Executive MBA
Mergers & Acquisitions

Financials & Acquisition Finance of Chemical Stock Corporations in the Crisis 2008/09

A Master's Thesis submitted for the degree of
"Master of Business Administration"

supervised by
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Vienna, May 2010

Affidavit

I, **Michael Socrates Belegratis**, hereby declare

1. that I am the sole author of the present Master's Thesis, "**Financials & Acquisition Finance of Chemical Stock Corporations in the Crisis 2008/09**", 109 pages, bound, and that I have not used any source or tool other than those referenced or any other illicit aid or tool, and
2. that I have not prior to this date submitted this Master's Thesis as an examination paper in any form in Austria or abroad.

Vienna, 23 May 2010

Signature

Acknowledgement

My MBA and in particular the thesis would not have been possible without the strong support and understanding of the time constraints of my whole family.

I would like to thank especially Susanne – she is an incredible wife, a loving mother and was an inspiration throughout the whole MBA, and our three children Irini, Sonja & Constantin who accepted that I "disappeared" for most of the evenings and weekends instead of enjoying the time together.

I gratefully acknowledge the guidance and support provided by my supervisor Dr. Nina Gjukez in defining the topic, preparing the research and completing the thesis.

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Abbreviations

$	U.S. Dollar
€	Euro
c€	Euro Cent
£	British Pounds
CHF	Swiss Franc
CoGS	Costs of Goods Sold
Air Liquide	L'Air Liquide S.A.
Akzo Nobel	Akzo Nobel N.V.
BASF	BASF SE
Bayer	Bayer AG
CAD$	Canadian Dollars
CAPEX	Capital Expenditure
CEO	Chief Executive Officer
Ciba	Ciba Specialty Chemicals
Dow	The Dow Chemical Company
DSM	Koninklijke DSM N.V.
Du Pont	E.I. Du Pont De Nemours & Co
EBIT	Earnings before Interest and Taxes
e.g.	for example
EMTN	European Medium Term Note program
EU	European Union
FCF	Free Cash Flow
GDP	Gross domestic product
Givaudan	Givaudan AG
ICB	Industry Classification Benchmark
Johnson Matthey	Johnson Matthey Public Limited Company
K+S	K+S Aktiengesellschaft
LANXESS	LANXESS AG
LDPE	Low-density polyethylene
LLDPE	Linear low-density polyethylene
M&A	Mergers and acquisitions
Microsoft	Microsoft®

Microsoft Excel	Microsoft® Excel®
NACE	“Nomenclature statistique des activités économiques dans la Communauté européenne”, Statistical Classification of Economic Activities in the European Community
NBP	National Balancing Point
NOK	Norwegian Krone
NWC	Net working capital
PET	Polyethylene terphthalate
PotashCorp	Potash Corporation of Saskatchewan Inc.
Praxair	Praxair Incorporated
Q	Quarter, used e.g. as Q2 for Quarter 2
REACH	REACH Regulation (EC) No 1907/2006
SEC	U.S. Securities and Exchange Commission
SEC Form 10-K	Annual report pursuant to section 13 and 15(d)
SEC Form 10-Q	Quarterly report filed pursuant to sections 13 or 15(d)
SEC Form 8-K	Interim report announcing material events or corporate changes that occur between 10-Q quarterly reports
SEC Form FWP	Filing under Securities Act Rules 163/433 of free writing prospectuses
SG&A	Sales, General and Administration costs
Silvinit	ОАО Сильвинит
Solvay	Solvay SA
Syngenta	Syngenta AG
Umicore	Umicore S.A.
Uralkali	JSC Uralkali[1], also found as Uralkaliy[2]
U.S.	United States
Umicore	Umicore SA
Wacker Chemie	Wacker Chemie AG
Yara	Yara International ASA

[1] Source: Uralkali Annual Report 2008, page 48

[2] Source: Thomson Reuters, “Company Overview” Uralkaliy search 2009 12 22

Definitions

Cash flow from financing activities

Financing activities include the inflow of cash from investors such as banks and shareholders, as well as the outflow of cash to shareholders as dividends as the company generates income. Other activities, which influence the long-term liabilities and equity of the company, are also listed in the financing activities section of the cash flow statement.

Cash flow from investing activities

Investing activities comprise of the additions to fixed assets (so-called "capital expenditures"), the addition or disposal of assets like property, building, equipment but also e.g. marketable securities through transactions[3].

Capital expenditure[4] (CAPEX) is the outlay of money to acquire or improve land, buildings and machineries for creating future benefits. It includes the acquisition of fixed assets as well as the investments in existing ones, e.g. for maintenance, improvements or new business opportunities.

"Depreciation" describes the spread of the cost of an asset over several years. Assuming that the timeframe is similar to the asset's real lifetime, then new investments ("capital expenditures") in fixed assets should equal them.

Cash flow from operating activities

"Net cash flow from operating activities" refers to the cash amount the company generates from operating activities and explains it in a tremendous detail.

It is derived by starting with the "net income" (from income statement) and adding first back non-cash items like "depreciation, depletion and amortisation" and "deferred income taxes" and then adding to these "funds from operations" the decline (increase) in receivables, decline (increase) in inventories and the decline (increase) in "other assets or liabilities".

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[3] Source: H Grünberger, Introduction to Accounting and Financial Reporting, Linde 2008, page 197

[4] Source: J Downes and J E Goodman, Dictionary of Finance and Investment Terms, Seventh Edition, page 94

Current ratio[5]

Measure of short-term debt-paying ability

Current ratio = Current assets / Current liabilities

Debt-to-equity ratio[6]

Total liabilities divided by total shareholders' equity

As a long-term solvency ratio it expresses the extent owner's equity can cushion creditors' claims in the case of liquidation.

Long-term liabilities divided by total shareholders' equity

Measure of leverage; the use of borrowed money to enhance the return on owner's equity

Inventory turnover[7]

Measure of relative size of inventories

Inventory turnover = Net sales / Average of inventories

The presented "Inventory turnover" figures of a period are calculated as "Net sales" of the period divided by the average value of the "inventories" of this particular period and the previous one. The figure depends (for the revenues) on the length of the period and thus is a relative value for the particular company's ratio.

Operating income and EBIT

"Earnings before interest and taxes" (EBIT) are a measure of the company's profitability, excluding interest and taxes. In difference to EBIT, "Operating income" is not including "non-operating items".

Based on the income statement, the development of revenues (sales), "cost of sold goods" and "selling, general and administrative expense" can be discussed.

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[5] Source: J Downes and J E Goodman, Dictionary of Finance and Investment Terms, Seventh Edition, page 157

[6] Source: J Downes and J E Goodman, Dictionary of Finance and Investment Terms, Seventh Edition, page 165

[7] Source: H Grünberger, Introduction to Accounting and Financial Reporting, Linde 2008, page 204

Net working capital[8]

Net Working Capital = Current Assets − Current Liabilities

"Working capital" is a financial metric that represents operating liquidity that is available to business; the funds invested in a company's cash[9].

In difference the term "working capital" was used to demonstrate the managerial items of "inventories", "accounts receivable" and "accounts payable". It was calculated as "net working capital" minus "cash and short–term investments".

Payable turnover[10]

Payable turnover = (Costs of Goods Sold ± Change in inventory) / Average accounts payable

The presented "payable turnover" figures of a period are calculated as "CoGS" minus "decrease (increase) in inventory" of the period divided by the average value of the "accounts payable" of this particular period and the previous one. The figure depends (for the CoGS) on the length of the period and thus is a relative value for the particular company's ratio.

Receivable turnover[11]

Measure of relative size of accounts receivable and effectiveness of credit policies

Receivable turnover = Net sales / Average accounts receivable

The presented "receivables turnover" figures of a period are calculated as "net sales" of the period divided by the average value of the "net receivables" of this particular period and the previous one. The figure depends (for the revenues) on the length of the period and thus is a relative value for the particular company's ratio.

Ranking Value

"Ranking value" of transaction is used for comparison of M&A deal volumes and is defined in Thomson One (function "RANKVAL") as:

"*Rank value is calculated by subtracting the value of any liabilities assumed in a transaction from the transaction value and by adding the target's net debt ($mil). Net debt is Straight*

[8] Source: J Downes and J E Goodman, Dictionary of Finance and Investment Terms, Seventh Edition, page 457

[9] J Downes and J E Goodman, Dictionary of Finance and Investment Terms, Seventh Edition, page 797

[10] Source: H Grünberger, Introduction to Accounting and Financial Reporting, Linde 2008, page 205

[11] Source: H Grünberger, Introduction to Accounting and Financial Reporting, Linde 2008, page 204

Debt plus Short-Term Debt plus Preferred Equity minus Cash and Marketable Securities as of the date of the most current financial information prior to the announcement of the transaction. RANKVAL = VALNOLIA + STRD + STD + PFDEQ – CASH. Preferred Equity is not included if Cost to acquire Preferred Shares (CSTPFD) is filled in. If the target's net debt results in a negative Rank Value, Rank Value will be null. Rank Value is only calculated when all of the following conditions are met:

1. Target is either public or a non-public company for which complete balance sheet information is available.

*2. The acquirer is attempting to acquire 100% of the target from a currently held percentage of less than 50%. ***

3. The deal value is disclosed.

4. The target is NOT a bank, securities brokerage firm, credit institution, insurance company, or leasing company.

*** If less than 95% is acquired, Rank Value is not applied and balance sheet debt is not prorated. For example, the acquisition of 85% of a company will not include 85% of the debt. This standard is practiced whether or not the intention was to gain 100% economic control of the company. If initial Rank Value credit was given, and less than 95% is actually acquired, all debt credited to the transaction will be removed.*

If the objective is to acquire 100% of the economic interest of the company in a multi-step transaction, as stated at the announcement date of the initial step, net debt will be included in the valuation of the deal where the majority of shares are acquired. Debt will be calculated using the most recent financial statements prior to the announcement of the initial step of the deal. Net debt will not be prorated between transactions."[12]

Real GDP growth rate - Growth rate of GDP volume

Gross domestic product (GDP) is a measure of the economic activity, defined as the value of all goods and services produced less the value of any goods or services used in their creation. The calculation of the annual growth rate of GDP volume is intended to allow comparisons of the dynamics of economic development both over time and between economies of different sizes. For measuring the growth rate of GDP in terms of volumes, the GDP at current prices are valued in the prices of the previous year and the thus

[12] Source: Thomson Reuters, Thomson One, definitions online – RANKVAL

computed volume changes are imposed on the level of a reference year; this is called a chain-linked series. Accordingly, price movements will not inflate the growth rate.[13]

Thomson Reuters Database and Financials

Thomson Reuters is an information company created by the Thomson Corporation's purchase of Reuters on 17 April 2008. Access to the databases is provided though a secured, password restricted internet access[14] called “Thomson One”[15]. For data accessed through this internet platform, the source reference in this paper is “Thomson One”.

One of the used databases, “**Worldscope Global Database**” offers detailed financial statement data and profile data on public companies outside of the U.S.A. and covers US companies filing with the Securities Exchange Commission. Information is based on primary source documents and news clippings, processed by analysts into global templates, specific for different industry groups.

The presented work is, to a wide extent, based on the data provided by Thomson Reuters. The main reason is that as accounting principles vary across national borders, the comparison of financials becomes difficult. The database offers uniform templates avoiding this issue. Aside the option to view data and download the results (in Microsoft Excel format), the application offers predefined templates as add-ins in Microsoft Excel.

The analysis was mainly based on the “abbreviated financials” (example Figure 82) which were collected in self-developed spreadsheet and graphs.

Weighted Cost of Debt

Weighted Cost of debt represents the weighted average interest rate of the total fixed rate long-term debt.

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[13] http://epp.eurostat.ec.europa.eu/tgm/web/table/description.jsp (2010 02 09)

[14] only with Microsoft® Internet Explorer®

[15] https://www.thomsonone.com/DirectoryServices/2006-04-01/Web.Public/Login.aspx?brandname=www.thomsonone.com&version=2.8.5.13979&protocol=0

Abstract

The thesis discusses the financial situation and the proceeding in financing of acquisitions of chemical stock corporations in the industrial crisis of 2008/2009.

The first part focuses on the financials with special emphasis on the managerial items like cash and working capital management. They are also discussed in the light of the changes of the raw material prices taken place in summer 2008 onwards.

As targets, the four major diversified chemical players (BASF SE, Bayer AG, E.I. Du Pont De Nemours & Co and The Dow Chemical Company) are evaluated in more depth. Additionally, two groups of specialised companies, one active in fertiliser business and the second one in the gas field are analysed. Each of the two groups consists of several European listed corporations and one from North America. Further ten publicly traded European chemical stock corporations with a market capitalisation above 3billion$ (end of 2009) are discussed.

The second part, mergers and acquisitions (M&A) of Chemicals, presents a refined picture of the sponsors (e.g. financials, industrials or materials) and financial sources for "Chemicals". The crisis 2008/2009 is compared to the developments since 2000.

The thesis finally highlights the successful acquisition finance of the three major transactions within 2009 of BASF SE acquiring Ciba Specialty Chemicals, The Dow Chemicals Company closing the transaction for Rohm & Haas and K+S Aktiengesellschaft's acquisition of Morton.

1. Introduction

By the end of September 2009, the chemical industry had passed four quarters of enormous challenges caused by an industrial turmoil that followed the financial crises.

The **motivation** to focus on this topic was twofold: to examine how the financials of chemical stock corporations developed within the crisis 2008/2009 and to study the situation of acquisition finance for chemicals in these very special times. The term "Chemicals" or "Chemical companies"[16] is used according to the "Industry Classification Benchmark" (ICB)[17].

The **first part** of the thesis focuses on the financials of chemical companies. Special emphasis is put on the managerial items like cash and working capital management. These developments will also be discussed in the light of the significant changes of the raw material prices from summer 2008 onwards. A further element is whether companies that are mainly active in certain segments within the chemical industry showed on the one hand a uniform behaviour and on the other different performances compared to other segments. Therefore, four major diversified chemical players (BASF, Bayer, Du Pont and Dow) are evaluated in more depth followed by two groups of specialised companies, one active in fertiliser business and the second in the gas field. Each of the two groups consists of several European stock corporations and one from North America. To round up the picture, ten further publicly traded European chemical stock corporations with a market capitalisation above 3billion$ (end of 2009) are analyzed.

Due to the expected high number of financial figures (21 companies, 10 years, interim and annual financials) and the necessity of a comparable format a key source of data are Thomson Reuters' databases. Thereupon abbreviated financials are designed and presented as graphs.

In the **second part**, mergers and acquisitions (M&A) of Chemicals are core focus. Global M&A activities within the crisis 2008/2009 dropped to half of the volumes of 2007, the strongest year of the century[18]. Whereas the same study's result for the very broad segment of "Chemicals plus Energy" indicates a different development for the Chemicals.

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[16] "Sector" (ICB 1350) within the industry "Basic Materials" (ICB 1000) including the "Subsectors" "1353 "Commodity Chemicals" and "1357" "Specialty Chemicals"

[17] FTSE International Limited 2004 and Dow Jones & Co, Inc, 2008, ICB Industrial Classification Benchmark

[18] Source: Citigroup Global Markets Inc.- Executive M&A Summary December 2009 Edition, page 1

Aim of the **first** of two segments in part two is to answer the question which trend the submarket "Chemicals" follows. A refined picture of sponsors (e.g. financials, industrials or materials) and transaction volumes in the context of the last ten years is based on more than 11,000 transactions.

A further data bank inquiry for all equity, bond and loan transactions issued or borrowed since 2000 by players in the chemicals supports the understanding whether the sources for financing in this particular industry changed within the crisis and in what perspective.

The **second segment** highlights the successful acquisition finance of the three major transactions within 2009. BASF acquired Ciba in 2009 and late 2008 Revus Energy ASA.

On April 1st 2009, Dow closed the transaction for Rohm & Haas amounting to 15.5billion$. Only one day later on April 2nd 2009, K+S announced to have signed an agreement with Rohm and Haas regarding the acquisition of Morton from Dow's wholly owned Rohm & Haas. The closing took place on October 1st 2009. How these companies financed their deals is discussed separately.

1.1. History

In the beginning of 2008, the chemical industry was expecting to have to face two major challenges: REACH[19] and raw materials. However, it turned out to be different. Especially in Europe, but to a certain extent also outside the Community, the expected dominating topic until the end of 2010 should have been to succeed to comply with the REACH Regulation and register (based on recent estimates) over 25,000 substances[20]. The second "expected" challenge was the unseen increase of raw oil and other raw material prices.

1.1.1. Financial Crisis Effecting the Real Economy

The **raw material prices** were an issue for the first three quarters in 2008, REACH remains a hot topic until today, but the chemical industry was finally (and maybe still is) clearly dominated by the recession that let the demand for chemical products fall dramatically in the second half of 2008 and in particular the last quarter.

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19 Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), OJ L 136 of 29.5.2007

20 Source: ECHA Newsletter No 2, April 2010, page 8 (http://echa.europa.eu/publications_en.asp - 2010 05 01)

For a rather long period, until 2007, Central banks kept interest rates low and encouraged consumption. In addition, consumers were able to borrow money very easily and secure it by the ever-rising prices e.g. of their homes.

In 2008, the **financial crisis** also reached real economy, which is reflected by the development of the gross domestic products (GDP). The World's GDP real growth rate (GDP growth on an annual basis adjusted for inflation and expressed as a percent) slowed down from 5% in 2007 to 2.9% in 2008 and minus 1% in 2009.[21]

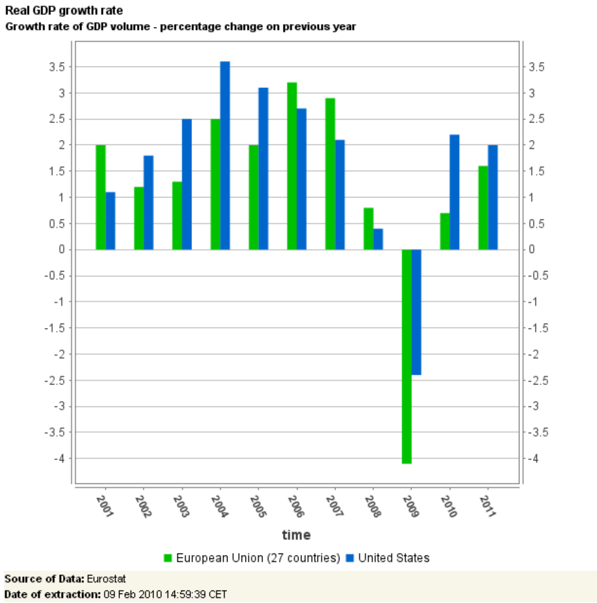

Figure 1 "Real GDP Growth Rate"[22]

Figure 1 "Real GDP Growth Rate" shows the situation for the European Union and the U.S.A. The European Union's GDP was 3% in 2007, 0.9% in 2008 followed by a very negative development in 2009 to -4% For the U.S.A. in the same period the GDP was 2.1% (2007), 0.4% in 2008 and in 2009 to -2.4%[23]. China's published GDP is reported to have changed from 13% (2007) to 9% (2008) and 8.7% in 2009.[24]

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[21] Source: CIA „The World Factbook", https://www.cia.gov/library/publications/the-world-factbook/fields/2003.html?countryCode=ee&rankAnchorRow=#ee (2010 02 09)

[22] http://epp.eurostat.ec.europa.eu/tgm/graph.do?tab=graph&plugin=1&language=en&pcode=tsieb020

[23] Source: http://epp.eurostat.ec.europa.eu/tgm/graph.do?tab=graph&plugin=1&language=en&pcode=tsieb020 (2010 02 10)

[24] Source: CIA „The World Factbook", https://www.cia.gov/library/publications/the-world-factbook/fields/2003.html?countryCode=ee&rankAnchorRow=#ee (2010 02 10)

The boom affected areas like housing and automotives that are supplied with chemicals and thereby supported until 2008 a high level of chemical production. When these segments started to be affected by the crisis, the demand of chemicals dropped as well Figure 2.

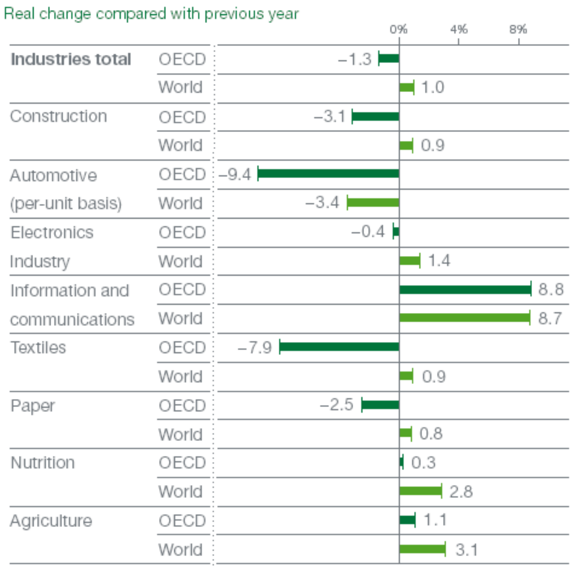

Figure 2 "Growth in 2008 compared to the previous year"[25]

In the first half of 2008, the financial and property crisis had a negative impact in the U.S. and some European countries (e.g. Spain, Italy and UK). The U.S. production volumes for chemicals decreased in the first half of 2008 to the level of the beginning of 2006 (Figure 3 "U.S. Production and Plant Use").

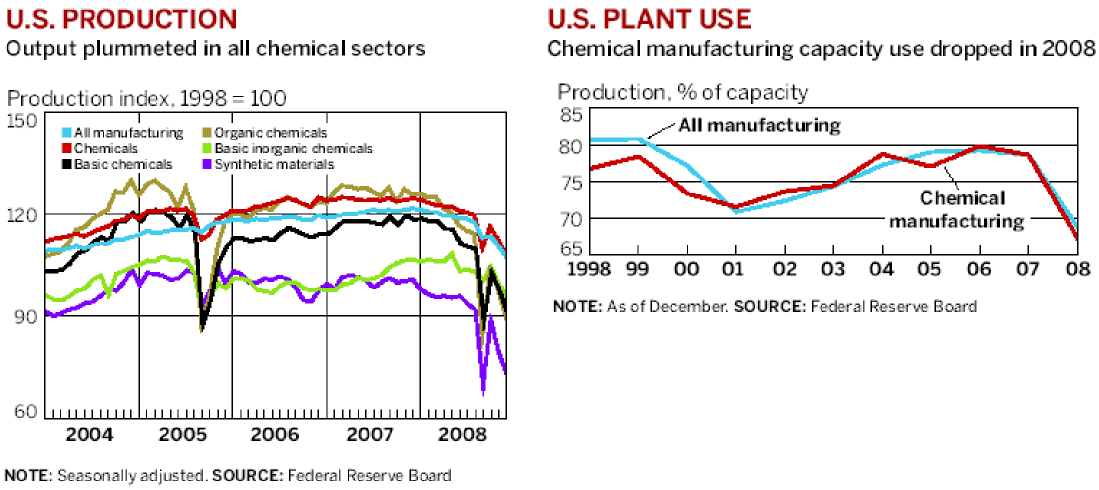

Figure 3 "U.S. Production and Plant Use"[26]

[25] Source: BASF Annual Report 2008, page 37

[26] Source: Chemical and Engineering News, July 6, 2009, page 51

The bankruptcy of the investment Bank Lehman Brothers mid of September 2008 further intensified the “crisis of confidence” in the financial sector and an abrupt economic downturn started.

1.1.2. Shutdowns to Face Decreasing Demand

The demand for chemicals decreased strongly and the companies reacted with a severe number of plant closures, starting in the U.S.:

- In October 2008, INVISTA, as one of the very first, announced to permanently idle capacity due to the downturn (150,000 tonnes PET plant in South Carolina)[27].
- Chevron Phillips stopped in November its 295,000 tonnes ethylene unit in Texas.
- BASF announced in the same month to temporarily shut down around 80 plants worldwide and in addition, to reduce production at approximately 100 plants[28].
- Flint Hills Resources closed its cracker and polymer plant in Odessa (Texas) with capacities of 95,000 tonnes per year propylene, 195,000 tonnes LDPE and 100,000 tonnes LLDPE.[29]
- In December 2008, DOW announced the shutdown of around 20 plants, the layoff of 5000 employees and the idling temporarily of about 180 facilities. Non-core businesses should be divested[30]. In March 2009 DOW announced to close 10 to 15 plants as a result of redundancies and overlaps following the acquisition of “Rohm & Haas”[31]. One of the plants was Rohm & Haas’ Morton Salt division (the business was late 2009 acquired by K+S AG and will be discussed later in this thesis). In September 2009, DOW announced the closure of the styrene monomer and ethylbenzene units in Freeport by the end of the year[32].
- Some of the closures, e.g. DOW’s ethylene oxide and ethylene glycol plant in Wilton (UK)[33] forced other players like Croda[34] who used it as feedstock source to close their facilities as well.

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[27] Source: ICIS News, 02 October 2008 03:20

[28] Source: BASF News Release 2008-11-19 P-08-506

[29] Source: ICIS Chemical Business, September 28-October 4, 2009

[30] Source: chemie.de (from dpa) 2008-12-10

[31] Source: ICIS News, 09 March 2009 22:50

[32] Source: ICIS News, 21/09/2009 00:00

[33] Source: EC Newsletter - August 17, 2009

[34] Source: Hull Daily Mail – July 15, 2009

The plant closures in 2009 (temporarily or permanent), is a “not ending list”. In December 2009, the German “Chemical Industry Association” estimated the decline (in volume) by 10% for the year 2009 (see Figure 4 “German Chemical Industry – Development 2009”). These figures include pharmaceutical production (decline of 2.5%) and the manufacturing of petrochemicals (e.g. ethylene, propylene and benzene) which declined by 6.5%.

The segments that relate to most of the “Chemical companies” as discussed in the thesis later, were hit the hardest: polymer production with a decrease of 18.5%, specialty chemicals minus 14%, detergents and personal care minus 8.5% on volume. The total sales of the German chemical industry lay at minus 12.5% (domestic sales -13%, foreign sales -12%)[35].

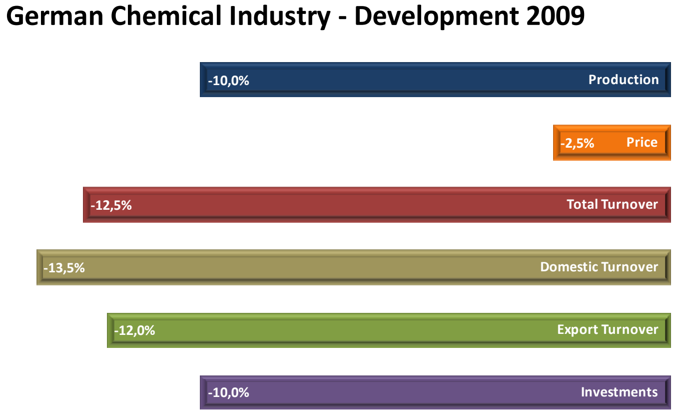

Figure 4 “German Chemical Industry – Development 2009”[36]

1.1.3. M&A Transactions

Despite the difficult business environment, some major acquisitions were completed in late 2008 and in 2009.

- The year 2009 started with the announcement of the Petrochemicals Industries Co., a state-owned Kuwaiti firm, backing out of its deal with Dow Chemicals on December 28. The so-called K-Dow joint venture was to include Dow's polyethylene, polypropylene and polycarbonate businesses, and Dow was expected to use the 7.5billion$ proceeds from the deal to finance its acquisition of Rohm & Haas.

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[35] Source: Professor Dr. Ulrich Lehner, Verband der Chemischen Industrie (VCI), Dec. 8, 2009, Frankfurt am Main

[36] Data source: Professor Dr. Ulrich Lehner, Verband der Chemischen Industrie (VCI), Dec. 8, 2009, Frankfurt am Main

- End of quarter 1 2009, Dow Chemicals with a turnover of 58billion$ acquired Rohm & Haas (sales of 9.6billion$) for 15billion$ followed by a number of divestments.
- BASF closed the acquisition of Revus Energy ASA at the end of 2008 and in beginning of April 2009 the acquisition of Ciba.
- End of 2009 the Indian conglomerate Reliance offered to take over the insolvent giant LyondellBasell.

1.1.4. Bankruptcy

- U.S. operations of Rotterdam, the Netherlands-based LyondellBasell, plus one of its European holding companies, on Jan. 6 filed for voluntary reorganization under Chapter 11 of the U.S. Bankruptcy Code. Chief Executive Officer Volker Trautz blamed "*a dramatic softening in demand*'' for the company's products and "*unprecedented volatility in raw-material costs*." Overall, LyondellBasell listed assets of 33.4billion$ and liabilities of 29.9billion$ in a filing in the U.S. Bankruptcy Court in New York. The firm's annual sales are around 54billion$. LyondellBasell was created in December 2007 when Basell NV paid 19billion$ for Lyondell Chemical Co[37].
- In March 2009, Chemtura's U.S. operations filed for Chapter 11 bankruptcy protection, including 26 U.S. affiliates. Chemtura listed assets of 3.06billion$ and debts of 2.6billion$ by the end of 2008[38]. It was reported to have received a commitment for up to 400million$ in bankruptcy financing. The company had been aiming to announce a 700million$ asset sale by the end of March[39].
- In October 2009, Dystar filed for insolvency and stoped its production in Germany[40].

1.1.5. Market Situation 2008 & 2009 Including Raw Material Price Development

2008 was the year, which consumers remember also due to the unexpected high gasoline and energy prices. The raw oil price "exploded" within one and a half years from 59$ per barrel beginning 2007 and 97$ January 2008 to more than 140$ in summer 2008. Figure 5

[37] Source: plasticsnews.com "LyondellBasell units file for Chapter 11" posted January 12, 2009

[38] Source: Reuters News - March 19, 2009

[39] Source: icis.com "This week's world news" 23 March 2009 00:00

[40] Source: Chemical Informer - October 2009

"Oil and Gas Price Development"[41] represent "Brent Crude" oil, which is the leading globally traded oil type. Gas prices[42] in winter season 2007/2008 reached the level of 0.25€ per cubic meter and were almost double to the year before. The outlined development is shown in the following graph by using the National Balancing Point (NBP) gas hub prices for the leading gas hub in Europe being located in the UK. These prices represent the cost of gas at that physical hub and thus excluding transport costs.

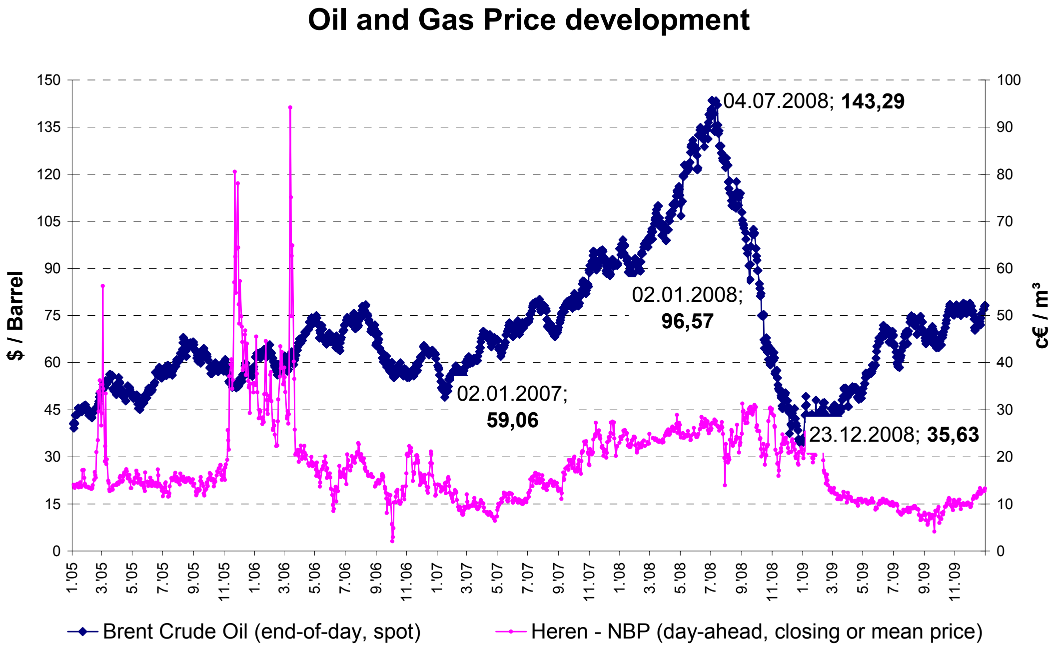

Figure 5 "Oil and Gas Price Development"[43]

The chemical industry faced a hype due to the raw material prices. The charts in Figure 6 present the situation in Europe (left side) and the US (right side). The data source for Europe is the "Eurostat Producer Price Index" (Baseline: 2005 = 100) and in particular for the organic base chemicals "C20.14[44] Manufacture of other organic basic chemicals" and for inorganic, "C20.13 Manufacture of other inorganic basic chemicals". For the US, data provided by the "Bureau of Labor Statistics" (Baseline: 1982 = 100) is considered: "613 Basic inorganic chemicals" and "614 Basic organic chemicals".

[41] Source: Reuters

[42] Source: ICIS Heren

[43] NBP National Balancing Point

[44] NACE codes (e.g. http://ec.europa.eu/competition/mergers/cases/index/nace_all.html)

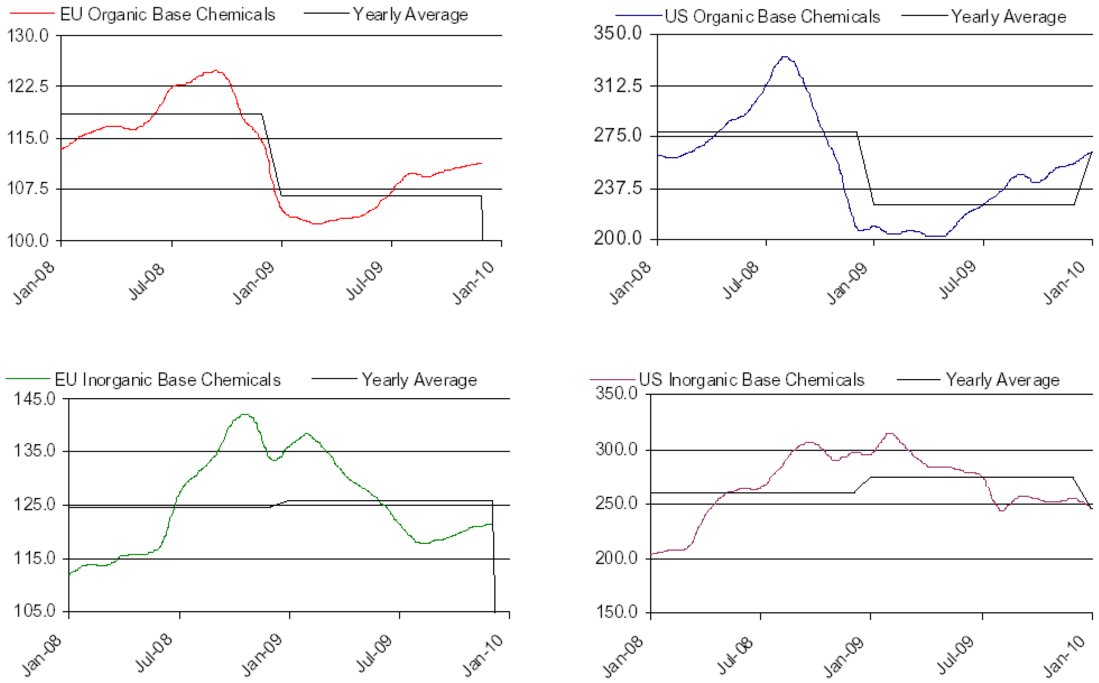

Figure 6 "Price Development of Base Chemicals"[45]

From summer 2008, when the oil price started decreasing, also the exchange rates moved very strongly: US$ to Euro dropped from approximately 1.55 to even less than 1.28, the Yen versus the Euro fell from 170 to slightly above 100. The British Pound and the Indian Rupee on the other hand grew stronger versus the Euro.

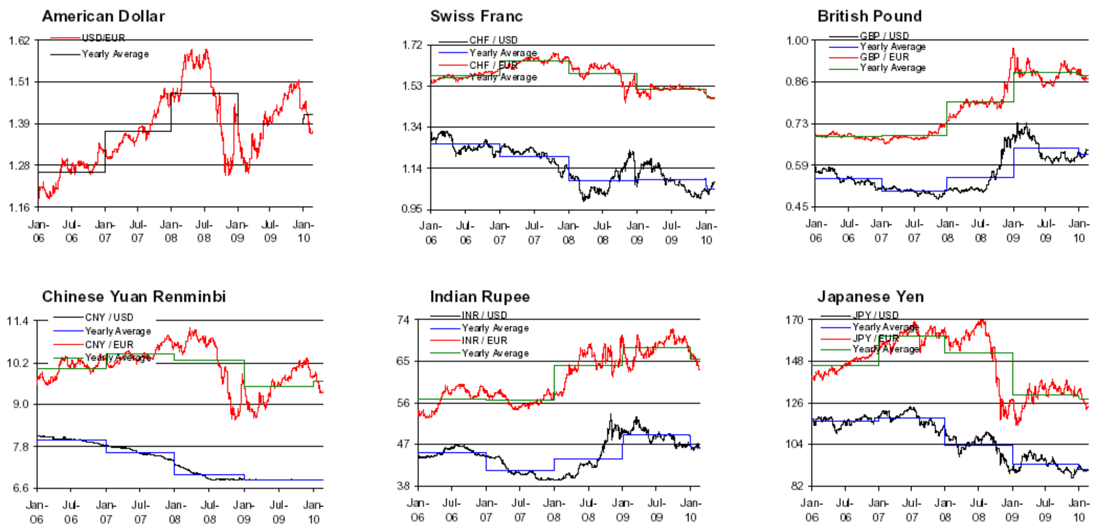

Figure 7 "Exchange Rates – Development January 2006 – January 2010"[46]

[45] Internal document - not published, February 2010

[46] Internal document - not published, February 2010

1.2. Working Process

The first part of the thesis analysis major chemical companies, all stock corporations, in respect of their financials in the period 2008 and 2009 and compares the results.

The second part focuses on cases of M&A transactions that were (successfully) completed in this period.

The financial details are mainly based on two data sources:

- Publicly available information in particular annual and interim reports of the companies
- The findings in data based accesses through Thomson One[47]

The main data collection was performed until the end of 2009 and therefore financial information for 2009 is including the 2009 3rd quarter interims reports respectively half-year's results, if the corporation does not publish on a quarterly base. In addition, the financial results of the fourth quarter 2009 and the complete year 2009 were included for companies that published these results before mid of March 2010.

The research work process starts with the "selection of the peers" and "non-targets" followed by an intensive search in the databases of Thomson Reuters. The findings are verified with the published financial data of the corporation.

Two European major chemical players are compared with two (also in the view of business activities) counterparts from outside Europe. In addition, a comparison of the financials and transactions of European chemical companies with a market capitalisation above 3billion€ is performed.

Numbers are in general rounded to the first decimal place.

1.2.1. Selection of Peers

One internationally accepted way of defining "Chemical companies" is the classification according to the "**Industry Classification Benchmark**" (ICB). Within the industry "Basic Materials" (ICB 1000) "Chemical" form a "Supersector" (ICB 1300) with only one "Sector" (ICB 1350), also called "Chemicals". The evaluated companies are part thereof without distinction of the "Subsectors" "1353 "Commodity Chemicals" or 1357 "Specialty

[47] by Thomson Reuters

Chemicals"[48]. It is important to mention, that the "Chemicals" do not include "Petrochemicals" ("Oil & Gas Producers").

The **target companies** are publicly listed enterprises with a market capitalisation of more than 3.0billion$ (December 2009). This query was performed on December 22nd, 2009 through Thomson ONE's[49] "Screening & Analysis – Company Screener".

After excluding "Reliance Industries Limited" and "Saudi Basic Industries Corporation" (SABIC), the two companies BAYER and BASF remained with the highest market capitalisation. Reliance Industries Limited is a (private sector) conglomerate, and SABIC not traded on the stock market.

As counterparts for the **diversified major companies** BAYER and BASF, Dow Chemicals and Du Pont were selected.

Monsanto Company was excluded as it is an "agricultural company" not producing mainly chemicals but genetically engineered seed and the "Government of India Enterprise" MMTC Limited which is a trading company[50].

"Potash Corporation of Saskatchewan" as the next with 31billion$ market capitalisation is a global player in the fertiliser business. As their business is very different from the activities of Bayer and BASF the company was not taken as peer for them, but discussed in the subgroup of "**fertiliser**" producers as a competitor of K+S, Uralkali and Yara.

A further subgroup for companies active in the "**gas segment**" was formed. The three competitors "L'Air Liquide" and "Linde" with headquarters in Europe and the US based "Praxair" have a market capitalisation between 31billion$ (Air Liquide) and 21billion$ (Linde).

