The Privatization of Companhia Vale do Rio Doce S.A. (CVRD)

INTRODUCTION

On February 8, 1997, Evan Heisler shifted gears and merged onto the expressway towards his home 30 miles outside of Calgary, Alberta. He often looked forward to his commute as it was the sole opportunity he had all day to consider things without the constant interruptions that typified the working environment of a partner in Dunmore Capital[1], one of Canada's largest private equity firms. Earlier in the day, Heisler had met with the deal team assembled to evaluate a potential investment in Companhia Vale Do Rio Doce (CVRD), the world's largest producer of Iron Ore and Brazil's largest exporter. Three months earlier, the Brazilian government had announced its intention to privatize its controlling equity stake in CVRD. Due to CVRD's industry leadership, this announcement was met with tremendous interest, both within and outside of South America. **(Exhibit 1)**

As head of international operations[2] for Dunmore, Heisler had initiated coverage of the pending auction and, after two months of analysis, was certain that CVRD's strong cash flow and tremendous asset base made the company a prime candidate for a private equity investment. In fact, at a recent partners meeting Heisler openly stated that Dunmore "had to be involved in this deal in order to convince the investment community of (its) international presence." As Dunmore Capital had recently completed the financing of Dunmore Resource Partners III (DRP III), a US$2.1 billion fund tasked for investments in natural resources companies, Heisler suggested that CVRD presented an ideal opportunity to launch DRP III.

Over the last few weeks, members of the CVRD team had laughed (privately) about the zeal with which Heisler presided over the project. Unfortunately for Heisler, there were two major obstacles standing between him and his goal. First, CVRD was located in Brazil and this fact alone subjected the entire process of due diligence to immense scrutiny by DRP III's limited partners. Despite the immense scale of the Brazilian economy[3] **(Exhibit 2)**, because of its instability it remained an emerging market in the eyes of the investment community. As such, the potential success of any transaction had to be considered

[1] Dunmore Capital is a fictional organization that was created in order to illustrate the process of due diligence and valuation from the point of view of a private equity firm.
[2] Dunmore Capital's International Investment division was responsible for acquisitions and private financings outside of North America.
[3] In 1996, Brazil's GDP was the 8th largest in the world.

Jamie Lewin and Gustavo Vello prepared this case under the supervision of Professor Campbell R. Harvey as the basis for class discussion rather than to illustrate either effective or ineffective handling of a business situation.

within the larger context of numerous economic, political and social risk factors. Second, since CVRD's current management anticipated that Dunmore's bid would have to be highly leveraged, they anticipated that Dunmore's post-deal strategy would imply measures aimed at generating sufficient cash flow to meet its debt service obligations. As such measures would dramatically decrease management's operational flexibility, Dunmore was not receiving the cooperation necessary to support the valuation of an asset of CVRD's scale. Accordingly, Heisler's team was forced to make many forecasting assumptions that, if incorrect, could prove to be disastrous for Dunmore and its equity partners.

As Heisler navigated his way through traffic, he broke his rule about talking business during his commute and called Marc Lewis, the Dunmore associate who was coordinating the CVRD valuation effort. The auction was only six weeks away and Heisler wanted to bounce a few ideas off the Lewis.

BACKGROUND ON DUNMORE CAPITAL

Dunmore's Inception

Paul Kozan, Brad Elberg and Heisler formed Dunmore Capital in 1988. Elberg and Kozan had played football together at Queen's University in the late 1970's and had been introduced to Heisler by a former teammate shortly after graduation. All three had started their careers as financial analysts for different Wall Street investment banks and they each had been promoted to Vice President by the mid-1980's. In late 1987, Kozan joined Heisler in Salomon Brothers' Mergers & Acquisitions department. It was at that point that the two began contemplating an entrepreneurial venture and their initial late-night discussions rapidly evolved into a business plan for a private equity boutique. In March 1988, both resigned from Salomon Brothers and moved to Calgary in order to pursue the opportunity on a full-time basis. Heisler, who had been working for RBC Dominion Securities in Calgary, joined them soon thereafter. Their early efforts at raising money were relatively successful and by December 1988 Dunmore Capital had a $65 million fund targeted at making investments in the Canadian oil patch.

Continued Success

Dunmore's original private placement was comprised of mostly investments from high net worth individuals; however, their success in the late 1980's prompted the interest of certain of Canada's larger investment companies, including The Ontario Teachers' Pension Fund and the Montreal-based *Caisse de Depot*. Armed with the momentum garnered from both their early returns on invested capital as well as the significant participation from the Canadian investment community, in 1991 Dunmore was able to complete a $800 million financing that served as the foundation for the company's flagship investment vehicle, Dunmore Capital Partners II. From 1991-1995, Dunmore raised an additional $2.8 billion and participated in 14 separate transactions that delivered 40% compounded annual returns.

Operating Principles

The characteristics of each deal were consistent with Dunmore's stated mission, which was to engage the company's capital only when the following five conditions were satisfied:

- the company could not be obligated to making historically-high capital expenditures in the near-term
- the company's leverage profile was sufficiently low to insure the viability of future debt offerings
- the company had non-core assets that could be sold to the private market in order to generate cash for principal repayments

- the company was not subject to any material contingent liabilities, such as under-funded pensions or litigation (active or pending)
- the transaction was friendly, in the sense that Dunmore enjoyed the full cooperation of management both in determining a realistic valuation as well as in developing an after-deal strategy that would maximize Dunmore's ROI

COMPANHIA VALE DO RIO DOCE S.A. (CVRD)

CVRD's two core businesses are natural resources and transportation **(Exhibit 3).** Beyond being the world's largest producer and exporter of iron ore and pellets, CVRD also mines gold, manganese, kaolin and potash; in addition, it has significant presence in the markets for aluminum and pulp. In 1976, CVRD became (and remains) Brazil's largest exporter. CVRD's transportation activities include the operation of railroads and ports, as well as coastal and international shipping.

State companies in Brazil are typically inefficient and lack profitability, however, CVRD is a different type of state company. As it competes directly in the international iron ore market, it cannot afford to be inefficient. CVRD is one of the few state companies that remained profitable over the years; accordingly a proven management team has always directed the corporation and made decisions in the best interests of the company's long-term profitability **(Exhibit 4)**.

The History of CVRD

For centuries, explorers and adventurers traveled up the "Vale do Rio Doce" (*Sweet River Valley*) in search of gold and other precious stones. As the world demand for iron ore increased at the early 1900s, geologists and engineers turned to Brazil and discovered that the rich earth of Minas Gerais State hid three billion tons of iron ore in a quadrangle formed by the towns of Conselheiro Lafaiete, Mariana, Sabará and Itabira. The news of this vast deposit drew the attention of huge mining companies throughout Europe and the United States, which promptly purchased many of Brazil's known ore-beds at rock-bottom prices. The Itabira Iron Ore Company, founded by British Engineers, bought the reserves at Itabira, a county in the mining region. This company also took over equity control of the Vitória-Minas Railroad, a simple operation that had shipped out farm products from the Doce River Valley since 1903. In 1919, Itabira Iron Ore Company was purchased by U.S. entrepreneur Percival Farquhar, who intended to build up a monopoly in iron ore production and exports in that region.

As Europe grew more deeply involved in World War II, its needs for iron ore - a strategic raw material for the weapons industry - rose steadily. Under the Washington Agreements, President Getúlio Vargas signed Decree Law N°. 4,352, incorporating Companhia Vale do Rio Doce.

In the late 1960s, the world economy was entering a phase of rapid expansion. The demand for steel and, consequently, iron ore were expected to increase substantially over the next decade. In particular, Japan was undergoing a process of industrialization that ultimately led the country to become an economic superpower. As such, The Japanese viewed CVRD as one of the partners they needed to sustain their strong expansion.

