EUROPEAN BUSINESS SCHOOL

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Case Study

FAG Kugelfischer

Lecture in Corporate Finance – Valuation and Restructuring

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List of Abbreviations

COGS	Cost of Goods Sold
DKFL	Deutsche Kugellagerfabriken Leipzig
DM	Deutsche Mark
EBIT	Earnings before Interest and Tax
EBITDA	Earnings before Interest, Tax, Depreciation and Amortisation
EVA	Economic Value Added
FAG	Fischer Aktiengesellschaft
GAAP	Generally Accepted Accounting Principles
ROE	Return on Equity
ROI	Return on Investment
SEC	Securities and Exchange Commission
SPV	Special Purpose Vehicle
US	United States (here: United States of America)

1 The Economic and Competitive Environment of Kugelfischer

1.1 The Economical Environment

In this chapter a short summary of the competitive as well as economical situation of *Kugelfischer* in the early 1990s will be given. In order to do so it is necessary to analyze Kugelfischer's business environment with respect to historical developments, changes in the relevant markets, and technological progress.

Like most parts of the industrialized world, FAG Kugelfischer was also greatly affected by the fall of the Berlin Wall and the end of the cold war. Shortly after the reunification in 1990, the economical situation in Germany improved due to the *unification boost*. Since ball bearings are used in many if not most advanced machinery, they are vital for the most important sectors of the German economy, such as the mechanical engineering industry and automobile industry. During the unification boost the demand for ball bearings by these industries increased immensely. This effect was even intensified by the fact that Kugelfischer's costumers typically bought more bearings then they actually needed in order to build up their stocks.

However, shortly after these positive developments took place, the economic situation deteriorated. In order to finance costly infrastructure projects in Eastern Germany taxes were raised. The resulting loss of spendable income led to increasing dissatisfaction of the workforce. In 1992, the IG Metall, the largest German private-sector union, declared strikes in order to achieve a drastic increase in wages.

Additionally, many companies in the former socialist part of Germany had to foreclose since they were not able to compete in the new business environment. Therefore, unemployment rates went up drastically which posed an additional burden on both the German government and the economy.

These developments led to a general slowdown causing Kugelfischer's costumers to demand fewer ball bearings and even cancel previous orders; the ball bearing industry was hit by the worst recession in fifty years.

1.2 The Competitive Environment

Kugelfischer has a unique standing in the market due to its far reaching historical roots and its size. In the early 90s, the company was the largest manufacturer for ball bearings in Germany, and the second largest in Europe. Its beginnings already lay more than a

century in the past. Therefore, the name Kugelfischer stood for a traditional and down-to-earth business among its costumers.

Over the years of its existence, Kugelfischer managed it to sustain its technological superiority over its competitors. It was well known for the quality of its products and the large variety of different bearings it offered. Additionally, the costumers valued the services Kugelfischer offered them upon purchase of the actual product, e.g. quick delivery, quality control, technical assistance, and customized product design. Sophisticated R&D activity and the highly skilled German workforce were vital for this competitive advantage. However, the quality standards used in the production process and the very high labour costs in Germany made the bearings more expansive then comparable products of Kugelfischer's competitors.

The world bearings market was dominated by a relatively small number of large competitors. The Swedish producer SKF served approximately 18% of the world market, the two Japanese companies NSK and NTN each had a share of 10% to 11% followed by Kugelfischer with 9%. All competitors were multinational organizations although Kugelfischer had an especially strong standing in Germany and Europe as mentioned before.

In the early 90s the bearings market was more or less satirized and a low growth business. Therefore, many producers tried to gain additional sales potential by entering emerging markets in the quickly growing Asian economy. The fall of the Berlin wall opened additional possibilities for investments in the former German Democratic Republic. Kugelfischer, for example, acquired East Germany's largest ball bearing producer DKFL for DM 69 million.