In Figure 8 the selected chemical companies are highlighted and the subgroups marked in the same colour (top four diversified chemical players in dark blue, fertiliser producers in green, producers of gases in light blue, further European chemical companies with market capitalization above 3billion$ in black and the non-targets in grey).

Originally, it was planned to include Silvinit in the fertiliser cluster. It was decided not to proceed in an evaluation as the home page of the company was only in Russian[51], the annual reports not accessible and Thomson One delivered only data until the end of 2008.

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[48] FTSE International Limited 2004 and Dow Jones & Co, Inc, 2008, ICB Industrial Classification Benchmark

[49] Thomson Reuters database

[50] http://www.mmtclimited.com/frame.php?url=generic/show_generic.php?id=5 (2010 01 09)

[51] http://www.silvinit.ru (latest access 2010-03-14)

Company	Market Capitalisation / million$[52]	Country of origin
Reliance Industries Limited	68,066	
Bayer AG	65,495	Germany
Saudi Basic Industries Corp.	64,784	
BASF SE	57,572	Germany
Monsanto Company	43,888	
MMTC Limited	36,565	
Potash Corp. Of Saskatchewan	31,111	Canada
Air Liquide	31,030	France
Dow Chemical Company	29,989	U.S.
E.I. Du Pont De Nemours & Co	28,802	U.S.
Syngenta AG	26,719	Switzerland
Praxair Inc	24,631	U.S.
Shin-Etsu Chemical Company Limited	24,620	
The Mosaic Company	24,570	
Linde AG	21,090	Germany
ICL-Israel Chemicals Ltd	17,918	
Air Products & Chemicals Inc	17,214	
Akzo Nobel N.V.	15,021	Netherlands
Yara International ASA	13,580	Norway
Nan Ya Plastics Corp.	13,535	
LG Chem Limited	13,321	
Formosa Plastics Corp.	12,384	
Sociedad Quimica Y Minera Chile SA	10,868	
K + S AG	10,722	Germany
[53]		
Solvay S.A.	8,958	Belgium
Uralkali	8,702	Russia
Wacker Chemie AG	8,371	Germany
Silvinit	8,087	
Koninklijke DSM N.V.	7,876	Netherlands
Givaudan SA	6,183	Switzerland
Johnson Matthey Public Limited Company	5,158	U.K.
Umicore SA	3,733	Belgium
LANXESS AG	3,229	Germany
Altana AG	3,016	Germany

Figure 8 "Market Capitalisation of Chemicals"

1.2.2. Non-Targets

Non-targets are private chemical companies due to the non-availability of data, and Japanese corporations due to their so-called "keiretsu" cross shareholding structure.

Under ICB, producers and distributors are combined in the same subsectors. For the presented work, the trading companies were not evaluated.

[52] Source: Thomson ONE, query performed 2009 12 22

[53] The following list is incomplete and contains only the targets.

1.2.3. Financials

All figures in this thesis, except if mentioned differently, are obtained through Thomson One. This has the advantage that all results of different companies are derived from the same source, but it might on the other hand lead to misunderstandings or discussions when the data of the thesis is compared to the officially reported data. For example, Du Pont reports in the balance sheet for December 31, 2008, “total assets” of 36,209million$ and “total liabilities” of 28,657million$[54] which shows a difference of more than 3billion$ to the result in the template for the “Annual Balance” of Thomson Reuters with “total assets of 33,122million$ and “total liabilities” that amount 25,570million$. In this case, the expert quickly recognises the difference of 3,087million$ (“deferred income”) that Du Pont reports under “other assets” and Thomson Reuters’ template shows as liability (“Deferred Taxes – Debit”). For this reason, the templates were stored for a later evaluation.

In the discussions of the **financial structure** of a company, emphasis is given to the balance sheet items of debt compared to equity, the development of long-term debt to short-term debt and the “current ratio” (describing the ability to pay short-term debt).

A research on the issuance of bonds, loans and equity was performed in the database of Thomson One. The outcomes of the queries for bonds differ in some cases in number and value from the figures reported by the firms themselves (see e.g. Figure 9). Therefore, the findings were as far as available confirmed by company data, like annual or interim reports or on the company’s webpage.

Issued	Proceeds Amt Sum of all Mkts (million$)[55]	Description	BASF (million)[56]
14/07/09	279.41	4.250% Fxd/Straight Bd due '16	200€
26/06/09	421.40	4.625% Medium-Term Nts due '17	300€
18/05/09	705.90	5.125% Medium-Term Nts due '15	0
06/04/09	468.98	3.750% Medium-Term Nts due '12	0
01/04/09	1,320.75	3.750% Medium-Term Nts due '12	1,350€
24/03/09	583.59	5.875% Medium-Term Nts due '17	400£
18/02/09	187.62	4.500% Medium-Term Nts due '16	150€

[54] Source: Du Pont Form 10-K 2008, page F-5

[55] Source: Thomson One, results of query 2009 12 22

[56] Source: BASF Bonds & Credit rating, http://www.basf.com/group/corporate/en/investor-relations/bonds-and-credit-rating/index - (2010 02 08)

29/01/09	1,927.80	5.125% Gtd Mdm-Trm Nts due '15	2,000€
27/11/08	1,605.69	6.000% Medium-Term Nts due '13	1,250€
28/04/08	484.69	3.625% Guaranteed Bds due '15	200CHF
28/04/08	484.69	*3.500*% Guaranteed Bds due '11	300CHF @ 3.25%

Figure 9 "Comparison of findings via Thomson One and BASF's publications for bonds"

Stock prices were downloaded from Thomson One[57]. The daily figures represent the closing price of the particular stocks. To compare the different price developments, July 1 2008 was taken as reference date.

1.2.4. M&A Transactions

The general part is showing the **transactions affecting the chemical industry since 2000**. Based on a database survey performed in Thomson One, a comparison of the number of deals as well as the value of the transactions versus the type of sponsor was developed. The search was performed on December 20, 2009 and therefore refers only to data that had been added to the database by then. This might have a minor influence on the results for the year 2009. The work field for the comparisons were acquisitions performed by "Chemicals" or where the targets are classified as "Chemicals".

The database uses the following nine groups for the macro-industries: Consumer Products and Services, Consumer Staples, Energy and Power, Financials, Government and Agencies, Healthcare, High Technology, Industrials and Materials. Each of the macro industries consists of several mid-industries. "Chemicals" are part of the so-called macro-industry "Materials".

The query resulted in more than 11,000 (potential) transactions. The system classified them as "completed", "pending", "intended", "withdrawn", "seeking for buyer", "rumours" or "unconditional". Thereof 7,438 transactions were completed, 2,807 "pending", 358 "intended" and 218 "withdrawn". "Intended" transactions are e.g. the authorisation of share repurchase. Not used for further evaluation were the around 400 result of the last three groups "seeking for buyer, "rumours" and "unconditional".

The data was processed in Microsoft Excel. As convention, the "date effective" was used as the "date" for a particular transaction whereas for "non-completed" transactions the "announcing date" was used. This means that all completed deals are – represented in the

[57] March 13, 2010

period of closing, whereas all others are counted in the announcing period, which is "earlier".

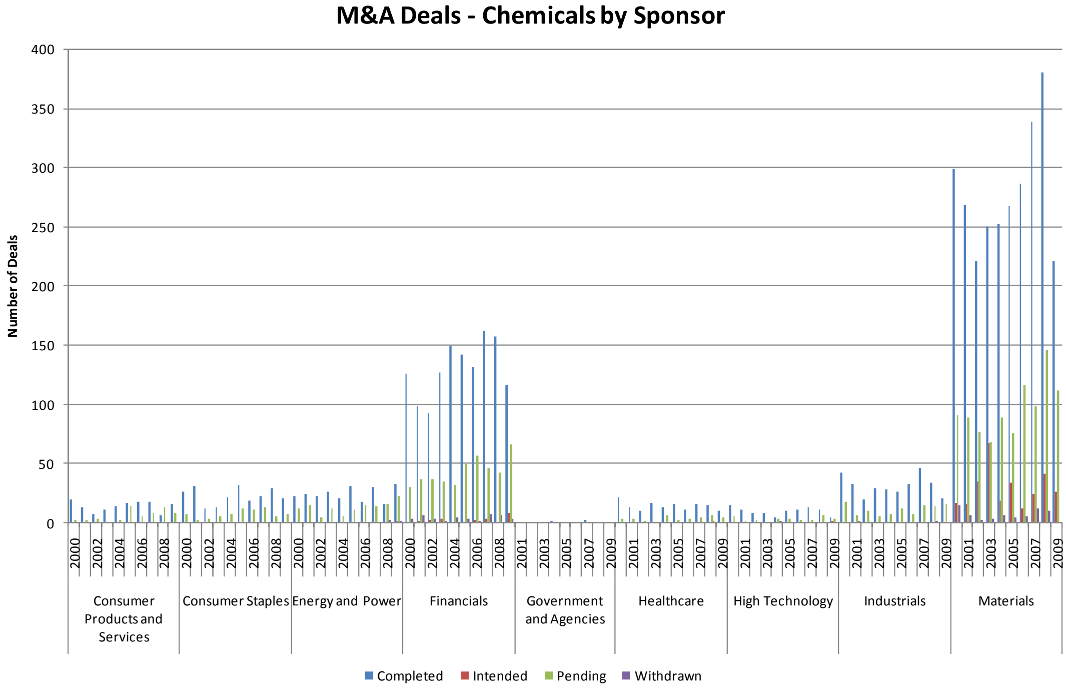

Figure 10 "M&A Deals – Chemicals as Sponsor"

The difference of the two methods is illustrated in the following two graphs, where the first one uses this convention (Figure 10) and the second one uses the "announcing date" as reference for all (potential) transactions (Figure 11).

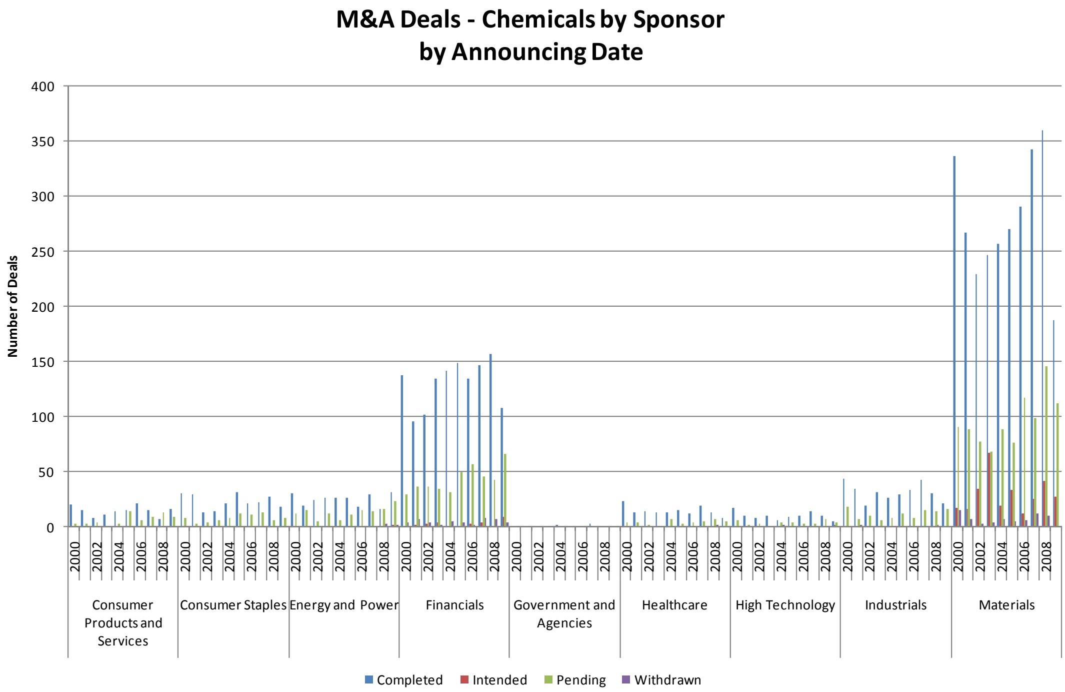

Figure 11 "M&A Deals – Chemicals as Sponsor by Announcing Date"

The **detailed analysis of the three major transactions** in the chemical industry in 2009 (BASF acquiring Ciba Specialty Chemicals, DOW acquiring Rohm & Haas and K+S acquiring Morton) was based on

- Information published by the companies e.g. Annual Reports or Press Releases and on their web page
- U.S. Securities and Exchange Commission (SEC) filings[58], available online through the SEC's EDGAR database[59]
- Chemical information systems like icis.com
- Thomson Reuters

[58] Financial statement or other formal document submitted to the U.S. Securities and Exchange Commission

[59] http://www.sec.gov/edgar.shtml

2. Financials of Chemical Stock Corporations

For the four “big” diversified chemical players BASF, Bayer, Du Pont and Dow cash management was of different importance. BASF increased “**cash and short-term” investments** in 2008 and kept the amount constant in 2009. Bayer and Dow remained on the level of 2007 for the period of the crisis. Du Pont doubled the cash position each year and reported an amount of 6.1billion$ by the end of 2009.

When comparing the companies, it should be considered that BASF and DOW closed significant acquisitions in 2009, which of course influences the cash management.

Another managerial set of parameters are the **“accounts receivable”, inventories** and the **“accounts payable”**. In this case, the effectiveness of activities needs to be discussed in the light of the significant change of raw material costs from mid 2008 onwards. Therefore the improvements e.g. of the accounts receivable or inventories are compared with the revenues and the “accounts payable” with the “costs of goods sold” plus the “increase of inventory”. Only these ratios (“accounts payable turnover”, “inventory turnover”, “accounts payable turnover”) can demonstrate an effective improvement.

On a yearly base, all four players, independent of how active they managed the aforementioned ratios, had the same parallel movements of the “accounts receivable turnover” and “inventories turnover” versus the “accounts payable turnover”. This shows the dilemma of the chemical industry, when the turnover of the inventories and accounts receivable were improved, the accounts payable became worse (earlier payment, instead of extending the payments) and vice versa.

Bayer reported only minor changes whereas mainly weakened in 2009. BASF and Dow improved the turnovers of receivables and inventories in 2008, whereas in 2009 they decreased to an even lower level than 2007. Du Pont’s ratios in 2008 were identical to 2007 and decreased (became worse) for the inventories and accounts receivables in 2009.

The development of “**short-term debt and current positions of long-term**” debt was mainly related to maturing long-term debt. A significant decrease of the current liabilities was not detected for any of the four companies.

None of the four companies increased “**capital expenditures**” in 2009. DOW and Du Pont had increased the invested amounts in 2008 whereas BASF kept CAPEX on the same level over the last years (but slightly decreased versus “depreciation & depletion”) and Bayer decreased the amount in 2008 as well.

In all four cases, spending for "**research and development**" remained unchanged on the long time level.

For **financing** and refinancing maturing debt, the four companies were able to issue bonds, but only Dow issued new shares and due to acquisition financing.

Figure 12 shows the stock price development within the crises (until March 12, 2010). The bases are the stock prices of July 1, 2008 as reported by Thomson One (BASF 43.32€; Bayer 52.66€; Dow 35.17$ and Du Pont 42.64$).

During the crisis, Bayer's **stock price** was less sensitive than the ones of the other major players. BASF's stock price reacted very early but recovered and in March 2010 came back to the level of before the crisis. BASF and Du Pont had dropped by the end of 2008, beginning of 2009 to slightly less than half of their prices on July 1 2008. Dow on the other had "reached" its low in March 2009 with a relative value of 18.0% (March 9 2009). Both European stocks were back to the values end of the first half of 2008 in beginning 2010. The share prices of the two US chemical companies Du Pont and Dow could not yet reach their pre-crisis values and are currently at slightly above 80%.

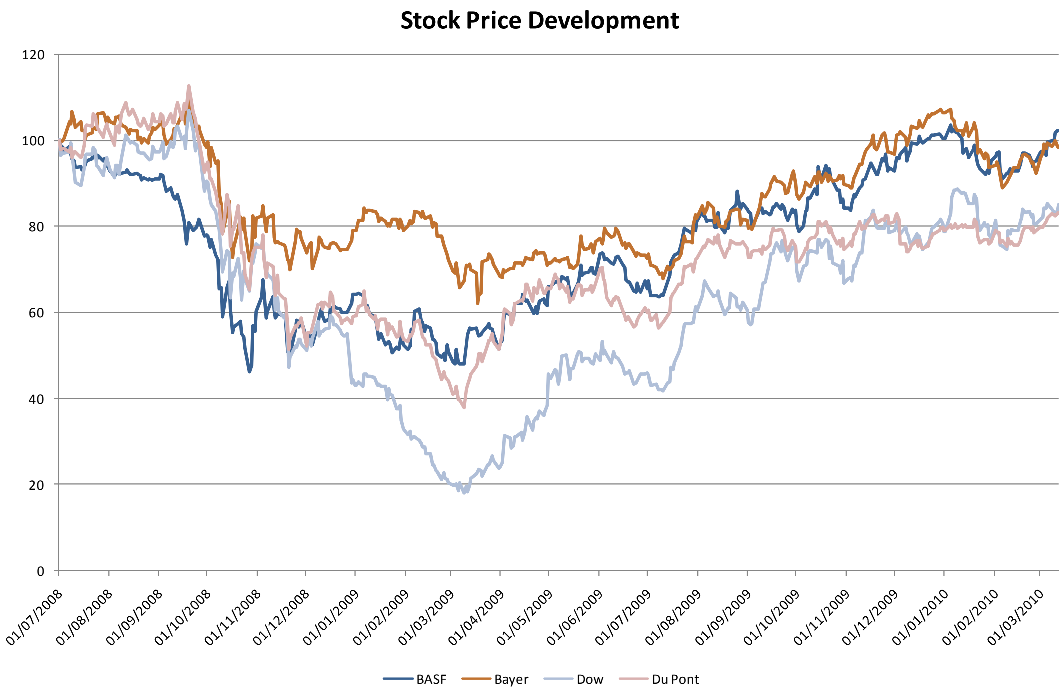

Figure 12 "Stock Price Development of BASF, Bayer, Dow and Du Pont"[60]

[60] Data source: Thomson One, search 2010 03 13

2.1. BASF SE

BASF announced as "Financial Strategy" for 2009: "*Our goal is to maintain the financial flexibility needed to continually develop our business portfolio and take advantage of strategic opportunities*." and further "*The objectives of our financing policy are to ensure liquidity, limit financial risks and optimize capital costs by means of an appropriate capital structure*."[61] The highest priorities defined were:

- Remaining a reliable partner for customers,
- Maintaining strong cash flows,
- Reducing costs and
- Continue restructuring efforts[62].

In the first quarter 2008, shareholder's equity reached the value of 19.4billion€. From there on it dropped to 17.1billion by end of quarter 3 2009 and was reported with 17.5billion€ at the end of 2009[63]. Total liabilities increased in the period of 2008 to quarter 3 2009 from 31.5billion€ to 33.2billion€, also due to the acquisition of Ciba.

2.1.1. Earning

Sales in 2009, compared to 2008 include sales of 2.45billion€ coming from acquisitions, mainly Ciba[64].

In line with the results estimated by "Verband der Chemischen Industrie" (VCI) (see also Figure 4) the sales volumes were 9.7% lower, whereas BASF reports a stronger price decrease of -13.7% (compared to the estimates of VCI of "only" -2.5% for the German Chemical Industry). This is also reflected in the "costs of goods sold" (CoGS).

Since the end of 2006, BASF's "**earnings before interest and taxes**" (EBIT) per quarter was exceeding 1.5billion€ (reaching up to 2.5billion€), whereas in quarter 4 2008 EBIT sharply fell to 172million€. In 2009, the EBIT increased again, but remained between 864million€ (quarter 1) and 1,038million€ (quarter 4) and thus below the level prior to the crisis.

[61] Source: BASF Annual Report 2008, page 45

[62] Source: BASF Annual Report 2008, page 9

[63] Source: BASF Overview Full Year and 4th Quarter 2009, page 21

[64] Source: BASF Overview Full Year and 4th quarter 2009, page 1

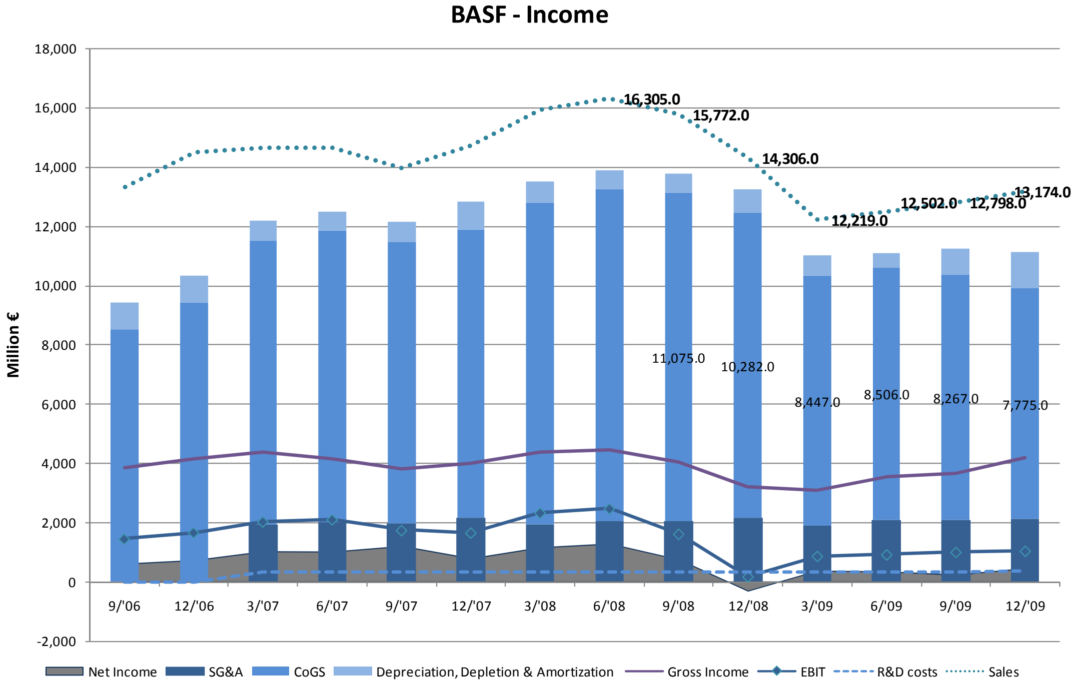

Figure 13 "BASF - Income"

R&D expenses remained at around 340million€ per quarter and thus constant on the same level since the acquisition of Engelhard Corp. in June 2006. **"Sales, General and Administration costs"** (SG&A) amounted to approximately 2billion€ per quarter and were on the same level since 2007.

From the beginning of 2007 onwards, **"net income"** (Figure 13) was usually above 1billion€ per quarter, in quarter 3 2008 it dropped to 758million€ and was negative in the last quarter of 2008. In 2009 it was stable for the three quarters on a low level (between 375million€ and 237million). For 2009, a "net income" of 1.4billion€[65] was reported, being around half of each of the previous four years.

2.1.2. Net Working Capital

Current assets and current liabilities decreased in 2009 compared to 2008. In total, BASF kept "**net working capital**" (NWC) on a similar but slightly higher level than in the previous one and a half years, amounting to 7.1billion€ quarter 3 2009. Strong financial steering showed significant changes in the last quarter of the year 2008, whereas in the first quarter 2009 the NWC exceeded all the previous periods since the beginning of 2006 (Figure 14). The comparison for the second quarter 2009 and thereafter needs to take into consideration the consolidation of the acquisition of Ciba.

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[65] Source: BASF Overview Full Year and 4th Quarter 2009, page 23

"**Cash and short-term investments**", which since the beginning of 2006 did not exceed 1.5billion€, increased within the fourth quarter 2008 from 989million€ to 2.8billion€ and remained above 3billion€ in 2009.

The "**net receivables**" after a hype in quarter 1, 2 and 3 of 2008 (being between 12.3billion€ and 13billion€) were very quickly reduced to a level below the periods before (to slightly over 10billion€). The "accounts receivable" decreased to 7.7billion by the end of quarter 3 2009.

Inventories reached a maximum of 7.7billion€ in quarter 3 2008. In the following quarters the inventories were balanced on the level of around 6.5billion€ which was typical since the acquisition of U.S. catalyst producer Engelhard Corp. in June 2006[66]. It needs to be considered, that the "costs of goods sold" decreased throughout the period and on the other hand, that Ciba is consolidated since the second quarter 2009. In total it led to a decrease of the "inventory turnover" since mid of 2008.

The "**accounts payable**" show a decrease by 1billion€ from around 3.7billion€ in quarter 3 2008 to the next period. Thereafter the accounts payable increased steadily each period to 3.3billion€ in quarter 3 2009 and amounted to 2.8billion€ end of 2009. (Before 2007, no "accounts payable" were shown in Thomson One).

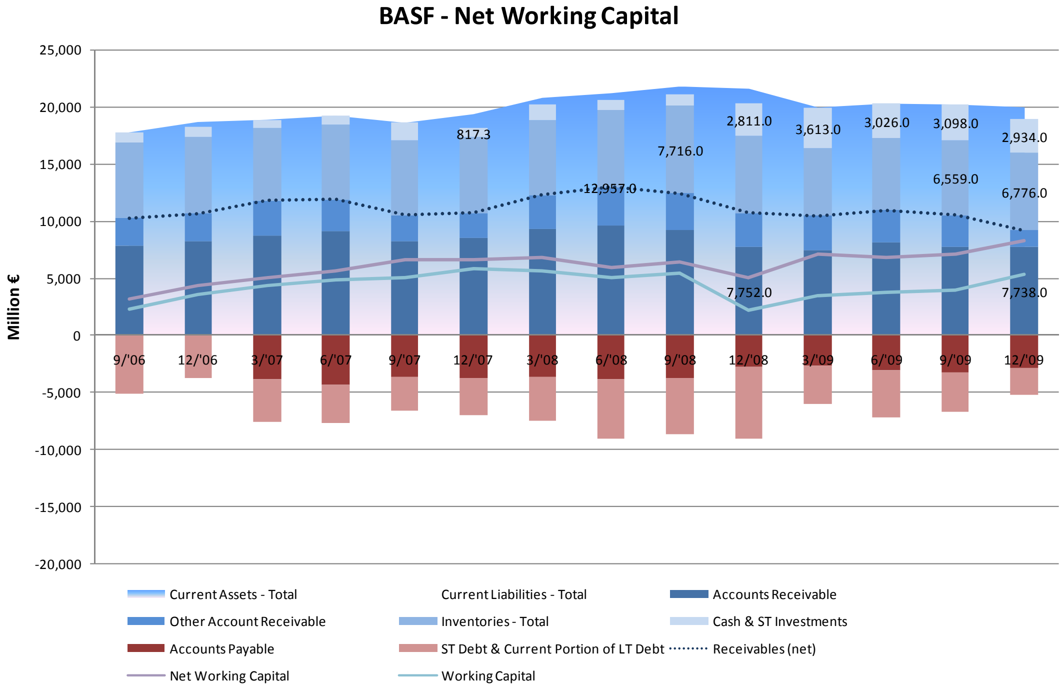

Figure 14 "BASF – Net Working Capital"

[66] Source: BASF Financial Report 2006, page 3

"**Short-term debt & current position of long-term debt**" decreased in 2009 and were even lower in the second quarter 2009 (when the acquisition of Ciba was completed) than in the last three quarters of 2008.

2.1.3. Cash Flows

In 2008, **cash from operating activities** was generated at the level of 5.0billion€, compared to 5.8billion€ in the previous year. In the first three quarters in 2009, the operating cash totals 5.4billion€. BASF reported cash from operations on a record high, amounting to 6.27billion€[67] by the end of 2009. Figure 15 further shows the decrease in "net income" from around 4billion€ in 2007 and 2.9billion€ in 2008 to 1.4billion€ in 2009.

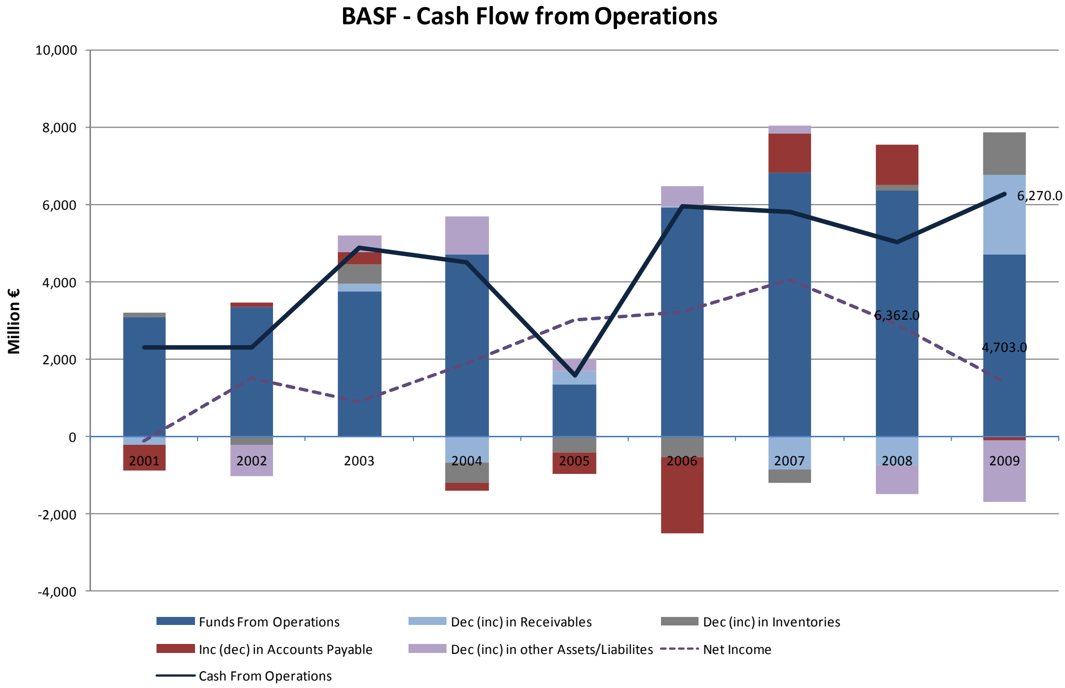

Figure 15 "BASF – Cash Flow from Operations, Annual"

In quarter 4 2008, BASF demonstrated a very strong "working capital management" securing in the crisis a positive cash flow from operations (Figure 16). In total the decrease of the "accounts receivables" and inventories and the increase of the "accounts payable" freed 3.5billion€.

[67] Source: BASF Overview Full Year and 4th Quarter 2009, page 23

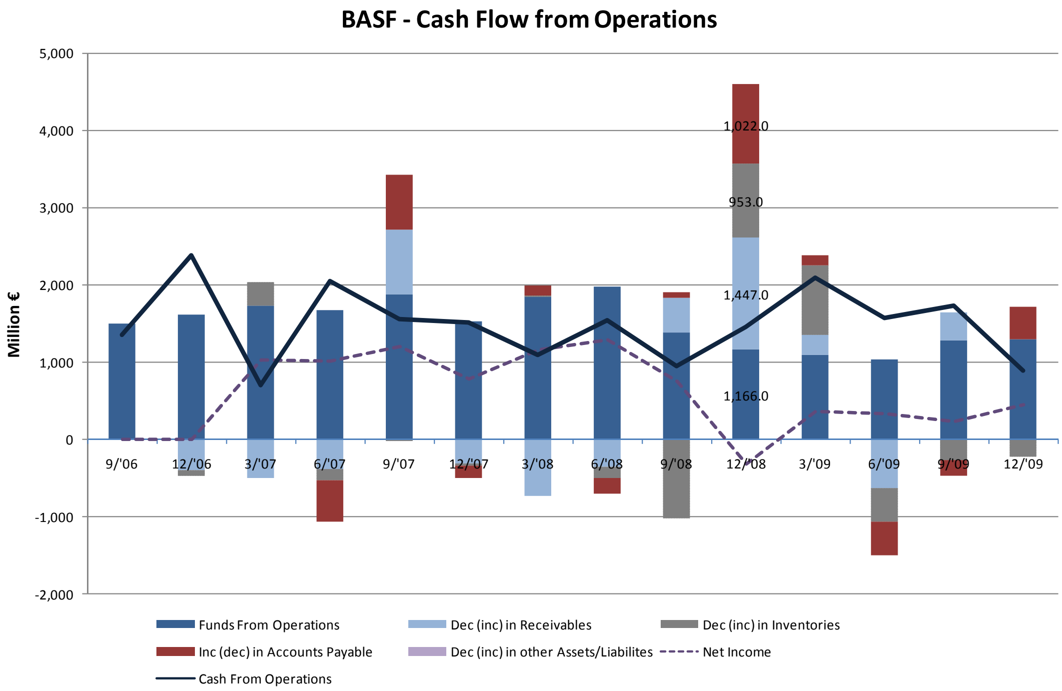

Figure 16 "BASF – Cash Flow from Operations, Interim"

The "**Free Cash Flow**" ("Net cash flow from operating activities" less "CAPEX") in 2008 remained positive on a high level (2.5billion€) but was lower than in the two previous years 2007 with 3.2€billion€ and 2006 with 3.5billion€. In all quarters 2008 and 2009 BASF managed a positive "Free Cash Flow", the most difficult quarter being quarter 3 2008 (354million€). 2009 started with a high "Free Cash Flow" amounting to 1.5billion€ in quarter 1 and ended with only 215million€ in the last quarter. On a yearly base the "Free Cash Flow" of 2009 (3.76billion€) exceeded the previous years since 2001[68].

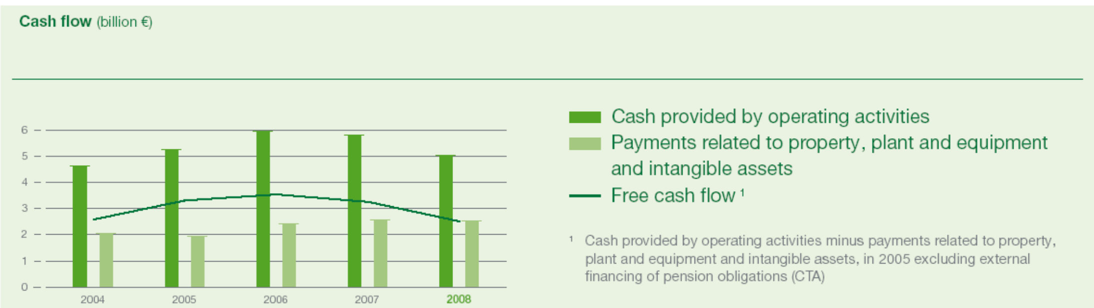

Figure 17 "BASF – Free Cash Flow"[69]

"Capital expenditure" of BASF since 2000 (first year of evaluations in the presented work) was always slightly above "Depreciation & Depletion". This continues without significant changes also in 2008. These investments in the first three quarters in 2009 exceed every

[68] 2001 is the first year of comparison

[69] Source: BASF Annual Report 2008, page 45

quarter (slightly) in the corresponding period in 2008, but in 2009, CAPEX decreased relative to "Depreciation & Depletion".

In 2008, the "**net cash flow from investing activities**" (3.4billion€) was slightly lower than in 2007 and influenced (aside CAPEX) by **acquisitions** (mainly of Revus Energy ASA for 558million€), **divestments** and the **investment into financial assets** (for 976million€). BASF divested several businesses, the most important one was the sale of the pharmaceutical division for 73million€. In 2009, the "net cash flow from investing activities" summed up to 4.08billion€ mainly due to the increase of "net assets from acquisition" by 1.5billion€ following the acquisition of Ciba. Divestments in 2009 amounted to 575million€, similar to 2008.

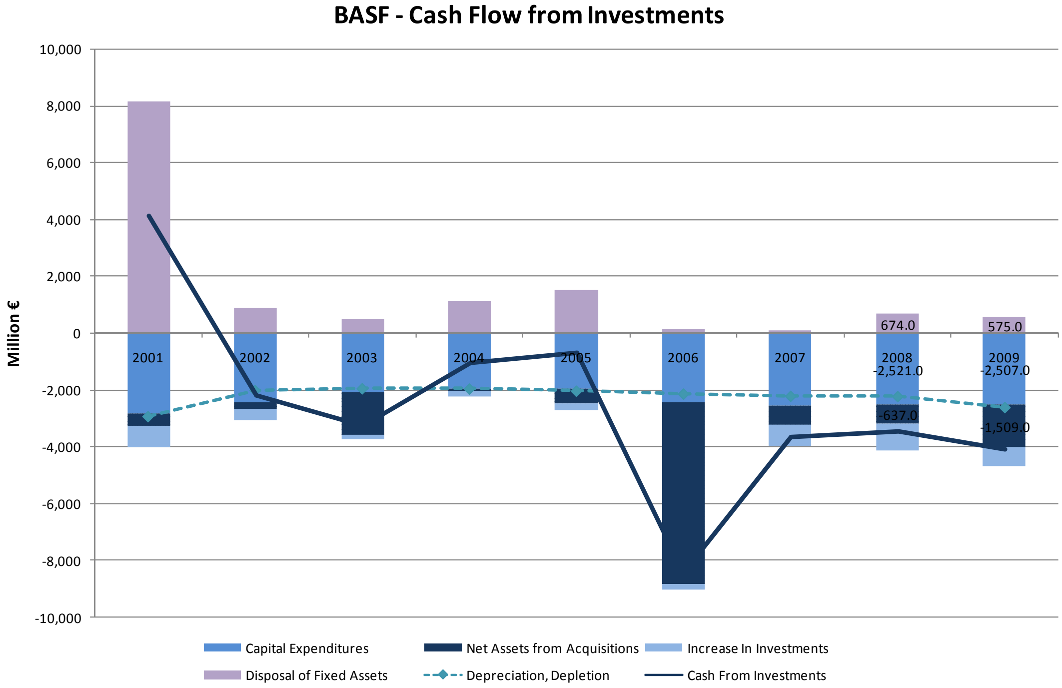

Figure 18 "BASF – Cash Flow from Investments"

BASF was very active in 2008 and 2009 in respect to the financing activities. The "**net cash flow from financing activities**" in 2008 amounted to plus 459million€ compared to the previous year with minus 2.2billion€. It is explained due to "an increase in financial indebtedness of 4.412million€ compared to the previous year of 14.514million€ at the end of 2008."[70]

For the share buy-back program BASF spent in total 1.6billion€ in 2008 whereas from quarter 4 2008 onwards the amounts were significant lower.

[70] Source: BASF Annual Report 2008, page 46

In the course of 2008 BASF issued bonds totalling 1.6billion€ and promissory notes of 553million€ which are represented in the 6billion€ "long-term borrowings". In 2009, two further bonds were issued, a Euro bond worth 1.35billion€ and an outstanding euro bond was increased by €500 million.

The "**Net changes in cash and cash equivalents**" in 2008 amounted to 2billion€, whereas in 2009 (3 quarters) summed up to 169million€.

2.1.4. Financing

The "**total financial liabilities**" (short-term debt plus long-term debt) increased by 4.4billion€ to 14.5billion€ in 2008 with almost half of the amount maturing on short-term.

The **current liabilities** grew from 2007 to 2008, and amounted 1to 6.5billion€ in quarter 4 2008. From the first until the third quarter 2009, current liabilities remained constant at the level of 12,8billion€. The ratio of "**short-time debt & current position of long-term debt"** to total debt was around 30-35% in 2007 and 40-45% in 2008. In 2009 the relative amount of short-term debt is 21-24%.

Long-term debt increased throughout 2009 which is related to the shift of short-term debt to long-term debt and the fact of the major acquisition (Ciba) in quarter 2 2009.

Bond	Term	Issuer	Volume	ISIN Code
» **4.25% Euro Bond**	2009/2016	BASF SE	€ 200 million	XS0439773002
» **4.625% Euro Bond**	2009/2017	BASF SE	€ 300 million	XS0437957086
» **3.75% Euro Bond**	2009/2012	BASF SE	€ 1.35 billion	DE000A0XFK16
» **5.875% GBP Bond**	2009/2017	BASF SE	GBP 400 million	XS0420401779
» **5.125% Euro Bond**	2009/2015	BASF Finance Europe N.V.	€ 2 billion	XS0412154378
» **4.5% Euro Bond**	2009/2016	BASF Finance Europe N.V.	€ 150 million	XS0414672070
» **6% Euro Bond**	2008/2013	BASF Finance Europe N.V.	€ 1.25 billion	DE000A0T4DU7
» **3.25% CHF Bond**	2008/2011	BASF Finance Europe N.V.	CHF 300 million	CH0039943292
» **3.625% CHF Bond**	2008/2015	BASF Finance Europe N.V.	CHF 200 million	CH0039943292
» **5% Euro Bond**	2007/2014	BASF Finance Europe N.V.	€ 1.25 billion	DE000A0TKBM
» **4.5% Euro Bond**	2006/2016	BASF SE	€ 500 million	DE 000 A0JRFB0
3.25% CHF Bond	2006/2012	Ciba Specialty Chemi-cals Finance Inc. [1]	CHF 225 million	CH0027055695
» **4.0% Euro Bond**	2006/2011	BASF SE	€ 1,000 million	DE 000 A0J QF2 6
» **3.375% Euro Bond**	2005/2012	BASF SE	€ 1,400 million	DE 000 A0E UB8 6
4,875% Euro Bond	2003/2018	Ciba Specialty Chemicals Finance Luxembourg S.A. [2]	€ 500 million	XS0170386998
» **3.5% Euro Bond**	2003/2010	BASF SE	€ 1 billion	DE 000 884 671 8

[1] Effective 17 December 2009, BASF SE has issued a guarantee for the Ciba CHF-bond 2006-2012, replacing BASF Specialty Chemicals Holding GmbH as guarantor.

