

UNIVERSITI SAINS MALAYSIA
Master of Business Administration

First Semester Examination
Academic Session 1999/2000

September 1999

AAU611/4 -MANAGEMENT CONTROL SYSTEMS

Time: [3 Hours]

INSTRUCTIONS:

Please make sure that this examination paper consist of **FIFTHTEEN (15)** printed pages before you begin.

Answer **FOUR (4)** questions. Question 1 and 2 are **COMPULSORY** and choose any other **TWO (2)** questions.

Question 1

The following questions are based on the case provided:

- (a) Explain type of control(s) that the managers of companies faced in hyperinflationary economies
[5 marks]
- (b) Why does inflation cause problems in measuring the performance of Shell management in Brazil?
[10 marks]
- (c) Did the management of Shell Brasil's lubricants business perform better in 1984 or 1985? Why?
[5 marks]
- (d) Assume that as the manager of the Planning and Development department in the Personnel division, you are preparing a proposal regarding performance-based compensation for your immediate superior, Mr. Mill, to present at a meeting in April 1986. Would you recommend introduction of some form of financial performance-based compensation in Shell Brasil? What would you recommend if the Cruzado plan works? What if it does not work?
[15 marks]
- (e) Does it make a difference if Shell Brasil is owned by a foreign firm?
[5 marks]

...2/-

Question 2

According to Merchant, cultural controls are designed to encourage mutual monitoring, an often-powerful social pressure exerted by groups and individuals within the groups who deviate from the groups' norms and values. Meanwhile, Lebas and Weigenstein propose that other than culture acts as a control mechanism, market and rule are also able to control human behaviors.

Define and describe the types of control systems proposed by Lebas and Weigenstein, and their relationship to each other.

[20 marks]

Question 3

- (a) Contingency theory states that the design and use of control systems is dependent upon the context of the organizational setting.

Based on the above statement, discuss the relevancy of contingency theory for management control systems at the managerial level.

[10 marks]

- (b) Agency theory is another approach to examine management control systems. Discuss how senior manager-executive relationship can create an effective control system. Give example and type of controls and are applicable to this relationship.

[10 marks]

Question 4

Profit and investment centers often supply products or services to other profit or investment centers within the same corporation. When that happens, some mechanism for determining the prices of the transfer must be established. This is known as transfer price. Primarily, there are five types of transfer pricing. Discuss these five primary transfers pricing that are commonly used in a corporation and give examples (manufacturing or service industry).

[20 marks]

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Question 5

- (a) Measuring performance of the manager has always been an issue for determining the measurement as well as the type of rewards. Explain the strengths and weaknesses of utilizing accounting measures in determining managerial performance. Give examples. [10 marks]
- (b) What is relative performance evaluation? Do you agree it is the best method to evaluate managerial performance? Explain. [5 marks]
- (c) Explain and give two types of incentives for business unit managers and give examples. [5 marks]

QUESTION 1

Shell Brasil S.A.: Performance Evaluation in the Oil Products Division

In early March 1986, Roberto Boetger, vice president of the Oil Products Division of Shell Brasil S.A., was considering a major change in the control systems in his division. The previous week the Brazilian government had announced the Cruzado Plan, which introduced far-reaching economic and financial reforms, including a change in the national currency and a general one-year price freeze. The government plan, which took the country by surprise, intended to reduce annual inflation rates from 255 percent to less than 10 percent. Boetger felt that, with the Cruzado Plan in place, it might now be feasible to evaluate managers more objectively, based on financial measures of performance, instead of relying on subjective evaluations.

"Up to now, it has been relatively difficult to hold people responsible for not meeting the budget, because of the *masking effects* of many factors that are outside the manager's control, such as widely fluctuating inflation and exchange rates. If the Cruzado Plan is successful and inflation rates drop to 20 percent or less and stabilize, the budget targets will be much more meaningful. We could use actual vs. budget comparisons for evaluating managerial performance and, possibly, for providing managerial incentives. The problem is that we can still expect some residual effects of inflation and exchange rates to influence performance significantly in the future. Can we really tell, then, by comparing budget vs. actual, if a manager has done a good job?"

COMPANY BACKGROUND

Shell Brasil S.A. was the largest private company in Brazil and a wholly owned subsidiary of Royal Dutch/Shell Group, the largest corpora-

tion in the world outside the United States. The parent group had operating companies in over 100 countries in businesses such as oil and natural gas, chemicals, metals, and coal. In 1985 the group reported earnings of \$3.9 billion in the oil business only, making it the largest oil company worldwide.

