

# **MAXIMIZING SHAREHOLDER WEALTH USING THE VALUE-BASED MANAGER MODEL**

**By**

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## **Introduction**

This chapter describes the components of the Value-Based Manager Model. This framework sets down procedures that help managers understand the options available to create competitive advantage and maximize the value of the firm to its owners. A firm creates value for its shareholders through managing current assets, adding new assets and altering how both current and future assets are financed. Determining how to deploy the firm's current and future assets is the domain of business strategy. How the asset base is financed is the domain of financial policy. Managers create maximum wealth for shareholders when a firm's financial policies are properly aligned with the firm's business strategies. This occurs when expected after-tax cash flows from a firm's assets are maximized and the firm's after-tax financing costs are minimized.

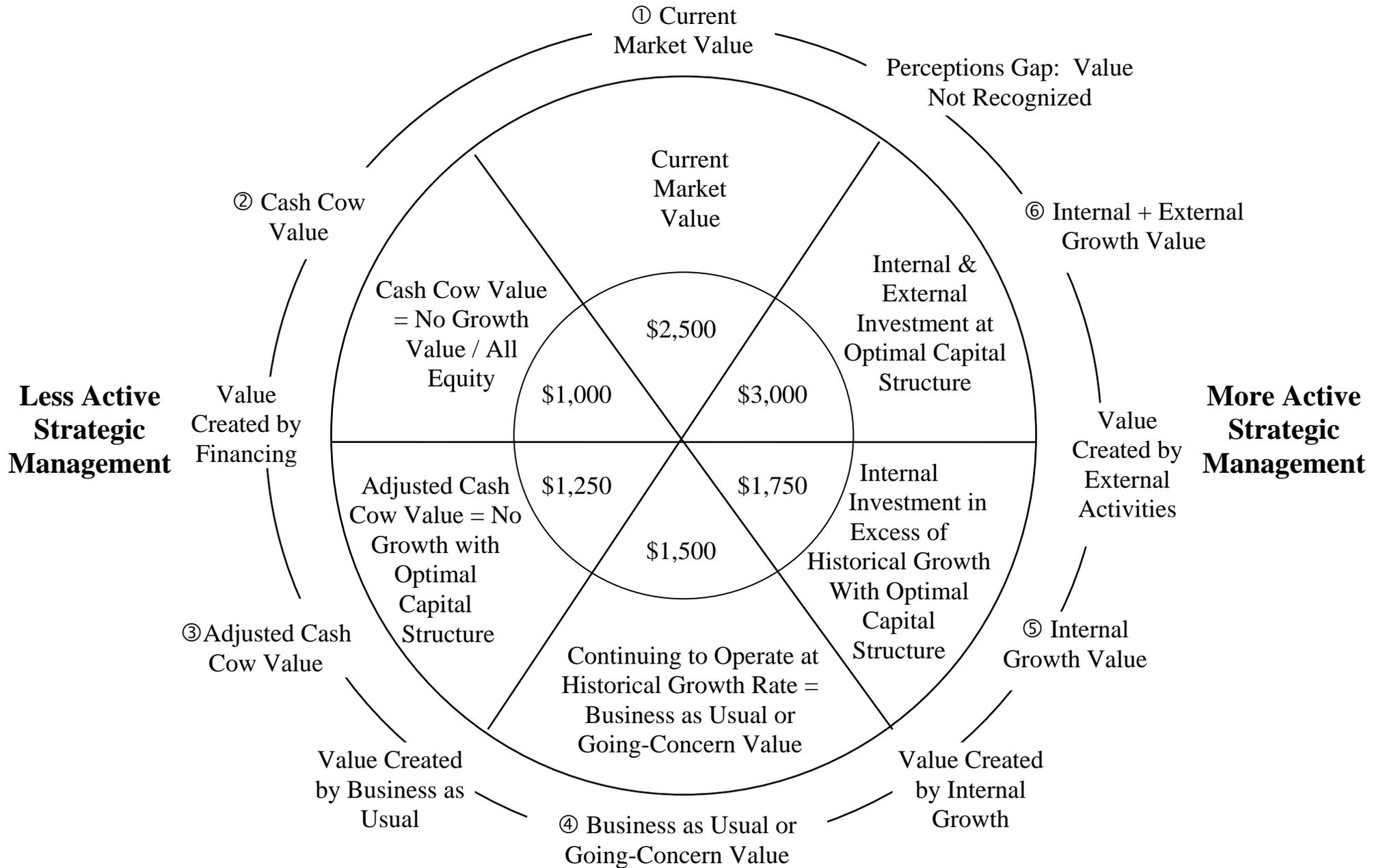
This chapter provides an overview of how a manager can optimize the value of the firm through the use of what is termed the Value-Based Manager Model. To this end, we consider the business issues which Roger Brown, the newly appointed CEO of Auto Inc., must face and how he used the Value-Based Manager Model to completely restructure Auto Inc. However, before considering the business issues that Auto Inc. was confronted with, an overview of the Value-Based Manager Model is presented.

## **The Value-Based Manager Model**

### **Overview**

The Value-Based Manager Model is shown in Exhibit 2-1. As one moves counterclockwise around the outer circle, the degree of strategic management intensifies. Less active strategic management implies that managers are optimizing the cash flows from the assets in place at the optimal capital structure. As management becomes more active, it adds assets and continues to finance them at the optimal capital structure. By maintaining historical growth in sales and capital expenditures, management is adopting a strategy that is not highly active. Rather, they are managing the firm on, what may be termed, “auto pilot.” This means management has little intention of altering the basis of competition in its served markets from what it had been in the recent past. For example, strategies that have been implemented in the past with regard to pricing and/or new product introductions are assumed to continue into the future. It is business as usual with the future business environment and the firm’s role in it expected to be the same as it has been in the past.