[2] This bond was initially guaranteed by Ciba Holding AG. Ciba Holding AG has been merged into BASF Specialty Chemicals Holding GmbH. BASF Specialty Chemicals Holding GmbH has by way of operation of law assumed this guarantee of Ciba Holding AG.

Figure 19 "BASF – Bonds 2009"[71]

[71] Source: http://www.basf.com/group/corporate/en/investor-relations/bonds-and-credit-rating/index (2010 02 06)

BASF issued several **bonds** with a total amount of 1.6billion€ in 2008 (Figure 76 "BASF – Bonds 2007 and 2008") including two CHF bonds and a Euro Bond and promissory notes for 553million€[72]. The Euro Bond (2008/13 with 1.25billion€) was placed in quarter 4 2008.

In 2009, BASF continued issuing corporate bonds (Figure 19), in total six bonds amounting to 4.5billion€. The first three placements (2billion€, 150million€ and 450million€) was in quarter 1 2009. In quarter 2 2009, a corporate bond for 1.35billion€ was issued and finally in quarter 3 2009, two smaller bonds (300million€ and 200million€) followed.

Despite the crisis, BASF did not reduce the **dividend** payment and paid out 1.95€ per share in 2009 for the fiscal year 2008. This amounts to approx. 2.2billion€ dividend and retained earnings summed up to 2.9billion€.

2.2. Bayer AG

Bayer AG, headquartered in Leverkusen, Germany, operates as strategic management holding company for the Group. The business consists of three operations, called "HealthCare", "CropScience" and "MaterialScience". Bayer's activities, in contrast to the compared chemical companies BASF, Dow and Du Pont, are to a significant extend in the pharmaceutical area: The "Pharmaceutical" segment as part of "HealthCare" business with sales of 10.5billion€ is responsible for a third of Bayer's total turnover (32.9billion€ in 2009)[73]. In 2009, HealthCare's turnover was 16billion€.

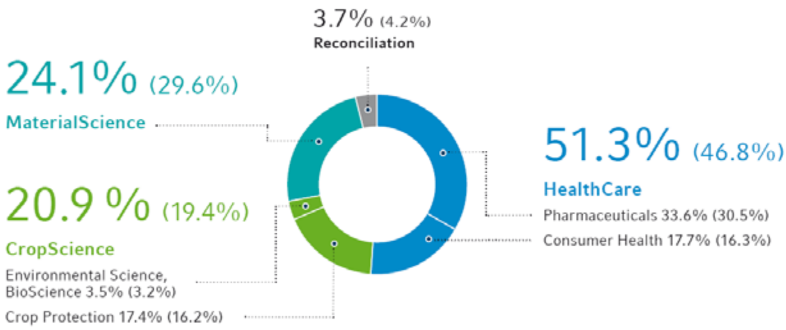

Figure 20 "Sales by Segment 2009 (2008 in parentheses)"[74]

The second subgroup in size is called "MaterialScience" and represents Bayer's products in the areas of polyurethanes, polycarbonates, and coating and adhesive raw materials. It also includes the production and marketing of certain inorganic basic chemicals. Revenues of

[72] Source: BASF Annual Report 2008, page 27

[73] Source: Bayer Q4 2009 analyst and Investor Briefing February 26 2010, page 6

[74] Source: Bayer Annual Report 2009, page 51

this sub segment were 7.5billion€ in 2009, compared to 9.7billion€ in 2008[75]. CropScience operates in the field of chemical crop protection, non-agricultural pest and weed control, seed breeding and the improvement of plant traits, and had revenues of 6.5billion€ in 2009.

2.2.1. Earnings

Sales 2008 exceeded 2007 (currency and portfolio-adjusted by 4.4%[76]). In 2009, revenues were 31.2billion€ compared to 32.9billion€ in 2008 and 32.4billion€ in 2007 (Figure 21). "**Cost of goods sold**" where on a high in quarter 4 2008 (3.9billion€), thereafter they fell for each quarter to levels even below 2007. Year-end 2009 they amounted to 12.3billion€ compared to 13.8billion€ in 2008 and 13.6billion€ in 2007.

"Cost of goods sold" combined with the usual high "selling, general & administrative expenses" (SG&A) of the last quarter left Bayer with an EBIT of only 37.6million€ in the last quarter. The **SG&A** in general did not show deviations from the mid-term level of 3billion€ per quarter. Nevertheless they amounted to 12.3billion€ in 2009 and in comparison to 13.8billion€ in 2008 and 12.2billion€ in 2007.

The total number of employees increased in 2008 versus 2007 from 105,622 to 107,299.

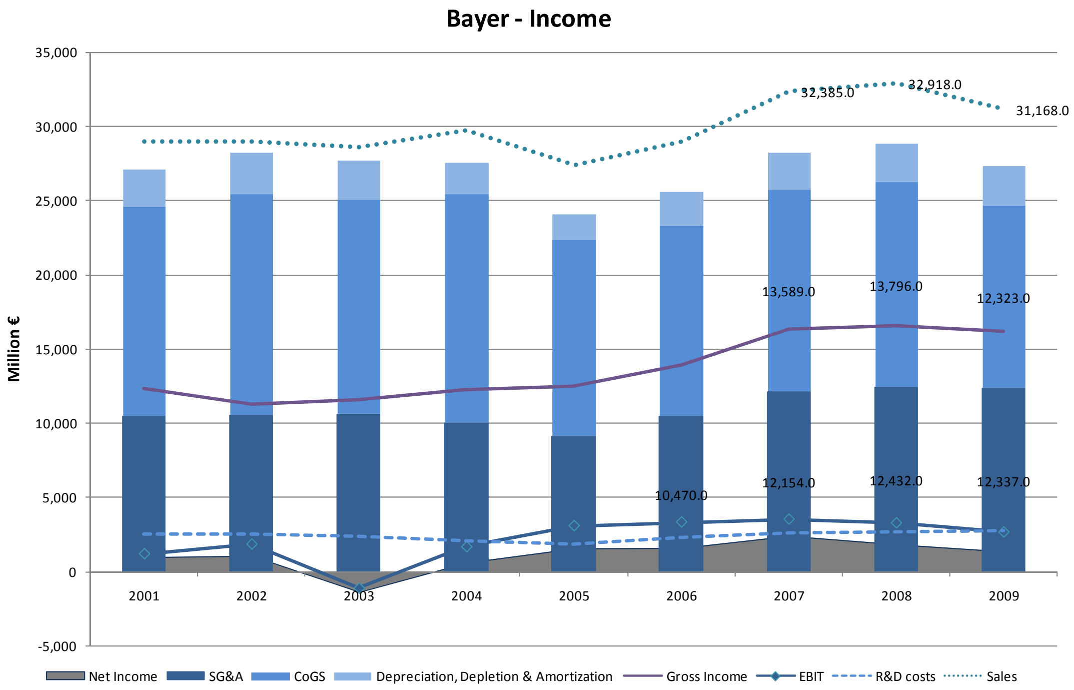

Figure 21 "Bayer - Income"

[75] Source: Bayer Annual Report 2009, page 69

[76] Source: Bayer Annual Report 2008, page 5

Total year's **EBIT** is reported for 2008 by Bayer as 12.4% higher than 2007 (2008: 3.5billion€, 2007: 3.2billion€[77]) whereas using the Thomson Reuters database the "earnings before interest and taxes" it is lower in 2008 than in 2007 (2008: 3.3billion€ versus 2007 with 3.55billion€). In 2009, when revenues decreased to 31.2billion€, EBIT decreased to 2.68billion€ and "net income" reached 1.36billion€.

Bayer spent slightly more for "**research and development**" in the three first quarters 2009 (2billion€) than in the corresponding period of 2008 or 2007. This reflects the increased budget 2009 for "R&D" to 2.9billion€ (2008: 2.6billion€) as announced[78].

"Net income" in 2008 was after a very strong 2007 (2.4billion€[79]) on a lower level with 1.8billion€. The first quarter 2009 was lower than the corresponding quarter in 2008, but the following two quarters are on the same level like 2008. "**Net income"** remained low but positive throughout all the periods.

2.2.2. Net Working Capital

In comparison e.g. to BASF, Bayer's "**net working capital**" fell within the last three first quarters of 2008 to half of what it had been before (Quarter 1, 2008 6.9billion€ and Quarter 2 to 4, 2008 2.6billion€ to 3.3billion€, see Figure 23). This is due to long-term debt maturing in quarter 2 2009. Thereafter in 2009, the NWC increased to 7.4billion€ (quarter 2 2009) and remained on this level until the end of the year (7.9billion€).

Bayer faced one year of a high amount of "**short-term debt & current position of long-term debt**". On long-term debt since 2004 and with the exception of the following three quarters after the acquisition of Schering in 2006[80] it amounted to between 1.3billion€ and 2.6billion€. From quarter 2 2008 until the first quarter 2009, Bayer's "short-term debt and current position of long-term debt" exceeded 6billion€. Two bonds, from 2004 and 2006, with a total value of 4.3billion$ were due in the first half of 2009 (see Figure 22 "Bayer's Maturity Profile for Bonds"). Thereafter it returned to the previously described long-term level.

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[77] Source: Bayer Annual Report 2008, page 2

[78] Source: Bayer Annual Report 2008, page 4

[79] Figure excludes „Extra Items & Gain/Loss Sale Of Assets" of 4.8billion€

[80] Source: Bayer Annual Report 2008, page 199

Maturity	Dec. 31, 2007	Maturity	Dec. 31, 2008
	€ million		€ million
Up to 2008	1,336	Up to 2009	6,256
Up to 2009	4,742	Up to 2010	771
Up to 2010	518	Up to 2011	1,967
Up to 2011	1,566	Up to 2012	2,740
Up to 2012	2,455	Up to 2013	1,465
Up to 2013 or later	3,800	Up to 2014 or later	3,671
Total	**14,417**	**Total**	**16,870**

Figure 22 "Bayer's Maturity Profile for Bonds"[81]

As shown in Figure 23, Bayer's **"cash and short-term investments"** in 2008 and 2009 do not deviate from the years before, with always a relative strong first quarter of the year.

The picture is similar (but shifted by one quarter) for the "**net receivables**" being on average 8.1billion€. On the current liability side, the "**accounts payable**" were in 2009 about 10% lower than in the previous periods. The "**inventories**" (on average since 2006 6.4billion€) do not reflect special actions and are kept on a similar level as in the periods before. A similar situation is found for the "**accounts receivable**" being on average 6.3billion€ since 2006. The more detailed discussion for the period 2008/2009 follows under "Cash Flow from Operations".

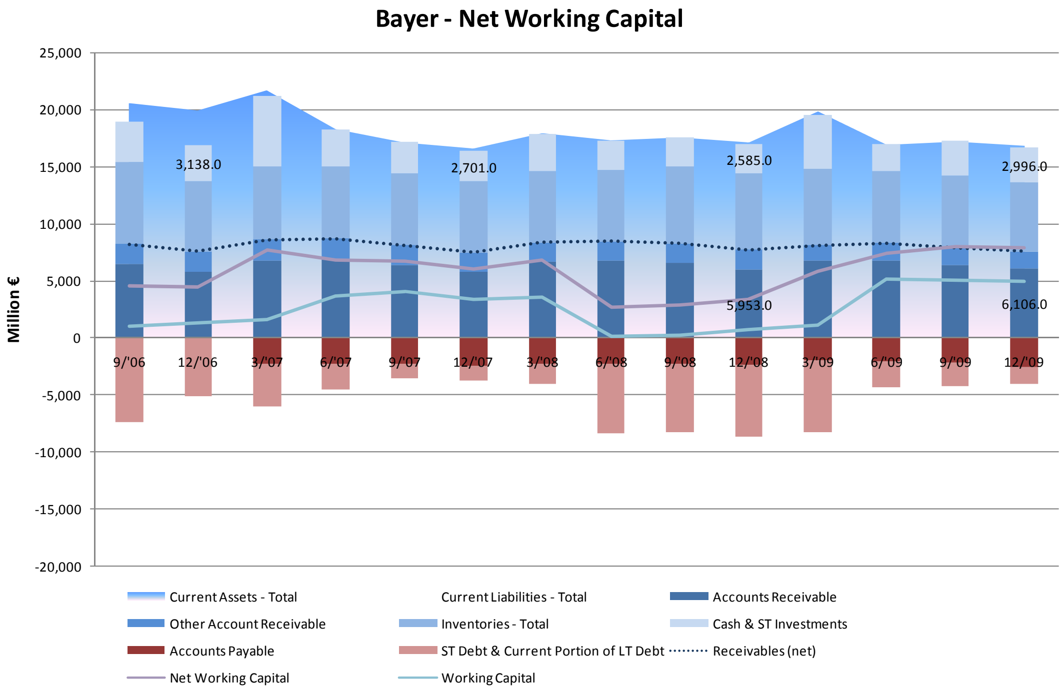

Figure 23 "Bayer – Net Working Capital"

[81] Source: Bayer Annual Report 2008, page 218

2.2.3. Cash Flows

The operations of Bayer are rather constant throughout the crisis 2008/2009 (Figure 24) resulting in "funds from operations" of around one billion€ per quarter (with the exception of quarter 1 2008 with 1.6billion€).

Bayer's "**net cash flow from operating activities**" in 2008 (2.9billion€) was lower than in 2007 (3.6billion€) due to a weak second half (2008: 1.9billion€; 2007: 2.9billion€). In 2009 the "net cash flow from operating activities" exceeded in only three quarters (3billion€) throughout the entire year 2008.

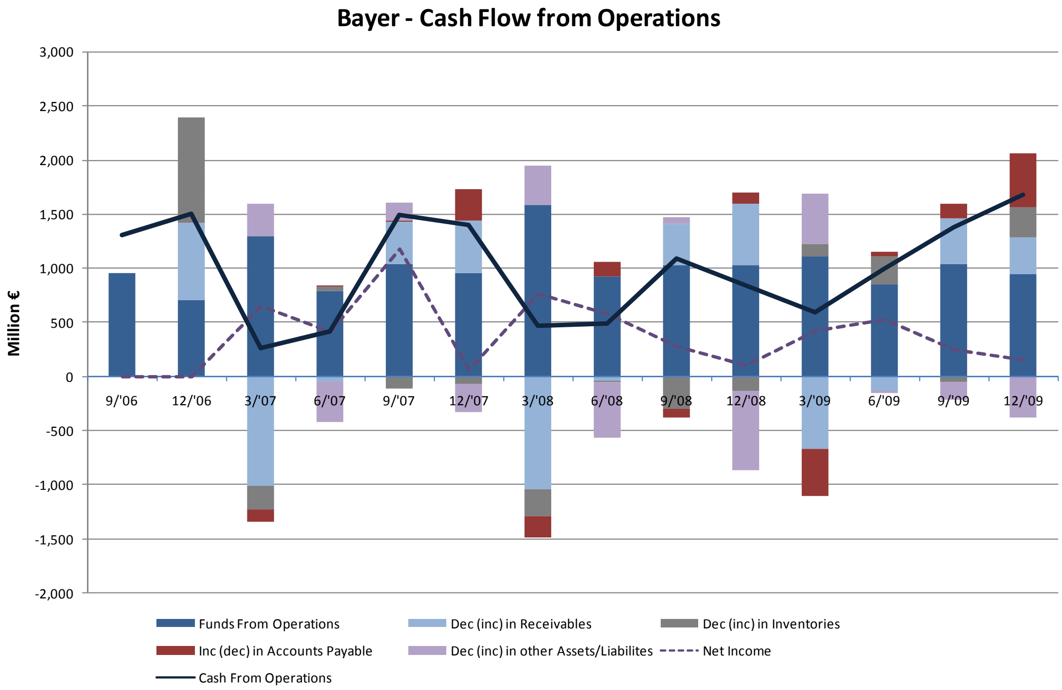

Figure 24 "Bayer – Cash Flow from Operations"

In detail as shown in Figure 24, the company had two similar quarters, the 1st and 2nd quarter 2008 (465million€ and 495million€). The first half year and in particular the first quarter of Bayer's "cash from operations" is usually very weak. It was higher in 2008 than in the former years. Contrary to the previous years is that the second quarter 2008 did not exceed the stronger first one and the weak last quarter of 2008. Quarter one 2009 again (588million€) was on the other hand a very strong first quarter, followed by a higher second and third quarter 2009. For comparison, BASF's low was in quarter 4 2008, DOW's and Du Pont's were in quarter 1 2009.

In 2008 and 2009 the **receivables** show a similar quarterly trend as seen in 2007, increases in receivables in the first half of the year and reductions in the second. Receivables in the equivalent quarters of 2007 and 2008 are almost the same, whereas for 2009 a clear trend of managing receivables could be seen with a lower increase in the first quarter. Throughout the year 2008, Bayer increased **inventories** by 692million€. Thereon in 2009 a reduction followed especially in the first two quarters of 327million€ (3 quarters 2009).

Bayer generated in the entire period 2008 and 2009 positive "**Free Cash Flow**" and exceeded in 2009 (quarter 1 to 3 with 1.89billion€) the previous years' level.

"Net cash flow from investing activities" in 2008 was €3.6million€ (3.0billion€ in Bayer's Annual Report 2008) compared to 2007 with a positive value due to disposal of fixed assets. In 2009 the "net cash flow from investing activities" (quarter 1 to 3: 906million€) remained on a low level resulting mainly from CAPEX and some minor divestments.

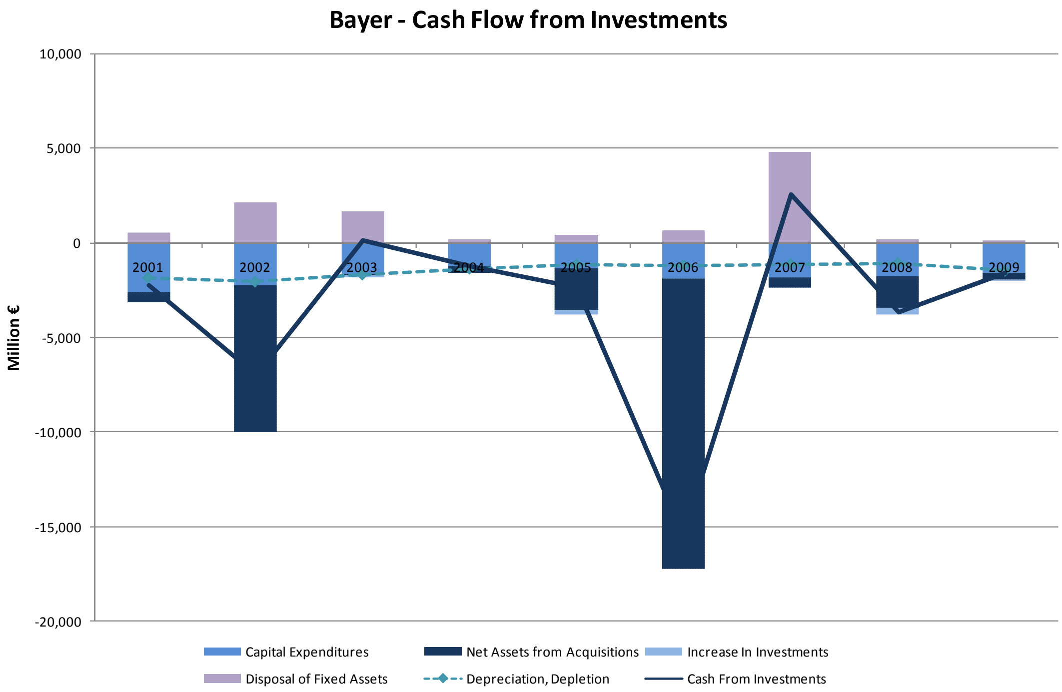

Figure 25 "Bayer – Cash Flow from Investments"

In 2008 the "net cash flow from investing activities" contained disbursements of 1.66billion€ for acquisitions with almost half of it (695million€) for the remaining interest in Bayer Schering Pharma AG. In 2009, (only) 50million€ were spent for acquisitions. Disposals of fixed assets were around 100million€ in the first 3 quarters of the year.

"Capital expenditure" presents the typical year's cycle with lower spending in quarter 1, like in the years before. Since 2000, CAPEX was lower from 2000 until 2002 than the "Depreciation & Depletion", then for two years it remained on the same level and turned to be higher since 2005 (Figure 25). In 2009 Bayer invested significantly less into "property, plant and equipment", reaching roughly the amount of "depreciation and depletion" (around 300million€ per quarter[82]).

"Net cash flow from financing activities" in the first quarter of 2009 amounted to 1.8billion€ mainly comprising of net borrowings of 1.8million€ (serving to refinance the 1.6€billion€ floating rate EMTN note becoming mature in the quarter 2 2009)[83].

Dividend payments for the fiscal year 2008 were increased from 1.35€ (2007) to 1.4€ per share which amounts to 1billion€. For 2009, again a dividend of 1.4€ will be proposed[84].

2.2.4. Financing

Bayer had private placements totalling 25billionYen (€198 million) in Japan and a 200million€ private placement.[85]

Bonds and Notes [Table 4.84]

Effective interest rate	Stated rate		Nominal volume	Dec. 31, 2008	Dec. 31, 2009
				€ million	€ million
		Bayer AG			
6.075%	6.000%	EMTN bond 2002/2012	EUR 2,000 million	2,025	2,044
5.155%	5.000%	Hybrid bond 2005/2105 (2015)	EUR 1,300 million	1,245	1,267
Floating	Floating	EMTN bond 2006/2009	EUR 1,600 million	1,599	-
4.621%	4.500%	EMTN bond 2006/2013	EUR 1,000 million	995	996
5.774%	5.625%	EMTN bond 2006/2018	GBP 250 million	259	277
5.541%	5.625%	EMTN bond 2006/2018 (increase)	GBP 100 million	106	113
Floating	Floating	EMTN bond 2007/2010	EUR 300 million	300	300
4.464%	4.375%	EMTN bond 2007/2011	EUR 200 million	200	200
4.038%	4.000%	EMTN bond 2008/2011	EUR 200 million	200	200
		Bayer Capital Corp. B.V.			
7.117%	6.625%	Mandatory convertible bonds 2006/2009	EUR 2,300 million	2,296	-
4.750%	4.625%	EMTN bond 2009/2014	EUR 1,300 million	-	1,291
		Bayer Corporation			
7.180%	7.125%	Notes 1995/2015	US$ 200 million	162	153
6.670%	6.650%	Notes 1998/2028	US$ 350 million	249	241
4.043%	3.750%	EMTN bond 2004/2009	EUR 460 million	460	-
		Bayer Holding Ltd.			
1.654%	1.585%	EMTN bond 2007/2010	JPY 10 billion	79	75
2.006%	1.955%	EMTN bond 2007/2012	JPY 15 billion	119	112
Floating	Floating	EMTN bond 2007/2012	JPY 30 billion	237	225
Floating	Floating	EMTN bond 2008/2013	JPY 10 billion	79	75
3.654%	3.575%	EMTN bond 2008/2018	JPY 15 billion	119	112
		Total		**10,729**	**7,681**

Figure 26 "Bayer – Bonds and Notes 2008 and 2009"[86]

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[82] The long-term comparison cannot be shown by using the Thomson One data for Bayer, as 2008 and earlier figures for depreciation & depletion unfortunately include amortization.

[83] Source: Bayer Financial Report as of March 31, 2009, page 22

[84] Source: Bayer Annual Report 2009, page 18

[85] Source: Bayer Annual Report 2008, page 219

[86] Source: Bayer Annual Report 2009, page 228

A 450million€ seven-year credit financing agreement was signed with the European Investment Bank. In December 2008, Bayer AG issued a bond with a nominal value of 200million€.

The increase in current bonds in 2008 is partly due to a mandatory convertible bond (nominal value 2.3billion€) issued in April 2006 and maturing in June 2009. Additionally a Eurobond with a nominal value of 460million€ matured in January 2009 (issued by Bayer Corporation under the Euro Medium Term Notes (EMTN) program). In March 2009, Bayer placed a corporate bond with a nominal value of 1.3billion€ and a maturity of 5.5 years (see Figure 26 "Bayer – Bonds and Notes 2008 and 2009", EMTN bond 2009 / 2014 with interest rate 4.625%). Figure 26 presents the details of Bayer's bonds and notes as a comparison of the year-end figures for 2008 and 2009.

2.3. E.I. Du Pont De Nemours & Co

Facing the crisis, Ellen Kullman (CEO) and Chad Holliday (Chair of the Board) of Du Pont announced for 2009 aside "*maximize variable contribution dollars*" the key elements, "*dramatically reducing spending*", "*zero-base all capital expenditures*" and "*aggressively reducing working capital*"[87].

2.3.1. General

As of Du Pont[88], the total equity declined by 4billion$ from 2007 (11.1billion$) to 2008 and remained constant at 7.2billion$in 2009. Total assets grew by approximately 2billion$ each year to 38.2billion in 2009. The total liabilities had a severe increase in 2008 from 22.6billion$ to 28.7billion$, strongly related to "other liabilities". In 2009, the increase of the total liabilities was in line with the growth of the total assets and amounted 30.5billion$ by the end of 2009. Thomson One data on the other hand does not count the "deferred income taxes" (2007 1.5billion$ and 2008 3.1billion$)[89] to the assets but reduces the liabilities accordingly.

2.3.2. Earnings

The **EBIT** was negative by 850million$ in quarter 4 2008 and recovered in 2009 but on a lower level than previously. Figure 27 presents the annual results. In 2008, EBIT was

[87] Source: Du Pont Annual Review 2008

[88] Source: Du Pont Form 10-K 2008, page F-5 and Du Pont Corporate News January 26, 2010 page 8

[89] Source: Du Pont Form 10-K 2008, page F-22

2.7billion$ versus 4.3billion$ in 2007. In 2009, an EBIT of 2.6billion$ is reported[90] whereas Thomson One states 2.5billion$ as result.

Revenues in 2008 (30.5billion$) were slightly higher than 2007 (29.4billion$) but 2009 amounted to 14% or 26.1billion$ less than 2008. In 2009 "**selling, general and administrative expenses**" slightly decreased to 4.82billion$ from 4.99billion$ the year before. The "**cost of goods sold**" decreased to 18billion$ in 2009 versus 2008 (21.9billion$) and 2007 (20.3billion$) which is in line with the lower sales volumes (raw material price and volume related). **"Research and development expenses**" were almost the same as over the previous six years.

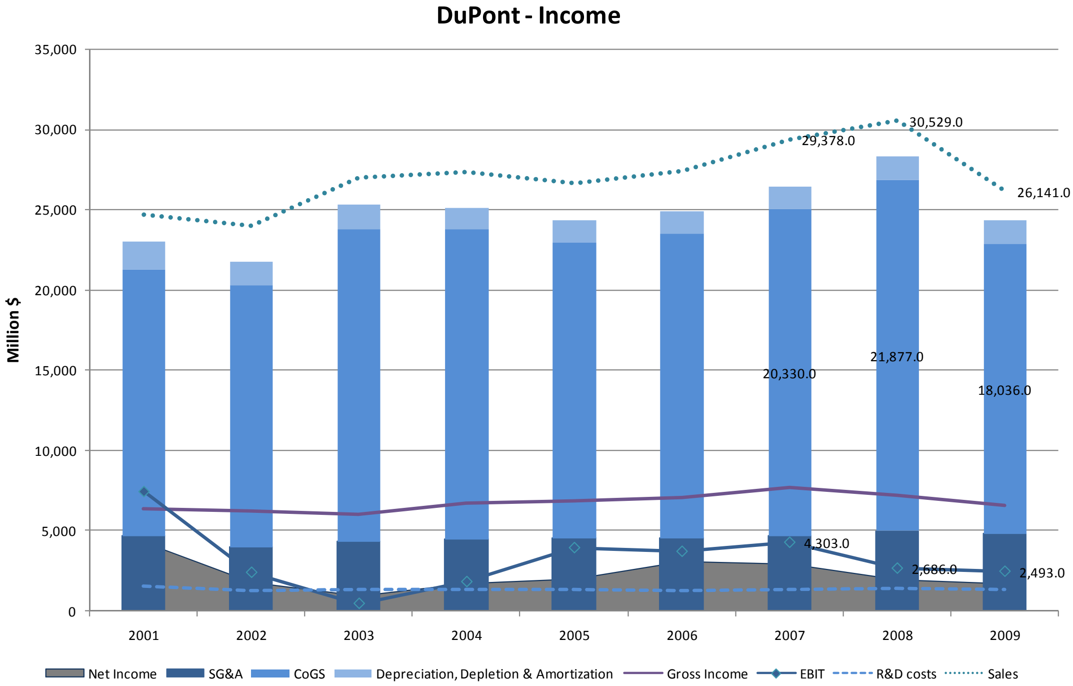

Figure 27 "Du Pont - Income"

2.3.3. Net Working Capital

"Net working capital" increased since 2007 exceeding 6.6billion$ in quarter 3 2008 and quarter 1 2009. Inventories increased until the end of 2008, whereas e.g. BASF's **inventories** had started decreasing a quarter earlier. In 2009, they were on the level of 2007 compared to the cost of goods or turnover.

"**Cash and short term investments**" were -since the second half of 2008 - clearly growing and amounting to 3.2billion$ in quarter 3 2009 and to 6.1billion$ by the end of 2009. Figure 28 illustrates the development of "cash and short-term investments" from 1.4billion$ end

[90] Source: Du Pont Form 10-Q period December 31, 2009, page 14

of 2007 to 3.7billion$ end of 2008 and finally to 6.1billion$ by the end of 2009. In 2007 and 2008 "**marketable securities**" were rather low (50 to 131million$) and by the end of 2009 amounted to 2.1billion$[91].

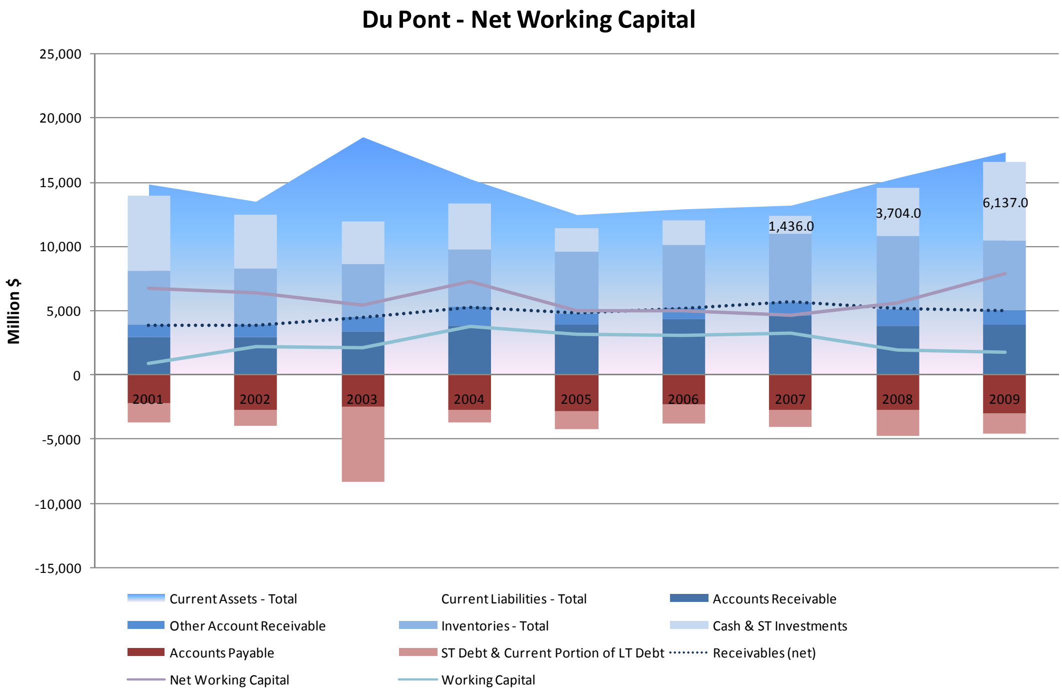

Figure 28 "Du Pont – Net Working Capital"

The "**receivables**" were rather low especially in quarter 4 2008 and quarter 1 2009, but thereafter increased to almost the same levels as the corresponding quarters in 2008 with 7.1billion$ in quarter 3 and 5billion$ in quarter 4 2009 (2008 quarter 3: 7.4billion$, quarter 4: 5.1billion$). This is "remarkable" as the revenues in 2009 in the particular quarters were 20% lower.

The same is true for the "**accounts payable**". In 2008, the "accounts payable" were higher than in 2007. In 2009 the decrease of the payables compared to the corresponding quarter of 2008 was 25% for quarter 1 and thereafter less (quarter 4 2009 minus 13%). This is again in line with the approximately 20% lower revenues in the 2009 quarters.

The ratios (Figure 29) demonstrate the improved "accounts receivable turnover" and worse "accounts receivable turnover" and "inventory turnover".

[91] Source: Du Pont Form 10-K 2008, page F-5 and Du Pont Corporate News January 26, 2010 page 8

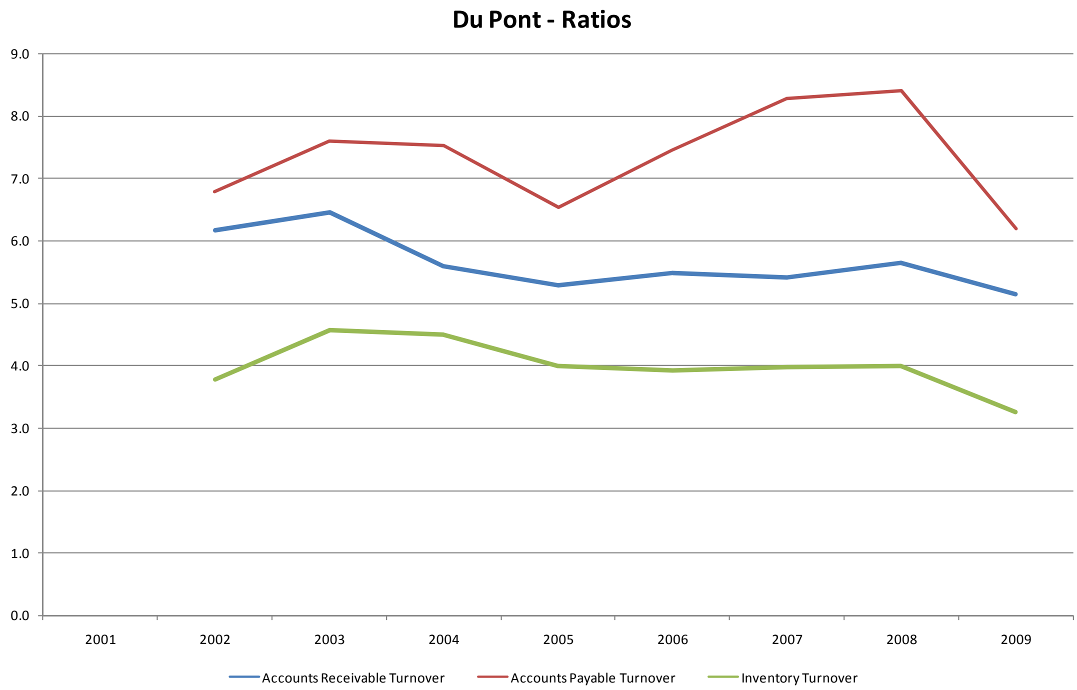

Figure 29 "Du Pont - Ratios"

"**Total current liabilities**" grew from 2007 (8.5billion$) to 2008 (9.7billion$) and then decreased to 9.4billion$ in 2009. "**Short-term debt & current position of long-term debt**" increased from 2007 to 2008 to 2billion$, were high in the mid of the year 2009 and then decreased towards end of 2009 to 1.5billion$[92]. The "**current ratio**" was in the entire period on a comfortable high level (form 1.44 in quarter 3 2007 up to 1.87 in quarter 1 2009).

2.3.4. Cash Flow

"Net cash flow from operating activities" are characterised by a decrease in inventories in 2008 and an increase in 2009. The improvements in receivables were outweighed by a decrease of payables.

"Net income" for 2008 (2billion$) decreased by 33% compared to 2007 (3billion$) and by 36% compared to 2006 (with 3.2billion$). Du Pont reported it as "mainly due to a substantial decline in sales volume, primarily occurring during the fourth quarter 2008"[93]. "Net income" in quarter 4 2008 was negative with -629million$. In 2007 and in 2008 the first half year was always a strong one, whereas in the second half the "net income" was significantly lower. "Net income" in 2009 was stable for all quarters between 400million$ and 500million$ and amounted to 1.76billion$ for the total year compared to 2billion$ in

[92] Source: Du Pont Corporate News January 26, 2010 page 8

[93] Source: Du Pont 2008 Form 10-K, page 22

2008 and 2.99billion$ in 2007. “Funds from operations” in 2009 were higher than in the second half of 2008.

The “**net cash flow from operating activities**” in the last years always showed a strong last quarter over the years, followed by a negative first quarter in the coming year. This is due to the strong decrease of “receivables” by the end of the year and an inventory build up in the first half of the years. Throughout the whole year 2008 an increase in inventories and a decrease in accounts payable is reported. In 2009 **inventories** were reduced by 481million$ and the reduction of the receivables (69million$) did not reach the effect of the increase in payables (115million$).

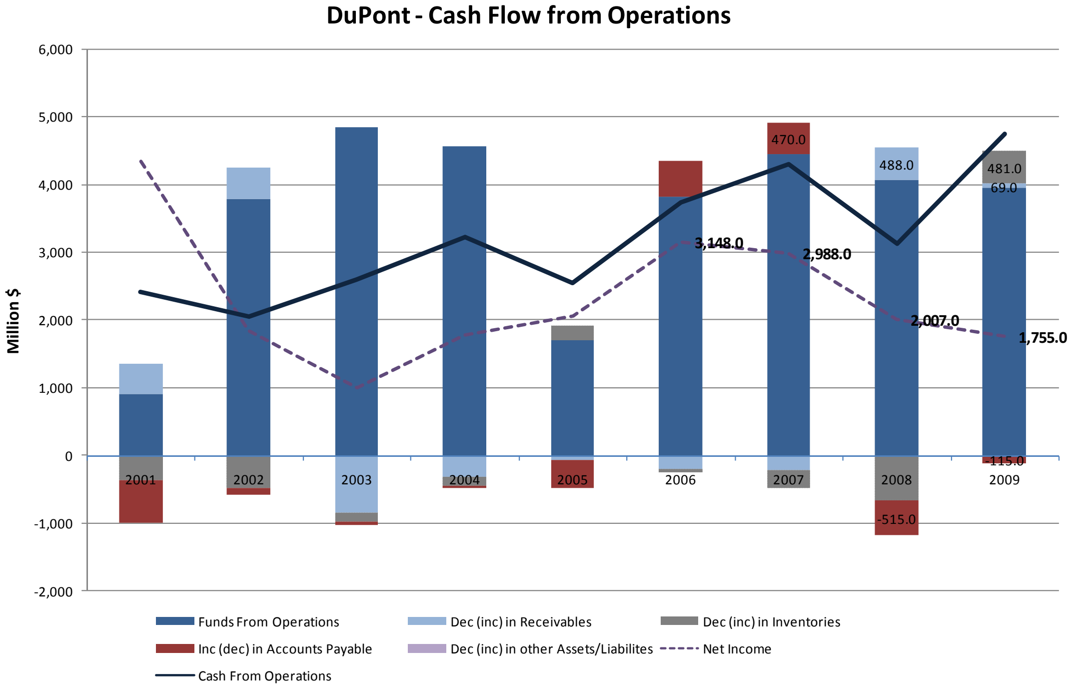

Figure 30 “Du Pont – Cash Flow from Operations”

“Net cash flow from investing activities” is influenced by a lower CAPEX in 2009 than 2008 and a 2.1billion$ investment in marketable securities. Du Pont’s “**capital expenditure”** remained on a high level over the last years, usually higher than the “Depreciation, Depletion & Amortization” figures. In 2008 the CAPEX of 1.98billion$ was 37% higher than “Depreciation, Depletion & Amortization”. Du Pont’s spending in the quarters 1, 2 and 3 of 2009 (990million$) was significant lower than in the same quarters in 2008 (1.4billion$), but similar to 2006 and 2007. Aside the strong reduction of the “capital expenditures” in 2009, mainly increases of investing activities could be seen: an increase in short-term financial instruments (nine months ended September 30, 2008: -33million$, 2009: -800million$) and “forward exchange contract settlements” (757million$ versus 11million$)[94]. In 2009, Du Pont had an addition of 2.14billion$ in “**payments related to financial assets and securities**”. This significant increase in marketable securities was reported to be “*primarily due to longer maturities for current year investments, coupled with an increase in cash*”[95].