In exchange for a long-term iron ore supply, the Japanese steel companies financed CVRD in an endeavor that would substantially increase CVRD's production capacity. The company quadrupled the transportation capacity of its railroad and constructed in the city of Vitória the Port of Tubarão, the world's largest port specializing in iron ore. CVRD now had a state-of-the-art infrastructure that enabled it to become the world's largest iron ore producer and exporter by the mid-1970s.

Project *Carajás*

In 1967, a team of Geologists employed by U.S. Steel subsidiary CMM landed in a clearing in Brazil's Amazon rainforest where iron ore was clearly visible on the surface. They soon realized that the region, located in the Carajás mountains, was extraordinarily rich in minerals. At that time, foreign mining companies were required to have a Brazilian partner with majority interests in order to operate in the territory. In 1970, CVRD negotiated an association with CMM, forming AMZA, Amazônia Mineração S.A., in which CVRD had a 51% share and U.S. Steel had a 49% share.

From 1964 until 1985, a military government ruled Brazil. The succession of ruling generals weren't comfortable with a foreign company having exploration rights over the rich Carajás mines, and started to impose bureaucratic impediments on U.S. Steel operations in the region. Due to the large investments the project would require, U.S. Steel decided to withdraw from the project in 1977. CVRD paid $55 million, covering outlays by the US company to date, and decided to forge ahead by itself to undertake the Carajás Iron Ore Project. CVRD invested $2.9 billion over six years in the project that became operational in 1984. Once again, the Japanese helped finance the investment in exchange for iron ore.

BRAZILIAN ECONOMIC HISTORY

The Brazilian Economic Evolution

The early Brazilian economy was largely based on the exploitation of slave labor in the sugar cane plantations and, later on, in the coffee plantations. With the collapse of the slave economy and the replacement of the monarchy by a republican regime in 1889, Brazil's economy suffered severe disruption. The endeavors to revitalize production had barely begun to succeed when the 1929 depression hit Brazil.

The construction of the first Brazilian steel factory in the 1940s, Companhia Siderúrgica Nacional, marked the beginning of the industrialization process that the country would undergo throughout the next 30 years. From the 1950s to the 1960s, the expansion of important sectors of the economy such as the automobile industry, steel and petrochemicals led to an average annual GNP growth rate of 7.4%, one of the highest in the world during that period.

During the 1970s, Brazil, like many other countries in Latin America, absorbed tremendous liquidity from European, Japanese and US banks. Huge capital inflows were directed to state infrastructure investments. The result of this capital infusion was impressive: Brazil's GDP increased at an average rate of 8% per annum from 1970 to 1980 despite the impact of the 1970s world oil crisis. Per Capita Income rose fourfold during the decade to $2,200 per year by 1980.

The Import Substitution Model

Brazil chose to develop its economy in a self-sufficient manner via the substitution of domestic goods for imports. In order to boost domestic production of goods, the federal government gradually raised its import tariffs to the extent that the country became the most closed economy in the world[4]. The rationale behind this policy was that Brazil's market size, natural resources and relatively cheap labor force would attract foreign investors if foreigners were not able to make money by simply exporting to Brazil. In addition, due to the lack of capital in the domestic private sector, the government assumed the role of investor. The national government built almost the entire country's infrastructure with its own resources, as well as developed Brazil's key strategic industries.

[4] Banco Nacional de Desenvolvimento Econômico Social (BNDES) estimate.

Incredibly high growth rates and high economic diversification led the country to believe in the efficiency of this economic model. However, unintended consequences of this policy plagued everyday life. As the governments' funds were spent to develop infrastructure and industry for such a vast country, little remained to invest in social projects such as education, health care, sanitation and public safety. This lack of social investment coupled with a pattern of urban migration made life chaotic in brazil's large cities. In addition, the country failed in distributing to its citizens the wealth brought about by the country's industrial growth, a fact that places Brazil among the countries with the most unequal income distribution in the world. While an insignificant part of the population enjoyed large incomes, the majority was poor and forced to live in miserable conditions.

The import substitution model came to an end in the 1980s. As Brazilian companies were protected against foreign competition, there was very little concern with cost, quality or efficiency. Early in the 1980's, Brazil denied itself access to the benefits of the technical revolution happening throughout the rest of the industrialized world. This isolation led a prevailing technology gap among Brazilian companies. To make matters worse, the state lost its investment power. The debt crisis, the recession and the state's bankruptcy made the government's development role impossible and forced the prioritization of social investments. The country's need for technology and investment became dire.

The Debt Crisis and the "Lost Decade"

In October 1973, the first oil crisis of the decade predicted the end of the Brazilian economic miracle. During the 1970s, high oil prices generated tremendous cash flows for oil-producing countries. These profits were deposited in banks throughout Europe and North America. This large supply of capital allowed such banks to make loans available to developing nations at relatively low interest rates. The Brazilian government anticipated that the continuation of state-sponsored projects would guarantee future economic success and was, therefore, unwilling to allow high oil prices bring its miracle to an end; accordingly, Brazil borrowed billions of dollars, which they then returned to their original owners, middle eastern oil barons, in the form of payment for petroleum imports (a process known as the "recycling of petrodollars"). When a second oil crisis struck in 1979, Brazilian leaders still refused to be deterred from their quest to make Brazil an industrial powerhouse. Rather than exercising fiscal restraint as many other countries did, Brazil again tried to borrow its way out of the crisis. By the early 1980s, Brazil's international debt of $3 billion in 1964 had grown to $100 billion. When U.S. interest rates floated, Brazil neared default[5].

In the early 1980s, the economy was collapsing, inflation was rising and Brazil could barely make interest payments on its debt. The military government's best option was to return power to civilians before the country sunk further into despair. By returning power to civilians in 1985, the military escaped responsibility for the worst effects of its extravagant spending, which were yet to come.

The number one topic on civilians' agenda was economic stabilization. In 1986 President Jose Sarney introduced the first economic stabilization plan, which failed after a few months of success. In 1987, Brazil's difficult economic condition made the government suspend interest payments on foreign commercial debt. For the next eight years, Brazilians would become very familiar with this sort of roller-coaster policy: presidents would introduce stabilization packages but then be unwilling (or unable) to take the necessary - but sometimes unpopular - steps to maintain fiscal health. From July 1993 to July 1994, the annual inflation rate reached 5,136 %.

[5] The Brazilian Economy by Christina Dukes, Lanco International

Economic Openness

In March 1990, with the inauguration of Fernando Collor de Mello, Brazil started to open its economy to foreign trade. In a climate of economic globalization, Brazil could no longer maintain a closed economy. This meant that Brazil would have to part with decades of protectionism. Collor chose a direct approach, announcing in July 1990 that Brazil would move to eliminate nearly all trade barriers. The average tariff came down from 32% in 1990 to 14% in July 1993, and the maximum tariff was brought down from 105% to 35%. Moreover, all quantitative restrictions to trade were eliminated, making Brazil one of the very few countries in the world with no such barriers. This move towards free-market economics was a major contributing factor in Brazil's ability to reschedule foreign debt repayment. In 1992, Brazil reached agreements with both public and commercial creditors, rescheduling payments and exchanging old debt for new bonds. With the implementation of these agreements in 1994, Brazil recovered access to international capital. The net inflow of foreign investment into Brazil in the first half of 1994 was $7.3 billion.

The "Real" Plan

The remarkable growth that the Brazilian economy showed during the 20th century was interrupted during the 1980s with the country entrapped in a severe crisis of hyperinflation, mediocre production performance, little investment, and low levels of employment. In addition, an aggravation of Brazil's onerous heritage of social inequalities marked the crisis. Surprisingly, after five economic shock plans, four currencies and a procession of more than a dozen finance ministers since the return to democracy, Brazil's fortunes would turn.