Shell Brasil was organized into three main divisions: oil products, chemicals, and metals (see Exhibit 1 for the organization chart). Besides these businesses, Shell had recently diversified into what it called *nontraditional businesses*, such as asphalt, motels (situated along highways, close to some of Shell's gas stations in the countryside), and a joint venture in forestry dedicated to growing eucalyptus and pine trees, which could be used for wood pellets, an alternative source of energy.

The oil business was subject to extensive government control. The government oil company, Petrobras, had a monopoly on oil exploration, and regulations also restricted oil distribution. For example, gas stations were not allowed to open during weekends since the oil price shocks; the location of gas stations was limited to certain areas; and distributors had to order oil supplies from Petrobras according to quotas, with lead times of up to three months. The government also set retail prices, which were updated periodically, according to cost information provided by all oil companies operating in Brazil.

Shell Brasil competed in the distribution of various oil products, acting both as a wholesaler to large clients (such as aviation companies) and as a retailer, through a network of 3,500 gas stations spread around Brazil, of which Shell owned about 30 percent, the rest belonging to franchisers. In the parts of the oil industry where the gov-

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ernment allowed private investments, Shell also operated as a manufacturer. In the production of lubricants, for example, the market leader was the government enterprise, Petrobras, with 23 percent market share, followed closely by Shell, with 21 percent market share. The Oil Products Division thus had a manager in charge of supplies and distribution of all of Shell's oil products, and an operations manager, responsible for manufacturing. The Oil Products Division had succeeded consistently, generating 60 percent of Shell Brasil's total sales volume and 70 percent of its profits. Despite price controls that limited operating margins in gasoline distribution to 2.5 percent, the oil business was a great cash generator with practically no credit sales.

At corporate, several services were provided to the operating divisions, as can be seen in Exhibit 1. In the Finance Division, the legal department was responsible for relations with shareholders, for taxes, and for legal support to the personnel functions at the operating levels. The treasury was a critical department for Shell Brasil, since it centralized the management of cash from all the different businesses. Daily this department dealt with about US\$7 million, as a result of cash sales from the oil and chemical divisions. To keep idle cash to a minimum, the treasury department kept tight controls over the operations and maintained accounts with 18 different banks with branches all over Brazil.

PLANNING AND BUDGETING

The planning cycle at Shell Brasil consisted of three main stages: strategic planning, long-term financial planning, and operational budgeting. Strategic planning involved forming macroeconomic scenarios for the next 20 years and preparing the Country Plan Documentation (CPD). CPD focused on a time horizon of three years, and had the objective of quantifying the strategies necessary to meet the corporate goals. However, at this first stage management could not quantify some strategies in detail, so they presented targets such as *maintain market share* or *the Oil Products Division has to be a cash generator*.

Targets were often differentiated according to geographical characteristics. For instance, within the Oil Products Division targets varied depending on whether the unit was located in a

metropolitan region or in the countryside. In the large cities, service levels and sales volume were key targets, while in the countryside the emphasis was on building new gas stations as fast as possible to guarantee future market share in a fast-growing segment. The Strategic Plan was approved by the parent group, generally around the end of August.

The Long-Term Financial Plan involved a review of the total resources the company would provide or need in the next five years. In recent years, Shell Brasil had consistently needed more resources than what it provided. The Long-Term Financial Plan was sent for approval to the parent group in November.

Operational budgeting, which started in December, began at the operating division level. Each manager presented revenue targets (based on forecasts for each customer account) and cost estimates for the upcoming year for each of the various businesses. By year end the three operating Vice Presidents (Oil Products, Chemicals and Metals divisions) and the finance and personnel vice presidents met with the President to discuss and approve the budget.

Once the budget was approved, any changes had to be approved at the vice president level. In situations where the forecasts proved to be very far from reality, the division could ask for a budget review, subject to direct approval by the President. Only a major disruption, however, such as a variation of 200 percent in the expected inflation rate, would cause a change in the plans. As John Beith, in charge of corporate planning, explained, "Variances are an essential part of any planning effort. In fact, one of the few things we can be sure about when putting a plan together is that we'll miss it! Brazilians sometimes tend to have a lot of expectations about the numbers in their plans, and later, when they find, year after year, that they missed the plan because of some unforeseen circumstances, they get so disappointed that some people simply lose their confidence in any plan."