“Net cash flow from financing activities” characterised by a constant dividend and the issuance of notes worth 3billion$ in 2008 and 2.9billion$ in 2008. **Dividends** for the fiscal year 2007 and 2008 remained stable with 1.5billion$ (see Figure 31).

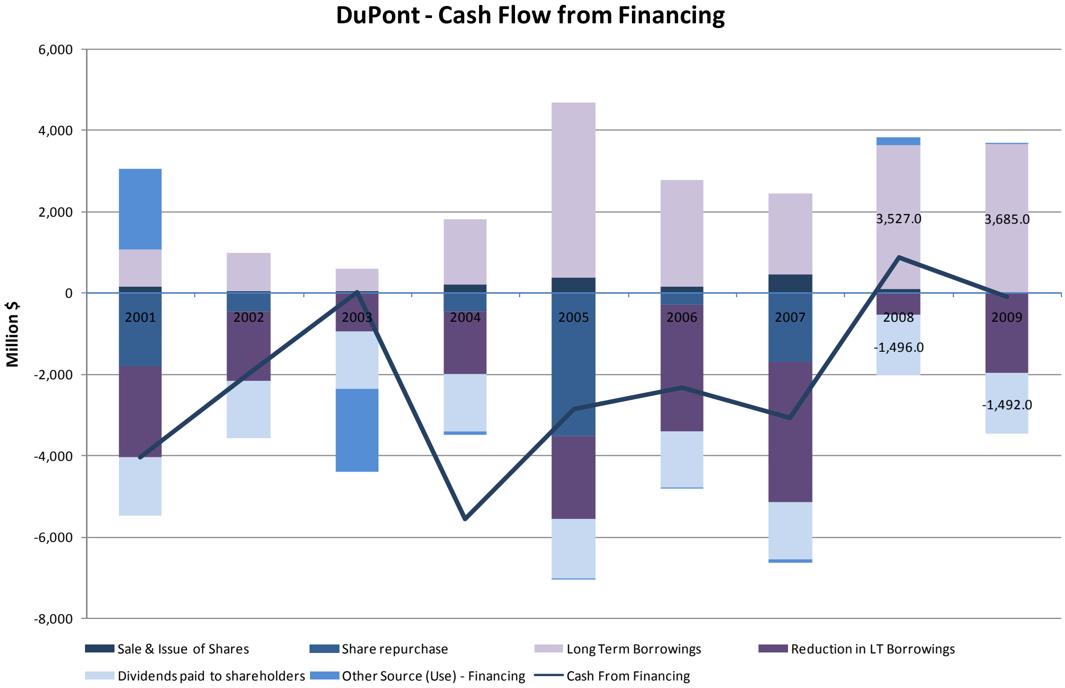

Figure 31 “Du Pont – Cash Flow from Financing”

In 2008 Du Pont issued bonds for 750million$ due in 2013 (at 5.0%), 1.25billion$ due in 2018 (at 6.00%) in July 2008 and in December 2008 $1billion$ due in 2014 (at 5.875%)[96].

The database of Thomson Reuters reported four bonds for 2009, two of 900million$ and two of 2billion$[97]. The “issuance of long-term debt” in the cash flows from financing activities only partially reflects this: quarter 1 433million$, quarter 2 with 281million$ and quarter 3 with 694million$. In fact, after the availability of the annual results of Du Pont in February 2010, it can be stated, that Du Pont did “only” issue 900million $ in total (400million$ plus 500million$) in February 2009 and two times 1 billion$ in December 2009.

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[94] Source: Du Pont Form 10-Q period September 30, 2009, page 7

[95] Source: Du Pont Form 10-K 2009, page F-20

[96] Source: Du Pont Form 10-K 2008, page F-24

[97] Source: Thomson One, search of December 28, 2008

Total debt increased in 2009 mainly due to the **bonds issuance** of a 1billion$ "Senior Note" (3.25%) and a further note of 400million$ (4.75%) both due in 2015, a 500million$ note of 5.75% due in 2019, and a 1billion$ 4.625% Senior Notes due in 2020[98].

In 2008 the "**total liabilities"** of Du Pont amounted to 25.6billion$ compared to 21billion$ in 2007, an increase in particular due to the "other liabilities". These "**other liabilities**" include the company's pension and long-term employee benefit plans[99]. The net amount recognized fell from +412million$ in 2007 to -5.3billion$ in 2008 mainly due to the "U.S. plans with plan assets"[100]. In 2009, pension benefits decreased further to -5.6billion$[101].

The "**current liabilities"** rose by 1.2billion$ and the "**long-term debt"** by 1.7billion$.

In 2009, the total liabilities increased to 28billion$ (quarter 3) with current liabilities of 9.6billion$ and long-term debt of 7.5billion$.

The aforementioned bonds issued in 2008 amounted to 3billion$ and those of 2009 to 2.9billion$. With these borrowings, Du Pont aims to finance the normal seasonal working capital needs[102]. **Interest expense** in 2009 was approximately 100million$ per quarter, similar to the years 2007 and 2008.

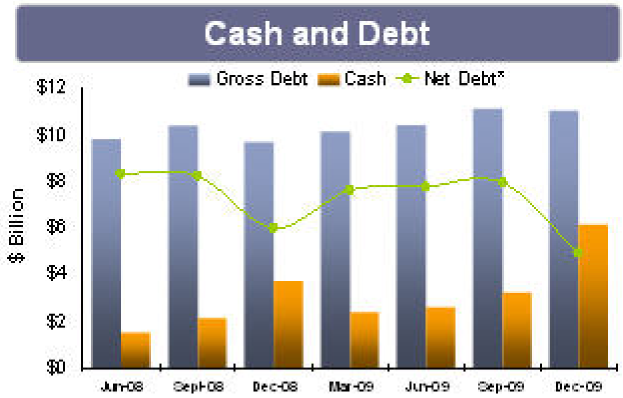

Figure 32 "Du Pont – Cash and Dept Profile"[103]

For the 4th quarter 2009, Du Pont reported a high cash position (approx. 6 billion$) and a slight reduction of gross debt.

[98] Source: Du Pont Form 10-K 2009, page F-25

[99] Source: Du Pont Form K-10 2008, page F-35

[100] Source: Du Pont Form K-10 2008, note 21

[101] Source: Du Pont Form K-10 2009, note 22

[102] Source: Du Pont Form 10-Q period September 30, 2009 page 38.

[103] Source: Du Pont, http://phx.corporate-ir.net/phoenix.zhtml?c=73320&p=irol-debtinformation (2010 02 02)

2.4. The Dow Chemical Company

In 2009, Dow closed the Rohm & Hass acquisition and a number of divestments became effective. Under this light, Andrew Liveris, President, CEO and Chairman of the Board of Dow, described the company's main targets for 2009 as "*focused on the basics of running our business and on generating cash*" and further "*We are working toward a solution to the failed K-Dow joint venture [...] and toward integrating the Rohm and Haas acquisition*"[104].

2.4.1. Earnings

Dow's **revenues** (see also Figure 33) fell by almost 45% within the three quarters of 2009 from 16.38billion$ (mid 2008) to 9.087billion$ (end of quarter 1 2009). Thereafter the sales from Rohm and Haas were consolidated. The "**costs of goods sold**" fell from the quarter 2 2008 until quarter 1 2009 almost by the same extend like the revenues (from 14.0billion$ to 7.7billion$).

"**Research and development**" costs decreased to 292million$ in the first quarter 2009 having been 10-15% higher in the previous periods. After the acquisition of Rohm and Haas, the R&D spending grew and reached 419million$ by the end of 2009.

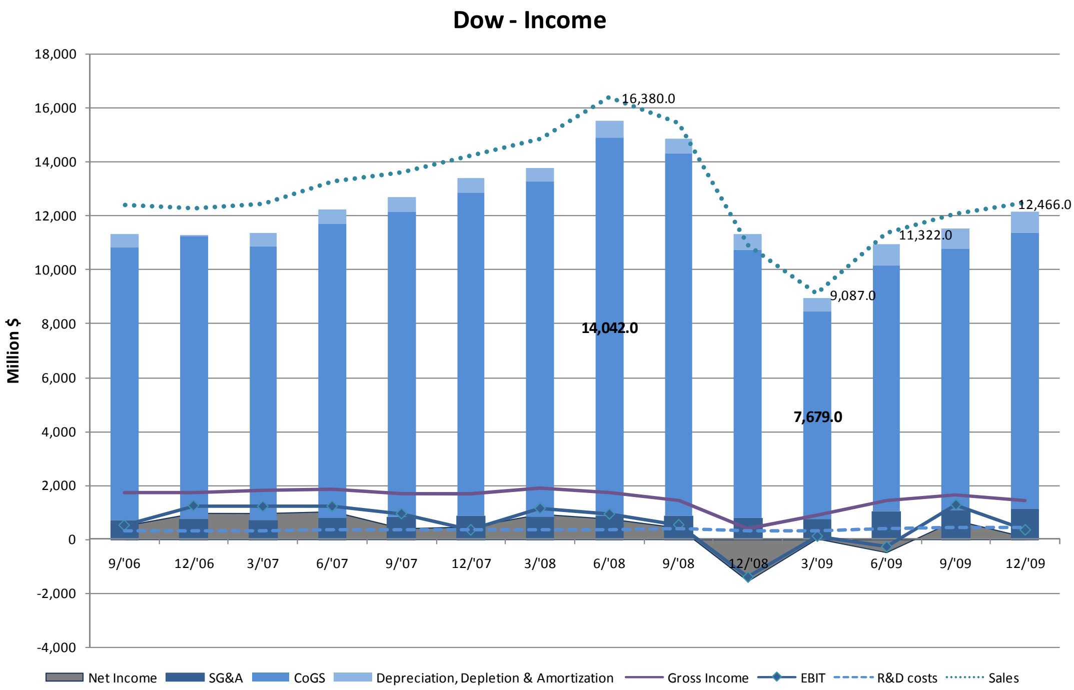

Figure 33 "Dow - Income"

EBIT for the entire year 2009 was 1.4billion$ and thus exceeding 2008 with 2.18billion$. "**Net income"** on the other hand decreased further and amounted to only 336million$ in

[104] Source: The Dow Chemical Company 2008 Corporate Report, page 3

2009 compared to 579million$ by the end of 2008 and 2.887billion$ by the end of 2007. The following charts show the development of "net sales" and "net income" since 2004 as published by Dow (Figure 34 "Dow – Net Sales & Net Income").

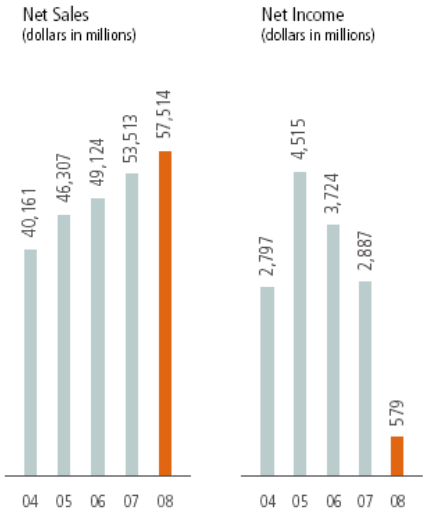

Figure 34 "Dow – Net Sales & Net Income"[105]

2.4.2. Net Working Capital

"**Net working capital**" was characterised by a strong cash management since quarter 2 2008, reduction of short-term debt by 3.4billion$ in quarter 1 2009 and a strong management of receivables beginning of 2009.

DOW's "**net working capital**" sharply fell from the former level of 6billion$ up to 7billion$ within two quarters to 3billion$ (end 2008). Within one quarter only the "net working capital" was again 5.9billion$ and thereafter 7.3billion$. One important factor was the reduction of 3.4billion$ of short-term liabilities beginning of 2009.

From 2005 onwards, "**short-term debt & current position of long-term debt**" increased to 4.15billion$ (quarter 3 2008), followed by 3.8billion$ end of 2008. In 2009 in the first half "short-term debt" was 2billion$ and 1.8billion$ whereas in the second half above 3billion$ and at the end of the year it amounted to 3.2billion$.

The "**payable turnover**" also shows a maximum in quarter 1 2009 (with 8.7) and thereafter a decline to former levels (around 6.9). This equals "days' payables" of 42 days in quarter 1 2009 and thereafter 53 days. The "**receivables net**" declined sharply in the second half of 2008. This also needs to be seen in relation to the decline in sales (from 15.4billion$ in quarter 3 2008 to 10.9billion$ in quarter 4). The "**receivable turnover**" between end of

[105] Source: The Dow Chemicals Company 2008 10-K and Stockholder Summary, page 1

2008 and mid of 2009 was significant higher (between 6.3 and 7.9 whereas the regular level was 5.6), indicating management attention on the management of receivables.

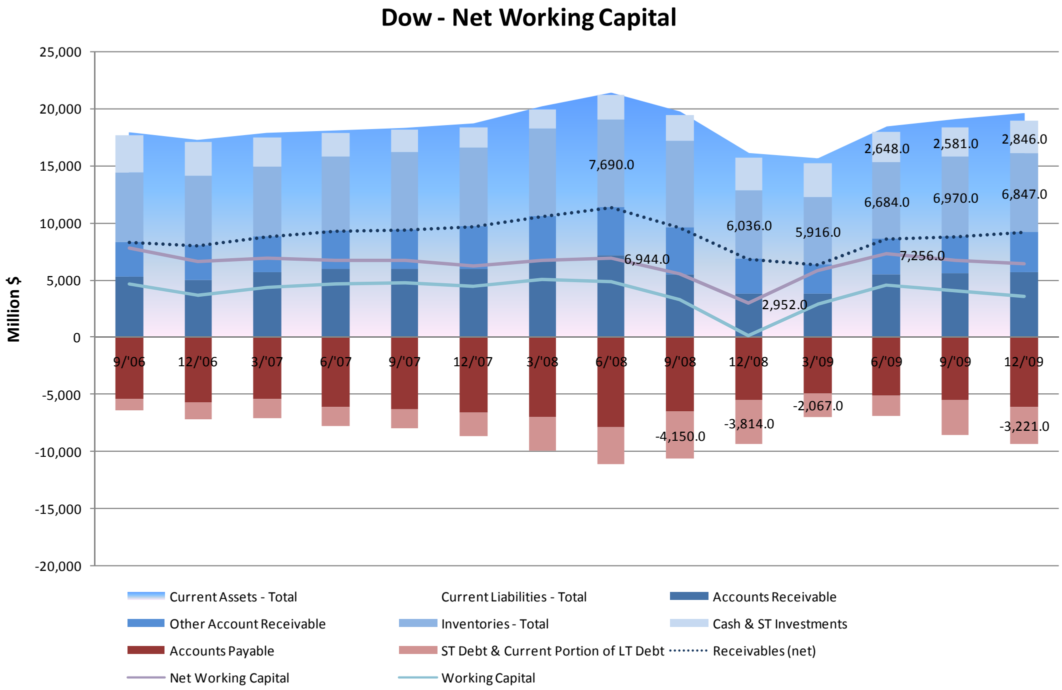

Figure 35 "Dow - Net Working Capital"

Inventories were lowered from 7.7billion$ in the second half of 2008 to below 6billion$ at the end of quarter 1 2009. Thereafter a comparison of the absolute figures is difficult as Rohm and Haas' inventories are included.

The "**current ratio**" decreased end of 2008 to 1.23 (usually being between 1.4 and 1.6). From quarter 2 onwards the ratio declined again (quarter 3 2009 only 1.54).

From 2002 on, DOW's "**cash and short term investments**" were growing up to 3.8billion$ by the end of 2005. Thereafter a steady decline started and DOW reached a cash position of only 1.7billion$ in quarter 1 2008. Since then, the cash and short-term investments have exceeded 2billion$ and by the end of 2008 as well as end of 2009 amounted to 2.8billion$.

2.4.3. Cash flow from operations

Figure 36 shows the strong management activities in the second half of 2008 and throughout 2009, with the reduction of **inventories** over 4 quarters worth 2billion$. "**Accounts receivable"** were reduced by 3.4billion$in the same period. On the other hand, the "**accounts payable"** decreased by a lesser extent (2.8billion$). These reductions helped to maintain a positive "Cash flow from operations" except for the first quarter 2009 and despite the low "funds from operations".

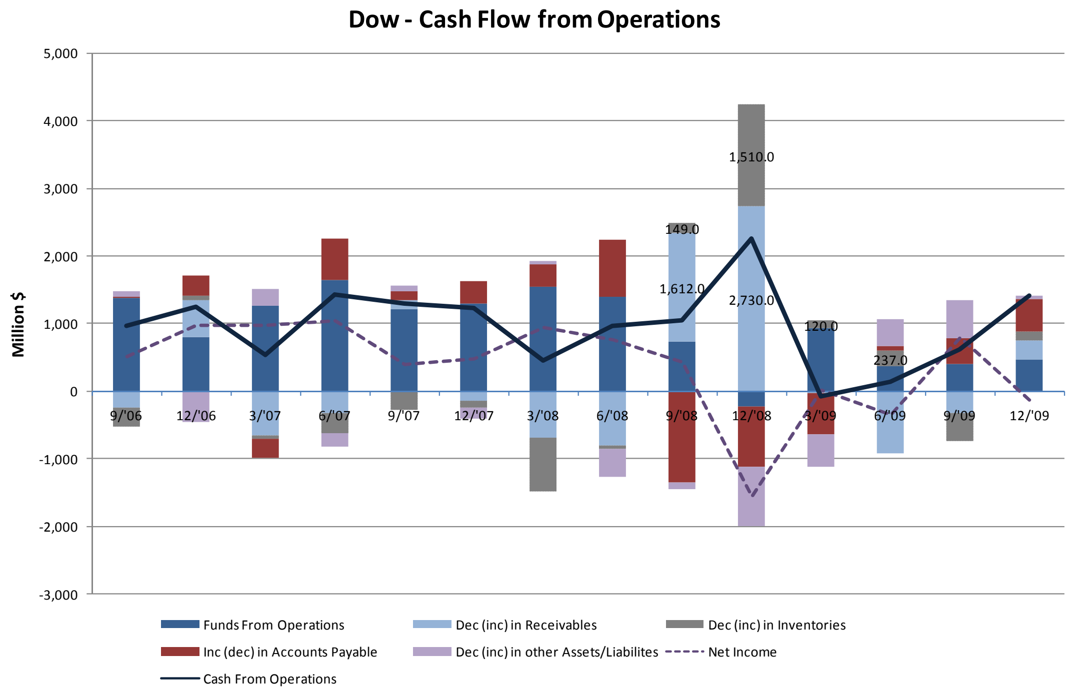

Figure 36 "Dow – Cash Flow from Operations"

2.4.4. Investing activities

"Capital expenditure" compared to "Depreciation, Depletion & Amortization" grew from 65% to 102% in 2008. CAPEX in quarter 4 2008 could reflect a postponement as it is slightly lower than in the corresponding period 2007. Strong deviations can be seen in the first half of 2009 for the investments, as they were significantly lower than the years before. Quarter 3 showed a very strong increase from 589million$ spending in the first half to 979million$ in the 3rd quarter 2009. The absolute figures need to analyzed bearing in mind the acquisition of Rohm&Haas and the increased fixed assets. Nevertheless, the "capital expenditures" in quarter 3 were higher than the depreciation in the same quarter.

2.4.5. Financing activities

The financing activities of Dow are mainly driven by the acquisition of Rohm & Haas and therefore discussed in the chapter "Dow acquiring Rohm & Haas". DOW's "**debt to equity ratio**" as "total liabilities to shareholders' equity" changed significantly in quarter 4 2008 to 1.96 from an average of 1.34 since 2006. After quarter 2 2009 the ratio even reached 2.2 and thereafter decreased to 2.08 by the end of 2009. The long-term debt to equity ratio in 2008 was between 0.3 at the beginning of the year and 0.6 at the end of 2008. In 2009, the ratio was between 0.8 and 1.1 (second quarter 2009).

2.5. Gas Peers

The three major chemical players being active in “gas business” are the European L’Air Liquide (market capitalisation 31billion$) and Linde (21.1billion$) and the U.S. based Praxair (24.6billion$) followed by Air Products (17.2billion$) which was not considered in the further discussion.

The peers are active in production and sales of gases e.g. air gas or hydrogen. In addition some players (e.g. Praxair, Linde) offer engineering services not only for their own group companies but also for industrial customers. Logistics are another important business area some of the “gas companies” include in their portfolio. Air Liquide and Praxair on the other hand are also involved in specialty chemical businesses like manufacturing of coating, often related to the expertises gained from the gas business or raw material integration.

The particular business seems not to have been affected too much by the crisis. Sales in all cases were only slightly below the amounts before the crisis and earnings either on the same level or above. Both remained constant throughout the reported interim periods. From this perspective, “working capital management” was very minor with Praxair in particular actively reducing its short-term debt and Air Liquide increasing the cash position of the company.

Air Liquide’s financial results remained unchanged throughout the crisis. The company’s “net working capital” did not show significant changes. End of 2008 and mid of 2009, “cash and short-term investments” almost doubled compared to the corresponding period in the previous year. Financing activities were in line with the past. The company issued bonds for refinancing debt. M&A activity continued with smaller transactions as in 2008.

In 2009, **Praxair** strongly reduced short-term debt by issuing notes. Total debt remained on the level of 2008 by the end of 2009. In the crisis, the “current assets” were constant and on the level of 2007. The deviation to the first half of 2008 was mainly due to the changed raw material prices and the resulting lower “accounts receivables”.

Linde’s “net working capital” demonstrated “business as usual” with the interesting detail of having been negative since 2007. A reduction of approximately 100million€ per quarter in SG&A was found. From a financing point of view, the Bond issuing continued - aimed to refinance debt.

The share price development of the three companies (Figure 37) also reflects the crisis but less intensive than with e.g. the major players BASF or Du Pont. Air Liquide has even exceeded the prices from July 1 2008[106]. Praxair had the weakest performance of the three companies with 83.2% (March 12 2010). Linde has reached in the same period 95.3% of the pre-crisis share price.

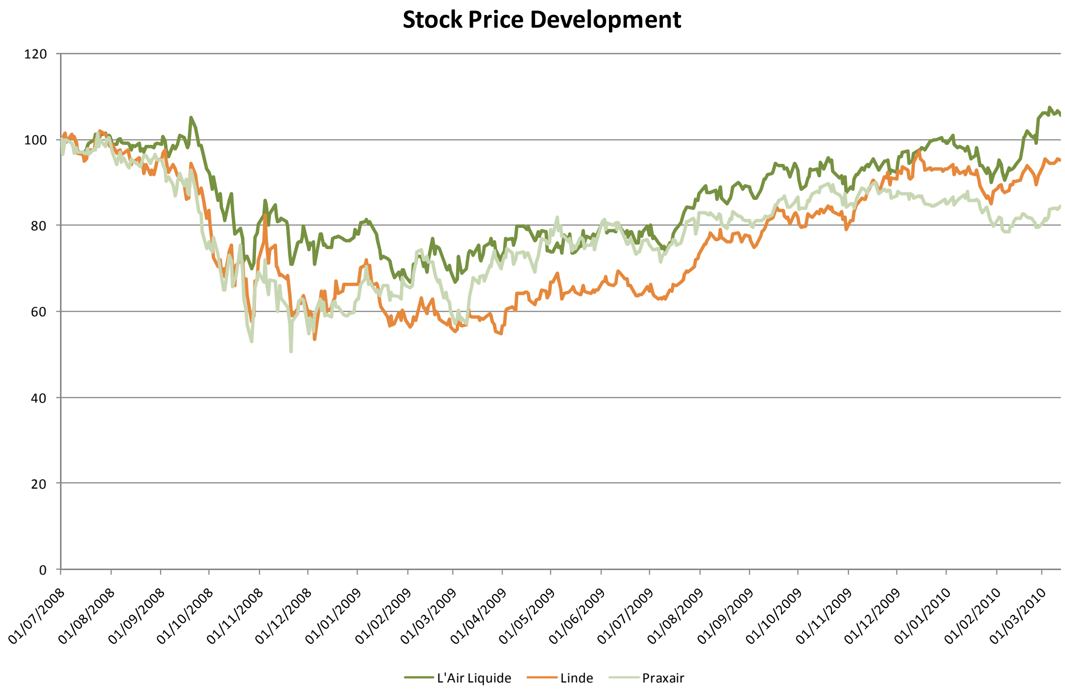

Figure 37 "Stock Price Development – Gas Peers"

2.5.1. L'Air Liquide S.A.

The main activities of "L'Air Liquide S.A." are the production and distribution of gases for industry, health and the environment. The company claims to be "the world leader in gases for industry, health and the environment, and is present in over 75 countries with 43,000 employees"[107].

The company is headquartered in Paris and the market capitalisation was around 21.5billion€ in December 2009. The revenues amounted to 13.1billion€ by the end of 2008. At this time, Air Liquide's individual shareholders represented 38% of the total capital and none of them held more than 3.5% of the capital. Foreign institutional shareholders accounted for 35% and French institutional shareholders for 26% of the capital.[108]

The Group operates in Europe, Asia Pacific, the United States and Africa. The activities are organised in the segments "Industrial Merchant" (gases pressurized in cylinders or liquid in

[106] Source: Thomson One, search 2010 03 13: Air Liquide 83.8€; Linde 90.32€; Praxair 94.43$

[107] Source: Air Liquide Annual Report 2008

[108] Source: Air Liquide Annual Report 2008, page 34

storage tanks), "Large industries" (air gas and hydrogen through vast pipeline network), "Electronics", "Healthcare", "Engineering and Construction" (construction of the Group's production units and of plants for third party clients) "Welding-Cutting" (welding and metal cutting solutions), "Specialty Chemicals", "Aeronautics, Space, Cryogenics" and "Diving".

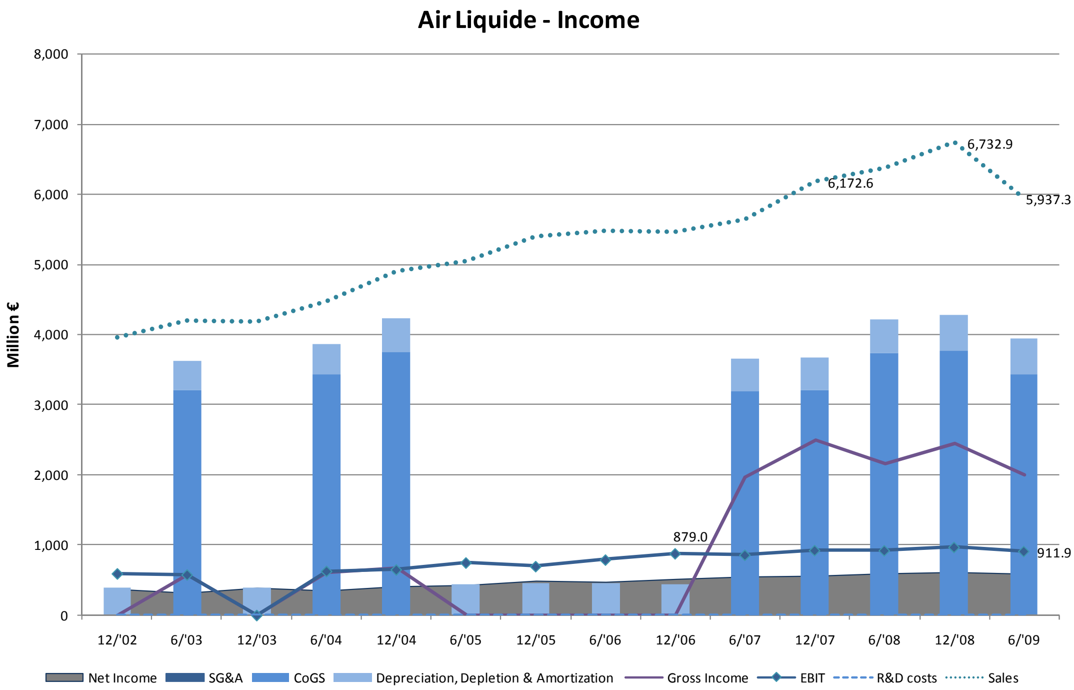

Figure 38 "Air Liquide - Income"[109]

Considering the financial data until June 30, 2009 (Air Liquide reports on a half years base), 2009 was on the level of 2007 with revenues and "cost of goods sold" higher but similar "operating income" and a slightly higher "net income". CAPEX remained on a high level (twice as high as depreciation). EBIT and "net income" remained at almost the same level over the last three years.

"Net working capital" in 2009 was lower than 2008. "**Cash and short-term investments**" were twice as high at end of 2008 and mid of 2009 compared to the periods before. Inventories remained at the 2008 levels in 2009.

The company's **receivables** showed the typical higher value in the mid of the year and a lower at the end. Mid 2009 the receivables are on the level of June 2007 with 3.136billion€. The "receivable turnover" was calculated as 4.2 (equalling 87days to collect the money). In 2009 accounts receivable remained slightly below the corresponding period of the year before.

[109] The figures for R&D costs and SG&A are not reported in the interim reports. Data for CoGS and "Gross income" was in Thomson One not available for all periods and thus indicated as zero.

Air Liquide's current liabilities mainly comprise of the position "accounts payable". Mid of 2008 the accounts were 3.4billion€ and decreased slightly in the corresponding period 2009 to 3.3billion€. The "accounts payable turnover" at end of 2008 was slightly higher than the previous year, the value for the interim period on the other hand decreased slightly (from 0.9 to 0.8).

"**Short-term debt and current positions of long-term debt**" increased throughout the crisis.

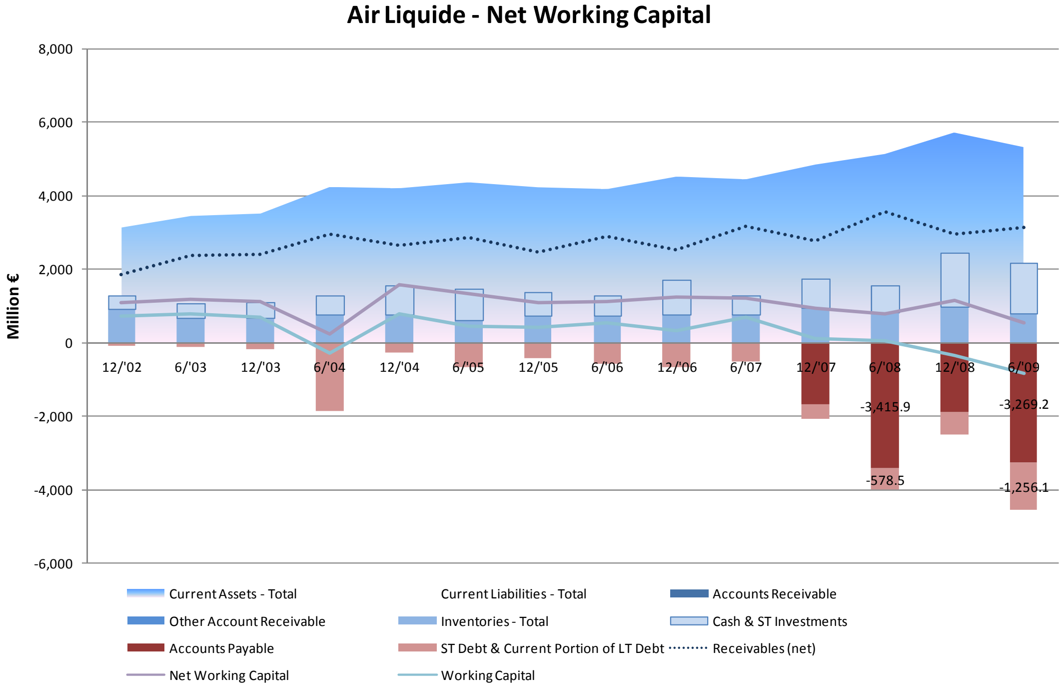

Figure 39 "Air Liquide – Net Working Capital"

Air Liquide completed eight **smaller transactions** in 2008 and five in 2009. The last major acquisitions all took place in 2007: Lurgi AG in July 2007 with a deal value of 744million$, in April Hong Kong Oxygen & Acetylene (361million$) and in March Japan Air Gases (777million$)[110].

Air Liquide can issue long-term **bonds** through its Euro Medium Term Note (EMTN) program up to a maximum of 8billion€ with outstanding notes of 3.6billion€ (nominal amount) by the end of 2008. In 2008, 1.1billion€ were issued[111]. This is in-line with the findings through Thomson Reuters. For 2009, Thomson Financials listed the issuing of one bond of 559million$.

[110] Data source: Thomson One, search 2009 12 28

[111] Source: Air Liquide 2008 Reference Document, page 32

2.5.2. Linde AG

The Linde Group is a worldwide active gases and engineering company offering compressed and liquefied gases as well as chemicals. The almost 52,000 employees in around 100 countries achieved a turnover of 12.7billion€ in 2008. The company is listed in the DAX with a market capitalisation of 14.5billion€ (December 2009).

Linde is organised in three divisions: Gases, Engineering and Gist. The “Gases Division” is involved in production, sales and distribution of gases for the industry, medicine, environmental protection and research and development. The “Engineering Division” is active in conception and construction of turnkey industrial plants for the petrochemical industry, the production of hydrogen and synthesis gases, the treatment of natural gas and the construction of pharmaceutical plants. Under Gist, the logistics services are combined.

In 2008 and in 2009 the company completed merely smaller **M&A transactions**. More intensive activities took place in the years 2007 (e.g. with the sales of BOC Edwards to CCMP Capital Advisors LLC for 984million$) and especially in 2006 when BOC Group PLC was acquired for 15.5billion$.

In 2009, **revenues** were slightly lower than 2007 whereas the “net income” reached the same level. The company reduced the “**sales, general and administration costs**” by almost 100million€ per quarter in 2009 (including quarter 3), from an average of 760million€ (2008) to 665million€ per quarter.

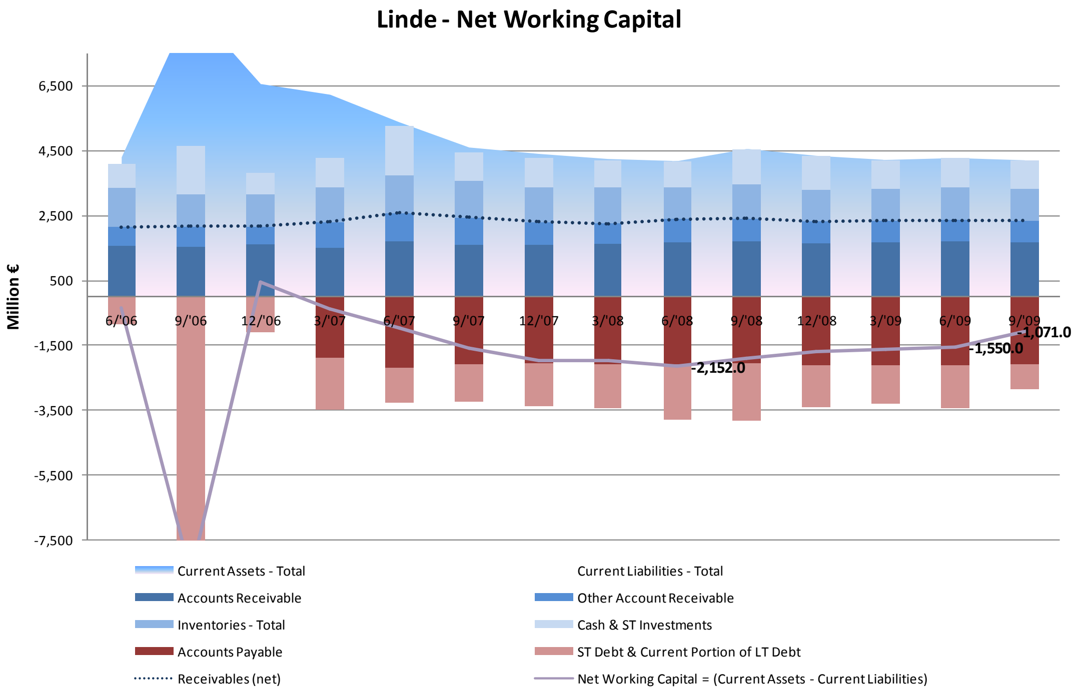

Figure 40 “Linde – Net Working Capital”

“Cash and short-term investments” remained (except for second half of 2008 with a small increase) on the same level as before the crisis. Very stable were also the “net receivables” (2.3billion€ to 2.4billion€) and inventories (around 1billion€) as well as the “accounts payable”.

The poor “**current ratio**” (end 2007 0.69) was improved during 2008 to 0.72 and further in 2009 (quarter 3 0.80).

“**Short-term debt and current positions of long-term debt**” was also unchanged until the third quarter of 2009. Mainly this reduction of short-term debt improved “**net working capital**” by 500million€ to the level of mid 2007, but it is still negative!

With the exception of high spending in quarter 4 2008 of 513million€ the “**capital expenditure”** remained on the long-term level (average 276million€) and slightly below “depreciation and depletion”.

The total assets declined from 24.8billion by the end of 2007 to 23.9billion€ in quarter 3 2009. In the same period the total liabilities decreased slightly from 15.6billion€ to 15.2billion€.

The company refinanced maturing debt by issuing **bonds**. Thomson Financials listed three bonds in 2008 totalling 1.3billion$ and six in 2009 (755million$, thereof 400million€ in quarter 4 2009)[112]. The experience showed that this exceeds the final volume. Linde reported to have issued a seven-year 600million€ bond in December 2008 and a five-year 300million€ bond in September 2008[113]. The company also reported to have issued bonds for 250million€ for the first three quarters 2009 [114].

2.5.3. Praxair Incorporated

Praxair employs 27,000 people and reports sales of 9billion$ for 2009[115]. The group manufactures and sells primarily atmospheric, process and specialty gases. As an industrial gas supplier in North and South America, the group produces oxygen, nitrogen and argon through several air separation processes. Further businesses are surface coatings where wear-resistant, high temperature corrosion resistant metallic coatings, ceramic coatings

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112 Data source: Thomson One, search 2009 12 28

113 Source: Linde Financial Report 2008, page 155

114 Source: Linde Interim Report - January to September 2009, page 26

115 Source: http://praxair.com/praxair.nsf/AllContent/CD937FF096576A6585256A92006E6ED5?OpenDocument&URLMenuBranch=2172D0A50585464685257035005ED872 (2010 03 13)

and powders are supplied. Praxair also designs, engineers and builds equipment for production of industrial gases for internal use and external sale.

“Net working capital” since the second half of 2009 returned to be positive, mainly by reducing “**current liabilities**” from over 3.1billion$ quarter 3 2008 to 1.8billion at the end of 2009.

In 2009, the “inventory turnover” increased strongly and reached the values of mid 2009. The accounts receivable were managed and resulted in increased “accounts receivable turnover”. On the other side, the payables increased as well throughout 2009.

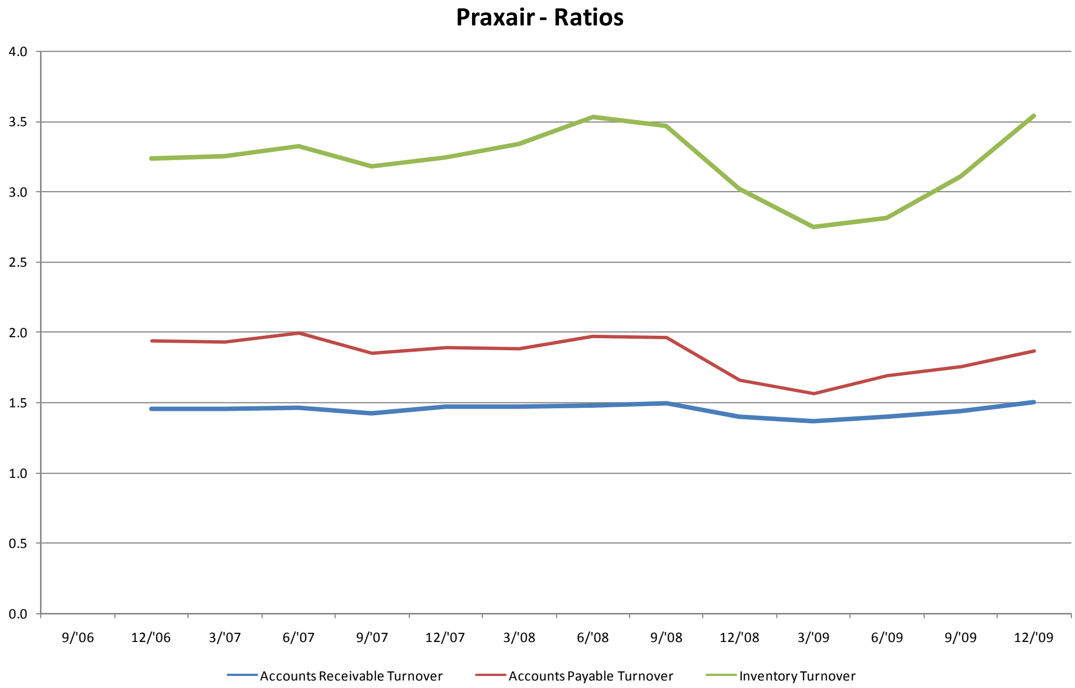

Figure 41 “Praxair - Ratios”

During 2009, Praxair issued 1,7billion$ of fixed rate and 500million$ of floating rate debt. They were used to repay short-term debt and for general corporate purposes. The total debt outstanding was around 5billion$ at the end of 2009 and only 30million$ higher than at the end of 2008[116].