In 1993, Economy Minister Fernando Henrique Cardoso started the implementation of the Economic Stabilization Program that would substantially transform the lives of Brazilians and completely change the future prospects of the country's economy. The **Real Plan**, as it is officially known, was conceived and put into place in three stages: a) the establishment of a balanced government budget with the objective of eliminating the principal cause of Brazilian inflation; b) the creation of a stable value standard which was denominated the Real Value Unit (URV); and c) the materialization of this value standard in the form of a new national currency with stable purchasing power - the Real **(Exhibit 5)**.

The Real had successfully beaten inflation. However, the sustainability of the new currency depended on a number of factors. The pegged currency model adopted by the government had created a substantial overvaluation of the Real in relation to the Dollar. During the first years of the currency, the Brazilian inflation was substantially greater than the US inflation and the devaluation rate of 7.5% per annum versus the dollar was artificially low. There were some fears that the government could be forced by the market to promote a strong devaluation of the currency. To defend the currency from speculative attacks, the federal government kept very high levels of US Dollar denominated reserves (US$60 Billion).

In addition, despite the initial adjustments in public spending, the public accounts were deteriorating in a very fast pace. To keep dollars within the country, the government was obliged to maintain interest rates at high levels. This made the government's debt rollover extremely costly. Besides, a populist 1988 Constitution had given too much power to the government's employees. Public employees could not be laid off in any case for any reason other than proven corruption. The pension system was particularly worrisome. Public employees did not pay for their pension fund and the retired received unreasonably high wages. Brazilians could retire as early as at their 40s, depending on their profession and number of years working. The public pension system deficit was expected to skyrocket in a few years if there was not a major governmental reform of the policy. Cardoso's administration had taken a number of measures to reformulate the public administration and had obtained Congress approval to substantially change the Constitution. However, dealing with employees' rights was very difficult. The Brazilian Congress had declined more than one time to approve such unpopular measures.

Another challenge the Real faced was the Brazilian trade deficit. The openness of the Brazilian economy and the overvaluation of the Real had made foreign goods extremely cheap in Brazil, inverting the historical positive results of the Brazilian trade balance. This created a dollar outflow that pressured the Real even more. To keep the currency stability, the government relied in the dollars inflows from Brazil's huge privatization program and other foreign direct and indirect investments. For a while, dollars from foreign investments had successfully financed the current account deficit.

PRIVATIZATION IN BRAZIL

The National Privatization Program

The establishment of the National Privatization Program (PND) in 1990 caused the sale of state-owned companies to become a constituent part of the economic reforms initiated by Collor's government. The PND has concentrated efforts on the selling of productive state-owned companies belonging to previously strategic sectors for the Country's development.

Priority to the fiscal adjustment, within this period, was translated into the massive use of the so-called "Privatization Currencies" (bonds representing the federal public debt) for the acquisition of state-owned companies. From 1990 to 1992, 68 companies were added to PND of which 18 from the steel, fertilizer, and petrochemical sectors were effectively privatized. During these three years, a total of $4 billion were collected.

To expand and democratize the program, the legislation was changed to allow the use of credits against the National Treasury as a payment means; further, discrimination against foreign investors was effectively eliminated, allowing foreign ownership of up to 100% of the voting stock. 1993 and 1994 were marked by the completion of the steel sector privatization, with 15 companies being privatized, resulting in the collection of $4.5 billion.

The National Privatization Council

As discussed, following the inauguration of Cardoso's government in 1995, a higher priority has been assigned to the privatization program. The PND is recognized as being one of the main instruments for this reform. The National Privatization Council (CND) was created as a replacement for the Ruling Commission and the privatization of state-owned companies acting on the industrial segment has been nearly completed.

A new PND stage was initiated, in which the public services were transferred to private ownership. The schedule includes electric power sectors and concessions on the transportation and telecommunications areas, which adds - to the PND objectives - an improvement in the quality of the public services provided to the Brazilian society, by increasing the investments to be made by the new controllers. This new stage is also characterized by the beginning of the privatization process concerning the state companies, under the responsibility up to the corresponding states, which the Federal Government has been supporting.

In 1995 and 1996, with the establishment of the National Privatization Council (CND), another 19 companies were privatized, resulting in a total collection of $5.1 billion. It was during this period that CVRD was included in the program. **(Exhibit 6)**

The Privatization of CVRD

In June 1995, the government officially included CVRD in the privatization program, with the auction scheduled to take place within two years. Unlike the Petrobrás and Telebrás privatizations, the sale required no constitutional changes. Nevertheless, the firms sheer size, its control over a substantial part of Brazil's vast mineral wealth, its enormous potential and its national and international strategic importance ensured that its privatization would be particularly controversial, both from a political and financial point of view. Opposition ran right across the political spectrum, primarily from politicians with interests in those states where the company operates.

Considering book value only, the company, with its 40 subsidiaries, was worth approximately $8 billion, but the consulting firm *Trevisan e Associados* put its true value at approximately double this figure.

The nine states where CVRD operates demanded the right to acquire up to 10% of capital when the sale finally took place. They were wholly unequipped financially, however, and would have no alternative but to run to the BNDES for loans, thus increasing their debt burden.

Ideological opposition from the nationalists and socialists remained virtually rock-solid. The government focused on conciliating the privatization project with the interests of those states where the firm operated. The Congressional Infrastructure Committee approved a motion proposed by the Senate, obliging 100% of the resources from the sale to be used for a national development program to be drawn up by the BNDES and approved by Congress. Priority would be given to infrastructure projects in CVRD's areas of influence and in other regions where lack of basic infrastructure prevents the installation of new development projects.

During July 1996, several governors met with the BNDES president to propose that 60% of the proceeds from CVRD's sale be earmarked for their states; Other governors wished the resources to be distributed proportionately among the states based on the percentage of total revenue generated by each. On August 1996, the BNDES approved a proposal calling for 50% of the amount received by the government to go to infrastructure projects. In addition, the government considered the possibility of creating a BNDES-administered reserve for the nearly 300 municipalities located in the company's operational areas.

Also in July, Merrill Lynch gave the BNDES an outline of its proposal to purchase the state-run concern. The government would retain a Golden share, while the strategic controlling block, made up of 40% of the company's common shares would be transformed into a new company; 30% of common stock would be offered to the public and another portion would go to the employees. Merrill Lynch's consortium stipulated a minimum price of $10 billion.

The government defined the sale model in September, in which the state's current shareholdings - 51% of the total capital, including 76% of common and 6.3% of preferred shares, would be sold in three parts, as follows:

- A first stage would involve 40% of the total voting capital and would define the company's controlling group. **(Exhibit 7)**
- A second stage, would involve 4.45% of common and 6.3% of preferred shares would be sold to CVRD's employees, who would be able to use their severance pay fund and their social contributions to purchase the stock;

- A third stage would involve the remaining common shares (25-30%) would be sold in pulverized form in Brazil and abroad (through level 3 ADR's), with a commission of around 1.9% for the investment banks handling the operation.

Among those interested in the strategic block were *Anglo-American*, *Placer Dome*, *RTZ* and *Votorantim*, a famous Brazilian conglomerate. *RTZ*, one of CVRD's leading competitors, because it produces more than 30 million tons of iron p.a., would be limited to the acquisition of 10% of the offered lot. *Nippon Steel*, which buys 25% of the iron it consumes from Brazil (25 million tons p.a. - 80% from CVRD) and holds a stake in *Usiminas*, is in a similar situation. *Samitri* also announced its interest in the privatization.

In March 1997, the government finally published CVRD's notice of sale. There were no alterations to the preliminary proposals - i.e. the authorities' holdings would be sold in three stages.

