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Department for Telecommunications, Information and Media

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MBA 618 Financial Statement Analyses

Case Study

Analysing Financial Reports of



CHEVROLET PONTIAC Oldsmobile *Cadillac* BUICK GMC SATURN HUMMER SAAB OPEL

General Motors Corp

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Vienna, January 2004

Task

Select a public company for study. Published financial statements must be available for the company you choose. The case analysis will culminate in a detailed report both in written and oral forms. The written report must include a brief history of the company, a detailed analysis of its capital structure, and the five core investment characteristics or CIC (a separate handout will explain the CIC model) including an industry/benchmark comparative analysis and all other pertinent information used in the analysis of the case.

Content Description

This analysis contains ratios and their interpretation of values from the annual report of General Motors (GM) from the year 2002, which also includes values from 2001 and 2000. Note, that all statements are only valid for 31.12.2002, the effective day of the balance sheet 2002.

Besides an analysis regarding the capital structure of the following five core investment characteristics are outlined: Liquid ratios, borrowing capacity ratios, profitability ratios, investor's ratios and cash flow ratios.

A comparative analysis with Ford Motor Company and DaimlerChrysler completes the analysis.

Executive Summary

In the recent year General Motors increased its profitability, which is indicated by several ratios. Due to outsourcing activities the capital structure was reduced to the core business of GM, producing and selling automobiles.

The analysis of short-term assets related to debt paying ability shows that GM is able to pay all its current liabilities in time. In addition also the long-term debt-paying ability is satisfying. GM was always able to cover its interest expense obligations and shows good ratios in that area, which is why GM gets good interest rates. The ratios concerning the operating cash flow improved.

The return on investment and the return on equity show good values and are higher compared to those of its competitors Ford and DaimlerChrysler.

Content

1	Brief History of General Motors	10
2	Analysis of the Capital Structure	13
2.1	Common Size Analysis	14
3	Five Core Investment Characteristics	17
3.1	Liquidity of short-term assets related to debt paying ability	18
3.1.1	Short-Term Assets	18
3.1.2	Debt Paying Ability (Liabilities).....	18
3.1.3	Analysis	19
3.1.3.1	Current Assets	20
3.1.3.2	Debt Paying Ability (Liability).....	21
3.1.3.3	Calculations	22
3.2	Long Term Dept-Paying Ability.....	24
3.2.1	Analysis Using the Income Statement.....	24
3.2.1.1	Times Interest Earned.....	24
3.2.2	Analysis using the Balance Sheet.....	25
3.2.2.1	Debt Ratio.....	26
3.2.2.2	Debt/Equity Ratio	27
3.2.2.3	Debt to Tangible Net Worth Ratio	28
3.3	Profitability.....	29
3.3.1	Net Profit Margin	29
3.3.2	Total Asset Turnover	30
3.3.3	Return on Assets.....	30
3.3.4	Operation Income Margin	31
3.3.5	Operation Asset Turnover	32
3.3.6	Return on Operation Assets.....	33
3.3.7	Return on Investment (ROI).....	33
3.3.8	Return on Total Equity	34
3.3.9	Gross Profit Margin.....	35
3.4	Analysis for Investors.....	37
3.4.1	Degree of the Financial Leverage.....	37

3.4.2	Diluted Earnings per Common Share.....	38
3.4.3	Book Value per Share.....	38
3.5	Statement of Cash Flow.....	40
3.5.1	Operating Cash Flow / Current Maturities of Long-Term Debt and Current Notes Payable	41
3.5.2	Operating Cash Flow / Total Debt.....	42
3.5.3	Operating Cash Flow per Share.....	43
3.5.4	Operating Cash Flow / Cash Dividends	44
4	Industry Benchmark Comparison	45
4.1	Ford Motor Company	45
4.1.1	Return on Investment and Return on Total Equity.....	48
4.2	DaimlerChrysler	49
4.2.1	Return on Investment and Return on Total Equity.....	52
4.3	Comparison.....	53
5	Bibliography.....	55

Figures

Figure 1: Brief history of General Motors.....	11
Figure 2: History of General Motors until 1970.....	11
Figure 3: History of General Motors from 1970 until now	12
Figure 4: Net income contribution of the business units to result of operation 2002.....	13
Figure 5: Asset values (in million \$) 1999 – 2002	14
Figure 6: Liabilities 1999 – 2002	14
Figure 7: Current and long term asset in absolute values.....	15
Figure 8: Current and long term asset values, where the total assets are always 100% .	15
Figure 9: Current and long term asset values, where the values from 1999 are always 100%	16
Figure 10: Consolidated balanced sheet from annual report	19
Figure 11: Supplement information to consolidated balance sheet: Assets	20
Figure 12: Supplement information to consolidated balance sheet: Liabilities.....	21
Figure 13: Current assets and debt paying ability from the supplemental information to the consolidated balance sheet.....	22
Figure 14: More values from the supplemental information to the consolidated balance sheet	23
Figure 15: Ratios of annual report.....	23
Figure 16: Consolidated income statement from annual report	24
Figure 17: Times interest earned calculated from the income statement	25
Figure 18: Consolidated balanced sheet from annual report	26
Figure 19: Debt ratio calculated from the balance sheet	27
Figure 20: Debt to tangible net worth ratio calculated from the balance sheet.....	28
Figure 21: Consolidated income statement from annual report	29
Figure 22: Net profit margin calculated from the consolidated statement of income	29
Figure 23: Total asset turnover calculated from the consolidated statement of income	30
Figure 24: Return on assets calculated from the consolidated statement of income.....	31
Figure 25: Operation income margin calculated from the consolidated statement of income	31

Figure 26: Operation asset turnover calculated from the consolidated statement of income	32
Figure 27: Return on operation assets calculated from the consolidated statement of income	33
Figure 28: Return on investment (ROI) calculated from the consolidated statement of income and the balance sheet	34
Figure 29: Return on total equity calculated from the consolidated statement of income	35
Figure 30: Gross profit margin calculated from the consolidated statement of income.	35
Figure 31: Consolidated income statement from annual report	37
Figure 32: Degree of the financial leverage calculated from the consolidated statement of income	38
Figure 33: Diluted earnings per share from the annual report.....	38
Figure 34: Book value per share from the annual report.....	39
Figure 35: Consolidated statement of cash flow from annual report	41
Figure 36: Operating cash flow / Current maturities of long-term debt and current notes payable calculated from the consolidated statement cash flow	42
Figure 37: Operating cash flow / Total debt calculated from the consolidated statement cash flow.....	42
Figure 38: Operating cash flow per share calculated from the consolidated statement cash flow.....	43
Figure 39: Operating Cash Flow / Cash Dividends calculated from the consolidated statement cash flow	44
Figure 40: Asset values (in million \$) 1999 - 2002 (for Ford Motor Company)	45
Figure 41: Liabilities 1999 - 2002 (for Ford Motor Company).....	46
Figure 42: Current and long term assets in absolute values (for Ford Motor Company)46	
Figure 43: Current and long term asset values, where the total assets are always 100% (for Ford Motor Company).....	47
Figure 44: Current and long term asset values, where the values from 1999 are always 100 % (for Ford Motor Company)	47
Figure 45: Return on investment (ROI) (for Ford Motor Company)	48
Figure 46: Return on total equity (for Ford Motor Company)	48

Figure 47: Asset values (in million \$) 1999 - 2002 (for DaimlerChrysler).....	49
Figure 48: Liabilities 1999 - 2002 (for DaimlerChrysler).....	49
Figure 49: Current and long term assets in absolute values (for DaimlerChrysler)	50
Figure 50: Current and long term asset values, where the total assets are always 100% (for DaimlerChrysler).....	50
Figure 51: Current and long term asset values, where the values from 1999 are always 100 % (for DaimlerChrysler).....	51
Figure 52: Return on investment (ROI) (for DaimlerChrysler)	52
Figure 53: Return on total equity (for DaimlerChrysler)	52
Figure 54: Return on investment and return on total equity for GM, Ford and DaimlerChrysler	53
Figure 55: Current and long-term assets for Ford Motor Company, DaimlerChrysler and GM.....	54

1 Brief History of General Motors

There is more than one company which has “General Motors” in its official name. The one which is studied here has the exact name “General Motors Corporation”. Its standard industrial classification is “Motor Vehicles & Passenger car bodies”. General Motors (GM) is part of the automotive industry and its core business is producing and selling vehicles.

Brands of GM are e.g. Buick, Cadillac, Chevrolet, Daewoo, GMC, Holden, Hummer, Oldsmobile, Opel, Pontiac, Saturn, Saab, and Vauxhall. Other brands include Hughes Electronics (Directv), ACDelco, Allison Transmission, and General Motors Electromotive Division that produces diesel-electric locomotives. GM also has stakes in Isuzu, Subaru, and Suzuki in Japan, Fiat, Alfa Romeo, and Lancia in Italy, Daewoo in South Korea and Delta in South Africa.

General Motors is the world's largest vehicle manufacturer and employs over 340,000 people. In 2002 GM sold 15% of all cars and trucks in the world.

General Motors was founded in 1908 as a holding company for Buick, by then controlled by William C. Durant, and acquired Oldsmobile later that year. The following major events describe the history of General Motors:

1910 – 1920	Here basically GM acquired companies and established GM Canada. In those early days brands like Oldsmobile, Buick or Cadillac were already part of the corporation.
1920 – 1940	After the crisis GM grew again by buying Vauxhall in U.K. and establishing GM Brasil. Later GM purchased Opel in Germany and created sales-centres in China, India and Japan. In Japan GM was the market leader.
1940 – 1980	Those years can be called the “glory” years of GM. Purchasing Holden and parts of Isuzu and creating more sales-centres (in e.g. Chile or Kenya) were important activities for entering the world-market. More plants in Europe were built in Germany. Leaders changed from owners to managers.

	An US president said: “What is good for General Motors is good for America”.
1980 – 1990	More Joint-Ventures were established with e.g. SAAB. Hughes (a telecommunication company). EDS (an IT company) was purchased. Leaders changed from managers to teachers.
1990 - now	GM “downsized” its activities to its core-business. EDS and Hughes were sold again. An outsourcing strategy led to a global headcount discussion. GM underlines its priorities: Common, Lean & Fast, Global, Growth

Figure 1: Brief history of General Motors

The following pictures illustrate the history of General Motors:

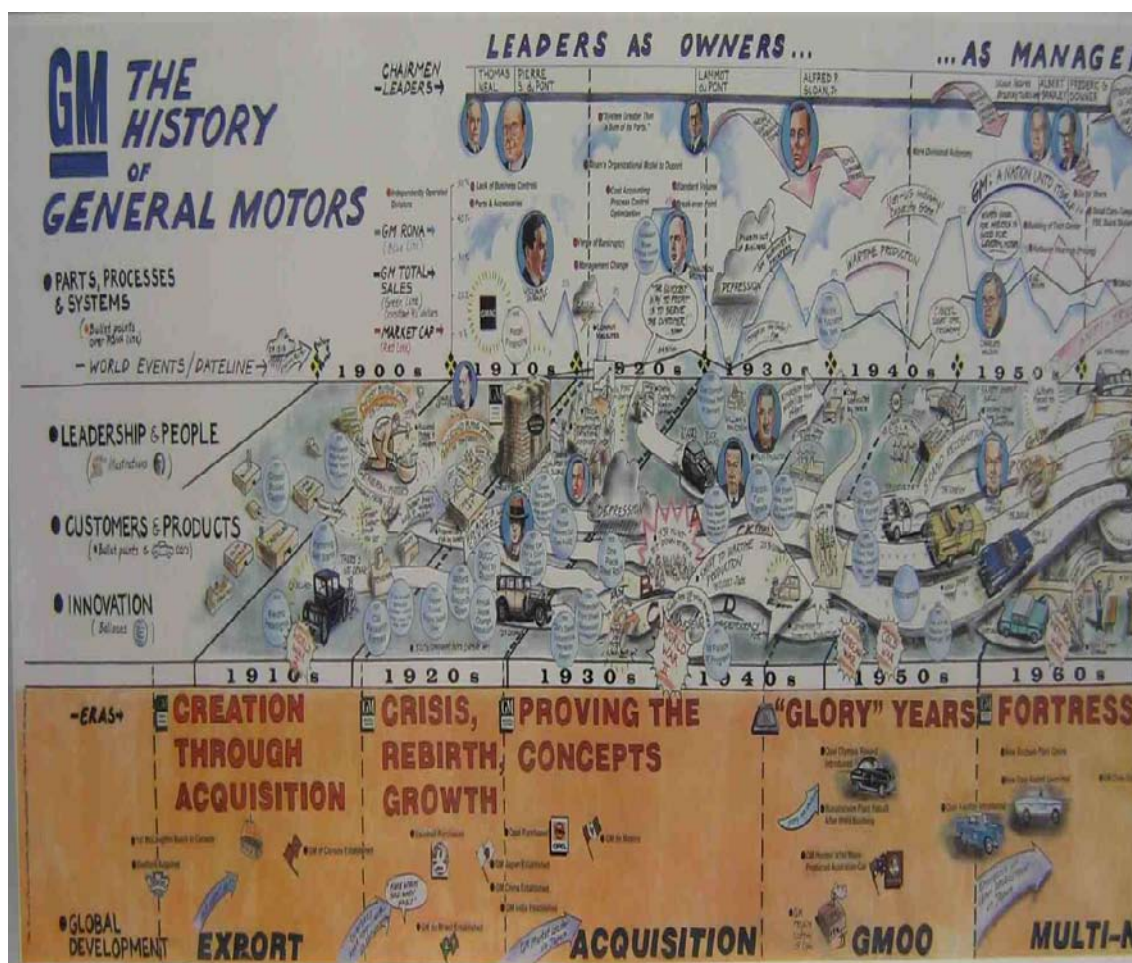


Figure 2: History of General Motors until 1970

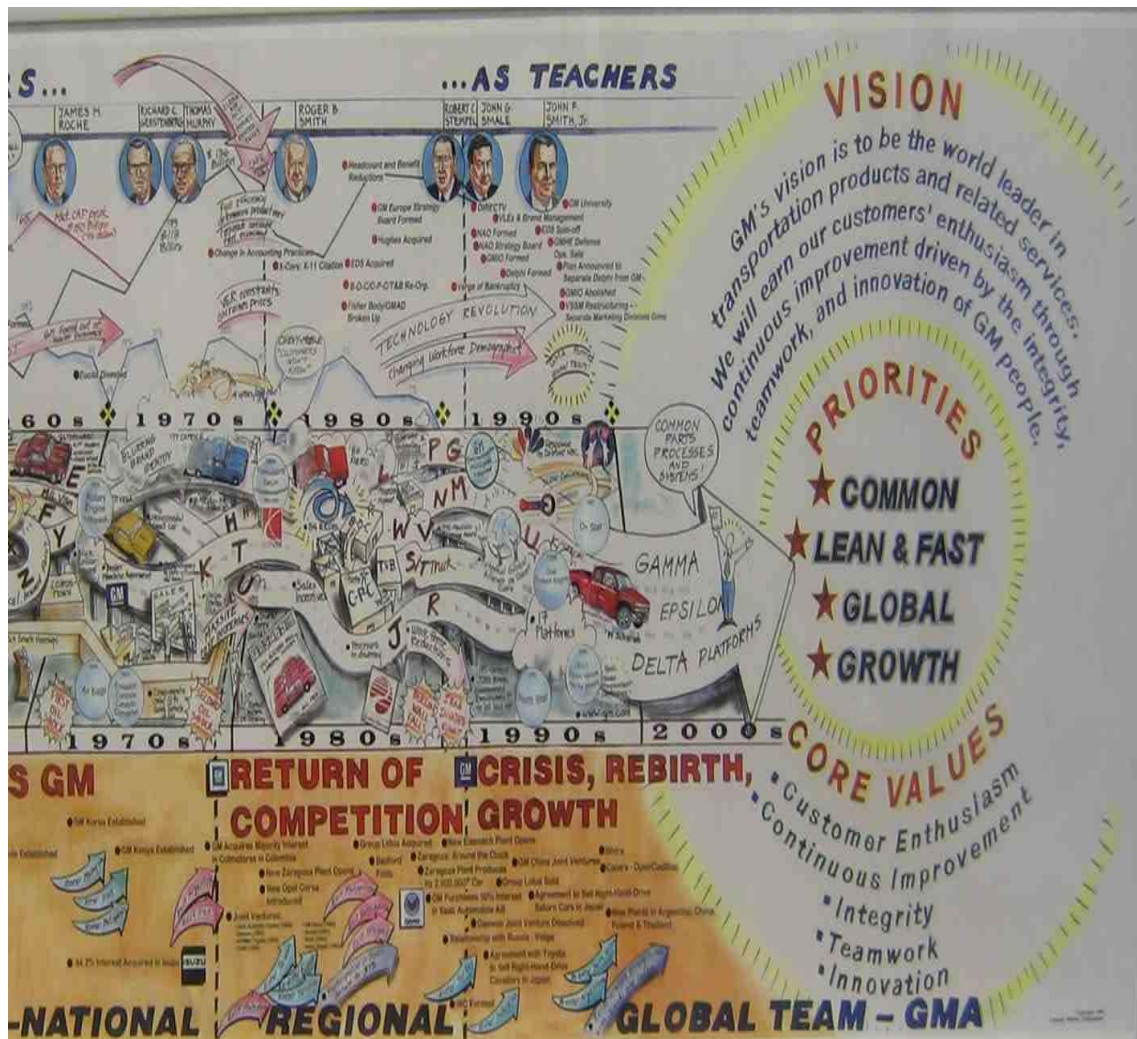


Figure 3: History of General Motors from 1970 until now

2 Analysis of the Capital Structure

General Motors’ annual financial reports reflect the high level structure of the company. GM consists of the following businesses:

- Automotive with the four regions GMNA, GME, GMLAAM , GMAP
- Communication services (Hughes)
- Other operations
- General Motors Acceptance Corporation (GMAC)
- Other financing

The chart below shows the result of operations for the December 31, 2002 and indicates if the various business units contributed a positive (green) or negative (red) result to the corporation. The total net income of GM was \$ 1.7 billion in total.

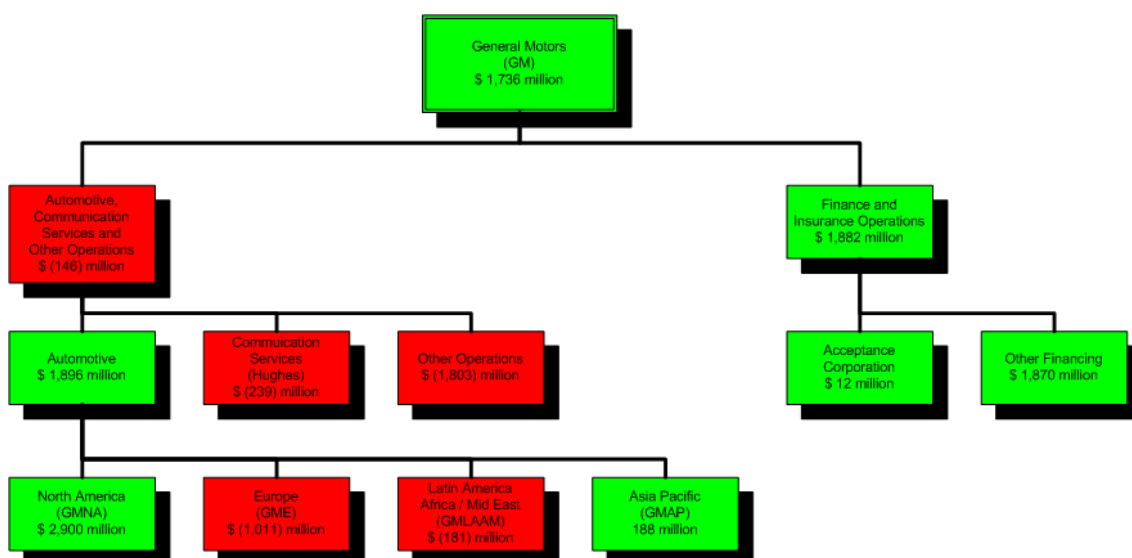


Figure 4: Net income contribution of the business units to result of operation 2002

This figure distinguishes between *Automotive, Communication Services and Other Operations (ACO)* and *Financial and Insurance Operations (FIO)*. This is also reflected in parts of the annual report.

2.1 Common Size Analysis

The development of major values of the balance sheet from 1999 – 2002 is shown in the following tables and diagrams. In addition a common size analysis is calculated. To simplify the equations the value *investments in securities* from the current assets is set to zero. In 2002 it was only 0.27% of the total current assets.

	2002	2001	2000	1999
Current assets	190676	156397	134727	123248
Long-term assets	181195	167572	168373	151482
Total assets	371871	323969	303100	274730
	2002	2001	2000	1999
Current assets	51%	48%	44%	45%
Long-term assets	49%	52%	56%	55%
Total assets	100%	100%	100%	100%
	2002	2001	2000	1999
Current assets	155%	127%	109%	100%
Long-term assets	120%	111%	111%	100%
Total assets	135%	118%	110%	100%