PERFORMANCE MEASUREMENT

The operating divisions at Shell Brasil were evaluated on the basis of return on investment. Return was measured as profit after taxes and interest rates. The budget contained targets defined for

three levels of profitability, called Margin I, Margin II, and Margin III, as shown in Exhibit 2. Margin I was a gross profit number. Margin II was division profit before allocations of indirect costs. Margin III was a fully allocated profit number, net of taxes. When computing the return on investment, Margin III was divided by total assets employed (defined as net working capital plus fixed assets). When Margin III was negative, management had to use Margin II to compute the return on investment. This happened in 1984 and 1985, but generally Margin III was the ultimate criterion for measuring profits. Despite continuous efforts by top management to find the best possible bases for allocating corporate costs at the division level, many managers still considered Margin III an unreliable indicator of the true contribution of the profit center to the performance of the whole company, because it depended on many factors outside the manager's control.

During the year each operating division prepared special reports for monthly, quarterly, and semiannual reviews. These reports compared actual results with the plans. Managers had to provide detailed explanations of the causes for variances only when failing by more than 5 percent to meet profitability targets. Managers often felt that it was much harder to explain unfavorable variances, so most of them preferred to set conservative targets.

Performance evaluation meetings were held every six months. Division managers had to rank all their subordinates according to how well they had met financial targets and other objectives, such as participating in leadership training programs, increasing sales volume, or opening new gas stations. In a first round, all employees in a division had to rank their peers (other employees at the same job level), and then each boss would review and consolidate the rankings of the subordinates. The personnel division collected these rankings with individual evaluation reports. The data were used for career planning, management succession, training, and internal transfer programs, as well as merit wage increases. Managers at all levels had to conduct interviews for preparing evaluation reports with each subordinate. Together they identified the factors that facilitated or prevented the achievement of each goal, including those that could not be quantified. The boss was also expected to serve as a counselor on

career plans and to provide alternatives for improving performance.

Shell had attempted to reduce subjectivity in the evaluation process by setting performance targets at the beginning of each year and by quantifying the performance measures as much as possible. Some managers still felt uncomfortable, however, about giving a bad evaluation to their subordinates. In some instances managers ranked half of their subordinates as *perfectly acceptable* and the other half as *very good*. The problem was aggravated when the manager had to justify why his or her unit performed poorly if all subordinates had done such a good job.

ISOLATING UNCONTROLLABLES

In 1985 top management made some attempts to separate controllables from uncontrollables in the performance measures. Ian Wilson, corporate controller, commented: "Uncontrollables are outside factors that make you realize that you can't rely only on your own resources. Managers should be evaluated solely on their individual contribution." Unfortunately, however, management had difficulty in defining what was *controllable*.

For example, in the Oil Products Division, if a manager was responsible for opening new gas stations in the countryside, and despite all efforts in developing good plans for this operation, government officials decided not to grant the necessary authorization, then the manager would not be held responsible for failing to open the new stations. But if the manager disrupted some relationships with government officials because proper authorization was denied for the new gas stations, then the manager could be demoted, perhaps even fired.

Another example would be the frequent oil price increases. Approximately once a month the government determined price increases for different oil products, including gasoline. If a manager could forecast more or less accurately when the price increase would come, he or she could maximize inventory just before that day, and then sell everything later at the greater price. This gain could amount to a boost of about US\$20 million in profits for a company as large as Shell.

To take advantage of these gains, some of Shell's competitors adopted various procedures not to sell just before the price increase was expected. For example, they would allege that deliv-

ery trucks had broken down or that the pumps were out of order in some gas stations, or they would intentionally reduce service levels to create large lines of customers. As a manager in the Oil Products Division commented, "We at Shell consider such procedures unethical. However, there are some ordinary business steps that a manager can take to maximize the gains with the oil price increases. For instance, a manager could anticipate purchases to maximize inventory around the time when he or she expects the price increase to occur. Should we reward such a manager even if the underlying cause for the large gains—the price increase announced by the government—was outside the manager's control?"

Two *uncontrollable* factors, inflation and the fluctuation in exchange rates, typically had a particularly significant impact on performance measurement, sometimes with opposite effects. This led management to consider explicitly these effects in computing Margins II and III.

A. Inflation:

Brazilian inflation rates, as high as 250 percent, caused major distortions in financial statements. Nevertheless, government regulations limited the adjustments that companies could make to account for inflation, allowing adjustments in just a few accounts, such as fixed assets. Due to other restrictions in the tax laws, companies in Brazil tended to use the same reporting system for tax and financial purposes. Thus, a large part of the reported results depended on the relative changes in prices over the period. In the Oil Products Division, for instance, management estimated that about 50 to 60 percent of reported profits were caused merely by inflation. For internal purposes, management prepared *what if* reports, that showed actual results adjusted for what they would have been, had inflation been just as expected. Even so, few people could understand the effects of inflation on various accounts. Some managers could enumerate between 20 and 30 effects of inflation with different magnitudes and which could have a positive or negative impact on the various line items in the budget. It was very hard to assess what their net result would be. The hardest effects to predict were changes in relative prices (e.g., how would the price of a finished product vary, compared with the variation in the price of one or more of its inputs).