# Exhibit 2-1: The Value Circle Framework



Highly active strategic management begins when the firm's management decides to alter the basis of competition in some significant way. Such changes might include a business restructuring designed to reduce costs, lower prices and increase market share in each of the markets served, developing new products and services and/or entering new markets. Each of these changes represent a significant change in a firm's strategy and each usually requires the firm to increase internal investments or capital expenditures. Depending on the strategic thrust, management may decide that "buying" is cheaper than building and therefore decide to commit itself to an acquisition or series of acquisitions. Such external investments might be accompanied by divestitures of business units that are no longer fit with the firm's core business strategy.

### **Measuring the Contribution of Strategy to Shareholder Value**

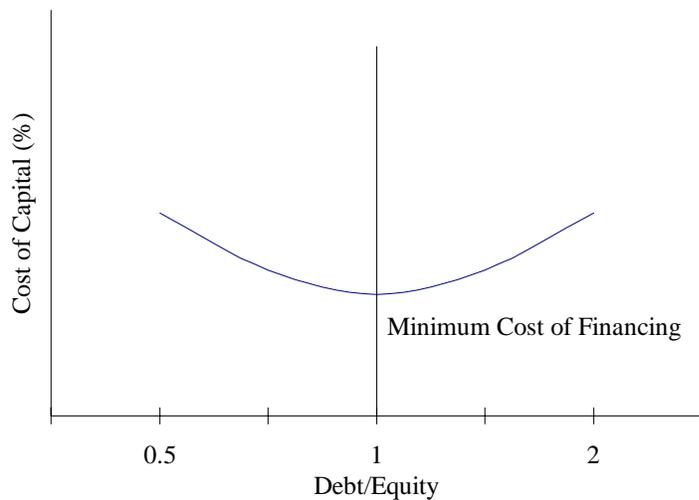
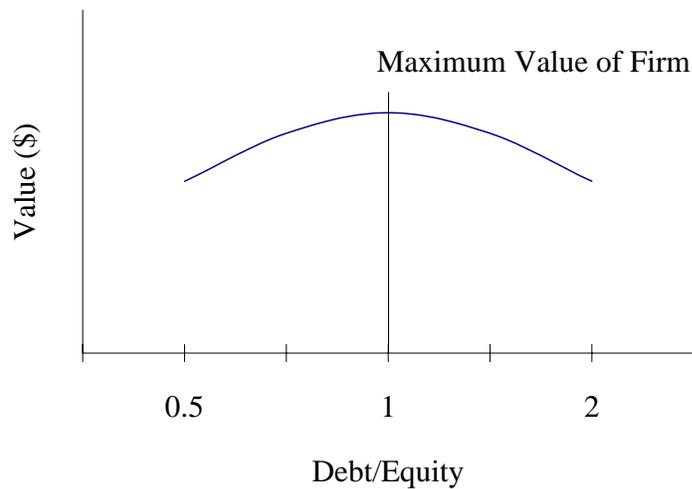
Exhibit 2-1 shows that a firm's total value is the sum of the values created by various degrees of strategic management. If these values are recognized by investors, then total firm value is equal to the sum of the market value of the firm's equity plus the market value of its debt.

Moving counter-clockwise, the no growth value is made up of the value of assets in place. This value is equivalent to capitalizing the firm's current cash flow by its equity cost of capital. In this case, each years gross investment just equals annual depreciation so the assets in place are always sufficiently maintained to provide the required cash flow. Thus if the firm's annual after-tax cash flow was \$100 million and the firm's cost of equity capital were 10%, then firm would have an equity market value of \$1.0 billion ( $\$100 \text{ million} / .10$ ). If the firm had 100 million shares

outstanding, then each share would be worth \$10. This can be thought of as its “cash cow value” since the firm would be generating cash that would not be reinvested but would be distributed to investors.

The “cash cow value” can be potentially enhanced by altering the firm’s capital structure. Keep in mind that total firm value is equal to the market value of equity plus the market value of debt. Because the cost of debt is less than the cost of equity, swapping equity for debt will reduce the firm’s cost of capital and increase the value of the firm up to a point. The firm’s optimal capital structure, its optimal debt to equity ratio, is located at the minimum(maximum) point of the firm’s cost of capital (value) curve as shown in Exhibit 2-2.

## EXHIBIT 2-2: Value Curve



Determining the optimal capital structure is a complicated exercise and will be covered in detail in subsequent chapters. For the moment let us assume that the management has determined that the optimal capital structure is 50% debt and 50% equity and as a result the adjusted cash cow value is \$1,250 million. This adjusted value less the cash cow value of \$1,000 million represents the value created through financial restructuring.

The business as usual value or “going-concern value” is a product of the firm’s sales and capital needs growing at recent historical rates. These activities are financed at the firm’s optimal capital structure and reflect the fact that management does not expect the future to deviate in any important way from the past. Management plans to increase capital expenditures in excess of depreciation to take advantage of identified growth opportunities. These new investments are expected to create additional value for the firm. Going-concern value is calculated to be \$1,500 million with the difference between it and the adjusted cash cow value, \$1,250 million, representing the additional value created by the net increase in capital expenditures.

Note that the going-concern value of \$1,500 million is a \$1,000 million less than the market value of the firm which is \$2,500 million. This difference reflects three possibilities. The first relates to the fact that investors have either identified strategic opportunities in addition to those accounted for in the going-concern value which they apparently expect management to pursue. The second possibility might be that investors expect management to generate higher levels of cash flow from both current and future assets than management believes is realistically achievable. Finally, the third reason, which is related to the second, is that investors believe the duration of cash flow growth from future assets is longer than management believes is reasonable. What is important here is that investors are expecting management to undertake a series of strategic initiatives. Management, confronted with the market’s expectation, must ask themselves the following questions:

- 1) Are investor’s expectations inconsistent with business reality?
- 2) What strategic initiatives should be considered?

3) Is sufficient financing available to undertake identified initiatives?

Answers to these questions result from exploring internal and external investment options and undertaking those which create value for the firm. Internal options would include developing new product lines, investing in R&D, initiating programs to cut overhead and variable costs, opening new markets for existing products and increasing market share in served markets for existing products and services. When the value of these additional activities are added to going-concern value, the value of the firm, or its internal growth value, rises to \$1,750 million.