2 Analysis of Kugelfischer's Performance

In order to evaluate whether a restructuring of FAG Kugelfischer is necessary, the company's performance from 1988 to 1992 has to be analyzed. Selected ratios are used in order to shed light on both the operative and the financial situation of Kugelfischer as compared to its competitors. The most significant results of this analysis will be introduced in this chapter. However, the actions necessary to improve performance will be

discussed in the following chapter. A complete list of the performance data and all ratios calculated can be found in appendix I-III.

Taking a look at Kugelfischer's profitability, one can see a peak in both EBIT and EBITDA in 1989 and 1990 respectively. This is mainly due to the unification boom discussed as in chapter 1.1. However, in 1992 the EBITDA dropped to 53% and the EBIT even to 29% compared to the peak in 1989/1990. When looking at the interest coverage rate one can see that the EBIT is so low in 1991 and 1992 that it cannot cover the interest expenses. Reasons for this development can be found on both the income as well as the expense side.

The development of EBITDA is mirrored by sales peaking in 1990 and decreasing by around 12% at the end of 1992. Kugelfischer's competitors also account for declining sales in 1992. This indicates a general downturn in the overall industry rather than managerial errors of Kugelfischer. Therefore, it will be difficult to improve profitability by working with the variables responsible for the number of sales. When looking at the companies cost structure, however, the situation is different.

Personnel expenses are by far the largest cost pool. They increase steadily both as an absolute number and as related to total costs. In 1992 personal expenses are around 16% higher than in 1988; labour costs as a percentage of total costs have increased from 48.8% to 52.43%. This can partly be explained by a significant increase in the number of employees, which peaked in 1991. Additionally, in 1992 wages had to be increased by 5.4% due to a strike of the metalworkers' union. With the larger number of workers, not only the direct labour costs are increasing but also pension plans pose additional trouble for Kugelfischer. When looking at the pension burden ratio, which expresses pension pro-visions in relation to equity, a clear trend can be observed; while the pension burden was at around 86% in 1988 it had grown to around 94% in 1992.

Especially when Kugelfischer is compared to its competitors, it becomes clear that the number of employees in relation to sales is too high. For example, in 1992 SKF has around twice the sales of Kugelfischer but only around 50% more employees.

Another problem of the operating activity is the high cash conversion cycle, which is a sign for poor liquidity management. Since the receivables conversion period is in gen-

eral lower than the payables conversion period, the problem has to be tracked back to the relatively long inventory conversion rate of 175 days in 1992 (mean: 159 days).

Despite from operating costs, problematic tendencies can be observed when looking at figures that reflect the financial activity of FAG Kugelfischer. Over the years expenditures from interest payments have increased significantly by 217%. This can mainly be explained by the fact that the company took out additional bank loans. In 1988, Kugelfischer owed its banks merely DM 667 million compared to around DM 1.8 billion in 1992; an increase of more than 277%.

This capital structure is too highly leveraged since there is simply not enough income left to account for all the interest payments. When looking at *return on equity*, this becomes clear. The positive effects of the leverage effect that actually increase return on equity are outweighed by high interest expenses. In only three years, a return on equity of 18.76% turned into a loss on equity of 13.31%.

Another trend in Kugelfischer's financing activity that might pose dangers in the future can be observed when looking at the term congruency ratio. It can be seen that a drastic change takes place in only one year. In 1992 around 30% less of Kugelfischer's long-term assets are financed by long-term capital than in 1991. The resulting ratio of around 1.1 is not yet problematic as such. However, should this trend continue, the company will start financing fixed assets by short-term credits soon.

It has been shown in this chapter that there are a number of shortcomings concerning Kugelfischer's operational and financing structure. There is a rational need for restructuring the company. The means necessary to do so will be presented in the following chapter.