As an approximation, management computed an *inflationary loss* estimate, according to the formula:

$$\text{Inflationary Loss} = \text{Inflation Adjustment} \times \text{Net Working Capital}$$

where:

Inflation Adjustment	Percent adjustment that the government allowed for accounting for inflation during the period.
Net Working Capital	Balance, in U.S. dollars, outstanding at the beginning of the period.

Margin I, less the Inflationary Loss and Direct Costs, resulted in what was called Margin II. From Margin II the divisions deducted the Indirect Costs, and the result (Profit Before Taxes) was the basis for computing tax liability or savings. The total tax liability or savings for the company arose from consolidating the above computations supplied by each division.

B. Exchange Rate Changes:

Shell Brasil set budgets in dollars for all the different businesses, and used the targets contained in those budgets to control the performance of its general managers. Top management believed that results in dollars, rather than cruzeiros, better reflected real performance. One reason was that targets expressed in dollars would not be subject to the effects of the inflation of the cruzeiro, only to the inflation in dollars, which had been comparatively much smaller. Another reason was that the use of profitability measures denominated in dollars facilitated comparisons with the international competitive environment. Some managers, however, wondered why they should be held responsible for fluctuations in the exchange rates. They argued that they did their business in cruzeiros and had no control over exchange rates that were periodically established by the Brazilian government.

Besides the effects of changes in the value of the cruzeiro regarding the dollar, financial performance at Shell Brasil was also influenced by fluctuations in the exchange rate between cruzeiros and British pounds. The Dutch-British parent group required that Shell Brasil report its financial statements in British pounds to consoli-

date the corporate accounts worldwide. And when the president of Shell Brasil went to London to discuss budget reports, he would present the numbers, taking into consideration explicitly the effects of fluctuations in the exchange rates.

Devaluations of the cruzeiro concerning foreign currencies generally had a net negative effect on performance. Each time the Brazilian government established a new exchange rate, usually to devalue the cruzeiro, companies received more cruzeiros for their exports, but meanwhile they needed more cruzeiros to pay their foreign debt. Shell Brasil, like many other companies, had a substantial part of its current liabilities denominated in dollars and only a small percentage of revenues derived from exports. Because the government also controlled prices of many of Shell's products, the end result was that the frequent devaluations of the cruzeiro had a significant negative impact on performance of the different businesses at Shell.

For internal reporting purposes, the effects of variations in the exchange rates were computed by the Difference in Exchange (DIE) formula, as follows:

$$\begin{aligned} & \text{Net Working Capital (NWC)} \\ & \frac{\text{Beginning Exchange Rate}}{\text{Ending Exchange Rate}} \times \text{Net Working Capital} \\ & \quad = \text{Beginning Loss} \\ & \quad = \text{In Dollars (BLD)} \\ \\ & \text{BLD} + \frac{\text{Variation in NWC}}{\text{Average Exch. Rate}} \\ & \quad - \frac{\text{Variation in NWC}}{\text{Ending Exch. Rate}} = \text{DIE} \end{aligned}$$

where:

Net Working Capital	Beginning Balance, in cruzeiros.
Variation in NWC	Difference between Net Working Capital of two consecutive periods.
Exchange Rate	Expressed as how many cruzeiros one needed to buy U.S. \$1.

The DIE was deducted from Margin I, along with the direct costs, and the final result was Margin II. This Margin II could be very different from the Margin II calculated as Margin I minus direct costs and the Inflationary Loss, as explained ear-

lier. If one considered the inflationary loss only, and not DIE, one would have a measure of what contribution the division made to the overall profit of the company, translated from cruzeiros to dollars at the current exchange rate at the end of the period. Yet, if one considered DIE only, and not the inflationary loss in cruzeiros, one would have a measure of the division's performance in dollars, allowing for the effect of the changes in the cruzeiro's value concerning the dollar during the period being evaluated. Management had to report the budget variances according to both criteria for computing Margin II (and, consequently, Margin III).

Exhibit 3 illustrates the evolution of the inflation rates of the cruzeiro and the dollar, and compares it with the changes in the exchange rate of the cruzeiro regarding the dollar, for the period 1981-1985. Respecting performance evaluation, these large variations in the inflation and exchange rates caused major uncontrollable variances from budget estimates. As a corporate manager explained, "When you receive a budget report that shows a big loss in dollars due to a major devaluation of the cruzeiro, or a loss in cruzeiros due to a jump in inflation, you often feel like you can't penalize the manager for missing the budget. However, you would expect that the manager would have reacted to these outside factors in some way, to offset some of these negative variances."