Figure 5: Asset values (in million \$) 1999 – 2002

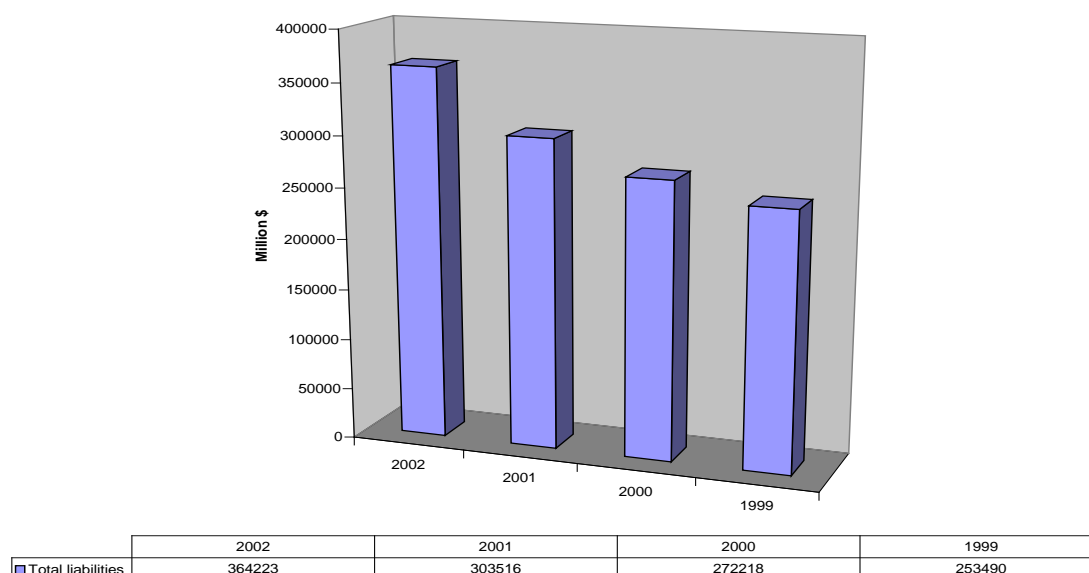


Figure 6: Liabilities 1999 – 2002

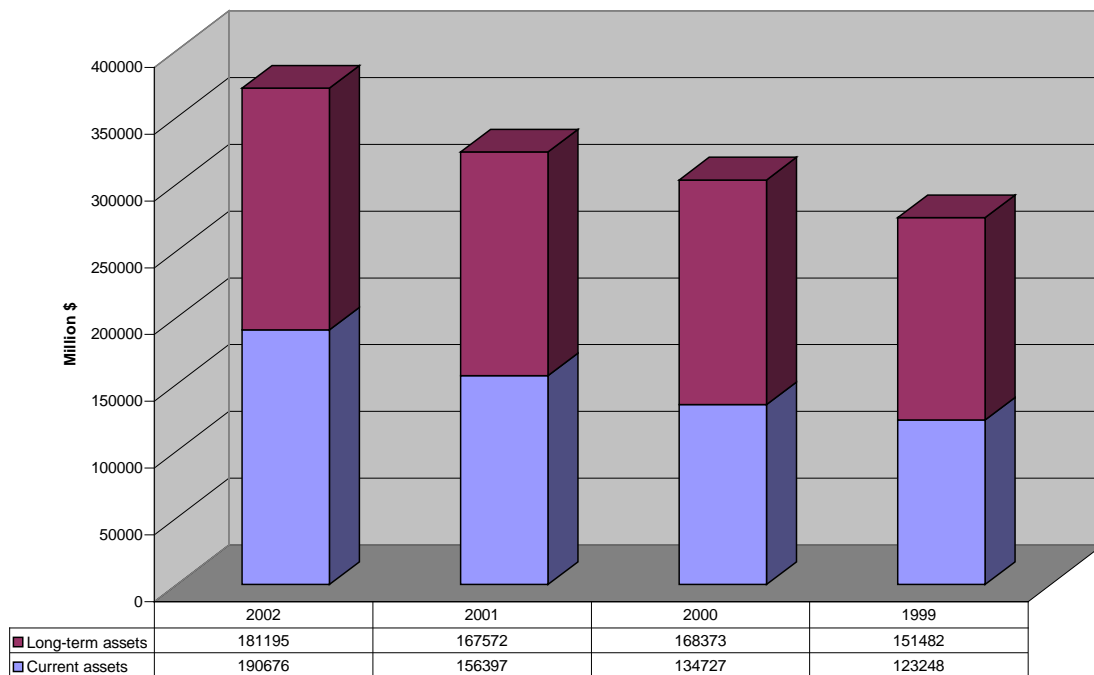


Figure 7: Current and long term asset in absolute values

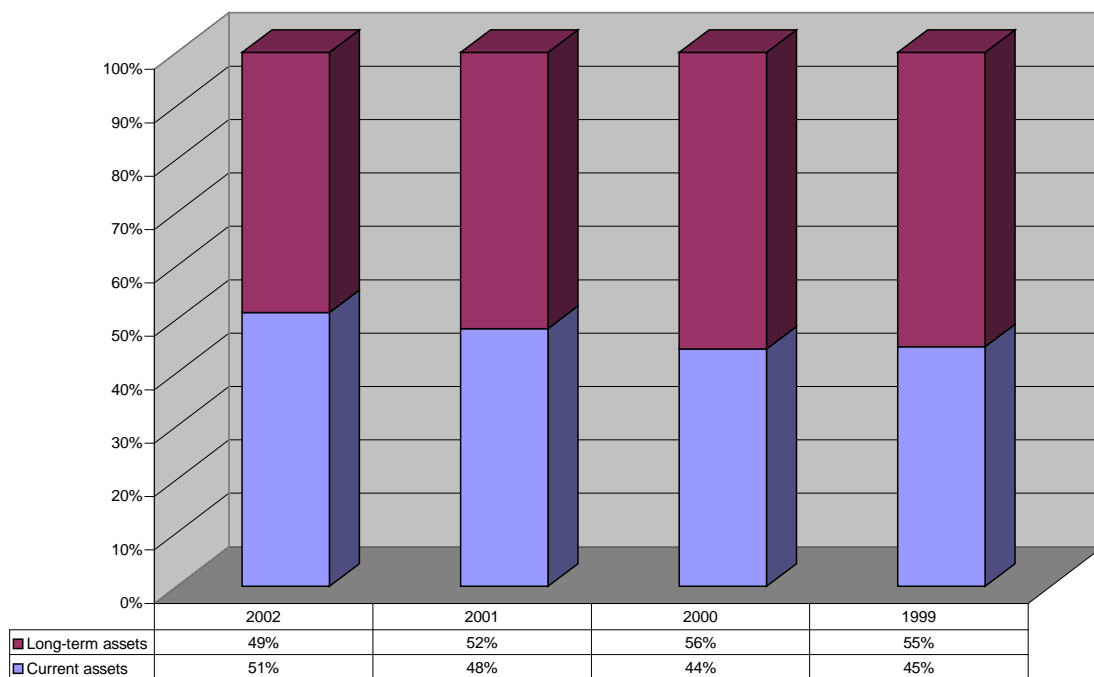


Figure 8: Current and long term asset values, where the total assets are always 100%

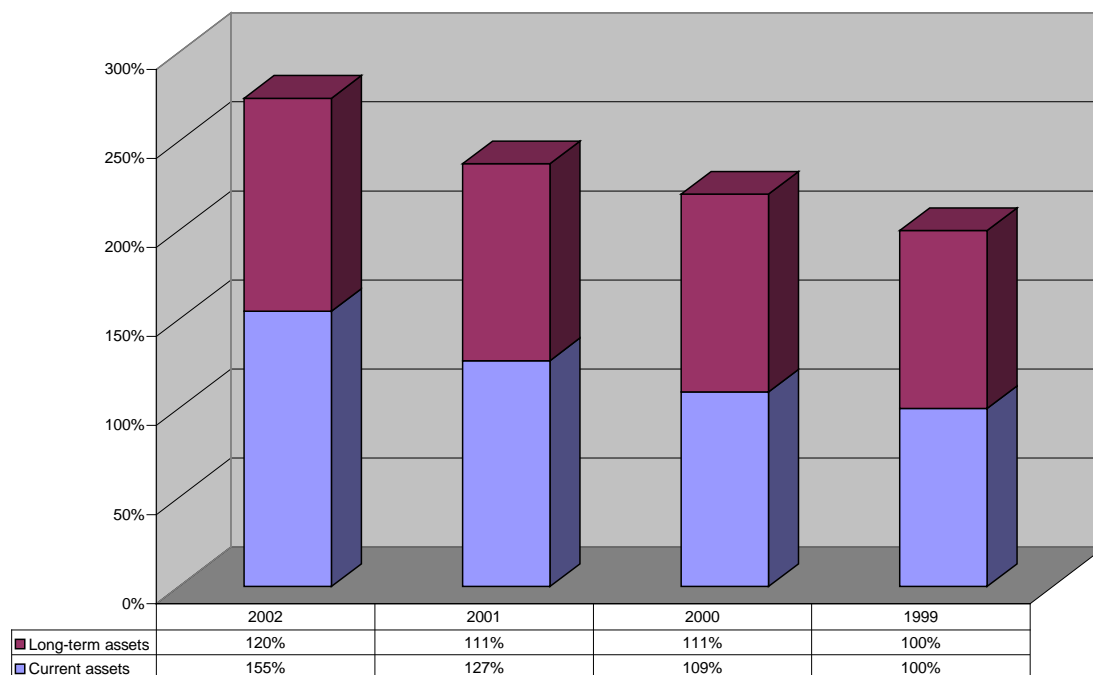


Figure 9: Current and long term asset values, where the values from 1999 are always 100%

Interpretation:

Current assets increased more in relation to the long term assets. One reason could be that the stock-keeping is not efficient.

Another possibility could be that GM outsourced or sold significant parts of its corporation. Actually this is reflected in various notes of the annual reports so this interpretation is more likely.

3 Five Core Investment Characteristics

To analyze a company basically the following ratios are calculated:

Liquid ratios

Indicate if a firm can meet its current obligation.

→ Chapter *Liquidity of short-term assets related to debt paying ability*

Borrowing capacity ratios

Indicate the long-term dept-paying ability.

→ Chapter *Long Term Dept-Paying Ability*

Profitability ratios

Indicate the earning ability of the company.

→ Chapter *Profitability*

Investor's ratios

Contain certain information for investors.

→ Chapter *Analysis for Investors*

Cash flow ratios

Indicate liquidly, borrowing capacity and also profitability.

→ Chapter *Statement of Cash Flow*

In the following chapters known techniques are applied to extract information from the annual report. In addition a short description explains how and where those values have been found. An interpretation of the ratios closes each chapter.

3.1 Liquidity of short-term assets related to debt paying ability

Two main values have to be computed to analyze if a firm can meet its current obligations: *Short Term Assets* and *Debt Paying Ability (Liabilities)*.

3.1.1 Short-Term Assets

Basically short-term assets are assets which can be transformed into cash in less than a year. All current liabilities have to be paid with cash generated from the short-term assets. Those assets are very important, because even a very profitable entity will find itself bankrupt if it fails to meet its obligations to short-term creditors. Four main elements describe the short-term assets:

- **Cash**, because there is no time boundary to use it
- **Marketable Securities**, if they can be sold within a short period of time on the market
- **Receivables**, if the following assumptions are made
 - no interest is calculated
 - n% are doubtful (n is dependent on the company and its environment)

The following most important types of receivables exist:

- toward the customer
- toward the employees (loans)
- tax refunds
- **Inventory**

Inventory can be described by assets which should be for sale in the ordinary course of business *or* used or consumed in the production of goods

3.1.2 Debt Paying Ability (Liabilities)

Current liabilities are obligations whose liquidation is reasonably expected to require the use of existing resources properly classifiable as current assets or the creation of other current liabilities.

3.1.3 Analysis

For the analysis the following ratios will be used:

- Working capital = Current assets – Current liabilities
- Current ratio = Current assets / Current liabilities
- Acid test ratio (1) = (Current assets – Inventory) / Current liabilities
- Acid test ratio (2) = (Cash + Marketable securities + Net receivables) / Current liabilities
- Cash ratio = (Cash + Marketable securities) / Current liabilities

The consolidated balance sheet does not allow finding current assets and current liabilities easily:

Consolidated Balance Sheets		
(Dollars in millions) December 31,	2002	2001
GENERAL MOTORS CORPORATION AND SUBSIDIARIES		
ASSETS		
Cash and cash equivalents (Note 1)	\$ 21,449	\$ 18,555
Other marketable securities (Note 4)	16,825	12,069
Total cash and marketable securities	38,274	30,624
Finance receivables – net (Note 5)	134,647	109,211
Accounts and notes receivable (less allowances)	15,715	10,798
Inventories (less allowances) (Note 6)	9,967	10,034
Deferred income taxes (Note 8)	41,649	28,239
Equipment on operating leases (less accumulated depreciation) (Note 7)	34,811	36,087
Equity in net assets of nonconsolidated associates	5,044	4,950
Property – net (Note 9)	37,973	36,440
Intangible assets – net (Notes 1 and 10)	17,954	16,927
Other assets (Note 11)	34,748	39,102
Total assets	\$370,782	\$322,412
LIABILITIES AND STOCKHOLDERS' EQUITY		
Accounts payable (principally trade)	\$ 27,452	\$ 26,197
Notes and loans payable (Note 13)	201,940	166,314
Postretirement benefits other than pensions (Note 14)	38,187	38,393
Pensions (Note 14)	22,762	10,839
Deferred income taxes (Notes 8 and 12)	8,964	6,690
Accrued expenses and other liabilities (Note 12)	63,829	53,526
Total liabilities	363,134	301,959
Minority interests	834	746
Stockholders' equity (Note 17)		
\$1.2/3 par value common stock (outstanding, 560,447,797 and 558,439,976 shares)	936	932
Class H common stock (outstanding, 958,284,272 and 877,386,595 shares)	96	88
Capital surplus (principally additional paid-in capital)	21,583	21,519
Retained earnings	10,031	9,463
Subtotal	32,646	32,002
Accumulated foreign currency translation adjustments	(2,784)	(2,919)
Net unrealized losses on derivatives	(205)	(307)
Net unrealized gains on securities	372	512
Minimum pension liability adjustment	(23,215)	(9,581)
Accumulated other comprehensive loss	(25,832)	(12,295)
Total stockholders' equity	6,814	19,707
Total liabilities and stockholders' equity	\$370,782	\$322,412

Reference should be made to the notes to consolidated financial statements.

Figure 10: Consolidated balanced sheet from annual report

3.1.3.1 Current Assets

In the supplemental information to the consolidated balance sheet items for the current assets can be identified. This sheet distinguishes between *Automotive, Communication Services and Other Operations (ACO)* and *Financial and Insurance Operations (FIO)*. In both the following current assets can be found:

- Total current assets from ACO
- Cash and cash equivalents from FIO
- Investments in securities from FIO

Note that not the entire amount can be calculated to current assets. Here Note 4 indicates the correct value...*securities available for sale totalling \$ 514 million mature within one year¹ ...*

- Finance receivables from FIO

It is possible that within this position long term assets are also included. However after carefully reading Note 5 it seems that this sum is only a short term asset.