3 Restructuring Measures

3.1 Ability to Restructure

The ROI of FAG Kugelfischer dropped after 1989 from 6.5% to about 1.9%. Since 1991 the EBIT is insufficient to satisfy the interest burden, leading to a, also due to the increased leverage of the company, strong negative ROE. Nevertheless, the company still yields a positive operating profit even though the sales volume dropped to a level comparable to prior the acquisition of DKFL. The EBITDA is also still sufficient to

cover interest expenses, which means cash flows should still be positive, even though it dramatically suffered (mostly due to the interest burden). The company still holds cash or equivalent reserves amounting to around DM 60 million. The debt/equity ratio increased to 429% pushing the equity ratio to 18% in 1992. Kugelfischer was able to report a positive net income in 1992 due to the complete release of its special reserves, which is not possible in the following year. From a purely operational point of view the company could still be able to survive, even given the hard economic downturn. If the amount of sales is expected to remain constant, a reduction in expenses of around DM 115 million is necessary to achieve a positive ROE. Considered that this is a fraction of around 5% of the COGS, it should be possible to achieve. Further, the leverage needs to be reduced to prepare for further volatility of the market. The usual equity base for the industry lies here at 39%.

3.2 Labour Cost Cutting to Increase Operating Profit

The profit margin of Kugelfischer dropped from 25% in 1988 to 15.2% in 1992. While material costs decreased, labour costs increased. Labour costs are the main cost driver, accounting for more than 50% of the COGS. While the sales per employee dropped to DM 110,000 the cost per employee has risen to an average of DM 60,000 in 1992. The average sales per employee of Kugelfisher's competitors are 39% to 364% higher compared to Kugelfischer. As to this, the average margin in the industry is around 25%. Therefore, a heavy layoff program is inevitable to secure the company's survival. The company clearly suffers excess capacities of about 2000 employees. This becomes obvious as the company was able to satisfy a even higher demand in 1989 than today with approximately 2000 employees less. Taking competitors into account, there should even be more potential to reduce the number of employees. Even without a change in wages this reduction of the number of employees by 2000 would reduce labour cost at around DM 122 million. The layoffs can be economically justified looking at the downturn of sales and the excess capacity the company is facing. If it were assumed that an effort of DM 10,000 per employee is taken to aid with job finding or paid as settlement, the benefits would still amount to DM 102 million. Here it is crucial to identify those employees for layoff, who do not work in a key position, but whose work can easily be substituted by the remaining employees.

A reduction of general wages is difficult to achieve as they are negotiated collectively and nationwide, but voluntary additional payments like Christmas bonuses could be

suspended for the time of economic struggle. It will be tough to communicate this to the employees, but still possible to justify, concerning the struggle. The Christmas bonuses amounted to about DM 1,550 per employee or 7.8% of the base salary. A suspension of those payments in addition to the layoffs would lead to a further cost reduction of around DM 47 million.

Those two measures would lead to a total cost reduction of DM 149 million, which would already be sufficient to bring the EBIT to a level where it is able to satisfy the interest burden and generate a ROE of 3.85%. But this only holds true if sales don't drop further, so to ensure the survival of Kugelfischer, further restructuring concerning the financial stability has to be undertaken.

3.3 Improvement of Cash Conversion Cycle to Reduce Debt Burden

During the analysis of Kugelfischer's financial situation it becomes obvious, that Kugelfischer has always suffered from a bad cash conversion cycle. It grew from 128 to 171 days in 1992. The problem does not lie within the payment morale, as creditor days (68) still exceed debtor days (64). The problem is found in the stock keeping. The inventory conversion grew from 138 days to 175 days. Compared to the industry this number is dramatically high, as the average for the industry lies at 95 days, with a minimum of only 67 days. To achieve a conversion equal to the industry average, the stock has to be reduced by 45%, which equals a reduction of DM 778 million worth of inventory. The freed capital could be used to repay debt and thus reduce the interest expenses. If this is achieved the company could save DM 76.4 million of interest expenses, given an average interest rate of 9.8% for Kugelfischer. Further, the Equity ratio would be pushed to 21%. To achieve this goal the company should focus more on just-in-time production and, if possible, move the warehousing either to its suppliers or its customers. Kugelfischer should negotiate fast delivery with the suppliers on the one hand and longer advanced ordering with its customers on the other hand.