COMPENSATION POLICIES

Labor expenses at Shell Brasil accounted for over 50 percent of the company's total operating expenses, or about US\$50 million per year. Shell compensated its managers on a salary basis, at levels designed to be competitive with total compensation (salary plus bonuses) packages offered by some large companies surveyed annually.

By 1986 an estimated 55 percent of the major companies in Brazil would be paying incentive bonuses. Part of Shell's reluctance to pay bonuses or other forms of compensation based on performance stemmed from the tradition among European companies against incentive plans. As a Shell executive explained, "We don't want our managers to be in a situation where one year they can earn a big bonus but they earn nothing the following year."

On some rare occasions, a small number of Shell managers (usually less than 5 percent of the total management team) would be eligible for either merit increases in salary (often associated with promotions) or cash bonuses, subject to approval by the Board of Directors. In its evaluation the Board emphasized two aspects—individual contribution and consistency. The individual contribution was defined as outstanding performance in relation to individual budget targets. Consistency, however, referred to long-term trends in performance. It was not enough to meet budget in any given year, because the Board was also looking for a consistent pattern of superior performance over a longer period, such as three to five years. The Board also used consistency to grant merit increases or bonuses to a manager who had *exceptional performance*, even if his or her division had not met budget in the current year. An obstacle to assessing *consistent performance* was that Shell frequently transferred people across functional departments and divisions to give high-potential employees varied experiences. Therefore, managers often had to change positions every two or three years.

Another problem with bonus payments was that managers received them only after the previous year's results had been thoroughly evaluated. This often delayed the delivery of bonus payments to midyear. By that time managers were already worried about meeting the current year's targets.

THE CRUZADO PLAN

The Cruzado Plan, which took effect on March 1, 1986, was a government attempt to eliminate one of the factors believed to be a root cause for inflation: the expectations of future inflation based on past price increases. So far the Brazilian economy had operated with an *indexation system* in which most prices were automatically raised according to variations in price indexes computed by the government. For some products, these price increases could occur weekly. The plan introduced two major reforms addressing this problem—all prices were frozen as of February 28, 1986, and a new monetary unit was created, the cruzado, equivalent to 1,000 old cruzeiros. The currency change was intended to erase inflationary memories.

The Cruzado Plan raised many questions about how to implement the generalized price freeze. A major concern was that, without the Plan, wages would have been readjusted on March 1 to account for inflation (wages in Brazil used to be adjusted twice a year, in March and November). Recognizing this, the Plan determined that wages should now be frozen at their average *real* value from the last six months. To this average, the government decided to add an 8 percent bonus. Furthermore, the Plan established a sliding scale mechanism that allowed automatic wage raises if the annual inflation rate reached 20 percent. The Plan also introduced unemployment benefits for the first time in Brazil. But no one knew how the labor unions would respond.

Another major problem with implementing of the price freeze was the required revisions in current long-term contracts. These contracts usually established adjustments in the periodic payments according to variations in the inflation or the exchange rates. Now the Plan prohibited any contracts (including investments) from having such provisions. Nevertheless, it was still reasonable to expect some residual inflation, even with the new price freeze. The Cruzado Plan considered this expected residual inflation by establishing a *conversion calendar*, that translated old cruzeiros into cruzados for every day of the year until March 1, 1987. Each day one needed more old cruzeiros to buy one cruzado. For example, on March 1, 1986, one cruzado was set as equivalent to 1,000 cruzeiros; six months later, one cruzado would be equivalent to 2,997.39 cruzeiros. This conversion calendar allowed for conversions into the new currency for payments established in cruzeiros in long-term contracts signed before the Plan. Another example was that if one had agreed before the Plan to pay 5 million cruzeiros on February 28, 1987, now one would have to pay about only 1,000 cruzados on that same date.

THE CRUZADO PLAN'S EFFECT ON SHELL'S MANAGEMENT

A wave of optimism about the promised stronger economy swept Shell the day the Plan was announced, but uncertainty lingered concerning the repercussions that the Plan would trigger. For example, how long could the government enforce the price freeze? After over twenty years of mili-

tary government, the first elected president—a civilian—had certainly strong popular support, which would provide the much needed help to implement the Cruzado Plan. Coming elections for the Congress in November, however, could change the political scenario substantially, especially because the new Congress would vote on a new constitutional reform. It seemed that there was more uncertainty about the next year than about the nineties. Despite all uncertainties, Shell had to continue to set prices and renegotiate contracts with suppliers, banks, and insurance companies. Top management had to act quickly to send instructions to all managers, spread out over the whole country, for the adoption of coherent policies that might change practically every aspect of the way they operated in their different businesses.