[116] Source: Praxair Annual Report 2009, page 34

2.6. Fertiliser Business

At the end of 2008, the Canadian PotashCrop was the “ fertiliser producer” with the highest market capitalization amounting to 31billion$. The second largest, “The Mosaic Company” is U.S. based and was not included in the further analysis[117]. The European major companies with market capitalisations over 3billion$ are Yara, Silvinit, Uralkali and K+S. Figure 42 “Headquarters of Key Fertiliser Companies” shows the locations of the headquarters, aside PotashCorp, for the most important players e.g. by note 7 Yara, note 8 K+S and note 10 Uralkali[118].

Figure 42 “Headquarters of Key Fertiliser Companies”[119]

PotashCorp is claiming to be the world’s largest producer by capacity, followed by Mosaic. Yara is mainly an Ammonia manufacturer whereas Uralkali’s business is entirely focused on potash. Only K+S is a more diversified company, with a significant activity in the “salt business”.

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[117] as only one North American player was taken in addition to the European companies with a market capitalisation above 3billion$

[118] [1] Agrium Calgary AB, Canada, [2] Intrepid Denver CO, USA [3] Mosaic Plymouth MN, USA, [4] Terra Sioux City IA, USA, [5] CF Industries Deerfield IL, USA, [6] SQM Santiago, Chile, [9] ICL Tel Aviv, Israel, [11] APC Amman, Jordan

[119] Source: PotashCorp Financial Review 2009, page 3

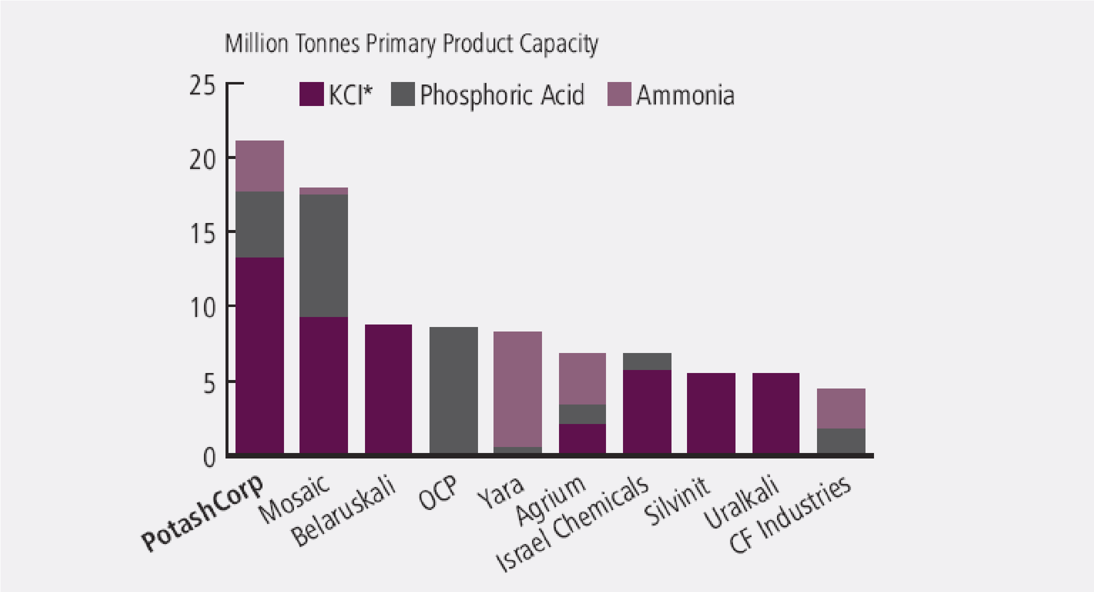

Figure 43 "World's largest fertiliser producers by capacity"[120]

Revenues in the entire fertiliser business were heavily hit by the crisis. In 2009, some players (e.g. PotashCorp and Uralkali) faced sales of less than half compared to 2008 and slightly below 2007. A strong "working capital management", in particular for the inventory, helped maintaining positive cash flows from operations. For example, Yara and K+S increased inventory throughout 2008 and reduced it in 2009. Yara was able to turn its negative "funds from operations" into positive "cash flow from operations" by inventory reduction and decline of receivables.

Unexpected was the high level of "**capital expenditures"** which in one case was even exceeding the previous periods. In 2009, PotashCorp continued increasing strongly "capital expenditures" and reached 2billionCAD$ (1.27billionCAD$ in 2008 and 645millionCAD$ in 2007).

All mentioned companies with the single exception of Uralkali, decreased the **short-term debt** amounts throughout the crisis. PotashCorp, Yara and K+S issued bonds, whereas for the later two it can be claimed that this is in connection with the acquisitions in late 2008 (Yara) or late 2009 (K+S). Uralkali did not pay a dividend in the first half of 2009.

The **stock price development** (Figure 44) of the "fertiliser peers" showed a very similar development. They amounted to 52.3% for K+S, 59.2% for Yara and 59.1% for PotashCorp of their prices before the crisis (considering closing prices of July 1 2008). They are reported at Thomson One with share prices of K+S at 88.73€ Yara at 431NOK and PotashCorp at

[120] Source: PotashCorp Financial Review 2009, page 8

216.8CAD$[121]. Uralkali's share prices were unavailable before December 1 2009 (139.92RUB) and thus added as information referring to this first price.

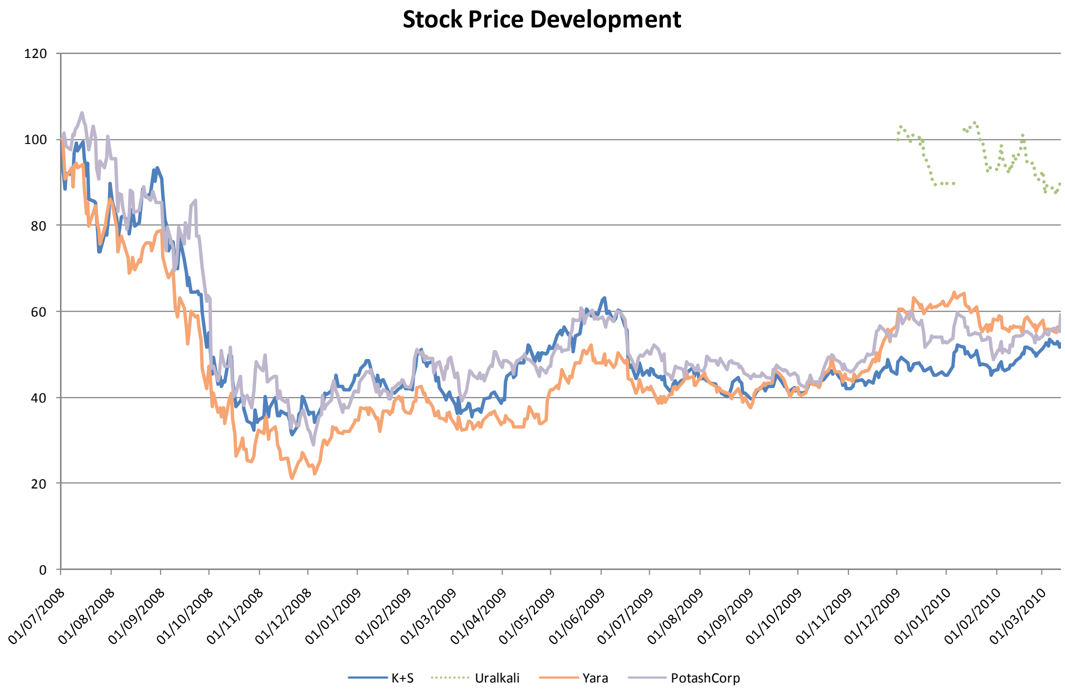

Figure 44 "Stock Price Developments – Fertiliser Companies"

2.6.1. K+S Aktiengesellschaft

K+S is a supplier of speciality and standard fertilisers, plant care and salt products. Turnover wise the "Potash and Magnesium Products" are the largest segment with 1.4billion€ in 2009 (2.4billion€ in 2008). Second in size are the "Nitrogen fertilisers" amounting to 1billion€ in 2009 and 1.6billion€ the previous year. The "Salt" segment reported a 1billion€ turnover end of 2009 including the consolidated figures for "Morton Salt" (2008: 619million€)[122]. The consolidated market capitalisation of the group was 8billion€ (December 2009) and K+S employed approximately 12,400 people.

The group is organised in five divisions: "Potash and Magnesium Products" (mineral fertilisers and potash and magnesium based products for industrial and pharmaceutical purposes), "Compo" (products for home and garden, fertilisers for special crops and commercial horticulture), "Fertiva" (nitrogenous fertilisers and ammonium sulphate), "Salt" (salt for household, commercial, industrial and de-icing) and "Complementary" (underground reutilisation & disposal of waste to distribution of Smelting salts to

[121] Traded at Toronto Stock Exchange

[122] Source: K+S Financial Report 2009, page 92

companies in the secondary aluminium industry, including the collection and processing of aluminium salt slag)[123].

Revenues performed the typical wave of the fertilizers industry: starting at 727million€ the second half of 2007, peaking at 1.44billion€ in quarter 3 2008 and then falling back to 698million€ in quarter 3 2009. In the same timeframe, "operating income" rose from 57million (quarterly) to 474million€ and was negative in quarter 3 2009 (-10million€). Due to the decrease of receivables and inventories in the quarters two and three 2009 the "**net cash flow from operating activities**" remained positive (145million€ and 104million€).

K+S's "**selling, general & administrative expenses**" declined to 200million€ on average in 2009 whereas the average quarterly expenses in 2008 were 232million€. "**Capital expenditure**" continued to be on the same level as before in 2009 (and slightly higher than depreciation and depletion).

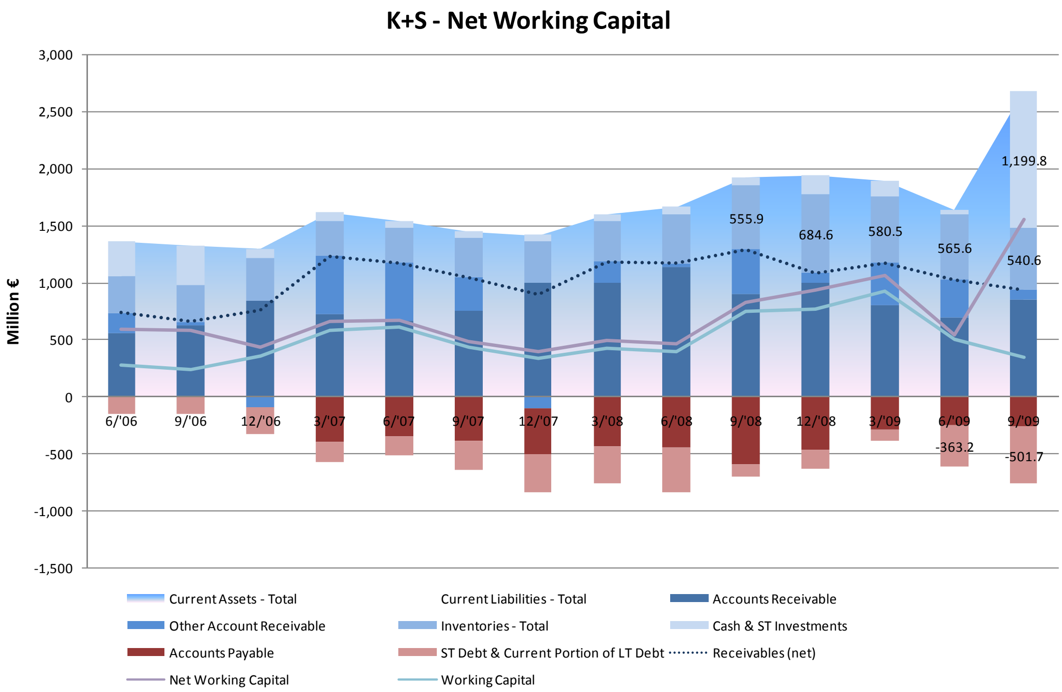

Figure 45 "K+S – Net Working Capital"

"Net working capital" increased steadily until the first quarter of 2009 and fell to 547million€in the second quarter 2009, mainly driven by the reduction of current liabilities. "**Cash and current positions of long-term debt**" have been decreased since the end of 2008 with an exception in quarter 3 2009. This high amount of "**cash and short-term investments**" relates to the issuance of a bond related to the later discussed acquisition.

[123] Source: K+S Financial Report 2008, page U4

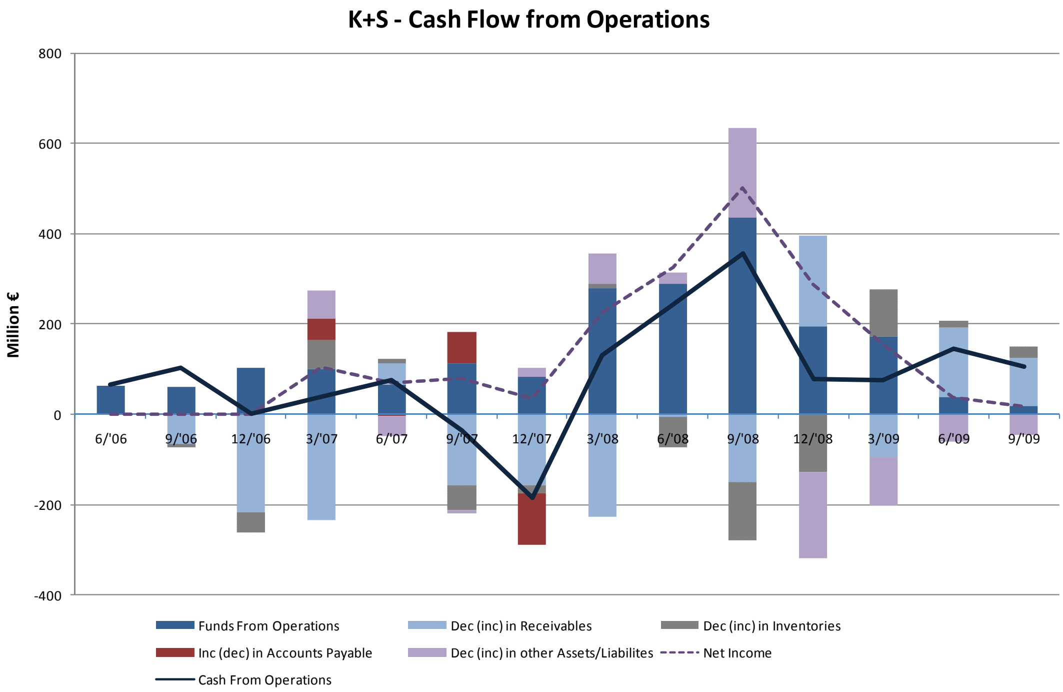

Figure 46 "K+S – Cash Flow from Operations"

Figure 46, presenting the "Cash flow from operations", illustrates the dramatic situation for the business in 2009. While in 2008, "funds from operations" amounted per quarter between 196million€ (quarter 4 2008) and 436million€ (quarter 3 2008) they dropped to some tenths of millions by mid of 2009. Only management of receivables and inventories helped to maintain a positive "cash flow from operations".

Dividend for the year 2008 was five times higher than the previous year (2.4€ per share) amounting to 396million€.

K+S closed the **acquisition** of Morton International, Inc. (Morton Salt) on October 1st, 2009. The company was acquired from Dow Chemical for a net cash payment of 1.576billion$.

In September 2009, K+S placed a **bond** with a volume of 750million€ (maturity 2014, coupon of 5.0% p.a.) and in quarter 4 2009 performed a capital increase.

2.6.2. Yara International ASA

Yara International ASA was demerged 2004 from Norsk Hydro, is headquartered in Oslo, Norway and listed on the Oslo Stock Exchange. The group has about 8,000 employees worldwide and operates in more than 50 countries. Yara produces and markets nitrogen-based mineral fertilizers (e.g. ammonia, urea and nitrates) and sells phosphate- and potash-based mineral fertilizers.

Yara's **revenues** in the two year periods quarter 3 2007 until quarter 3 2009 performed a wave, starting with 12.8billionNOK[124], reaching one year later 25billionNOK and thereafter decreasing to 13.4billionNOK by the end of 2009. "**Sales, general and administration**" costs are minor compared to "cost of goods sold" (around 3%) that clearly dominate the total expenses. **EBIT** decreased in the second half 2008 reaching a negative quarterly value end of the year. After an improved first quarter 2009, the EBIT again declined each quarter. EBIT amounted to 9.4billionNOK 2008 and 3billionNOK in 2009.

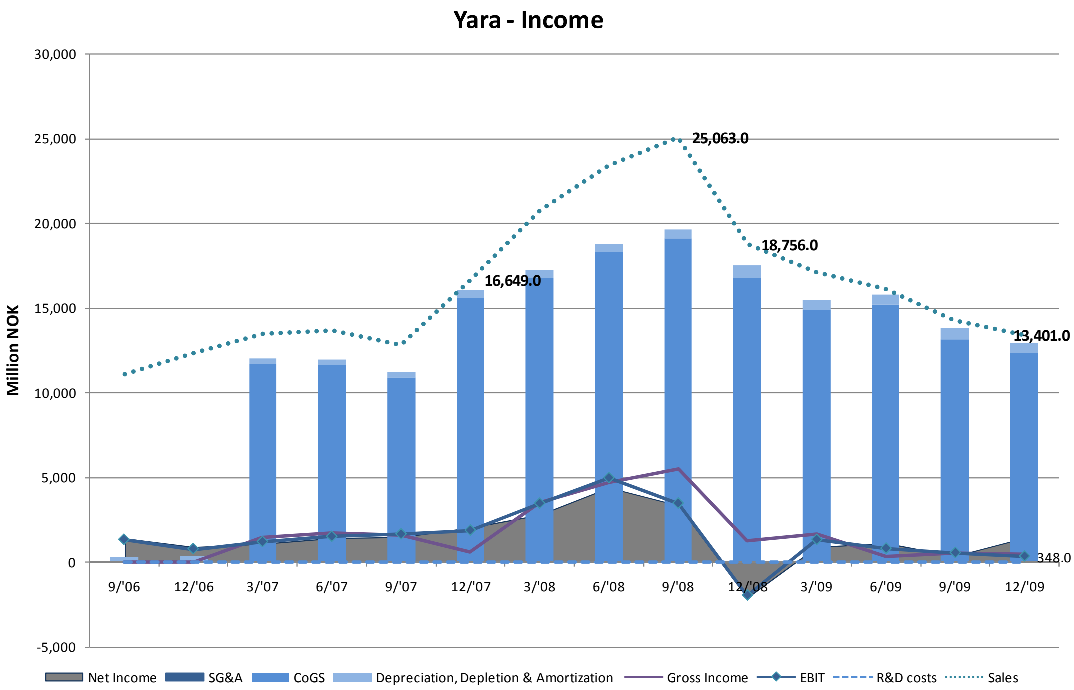

Figure 47 "Yara - Income"

Yara managed the accounts receivables in 2009 and improved the "**receivable turnover**". The "**inventory turnover**" improved as well, but still has not reached the level of 2007. Yara even stopped production from October 2008 until December 2008 due to the low demand[125]. For quarter 4 2008, Yara reports inventory write-downs of -2.336millionNOK[126]. This amount was stepwise changed throughout 2009 and resulted in -291millionNOK by the end of 2009[127]. The "payable turnover" is not available in the database for Yara's interim reports.

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[124] 100 NOK approx. 12.2€

[125] Source: Yara Annual Report 2008, page 3

[126] Source: Yara Annual Report 2008, page 80

[127] Sources: Yara First Quarter 2009, Second Quarter 2009, Third Quarter 2009 and Fourth Quarter 2009, in all cases note 5

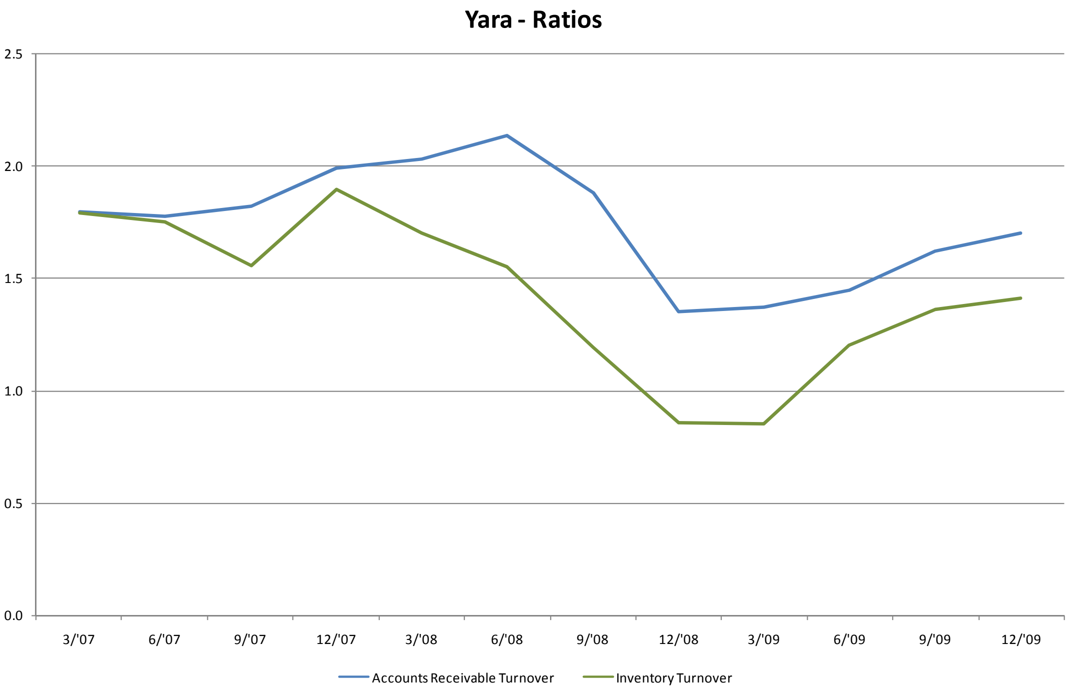

Figure 48 "Yara - Ratios"

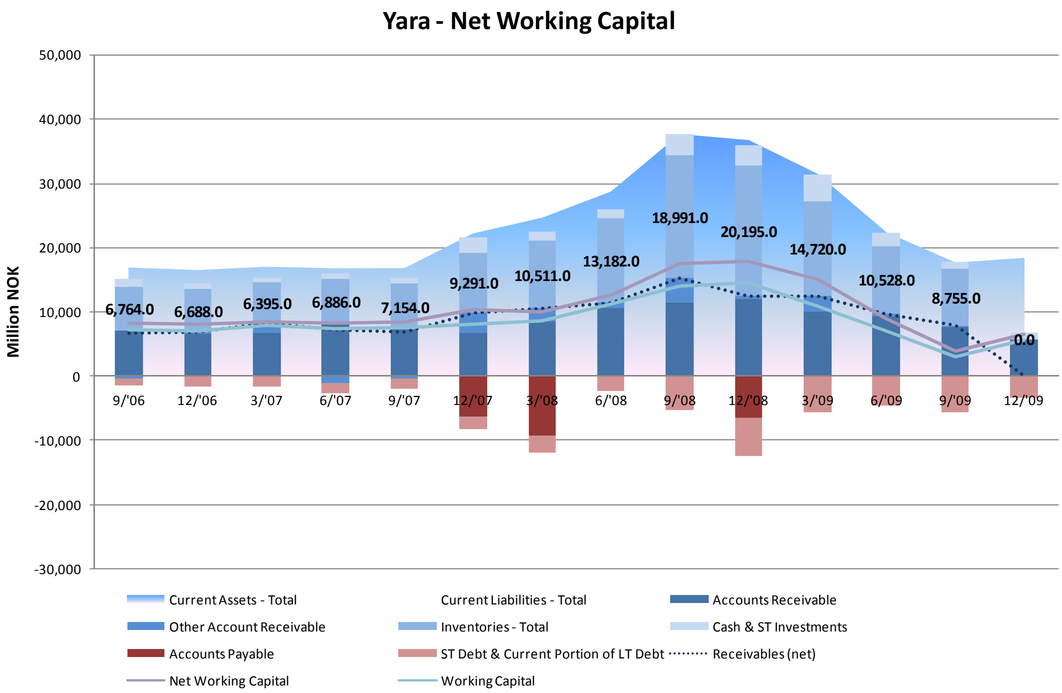

Figure 49 "Yara – Net Working Capital"

In 2009, "**net working capital**" decreased dramatically to 3.96billionNOK (quarter 3 2009) whereas it was between 10billion and 18billionNOK per quarter in 2008.

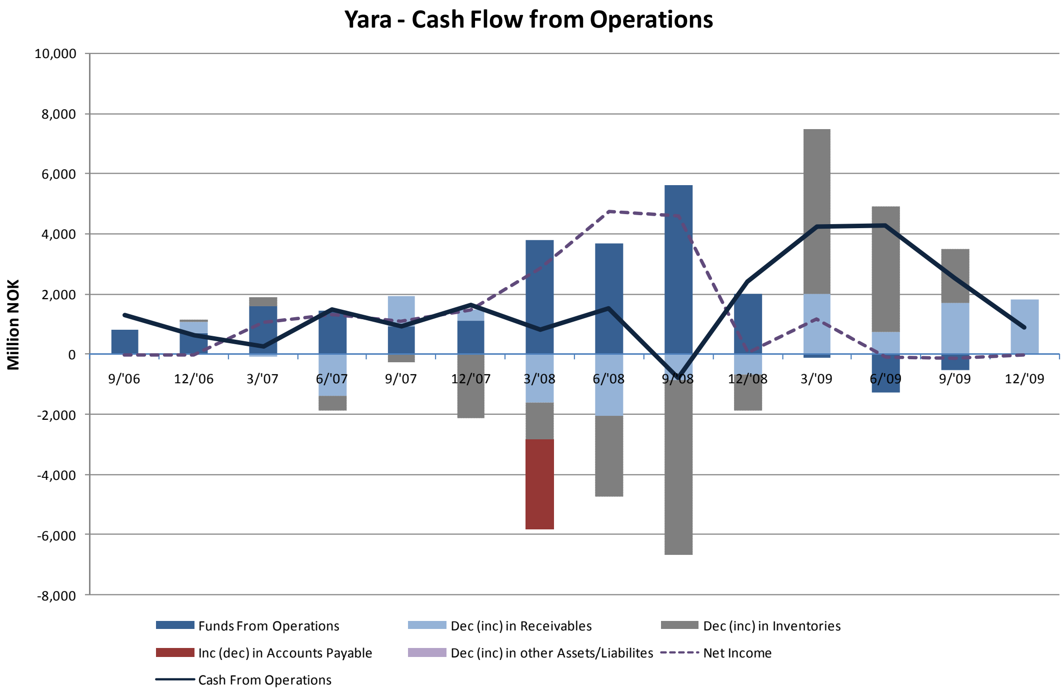

Figure 50 "Yara – Cash Flow from Operations"[128]

Despite the low or even negative "**net income**" since quarter 4 2008, Yara reported "**cash from operations**" of between 2.5billionNOK and 4.5billionNOK in every quarter due to a decrease of receivables, inventories and other assets (in total quarter 4 2008 until quarter 3 2009, 13.35billionNOK).

In October 2008, Yara completed the **acquisition** of Saskferco for 1.6billion$. After the acquisition, the company reduced in the following three quarters the total assets by 18.4billionNOK and was able to reduce the total liabilities by 16.4billionNOK (from end 2008 47.3billionNOK to 31billionNOK in quarter 3 2009). In June 2009, Yara issued a 500million$ **bond** (maturing 2019, interest rate 7.95%)[129].

2.6.3. JSC Uralkali

JCS Uralkali (also found as Uralkaliy) is an "open joint stock company" in the Russian Federation. The annual report 2008 mentions, "Madura Holdings Limited", registered in Cyprus, as a parent company of the Group and the Group as ultimately controlled by Dmitry Rybolovlev. For 2008, Uralkali presented a turnover of around 63billionRUB (2.14billion$[130])

[128] "Accounts payable" are not reported on a quarterly base. Inventories and receivables were calculated as change to the previous period, as they are not delivered by Thomson One.

[129] Source: Yara second quarter and half year 2009 report, page 6

[130] Source: Uralkali Annual Report 2008, page 39, Exchange rate 1$ = 29.4RUB

and 12,900 people to be employed.[131] The company is a pure producer and distributor of potassium fertilizers.

Uralkali reports on a half years base. The most recent data available was for the first half 2009. In difference to e.g. Yara, the company increased "**current liabilities**" and in particular "short-term debt and current positions of long-term debt". Even in the first half of 2009, the "accounts payable" increased.

CAPEX grew over the last years and reached 13.5billionRUB in 2008. In the first half 2009 it remained on a high level exceeding the first half of 2008.

Cash flow from financing shows for the years 2007 and 2008 a dividend payment each half year. In the first half 2009, no dividend was distributed[132]. Retained earnings increased from 34.7billionRUB end of 2008 to 39.1billionRUB (first half 2009).

2.6.4. Potash Corporation of Saskatchewan Inc.

PotashCorp is a Canadian corporation based in Saskatoon, Saskatchewan. The shares are traded on the Toronto Stock Exchange and the New York Stock exchange. It claims to be the world's largest fertilizer enterprise by capacity producing potash, phosphate and nitrogen and employing some 5100 people. In 2009 total sales of 3.98billion$ versus 9.45billion$ in 2008[133] were reported.

Revenues of PotashCorp fell from 3.1billionCAD$ in quarter 3 2008 to 1billionCAD$ half a year later. Nevertheless, the company managed a positive EBIT and "net income" throughout the crisis and at the level of 2007. After a hype in 2008, peaking in September 2009 at 1.26billionCAD$ per quarter, the **funds from operations** dropped to a dramatically low level of 205millionCAD$ in quarter 1 2009. In this period the "accounts receivable" and the inventories were reduced, but on the other side the "accounts payable" decreased as well and this by an even higher amount.

"**Net working capital**" (Figure 51) turned positive again in 2009 due to a strong reduction of current liabilities. Throughout 2008 and 2009, "cash and short-term investments" remained on a level of 330millionCAD$ up to 535millionCAD$.

Figure 52 illustrates the negative cash flow from operations in the second quarter 2009 and following return to positive figures in the following quarters.

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[131] Source: Uralkali Annual Report 2008, page 48

[132] Source: Uralkali Half Year Report 2009, page 10

[133] The company reports are in US$ whereas Thomson One data is in Canadian Dollars.

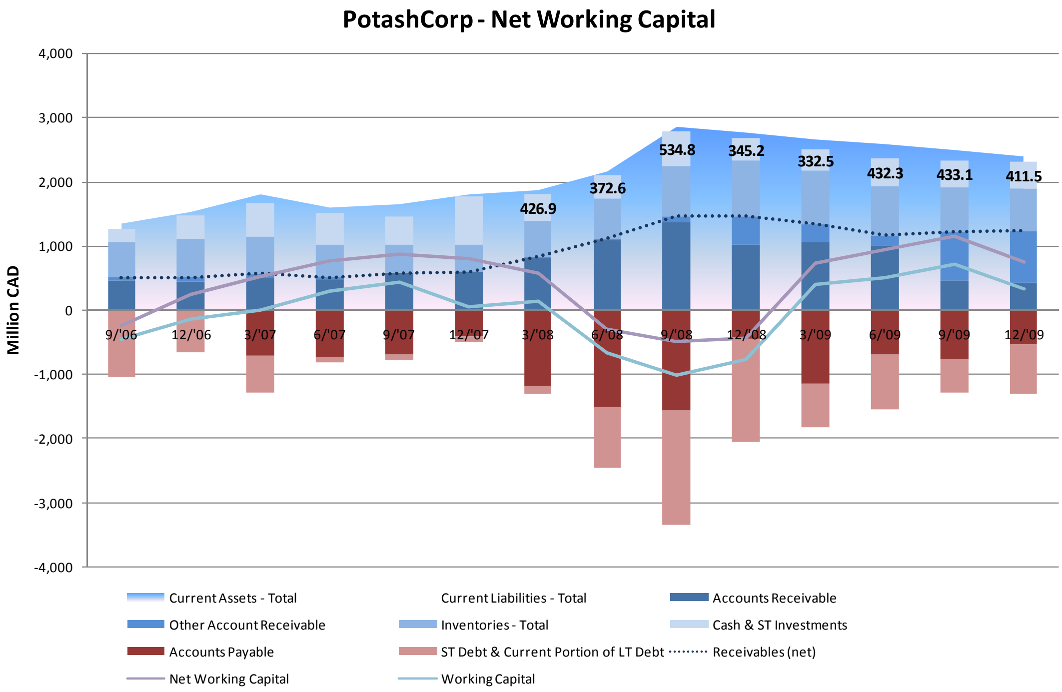

Figure 51 "PotashCorp –Net Working Capital "

CAPEX increased strongly in 2009 and reached 2billionCAD$ after 1.27billionCAD$ in 2008 and 645millionCAD$ in 2007.

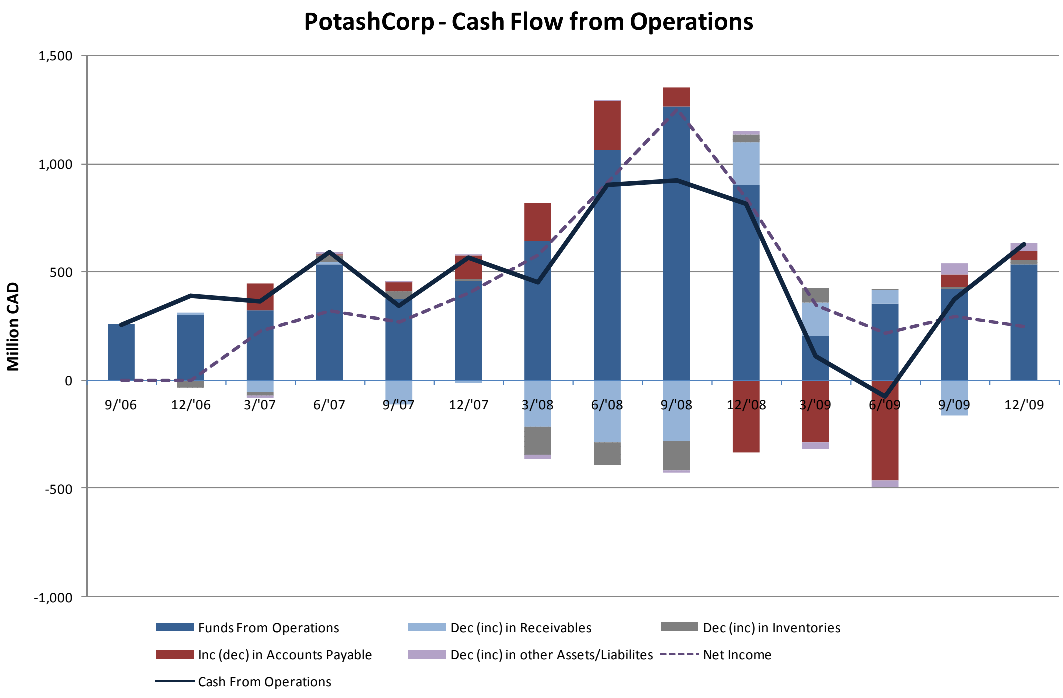

Figure 52 "PotashCorp –Cash Flow from Operations"

In 2009 several **notes** were issued, in May a 500million$ senior note at 5.25 percent due in 2014 and a 500million$ note due in 2019 (at 6.5%). Further PotashCorp issued two 500million$ notes in September due in 2015 and 2020 at 3.750 percent senior and 4.875%.

2.7. European Chemical Companies

Figure 53 presents the stock price development of the European chemical companies (excluding those discussed previously as "gas" companies or "fertilizer" players) with a market capitalization (end of 2009) between 26.7billion$ (Syngenta) and 7.9billionS (DSM).

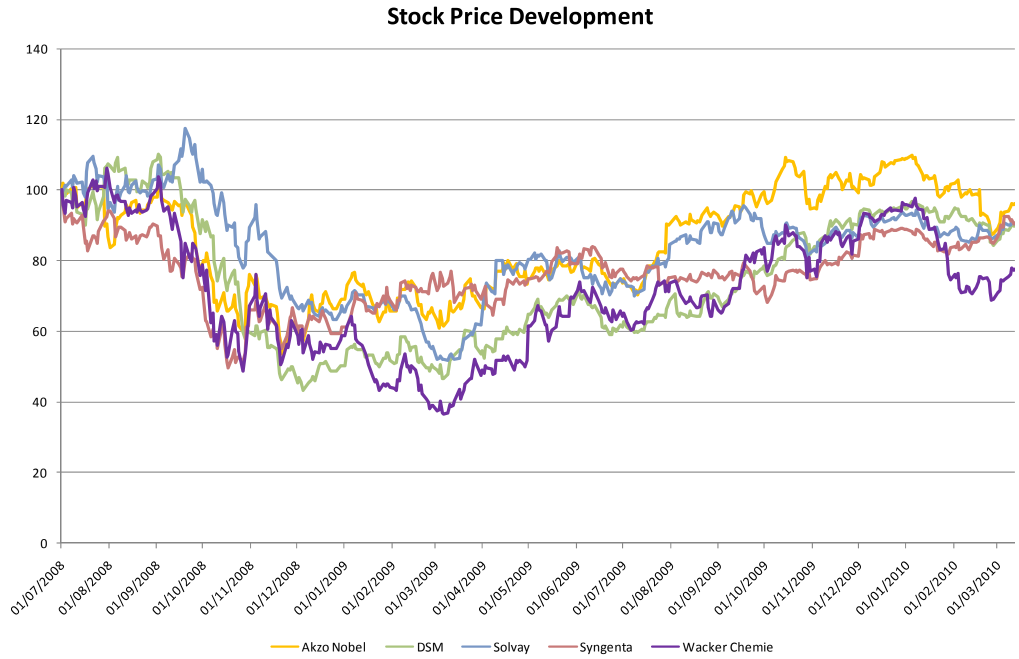

Figure 53 "Stock Price Development – Akzo Nobel, DSM, Solvay, Syngenta, Wacker Chemie"

Except Wacker Chemie, all the players reached almost the share price level of the base date July 1 2008.

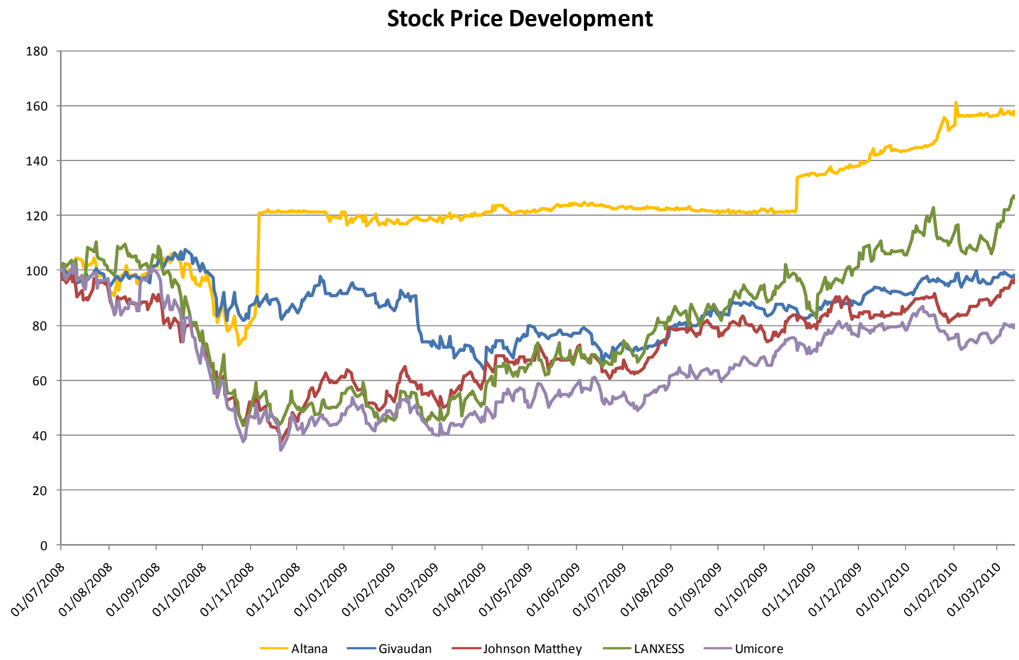

Figure 54 "Stock Price Development – Altana, Givaudan, Johnson Matthey, LANXESS, Umicore"

2.7.1. Syngenta AG

In Figure 54 the share price developments of the chemical companies with a market capitalisation between 3billion$ and 6.2billion$ are illustrated. Altana's share price increase is related to the tender offer of SKion GmbH. LANXESS is the only company exceeding the reference share price.