(Dollars in millions) December 31,	2002	2001
ASSETS		
Automotive, Communications Services, and Other Operations		
Cash and cash equivalents (Note 1)	\$ 13,291	\$ 8,432
Marketable securities (Note 4)	2,174	790
Total cash and marketable securities	15,465	9,222
Accounts and notes receivable (less allowances)	5,861	5,406
Inventories (less allowances) (Note 6)	9,967	10,034
Equipment on operating leases (less accumulated depreciation) (Note 7)	5,305	4,524
Deferred income taxes and other current assets (Note 8)	11,273	7,877
Total current assets	47,871	37,063
Equity in net assets of nonconsolidated associates	5,044	4,950
Property – net (Note 9)	36,152	34,908
Intangible assets – net (Notes 1 and 10)	14,611	13,721
Deferred income taxes (Note 8)	32,759	22,294
Other assets (Note 11)	7,323	17,274
Total Automotive, Communications Services, and Other Operations assets	143,760	130,210
Financing and Insurance Operations		
Cash and cash equivalents (Note 1)	8,158	10,123
Investments in securities (Note 4)	14,651	11,279
Finance receivables – net (Note 5)	134,647	109,211
Investment in leases and other receivables (Note 7)	35,517	33,382
Other assets (Note 11)	34,049	28,207
Net receivable from Automotive, Communications Services, and Other Operations (Note 1)	1,089	1,557
Total Financing and Insurance Operations assets	228,111	193,759
Total assets	\$371,871	\$323,969

Figure 11: Supplement information to consolidated balance sheet: Assets

¹ General Motors annual report 2002 page 68

3.1.3.2 Debt Paying Ability (Liability)

In the supplemental information to the consolidated balance sheet items for the debt paying ability (liability) can be identified. This sheet also distinguishes between *Automotive, Communication Services and Other Operations* and *Financial and Insurance Operations*. In both the following debts paying ability (liability) can be found:

- Total current liabilities from ACO
- Accounts payable from FIO

LIABILITIES AND STOCKHOLDERS' EQUITY		
Automotive, Communications Services, and Other Operations		
Accounts payable (principally trade)	\$ 20,169	\$ 18,297
Loans payable (Note 13)	1,516	2,402
Accrued expenses (Note 12)	40,976	34,090
Net payable to Financing and Insurance Operations (Note 1)	1,089	1,557
Total current liabilities	63,750	56,346
Long-term debt (Note 13)	16,651	10,726
Postretirement benefits other than pensions (Note 14)	34,275	34,515
Pensions (Note 14)	22,709	10,790
Other liabilities and deferred income taxes (Notes 8 and 12)	16,789	13,794
<i>Total Automotive, Communications Services, and Other Operations liabilities</i>	154,174	126,171
Financing and Insurance Operations		
Accounts payable	7,283	7,900
Debt (Note 13)	183,773	153,186
Other liabilities and deferred income taxes (Notes 8 and 12)	18,993	16,259
<i>Total Financing and Insurance Operations liabilities</i>	210,049	177,345
<i>Total liabilities</i>	364,223	303,516
Minority interests	834	746
Stockholders' equity (Note 17)		
\$1-2/3 par value common stock (outstanding, 560,447,797 and 558,439,976 shares)	936	932
Class H common stock (outstanding, 958,284,272 and 877,386,595 shares)	96	88
Capital surplus (principally additional paid-in capital)	21,583	21,519
Retained earnings	10,031	9,463
Subtotal	32,646	32,002
Accumulated foreign currency translation adjustments	(2,784)	(2,919)
Net unrealized losses on derivatives	(205)	(307)
Net unrealized gains on securities	372	512
Minimum pension liability adjustment	(23,215)	(9,581)
Accumulated other comprehensive loss	(25,832)	(12,295)
<i>Total stockholders' equity</i>	6,814	19,707
<i>Total liabilities and stockholders' equity</i>	\$371,871	\$323,969

Figure 12: Supplement information to consolidated balance sheet: Liabilities

3.1.3.3 Calculations

The relevant values from current assets and debt paying ability (liability) from the supplemental information to the consolidated balance sheet are fed into the following table. ACO indicates that the item is taken from the *Automotive, Communication Services and Other Operations* business and FIO stands for *Financial and Insurance Operations*.

Current assets			Debt paying ability (liability)		
ACO	Total current assets	\$ 47,871 million	ACO	Total current liabilities	\$ 63,750 million
FIO	Cash and cash equivalents	\$ 8,158 million	FIO	Accounts payable	\$ 7,238 million
	Investments in securities	\$ 514 million		Total	\$ 70,988 million
	Finance receivables	\$ 134,647 million			
	Total	\$ 191,191 million			

Figure 13: Current assets and debt paying ability from the supplemental information to the consolidated balance sheet

For further analysis more values are captured:

Area	Item	Value
ACO	Cash and cash equivalents	\$ 13,291 million
	Inventory	\$ 9,967 million
	Marketable securities	\$ 2,174 million
	(Finance) Receivables	\$ 5,861 million
FIO	Cash and cash equivalents	\$ 8,158 million
	Investments in securities (Marketable securities)	\$ 514 million
	Finance Receivables	\$ 134,647 million

Figure 14: More values from the supplemental information to the consolidated balance sheet

This leads to the following ratios:

Ratio	Value
Working capital	\$ 120,203 million
Current ratio	2.69
Acid-Test ratio (1)	2.55
Acid Test ratio (2)	2.32
Cash ratio	0.34

Figure 15: Ratios of annual report

Interpretation:

Because the working capital is positive GM is able to pay all its current liabilities in time. GM could not pay its liabilities only with cash, because cash ratio is below one. Those ratios are very interesting for suppliers and other parties, who want to receive their money “quickly”. It seems that GM is able to pay in time.

3.2 Long Term Debt-Paying Ability

There are two approaches to indicate the long-term debt-paying ability of a company:

- paying the debt as indicated by income statement
- paying the debt as indicated by the balance sheet

3.2.1 Analysis Using the Income Statement

To analyse ratios regarding long-term debt-paying ability values from the consolidated income statement sheet were taken.

Consolidated Statements of Income			
<i>(Dollars in millions except per share amounts) Years ended December 31.</i>			
	2002	2001	2000
GENERAL MOTORS CORPORATION AND SUBSIDIARIES			
Total net sales and revenues (Notes 1, 2, and 23)	\$186,763	\$177,260	\$184,632
Cost of sales and other expenses (Notes 2 and 3)	153,344	144,093	145,664
Selling, general, and administrative expenses	23,624	23,302	22,252
Interest expense (Note 13)	7,715	8,347	9,552
<i>Total costs and expenses</i>	184,683	175,742	177,468
<i>Income before income taxes and minority interests</i>	2,080	1,518	7,164
Income tax expense (Note 8)	533	768	2,393
Equity income (loss) and minority interests	189	(149)	(319)
<i>Net income</i>	1,736	601	4,452
Dividends on preference stocks	(47)	(99)	(110)
<i>Earnings attributable to common stocks</i>	\$ 1,689	\$ 502	\$ 4,342
Basic earnings (losses) per share attributable to common stocks			
Earnings per share attributable to \$1-2/3 par value	\$ 3.37	\$ 1.78	\$ 6.80
Earnings per share attributable to Class H	\$ (0.21)	\$ (0.55)	\$ 0.56
Earnings (losses) per share attributable to common stocks assuming dilution			
Earnings per share attributable to \$1-2/3 par value	\$ 3.35	\$ 1.77	\$ 6.68
Earnings per share attributable to Class H	\$ (0.21)	\$ (0.55)	\$ 0.55

Figure 16: Consolidated income statement from annual report

3.2.1.1 Times Interest Earned

The *Times Interest Earned* ratio indicates if a firm can pay its interest obligation. From the income statement it can be computed by:

- Times interest earned =

$$\frac{(\text{Income before income taxes and minority interests} + \text{Interest expense})}{\text{Interest expense}}$$

The calculation for 2000 – 2002 is shown in the following figure:

	2002	2001	2000
Times interest earned	1.27 times	1.18 times	1.75 times
Income before income taxes and minority interests	\$ 2080 million	\$ 1518 million	\$ 7164 million
Interests expenses	\$ 7715 million	\$ 8347 million	\$ 9552 million

Figure 17: Times interest earned calculated from the income statement

Interpretation:

GM always was able to cover its interest expense obligations. Because GM was able to be over 100% in the past few years investors can be sure to receive their interest in future. These values are also good for GM, because therefore it gets good interest rates from e.g. banks.

3.2.2 Analysis using the Balance Sheet

To analyse ratios regarding long-term debt-paying ability values from the consolidated balance sheet were taken.

(Dollars in millions) December 31,	2002	2001
GENERAL MOTORS CORPORATION AND SUBSIDIARIES		
ASSETS		
Cash and cash equivalents (Note 1)	\$ 21,449	\$ 18,555
Other marketable securities (Note 4)	16,825	12,069
Total cash and marketable securities	38,274	30,624
Finance receivables – net (Note 5)	134,647	109,211
Accounts and notes receivable (less allowances)	15,715	10,798
Inventories (less allowances) (Note 6)	9,967	10,034
Deferred income taxes (Note 8)	41,649	28,239
Equipment on operating leases (less accumulated depreciation) (Note 7)	34,811	36,087
Equity in net assets of nonconsolidated associates	5,044	4,950
Property – net (Note 9)	37,973	36,440
Intangible assets – net (Notes 1 and 10)	17,954	16,927
Other assets (Note 11)	34,748	39,102
Total assets	\$370,782	\$322,412
LIABILITIES AND STOCKHOLDERS' EQUITY		
Accounts payable (principally trade)	\$ 27,452	\$ 26,197
Notes and loans payable (Note 13)	201,940	166,314
Postretirement benefits other than pensions (Note 14)	38,187	38,393
Pensions (Note 14)	22,762	10,839
Deferred income taxes (Notes 8 and 12)	8,964	6,690
Accrued expenses and other liabilities (Note 12)	63,829	53,526
Total liabilities	363,134	301,959
Minority interests	834	746
Stockholders' equity (Note 17)		
\$1-2/3 par value common stock (outstanding, 560,447,797 and 558,439,976 shares)	936	932
Class H common stock (outstanding, 958,284,272 and 877,386,595 shares)	96	88
Capital surplus (principally additional paid-in capital)	21,583	21,519
Retained earnings	10,031	9,463
Subtotal	32,646	32,002
Accumulated foreign currency translation adjustments	(2,784)	(2,919)
Net unrealized losses on derivatives	(205)	(307)
Net unrealized gains on securities	372	512
Minimum pension liability adjustment	(23,215)	(9,581)
Accumulated other comprehensive loss	(25,832)	(12,295)
Total stockholders' equity	6,814	19,707
Total liabilities and stockholders' equity	\$370,782	\$322,412

Figure 18: Consolidated balanced sheet from annual report

3.2.2.1 Debt Ratio

The *Debt Ratio* indicates the firm's long-term paying ability computed from the balance sheet. It does not including stockholders equity, but it includes current assets and liabilities. Because total assets have to equal the sum of total liabilities and total equity this ratio can not be over 100%.

- Debt ratio = Total liabilities / Total assets

The calculation for 2002 – 2001 is shown in the following figure:

	2002	2001
Debt ratio	98 %	94 %
Total assets	\$ 370,782 million	\$ 322,412 million
Total liabilities	\$ 363,134 million	\$ 301,959 million

Figure 19: Debt ratio calculated from the balance sheet

Interpretation:

The lower this ratio the better the creditors are protected, because in case of a bankrupt the creditors (liabilities) are the first to receive money from assets, which then will be sold. The stockholder would only get the remaining part.

3.2.2.2 Debt/Equity Ratio

Comparing the total liabilities to the shareholders equity leads to the *Debt/Equity Ratio*.