CVRD was valued by the government at R$10.36 billion (US$ 9.9 billion), the first time that the *National Privatization Council* had appraised a company at its market price (90-day average). According to a Technical Advice Group from the Lower House, the company was undervalued by US$2 billion, due to the difference in the quantity of mineral reserves before and after a 1996 audit. In addition, a report by 22 professors from the Federal University of Rio de Janeiro, based on studies indicating the presence of various minerals, including uranium, in the firm's area of mineral rights, declared that the company was worth R$12.5 billion (US$ 11.9 billion).

After privatization, the government would retain, via a 7-year risk contract, a 50% share of all mineral discoveries in a 2 million hectare area of Carajás, potentially rich in gold, silver, copper and platinum. Under the terms of the document, the future owners would be obliged to divide investments of R$ 410 million with the BNDES into geological research in hundreds of areas where such activities, plus final reports and mining rights, were a requirement.

THE OPPORTUNITY

Attractive Investment Candidate

In CVRD, Heisler recognized an opportunity that met or exceeded most of the standards set forth by Dunmore's operating principles. CVRD maintained an enormous asset base replete with extremely valuable mining rights. Operational efficiency had improved significantly over the past decade, and CVRD now boasted world-class low-cost processes. In addition, while the global Iron Ore market is subject to price fluctuations, it is considered to be tremendously stable relative to other natural resources, such as gold, oil and natural gas. Further, CVRD's proprietary railroad transportation system was unique in that no other network accessed Brazil's major agricultural region. During a recent due diligence session, management maintained that third-party usage would be a main source of future revenues. With respect to capital spending requirements, the company had expanded its Property, Plant and Equipment base by 65% over the past six years, and industry experts reported that the company's existing asset base was of sufficient scale to support historic top line growth levels for the foreseeable future with little more than maintenance capital expenditures.

Regarding CVRD's ability to adequately service Dunmore's principle and interest payments, the company maintained reserves of cash and marketable securities with a value in excess of $1 billion. Although the company recognized over $3 billion in long-term debt on its balance sheet **(Exhibit 8)**, it was under-leveraged relative to its industry piers. In the event of an economic downturn, CVRD's many non-core business lines could be packaged for sale in order to eliminate the necessity of restructuring debt obligations. Heisler also anticipated that CVRD could continue its recent program of reducing its administrative expenses.

Cost and Revenue Structure

Despite the strength of CVRD's operational profile, Heisler believed that the true value of this transaction was derived from the fact that Brazil's currency was overvalued by as much as 50% **(Exhibit 9)**. CVRD's cost and revenue structure was a factor that differentiated it from the majority of the Brazilian companies. 70% of CVRD's costs were in Reals and 30% were in US dollars. Virtually all of CVRD revenues were dollar denominated, 15% coming from Brazil and 85% from abroad **(Exhibit 10)**. The nature of CVRD cash flows made the company immune from the frequent crisis in the Brazilian Economy. In reality, the company could be expected to do especially well if R$ decreased in value relative to the $US as it would experience greater revenue growth and margin expansion. Lewis performed sensitivity analysis on Gross Margin and EBIT, which illustrated the effect devaluation, would have on CVRD's cash flows.

VALUATION

"Thanks for the insights Evan. We'll get on it right away." Marc Lewis hung up the phone and reclined in his chair. Evan Heisler had just spent the last 15 minutes detailing exactly how the next CVRD meeting should be run. On Monday morning, Heisler wanted to see not only a full-scale discounted cash flow model but also projected debt repayment schedules as well as an analysis of expected returns on invested equity. Lewis reviewed his notes from the conversation and, once again, experienced frustration at the overwhelming amount of uncertainty that surrounded the deal. Whatever the case, he had the weekend to put together a presentation on how much the company should bid and associated details about financing and deal structure. **(Exhibit 11)**

Free Cash Flows

Lewis understood that the relative strength of any valuation model ultimately depends on the accuracy of its author's forecasts. Beyond top line growth and Income Statement margins, Lewis had to develop a strategy for projecting the way in which CVRD's Balance Sheet and Cash Flow Statement would look five years out. Lewis jotted down the line items required to calculate Free Cash Flow – Gross Margin, Earnings Before Interest Less Adjusted Taxes, Depreciation & Amortization (for both real and intangible assets), Capital Expenditures (CAPEX) and the Net Change in Working Capital – and began making certain assumptions about CVRD's future operations. Lewis was particularly concerned with the process of forecasting expense margins, CAPEX and Working Capital, as he recognized his own tendency to adjust assumptions in order to both make the deal look attractive and the financing alternatives appear feasible. After he had finished his assumptions, Lewis spent some time doing a "sanity check" by checking the model's results against historical data to make sure that there was at least some degree of consistency.

Exchange Rates

As noted, the upside potential for Dunmore's investment in CVRD was largely predicated on the behavior of the $R/$US exchange rate. Lewis agreed with Heisler's assessment that the Real was overvalued, however, he was pretty sure that the Brazilian government would continue to defend its currency as it Central Bank maintained over $ 60 billion in hard currency reserves. Accordingly, Lewis decided that he would run his valuation model based on three different scenarios: **(Exhibit 12)**

1. A continuation of current Brazilian monetary policy, which implied an annual devaluation of 7.5% and a restoration of Purchasing Power Parity by 2001

2. The cessation of Central bank defense tactics by the beginning of 1998 followed by the currency's subsequent recovery to Purchasing Power Parity within 5 years (2001)
3. A "Nightmare" scenario for Dunmore which contemplated no devaluation over the life of the investment

Lewis made a mental note to consider the effect of each scenario on CVRD's future costs and revenues, in the sense that the respective percentages in $US and $R would certainly change if the exchange rate shifted.

Terminal Value

As Lewis believed that he would only be able to forecast cash flows out five years, he had to develop a way to reflect the company's future cash flows in his valuation. From his MBA studies at Duke, Lewis had learned that this could be achieved by using a perpetuity formula based on a constant growth rate for CVRD's free cash flows. The question, however, was how much growth to assume? In North America, the standard answer was inflation, as microeconomic theory predicts that competitive pressures will ultimately drive industry profits to zero, absent tremendous barriers to entry such as government regulations, intellectual property, superior branding or a unique asset base. This technique was probably not applicable in an emerging market due to the degree to which both exchange and inflation rates fluctuated, as well as the very real possibility of *Force Majeure*. Further, Lewis believed that CVRD's proprietary infrastructure represented a competitive advantage that could be used to maintain abnormal profits in the long run. In order to be effective, Lewis' terminal growth rate had to incorporate assumptions about each of these factors.

Cost of Capital

Lewis had spent many late nights arguing the merits of discounted cash flow models versus comparable analysis mostly because of the disproportionate impact the selected discount rate had on the ultimate valuation. In this case, however, Heisler had decided that since there were no appropriate comparables, Dunmore's valuation would be based primarily on Lewis' DCF model. The team had already determined that they would assume CVRD's asset beta was 1.0, but in order to calculate the right cost of capital with which to discount CVRD's cash flows, Lewis still had to make assumptions about the company's cost of debt, equity beta, and target leverage profile as well as the suitable market risk premium. Regardless of his assumptions **(Exhibit 13)**, Lewis still had to figure out the methodology he would use to calculate CVRD's weighted average cost of capital (WACC). He could use the Capital Asset Pricing Model (CAPM), however, he would have to adjust its result upwards (perhaps by employing the Goldman, Sachs sovereign risk model) to account for the fundamental risk presented by a Brazilian asset. Lewis remembered learning in MBA School about other methods that might be more appropriate for an emerging market, so he decided to call one of his old professors to refresh his memory.