Syngenta is operating in the Crop Protection and Seeds businesses. The activities are discovering, developing, manufacturing and marketing of the agricultural products (herbicides, insecticides and fungicides). The Group had end of 2008 a market capitalisation of 27.3billion€, employed around 24,000 people with operations in Europe, Africa and the Middle East.

2.7.1.1. Summary

In 2008 and 2009, Syngenta's EBIT and "net income", was identical and on a high level. Revenues decreased slightly but were still higher than 2007. Aside lower "cost of goods sold", the company reduced "sales, general and administration costs". Syngenta's CAPEX grew strongly for the sixth year in a row. In 2009, the companies "funds from operations" are as high as 2008 with slightly decreasing revenues. Inventories, "cash & short-term investments" and accounts payable increased compared to the corresponding period of the year before.

2.7.1.2. Discussion

Syngenta's revenues are not equally distributed over the year, but almost double in the first half. This combined with the fact that the company's interim reports are only available for the half-year's results makes a comparison difficult.

Amounting to 11.89billionCHF, Syngenta's **revenues** decreased in 2009 compared to 2008 (12.55billionCHF) but were still higher than in 2007 (11.09billionCHF) and thus being the second highest result since 2001. The "**sales, general and administration**" costs declined by 3.3% whereas "research and development" expenses remained at almost the same level (2009: 1.038billionCHF versus 1.047billionCHF). In 2009, **EBIT** amounted to 1.95billionCHF and "**net income**" (1.48billionCHF) was on the same level as 2008 and above 2007.

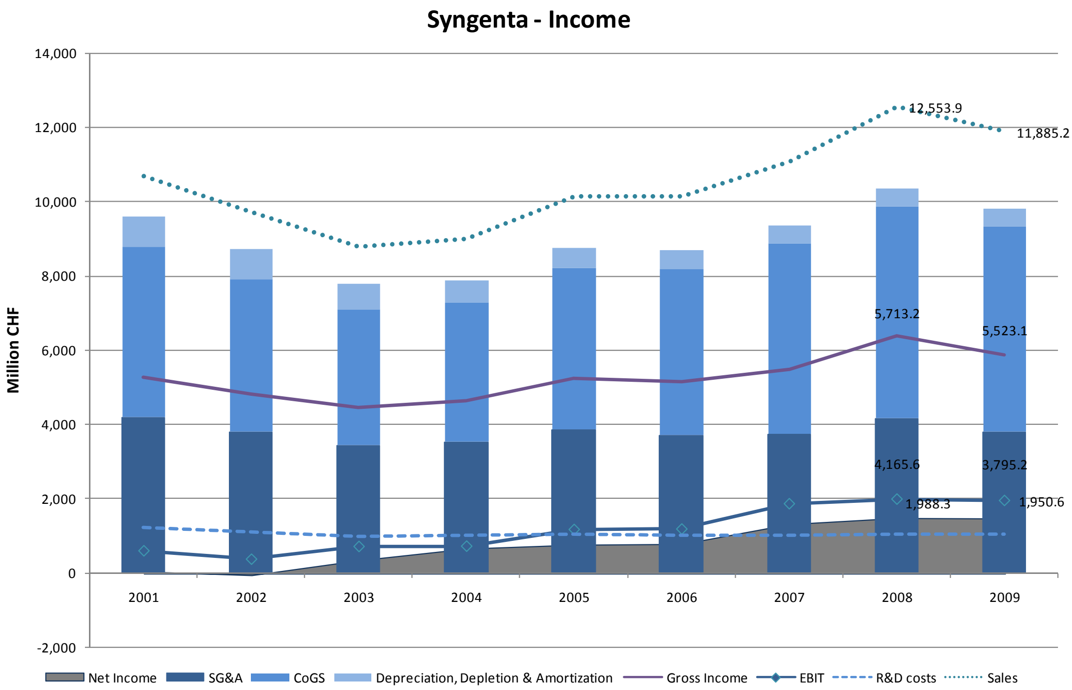

Figure 55 "Syngenta - Income"

As illustrated in Figure 56, Syngenta's "cash flow from operations" remained constant on a very high level. In 2008, inventories (1.06millionCHF), the "accounts receivable" (314millionCHF) and the "accounts payable" (723millionCHF) show a strong increase.

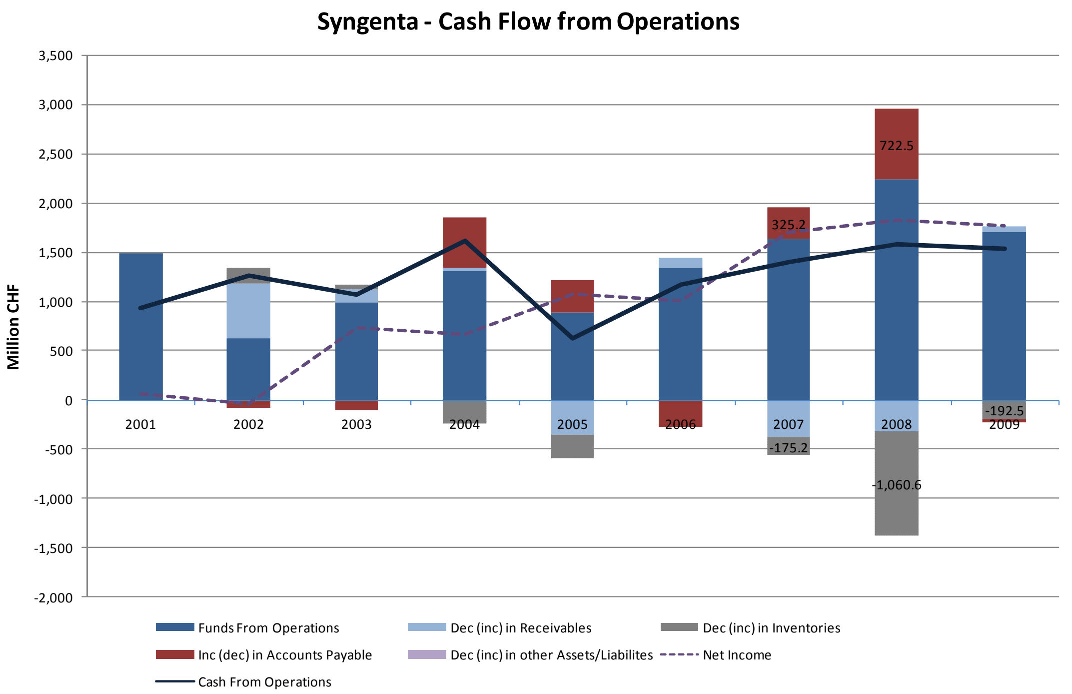

Figure 56 "Syngenta – Cash Flow from Operations"

In 2009, the changes were minor with an increase of inventories amounting to 192millionCHF and decreases in the "accounts payable" and "accounts receivable"

(60millionCHF). In "Cash & short-term investments" increased compared to the corresponding period of the previous year. "**Net working capital**" increased slightly whereas the "working capital" remained constant.

"**Net cash flow from investing activities**" amounted to -952millionCHF at end of 2009 compared to 657millionCHF in 2008, mainly due to an increase in "capital expenditures".

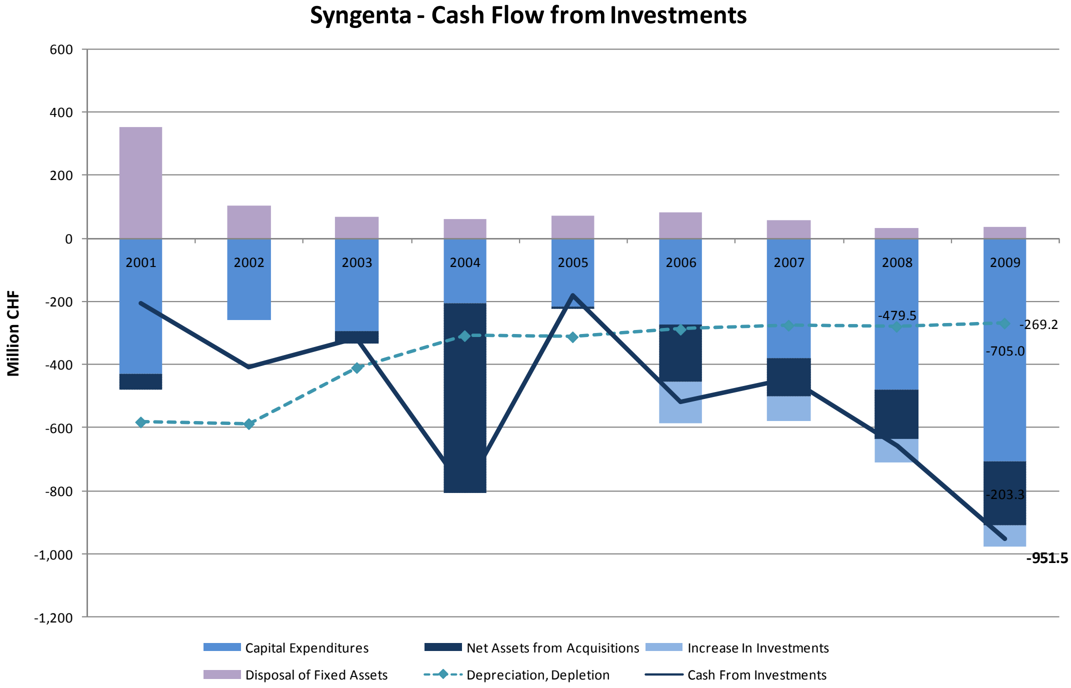

Figure 57 "Syngenta – Cash Flow from Investments"

Syngenta steadily increased the spending on CAPEX since 2004 and continued doing so in the years 2008 and 2009. In 2009, the spending grew to 705millionCHF compared to 480millionCHF in the previous year. This is also remarkable, considering that "depreciation and depletion" were only 269millionCHF in 2009.

For **financing**, long-term debt was issued in the first and second half of 2008 and in the first half of 2009. During 2008, Syngenta issued two unsecured non-current Swiss franc domestic bonds with principal amounts of 500millionCHF (maturity 2013, fixed interest rate of 3.375%) and 375millionCHF (maturity 2012 and a fixed interest rate of 3.500%)[134].

In June 2009, a 500million€ Eurobond (maturity 2014 and interest rate of 4.0%) was issued[135]. The bonds were used to refinance debt.

534millionCHF of **dividend** payments in 2009 (for 2008) exceed the previous years. For the year 2009, the company proposed a payment of 6.0CHF per share like in the previous

[134] Source: Syngenta Financial Report 2008, page 24

[135] Source: Syngenta Half Years Results 2009 page 21

year[136]. To meet share based payment plans, Syngenta repurchased 550,000 own **shares** in 2009 for a total amount of 125million$[137].

For years, Syngenta only closed smaller **M&A transactions**. This did not change in 2008 or 2009. In 2009, five acquisitions took place with Monsanto' Co-Global Sunflower business being the biggest (160million).

2.7.2. Akzo Nobel N.V.

Akzo Nobel N.V. is a leading industrial company manufacturing paints, coatings and specialty chemicals. The Group operates in three segments: Coatings, Chemicals and Decorative Paints, serving industrial customers and consumers. Its 60,000 employees represent the company in more than 80 countries.

2.7.2.1. Summary

Revenues in the second half 2008 decreased but in particular in quarter 4 "cost of goods sold" even exceeded the previous periods resulting in a highly negative EBIT and "net income".

In January 2008, Akzo Nobel acquired ICI and started to divest several businesses. End of 2008 and in 2009, Akzo Nobel issued bonds at high interest rates to refinance maturing debt but even during the crisis (September 2008) the company continued the share buyback program.

2.7.2.2. Discussion

The market capitalisation of the group was 6.8billion€ at the end of 2008 and one year later 10.8billion€[138]. In January 2008, Akzo Nobel completed the 11.6billion€ **acquisition** of Imperial Chemical Industries (ICI). Later in 2008, a number of **divestments** followed, in particular the part of the National Starch business and former ICI's Adhesives and Electronic Materials activities business which was divested to Henkel for 2.7billion£ (4billion€) in cash[139] and the Crown Paints decorative paints business in the UK and Ireland to Endless LLP[140]. In 2009, Akzo Nobel made some minor M&A transactions. Akzo Nobel issued a

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[136] Source: Syngenta Full Year Results 2009, page 4

[137] Source: Syngenta Full Year Results 2009, page 21

[138] Source: Akzo Nobel Annual Report 2009, page 79

[139] Source: Akzo Nobel Press Release April 3, 2008

[140] Source: Akzo Nobel Press Release August 19, 2008

1billion€ **bond** (maturing 2014, 7.75%coupon) in December 2008[141] as at the same time bonds totalling 900million€ matured.

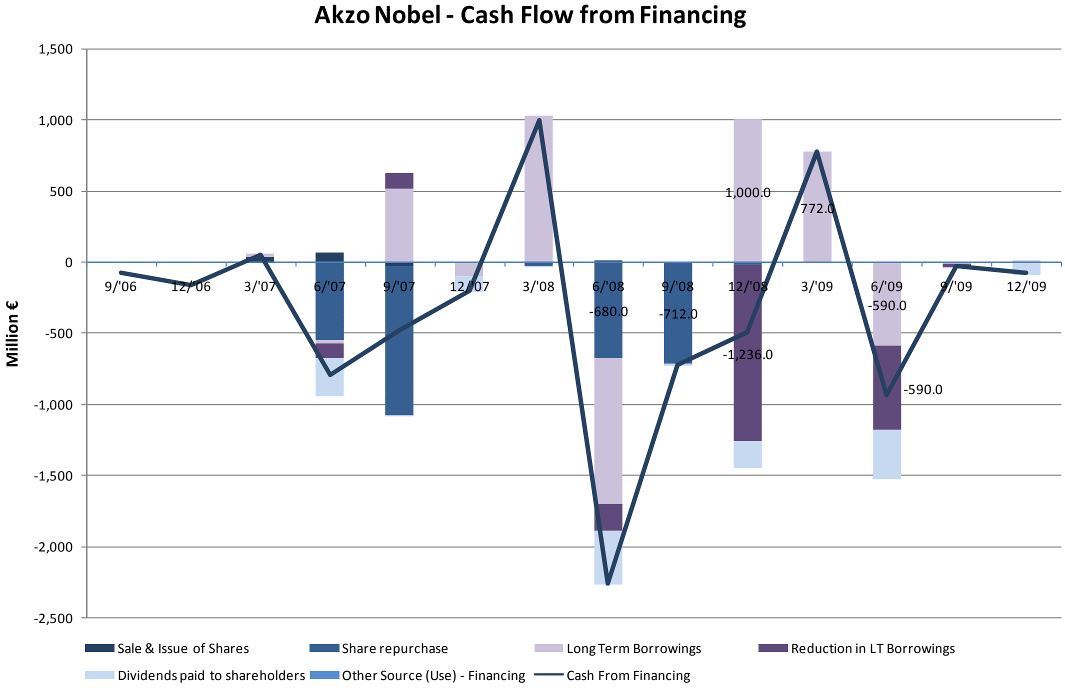

Figure 58 "Akzo Nobel – Cash Flow from Financing"

To refinance a maturing 1billion€ bond (May 2009), the company issued a 750million€ bond (maturing 2015, interest rate 7.25%) in March and in April a 250million£ bond (maturing 2016, interest rate 8%)[142]. End of June 2009 Akzo Nobel issued 150million€ new private debt[143]. December 8, 2009 Akzo Nobel placed a 225million€ bond (maturing 2015 with an interest rate of 7.25%)[144]. **"Net cash flow from financing activities"** shows the a.m. maturing and issuing of bonds and a **dividend** of 1.8€ per share as in 2007.

In 2008, Akzo Nobel bought back shares as part of a 4.6billion€ share buyback program that was started in 2007, totalling 1.437billion€ which corresponds to 12.1% of its share capital. These shares were cancelled[145].

Revenues in 2009 fell from 15.4billion€ in 2008 to 13.9billion€. "Net income" and EBIT recovered from the negative results in 2008 (2008: EBIT -457million€) to an EBIT of 714million€ and "net income" of 285million€. The comparison of the quarterly sales shows

[141] Source: Akzo Nobel Annual Report 2008, page 11

[142] Source: Akzo Nobel Report for the 1st quarter 2009, page 16

[143] Source: Akzo Nobel Half-yearly report 2009, page 17

[144] Source: Akzo Nobel Sweden Finance AB, Prospectus dated 8 December 2009

[145] Source: Akzo Nobel Annual Report 2008, page 8 and 29

the typical decrease in the second half of 2008 and a very low first quarter 2009. Revenues started decreasing again in the second half of 2009 to a level only slightly above the first quarter. In the last quarter 2008 the "**costs of goods sold**" were unusually high (2.45billion€) compared to the decreases of raw material prices and they even exceed the previous quarters. The "impairment of ICI intangibles" amounting to 1.275billion€ are reported for the last quarter 2008[146].

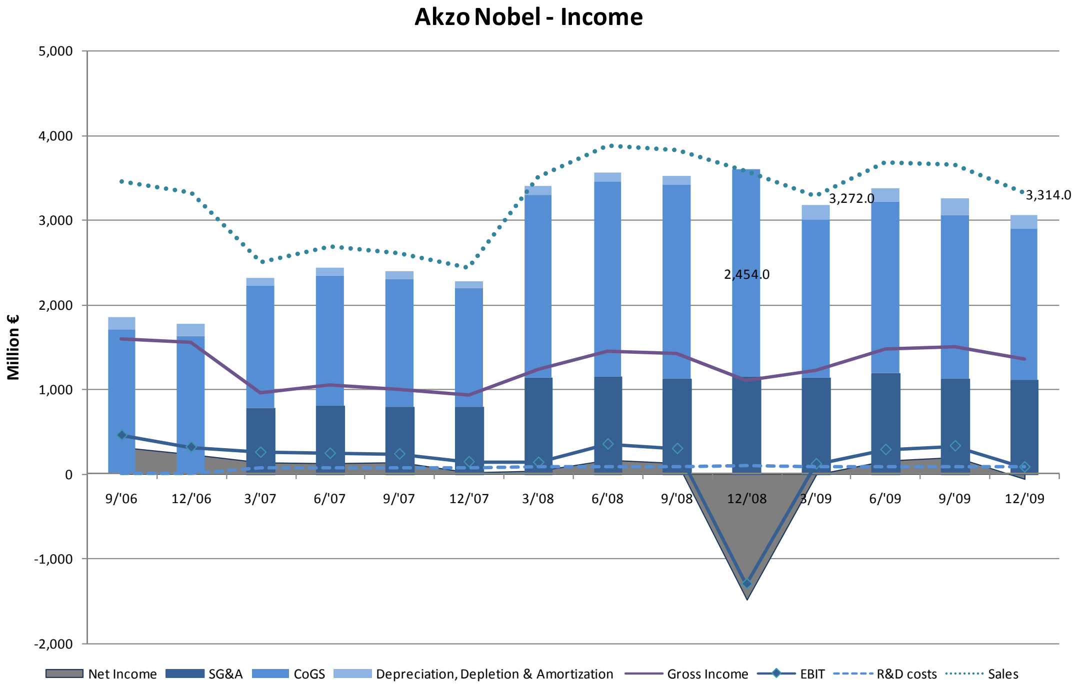

Figure 59 "Akzo Nobel - Income"

In 2008 and in 2009, the "**sales, general and administration costs**" were identical throughout the whole period. **Receivables** were reduced from around 3.3billion€ (average quarter 1 to 3 2008) to an average of 2.6billion per quarter (quarter 4 2008 until quarter 3 2009).

Operating income was negative at the end of 2008 as well as the "**net cash flow from operations**" in quarter 1 2009 (-316million€) but improved during 2009 to +311million€ (quarter 2) and 828million€ (quarter 3). End of 2009 it amounted to 417million€.

During 2009 compared to 2008, **inventories** decreased, **receivables** were lower on average and "**short-term debt & current position of long-term debt**" stepwise reduced from 3.2billion€ in quarter 1 2008 to 384million€ by the end of 2009.

[146] Source: Akzo Nobel Annual Report 2008, page 134

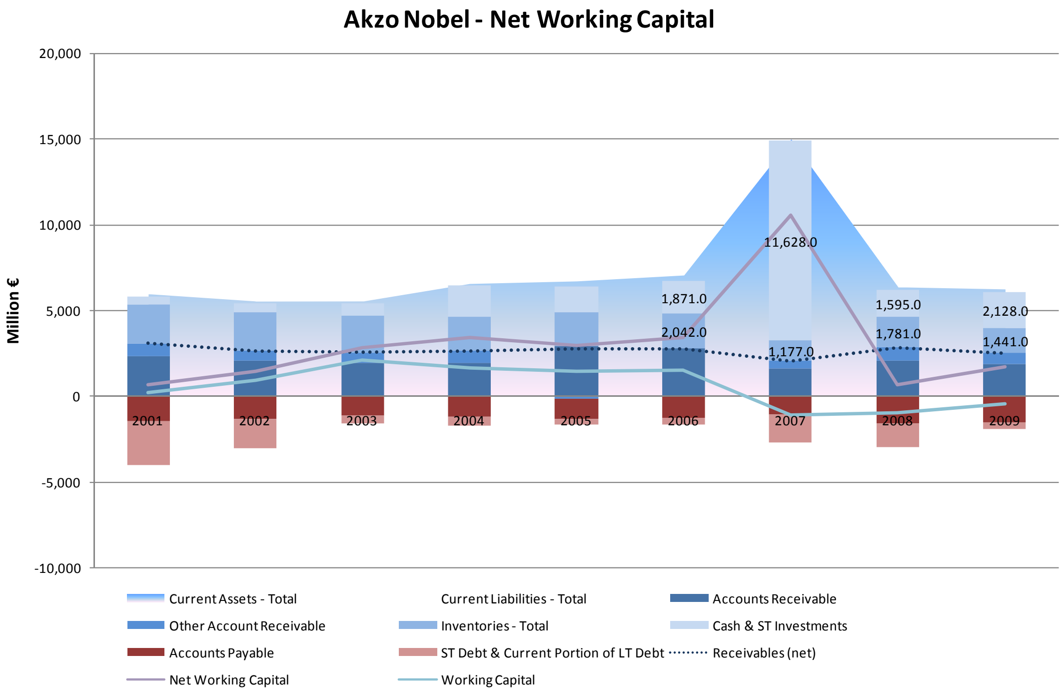

Figure 60 "Akzo Nobel – Net Working Capital"

"Long-term debt" increased strongly in the same period from 2.3billion€ to 3.6billion€. This results in an increase of the "current ratio" from 1.22 to 1.45 during 2008 and 2009.

"**Net cash flow from investing activities**" reflects the acquisition of ICI in 2008 (quarter 1) and the divestments (quarter 2) but also some smaller ones in the following months. The "**capital expenditure"** in 2008 and 2009 was kept on a similar level.

2.7.3. Solvay SA

The Solvay Group has its headquarters in Brussels and employs more than 19,000 people with consolidated sales of 8.5billion€ (2009). In 2009, it was decided to divest the entire pharmaceutical business being one of the three sectors. The transaction closed on February 16, 2010 for 5.2billion€[147]. The three sectors are similar in size by turnover with Plastics as biggest (39%), followed by Chemicals (33% end of 2008).

The chemical segment comprises of minerals including soda ash and caustic soda, the business of hydrogen peroxide and units responsible for a number of specialty chemicals like fluorinated products, ultra-fine fillers, high purity barium and strontium. The plastic segment includes PVC[148] resins and specialty polymers like fluorinated materials and aromatic polyamides.

[147] Source: http://www.solvaypress.com/ (2010 03 12)

[148] Polyvinylchloride

2.7.3.1. Summary

Solvay reduced CAPEX strongly and reported a focus on working capital, which was reduced but in line with lower revenues and “cost of goods sold”. A 500million€ bond issuance supported the reduction of short-term debt. In 2009, Solvay started the divestment of the Pharma cluster. The transaction was closed in quarter 1 2010.

2.7.3.2. Discussion

“**Net working capital**” was rather constant with the exception of the last quarter 2008 mainly due to the increased current liabilities. “Cash and short-term investments” as well as the “accounts receivable turnover” grew throughout the crisis. The company reported changes in working capital of -356million€[149] in 2008 and a 9% decrease of -145million€ in 2009. Considering the “accounts receivable turnover” and the “inventory turnover” - both were lower in the first half of 2009 than in 2008. In comparison, group turnover decreased by 11% and “cost of goods sold” by 13.9% (from 6.381billion€ 20 2008 to 5.495billion€ in 2009) [150].

CAPEX was reduced significantly in 2009 compared to the last years to levels below “depreciation, depletion and amortisation” (130million€ per quarter).

In May 2009, a **bond** due in 2015 of 500million€ (at 5%) was issued for “*consolidation of its long-term financing structure*” and “*refinancing of a short term commercial paper*”[151].

In quarter 3 2009, Solvay put the “Pharma” sector up for sale and transferred 3.45billion€ of “non-current assets” to “current assets” and 1.03billion of “non-current liabilities” to “current liabilities”[152]. Solvay **closed the sale** of its “Pharmaceutical Business” being worth over 7billion$ to Abbott in March 2010[153].

2.7.4. Wacker Chemie AG

Wacker Chemie is based in Munich and employs almost 16,000 people in five business segments with a consolidated turnover of 4.3billion€ (2008). The company’s main shareholder is the Wacker Family holding 66.5% of the ordinary shares. The entire business is from the raw material point of view based on Silicon metal, Ethylene and Starch /

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[149] Source: Solvay Global Annual Report 2008, page 78

[150] Source: Solvay Press Release February 18 2010, page 1, page 6

[151] Source: Solvay Press Release February 18 2010, page 3

[152] Source: Solvay Press Release October 29 2009, page 7

[153] Source: Chemical Informer, March 2010

Dextrose[154]. The customer segment of semiconductor industry as largest accounted for around a quarter of demand for Wacker Chemie products in 2008. The chemical processing industry, including "adhesives" amounts to 10%. Further areas are the solar industry (22%), the construction sector (19%), and energy, electronics, textiles and automotives.

2.7.4.1. Summary

Wacker Chemie was not able to stabilise “net income” on a positive level, but had improving “funds from operations” and a positive “cash flow from operations” throughout the crisis. CAPEX remained on high level and exceeded 2008. The ratios “accounts payable turnover”, “accounts receivable turnover” and “inventory turnover” showed a weak performance in 2009.

2.7.4.2. Discussion

Since the beginning of the crisis, Wacker Chemie was not able to stabilise its “**net income**” on a positive level. It amounted to between 33.7million€ (quarter 3 2009) and -72.8million€ (end of 2009).

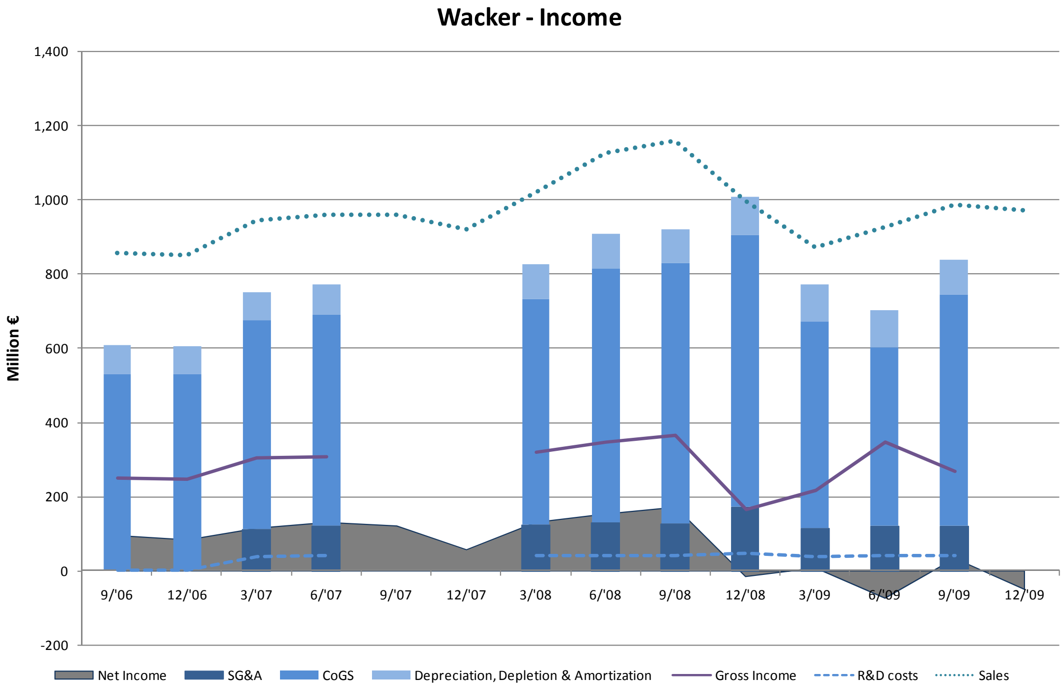

Figure 61 “Wacker Chemie - Income”[155]

[154] Source: http://www.wacker.com/cms/en/investor-relations/profile/keyfacts/key-industries/key-industries.jsp (2010 03 12)

[155] For the quarters three and four 2007 and four 2009 data for EBIT, CoGS, SG&A, R&D and gross income was not (yet) available under Thomson One

"**Net working capital**" remained constant in 2009 and on a slightly lower level than in 2008. In 2009, "cash and short-term investments" were slightly lower than in the corresponding quarter in 2008. In 2009, the ratios "accounts receivable turnover" and "inventory turnover" were lower than in 2008 and the "accounts payable turnover" exceeded 2008.
In 2009, **CAPEX** remained on the high level of 2008. In quarter 3 2008, net assets from acquisitions amounted to 171million€ which is related to the acquisition shares held by Air Products and Chemicals Inc. in two former partner companies ("Air Products Polymers" and "Wacker Polymer Systems")[156]. For 2009, Wacker Chemie reported under "Investment in intangible assets, property, plant, and equipment, and investment property" spending of 770million€ compared to 747million€ in 2008[157].
Wacker Chemie's financial liabilities rose due to a **promissory note bond** which was issued for 155million€ in the second quarter and for 25million€ in the third quarter of 2009[158].
In 2009, Wacker Chemie performed only one transaction where it exited from the solar wafer business and transferred its shares in WACKER SCHOTT to the joint venture partner SCHOTT Solar AG[159].

2.7.5. KONINKLIJKE DSM N.V.

DSM's headquarters are in Heerlen, the Netherlands. The company employs some 22,700 people worldwide and reports annual net sales of about €8 billion. The stocks are listed on Euronext Amsterdam.
DSM's activities are grouped into five clusters with "Nutrition" being turnover wise the biggest (2.8billion€ end of 2009) followed by "Performance Materials" (1.8billion€ in 2009), "Base Chemicals and Materials" (1.1billion€), "Pharma" (721million€) and "Polymer Intermediates" (849 million€). The end markets include human and animal nutrition and health, personal care, pharmaceuticals, automotive, coatings and paint, electrical and electronics, life protection and housing.

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[156] Source: Wacker Chemie Annual Report 2008, page 62 and 63

[157] Source: Wacker Chemie Annual Report 2009, page 145

[158] Source: Wacker Chemie Report on the 3rd Quarter 2009, page 28

[159] Source: Wacker Chemie Press Release September 30 2009

2.7.5.1. Summary

DSM performed a strong cash management, improved “accounts payable turnover”, whereas the turnovers for “account receivables” and inventory decreased in 2009. CAPEX in 2009 was on the level of 2006 and 2007.

2.7.5.2. Discussion

“**Net working capital**” increased throughout the crisis mainly due to the increase of “cash and short-term investments”. Current liabilities were decreased to 2billion€ in 2009 whereas the current assets remained on the previous year’s level.

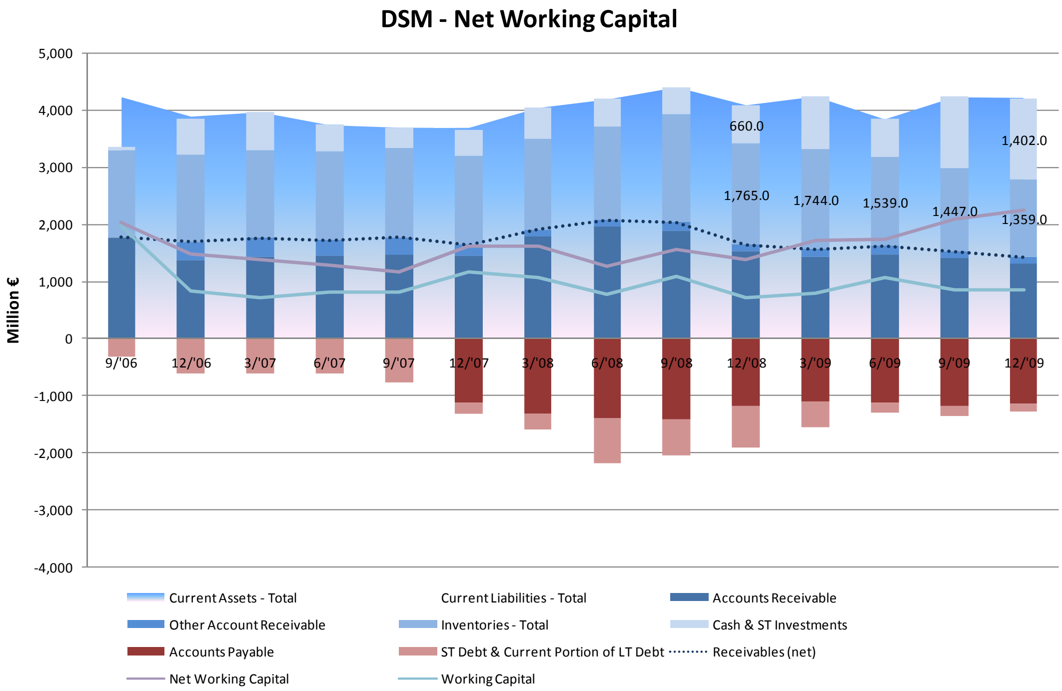

Figure 62 “DSM – Net Working Capital”

“**Inventories”** decreased steadily and amounted to 1.36billion€ end of 2009 but as shown in Figure 63 also the “inventory turnover” decreased. “Accounts receivables” and “receivable turnover” show the same picture. In 2009, the “payable turnover” improved even though the absolute amount remained constant (due to reduced “costs of goods sold”).

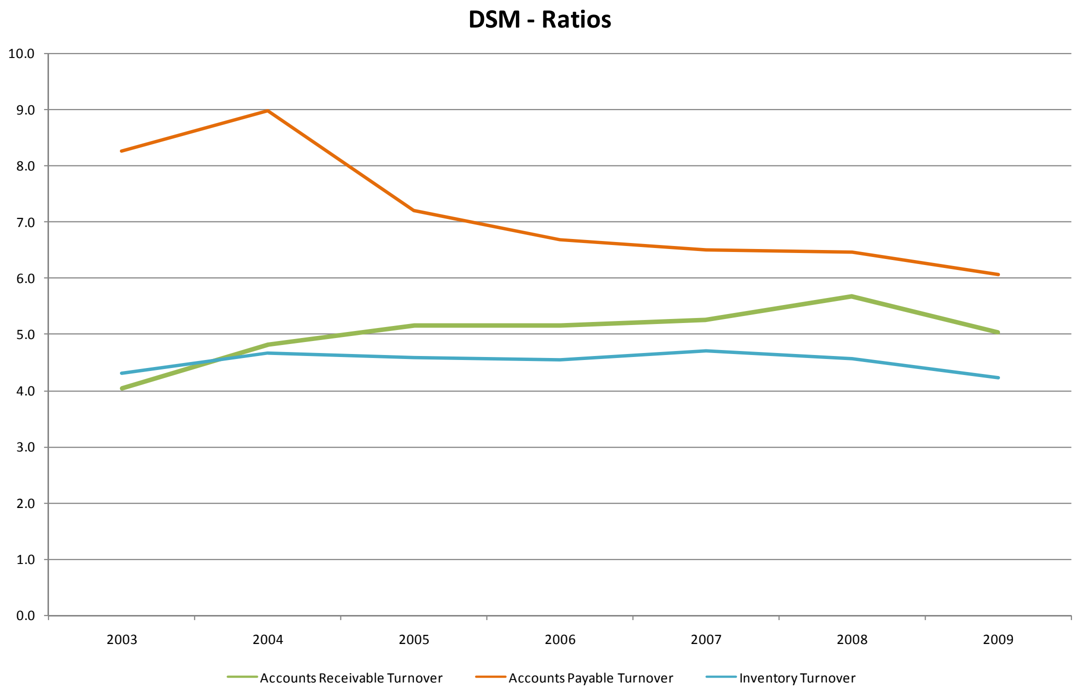

Figure 63 "DSM - Ratios"

"Capital expenditure" in 2009 was lower than in 2008 but in line with the spending in the years 2006 and 2007.

In September 2008, a 300million€ **bond** issued in November 2005 was increased by 200million€ and in March 2009 a 500million€ bond due in 2014 was issued[160]. In 2008, DSM repurchased shares for 250million€ but discontinued the program in 2009[161]. Dividend payment amounted to 205million€ in 2009 versus 220million€ the previous year.

2.7.6. Givaudan SA

Givaudan is a leading flavour and fragrance company with headquarters in Vernier, Switzerland. For 2009, sales of around 4billionCHF and approximately 8500 employees were reported. The business is split into two divisions, flavours (consisting of products for beverages, savoury, dairy, confectionery) and fragrances, with flavours being the larger one with 54% of the total turnover. The Fragrance Division is divided into "Fine Fragrances", "Consumer Products" and "Fragrance Ingredients".

Givaundan's shares are listed on the SIX Swiss Exchange. Major shareholder with 10.90% is Nestle SA.

[160] Source: DSM Annual Report 2009, page 156

[161] Source: DSM Annual Report 2009, page 179

2.7.6.1. Summary

Givaudan’s EBIT and “net income” increased in 2008 and further in 2009. Givaudan issued own shares worth 388millionCHF and a public bond of 300millionCHF to refinance debt in 2009. Turnover decreased only slightly during the crisis by approximately 3%. CAPEX in 2009 were strongly reduced to half the amount of 2008. Working capital increased in 2009 versus 2008.

2.7.6.2. Discussion

In 2009, Givaudan’s turnover decreased slightly from 4.087billionCHF (2008) to 3.959billionCHF; EBIT and “**net income**” (2009: 200millionCHF) increased. Further “funds from operations” and “cash flow from operations” reached the highest levels ever.

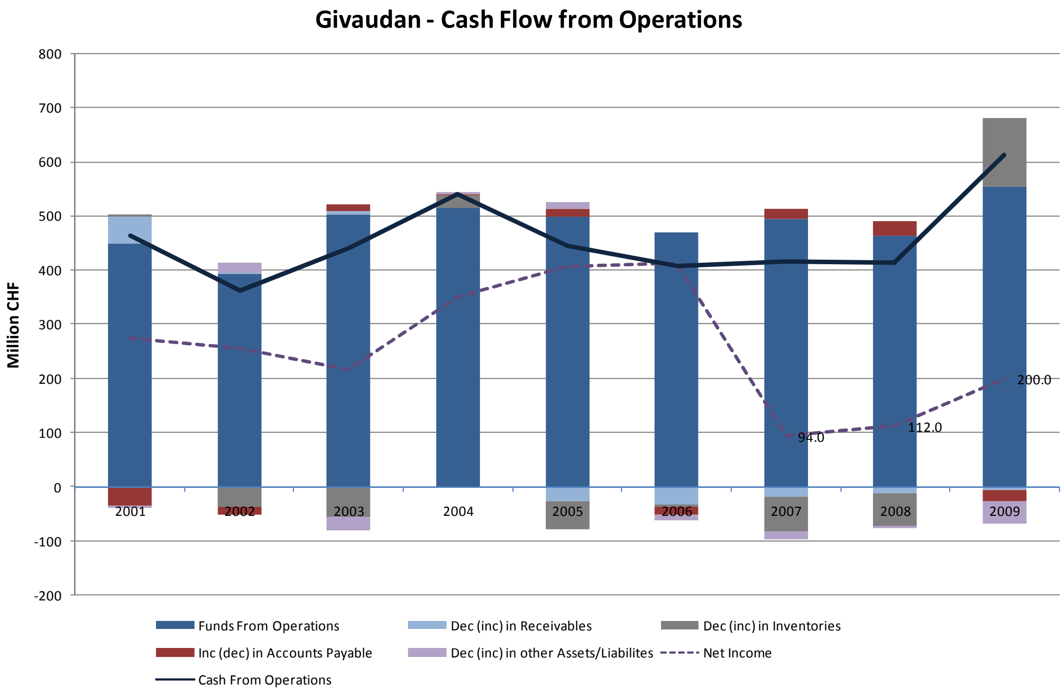

Figure 64 “Givaudan – Cash Flow from Operations”

The “**inventory turnover**” improved whereas, the “**accounts receivable turnover**” and “**accounts payable turnover**” worsen in 2009. Givaudan’s **CAPEX** amounting to 95millionCHF in 2009 was significantly lower than in the years before (2008: 194millionCHF and 2007: 252millionCHF).