3.4 Financial Restructuring to Lower Average Interest

Kugelfischer sources 60% of its capital from interest bearing debt. The average interest rate amounts to 9.8%, which seems very high. This might mostly be due to the fact that 74% of Kugefischer's interest bearing debt is short-term debt. The fixed assets are barely financed by long-term capital. So efforts should be taken to repay short-term interest bearing liabilities and look for other sources of financing.

In a first step, the financial assets should be checked for liquidation possibilities and marketable securities should be sold off to repay short-term interest bearing debt. The cash position should not be touched to ensure liquidity. Bank negotiations should take place to transfer some of the short-term liabilities into long-term debt with lower interest rates. Given the economic struggle of the company this might not be easy. An extension of customer advances and payables also seems not feasible, as they might be aware of the default risk of the company. Issuing further bonds is also not realistic as the necessary risk premium (interest) would be too high.

As Kugelfisher has access to the equity market, a capital increase via issuing new shares should be considered. The company culture lays emphasis on a patriarchal private control, so additional non-voting stock would be the only option. The preferred shares would provide a source of fresh capital, without the threat of control loss or hostile takeovers. The minimum dividend for preferred stocks of DM 2 equals an interest of 4% on the outstanding shares in 1992. If both the turnaround potential of the company were successfully communicated to the investors and an additional 1 million preferred shares were successfully placed in the market for an estimated price of estimated DM 60 (stock price end 1992 minus 12% discount), DM 60 million could be raised. If this money were used to repay short-term debt, this would lead to a net reduction of DM 3.8 million of interest expenses (given the minimum dividend of DM 2 per share). Considering the efforts needed to successfully sell the shares, this option is not very attractive.

3.5 Sale of Land and Buildings to Reduce Debt Burden

Kugelfischer almost doubled the value of its land and buildings from 1988 to 1992. In the newly acquired real estate the potential of hidden reserves is relatively low, but given the long history of the company, older buildings could comprise strong hidden reserves. Those reserves could be converted into money by selling these assets and the capital freed could be used to repay short-term interest bearing debt and thus reduce the interest burden. Buildings needed for production could then be leased back and in times of free cash flows be reacquired. Possibly some production facilities could even be closed down and sold off completely, concentrating production in one geographic region. Finally, it is possible that the position includes several assets not used for production but financed by expensive debt. These should instantly be identified and sold.

If Kugelfischer was able to sell half of its land and buildings, DM 435.5 million of cash (plus hidden reserves) could be generated. The reduction in interest expenses through the repayment of debt would result in DM 42 million (without reserves) and the equity base could be expanded to 21%, ceteris paribus. Kugelfischer's house banks could potentially be convinced to acquire the buildings, which are needed in production through a SPV and lease them back to Kugelfischer, providing the option of reacquisition in times of free cash flows.

3.6 Pensions

In a last step the re-organization of pension consents should be considered. In 1992, the pension burden already amounted to 93% of the equity. It should be checked whether it is possible and effective (e.g. tax perspective) to transfer the unfunded defined benefit plan to an externally funded defined contribution plan. This should only be considered in the long run, as it negatively affects cash flows, which are precious at this point in time. However, the danger arises that in the long run the company might be crushed under its pension obligations.

3.7 Restructuring Measures Summary

The following table now sums up the measures presented respecting the effort needed and their effect:

	Cost reduction in million DM	**Remarks**
1 Reduction of workforce	102	Settlement cost of DM 10.000 per employee possibly insufficient. Careful selection necessary.
2 Cutting of bonus payments	47	Bad influence on employee motivation.
3 Reduction of Inventory	76	Negotiations with suppliers and customers. Optimization of operational processes needed.
4 Conversion of short to long term debt	Na	Depends on banks. In times of economic struggle always difficult to find new capital sources.
5 Sale of land and buildings	42	High potential. Depends on Bank cooperation or market.
	Total: 267	

With all these measures set in place, the operational result would increase to DM 205.3 million and the EBIT to DM 238.5 million, which would lead to a interest coverage of 1.85. The ROE would then yield 12.6%. The equity ratio would also improve to 25.5%, but is still below industry average. In a worst case, the sales could drop by an additional DM 100 million (3%) in the following year, with the ROE still being positive.