- Debt/Equity ratio = Total liabilities / Shareholders' equity

The calculation for 2002 – 2001 is shown in the following figure:

	2002	2001
Debt/Equity ratio	5330 %	1530 %
Shareholders equity	\$ 6,814 million	\$ 19,707million
Total Liabilities	\$ 363,134 million	\$ 301,959 million

Interpretation:

In 2002 1/50th of the company is financed by the shareholders, but they own and control the whole company. Recently the shareholder equity decreased a lot in relation to the total liabilities.

3.2.2.3 Debt to Tangible Net Worth Ratio

The *Debt to Tangible Net Worth Ratio* also indicates the firm's long-term paying ability. It also determines how well creditors are protected in case of the firm's insolvency. It is comparable with the ratio above, but the intangible assets are subtracted from the shareholders equity.

- Debt to tangible net worth ratio = Total liabilities /
(Shareholders equity – Intangible assets)

The calculation for 2002 – 2001 is shown in the following figure:

	2002	2001
Debt ratio	-3260 %	10.862 %
Shareholders equity	\$ 6,814 million	\$ 19,707million
Intangible assets	\$ 17,954 million	\$ 16,927 million
Total liabilities	\$ 363,134 million	\$ 301,959 million

Figure 20: Debt to tangible net worth ratio calculated from the balance sheet

3.3 Profitability

These ratios are vital for stockholders since they indicate revenue in form of dividends. The underlying paper for the analysis is the income statement.

Consolidated Statements of Income			
<i>(Dollars in millions except per share amounts) Years ended December 31,</i>			
	2002	2001	2000
GENERAL MOTORS CORPORATION AND SUBSIDIARIES			
Total net sales and revenues (Notes 1, 2, and 23)	\$186,763	\$177,260	\$184,632
Cost of sales and other expenses (Notes 2 and 3)	153,344	144,093	145,664
Selling, general, and administrative expenses	23,624	23,302	22,252
Interest expense (Note 13)	7,715	8,347	9,552
<i>Total costs and expenses</i>	184,683	175,742	177,468
<i>Income before income taxes and minority interests</i>	2,080	1,518	7,164
Income tax expense (Note 8)	533	768	2,393
Equity income (loss) and minority interests	189	(149)	(319)
<i>Net income</i>	1,736	601	4,452
Dividends on preference stocks	(47)	(99)	(110)
<i>Earnings attributable to common stocks</i>	\$ 1,689	\$ 502	\$ 4,342
Basic earnings (losses) per share attributable to common stocks			
Earnings per share attributable to \$1-2/3 par value	\$ 3.37	\$ 1.78	\$ 6.80
Earnings per share attributable to Class H	\$ (0.21)	\$ (0.55)	\$ 0.56
Earnings (losses) per share attributable to common stocks assuming dilution			
Earnings per share attributable to \$1-2/3 par value	\$ 3.35	\$ 1.77	\$ 6.68
Earnings per share attributable to Class H	\$ (0.21)	\$ (0.55)	\$ 0.55

Figure 21: Consolidated income statement from annual report

3.3.1 Net Profit Margin

The *Net Profit Margin* is also called return on sales. It simply expresses how much net income per sales the company made.

- Net profit margin = Net income / Net sales

The calculation for 2002 – 2000 is shown in the following figure:

	2002	2001	2000
Net profit margin	0.93 %	0.34 %	2.41 %
Net income	\$ 1,736 million	\$ 601 million	\$ 4,452 million
Net sales	\$ 186,763 million	\$ 177,260 million	\$ 184,632 million

Figure 22: Net profit margin calculated from the consolidated statement of income

Interpretation:

The values show a very low profitability (compared to other companies, e.g. service companies). In an industrial environment this value is still acceptable.

3.3.2 Total Asset Turnover

The *Total Asset Turnover* measures the ability to create sales through assets. To simplify the equation the average assets have been pre-calculated.

- Total asset turnover = Net sales / Average total assets

The calculation for 2002 – 2001 is shown in the following figure:

	2002	2001
Total asset turnover	0.54 times	0.57 times
Average total assets	\$ 346,597 million	\$ 312,756 million
Net sales	\$ 186,763 million	\$ 177,260 million

Figure 23: Total asset turnover calculated from the consolidated statement of income

Interpretation:

This turnover seems to be quite bad (compared to others, see above).

3.3.3 Return on Assets

The *Return on Assets* measures the ability to utilize its assets to create profit.

- Return on Assets = Net income / Average total assets

The calculation for 2002 – 2001 is shown in the following figure:

	2002	2001
Return on Assets	0.50 %	0.19 %
Average total assets	\$ 346,597 million	\$ 312,756 million
Net income	\$ 1,736 million	\$ 601 million

Figure 24: Return on assets calculated from the consolidated statement of income

Interpretation:

The return on assets also seems to be quite bad (compared to others, see above), but it has increased. GM became better in utilizing its assets to generate profit.

3.3.4 Operation Income Margin

The *Operation Income Margin* includes only operating income

- Operation income margin = Operation income / Net sales
 Operating income = Net sales - Cost of sales - Cost of administrative

The calculation for 2002 – 2001 is shown in the following figure:

	2002	2001
Operation income Margin	5.25 %	5.57 %
Net sales	\$ 186,763 million	\$ 177,260 million
Cost of sales	\$ 153,340 million	\$ 144,093 million
Cost of administrative	\$ 23,624 million	\$ 23,302 million

Figure 25: Operation income margin calculated from the consolidated statement of income

Interpretation:

The operating income margin is decreasing. GM had higher net sales in 2002 but also higher costs of sales and costs of administration.

3.3.5 Operation Asset Turnover

The *Operation Asset Turnover* measures the ability of operations to create sales money.

- Operation asset turnover = Net sales / Average operating assets
 Average operating assets =
 (Operation assets begin of a year + Operation assets end of a year) / 2
 Operation asset =
 Total assets – Intangibles – Deferred income taxes – Other assets

The calculation for 2002 – 2000 is shown in the following figure:

	2002	2001	2000
Operation asset turnover	0.73 times	0,79 times	N/A
Net sales	\$ 186, 763 million	\$ 177,260 million	N/A
Average operation assets	\$ 257,288 million	\$ 225,138 million	N/A
Total assets	\$ 370,782 million	\$ 322,412 million	\$ 303,100 million
Intangibles	\$17, 954 million	\$ 16,927 million	\$ 7,622 million
Deferred income taxes	\$ 41, 649 million	\$ 28,239 million	\$ 23,258 million
Other assets	\$ 34, 748 million	\$ 39,102 million	\$ 60,089 million
Operation assets	\$ 276, 431 million	\$ 276,431 million	\$ 212,131 million

Figure 26: Operation asset turnover calculated from the consolidated statement of income

Interpretation:

GM increased their average operating assets, because their total assets increased and their non operating assets were more or less stable.

3.3.6 Return on Operation Assets

The *Return on Operation Assets* is adjusted for non operational items.

- Return on operation assets = Operating income / Average operating assets

The calculation for 2002 – 2001 is shown in the following figure:

	2002	2001
Return on operation assets	3.81 %	4.38 %
Average operation assets	\$ 257,288 million	\$ 225,138 million
Operating income	\$ 9,795 million	\$ 9,865 \$

Figure 27: Return on operation assets calculated from the consolidated statement of income

Interpretation:

The rentability of the operating business is decreasing due to increasing average operation assets.

3.3.7 Return on Investment (ROI)

The *Return on Investment (ROI)* measures the income related to the invested capital.

- Return on investment (ROI) =
Operating income / Average (Total liabilities + Equity)

The calculation for 2002 – 2001 is shown in the following figure:

	2002	2001
Return on investment (ROI)	2.83 %	N/A
Income before taxes and minority interest + Interest expenses (= Operating income)	\$ 9,795 million	N/A
Total liabilities + Equity	\$ 370,782 million	\$ 322,412 million
Average (Long-Term Liabilities + Equity)	\$ 346,597 million	

Figure 28: Return on investment (ROI) calculated from the consolidated statement of income and the balance sheet

Interpretation:

The value is quite common in industry companies.

3.3.8 Return on Total Equity

The *Return on Total Equity* measures the return to both common and preferred stockholders.

- Return on total equity = Net income / Average total equity

The calculation for 2002 – 2001 is shown in the following figure:

	2002	2001
Return on total equity	13.09 %	2.45 %
Net income	\$ 1,736 million	\$ 610 million
Total equity begin	\$ 19,707 million	\$ 30,175 million
Total equity end	\$ 6,814 million	\$ 19,707 million
Average total equity	\$ 13,261 million	\$ 24,941 million

Figure 29: Return on total equity calculated from the consolidated statement of income

Interpretation:

The relation between equity capital and net income is not too bad due to the decreasing equity and the increasing net income.

3.3.9 Gross Profit Margin

The *Gross Profit Margin* is the ratio between gross profit and net sales, where gross profit is the difference between net sales and cost of sales.

- Gross profit margin = Gross profit / Net sales
Gross profit = Net sales – Cost of sales

The calculation for 2002 – 2001 is shown in the following figure:

	2002	2001
Gross profit margin	17.90 %	18.71 %
Net sales	\$ 186,763 million	\$ 177,260 million
Gross profit	\$ 33,423 million	\$ 33,167 million
Cost of sales	\$ 153,340 million	\$ 144,093 million

Figure 30: Gross profit margin calculated from the consolidated statement of income

Interpretation:

This value seems to be quite stable.

3.4 Analysis for Investors

Earnings are affected by two major drivers:

- **Financial leverage** – use of debt
- **Operating leverage** – fixed operational costs

The operational leverage can not be computed from the published financial statements (annual reports). Therefore only ratios regarding the financial leverage are computed. Basically the financial leverage is successful if the firm earns more than it has to pay for the borrowed money (interests).

Most of the values needed to compute the ratios are taken from the income statement.

Consolidated Statements of Income			
<i>(Dollars in millions except per share amounts) Years ended December 31,</i>			
	2002	2001	2000
GENERAL MOTORS CORPORATION AND SUBSIDIARIES			
Total net sales and revenues (Notes 1, 2, and 23)	\$186,763	\$177,260	\$184,632
Cost of sales and other expenses (Notes 2 and 3)	153,344	144,093	145,664
Selling, general, and administrative expenses	23,624	23,302	22,252
Interest expense (Note 13)	7,715	8,347	9,552
<i>Total costs and expenses</i>	184,683	175,742	177,468
<i>Income before income taxes and minority interests</i>	2,080	1,518	7,164
Income tax expense (Note 8)	533	768	2,393
Equity income (loss) and minority interests	189	(149)	(319)
<i>Net income</i>	1,736	601	4,452
Dividends on preference stocks	(47)	(99)	(110)
<i>Earnings attributable to common stocks</i>	\$ 1,689	\$ 502	\$ 4,342
Basic earnings (losses) per share attributable to common stocks			
Earnings per share attributable to \$1-2/3 par value	\$ 3.37	\$ 1.78	\$ 6.80
Earnings per share attributable to Class H	\$ (0.21)	\$ (0.55)	\$ 0.56
Earnings (losses) per share attributable to common stocks assuming dilution			
Earnings per share attributable to \$1-2/3 par value	\$ 3.35	\$ 1.77	\$ 6.68
Earnings per share attributable to Class H	\$ (0.21)	\$ (0.55)	\$ 0.55

Figure 31: Consolidated income statement from annual report

3.4.1 Degree of the Financial Leverage

The *Degree of the Financial Leverage* is the multiplication factor by which the net income changes as compared to the change in earnings before interest and tax (EBIT).

- Degree of the financial leverage =
Earnings before interest and taxes / Earnings before taxes
or
- Degree of the financial leverage =
Income before interest and taxes / (Net income + Income tax expense)

The calculation for 2002 – 2001 is shown in the following figure:

	2002	2001
Degree of the financial leverage	0.9	1.1
Income before income taxes and minority interests	\$ 2,080 million	\$ 1,518 million
Income tax expense	\$ 533 million	\$ 768 million
Net income	\$ 1,736 million	\$ 601 million

Figure 32: Degree of the financial leverage calculated from the consolidated statement of income

3.4.2 Diluted Earnings per Common Share

Here only a self-explaining copy taken from the annual report is shown.