FINANCING THE TRANSACTION

Once Lewis was happy with his valuation model's inputs and output, he started to consider Dunmore's financing alternatives. Clearly, the majority of Dunmore's bid would be comprised of both public market high yield debt and equity from Dunmore Resource Partners III. There were, however, several other sources of financing that could be used by the firm, including senior debt, CVRD's cash reserves and other equity contributors. One of Lewis' key functions was to determine how much Dunmore could expect from each source. With respect to the debt financing, Lewis understood that the investment community typically used the previous year's Earnings Before Interest, Taxes, Depreciation and Amortization (EBITDA) to determine the amount of debt that could be carried by a company. For

instance, as CVRD's trailing (1996) EBITDA was expected to be approximately $900 million, conventional wisdom dictated that the market would only extend credit up to 6.5 - 7.5 times that amount. After discussing this implicit restriction at length, the CVRD team consulted fixed income specialists to guide their post-transaction debt issuance strategy. Experts agreed that the investment community recognized the fact that CVRD's cash flows were adversely affected by the overvalued exchange rate; as such, Dunmore could expect the market to index the company's debt capacity against a more realistic indication of its ability to generate cash. Based on this insight, Lewis felt comfortable that the debt market would recognize a true trailing EBITDA of $1.5 billion.

After taking ten minutes to finish off the remains of his take-out dinner, Lewis withdrew a pad of paper began drawing up a proposed deal structure as well as a list of where the money would come from.

Deal Structure

Dunmore typically established a holding company to serve as the primary acquisition vehicle. In this case, it had already incorporated as Dunmore Brazil S.A. in order to serve as the entity which would enter the CVRD auction. The current plan was to direct all financing to Dunmore Brazil to be consolidated for payment if the bid were to be successful **(Exhibit 14)**. As Lewis anticipated that it would take a minimum of 4 - 6 months to complete the financing, Dunmore would rely on its investment bankers to provide a bridge loan equal to bid price less DIP III's equity contribution. This loan would mature in six months and carry an annual interest rate of the London Interbank Offer Rate (LIBOR) + 2.5%. The price for this type of flexibility would be 2.0% of the total amount; this is in addition to the expected 1.5% fee for investment banking advisory services.

Bank Debt & Senior Subordinated Debt

One of Dunmore's most important functions in representing the limited partners of DIP III was to obtain loan commitments from financial institutions that would serve to alleviate the equity sponsor's obligation. As the bank debt would have the most senior claim on Dunmore's equity stake, it was expected to be priced at LIBOR + 2.25%. The senior debt would be subordinated only to the bank loan; it was expected to have an interest rate of LIBOR + 2.75%. Lewis thought that the two types of debt combined could amount to four times trailing EBITDA. In Dunmore's last deal, both the bank and senior subordinated debt given maturities of eight years, with principle payments amortized equally on an annual basis (December 31st). The fee for both would be 2.0%. For simplicity's sake, Lewis assumed that all of CVRD's outstanding debt would be classified as senior obligations. As Dunmore Brazil would probably only be able to raise senior debt equal to four times trailing EBITDA, its 30% equity stake implied that the market could be expected to count nearly one-third of CVRD's current outstanding debt against it.

High Yield Debt

In nearly every transaction over the previous five years, Dunmore had been compelled to tap the high yield market in order to raise sufficient funds to complete its transaction. The CVRD auction would not be an exception. High yield debt - more commonly known as junk bonds - for an acquisition as highly leveraged as this could be expected to be priced at LIBOR + 3.75%. The current plan for the repayment of the high yield debt was an 11-year time frame. However, if the investment generated enough cash, Dunmore could exercise a "cash sweep" to redeem the debt prior to maturity. High yield fees were typically in the neighborhood of 3.0%.

Common Equity

Dunmore's unwritten policy was to restrict the equity portion to less than 35% of the final bid. Should Dunmore be compelled to approach other financial sponsors to reduce its own exposure, it would cost the firm approximately .25% in both up-front marketing and ongoing reporting expenses.

Cash Dividend

As stated, one of the most attractive aspects of CVRD was its $1 billion in cash and marketable securities. As the CVRD team's due diligence had convinced them that the company only required $200 million to satisfy its working capital requirements, the plan was to announce a cash dividend shortly after gaining voting control. Each shareholder would receive a share proportional to their equity holdings. Dunmore's share would be paid to Dunmore Brazil and used to support the initial principle repayment at the end of 1997. As Lewis jotted down his notes on this subject, he wondered whether or not the Brazilian government would allow Dunmore to proceed with such an aggressive (and self-serving) strategy in the months prior to the second and third stages of CVRD's privatization.

RETURN ON INVESTED EQUITY

After a few hours of work, Lewis once again reclined in his chair and drifted into thought. He was not yet comfortable with the valuation; however, even if he was he still had to develop a model that would reflect the compounded annual return that would be achieved by Dunmore and its limited partners. This depended on several factors, including the price paid for the CVRD equity, the amount of debt financing that could be obtained and its cost, the company's ongoing operations, the year in which Dunmore decided to divest itself of the investment, and the price it got when it did so. This model essentially set the maximum price that Dunmore could bid, given a set of unbiased assumptions. If the bidding got too high to guarantee that both the debt could be repaid and the equity participants could obtain a return in excess of their hurdle rate, Dunmore would have no choice but to withdraw from the auction. A critical part of the valuation exercise was determining an appropriate hurdle rate. Should it be based on CVRD's expected return on equity or a higher standard that adequately reflects both the up-front management fees paid by limited partners as well as the speculative nature of a highly leveraged transaction? Lewis decided since setting this hurdle rate was part science and part art, he would wait until the Monday morning meeting so that the team could brainstorm about together.

INVESTMENT RISKS AND CONCERNS

At 10:30 p.m. on Sunday night, Lewis decided to take a break from the computer screen. He walked over to the coffee machine, poured himself a cup and began thinking about the payoff that could be expected from this investment. To listen to Heisler, the CVRD deal would be the most successful private equity investment since Kohlberg Kravis Roberts sold Duracell to Gillette. After pondering the upside potential that could be derived from a successful bid, Lewis remembered something that his father had told when he decided to leave the investment bank and form a private equity firm: "When you're thinking about making an investment Marc, remember that if it looks too good to be true, it probably is. Have the discipline to always step back and consider the downside as well." Heeding his father's advice, Lewis walked briskly back to his desk in order to write Heisler a quick email detailing the risk factors associated with a CVRD bid. In Lewis' opinion, the "deal heat" surrounding the CVRD auction had influenced Heisler to the point that he had failed to think about the downside and the factors that could cause it.

Perhaps after reading though this, Lewis thought, Heisler would not lose his cool at the Monday morning meeting if he presented a conservative valuation.

COMPANY RISKS

Exchange Rate Uncertainties

As noted above, CVRD's cash flows were highly sensitive to exchange rate fluctuations. Fortunately for CVRD, a downward adjustment of the R$ was much more likely than any other scenario; the Brazilian Real was strongly overvalued and the government was being forced to devaluate the currency. The devaluation rate to date had been of 7.5% per year and was expected to remain constant absent a deterioration of Brazilian economic fundamentals and/or whether an international liquidity crisis forced the government to devaluate the Real at a faster pace. In both cases, CVRD's future prospects appeared to be better than its present situation. A nightmare scenario for CVRD would be the Real's non-devaluation or even its appreciation relative to the dollar. If this happened, Heisler judged that it would be very hard for Dunmore to generate the type of short-run return that its limited partners required.

Commodity Prices

As described above, CVRD main products were either commodities or products that depended directly on them, like commodity transportation. While historical demand for CVRD's products had been increasing at very satisfactory rates and forward prices in the Iron Ore and precious metal markets signaled a growing confidence in the sector, Heisler questioned the global economy's ability to sustain the growth rates recently showed in worldwide production.