It must also be kept in mind that the internal growth value can be lower than the going-concern value. This occurs when the present value of costs of internal investments exceeds the present value of the cash flows these investments produce. That is, employing the wrong strategy can destroy value as was the case in the early 1980s when oil company executives blindly committed large sums of capital to finance oil exploration and development when it was clear that such investments destroyed shareholder value.

### **A Digression on What Happens When Strategy Destroys Value: The Case of the Oil Industry**

In the early 1980s the corporate value of integrated oil firms was less than the market value of their oil reserves, their primary assets. The question arose, how could such a mis-pricing occur given that the major oil companies are so widely followed by the investor community. A 1985 research report prepared by Bernard Picchi of Salomon Brothers provided the answer. The report indicated that the 30 largest oil firms earned less than their cost of capital of about 10% on their oil

exploration and development expenditures.<sup>1</sup> Estimates of the average ratio of the present value of future net cash flows of discoveries, extensions, and enhanced recovery to expenditures for exploration and development for the industry ranged from less than 0.6 to slightly more than 0.9 depending on the method used and the year. In other words, on average, the oil industry was receiving a return of somewhere between \$.60 and \$.90 for each dollar invested. The corporate value of these firms reflected the sum of the market value of oil reserves, minus the value destroyed by investing in oil exploration and development. Therefore, by undertaking internal investments that destroyed value, stock prices of these oil firms were lower than they would be had they immediately terminated most of their exploration and development activities. The strategic implications of this analysis were that it was cheaper to buy the oil reserves through buying the assets of a competitor than it was to invest internally and explore. In this way, the capital markets provided incentives for firms to make strategic adjustments that were not stimulated by competitive forces in the international markets for oil. In the end, shareholder wealth increased significantly as oil firms merged and others restructured. The events that transpired and the shareholder wealth gains that materialized are described in Exhibit 2-3.

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<sup>1</sup> See Bernard J. Picchi 1985. "The Structure of the Oil Industry: Past and Future". New York: Salomon Brothers Inc., July.

## EXHIBIT 2-3: Restructuring of the Oil Industry

Total gains to the shareholders in the Gulf/Chevron, Getty/Texaco and DuPont/Conoco mergers, for example, were over \$17 billion. Much more is possible. In a 1986 MIT working paper, "The 217 Agency Costs of Corporate Control: The Petroleum Industry," Jacobs estimates total potential gains of approximately \$200 billion from eliminating the inefficiencies in 98 petroleum firms as of December 1984.

Recent events indicate that actual takeover is not necessary to induce the required adjustments:

- The Phillips restructuring plan, brought about by the threat of takeover, involved substantial retrenchment and return of resources to shareholders, and the result was a gain of \$1.2 billion (20 percent) in Phillips' market value. The company repurchased 53 percent of its stock for \$4.5 billion in debt, raised its dividend 25 percent, cut capital spending, and initiated a program to sell \$2 billion of assets.
- Unocal's defense in the Mesa tender offer battle resulted in a \$2.2 billion (35 percent) gain to shareholders from retrenchment and return of resources to shareholders. Unocal paid out 52 percent of its equity by repurchasing stock with a \$4.2 billion debt issue and reduced costs and capital expenditures.
- The voluntary restructuring announced by ARCO resulted in a \$3.2 billion (30 percent) gain in market value. ARCO's restructuring involved a 35 percent to 40 percent cut in exploration and development expenditures, repurchase of 25 percent of its stock for \$4 billion, a 33 percent increase in its dividend, withdrawal from gasoline marketing and refining east of the Mississippi, and a 13 percent reduction in its work force.
- The announcement of the Diamond-Shamrock reorganization in July 1985 provides an interesting contrast to the others because the company's market value fell 2 percent on the announcement day. Because the plan results in an effective increase in exploration and capital expenditures and a reduction in cash payouts to investors, the restructuring does not increase the value of the firm. The plan involved reducing cash dividends by 76 cents per share (a cut of 43 percent); creating a master limited partnership to hold properties accounting for 35 percent of its North American oil and gas production; paying an annual dividend of 90 cents per share in partnership shares; repurchasing 6 percent of its shares for \$200 million, selling 12 percent of its master limited partnership to the public; and *increasing* its expenditures on oil and gas exploration by \$100 million per year.

## External Strategies

The oil industry case suggests that external investment strategies should always be seriously considered. External strategies include acquisitions and various types of divestitures of non-strategic assets. In general, an acquisition should be considered when there are synergies between the acquirer and the target firm. In this case, the value of the combined firms will exceed the sum of the market values of each as stand-alone businesses. This difference is termed acquisition value. If the price paid for a firm exceeds its current market price, the difference being termed the target premium, then the net value created by the acquisition is the difference between the acquisition value and the target premium. The value of the combined firms is then equal to the value of each firm as a stand-alone plus the difference between the acquisition value and the target premium.

To make this clearer, consider the case of Firm A, which has a current stand-alone market value of \$100, and Firm B, which has a current stand-alone value of \$50. Firm A believes that it can manage Firm B's assets and create additional value of \$25. This \$25 is the acquisition value. If Firm A paid a \$10 premium for Firm B's assets, that is paid \$60 for them, the combined value of Firms A and B would \$115 (Stand-alone Firm A Value of \$100 + Stand-alone Firm B value of \$50 + \$25 acquisition value- \$60 Firm B cost = \$115). Firm A is willing to pay a premium for Firm B's assets because Firm A can create additional value that exceeds the target premium by being able to control how Firm B's assets are to be deployed. Hence, the target premium is also known as the control premium.

In addition to acquisitions, a firm may decide to sell assets. This occurs because the management of the firm believes that the assets are more valuable to another owner

than it is to the current owner. This conclusion usually results in a sale to another firm or sale to management- management buy-out (MBO) or leveraged buy-out (LBO). If the sale price exceeds the value of the assets to the current owner, then the divestiture increases the market value of the firm by the difference between the sale price and the assets' estimated intrinsic value.