Diluted earnings (losses) per share attributable to common stocks			
Earnings per share attributable to \$1-2/3 par value	\$ 3.35	\$ 1.77	\$ 6.68

Figure 33: Diluted earnings per share from the annual report

3.4.3 Book Value per Share

Again here only a self-explaining copy taken from the annual report is shown.

Book value per share of common stocks			
\$1-2/3 par value	\$ 9.06	\$ 24.81	\$ 39.52
Class H	\$ 1.81	\$ 4.96	\$ 7.90

Figure 34: Book value per share from the annual report

Interpretation:

The amount of stockholder equity is decreasing dramatically.

3.5 Statement of Cash Flow

The statement of cash flows indicates how cash and short-term highly liquid accounts of a company change. This is done by analysing all the accounts on the balance sheet.

Three basic areas are considered:

- **Operating activities**

Include all activities, which are not related to investing or financing activities.

Typical cash inflows are: sales of goods or loans/interests/dividends

Typical cash outflows are: payments to employees or interests expenses

- **Investing activities**

Includes e.g. lending money

- **Financing activities**

Are related to liabilities and owners equity

The statement of cash flow presents the items mentioned above in the same order as they are listed. Within those items inflows and outflows are listed separately.

There are two ways how the operating activities can be presented: the direct method and the indirect method. The direct method presents the income statement on a cash basis, the indirect method adjusts net income for items that affect net income but did not affect cash. GM uses the indirect method of cash flow statements.

The following figure shows the consolidated statement of cash flow of General Motors from the annual report.

Consolidated Statements of Cash Flows			
<i>(Dollars in millions) For the years ended December 31.</i>			
	2002	2001	2000
GENERAL MOTORS CORPORATION AND SUBSIDIARIES			
Cash flows from operating activities			
Net income	\$ 1,736	\$ 601	\$ 4,452
Adjustments to reconcile net income to net cash provided by operating activities			
Depreciation and amortization expenses	12,938	12,908	13,411
Postretirement benefits other than pensions, net of payments and VEBA contributions	(208)	1,881	799
Pension expense, net of contributions	(3,380)	148	128
Net change in mortgage loans	(4,376)	(4,241)	242
Net change in mortgage securities	(656)	(777)	(577)
Rental fleet vehicle – acquisitions	(5,595)	(4,997)	(6,000)
Rental fleet vehicle – dispositions	4,774	6,116	6,008
Change in other investments and miscellaneous assets	6,195	(1,235)	(538)
Change in other operating assets and liabilities (Note 1)	4,600	(101)	3,229
Other	1,081	2,682	291
Net cash provided by operating activities	\$ 17,109	\$ 12,985	\$ 21,445
Cash flows from investing activities			
Expenditures for property	(7,443)	(8,631)	(9,722)
Investments in marketable securities – acquisitions	(39,386)	(35,130)	(27,119)
Investments in marketable securities – liquidations	35,688	34,352	27,171
Net change in mortgage servicing rights	(1,711)	(2,075)	(1,084)
Increase in finance receivables	(143,166)	(107,440)	(73,754)
Proceeds from sales of finance receivables	117,276	95,949	59,221
Operating leases – acquisitions	(16,624)	(12,938)	(15,415)
Operating leases – liquidations	13,994	11,892	10,085
Investments in companies, net of cash acquired (Note 1)	(872)	(1,285)	(6,379)
Other	867	(1,184)	2,597
Net cash used in investing activities	(41,377)	(26,490)	(34,399)
Cash flows from financing activities			
Net (decrease) increase in loans payable	(404)	(20,044)	7,865
Long-term debt – borrowings	53,144	64,371	27,760
Long-term debt – repayments	(24,889)	(21,508)	(22,459)
Repurchases of common and preference stocks	(97)	(264)	(1,613)
Proceeds from issuing common stocks	62	100	2,792
Proceeds from sales of treasury stocks	19	418	–
Cash dividends paid to stockholders	(1,168)	(1,201)	(1,294)
Net cash provided by financing activities	26,667	21,872	13,051
Effect of exchange rate changes on cash and cash equivalents	495	(96)	(255)
Net increase (decrease) in cash and cash equivalents	2,894	8,271	(158)
Cash and cash equivalents at beginning of the year	18,555	10,284	10,442
Cash and cash equivalents at end of the year	\$ 21,449	\$ 18,555	\$ 10,284

Reference should be made to the notes to consolidated financial statements.

Figure 35: Consolidated statement of cash flow from annual report

There are only four ratios available for the statement of cash flow and all are related to the operating activities part.

3.5.1 Operating Cash Flow / Current Maturities of Long-Term Debt and Current Notes Payable

The *Operating Cash Flow / Current Maturities of Long-Term Debt and Current Notes Payable* indicates the ability to meet the current maturities of debt.

The calculation for 2002 – 2001 is shown in the following figure:

	2002	2001
Operating cash flow / Current maturities of long-term debt and current notes payable	0.94 times	0.99 times
Operating cash flow	\$ 17,109 million	\$ 12,985 million
Current maturities of long-term debt and current notes payable	\$ 18,167 million	\$ 13,128 million

Figure 36: Operating cash flow / Current maturities of long-term debt and current notes payable calculated from the consolidated statement cash flow

Interpretation:

This ratio is under 1, so the liquidity of GM doesn't seem to be very good.

3.5.2 Operating Cash Flow / Total Debt

The *Operating Cash Flow / Total Debt* indicates a firm's ability to cover total debts with the yearly cash flow.

- Operating cash flow / Total debt = Operating cash flow / Total liabilities

The calculation for 2002 – 2001 is shown in the following figure:

	2002	2001
Operating cash flow / Total debt	4.71 %	4.30 %
Operating cash flow	\$ 17,109 million	\$ 12,985 million
Total liabilities	\$ 363,134 million	\$ 301,959 million

Figure 37: Operating cash flow / Total debt calculated from the consolidated statement cash flow

Interpretation:

This ratio is very low, but it improved.

3.5.3 Operating Cash Flow per Share

The *Operating Cash Flow per Share* indicated the ability to cover cash dividends with the yearly operating cash flow.

- Operating cash flow per share = (Operating cash flow - Preferred dividends)/
(Number of shares \$ 1-2/3 par value + Number of class H)
equals
- Operating cash flow per share = Operating cash flow / Cash dividends

The calculation for 2002 – 2001 is shown in the following figure:

	2002	2001
Operating cash flow per share	\$ 10.50	\$ 8.21
Operating cash flow	\$ 17,109 million	\$ 12,985 million
Preferred dividends	\$ 1,168 million	\$ 1,201 million
Number of shares \$ 1-2/3 par value	560 million	558 million
Number of class H shares	958 million	877 million

Figure 38: Operating cash flow per share calculated from the consolidated statement cash flow

Interpretation:

It increased by about 20%.

3.5.4 Operating Cash Flow / Cash Dividends

The *Operating Cash Flow / Cash Dividends* indicates the ability to cover cash dividends with the yearly operation cash flow.

- Operating Cash Flow / Cash Dividends =
Operating cash flow / Cash dividends paid to stockholders

The calculation for 2002 – 2001 is shown in the following figure:

	2002	2001
Operating Cash Flow / Cash Dividends	14,65 times per year	10,81 times per year
Operating cash flow	\$ 17,109 million	\$ 12,985 million
Cash dividends paid to stockholders	\$ 1,168 million	\$ 1,201 million

Figure 39: Operating Cash Flow / Cash Dividends calculated from the consolidated statement cash flow

The paid cash dividends to stockholders is reported in the financial part of the cash flow statement.

Interpretation:

Currently it seems to be easy for GM to cover cash dividends. One reason is because GM pays little dividends.

4 Industry Benchmark Comparison

General Motors, Ford Motor Company and DaimlerChrysler are also called the “big three” in automotive. All of them are located in Detroit, Michigan (although Daimler Chrysler has its headquarter in Germany) so their financial data really can be compared.

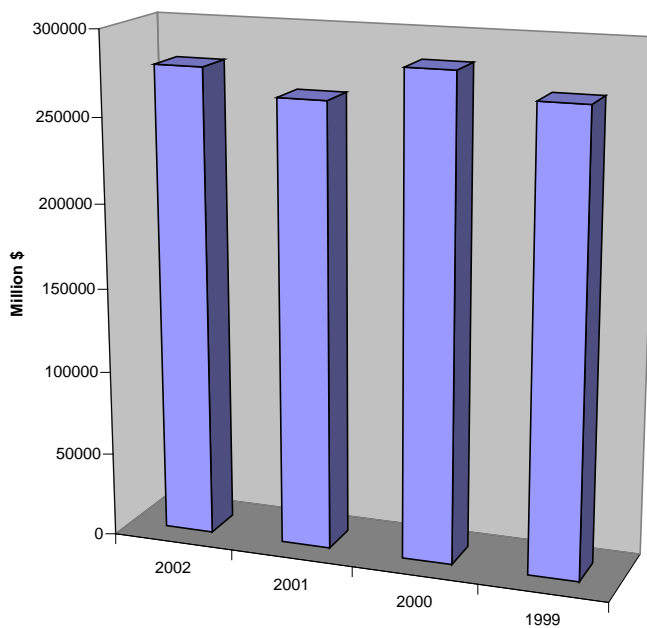
Therefore this chapter analyzes Ford and DaimlerChrysler and interprets the results in conjunction with the values outlined in the chapters before.

4.1 Ford Motor Company

The following tables show values, which are computed exactly the same way as they were computed for GM in the previous chapters.

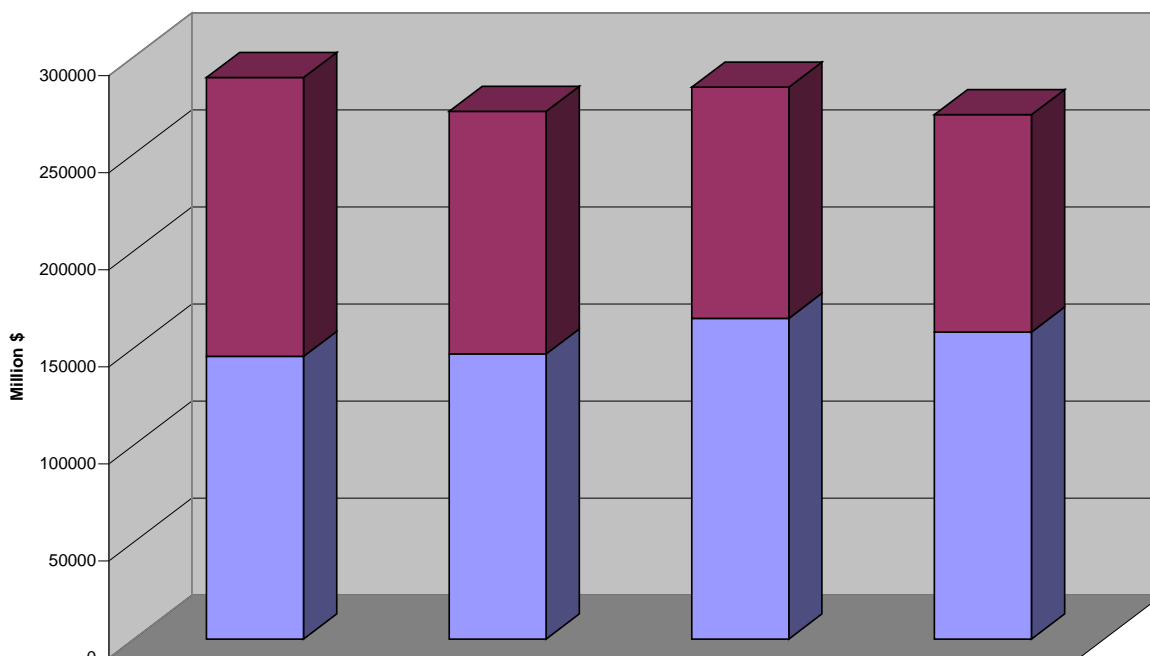
	2002	2001	2000	1999
Current assets	145671	146958	165291	158203
Long-term assets	143686	124935	119130	112046
<i>Total assets</i>	289357	271893	284421	270249
	2002	2001	2000	1999
Current assets	50%	54%	58%	59%
Long-term assets	50%	46%	42%	41%
<i>Total assets</i>	100%	100%	100%	100%
	2002	2001	2000	1999
Current assets	92%	93%	104%	100%
Long-term assets	128%	112%	106%	100%
<i>Total assets</i>	107%	101%	105%	100%