The Cruzado Plan particularly affected the distribution business. Manufacturers used to sell to wholesalers offering deferred payment terms (generally between one to three months) that incorporated an inflation forecast. Now, according to the new conversion calendar, which converted cruzeiros into cruzados at different rates daily, wholesalers and retailers would face increasing costs. This situation, combined with the price freeze, caused many managers in the distribution business to doubt whether they would be able to keep earning their expected returns. Some people even speculated about a crisis in supplies and the creation of an underground economy.

Luiz Fortes, Treasurer, perceived an increasing pressure to meet performance targets: "The Cruzado Plan forces us to look at real returns. For example, we are all used to thinking about returns in nominal terms, with a large inflationary component built-in. Now only the really best performers will be able to generate significant real returns and beat competition." Ian Wilson, the corporate controller, predicted some positive effects of the Plan: "It'll be much easier now to compare budget with actual results. We can be more confident about our forecasts. It's a good opportunity to implement tighter cost controls and to hold people accountable for financial targets. We'll be able to ask good questions when somebody misses the budget. We won't have all those masking effects any more." Some people at corporate, however, remained uncertain about how the Plan would change the role of budgets in the performance

evaluation process. Some managers argued that criteria such as meeting targets for Margin III, for instance, would be more reliable in the future, because then costs and other factors would be estimated much more precisely. However, others argued that with frozen prices managers would have less control over their results, so that even simpler criteria, such as Margin I, would not capture the "real effort" that each person made to accomplish his or her goals.

William Mills, the vice president of personnel, agreed that it was time to review some control policies: "We may now have a unique opportunity to introduce some performance-based compensation plans. There are several alternatives for careful examination. For instance, should we tie compensation to the performance of the profit center only? To what extent should we measure performance over a longer period of time—say, five years?"

The planning department at corporate would have to revise most of its macroeconomic premises, especially about inflation and exchange rates. If the inflation rate exceeded the devaluation rate of the cruzado concerning the dollar, Shell Brasil could possibly end up with losses in cruzados but profits in dollars.

AN EXAMPLE: EVALUATION OF PERFORMANCE IN THE LUBRICANTS BUSINESS

Roberto Boetger, vice president of the Oil Products Division, had just received the latest budget forecasts for the lubricants business (Exhibit 5) accompanied by a review of the performance of this business in the last two years (see Exhibits 4A and 4B). The lubricants business, which required large amounts of working capital, was representative of how the inflation and exchange rate effects could alter the financial results substantially. As shown in Exhibits 4A and 4B, the lubricants business missed its budget targets for Margin II and III in 1984, but did better than budget in 1985. In both years, management had underestimated sales volume. This was consistent with a conservative attitude that some managers at Shell adopted when preparing budget estimates. In both 1984 and 1985 management had also underestimated inflation, so the actual inflationary loss produced negative variances in both years.

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Following the other criteria for measuring Margins II and III, that is, taking into consideration DIE, both in 1984 and 1985 the actual variation in exchange rates was much higher than expected. This led to a bottom line (Margin III) loss of \$8 million dollars in 1984. However, in 1985 the actual variation in exchange rates was lower than inflation, causing substantial savings in direct costs. Thus, the bottom line (Margin III) for 1985 resulted in neither gains or losses for the lubricants business.

Now, when reviewing the budget for the following years, corporate planning expected both the DIE and the inflationary effects to be much smaller. Yet, they also expected that the spread between the variation in exchange rates and inflation would increase substantially. In particular, for 1987 top management estimated that the effect of inflation would be much smaller than the DIE, so

that lubricants would report profits in cruzados (and a consequent payment of taxes), but losses in dollars. In 1988 management expected these results to reverse. These forecasts and their underlying assumptions appear in Exhibit 5.

Even assuming that the forecasts for the next couple of years were reasonably accurate, top management at Shell Brasil still had to decide what criteria should be used to assess management performance. Should they leave the system unchanged and continue to depend on more subjective judgements? Or should they rely primarily on budget standards? If so, should performance be measured in cruzados, in dollars, or in British pounds? Should managers be held responsible for the three levels of profitability—Margins I, II, and III? What criteria should be used to compute the profitability margins?