To see this, consider Firm A which is made up of two divisions each valued at \$50. Division one is sold for \$60, a \$10 premium over its intrinsic value. After the sale, Firm A is worth \$110 (Division 1 = \$50 + Division 2 = \$60) or \$10 more than before the sale.

Another form of divestiture is termed a spin-off. Here, management decides to spin a division off and create a new firm. Management hopes that the value of the spun division will be assigned a higher value by investors than its implied value as part of the parent firm. The reasons for this apparent under valuation are varied but often relate to investors not having sufficient information to accurately value the various assets that make up the firm. By spinning off the division, management of the spun division is required to file detailed business and financial information that was not required when the division was part of the parent firm. As a result of these communications, investors are provided with the requisite information upon which to base a more informed valuation of the asset in question.

In other cases, separating the division from the parent allows management of the division to take advantage of business opportunities that it could not as part of a larger entity and in the process create additional value for parent firm shareholders. For example, some years back a large insurance firm spun off its money management division into a wholly owned subsidiary to enhance its competitive

position in the investment management marketplace. Prior to the spin-off, all investment decisions had to be sanctioned by the insurance firm's investment policy committee which caused unnecessary delays. Also, because it was part of a large bureaucratic organization, customer perception was that the firm was not nimble enough to take advantage of investment opportunities as they emerged. As a result of the spin off, this perception quickly changed while the firm retained the cachet of being affiliated with a large financially strong parent. Subsequent to the spin-off, the firm's performance improved relative to peer companies and the hoped for increase in customers and cash flow followed.

### **The Perceptions Gap**

Considering both internal and external investment opportunities, the full strategic value of the firm is \$3,000 million or \$500 million greater than the firm's current market value. This difference represents unrecognized intrinsic value. This perceptions gap arises either because management has not yet communicated its strategic plans or, if management has, investors are skeptical about management's ability to successfully implement them.

Strategic communication to the investor community is key to removing any perceptions gap and thereby increasing the market value of the firm. The conventional wisdom contradicts this view however and suggests that security analysts and portfolio managers primarily care about whether a firm meets its quarterly earnings' estimate and are not terribly concerned with long-term strategic business issues.

Research by Richard Higgins and John Diffenbach<sup>2</sup> and more recent work by Feldman, Soyka and Zinkowsky<sup>3</sup> shed light on this important issue. Among other findings, Higgins and Diffenbach report that security analysts they surveyed said that expectations of financial performance during the next five years were more significant than performance during the next quarter. At the same time they said that information presented to them about a firm's strategic plans was of little use. Feldman, Soyka and Zinkowsky report that the portfolio managers they surveyed all indicated that if the firm is doing something that improves the firm's competitive advantage and increases its intrinsic value and security analysts and portfolio managers have not asked them about it, it is incumbent upon management to communicate these strategic initiatives to the investor community. These results suggest that when management is firmly convinced that its strategies and tactics increase the firm's intrinsic value, then it is in both their and the shareholders best interest to make the most compelling case to the investment community. While these disclosures should be sufficiently detailed, the level of specificity needs to be balanced against divulging critical proprietary information to competitors. Nevertheless, sufficient information needs to be supplied so security analysts, portfolio managers and others can make informed assessments about the value which these strategic initiatives are expected to create. Appropriate communication vehicles are annual reports, filings with the Security and Exchange Commission, regular conference calls with financial analysts and portfolio managers, interviews on financial news networks, and news releases that are picked up the various business news services like Reuters and Dow Jones.

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<sup>2</sup> Richard B. Higgins and John Diffenbach 1985. "The Impact of Strategic Planning on Stock Prices". **The Journal of Business Strategy**, Volume 6, Number 2, Fall, 1985, pp. 64-72.

<sup>3</sup> Stanley Jay Feldman, Peter Soyka and Kristen Zinkowsky, "Do Portfolio Managers Care Whether Improvements in a Firm's Environmental Management System Improved Environmental Performance Increase Firm Value?", ICF Kaiser working paper, March, 1998.



## **How Auto Inc.'s CEO Used the Value-Based Manager Framework to Restructure the Firm**

### **Getting Started**

The Board of Directors of Auto Inc. recently hired Roger Brown as CEO. The performance of Auto Inc. had not been what either the Board of Directors or shareholders hoped for. Mr. Brown, who has a sterling reputation for turning firms around and has an incentive laden compensation arrangement, realized that he needs to move quickly and decisively to restructure the firm and increase its market value.

Mr. Brown began with an evaluation of his senior management. He concluded that they are dedicated professionals and they, like him, have a great deal at stake financially and in terms of their professional reputations. The CEO concluded that the current management team is up to the task of helping him restructure Auto Inc.. Nevertheless, he replaced the current CFO with a former associate who had extensive experience in both pruning costs, implementing new and more efficient accounting systems and had an excellent reputation with Wall Street analysts. To encourage the team concept and to begin the development of a new strategic plan, Roger Brown decided to hold a one week retreat away from corporate headquarters. During this time, the management team addressed the basic business problems each strategic business unit (SBU) was facing, what potentially needed to be done to improve the value of each SBU and the size of the capital commitments required to enhance the value of Auto Inc. to shareholders.

