liquidation decision...).

Secondly, the investment effort in the period 2004-2008 does not easily justify an intention of liquidation, at least in the short-medium term.

Thirdly, the management of POR (and the management of GER2) both read and validated the going concern assumption implict in the consultancy valuation.

Arguing for not assuming the going concern hypothesys and lowering the terminal value accordingly, are the following motives. First, the fact the GER2 could, at any point, decide to close POR and finish its operations in Portugal. A multinational company such as GER2 has a strategic scope that renders quite easy the sudden dislocation of a production facility.

Second, POR was located in a low growth country, with several macroeconomic and microeconomic problems. POR management had a very hard time "selling" GER2 executives the rationale for continuing in Portugal.

Finally, in the past, when salaries and other working conditions were negotiated, GER2 executives had issued very real threats of dislocation if labour law rigidities were not overcome in aspects like extra-time, shifts of production and other relevant issues to enhance productivity in POR.

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In my view, the only way that POR could fight for its existence in Portugal was to be always in the group of the best units among GER2 group. Benchmarking is thus crucial to POR management, to show up with excelent results that can convince GER2 that the Portuguese unit can be preserved.

8. Conclusion

In times of accelerated globalization, the dislocation of industrial companies is a scenario every manager must face.

In this paper I exemplified the questions arised when a valuation of an industrial subsidiary rests on the going concern hypothesis in the face of strong forces arguing for dislocation.

It was shown that a slight variation in the growth rate in the terminal value period has a profound effect in the price per share, and that given the challenges facing the company under valuation, the scenario of going concern is far from assured.

When courts have to decide on such delicate matters, expert opinion is valuable, but in such complex cases, minor changes in the assumptions can produce significant variation in outcomes.

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