EXHIBIT 1 Organization Chart

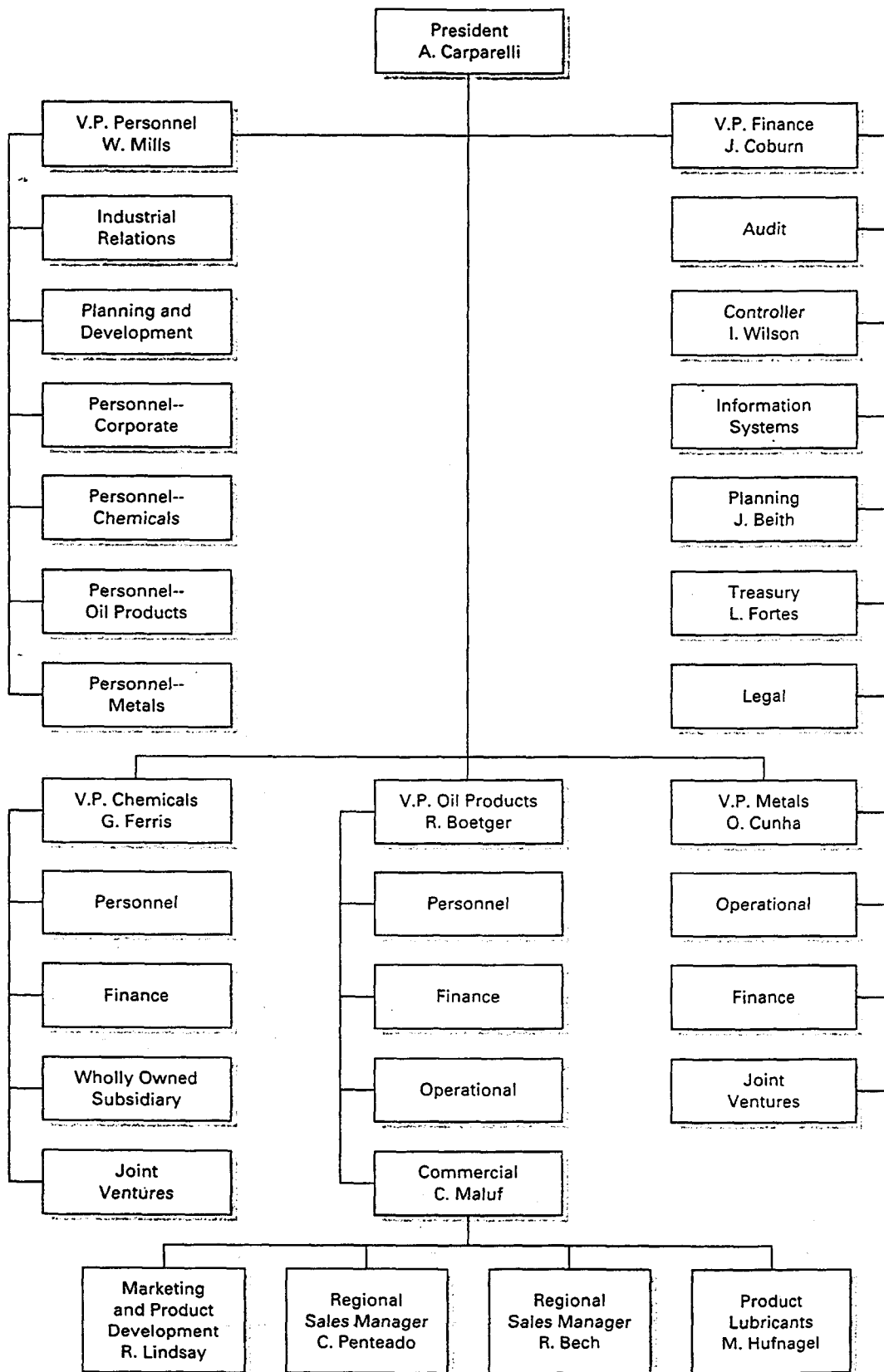


EXHIBIT 2 Format for Evaluation of Profitability Levels

	Budget		Actual	
Net Revenues				
Less:				
Cost of Goods Sold				
Margin I				
Less:				
Plant costs				
Administrative expenses				
Depreciation				
Freight costs				
Interests				
Sales and distribution				
Other direct costs				
Total direct costs				
Contribution				
Less:				
	DIE	Inflationary Loss	DIE	Inflationary Loss
Margin II				
Less:				
Corporate overhead				
Publicity and other sales expenses				
Other allocated costs ^a				
Total indirect costs				
Profit before taxes				
Less:				
Income taxes				
Margin III				

^aExamples include corporate services such as legal assistance, computer support, and auditing.