4 Main Impediments to a Shareholder-Oriented Restructuring

4.1 Preliminary Considerations

Generally, the question concerning the main impediments to introducing a 'US-style' shareholder-oriented restructuring in Germany can be answered with respect to the particular characteristics of the German corporate governance system, which can be considered being relatively different to the US system. Therefore, the central elements of both the US and German corporate governance system will be discussed firstly. Then, the differences derived from this comparison will be taken into consideration with regards to the Kugelfischer restructuring case.

Many factors based on cultural, historical, economical, and legal dimensions, for example, can be taken into account, which shape the character of a corporate governance system. Accordingly, key differences can be found comparing the US (*Anglo-Saxon*) and the German (*Continental Europe*) corporate governance system. Thus, the latter can be regarded as being rather consensus-driven with a strong orientation towards banks and a reliance on debt. In contrast to that, the US or Anglo-Saxon system can be considered as a relatively competition-driven model with a sound market orientation and a reliance on equity. Thus, two comparatively diverse market models are confronted within this perspective: the *liberal market economy* (US) on the one side and the *co-ordinated market economy* (Germany) on the other side.

4.2 The key elements of the US Corporate Governance System

Beginning with the structure of the US system, the long tradition of US corporations influences the role of financial markets within this economic model that generates highly developed and liquid capital markets. Hence, dynamic market forces strategically shape the economic decision-making process of the market participants. The Anglo-Saxon system with its highly competitive attribute requires from its market participating companies solutions or strategies to gain a clear competitive advantage for both attract-

ing capital investors and meeting their expectations concerning a profitable return on investment. Therefore, it can be argued that this focus on the interests of shareholders (*shareholder value primacy*) leads to a specific decision-making process, which produces the potential to directly influence a company's financial statement and profitability (Mintz, 2006, p. 24-28). Thus, the most important criterion measuring the performance of a company's management in this system is the achievement of profitable financial results to satisfy the interests of shareholders.

A study by La Porta, Lopez-De-Silanes, and Shleifer, which was conducted during the time of the Kugelfischer case, demonstrates that approximately 80% of ownership of large publicly traded companies within the United States was highly dispersed (La Porta, Lopez-De-Silanes, & Shleifer, 1999, p. 496). The safeguard of shareholders' rights and highly developed capital markets positively influence this excessive free float, facilitating investors the possibility to flexibly buy and sell shares. Transaction costs can be considered as being relatively low due to the above-mentioned quality of capital markets and standards of provided information, which are highly regulated by the *Securities and Exchange Commission* (SEC). These information policies, based on US accounting standards (*US GAAP*), require an exceptionally detailed and transparent company report, wherefrom the *economic value added* (EVA) in relation to shareholders' equity, for example, can be derived. Consequently, it can be discussed that economically rational shareholders sell their shares if they are dissatisfied with a management's performance, reallocating their capital concerning a better return on investment (e*xit-option*).

Therefore, the US corporate governance system can be characterised as an external and market-oriented system within the shareholder value approach. The external equity financing throughout liquid and highly developed capital markets maintains a significant part in US corporate finance, which is demonstrated in the highly distributed ownership of shares. Accordingly, the *Board* of a corporation within its strong position as the organizational unity of management and control (*one-tier system*) focuses strategically on the concerns of mainly one interest group – primarily on shareholders as equity investors (Witt, 2003, p. 17; Rappaport, 1981, p. 139-149).

4.3 The key elements of the German Corporate Governance System

In contrast to that, the German corporate governance system can be characterised by an orientation towards several specific, firm-related interest groups (*interest pluralism*). Within this *stakeholder value* approach and the co-operative capitalism model (*'Rhine Capitalism'*) strategically long-term relationships with suppliers, workers, investors, and banks as debt financiers, for example, are in a company's centre of attention (Sick, 2008, p. 19-21). Thus, it can be discussed that the ownership structure of a company is more concentrated within strong blockholders, debt liabilities are contractually rather long-term, and capital markets are relatively less developed in comparison to the US. In particular, the German law reinforces this corporate governance system as a strict regulative mechanism. The approach of this legal regulation attempts to secure the interests of the different stakeholders within their functional interdependencies.