In February 2009, Givaudan SA issued a 300millionCHF **bond** due in 2014 for repayment of private placements and partially a syndicated loan. As one of the very few companies, Givaudan issued **new shares** in 2009. A capital increase of 999,624 fully paid-in registered shares (nominal value of 10.00CHF) was announced in June 2009. The exercise of 15 rights entitled the holder to subscribe for two new shares at a subscription price of 420CHF per new share. This amounted to an increase of 388millionCHF of reserves corresponding to the total value[162].

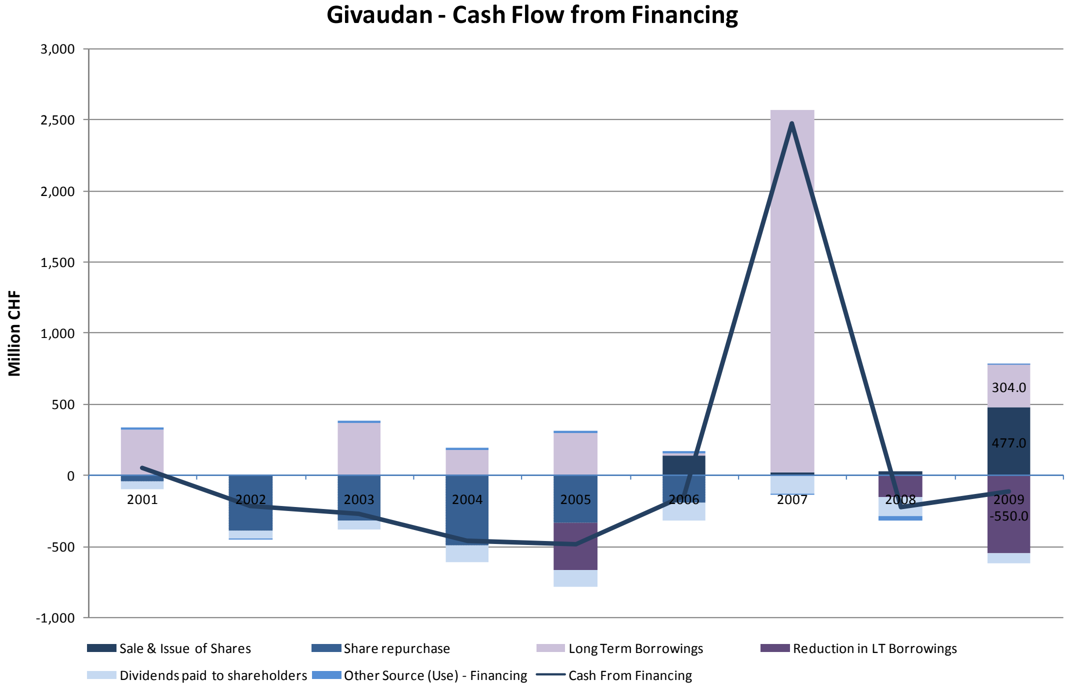

Figure 65 “Givaudan – Cash Flow from Financing”

2.7.7. Johnson Matthey Public Limited Company

Johnson Matthey employs around 8,500 people and has sales of 7.8billion£ (March 2009). The Group's business is organised in three divisions, “Environmental Technologies”, “Fine Precious Metal Products” and “Chemicals & Catalysts”. Turnover wise the biggest division is Precious Metals with 5billion£ sales. It comprises of platinum marketing and fabrication activities, gold and silver refining and bullion manufacturing operations. The business also serves mining industries and recycles secondary scrap[163].

The “Environmental Technology Division” reports revenues of 2.2billion£ and combines the activities for catalysts in applications related to pollution control, cleaner fuel, more efficient use of hydrocarbons and the hydrogen economy. The “Fine Chemicals & Catalysts Division” supplies fine chemicals, catalysts and other specialities and reports revenues of 606million£.

The company’s fiscal year ends March 31 and publishes only half-year’s results.

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[162] Source: Givaudan Annual and Financial Report 2009, page 116

[163] Source: Johnson Matthey Annual Report 2009, “The Group at a Glance”

2.7.7.1. Summary

CAPEX of Johnson Matthey remained on the level of 2008. The company was able to react during the crisis and in one period (3/2009) the "cash flow from operations" was more than doubled due to inventory and receivables management.

2.7.7.2. Discussion

In 2009, Johnson Matthey's EBIT and "**net income**" (see also Figure 66) remained on the same level as before the crisis. Since mid of 2006, "cash from operations" improved stepwise amounting to between 100million£ and 200million£ per half year. In the reporting period 3/2009, due to strong management of receivables and inventories "**cash flow from operations**" amounted to 467million£.

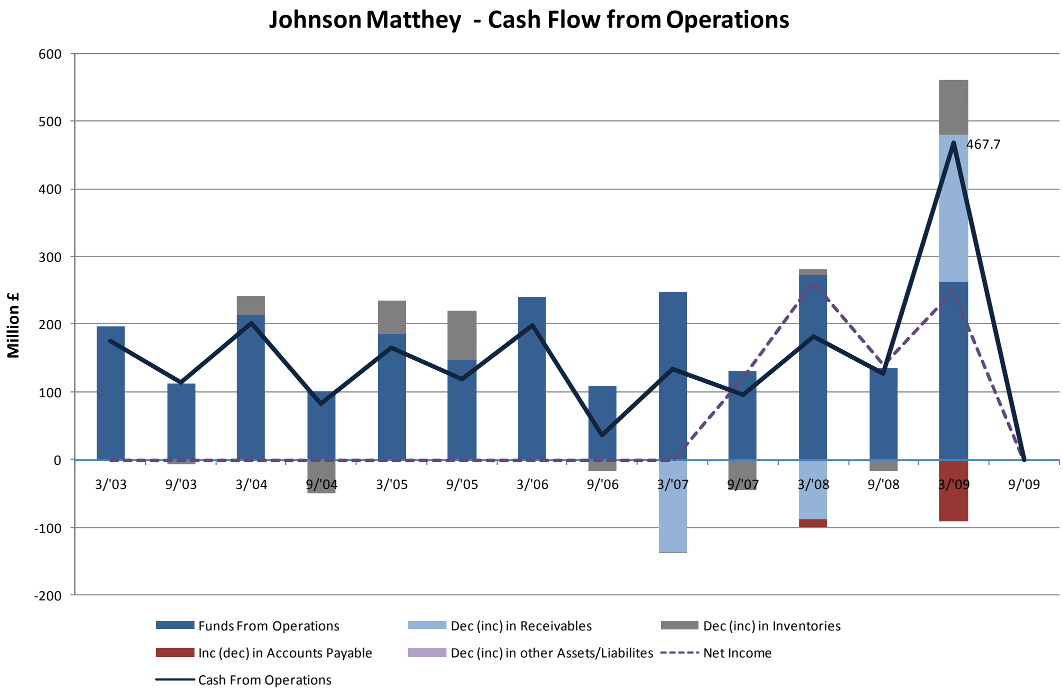

Figure 66 "Johnson Matthey – Cash Flow from Operations"

Johnson Matthey reported increases in working capital between March and September 2009 of 106million£[164] and "capital expenditure" cost of 66.8million£. CAPEX is in line with the spending the previous year (68.8million£).

For the years 2008 and 2009, neither bonds nor new shares were issued.

[164] Source: Johnson Matthey Half Year 2009, pages 12 and 20

2.7.8. Umicore SA

Umicore's headquarters are in Brussels. The group reports sales of 6.9billion€ by the end of 2009 and employs some 13.700 people[165].

Umicore develops, produces and recycles materials. The activities are grouped in four business areas, "Advanced Materials" (high-purity metals, alloys, compounds and engineered products with the main materials cobalt, germanium and nickel), "Precious Metals Products and Catalysts" (recycling complex waste streams containing precious and other non-ferrous metals), "Precious Metals Services" and "Zinc Specialties".

As the company publishes only half-year's results, the most recent figures are from the first half of 2009.

2.7.8.1. Summary

Umicore reduced short-term debt. Working capital management did not result in essential changes. The company claimed to have reduced work force, but the effects on the financials cannot be evaluated due to the lack of information regarding the SG&A costs.

2.7.8.2. Discussion

Umicore's "net income" was negative in the second half of 2008 and the first half of 2009. **EBIT** was in the same period positive on a very low level (end 2008: 13million€ and mid 2009: 57million€). "Cash and short-term investments" increased slightly in the second half of 2008 and the first half of 2009. Mid of 2009 the accounts payable were lower than in the corresponding period in 2008. "**Net working capital**" decreased in 2009 and short-term debt was reduced.

The company reported a permanent work **force reduction** for the first half of 2009 of more than 500 people in fully consolidated companies and more than 1,000 in associated companies. Further, some 1,000 people remained on reduced working time or "*temporary unemployment*"[166]. As "sales, general and administration costs" are not reported, it is difficult to discuss the effects of the mentioned work-force reductions. **CAPEX** in the first half of 2009 was on the same level as one year before. Umicore did not issue **bonds or shares** in 2009.

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[165] Source: http://www.umicore.com/en/aboutUs/keyFactsFigures/ (2010 03 12)

[166] Source: Umicore Half year results 2009, presentation 7 August 2009, page 11

2.7.9. LANXESS AG

LANXESS is a leader in specialty chemicals, headquartered in Leverkusen, Germany. End of 2008 employed 14,797 people and reported sales of around 6.6billion€. Its business comprises the development, manufacture and sale of plastics, rubber, specialty chemicals and intermediates and is organised in three segments, the "Performance Polymers", "Advanced Intermediates" and "Performance Chemicals".

LANXESS' shares are listed on the Frankfurt Stock Exchange. Major shareholder is the institutional investor, Dodge & Cox with 11.66%[167].

2.7.9.1. Summary

LANXESS performed an intensive working capital management resulting in positive cash from operations, whereas "net income" was negative for two quarters. "Capital expenditure" was reduced and research and development costs were on the level of 2008.

2.7.9.2. Discussion

"**Cash from operations**" remained positive on a level between 100million€ and 200million€, despite e.g. the negative or low "funds from operations" at the end of 2008 and first quarter 2009.

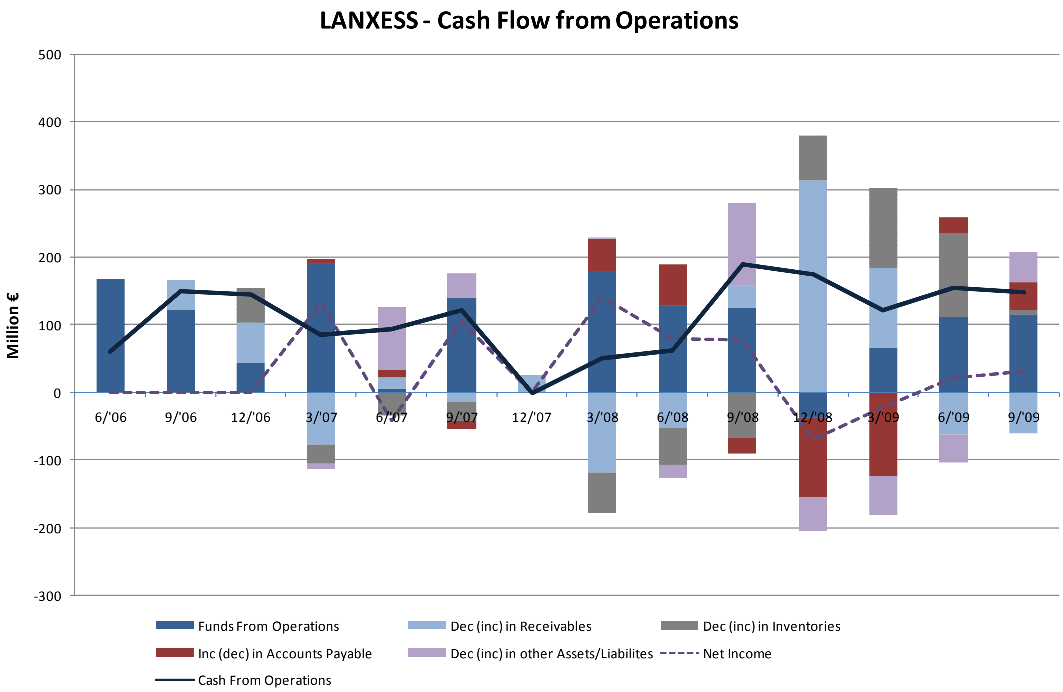

Figure 67 "LANXESS – Cash Flow from Operations"

[167] Source: Thomson Reuters, LANXESS Company Overview 2009 12 23

Decrease of receivables and to a certain extend inventory reduction outbalanced the increase of payables (Figure 67 “LANXESS – Cash Flow from Operations”).

Werner Breuers, member of the board of management and R&D at LANXESS, reported that **R&D** spending increased from 110milion$ to 155million$ in 2009 and LANXESS “*aims to boost that number by another 10% in 2010*”[168]. When comparing the first three quarters in 2008 and the corresponding in 2009, the spending in Euro is in both cases 75million€. On March 17 2009, LANXESS published the annual report 2009 and presented in contradiction to the announcement of Mr. Breuers “research and development” total costs of 101million€[169] for 2009 versus 97million€ in 2008. The increase in 2009 is mainly due to low spending in quarter 4 2008.

CAPEX in 2009 (including the first three quarters only) was below the corresponding periods in 2008.

LANXESS did not issue own **shares or bonds**. Within 2009, the company acquired Gwalior Chemical Industries Ltd as well as China’s Jiangsu Polyols Chemical Co Ltd. For the first LANXESS paid 82.4million€, whereas the amount paid for the second acquisition was not disclosed[170].

2.7.10. ALTANA AG

ALTANA’s reports revenues of 1.3billion€ (2008), employs some 4800 people and operates in four divisions: “BYK Additives & Instruments” (paint & plastic additive, measuring & testing instruments), “ECKART Effect Pigments” (metal-effect and pearlescent pigments), “ELANTAS Electrical Insulation” (liquid electrical insulation materials, impregnating and finishing varnishes, resins, and casting compounds) and “ACTEGA Coatings & Sealants” (products for the printing and packaging industries).

2.7.10.1. Summary

In 2009, Altana reduced its “capital expenditures” almost to half of 2008 and built up the cash position. In the last quarter 2009, “net income” turned negative. No bonds or shares were issued. The company faced a successful tender offer from SKion GmbH.

[168] Source: ICIS Chemical business February 8-14, 2010 page 20

[169] Source: LANXESS Annual Report 2009, page 89 and page 113

[170] Source: LANXESS IR News, 090902 page 1

2.7.10.2. Discussion

Revenues in the crisis fell from slightly above 350million€ per quarter (first three quarters 2008) to 274million€ (quarter 4 2008) and 251million€ (quarter 1 2009). Thereafter sales improved stepwise but in quarter 4 2009 a decrease was reported again. In the two quarters end of 2008 and beginning of 2009, the EBIT and "**net income**" were around zero. In quarter 4 2009, "net income" was stated as -36.1million€[171].

"**Net working capital**" was constant throughout the crisis, "cash and short-term investments" increased. In quarter 4 2008, Altana started to reduce its "accounts receivable" and inventories.

Research and development spending remained with 17million€ to 18million€ per quarter on the level of the periods before the crises.

CAPEX in 2009 was strongly decreased from a quarterly average of 24.5million€ in 2008 to 12.4million€ in the first three quarters 2009.

Susanne Klatten's SKion GmbH completed its **tender offer** in Altana AG with a total volume of 679million€. February 2 2010, SKion exceeded 95 percent and made a squeeze out request[172].

[171] Source: Thomson One, Altana's Annual Report not yet available

[172] Source: http://www.eckart.net/628.html?L=5&newsid=1227 (2010 03 14)

3. Deals in the Chemical Industry

The global M&A activities during the crisis 2008 / 2009 dropped to half of the volumes of 2007 and back to a level between 2004 and 2005.

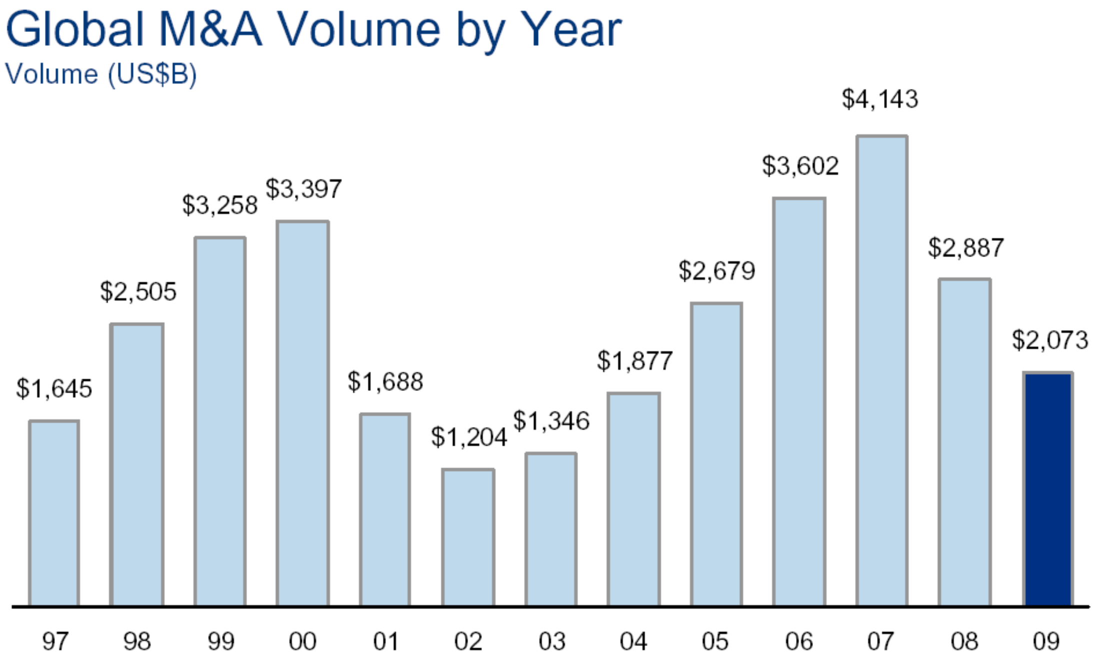

Figure 68 "Global M&A Volume by Year"[173]

The same study shows that the "Activity per Industry" is very different over the last three years and demonstrates that the "Chemicals plus Energy" segment is one with higher results in 2009 than in 2008.

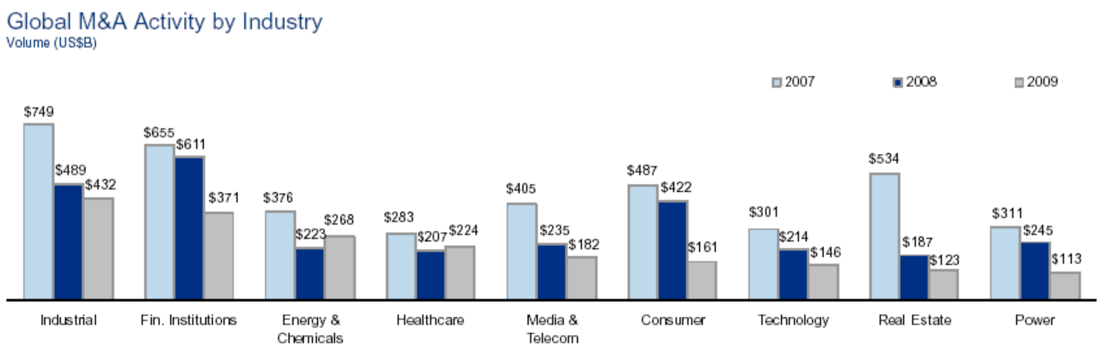

Figure 69 "Global M&A Activity by Industry"[174]

173 Source: Citigroup Global Markets Inc.- Executive M&A Summary December 2009 Edition, page 1

174 Source: Citigroup Global Markets Inc.- Executive M&A Summary December 2009 Edition, page 4

3.1. M&A Trends since 2000

For a more detailed picture of the chemical industry the role of the sponsor and of the target need to be evaluated separately. As discussed earlier (chapter "M&A Transactions"), "Financials", "Industrials" and "Materials" are the most important macro industries acting as sponsors for "Chemicals".

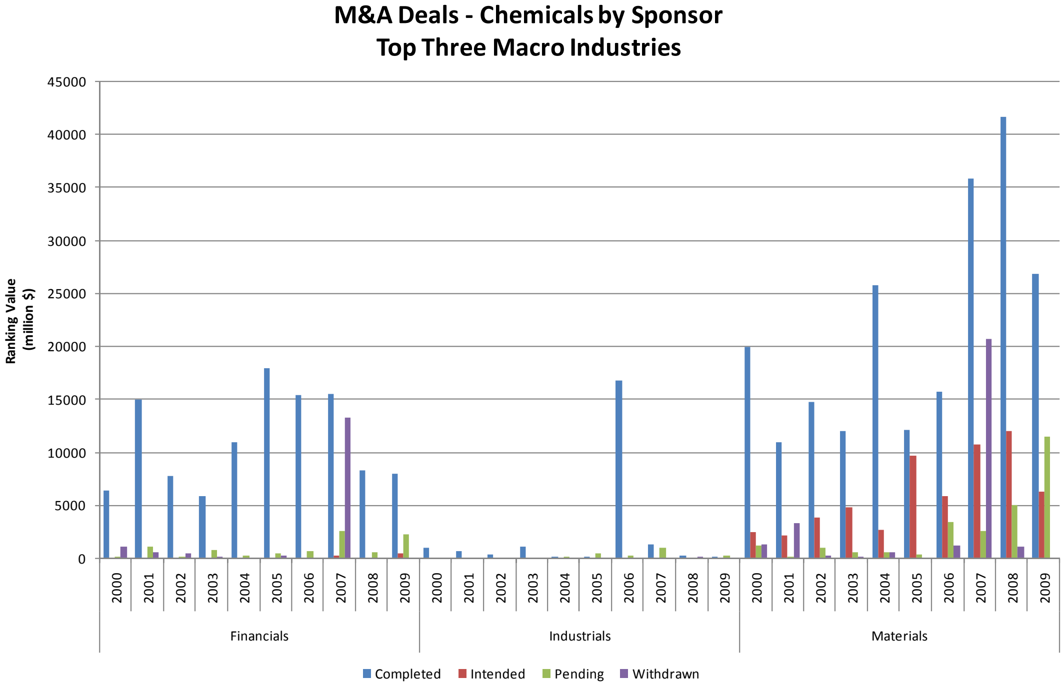

Figure 70 "M&A Deals with Chemicals as Sponsor – Top Tree Macro Industries"

Financial institutions have reduced their activity in the chemical industry in 2008 after a period of three years with similar deal volumes of over 15billion$ per annum. The strongest year was 2005, whereas even 2004 exceeded the crisis.

In contrast, the completed transactions with acquirers from the "**Materials**" industry peeked in 2008. In 2009 the total deal volume is still the third highest of the century. It should be noted at this point, that "Materials" include the mid industry "Chemicals". When comparing the different mid industries of "Materials" as sponsors (Figure 71 "M&A Deals - Chemicals by Sponsor of "Materials") for acquisitions of Chemicals, the picture becomes very simple: mainly chemicals invest in chemicals.

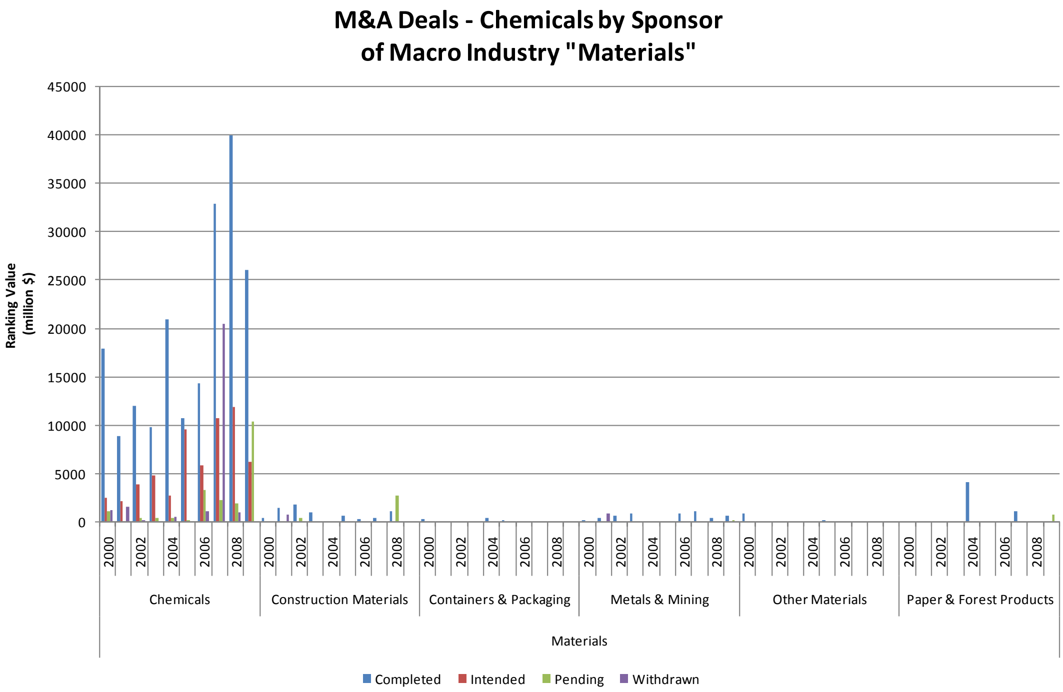

Figure 71 "M&A Deals - Chemicals by Sponsor of "Materials"

The three most active mid industries are "Chemicals", "Alternative Financial Investments" and "Other Financials" (Figure 72).

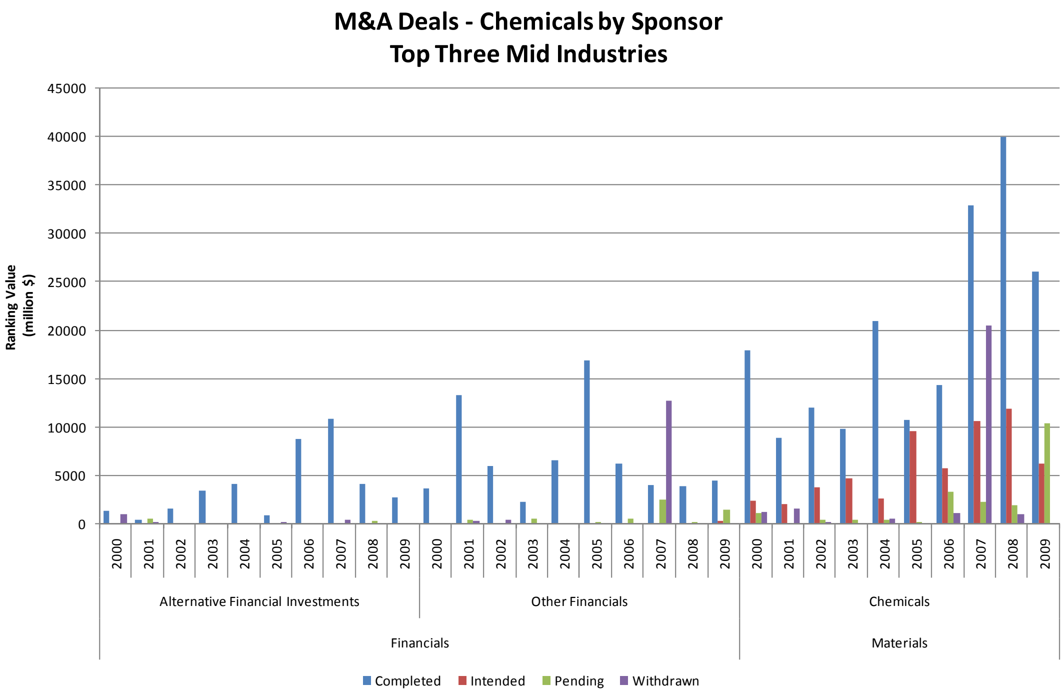

Figure 72 "M&A Deals - Chemicals by Sponsor of Top Three Mid Industries"

Players with significant transactions of chemicals and grouped as "**Alternative Financial Investments**" are e.g.

- Apollo Management LP (in 2006: acquisition of the manufacturer of silicon-based materials from General Electric Co GE through a leveraged buyout transaction),
- The Abu Dhabi state-owned International Petroleum Investment Co (IPIC acquired the manufacturer of commodity plastics and chemicals NOVA Chemicals in 2009),
- Corp. Ulysses Luxembourg Sarl of Luxembourg (CVC Capital Partners),
- Wendel Investissement SA, and
- Industrial Equity Investments Ltd (Permira Advisers Ltd).

As "**other Financials**", often investor-groups or persons are summarized. In 2008 and in 2009, the most important transactions in this segment were

- The 4billion$ sale of shares of Dow Chemicals Co to an investor group, comprised of Berkshire Hathaway Inc and Kuwait state-owned Kuwait Investment Authority
- The tender offer of Mrs Klatten's SKion GmbH to raise interest by acquiring an additional 37.2% stake in Altana AG and
- Solutia's debt restructuring with creditors offering them 44.988million of new common shares.

Chemicals invested in 2008 and in 2009 also outside their own industry, in particular in "Consumers Staples" and "Energy and Power".

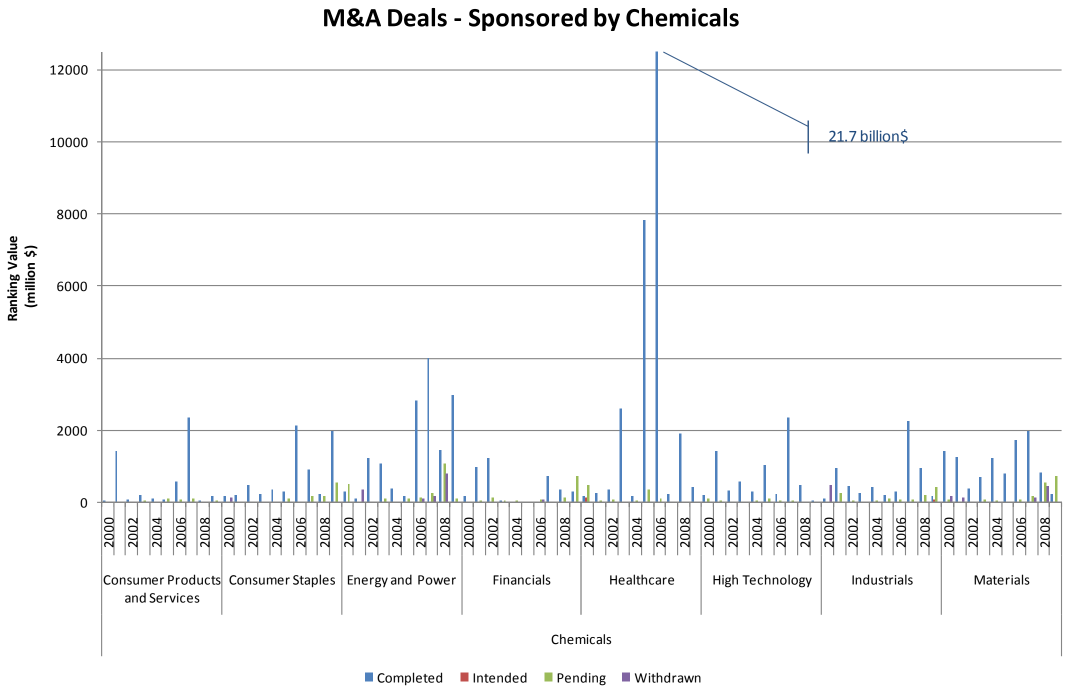

Figure 73 "M&A Deals Sponsored by Chemicals"

The acquisitions in the segment of “Healthcare” in 2008 amounted to almost 2billion$ but could by far not reach the 2005 (7.8billion) and 2006 volumes. (It needs to be pointed out, that the volume in 2006 was 21.7billion$, but the axe of the graph was modified to help compare the last years. The key deal behind this extreme peak was the acquisition of Schering (Healthcare / Pharmaceuticals) by Bayer with a volume of 20.1billion$).

The top two transactions in 2009 had a volume of 1.7billion$ each. One deal was in the “Energy and Power” where Reliance industries Ltd acquired the remaining 24.62% stake of Reliance Petroleum Ltd. The other deal- to be discussed in detail later - is counted to the macro industry “Consumers Staples” (mid industry “Food & Beverage”). In this case, K+S AG acquired Morton International Inc (a producer and wholesaler of salts) from Rohm & Haas Co that is a wholly owned unit of Dow Chemical Co.

The results presented in Figure 74 “Financing of Chemicals” are based on a data base search for all equity, bond and loan transactions since 2000 with “issuer / borrower ultimate parent” from the “mid industry” Chemicals. In 2009, financing of Chemicals through “investment grade corporate bonds”, “high-yield bonds corporate bonds” and to a minor extend “convertible bonds” increased in importance. Of the more than 6,000 transactions in the past decade, the group of “others” comprising of e.g. loans, revolving credit facilities and bridge loans decreased to volumes before 2004.

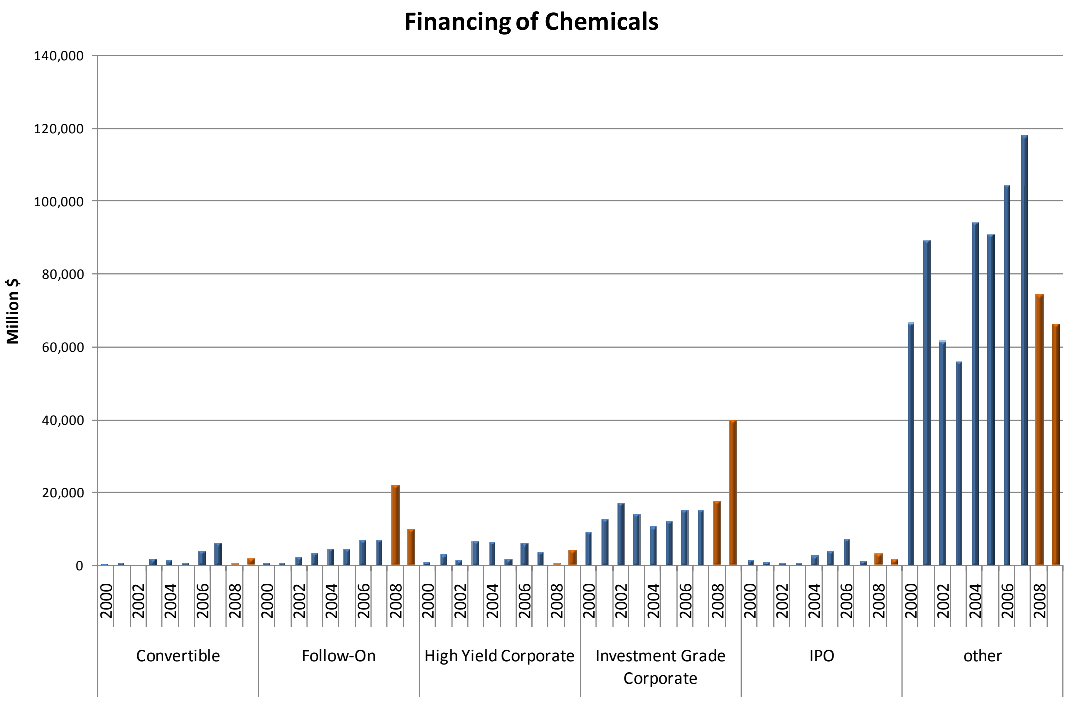

Figure 74 “Financing of Chemicals”[175]

[175] Data source Thomson One, Deals & League Tables - search “Chemicals” since 2000

3.2. Overview of the Years 2007-2009

In 2007, major acquisitions were announced but later withdrawn. Access Industries who owned Basell had agreed with parties controlling 57% of Huntsman's common stock on an acquisition of Huntsman for 9.6billion$[176].

Hexion Specialty Chemicals Inc, a unit of Apollo Advisors LP's Apollo Management LP subsidiary, planned to launch a challenger offer to acquire all the outstanding common stock of Huntsman for a total value of 6.2billion[177].

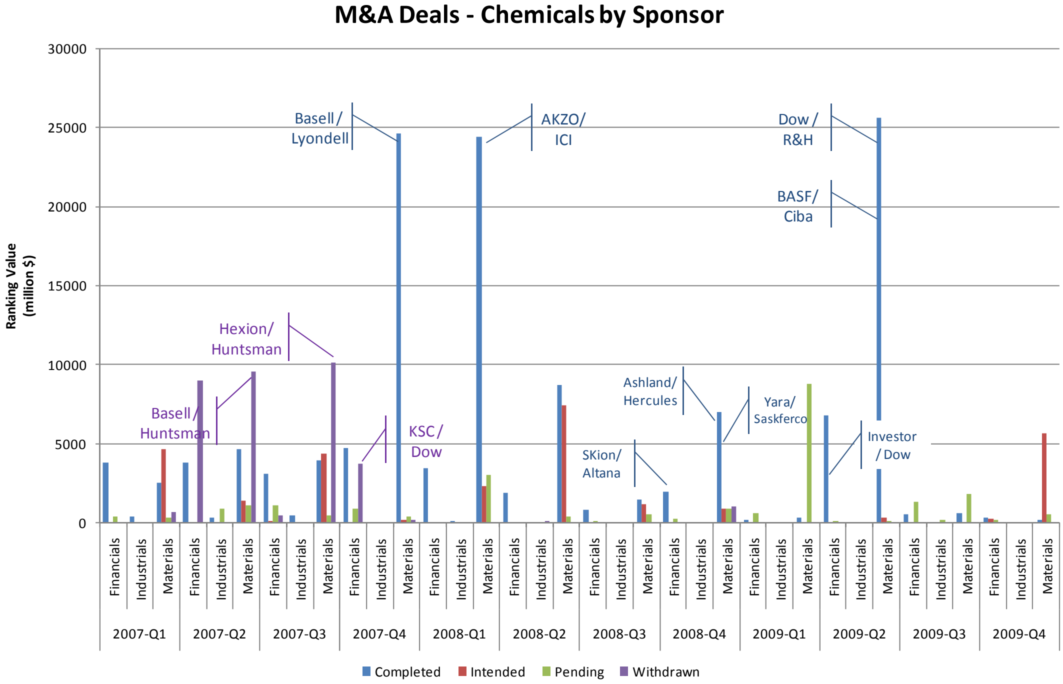

Figure 75 "M&A Deals with Chemicals as Sponsor since 2007"

A further important transaction announced in 2007 was withdrawn just before the end of 2008. Dow published a press release that it was informed "*about the decision made by the Kuwait Supreme Petroleum Council, to reverse its prior approval of the agreement between Dow and PIC (Kuwait Petroleum Corp and Petrochemicals Industries Co) to enter into K-Dow Petrochemicals, a planned 50:50 joint venture company*"[178]. The potential deal between Petrochemical Industries Co (KSC) and Dow was estimated to be 9.5billion$.

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[176] Source: ICIS news, June 26, 2007 16:55

[177] Source: Thomson Reuters Database

[178] Source: Dow Chemical Co, Company press release, 28 Dec 2008 , 28 Dec 2008

Last quarter 2007, Basell NV acquired all the outstanding common stock of Lyondell Chemical Co. This major transaction (12.4billion$) formed a giant in the industry with revenues of around 42.8billion[179].

In the first quarter of 2008, Akzo Nobel N.V. completed its tender offer to acquire Imperial Chemical Industries PLC (ICI) for 11.8billion€.

Several **share repurchase** authorisations were published in the first half of 2008. The main transactions shown in Figure 75 under "intended" were:

- Akzo Nobel's 1billion€ (March 2008) program,
- Yara's equivalent to 1.1billion$,
- in June 2008 BASF's authorisation to repurchase up to 3billlion€ and
- Eastman Kodak's up to 1billion$.

In the **second and third quarter 2008** worldwide only four acquisitions above 1billion$ were completed and the maximum deal value was 2.8 billion$ (Agrium Inc acquiring UAP Holding Corp).

Despite the difficult situation in the chemicals markets, the **fourth quarter 2008** showed an increase in M&A activity. In the US, Ashland Inc merged with Hercules Inc. The deal was valued at 3.3billion$. Yara International ASA acquired Saskferco Products Inc from Mosaic Co and Investment Saskatchewan Inc for estimated 1.6billion$. In Germany Susanne Klatten's SKion GmbH completed its tender offer for Altana AG with a total volume of 679million€. BASF acquired a 13% stake, in Ciba Specialty Chemicals Holding Inc (308million€).

Before announcing the successful acquisition of Rohm and Haas, Dow had to resolve the situation of the withdrawn transaction with Kuwait Petroleum Corp and Petrochemicals Industries Co. In April **2009**, an investor group, comprised of Berkshire Hathaway Inc and Kuwait state-owned Kuwait Investment Authority, acquired preferred shares convertible into a 10.4% stake of Dow Chemicals Co[180] and finally Dow acquired all the outstanding common stock of Rohm & Haas Co with a total value of 15.5billion$.