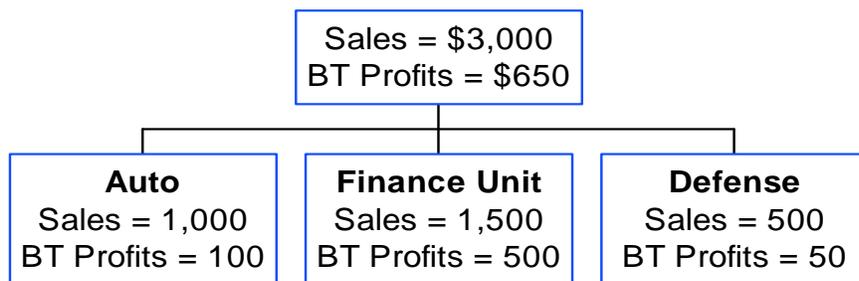
Roger Brown made it clear that the conclusions of some of the analyses might result in businesses being sold off and others acquired. Thus moving down the path of creating more wealth for shareholders may be threatening to senior managers since some may lose their current jobs. Brown assured them that no matter what happened each manager's economic position would significantly improve through the issuing of stock options and other compensation arrangements designed to remove any "economic uncertainty" that would limit their willingness to contribute to the firm's restructuring efforts. As it turned out, Mr. Brown's assurances and subsequent actions raised the comfort level of his senior managers and their willingness to participate in the restructuring of Auto Inc.

Finally, Roger Brown hired a consulting firm to work with the management team as it considered strategic business issues and the various options that Auto Inc. might pursue. The consulting firm proposed to use the Value Circle Framework as its point of departure. Each Auto Inc. SBU was analyzed using this framework. During the week of the retreat, the consulting firm presented the initial results of its valuation analysis. This presentation then became the basis for extensive discussions that took place during the week.

## Initiating the Value Circle Framework

To begin the evaluation process, the consulting firm first reviewed Auto Inc.'s basic business structure.

### **Exhibit 2-4: Financial Overview: Auto Inc. (\$ millions)**



As Exhibit 2-4 indicates, Auto Inc. was made up of three SBUs, auto, financing and defense. For the most current year, Auto Inc. reported \$3 billion in revenue and a before-tax profit of \$650 million. The before-tax profit margin was about 22% for Auto Inc. with the finance subsidiary showing the highest margin, 33%, and the defense and the auto SBUs registering 10% margins. The finance SBU provided dealer inventory financing services and financing for consumers who either desired to purchase or lease new or used automobiles. The finance SBU was also involved in project financing of roads and other infrastructure in Eastern Europe and Asia. Auto Inc.'s defense unit produced missiles, avionics systems and other high-tech products required by the military. In addition to having extensive U.S. government contracts, Auto Inc. also produced military products for foreign governments.

Based on discussions with SBU managers and his own cursory review, Roger Brown reached several tentative conclusions. First, although autos were a mature business, more could be done to enhance cash flow growth and business value. Moreover, production costs were higher than planned as the recent implementation of higher quality production standards could not be cost-effectively met. As a result, earnings were below budget. Moreover, additional investment was required to ensure that the new quality standards could be met.

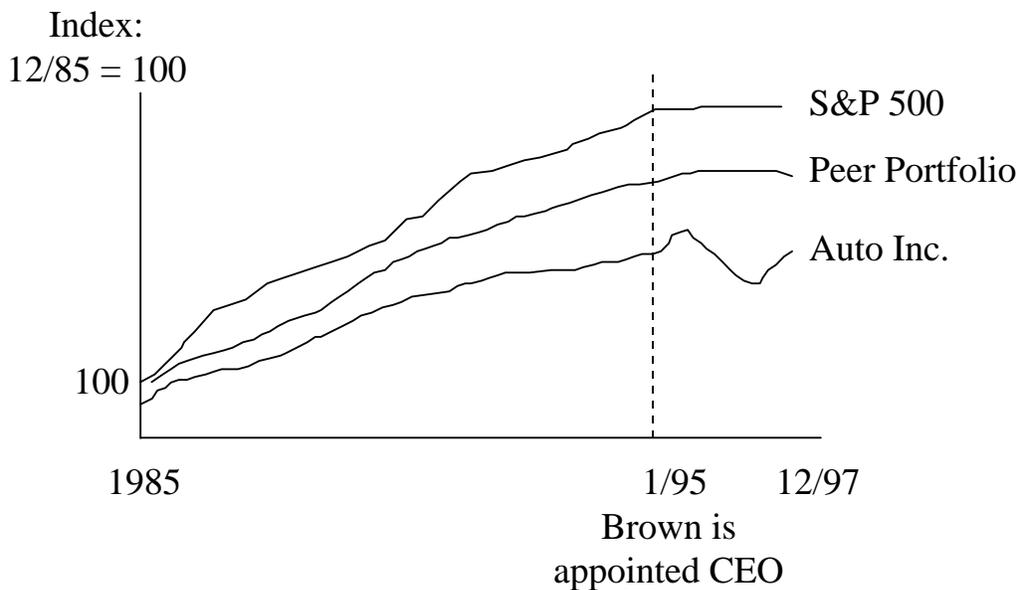
The performance of the defense unit, on the other hand, was governed by three factors. First, a slowdown in defense spending meant lower demand for the products that the Auto Inc. defense SBU produced. Second, increased foreign demand did not make up for the decline in domestic defense spending. Third, in response to these forces, the domestic defense sector was consolidating as firms attempted to buy market share through acquisitions. Such targeted acquisitions allowed the new larger defense firms to reduce costs of production and to increase margins despite intense price competition for defense contracts in markets where the consolidation process was rapidly occurring. Hence, a firm had to have significant economies of scale and scope (expertise across a broad array of technologies and product areas) if it expected to profitably compete in the “new” defense market place. Smaller firms could not expect to compete in this new environment and their managements had to decide whether they had the expertise and could obtain the financial resources to acquire the scale and scope needed to compete or whether selling the firm to a competitor would create the most value for shareholders.

Unlike the defense unit, the finance unit was experiencing growth in revenue and profits. Global competition in product and capital markets were moving at a rapid

pace. New opportunities to finance economic growth in Asia, Eastern Europe South America and Latin America, provided unparalleled opportunities for Auto Inc.'s financing unit. However, to take advantage of these opportunities required significant financial capital which, short of a major debt financing that could well mortgage the future of Auto Inc., was simply not available from internal sources.

The inability of Auto Inc.'s management to take advantage of perceived opportunities resulted in poor stock price performance as shown in Exhibit 2-5.