For example, the rights of workers are firmly protected. Thus, one-third to one-half of the seats, depending on a company's size, of the *Supervisory Board* of a publicly listed corporation have to be given to representatives of the employees throughout the German *Co-determination Act*. Furthermore, the German company law, particularly the law for stock corporations, requires the separation of a company's management and control. Therefore, this organisational dualism (*two-tier system*) is characterised by the Supervisory Board as the institutional monitoring and controlling element on the one side and the *Management Board* with the managerial responsibility on the other side (Sick, 2008, p. 98-101). The stockholders' *General Meeting* elects the members (except the ones required by the Co-determination Act) of the Supervisory Board, who then appoint the members of the Management Board.

Hence, a variety of different concerns flow into the managerial decision-making process, which can be discussed as quite political and consensus driven. Specifically the German *Stock Corporation Act* requires a consensus for certain transactions or other important contracts not only within the Supervisory Board but also within the General Meeting. The strong position of banks, due to the possibility to vote for their costumers when having a contractual right from these (depot voting right), as well as the concentration of ownership demonstrate the complexity of this decision-making process (Witt, 2003, p. 80). In addition, it is not unusual within the dualism structure that the members of the Supervisory Board, which are elected by the General Meeting based on a normal majority (50%), are very diverse concerning their group orientation (Sick, 2008, p. 37-

38). Accordingly, the stakeholder value approach can be considered being at its peak because the members can be related to business professionals, banks, suppliers, costumers, workers, politicians and other individuals, which all might follow a diverse company objective influencing the control over a company's management.

Thus, the German corporate governance system can be seen as a co-operative insider system within the stakeholder value approach, which rather focuses on strategic management processes. This qualitative interest group orientation shows the importance of a specific network variety within the company, whereby their concerns are regulated and secured in detail by German law. With respect to this, the stakeholders are required to obtain a certain *voice-option* determining their commercial influence. Moreover, German corporate finance is mainly shaped by both the traditional debt finance by banks and strategically long-term investments by shareholders (concentrated ownership).

4.4 The Impact on the Kugelfischer Restructuring Case

The results derived from this comparison explain that the German context for restructuring can be considered as being influenced by the characteristics of its corporate governance system, which impedes a precise 'US-style' shareholder-oriented restructuring. In accordance to the Kugelfischer case such a shareholder-oriented restructuring can be seen as non-system conform venture. Therefore, several matters for the Kugelfischer employees, shareholders, the Schäfer family, Neukirchen, as well as the public as well can be taken into account.

To start with employees, the German laws not only guideline their protection but also state that they have the right to be heard in case of a restructuring. Hence, Kugelfischer has the obligation to negotiate a 'social welfare plan' with the *Workers' Council* regarding severance payments for people being laid off and assistance in finding new employment. Moreover, the German labour market can be viewed as inflexible because employees are generally firm-specifically educated and skilled. These costs have to be taken into account for a potential restructuring plan in addition to possible bargaining costs, which might in total reduce a potential return on investment for shareholders. Furthermore, the members of the Supervisory Board representing the work force have a right to participate in certain important decision-making processes due to co-determination.

The German stakeholder value approach generates regulation and accounting standards different from a pure shareholder value approach, especially when looking at it from the classical principal-agent problem perspective based on the separation of ownership and control. Thus, the regulative mechanisms concentrate on a reduction of possible information asymmetries within the scope of a qualitative interest group orientation. The financial statements of a corporation are structured to show a long-term view of a company's operation, for example, to secure confidence within debt financiers and long-term investors. Hence, to refinancing or restructuring Kugelfischer in terms of a market-oriented approach might produce higher costs to provide specifically detailed accounting information, such as for short-term investors realizing an exit-strategy. Moreover, the capital markets in Germany are not as developed as they are in the US, which might also result in higher transaction costs.