EXHIBIT 3 Performance of Brazilian Economy

Year	Annual Inflation Rates (%) of:		Exchange Rates: Yearly Averages (CR\$/US\$)	% Change in Yearly Average Exchange Rate
	CR\$ ^a	US\$ ^b		
1981	88.0	8.9	98.12	—
1982	99.7	3.9	193.56	97.3
1983	211.0	3.8	629.64	225.3
1984	223.8	4.0	2,132.00	238.6
1985	235.1	3.8	7,037.50	230.0

^aComputed as percent change of the Generalized Price Index, from December of the previous year through December of the current year. (Source: Conjuntura Economica).

^bComputed as percent change of the Cost of Living Index — Total, from December of the previous year through December of the current year.

Source: U.S. Bureau of Labor and Statistics.

EXHIBIT 4A Variance Analysis of the Lubricants Business—1984 (U.S. \$ millions)

	<i>Budget</i>		<i>Actual</i>	
	<i>With DIE</i>	<i>With Inflation</i>	<i>With DIE</i>	<i>With Inflation</i>
Net Revenues	128	128	160	160
Less:				
Cost of Goods Sold	<u>84</u>	<u>84</u>	<u>111</u>	<u>111</u>
Margin I	44	44	49	49
Less:				
Direct Costs	6	6	4	4
DIE Effect	34	—	43	—
Inflationary Loss	<u>—</u>	<u>33.1</u>	<u>—</u>	<u>43.4</u>
Margin II	4	4.9	2	1.6
Less:				
Indirect Costs	<u>16</u>	<u>16</u>	<u>17</u>	<u>17</u>
Profit (Loss) Before Taxes	(12)	(11.1)	(15)	(15.4)
Less:				
Income Tax Savings	<u>5</u>	<u>5</u>	<u>7</u>	<u>7</u>
Margin III	(7)	(6.1)	(8)	(8.4)
Other Data:				
		<i>Budget</i>		<i>Actual</i>
Sales Volume (1,000 m3)		140.5		168.0
Inflation (%)		200.0		223.8
% Variation in Exchange Rates (Cr\$/US\$)		210.0		238.6

EXHIBIT 4B Variance Analysis of the Lubricants Business—1985 (U.S.\$ millions)

	<i>Budget</i>		<i>Actual</i>	
	<i>With DIE</i>	<i>With Inflation</i>	<i>With DIE</i>	<i>With Inflation</i>
Net Revenues	133	133	169	169
Less:				
Cost of Goods Sold	<u>91</u>	<u>91</u>	<u>111</u>	<u>111</u>
Margin I	42	42	58	58
Less:				
Direct Costs	12	12	7	7
DIE Effect	36	—	39	—
Inflationary Loss	<u>—</u>	<u>38</u>	<u>—</u>	<u>39</u>
Margin II	(6)	(8)	12	12
Less:				
Indirect Costs	<u>12</u>	<u>12</u>	<u>12</u>	<u>12</u>
Profit (Loss) Before Taxes	(18)	(20)	0	0
Less:				
Income Tax Savings	<u>9</u>	<u>9</u>	<u>0</u>	<u>0</u>
Margin III	(9)	(11)	0	0
Other Data:				
		<i>Budget</i>		<i>Actual</i>
Sales Volume (1,000 m3)		140.5		173.0
Inflation (%)		230.0		235.1
% Variation in Exchange Rates (Cr\$/US\$)		220.0		230.0

EXHIBIT 5 Forecasts for 1987/1988—Lubricants

	1987		1988	
	Beginning	Ending	Beginning	Ending
	<i>Assumptions:</i>			
Net Working Capital (Cz\$ millions)	447.0	851.2	851.2	914.6
Exchange Rates (Cz\$/US\$)	15.0	23.0	23.0	37.0
DIE Effect (US\$ millions)		14.1		14.4
Inflationary Adjustment (%)		21.5		53.2
Inflationary Loss (US\$ millions)		6.4		19.7
<i>Forecasts (US\$ millions):</i>				
	1987		1988	
	With DIE	With Inflation	With DIE	With Inflation
Margin I	47.9	47.9	49.8	49.8
Less:				
Direct Costs	16.1	16.1	16.3	16.3
Inflationary Loss	—	6.4	—	19.7
DIE	<u>14.1</u>	—	<u>14.4</u>	—
Margin II	17.7	25.4	19.1	13.8
Less:				
Indirect Costs	<u>13.0</u>	<u>13.0</u>	<u>13.0</u>	<u>13.0</u>
Profit Before Taxes	4.7	12.4	6.1	0.8
Less:				
Income Tax (45%)	<u>5.6</u>	<u>5.6</u>	<u>0.4</u>	<u>0.4</u>
Margin III	(0.9)	6.8	5.7	0.4

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