### **EXHIBIT 2-5: Comparative Stock Performance: Monthly**



Roger Brown noted that over the last twelve years Auto Inc.'s stock price had lagged behind that of portfolio of peer firms and the S&P 500 stock price index. Although the announcement of his appointment in January, 1995 resulted in a subsequent increase in Auto Inc.'s stock price, this increase was short-lived. It appeared to Roger Brown that his apparent unwillingness to announce a new

strategic direction resigned investors to the view that Auto Inc. had a new leader but not new leadership. The opportunities that were clearly available were not going to be pursued and while Roger Brown gave “lip service” to the goal of maximizing shareholder wealth, nothing he had communicated to the public indicated anything that would make shareholders more sanguine about the future. Roger Brown was committed to changing this perception by contemplating the most significant restructuring in Auto Inc.’s 70 year history.

With Roger Brown’s introduction as background, the consulting firm presented some initial results which are shown in Exhibit 2-6.

**EXHIBIT 2-6: Cash Cow and Going-Concern Value of Auto Inc.** (millions, \$)

<u>SBU</u>	<u>Cash</u> <u>Value</u>	<u>Cow</u>	<u>Adjusted</u>		<u>Going-Concern</u>
			<u>Cash</u> <u>Value</u>	<u>Cow</u>	<u>Value: Investment</u> <u>and Sales Growth at</u> <u>Historical Rates</u>
Auto	\$6,000		\$6,500		\$7,000
Finance	4,200		4,600		4,600
Defense	600		667		1,000
Corp. Overhead	-200		-200		-200
Total Corp. Value	\$10,600		\$11,567		\$13,400
Mkt. Value of Debt	0		500		605
Equity Value	10,600		11,067		12,795
Stock Mkt. Value	14,000		14,000		14,000
Value Gap (%)	-3,400 (-32%)		-2,933 (-21%)		-1,205 (-8.6%)

The above results suggest the following:

- 1) Each of the business units appears to have some investment opportunities that can be expected to increase Auto Inc.'s value above its cash cow value.
- 2) The optimal or target capital structure for Auto Inc. is 96 % equity and 4% debt.
- 3) Even when Auto Inc.'s sales and capital expenditures are growing at their recent historical rates, the intrinsic value of its equity (\$12,795 million) is still close to 9% below its market value. This implies that either Auto Inc.'s returns are lower than investors expect and/or that the firm is not taking full advantage of other business opportunities that could increase the firm's value.<sup>4</sup>

At the close of the week's retreat, it was decided that each SBU manager would meet with the consultant team to develop various internal and external business strategies. Since time was of the essence, the team concluded that this phase would have to be completed in thirty business days. At that time they would meet to evaluate the various options and tactical next steps.

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<sup>4</sup> The assumption here is that the equity of large well known firms are efficiently priced. Keep in mind that Auto Inc. is a large public firm that is regularly followed by at least ten Wall Street analysts in addition to numerous analysts working for money management firms. Therefore, it is assumed that the price of Auto Inc. shares reflects an informed assessments of the additional value that its various business opportunities are likely to create.

## **Internal Opportunities**

The consultant team worked with each manager to determine how best to develop estimates for the four critical determinants of firm cash flow and their impact on the values of each of the business units. These determinants or value drivers are:

- 1) Sales volume growth
- 2) Productivity growth
- 3) Change in the ratio of output price to input price
- 4) Change in fixed and working capital requirements

In order to develop realistic estimates of the various value drivers, the consultant team described the various factors that each SBU manager had to consider.

**Sales** Sales volume increases depended on four critical factors: 1) growth of new and existing customer markets for the SBU's products or services, 2) sensitivity of customer demand to changing output prices, i.e. elasticity of demand, 3) changing quality standards of product/service performance, and 4) timing of introduction of new products and services.

In order for Auto Inc. to increase volume growth above the expected growth rate of its existing customer segments, it needed to consider entering new, faster-growing markets, introduce new products and services and/or increase market share in served markets. Because of incomplete data on customer needs and price sensitivities, Auto Inc. was uncertain whether market share could be increased through price concessions and/or perceived quality upgrades in products and services. Moreover, since any strategy to increase sales volume required sizable

fixed investment, Auto Inc. management was unclear that any sales strategy would increase the value of the firm.

**Margin Improvements** Margins increase when productivity increases and when output prices rise relative to input prices. The relationship of both to margin improvement is shown below in Exhibit 2-7. Increases in productivity or efficiency allow the firm to either produce the same volume of goods with less resources or increase volume with the same resource base. In either case output per unit of input rises.

### **EXHIBIT 2-7: Determinants of the Margin Ratio**

- ◆ Margin Ratio = Operating Profits (\$) / Sales (\$)
- ◆ Margin Ratio =  $1 - (Q_I/Q_O)(P_I/P_O)$ 
  - ◆  $Q_I$  = Weighted Average Input
  - ◆  $Q_O$  = Weighted Average Output
  - ◆  $P_I$  = Weighted Average Input Price
  - ◆  $P_O$  = Weighted Average Output Price

The ratio of  $Q_I/Q_O$  is the inverse of productivity. Thus, when productivity increases this ratio is lowered and the margin is thereby increased. This new margin is applied to each dollar of sales thereby permanently raising the firm's cash flow. Again, whether firm value increases depends on the incremental capital expenditures that the productivity improvement requires. In those cases where the measured efficiency improvement is entirely the result of management deciding to downsize, the amount of additional capital required is by definition negligible. Thus, to the extent such downsizing does not result in any deterioration in the

benefits customers expect from the firm's products or services, this strategy will create a significant increase in firm value.