Furthermore, the German two-tier system demonstrates the complexity in the corporate decision-making process, which depends on diverse variables. The strong influence of banks, blockholders, employees, the public as well as other related stakeholders show the politically democratic process of reaching a consensus. Thus, firm-related networks and a company's reputation, particularly in family businesses, can be considered as essential factors with respect to the restructuring venture. Especially the last will of Georg Schäfer, which became the maxim of all his heirs and the basis for the company's values, emphasizes Kugelfischer's determination to both secure all corporate employees including their families and stand up for the German community. The new chairman of Kugelfischer's Supervisory Board Kajo Neukirchen, therefore, has to take each and every one of the above-mentioned elements into consideration with respect to achieving an efficient and sustainable restructuring to restore the company's profitability and growth.

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Appendix

I Refined Balance Sheet

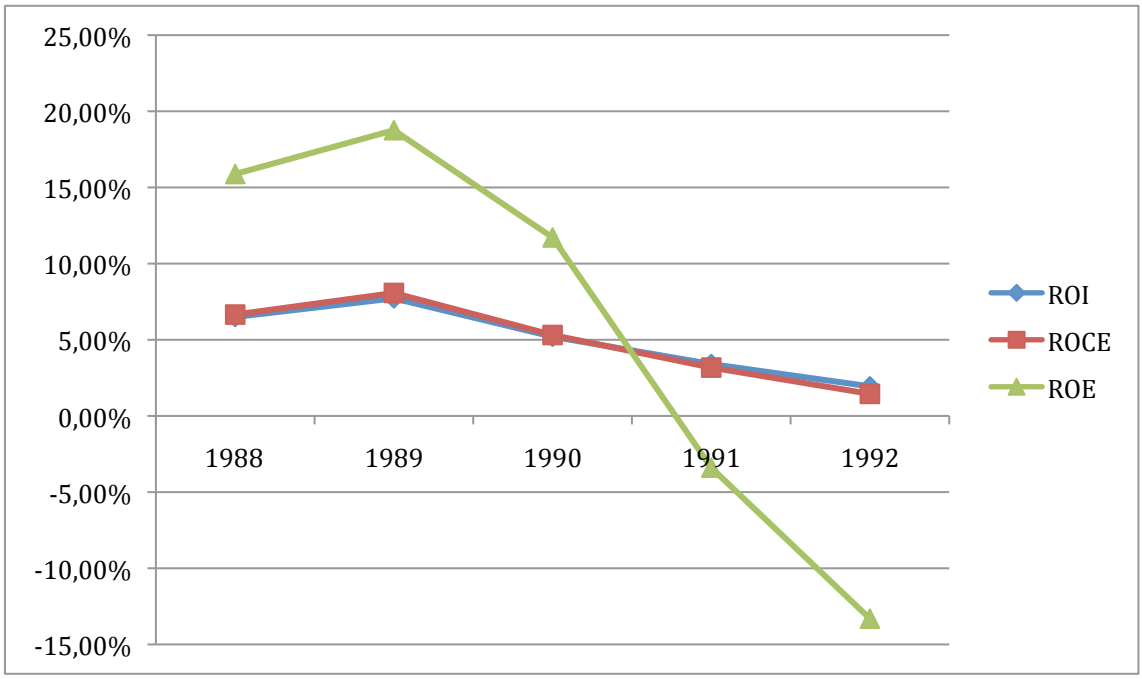
	1988	1989	1990	1991	1992
Working Capital	1951,4	2020	2428,1	2424,9	1943,4
Current Assets	1946,1	2004,6	2407,6	2407,2	1946,3
Capital (used operationally)	2972,2	3209,8	4106,6	4262,1	3884,6
Total Capital	3418,2	3903,4	5146,2	4954,8	4596,2
Fixed Assets	1058,8	1231,5	1922,2	1878,5	1972
Floating Assets	2196,7	2486,9	3038,8	2908,6	2545,6
Total Liabilities	2293,7	2593,6	3615,4	3791,3	3734,5
Total Interest Bearing (ib) Debt	899,3	986,7	1953,7	2146,9	2097
Total Short Term ib. Debt	NA	NA	NA	1548	1621
Long Term Debt	NA	NA	NA	598,9	476
Number of Employees	30218	30823	35535	37746	32294
Market Value Equity	NA	NA	NA	1232,6	971,14