Political Changes

After 21 years of military dictatorship, the Brazilian democracy had been re-established in 1985 with the ascendance of civilian President Jose' Sarney, who had been elected not by the Brazilian people but instead by the Congress. The first popular presidential election occurred at the end of 1989, resulting in the election of President Fernando Collor; Two years later, Collor was impeached for corruption. While a return to a dictatorial regime seemed very unlikely following Collor's impeachment, the population was still uncertain about which direction their country's economy should take. Brazilians were divided, for example, in the support of recent modernization measures, such as privatization, first implemented by Collor and after continued by Fernando Henrique Cardoso, Collor's successor. Left-wing parties lead by PT, *Partido dos Trabalhadores*[6], argued that the sale of state assets represented an "assault" on the Brazilian people's property to benefit Brazilian and foreign capitalists. While PT's presidential candidate, Luís Inácio da Silva, had been thoroughly defeated by Cardoso in the previous election, he had been quite strong in the past, almost defeating Collor in 1989. Some left-wing leaders' statements had been particularly disturbing as of late. During a recent interview, João Pedro Stédile, a *Movimento Sem-Terra*[7] leader, said that "foreign investors should stay out of the privatization process because, sooner or later, the Brazilian people will reacquire their country's sovereignty".

While the Real Plan's success had kept Cardoso's popularity at extremely high levels, the direction of the Brazilian economy could completely change after the next 1998 election. A PT ascendance to power in 1999 could revert the modernization measures recently implemented by Cardoso. The problem was even worse because the Brazilian constitution did not allow the reelection of the president and Cardoso had no

[6] Portuguese for Labor Party

[7] Ultra-radical rural movement that promotes the invasion of private properties to force the federal government to accelerate the implementation of social programs.

clear successor within his supporting parties. However, Cardoso was lobbying to change the constitution to allow him the right to be reelected.

Force Majeure

As previously mentioned, in 1997 Brazil possessed one of the most unfair income distribution in the world. Many believed that the country's social inequalities could present threat to Brazil's social stability. In fact, such inequalities were already causing tension in the Brazilian countryside. The *Movimento Sem-Terra* was forcing the government to acquire land from rich farmers and redistribute it to poor "landless" families. Their technique was quite radical: thousands of movement members would invade private and, to a great extent, unproductive property and declare their right to the property because "God had created land to benefit everyone, not just the few[8]. The government was forced to reestablish order by driving such people away from the private property or by acquiring the land and giving it to the settlers. The situation became rather dangerous because farmers armed themselves, forming militias to defend their property since the police was not well enough equipped to handle such an onerous job. Tension had already caused numerous deaths in confrontations between *Sem-Terra* members and Farmers, as well as between *Sem-Terra* members and the police.

The *Sem-Terra* movement had been the most important element challenging Cardoso's popularity. Some argued that the land redistribution was not being done with enough rapidity. Others noted that Cardoso was not being energetic enough in defending private property. The problem was enlarged because, although the population did not support the *Sem-Terra* methods, it supported their cause. With the population's partial support, the movement, which had strong left-wing influence, had become an effective opponent against Cardoso's administration. At that time, there was pervasive fear that the situation would get out of control as the tension in the fields was increasing and the movement was starting to spread to cities.

TRANSACTION RISKS

Financing

Because of the highly leveraged nature of the proposed CVRD transaction, Dunmore would be dependent on numerous sources of financing to fully fund its bid. As such, any downturns in the fixed income market would severely restrict Dunmore's ability to place its debt and, hence, reduce its flexibility in the auction. An additional concern dealt with the potential necessity to bring in the sponsorship of other private equity groups. If this was needed, Dunmore might have to make large concessions in exchange for those equity commitments *that would be required to take out the bridge loan at its maturity.*

Exit Multiple Uncertainty

At the very first team meeting, Heisler was adamant that the right way to value CVRD was to use a DCF model, as the company did not have any suitable comparable. Without *comparables*, however, it was very difficult to determine what the company would be worth when Dunmore was prepared to liquidate its investment. In past transactions in the natural resource sector, Lewis had contemplated various exit strategies for Dunmore assets including common stock offerings, sale to a strategic buyer, and sale to another financial sponsor. Each time, he had estimated an exit value by assigning a multiple to the company's trailing EBITDA or cash flow that reflected both the public and private markets' assessment of similar companies. In this case, Lewis lacked a benchmark multiple and was, therefore, forced to make an educated guess (or, perhaps, less than that) about the company's future value. As Dunmore's return on

[8] The movement had been originated under the influence of the Brazilian Catholic Church.

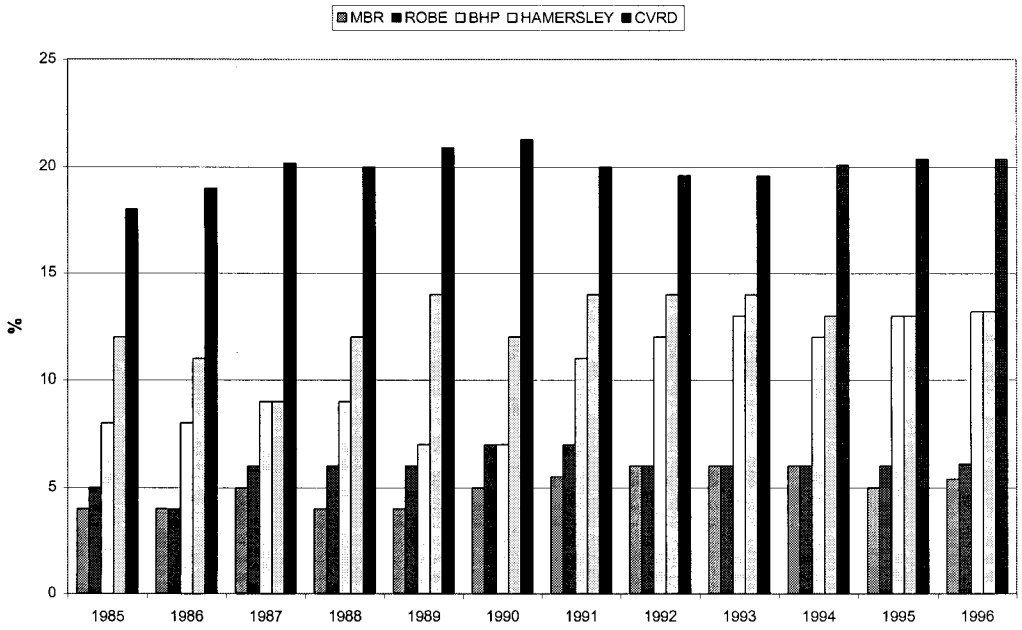
investment was tremendously sensitive to the price it could achieve from its exit strategy, Lewis realized that he had better come up with a defensible assumption.

CONCLUSION

As always, Lewis felt that the weekend had passed too quickly. At 8:30 a.m. on Monday, Lewis headed into the conference room a full hour before the meeting was scheduled to begin. He wanted some time to think about how he would make his presentation to the team. Heisler was usually a pretty patient boss, but this deal was different. In fact, it was different enough that Heisler was prepared to make an unfriendly bid, as well as neglect the material nature of CVRD's $450 million in contingent liabilities.