In general, however, productivity improvement requires an increase in fixed capital. Such outlays might include expenditures for redesigning a factory floor, retraining workers, implementing just-in-time inventory procedures and updating the firm's computer systems. Feldman and Sullivan have shown that because productivity increases have a long lasting impact on firm cash flow, investors tend to place a large value on such increments relative to the value created by other value drivers.<sup>5</sup>

In addition to productivity increases, margin improvements can also result from a decrease in relative prices or the ratio of an input price index to an output price index. Since a firm uses many inputs to produce its product or service, one can think of the firm's input price as a weighted average of prices of each of the individual inputs used by the firm in its production process. For example, if 50% of a firm's total cost were labor and the remainder represented the purchase of paper, then this firm's weighted average input price index might be calculated as  $.5*(1.20) + .5*(1.10) = 1.15$ . The 1.15 means that the total weighted average input price is 15% higher than in a predetermined base year. If one assumes that the output price index for this firm is 1.30, then the ratio of 1.15 to 1.30 is the inverse of the unit price margin. In this example, the firm's unit price margin is 13% per unit.

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<sup>5</sup> See Stan Feldman and Timothy Sullivan, "The Impact of Productivity, Pricing, and Sales on Shareholder Wealth". Data Resources Long-term Review, Summer, 1992, pp. 19-23.

Exhibit 2-8 provides an example of how changes in productivity and relative prices are likely to impact a firm's margin. Using the formula in Exhibit 2-7 and base case data, Exhibit 2-8 shows that the firm's base case margin is 20%. If either relative prices or the inverse of productivity decrease by 10%, the margin will increase by 8 percentage points above its base case value. If both decrease by 10%, the margin increases by 15 percentage points.

### **EXHIBIT 2-8: Impact of Increase in Productivity and Relative Price on a Firm's Profit Margin**

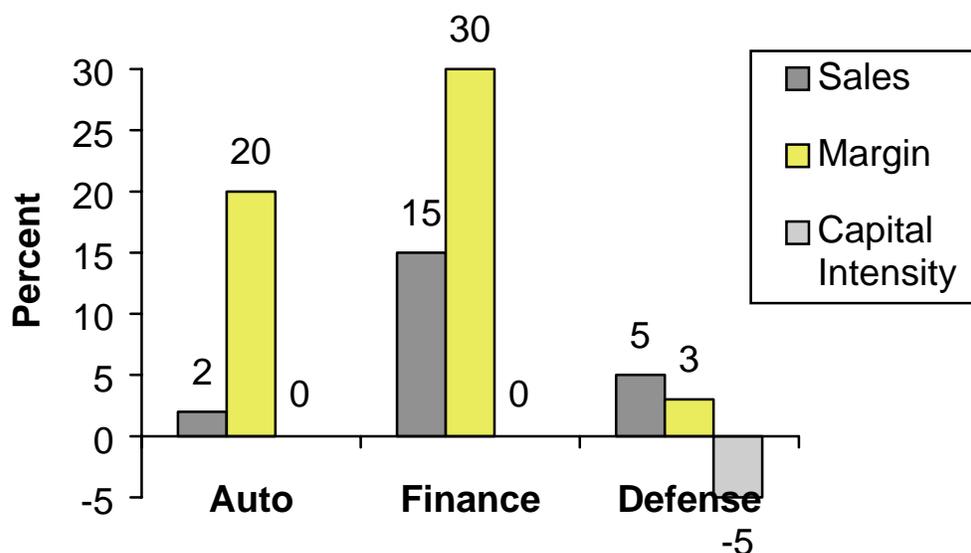
Base Case: Revenues = \$1,000  
 Total Costs = \$800  
 Output Price Index Value = 1.30  
 Input Price Index Value = 1.15  
 Margin = 20%

Relative Price	Base Case	10% Increase
Productivity	20%	28%
10% Increase	28%	35%

### **Restructuring Auto Inc.**

While the business unit managers and Roger Brown were familiar with the various value driver concepts, they were still unclear about the relationship between various strategic options and what each implied for the assumed values of the value drivers. In order to help management better understand the relationship between alternative strategies, the calibration of value drivers and the value of each SBU, the consultant team performed a scenario analysis.

## EXHIBIT 2-9: Scenario Analysis: Percent Increase From Going-Concern Value Resulting from the Value Drivers\*



\* Sales = 1% increase in sales growth

\* Margin increases by one percentage point, e.g. from 12% to 13%

\* Capital intensity declines by .10 (e.g. from .25 of change in sales to .15 of change in sales)

The results of this analysis, shown in Exhibit 2-9, suggest the following conclusions.

- 1) Improving margins through productivity improvements create the most value for the auto and finance SBUs,
- 2) For the defense unit, relative price declines offset productivity - induced increases in the margin resulting in only a small increase in the value of the defense unit.
- 3) The sales volume-induced valuation increase for autos was relatively small because it required substantial capital additions.
- 4) Alternatively, the sales volume-induced value increase for the finance unit was large because the capital needed to enter new growth markets was not as sizable as first thought.

## EXHIBIT 2-10: Internal Growth Value of Auto Inc.

	Going-Concern Value	Internal Growth Value Strategies
Auto	\$7,000	7,800 [Margin]
Finance	5,600	8,120 [Sales + Margin]
Defense	1,000	1,050 [Sales]
Corporate Overhead	-200	- 200
Total Corporate Value	13,400	16,770
Mkt. Value of Debt	605	758
Equity Value	12,795	16,012
Stock Market Value	14,000	14,000
Value Gap (%)	-1,205 (-8.6%)	+ 2,012 (14.4%)

Exhibit 2-10 compares the going-concern value of Auto Inc. with the value created through pursuing sales and margin strategies. The value of Auto Inc. increased by \$3,370 million with about 75% of this increase resulting from taking advantage of the opportunities the finance subsidiary presented.

In addition to identifying which internal investments are likely to create the most value, the analysis also indicated the following:

- 1) Internal investments in the defense SBU only created marginal additional value and therefore Auto Inc. would be best served if management explored opportunities to sell the unit.
- 2) Although internal investments would create additional value for the auto SBU, more value would be created for shareholders if the unit was sold. Thus, as in the case of the defense unit, management explored the potential to sell the auto SBU.