II Financial Ratios

	1988	1989	1990	1991	1992
Financial Situation					
Capital tie up	86,95%	82,23%	79,80%	86,02%	84,52%
Fixed tie up	30,98%	31,55%	37,35%	37,91%	42,91%
Floating tie up	64,26%	63,71%	59,05%	58,70%	55,38%
Total asset Productivity	84,87%	82,41%	101,45%	109,70%	109,03%
Inventory Reach 1 [Days]	459	391	425	539	572
Inventory Reach 2 [Days]	145	138	166	171	175
Debtor Payment [Days]	65	64	64	67	64
Creditor Payment [Days]	70	74	66	57	68
Cash conversion cycle	140	128	165	182	171
Debt/Equity	229,97%	224,01%	319,66%	415,39%	429,94%
Equity Ratio	29,05%	29,34%	21,81%	18,28%	18,84%
Pension Burdon*	0,8594	0,7367	0,7986	0,7203	0,9361
Term congruency		Long term cap / Long term assets		1,427653948	1,09183922
Profit Situation					
Sales/Employee	115891	126370	113916	102930	110324
Income/Employee	62489	67281	62375	56872	62702
Cost/Employee	55943	58875	56235	53288	60959
Material cost	31,97%	34,07%	33,18%	30,45%	29,97%
Labour cost	48,80%	46,32%	46,55%	49,33%	52,43%

Margin (Sales/costs)	25,17%	23,68%	18,28%	19,43%	15,16%
ROI	6,50%	7,72%	5,20%	3,41%	1,94%
ROCE	6,66%	8,07%	5,31%	3,17%	1,45%
ROE	15,88%	18,76%	11,72%	-3,40%	-13,31%
EBIT	223,10	304,60	269,80	170,10	89,50
EBITDA	426,60	537,20	554,90	499,90	294,80
Interest coverage (EBITDA)	6,59	6,15	4,04	2,49	1,44
Interest coverage (EBIT)	3,45	3,49	1,97	0,85	0,44

* first 3 with BV equity



III Restructuring Effects

Sales	3562,8				3562,8
Increase in Inventories	8,4				8,4
Increase in PPnE	67				67
Other Opearting Income	172,5				172,5
Output	3810,7				3810,7
Cost of Materials	1125,2				1125,2
		Layoffs	Social Plan	Extra Pay-ments	
Personel Expenses	1968,6	-122	20	-47	1819,6
Depreciation and Amortization	205,3				205,3
Other Operating Expenses	455,3				455,3
Operating Income	56,3				205,3
Equity Income	0				0
Income from Investments and loans	34,7				34,7
Writedown of Financial Assets	1,5				1,5
		Inventory Re-duction	Sale of Land and Buil-dings		
Interest Expenses	205,1	-76,40	-42,74		128,7
Result from Ordinary Activi-ties	-115,6				109,8
Extraordinary Income	226,6				
Extraordinary Expense	61,7				
Taxes on Income	9,9				
Other Taxes	23,9				23,9
Net Income	15,5				85,9

Gross Cash Flow	47	47
EBIT	89,5	238,50
EBITDA	294,8	443,8
ROE	-13,31%	12,64%
Interest Coverage	0,436	1,853

Inventory		Target Days
1705,8	-778,50	95
	-45,64%	

Interest rate

9,81% int. exp. / total int. Debt

Equity	Total Assets	Post Buildings	Post Inventory
868,6	4610,1	4174,6	3396,1
	18,84%	20,81%	25,58%