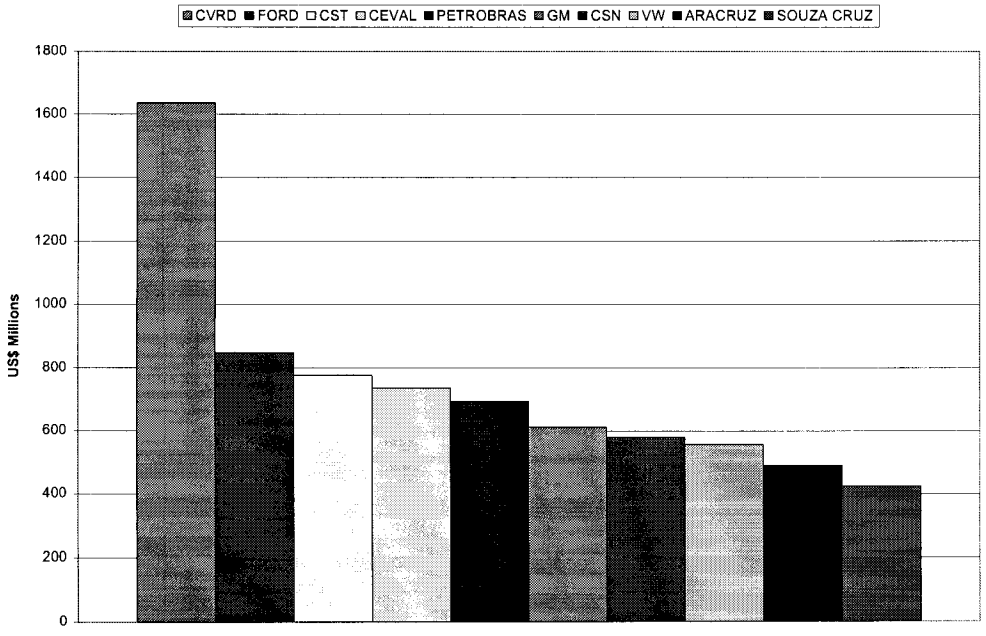
As the CVRD team filed into the conference room, Lewis cued up his PowerPoint presentation and faced his colleagues. "Guys, I've spent a fair amount of time working on this over the past few weeks," Lewis said, "and I think that our bid should be somewhere in the neighborhood of . . . "

Exhibit 1.A – Iron Ore Market Share



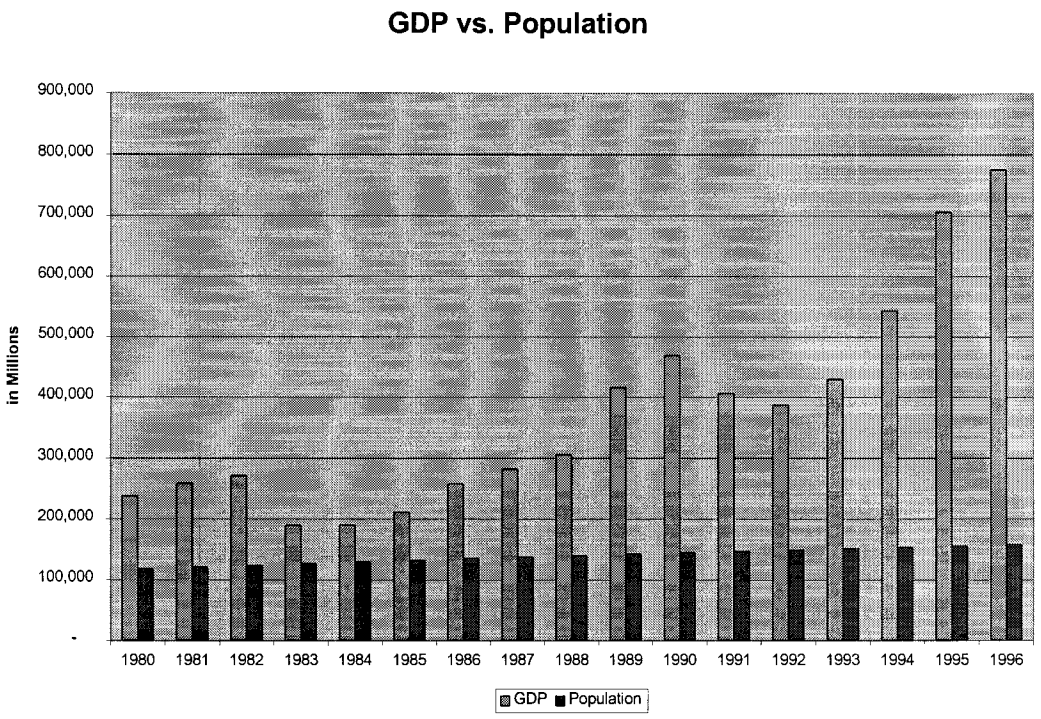
Source: CVRD Minerals Division Corporate Presentation, Rio Doce America, Inc.

Exhibit 1.B – Brazilian Main Exporters

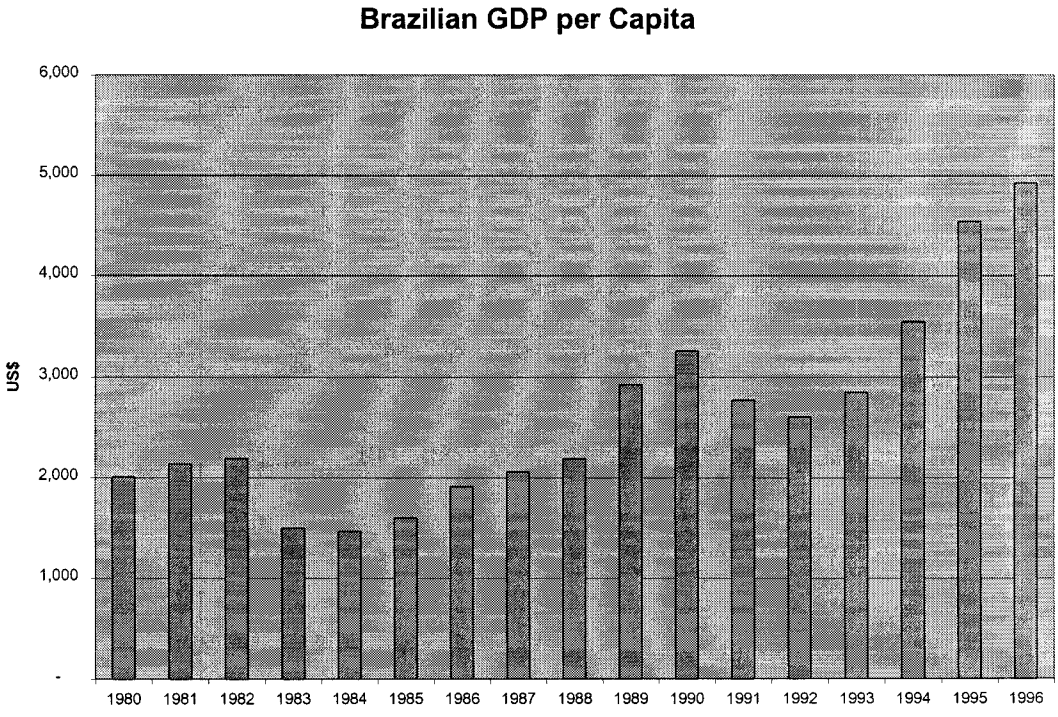


Source: CVRD Minerals Division Corporate Presentation, Rio Doce America, Inc.

Exhibit 2 – GDP and Population



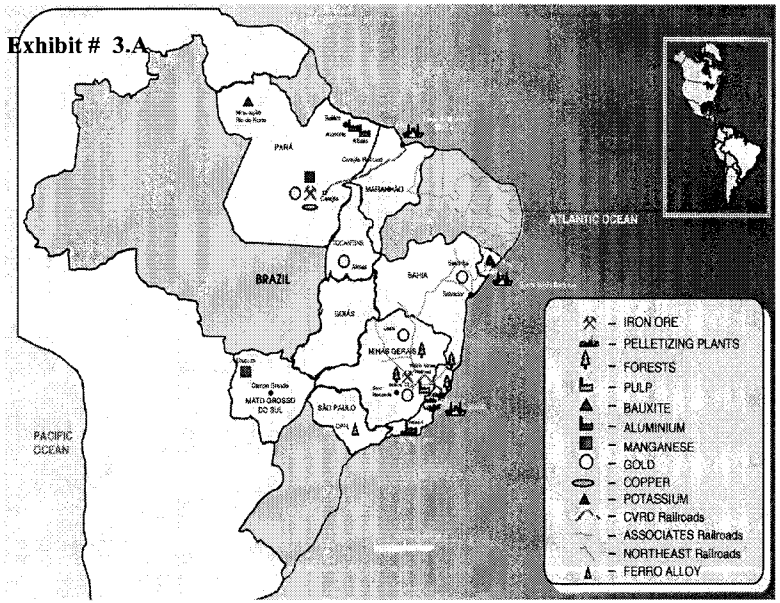
Source: The Brazilian Institute of Geography and Statistics - IBGE



Source: The Brazilian Institute of Geography and Statistics - IBGE

Exhibit 3 - Major Operations of CVRD

Exhibit # 3.A



Source: CVRD Minerals Division Corporate Presentation, Rio Doce America, Inc.