The sale of the defense SBU was straight forward. Given consolidation in the defense industry, the defense SBU was worth more to competitor defense firms than to Auto Inc. Because the opportunities to reduce costs or increase revenue were not any greater for the defense SBU as a stand-alone than as part of Auto Inc., a spin-off or LBO was not a viable option. Management decided to pursue the sales option and after preliminary discussions with several suitors the defense SBU was sold for \$1,600 million in cash, or about \$500 million more than its internal growth value of \$1,050 million.

From at least two perspectives the sale of the Auto SBU was a more difficult decision to make than the sale of the defense SBU. First, Auto Inc. opened its doors 70 years earlier as an automobile manufacturer and even though the firm entered other businesses, the auto division remained an important part of the company's identity and culture. Second, investing in the auto SBU would create additional value for shareholders. Finally, the auto and finance SBU's offered synergies, and hence value, that would technically be destroyed if the unit was sold. Thus Auto Inc.'s management was faced with the dilemma of how to develop a strategy to sell the auto division and yet retain the synergistic value with the finance subsidiary.

To explore this possibility, Roger Brown, his management team and the consulting firm identified competitors that, on the one hand, could benefit from acquiring the auto SBU and on the other hand would be willing to sell their auto leasing business to Auto Inc. That is, could Roger Brown and company identify a firm that would purchase the auto SBU and pay for it by giving up its leasing subsidiary and cash? While it was true that the buyer would lose the synergies between autos and leasing and this would be a deterrent to the transaction, the boost in productivity the

purchaser would obtain by merging the two auto units would hopefully more than offset this loss. As part of the agreement, all of the buyer's leasing business would be done with Auto Inc.'s financing subsidiary under a renewable five-year contract.

The consultant team spent time reviewing the potential candidates. After reviewing all domestic and foreign competitors, the consultant team identified Japan Auto as the best possible candidate. First, Japan Auto had the financial wherewithal to buy Auto Inc.'s auto SBU. Second, it was looking to increase its presence in the American market and was considering investing in new car model development to appeal to a much broader American audience. Third, its auto leasing unit was not considered a strategic business asset but merely a support activity which was required by its primary business, the production and sale of automobiles.

After some hard negotiations, a deal was struck. The structure of the new Auto Inc. is shown in Exhibit 2-11. The increased Auto Inc. value over a pure internal growth strategy was about \$2.0 billion. The value of Auto Inc.'s financing subsidiary increased by \$280 million, primarily because of the increase in scale economies, after the purchase of Japan Auto's leasing unit.

## EXHIBIT 2-11: New Auto Inc. After Transactions

	<u>New Auto Inc.</u>	<u>Internal Growth Value Strategy</u>	
Auto (Sold)	8,000	7,800	[Margin]
Finance			
Existing	8,400		
Japan Inc.			
Leasing [Purchase]	600		
Total Finance	9,000	8,120	[Sales & Margin]
Defense (Sold)	1,600	1,050	
Corporate Overhead	- 100	- 200	
Total Corporate Value	18,600	16,770	
Market Value of Debt after all transactions	500           *	758	
Market Value of Equity	18,100	16,012	
Stock Market Value	14,000	14,000	
Value Gap (%)	4,100           (+ 29%)	+ 2,012	(+ 14.4%)
* Note that the debt level reflects the optimal debt level in existence prior to Auto Inc. being restructured. The debt level will change once it is determined what Auto Inc. will do with the cash it has raised through the sale of assets.			

Roger Brown's job was not finished by any means. He had transformed an auto/defense firm into a financial services company and in the process built up a cash hoard of \$9,600 million which he either had to put to work or distribute to shareholders. For tax reasons, the distribution of the \$9,600 million in the form of a one time dividend to stockholders was not an option. Since long-term capital gains tax rates were lower than tax rates on dividends, any distribution would have to be in the form of a stock buy-back. Despite these options, Roger Brown never

seriously entertained them since he purposefully undertook the historic restructuring of Auto Inc. because he wanted to take full advantage of the growth potential that the global financial services industry offered. To this end, he asked the consulting team to identify global acquisition candidates in the financial services industry.

### **Putting the Cash to Work**

The acquisition targets were selected in a two step process. First, countries were identified whose economies were growing, had established trading relationships with each other and the U.S., had significant trade growth potential, had stable political systems as well as deregulated financial markets. Once this was completed, the identified countries were pared down to include only those that allowed foreign ownership of financial service firms. The analysis identified countries in Latin America and Canada as the best prospects. Further expansion into Asia and Eastern Europe were ruled out for the time being.

The second stage of the search was to identify firms within the target countries. This was very difficult since many firms were either too small or were private and therefore disclosure of needed financial information was not available, or if it was, it was not reliable. Nevertheless, after a diligent search, the consultant team honed in on several candidates. Based on in-depth due diligence, with the help of U.S. and foreign investment banking firms, Roger Brown made several targeted acquisitions, but by no means used all of Auto Inc.'s cash. After these transactions were completed, Roger Brown implemented a stock repurchase program amounting to about \$2.0 billion dollars per year for the next two years, subject to identifying additional acquisition candidates in the future.

After the restructuring, Roger Brown changed the firm's name to Financial Services World Wide (FSWW). After successful implementation of the restructuring, FSWW's stock price increased by close to 100% on top of a 30% increase that had already occurred after the restructuring announcement. The stock price continued to rise relative to the overall market after the acquisitions were announced and continued to run up after it was clear that the management team of FSWW was capable of integrating the acquired firms with FSWW's existing operations. Over the 3 year period since Roger Brown has been the CEO, shareholders wealth has increased by 100% when the overall market increased by about 30%. Over this time, Roger Brown, who was compensated with stock options, became a very wealthy man as did his management team. Several of the managers of the auto SBU and the defense SBU were retained by FSWW, while most of the remainder were retained by the buying firms. In all cases, the senior managers involved in helping Roger Brown devise and implement the strategy became very wealthy. FSWW shareholders were ecstatic about the performance of the firm's stock. Roger Brown was voted the Executive of the Year by Fortune Magazine and FSWW was voted as one of the ten best run companies in the world.