Figure 40: Asset values (in million \$) 1999 - 2002 (for Ford Motor Company)



	2002	2001	2000	1999
Total liabilities	278097	263435	284421	270249

Figure 41: Liabilities 1999 - 2002 (for Ford Motor Company)



	2002	2001	2000	1999
Long-term assets	143686	124935	119130	112046
Current assets	145671	146958	165291	158203

Figure 42: Current and long term assets in absolute values (for Ford Motor Company)

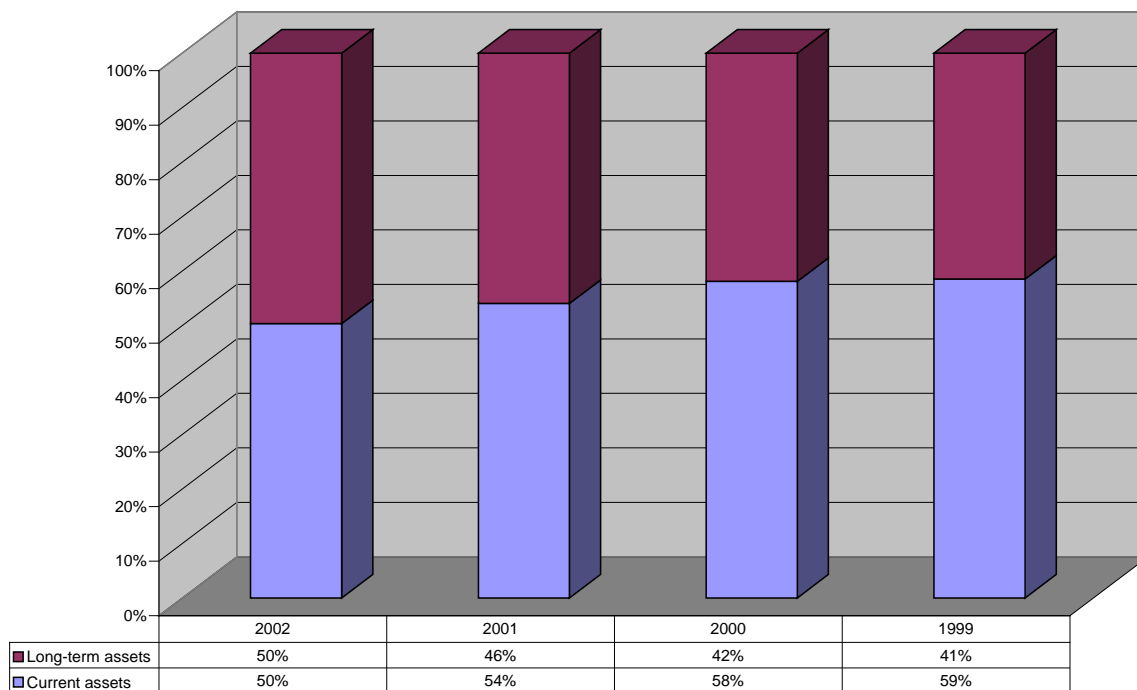


Figure 43: Current and long term asset values, where the total assets are always 100% (for Ford Motor Company)

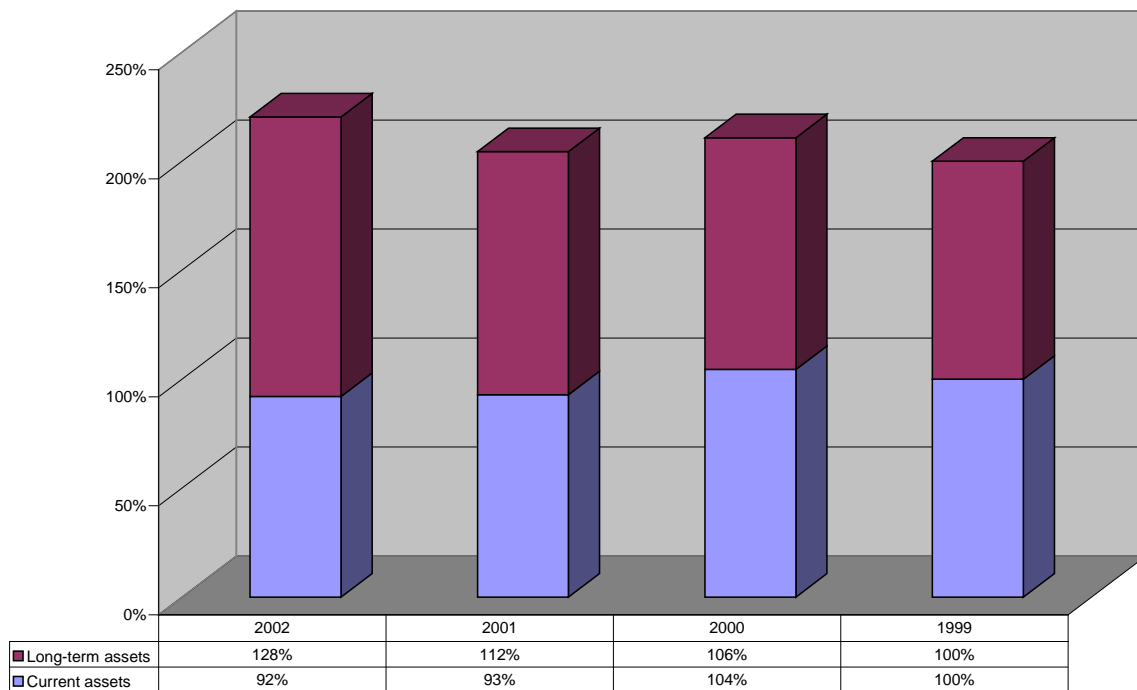


Figure 44: Current and long term asset values, where the values from 1999 are always 100 % (for Ford Motor Company)

4.1.1 Return on Investment and Return on Total Equity

Because those two ratios are most important to compare companies they are computed here (the same way as they were computed for GM).

	2002	2001
Return on investment (ROI)	3.48 %	N/A
Income before taxes and minority interest + Interest expenses (= Operating income)	\$ 953 million	N/A
Total liabilities + Equity	\$ 289,357 million	\$ 271,893 million
Average (Long-Term Liabilities + Equity)	\$ 280,625 million	

Figure 45: Return on investment (ROI) (for Ford Motor Company)

	2002
Return on total equity	(10.29) %
Net income	\$ (980) million
Total equity begin	\$ 7,786 million
Total equity end	\$ 11,260 million
Average total equity	\$ 9,523 million

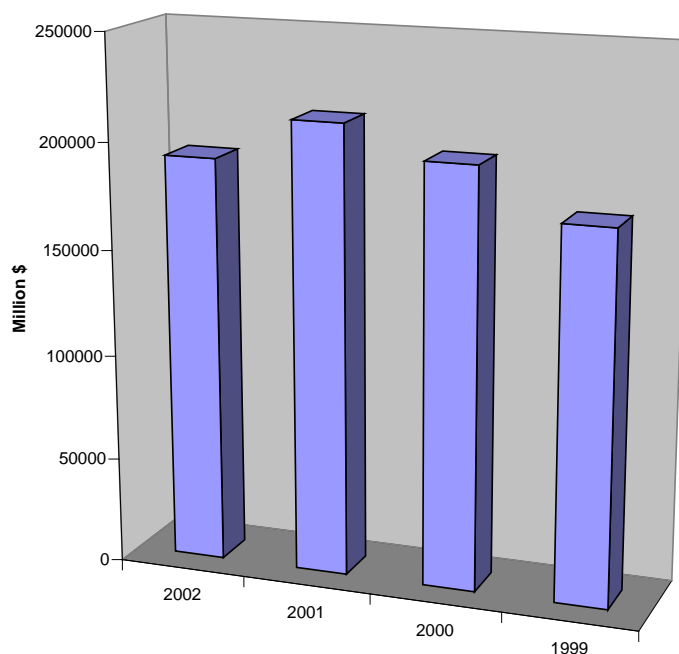
Figure 46: Return on total equity (for Ford Motor Company)

4.2 DaimlerChrysler

Again the values are computed exactly the same way as they were computed for GM.

	2002	2001	2000	1999
Current assets	131069	130270	125780	117431
Long-term assets	104963	131066	125306	102650
Total assets	236032	261337	251085	220080
	2002	2001	2000	1999
Current assets	56%	50%	50%	53%
Long-term assets	44%	50%	50%	47%
Total assets	100%	100%	100%	100%
	2002	2001	2000	1999
Current assets	112%	111%	107%	100%
Long-term assets	102%	128%	122%	100%
Total assets	107%	119%	114%	100%

Figure 47: Asset values (in million \$) 1999 - 2002 (for DaimlerChrysler)



	2002	2001	2000	1999
Total liabilities	192040	212192	197650	174644

Figure 48: Liabilities 1999 - 2002 (for DaimlerChrysler)

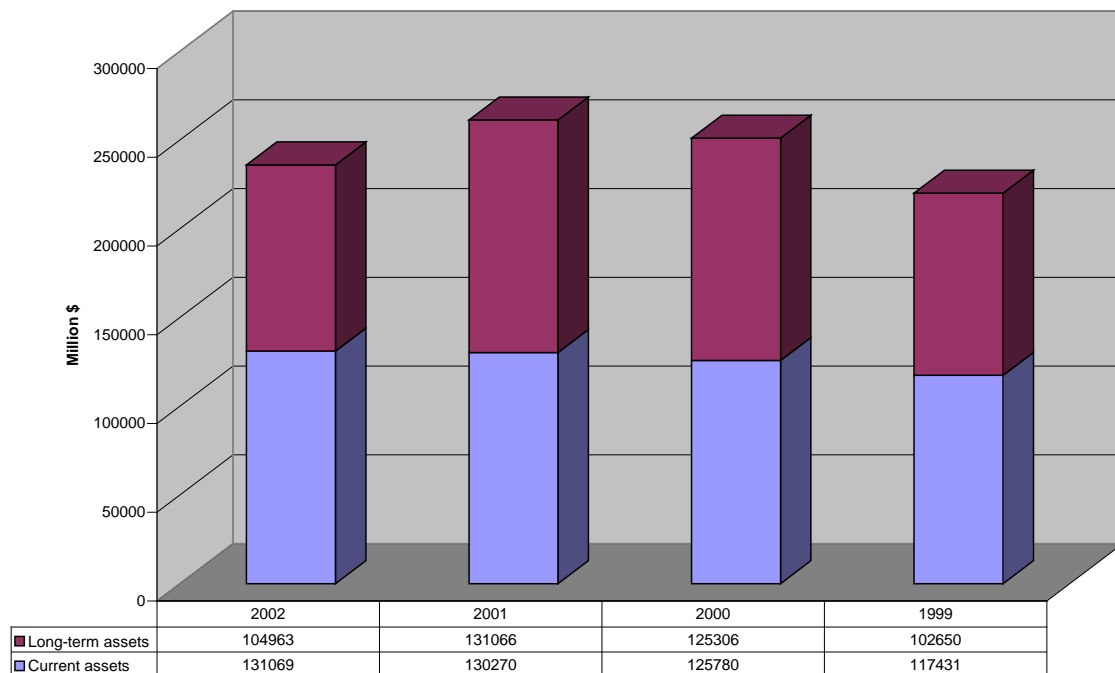


Figure 49: Current and long term assets in absolute values (for DaimlerChrysler)