In the same quarter, BASF completed its tender offer by acquiring in addition to the 13% further 82.8% in Ciba Specialty Chemicals Holding Inc (Ciba). The total transaction amounted to 4.5billion$.

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[179] Source: ICIS news, 05 December 2007 14:03

[180] Data source: Thomson One, search 2009 12 28

The **second half of 2009** was very quiet, with the exception of the 1.675billion$ acquisition of Rohm & Haas (now wholly-owned by Dow) by K+S AG of Morton International. This deal is not shown in the previous graph as the acquirer is grouped in the "Chemical" industry but the target is in the "Food and Beverage" industry. A detailed picture of the acquisitions in 2009 related to Chemicals shows Figure 79.

The significant value of more than 5billion$ "intended" transactions is in Japan - a tender offer of Mitsubishi Chemical Holdings Corp to acquire the remaining 99.34% stake in Mitsubishi Rayon Co Ltd.

3.3. BASF Acquiring Ciba and Revus Energy ASA

On April 9, BASF completed the acquisition of **Ciba Holding AG**. BASF had announced a public takeover offer to Ciba's shareholders on September 15 2008 to pay in cash 50CHF per share in Ciba. BASF estimated that "*based on the outstanding CIBA shares and including net financial liabilities and pension obligations, the enterprise value would be 6.1billionCHF (approximately 3.8billion€)*"[181]. The offer period ended on October 28 2008. Until the end of the offer period, a total of approximately 45million of Ciba shares were tendered to BASF. BASF held 1million Ciba shares and thus reached 66.665% of the share capital of Ciba before the publication of the pre-announcement approximately[182].

In November 2008, the investor group Bestinver sold outside the public tender offer its stake of around 13% (approx. 9.2million shares) to BASF for a price of 49.50CHF per share, amounting to 455.8millionCHF or 307.9million€[183].

On November 17, 2008, BASF announced to have reached a participation of more than 94.5% of the shares. After closing on April 4 2009, BASF held 95.8% and paid for the remaining 82.8% 2.864billionCHF or approximately 1.8billion€. The purchase price for this acquisition amounted to 2,178million€ (3,314millionCHF).

On October 27 2008, BASF's subsidiary Wintershall published a voluntary offer to acquire the shares of **Revus Energy ASA** paying 110NOK per share in cash. The purchase price of the transaction was estimated to be approximately 581million€[184]. On December 8 2008, Wintershall reached 95.12% acceptance of the offer[185] and ten days later a successful

[181] Source: BASF News Release P422/08e, September 15 2008

[182] Source: BASF News Release P487/08e, October 29,2008

[183] Data source: Thomson One, search 2009 12 28

[184] Source: http://www.basf.com/group/pressrelease/P-WH-08-19 (2009 12 10)

[185] Source: Wintershall Press Release December 8 2008 PI-08-26

"squeeze out" of the remaining shares took place. The total purchase price was reported to be 558million€[186]. For financing the deals BASF mainly issued bonds, approximately 5.4billion€ in total.

3.3.1. Equity

BASF has only common shares, no preferred stock. In the first three quarters of 2009, BASF neither issued new shares nor sold any treasury stock (which they apparently do not have).

3.3.2. Bonds and Loans

In April 2008 BASF issued two Swiss Francs bonds due in 2011 (300millionCHF) and 2015 (200millionCHF) at effective interest rates of 3.39% respectively 3.77%. From November 2008 until end of 2009, BASF issued seven bonds, except of one bond over 450million Pounds, all others in Euro. The total value of the Euro bonds amounted to 5.25billion€.

End of 2008, BASF had bonds of 6.2billion€ issued. BASF's "Maturity Profile" (Figure 77) shows how the increase of the debt was added quarter by quarter.

			Carrying amounts based on effective interest method	
	Nominal volume	Effective interest rate	**2008**	2007
3.5% Euro Bond 2003/2010 of BASF SE	1,000	3.63%	998	997
3.375% Euro Bond 2005/2012 of BASF SE	1,400	3.42%	1,398	1,397
4% Euro Bond 2006/2011 of BASF SE	1,000	4.05%	999	999
4.5% Euro Bond 2006/2016 of BASF SE	500	4.62%	496	496
3 Month EURIBOR Bond 2006/2009 of BASF SE	500	variable	500	500
3.25% CHF Bond 2008/2011 of BASF Finance Europe N.V.	300	3.39%	201	–
3.625% CHF Bond 2008/2015 of BASF Finance Europe N.V.	200	3.77%	134	–
5% Euro Bond 2007/2014 of BASF Finance Europe N.V.	1,000	5.09%	996	996
5% Euro Bond 2007/2014 of BASF Finance Europe N.V.	250	4.83%	252	253
6% Euro Bond 2008/2013 of BASF Finance Europe N.V.	1,250	6.15%	1,242	–
USD Extendible Floating Rate Notes of BASF Finance Europe N.V.		4.51%	330	917
Other bonds			621	548
USD Commercial Papers	6,140		4,406	1,878
Bonds and other liabilities to the capital markets			**12,573**	**8,981**
Liabilities to credit institutions			1,941	1,121
			14,514	**10,102**

Figure 76 "BASF – Bonds 2007 and 2008"[187]

First, in quarter 1 2009, bonds due in 2014 (1billion€) and 2015 (1.5billion€) were issued. In the second quarter additional 1.35bilion€ due in 2012 and 500million€ due in 2018 were added. In the second half of the year, BASF issued only a small bond (300million€ due 2017). In February 2010, BASF reports bonds amounting to approximately 11.7billion€[188].

[186] Source: BASF Annual Report 2008, page 170

[187] Source: BASF Annual Report 2008

[188] Source: http://www.basf.com/group/corporate/en/investor-relations/bonds-and-credit-rating/index (2010 02 06)

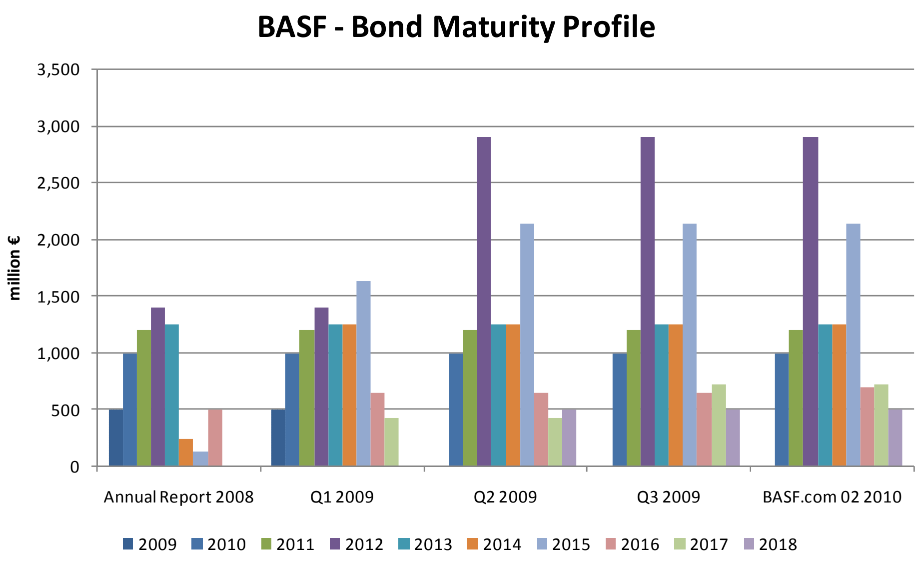

Figure 77 "BASF – Bond Maturity Profile"[189] [190]

3.4. Dow acquiring Rohm & Haas

The Dow Chemical Company announced on July 10, 2008 the plan to acquire the Rohm and Haas Company and merge it with its wholly owned subsidiary Ramses Acquisition Co. The original offer was a cash payment of 78$ per share. Prior to the announcement, equity commitment letters had been signed with Berkshire Hathaway Inc and the Kuwait Investment Authority for their acquisition of "cumulative convertible perpetual preferred stock" of Dow in case of closing of the merger.[191] The transaction amounted to 15.5billion$. Major shareholders of Rohm and Haas were funds managed by Paulson & Co and the Haas Family trusts.

On April 1st 2009, the acquisition of Rohm and Haas by Dow was closed. Dow paid 78.97$ in cash per common share. Dow financed the transaction by using a combination of proceeds from borrowing, proceeds from the issuance and sale of "Preferred Stock" and cash on hand[192].

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[189] Data based on BASF Annual Report 2008, Interim Report Quarter 1 2009, Half Year 2009 and Quarter 3 2009 and http://www.basf.com/group/corporate/en/investor-relations/bonds-and-credit-rating/index (2010 02 06)

[190] data for 3,625% CHF Bond due in 2015 was changed for quarter 1 and quarter 2 2009 assuming a typing error in the BASF interim reports (original 2015/2011)

[191] Source: Dow Form 8-K filed July 10, 2008, published 2008 07 10

[192] Source: Dow Form 8-K filed April 01, 2009, published 2009 04 01, page 2

3.4.1. Equity Transactions

In quarter 2 2009, Dow issued 4million shares of "Cumulative Convertible Perpetual **Preferred Stock**" (**Series A**, Convertible Preferred Stock, 1.00$ par value, 1000$ liquidation preference)[193]. 3million of these shares were sold to Berkshire Hathaway Inc and 1million shares to The Kuwait Investment Authority, at an aggregate price of 4billion$.[194]

1.5million "Cumulative Perpetual Preferred Stock" share (**Series B**, Perpetual Preferred Stock) were sold to trusts related to the "Haas Family Trusts" and further 1million shares to funds managed by Paulson & Co. Inc. at a total price of 2.5billion$[195].

In addition, Dow issued and sold 500.000 shares of "Cumulative Convertible Perpetual Preferred Stock" (**Series C**, Convertible Preferred Stock) to the Haas Family Trusts for 500million$. In total Dow sold preferred stock 7billion$ worth.

In quarter 2 2009, Dow's "Balance Sheet" shows a reduction of the "**treasury stock**" by 1.5billion$ from 2,384million$ to 851million$. The number of **common shares outstanding** increased from 926million in quarter 1 2009 to 1,144million in the second quarter (a difference of 218million shares or 23.5% share dilution)[196].

On May 7 2009, Dow announced a **public offering** of approximately 130million common stock shares (at 15$ per share). These shares were partially offered by Dow (around 1billion$ worth) and partially by the Paulson funds and trusts related to the Haas Family (around 1.25billion$)[197]. The shares of the Paulson funds and Haas Family trusts were received in exchange to two times 454.4million shares of Dow's Perpetual Preferred Stock Series B.

For quarter 2 2009, the "**Proceeds from Sale/Issue of Common or Preferred Stocks**" (Cash Flow for financing activities) amounts to 8.5billion$[198].

Dow published under the headline "2009 Year in Review", that all Series B and C preferred shares were eliminated at par by the end of the year 2009.[199]

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[193] Source: Dow Reports Second Quarter Results 2009, page 13

[194] Source: Dow Form 8-K filed April 01, 2009, published 2009 04 01, page 2 and 3

[195] Source: Dow Form 8-K filed April 01, 2009, published 2009 04 01, page 3

[196] Data source: Thomson One, search 2009 12 28

[197] Source: Dow Form FWP Midland, MI – May 7, 2009 published 2009 05 08

[198] Data source: Thomson One, search 2009 12 28

[199] Source: Dow February 2 2010 Q4 2009 Earnings Conference Call, page 21

3.4.2. Bonds and Loans

End of 2008 and prior to the acquisition of Rohm & Haas Dow's "long term debt" reached 8billion$ and the "short term debt & current position of long term debt" further 3.8billion$. In quarter 1 2009, short term debt was strongly reduced to 2.1billion$. A significant part of it could have been due to the instalment of long-term debt maturing in 2009[200].

In quarter 2 2009 when the acquisition of Rohm and Haas was closed, Dow issued, based on the "cash flow of financing activities", "long term debt" totally amounting to 17.3billion. These long-term borrowings represent the amount received by the company from the issuance of convertible and non-convertible long-term debt, the increase in capitalized lease obligations, and debt acquired from acquisitions. In the same quarter, the "reduction of long term debt" was 7.4billion$.

Dow borrowed 9.2billion$ by using a **syndicated loan**, originally (September 2008) limited to 13billion$[201] and later (March 2009) reduced to 12.5billion$[202]. This bridge loan was paid off within 2009[203].

Dow announced in May 2009 the offering of **6billion$** of **public notes**.[204] The debt securities included a 1.75billion$ bond (interest rate 7.6%, due 2014), a 3.25billion$ note (interest rate 8.55%, due 2019), and a 1billion$ note (interest rate 9.4%, due 2039). 1.35billion$ of the 8.55% notes due in 2019 were offered by Paulson & Co. and trusts created by members of the Haas Family. They had received notes from Dow in payment for 1.31million shares of Dow's Perpetual Preferred Stock, Series B, at par and accrued dividends.

Based on a further FWP filing[205], three **notes** with a total amount of **2.75billion$** (1.25billion$ interest rate 4.85% due 2012, 1.25$billion$ interest rate 5.90% due 2015 and 250million$ "Floating Rate Note" due 2011). According to Dow, they were issued "*to use the net proceeds of the offering to repay borrowings under the Company's bridge loan, and for refinancing of other outstanding indebtedness. Borrowings under the bridge loan were incurred to pay a portion of the purchase price for Dow's acquisition of Rohm and Haas Company.*"[206]. The information provided by "Thomson One" regarding the issuance of

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[200] Source: Dow Annual Report 2008 K-10, page 104

[201] Source: Dow Form 8-K filed September 9, 2008, published 2008 09 09

[202] Source: Dow Form 8-K filed March 6, 2009, published 2009 03 06

[203] Source: Dow February 2 2010 Q4 2009 Earnings Conference Call, page 21

[204] Source: Dow Form FWP Midland, MI – May 8, 2009, published 2009 05 08

[205] Source: Dow Form FWP, 2009 08 05

[206] Source: Dow Form FWP Midland, MI – August 4, 2009 published 2009 08 05

bonds by Dow can be misleading, as three bonds were listed on May 7th, 2009 with the amount (“Proceeds Amt Sum of all Mkts($mil)”) of 6billion$ and three more bonds, each for 2.8billion$, in August 2009.

Figure 78 shows Dow’s debt maturity profile where the company will need to refinance less than 1 billion $ in 2010 and thereafter 1.65billion$ and 2.06billion$. In 2019, 3.25billion$ are becoming due.

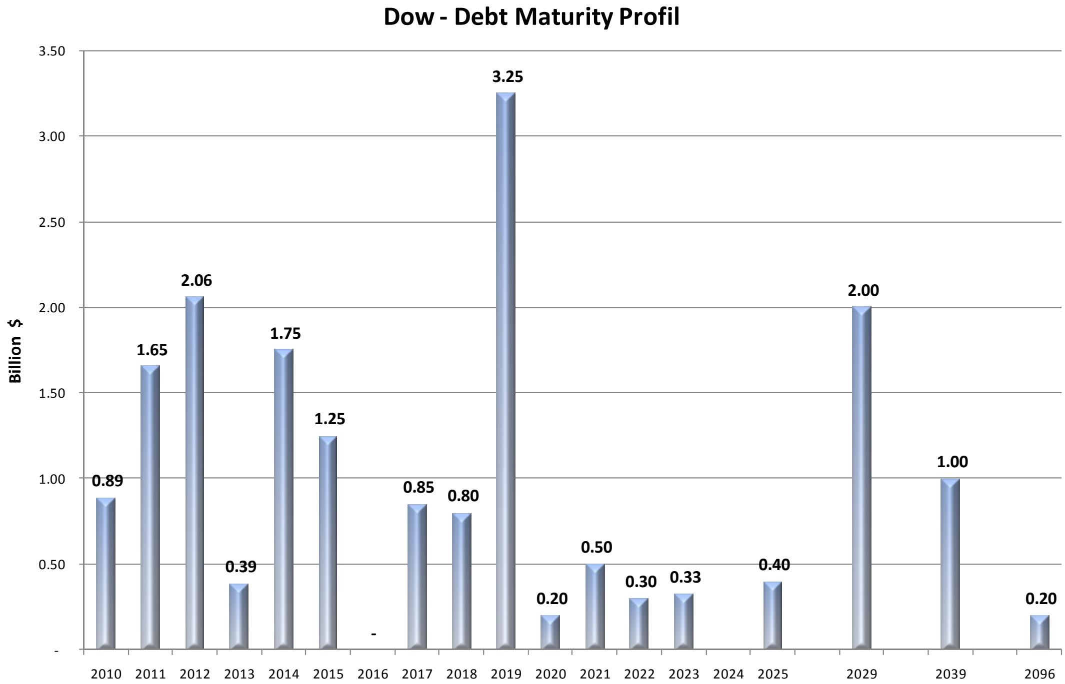

Figure 78 “Dow – Debt Maturity Profile”[207]

3.4.3. Divestments

- In January 2009, the US chemical manufacturer Lubrizol Corp acquired the **thermoplastic polyurethane business** of Dow Chemical Co. The terms were not disclosed but investment firm Jefferies & Co. (New York) estimates that Lubrizol paid 70million$ to 75million$[208]. An investor group, including Katzberg Invest AG, acquired early 2009 for an undisclosed amount the **sealer and damper business of Dow Automotive**.
- In September 2009, the German company K+S AG acquired **Morton International Inc** for 1.675billion$ in cash from Rohm & Haas Co. A detailed discussion will follow in the chapter of K+S’s acquisition.

[207] Data source: Thomson One, search 2010 03 20

[208] Source: www.chemweek.com “Lubrizol Acquires Dow’s TPU Business” January 12, 2009

- Dow’s wholly owned subsidiary Union Carbide Corporation completed in September 2009 the divestiture of its ownership in the **OPTIMAL** Group of Companies to Petroliam Nasional Berhad (PETRONAS) for an equity value of 660million$. The Malaysian state-owned company raised its interest to 88% from 64.25% by acquiring a further 23.75% stake in the manufacturer of ethylene and propylene Optimal Olefins (Malaysia) Sdn Bhd a 64.25 : 23.75 : 12 joint venture among PETRONAS, Union Carbide and Sasol Ltd. Further, PETRONAS acquired the remaining 50% interest, in each of Optimal Glycols (Malaysia) Sdn Bhd and Optimal Chemicals (Malaysia) Sdn Bhd. The three transactions amounted in total to 2.329billion MYR or 660million$[209].
- September 1 2009 was the closing date for the transaction of Dow Chemicals' 45% stake in **Total Raffinaderij Nederland** sold to Russia's Lukoil for 725million$[210].
- In June 2009, the US company Occidental Petroleum Corporation acquired the **calcium chloride business** of Dow for an estimated amount of 210million$[211].
- In October 2009, Third Coast Chemicals acquired for an undisclosed amount **Dow’s ethylene glycol plant** located in Wilton, UK.

Overall, Dow completed in 2009 divestments of businesses, exceeding three billion Dollars[212] and further sales are planned for 2010. In July 2009, Dow announced to form “Styron” for this purpose. The company estimates the revenues of Styron, that comprises of businesses like Emulsion Polymers, Synthetic Rubber, Polycarbonates, Styrenics, Automotive Plastics and some styrene monomer assets, around 3.5billion$. On March 2 2010, Dow announced that it had signed a definite agreement with Bain Capital Partners, a global private investment firm, for the divestment of 1.63billion$ and an option to receive up to 15% of the equity of Styron. The closing is expected to take place in August 2010[213].

[209] Data Source: Thomson One, search 2009 12 28

[210] Source: http://www.jamestown.org/single/?no_cache=1&tx_ttnews[tt_news]=35187, (2010 02 21)

[211] Source: www.chemweek.com “Dow Finds Buyers for Refinery Stake, Calcium Chloride Assets” May 20, 2009

[212] Source: Dow February 2 2010 Q4 2009 Earnings Conference Call, page 21

[213] Source: Dow News Center, March 2 2010, http://news.dow.com/dow_news/corporate/2010/20100302a.htm (2010 03 02)

3.5. K+S acquiring Morton

The German company K+S AG announced on April 2, 2009 to have signed an agreement with Rohm and Haas (at this point in time, a wholly owned subsidiary of Dow) to purchase the U.S. salt producer Morton Salt.

When comparing with the general M&A situation for "Chemicals" in the second half of 2009 (see Figure 79), this transaction is clearly the most important one. The only acquisition in its range is the transaction of the Indian conglomerate Reliance in quarter 3 2009, where Reliance Industries Ltd acquired the remaining 24.62% stake, which it did not already own, in Reliance Petroleum Ltd, in a stock swap transaction valued 1.745billion$[214].

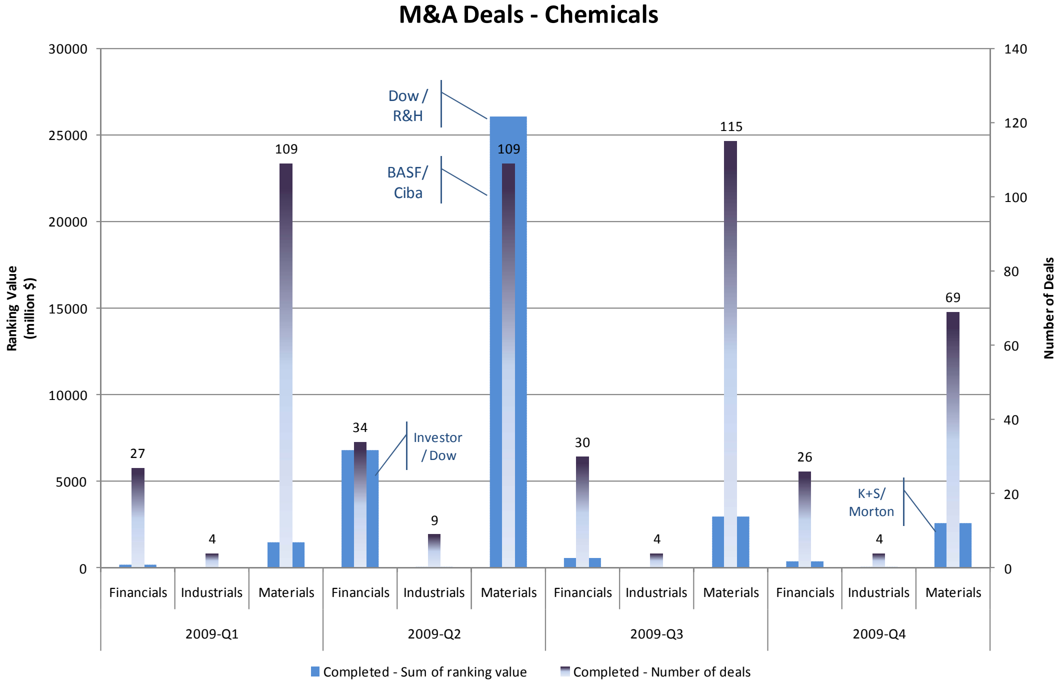

Figure 79 "M&A Deals by Ranking Value and Number of Deals in 2009"

The acquisition by K+S is also remarkable, because of the size of the target compared to the acquirer's. Morton Salt reported sales of approximately 1.2billion$ and employs about 2,900 people, whereas the revenues of K+S were 4.8billion€ by the end 2008 with 12,400 employees, some five to six times over Morton's.

The transaction closing was on October 1st, 2009. As deal value 1.675billion$[215] were reported and K+S published to have paid 1.576billion$ in cash and taken over some debt. Shortly before closing K+S issued a 750million€ bond and in December 2009 K+S announced a capital increase.

[214] Data source: Thomson One, search 2009 12 28

[215] Source: K+S, euro adhoc 2009-04-02/03:03

3.5.1. Equity

In December 2009, K+S performed a **capital increase** and issued 26.4million new ordinary bearer shares with no-par value, each such share representing a notional value of € 1.00 of the share capital against cash contribution[216]. The subscription price of the new shares was 26€ and offered to the shareholders of K+S at a ratio of 25:4. The two largest shareholders of MCC / EuroChem and BASF SE, fully participated in the capital increase. The gross proceeds from the issue amounted to approximately 689million€.[217]

3.5.2. Bonds and Loans

In quarter 3 2009, prior to the closing of the Morton acquisition the total liabilities of K+S rose from 1.7billion€ (quarter 2 2009) to 2.8billion€. Long-term debt amounted to 1billion€ more than in the previous quarter, whereas "short-term debt and current portion of long-term debt" increased only by 139million€ to 502million€.

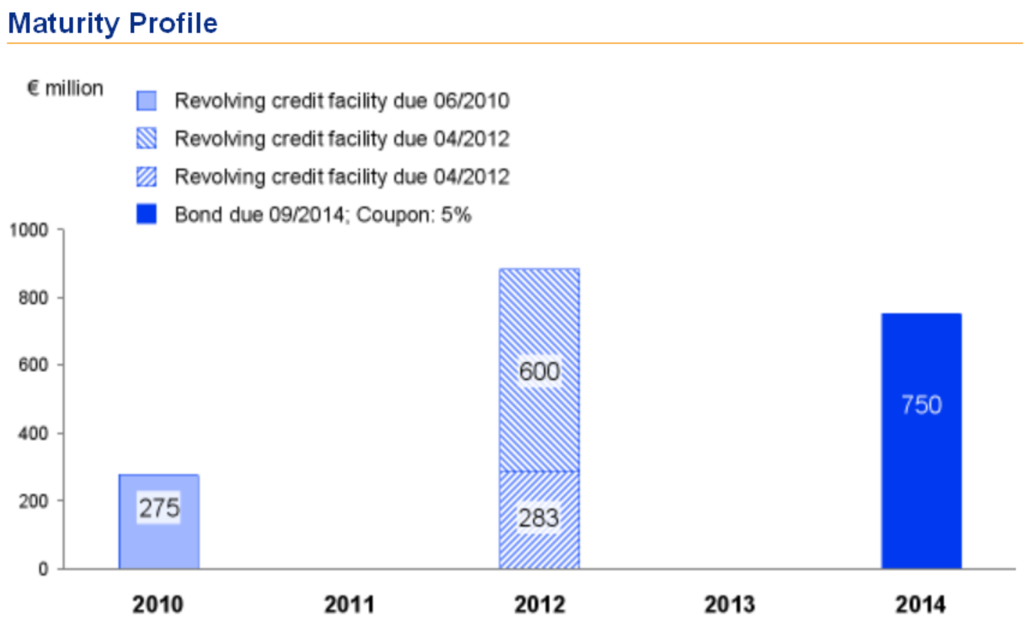

Figure 80 "K+S – Maturity Profile"[218]

September 17 2009, K+S placed for the first time a **bond** on the capital market. This issuance of the 750million€ corporate bond (interest rate of 5%, due September 2014, see also Figure 80) was led by Bayrische Hypo- und Vereinsbank AG, Commerzbank AG and

[216] Source: K+S Prospectus "Offering of 26,400,000 new ordinary bearer shares", November 26, 2009

[217] Source: K+S press release "Rights issue of K+S positively received by shareholders" dated 11 Dec. 2009

[218] Source: http://www.k-plus-s.com/en/ir/anleihe_und_rating/profil.html (2010 02 21)

Sociéte Générale as "joint Lead Managers". The denomination value of the notes is 1,000€.[219]

The company published that the purpose of the bond issuance was "*to refinance part of the bank loans needed to take over the US salt producer Morton Salt and will also be used for general company purposes*"[220].

The described equity and debt changes in total resulted in an increased indebtedness as shown in Figure 81 "K+S – Dept Equity Profile 2008 and 2009".

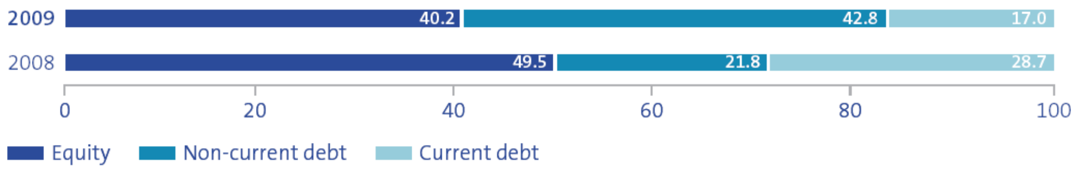

Figure 81 "K+S – Dept Equity Profile 2008 and 2009"[221]

Equity decreased from almost 50% to 40.2 and long-term debt almost doubled from 21.8% to 42.8. Current liabilities correspond to only 17 percent of the assets.

[219] Source: K+S Prospectus "EUR 750,000,000 5.00 per cent Notes due 2014", dated September 24, 2009

[220] Source: http://www.k-plus-s.com/en/ir/anleihe_und_rating/index_anleihe.html (2010 02 21)

[221] Source: K+S Annual Report 2009, page 102

4. Conclusions and Outlook

4.1. Financials of Chemical Stock Corporations

The comparison of the chemical stock corporations' managerial items of the financials leads to a differentiated picture for the **four players BASF, Bayer, Du Pont and Dow**.

The **cash** position of all four players did not decrease in 2009 versus 2008. This is remarkable especially for BASF and Dow, as they had to finance major acquisitions in 2009 (amounting to 15.5billion$). Only Du Pont doubled its "cash and short-term investments" position each year in 2008 and 2009 amounting to 6.1billion$ by end of 2009.

When necessary e.g. in quarter 4 2008 (see e.g. Figure 16 "BASF – Cash Flow from Operations, Interim"), the companies Du Pont or BASF were able to manage their "**working capital**" and free cash by decreasing inventories and "accounts receivable" and increasing the "accounts payable" on a short term. Due to the fact that Bayer's activities (Figure 20) were less than a third in markets (e.g. polymer production and specialty chemicals) that were hit heavily by the crisis (as discussed under "Shutdowns to Face Decreasing Demand"), the company did not have the necessity to act as "aggressive" as the others.

The positive statement regarding the working capital management needs to be put into perspective due to the strong decrease of raw material prices. When comparing the **ratios**[222], "turnover receivables", "inventory turnover" and "payable turnover", the companies showed the ability to improve the first two ratios mentioned in 2008 while at the same time the "payable turnover" worsened.

In 2009 the picture inverse for every company. The conclusion could be made that in this crisis with a low demand of goods and idle capacities it is easier to extend payments than to collect the receivables. Still this does not explain why the inventories turnovers did not improve further in 2009.

The "**gas segment**" (Air Liquide, Linde, Praxair) was not to affected too much by the crises as revenues in all cases were only slightly below the amounts before the crisis and earnings either on the same level or above. Air Liquide's and Linde's "net working capital" remained unchanged within the crisis, only Praxair strongly reduced short-term debt by issuing notes.

Very different to the a.m. segment, revenues in the entire **fertilizer business** (PotashCorp, K+S, Uralkali, Yara) were heavily hit by the crisis. In 2009, revenues of some players were even less than half compared to 2008. This required a strong "working capital

[222] Year ends figures, annual base

management", in particular for the inventory to maintain positive "cash flows from operations". Unexpected was the high level of "capital expenditures", which in the case of PotashCorp, was even exceeding the levels of previous periods. With the exception of Uralkali, the players decreased short-term debt within this period and were able to issue bonds.

All **further evaluated European chemical companies**, except Umicore and Wacker Chemie, increased "cash and short-term investments", with some exceptional increases like DSM that boosted its cash position from 456million€ (2007) to 660million€ (2008) and 1.4billion€ by end of 2009. The ratios[223] showed a similar dependency as described earlier for the "big four". This was also true for Syngenta, a company that was only in a minor way affected by the crisis serving the agro industry. In contrast to most of the European chemical companies who kept "capital expenditures" on the long-term levels, was the severe increase at the Swiss Syngenta. Research and development expenses remained on the previous years' level for most of the players.

Financing was mainly done by issuing bonds, only Givaudan placed in addition own shares without the necessity to finance an acquisition (as K+S and Dow needed to).

4.2. M&A in the Chemical Industry

The **analysis of the transactions** of the **first decade** in this century demonstrates that "Financials", "Industrials" and "Materials" were the most important macro industries acting as sponsors for "Chemicals". In 2008 and 2009, the investments of "Financial institutions" in the chemical industry decreased significantly after a period of three years with similar deal volumes above 15billion$ per annum. In strong contrast, the completed transactions with acquirers out of the "Materials" industry that include the mid industry "Chemicals" as most important sponsor, peaked in 2008 followed by a good year 2009 with the total deal volume still being the third largest in the century.

In 2009 **financing** of Chemicals by various types of bonds increased in importance whereas the volume of loans, revolving credit facilities and bridge loans decreased year by year since its high in 2007 and only reached levels as before 2004 (Figure 74 "Financing of Chemicals").

[223] "turnover receivables", "inventory turnover" and "payable turnover"

The **three major deals** were financed differently, but in all cases, bonds were used. In 2009, **BASF** issued bonds, approximately 5.4billion€ in total used for refinancing and of course acquisition finance.

Dow Chemicals on the other hand used more or less all financing instruments available for its transaction of 15.5billion$: payments in cash, preferred stocks of two different series (B and C) and own treasury shares. Furthermore, the company issued new shares and sold preferred stock series A to an investor for 4billion$. In 2009 public notes for 8.75billion$ were issued and last but not least Dow divested several businesses amongst them Morton Salt for 1.675billion$.

K+S financed its transaction by issuing a 750million€ bond and own shares for 689million€. Payment was mainly in cash with a small amount of debt takeover.

The **chemical industry** demonstrated that even in a crisis as experienced in late 2008 and 2009, financing of acquisitions was possible and relied mainly on public bonds and in second instance on the issuance of new shares.

4.3. Outlook

The encouraging results of "working capital management", strong development of cash positions and successful M&A financing of the chemical industry should be a starting point for further deals in the coming quarters. Du Pont e.g. with 6.1billion$ in cash and favourable low debt is a candidate for strategic acquisitions. In addition, Solvay after the divestment of its Pharma business and DSM (even if the announced transactions do not close as scheduled) are candidates for acquisitions but also targets.

Chemicals will continue to play a major role as sponsors. In addition large conglomerates (like Indian Reliance) seem to be prepared to acquire even very large chemical companies. Private equity transactions started and can be expected to gain importance again. It might be a courageous prediction, but we could see more deals in the near future of financial investors sponsoring but with the industrial seller keeping a certain stake and combining financing expertise with industrial experience. One first example is the very recent case of Bain Capital Partners acquiring "Styron".

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List of Figures

Appendix

Abbreviated Financials (Interim), BASF SE four quarters 2009

BAS-XE		FI-3	FI-2	FI-1	FI0
BASF SE					
GERMANY / Basic Materials / Chemicals					
General Info (mln)	**Interim Report**	**31/03/2009**	**30/06/2009**	**30/09/2009**	**31/12/2009**
	Common Shares	918.5	918.5	918.5	918.5
	Share Price	22.8	28.3	36.2	43.5
	Market Capitalization	21,038	26,020	33,258	39,917
	Last Annual Report				
	Frequency Interim Reports				
Abbreviated Financials (Currency: EUR)					
Income Statement (mln)					
	Sales	**12,219.0**	**12,502.0**	**12,798.0**	**13,174.0**
	CoGS	8,447.0	8,506.0	8,267.0	7,775.0
	SG&A	1,876.0	2,101.0	2,096.0	2,125.0
	R&D costs	325.0	352.0	343.0	378.0
	EBITDA	**1,535.0**	**1,371.0**	**1,857.0**	**2,264.0**
	Depreciation, Depletion & Amortization	671.0	457.0	860.0	1,226.0
	EBIT	**864.0**	**914.0**	**997.0**	**1,038.0**
	Interest on debt	138.0	201.0	199.0	196.0
	EBT	**726.0**	**713.0**	**798.0**	**842.0**
	Income Tax	269.0	362.0	482.0	311.0
	Net Income	375.0	343.0	237.0	455.0
	Gross Income	3,101.0	3,539.0	3,671.0	4,173.0
	Operating Income	929.0	1,092.0	1,084.0	1,008.0
Balance Sheet (mln)					
	Cash & ST Investments	3,613.0	3,026.0	3,098.0	2,934.0
	Receivables (net)	10,461.0	10,957.0	10,537.0	9,199.0
	Accounts Receivable	*7,485.0*	*8,106.0*	*7,737.0*	*7,738.0*
	Inventories - Total	5,863.0	6,299.0	6,559.0	6,776.0
	Current Assets - Total	**19,937.0**	**20,282.0**	**20,194.0**	**19,954.0**
	PP&E	15,241.0	17,065.0	16,388.0	16,285.0
	(PP&E gross)	*50,096.0*	*51,929.0*	*51,553.0*	*51,943.0*
	Intangible Assets	9,854.0	11,106.0	10,841.0	10,449.0
	Goodwill	N/A	N/A	N/A	5,069.0
	Total Assets	**48,571.0**	**52,150.0**	**51,355.0**	**50,593.0**
	Accounts Payable	2,619.0	3,053.0	3,258.0	2,838.0
	ST Debt & Current Portion of LT Debt	3,369.0	4,063.0	3,361.0	2,393.0
	Current Liabilities - Total	**12,802.0**	**13,505.0**	**13,134.0**	**11,680.0**
	LT Debt	10,394.0	13,124.0	12,441.0	12,506.0
	Non-Convertible Debt	N/A	N/A	N/A	N/A
	Convertible Debt	N/A	N/A	N/A	N/A
	Capitalized Lease Obligations	N/A	N/A	N/A	62.0
	Provisions	N/A	N/A	N/A	N/A
	Total Liabilities	**29,645.0**	**34,290.0**	**33,176.0**	**31,984.0**
	Preferred Stock	**0.0**	**0.0**	**0.0**	**0.0**
	Common Equity	**17,776.0**	**16,761.0**	**17,096.0**	**17,477.0**
	Common Stock	**1,176.0**	**1,176.0**	**1,176.0**	**1,176.0**
	Capital Surplus	**3,241.0**	**3,246.0**	**3,247.0**	**3,229.0**
	Revaluation Reserves	**N/A**	**N/A**	**N/A**	**N/A**
	Retained Earnings	**13,482.0**	**12,331.0**	**12,744.0**	**12,487.0**
	Total Shareholders Equity	**17,776.0**	**16,761.0**	**17,096.0**	**17,477.0**
	Minority interest	1,150.0	1,099.0	1,083.0	1,132.0
	Total Capital	29,320.0	30,984.0	30,620.0	31,115.0
	Net Working Capital = (Current Assets - Current Liabilities)	7,135.0	6,777.0	7,060.0	8,274.0
	Accounts receivable + Inventory - Account payable	10,729.0	11,352.0	11,038.0	11,676.0
Cash Flow Statement (mln)					
	Net Income	375.0	343.0	237.0	455.0
	Depreciation, Depletion	540.0	588.0	721.0	765.0
	Amortization of Other Intangible Assets	131.0	204.0	301.0	461.0
	Other Cash Flow	42.0	-99.0	18.0	-379.0
	Funds From Operations	1,088.0	1,036.0	1,277.0	1,302.0
	Funds from/for Other Operating Activites (Changes in WC)	996.0	527.0	452.0	-408.0
	Dec (inc) in Receivables	*N/A*	*N/A*	*N/A*	*N/A*
	Dec (inc) in Inventories	*N/A*	*N/A*	*N/A*	*N/A*
	Inc (dec) in Accounts Payable	*N/A*	*N/A*	*N/A*	*N/A*
	Dec (inc) in other Assets/Liabilites	*N/A*	*N/A*	*N/A*	*N/A*
	Cash From Operations	**2,084.0**	**1,563.0**	**1,729.0**	**894.0**
	Capital Expenditures	-570.0	-728.0	-530.0	-679.0
	Net Assets from Acquisitions	N/A	N/A	38.0	-46.0
	Increase In Investments / Payments related to financial assets & secu	0.0	-109.0	-18.0	-514.0
	Disposal of Fixed Assets	3.0	-3.0	0.0	575.0
	Cash From Investments	**-559.0**	**-2,349.0**	**-510.0**	**-664.0**
	Net Proceeds From Sale/Issue of Com & Pref (Capital increase	0.0	0.0	0.0	0.0
	Com/Pfd Purchased (Share repurchase)	0.0	-95.0	-39.0	0.0
	Long Term Borrowings	0.0	1,484.0	-1,112.0	4,264.0
	Reduction in Long Term Borrowings	-622.0	N/A	N/A	N/A
	Inc (dec) in Short Term Borrowings	N/A	N/A	N/A	N/A
	Dividends paid to shareholders	-105.0	-1,881.0	-41.0	236.0
	Other Source (Use) - Financing	N/A	N/A	N/A	N/A
	Dividends paid to minority shareholders	N/A	N/A	N/A	N/A
	Cash From Financing	**-727.0**	**130.0**	**-1,192.0**	**-1,344.0**
	Net changes in cash and cash equivalents	**798.0**	**-656.0**	**27.0**	**-1,110.0**
	Free Cash Flow	**1,514.0**	**835.0**	**1,199.0**	**215.0**

Figure 82 “Example of Abbreviated Financials (Interim)”[224]

[224] “N/A”; Figure was „not available“ in database of Thomson One