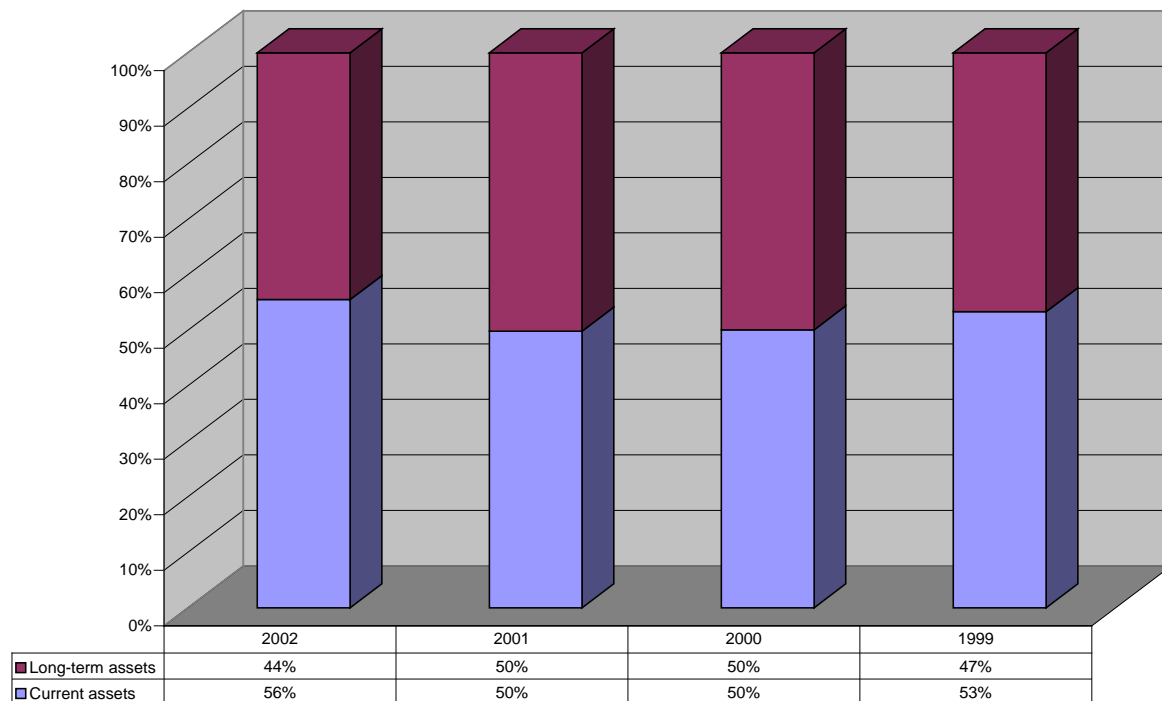


Figure 50: Current and long term asset values, where the total assets are always 100% (for DaimlerChrysler)

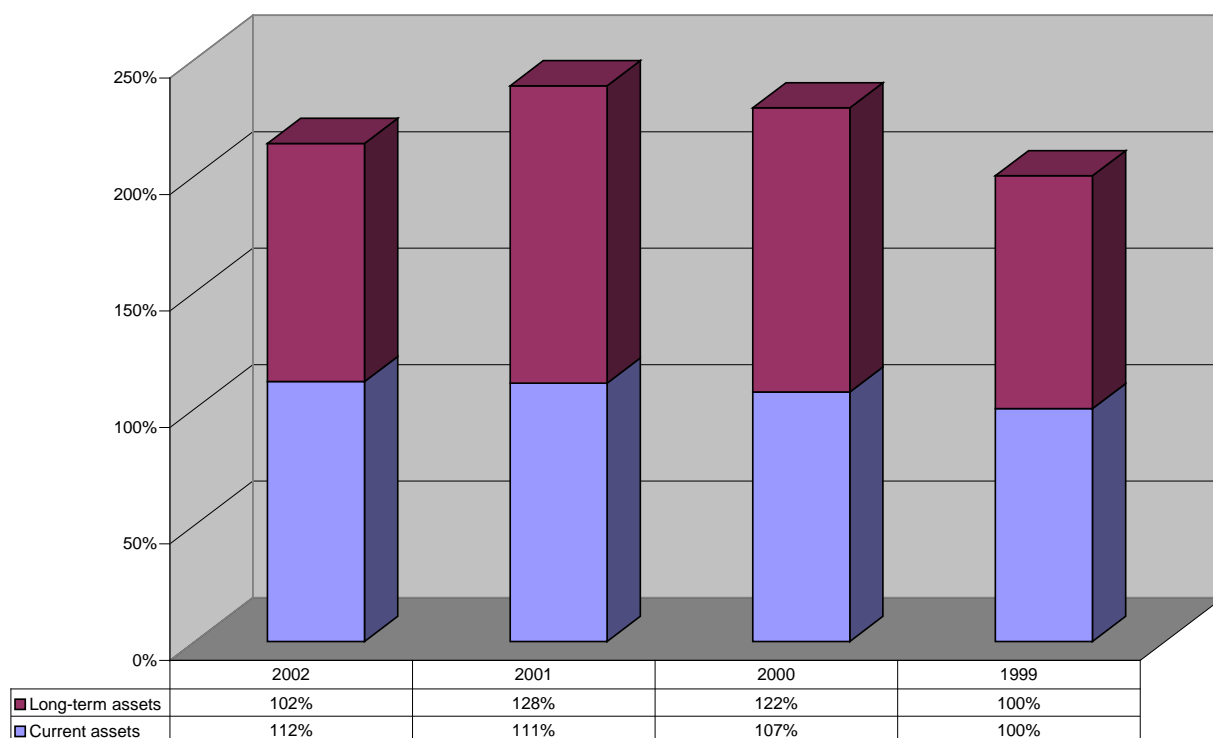


Figure 51: Current and long term asset values, where the values from 1999 are always 100 % (for DaimlerChrysler)

4.2.1 Return on Investment and Return on Total Equity

Again those two values are computed.

	2002	2001
Return on investment (ROI)	2.20 %	N/A
Income before taxes and minority interest + Interest expenses (= Operating income)	\$ 7,646 million	N/A
Total Liabilities + Equity	\$ 236,032 million	\$ 261,337 million
Average (Long-Term Liabilities + Equity)	\$ 248,684 million	

Figure 52: Return on investment (ROI) (for DaimlerChrysler)

	2002
Return on total equity	12.77 %
Net income	\$ 5,945 million
Total equity begin	\$ 49,145 million
Total equity end	\$ 43,992 million
Average total equity	\$ 46,568 million

Figure 53: Return on total equity (for DaimlerChrysler)

4.3 Comparison

Here the return on investment and the return on total equity are the main ratios for comparison.

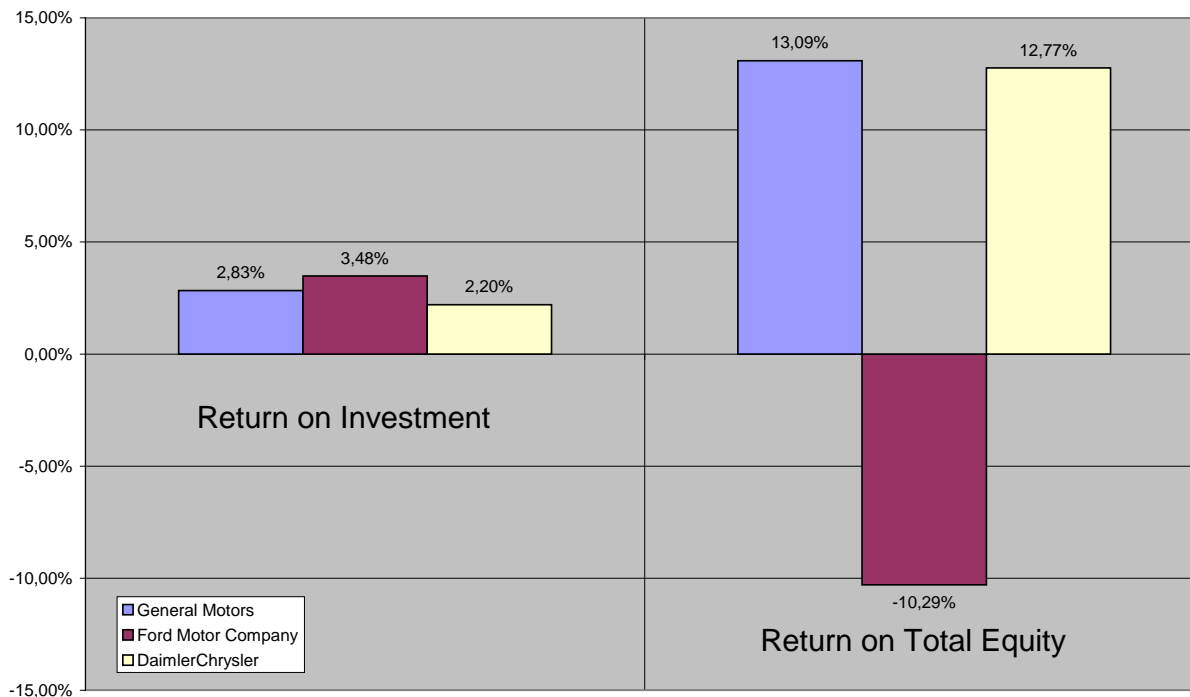


Figure 54: Return on investment and return on total equity for GM, Ford and DaimlerChrysler

These values show that General Motors has the best ratios compared with Ford and DaimlerChrysler. Although Ford has the best ROI, investors may not be attracted, due to their negative return on equity.

In addition current and long-term assets are also compared.

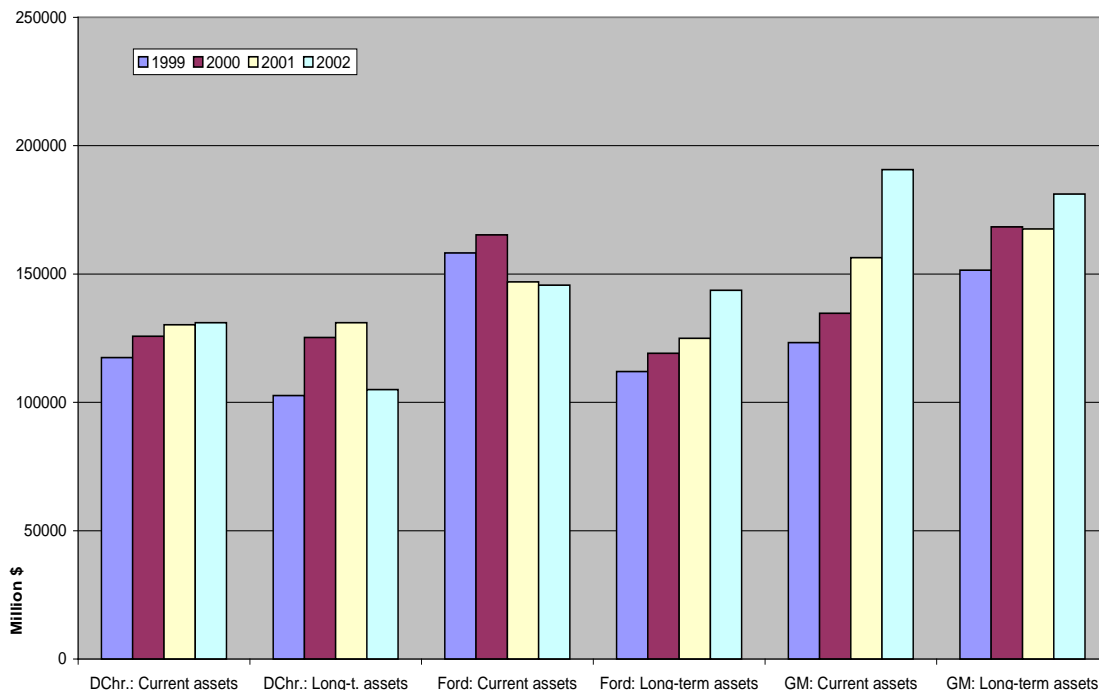


Figure 55: Current and long-term assets for Ford Motor Company, DaimlerChrysler and GM

GM is increasing the current assets constantly, whereas Ford reduced it’s current assets. From 1999 GM and DaimlerChrysler really increased it’s assets (GM by 55%), only Ford decreased it (by 5%). Both (GM and Ford) increased their long term assets in this period by 20% to 30%.

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