Group Diversification

Exhibit # 3.B

	CVRD	Subsidiary	Associates
Mining & Metals			
Iron & Manganese Ores	■	■	
Gold & Potassium	■		
Pellets	■		■
Steel & Alloys		■	
Fertilizers	■		■
Caulim			■
Railroads	■		
Shipping		■	
Ports	■		■
Forest Products			
Wood		■	
Pulp & Paper			■
Aluminum			
Bauxite, Alumina & Aluminum			■

Source: CVRD Minerals Division Corporate Presentation, Rio Doce America, Inc.

1996 CVRD Gross Income

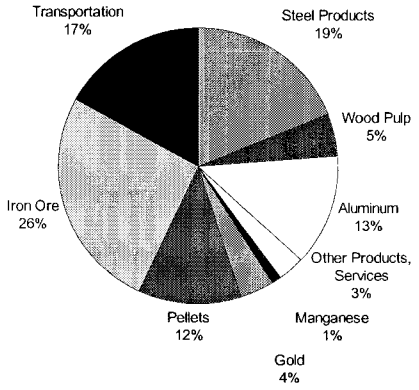
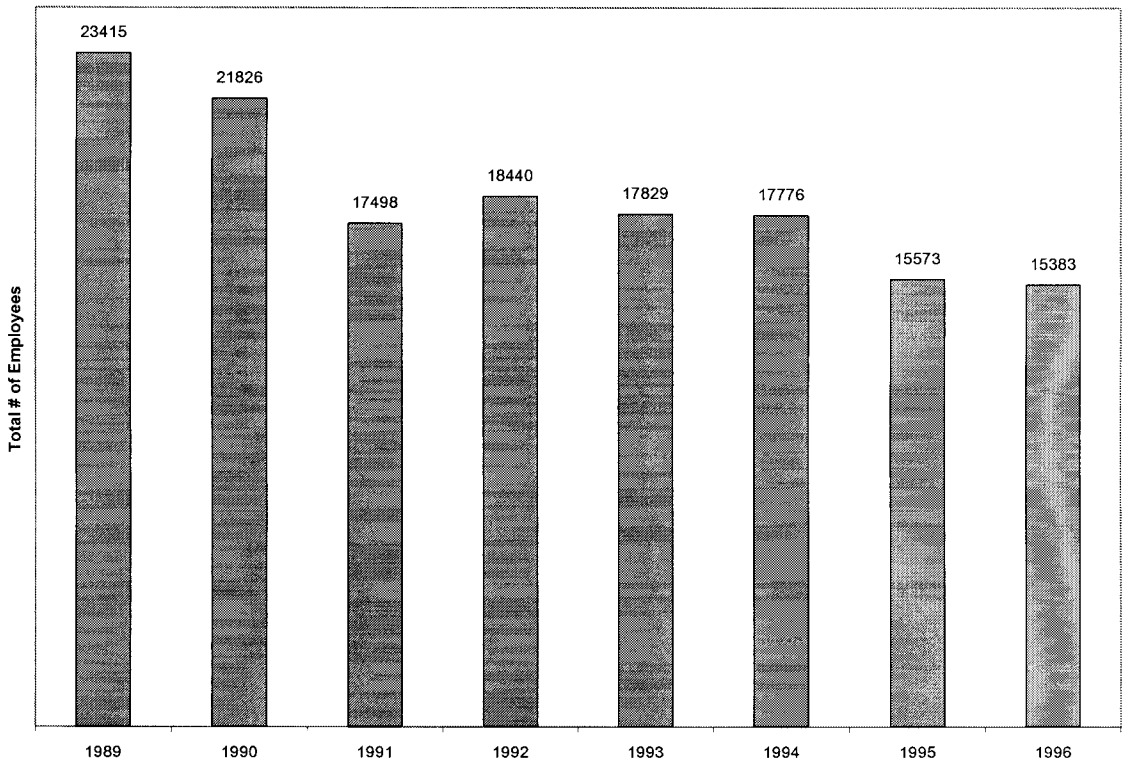


Exhibit # 3.C

Source: CVRD Minerals Division Corporate Presentation, Rio Doce America, Inc.

Exhibit 4 – CVRD Headcount



Source: CVRD Minerals Division Corporate Presentation, Rio Doce America, Inc.

Exhibit 5 - The Real Plan Implementation

- The first stage, which balanced government's accounts, began on June 1993. An Immediate Action Program (PAI), set in motion a series of measures to reduce government spending and to make it more effective, such as

  a) Expansion of federal revenues;

  b) Settling of accounts between indebted state and municipal governments and the Union;

  c) Control of parastatal financial institutions; d) the recovery of federal banks and the amelioration of the privatization program.

- The second stage of the Stabilization Program created the URV[1] and prepared for its subsequent transformation into the Real. With the principal cause of inflation neutralized, that is, public spending under control, the creation of the URV provided the economy with a price stability transition phase. The URV was a value standard that moved into the national monetary system with a current daily quote set by the Brazilian Central Bank based on the loss of purchasing power of the Cruzeiro Real. It restored one of the basic functions of currency which had been destroyed by inflation: it became a stable unit that could be used to denominate values in contracts and other financial obligations, as well as a reference for prices and salaries.

- The third stage was the conversion from the URV into the Real, on July 1, 1994. The conversion process was faithful to the spirit of the monetary reform, and preserved the Real value of rights and obligations, without interfering in contracts freely agreed upon. Values in URV were automatically transformed into an equal number of Reais (plural for Real), while Cruzeiros Reais were automatically converted into Reais, in accordance with the parity established on July 1, for bank accounts and other deposits in financial institutions, along with cash held at the Central Bank. With the introduction of Brazil's new currency, the annual inflation rate fell from 5,136 % (July 1993–July 1994) to 22% in 1995 and 9.1% in 1996.

Source: Brazilian Central Bank

[1] URV, acronym for *Unidade Real de Valor*, Portuguese for Real Value Unit

Exhibit 6 - Brazilian Privatization Program (1991-1996)

Sector/companies	Minimum Price	Selling Price	Premium Paid	Auction Date
Petroquisa Complex				
Petroflex	179	234	31%	Apr-92
Copesul	617	862	40%	May-92
Alcalis	79	81	3%	Jul-92
Nitriflex	26	26	0%	Aug-92
Polisul	57	57	0%	Jul-92
PPH	44	59	34%	Jul-92
CBE	11	11	0%	Dec-92
Poliolefinas	87	87	0%	Mar-93
Oxiteno	54	54	0%	Jul-93
PQU	270	288	7%	Jan-94
Politeno	45	45	0%	Aug-94
Coperbo	26	26	0%	Aug-94
Ciquine	24	24	0%	Aug-94
Polialden	17	17	0%	Aug-94
Acrinor	12	12	0%	Aug-94
Copene	254	270	6%	Aug-94
CPC	90	100	11%	Jul-95
Salgema	87	139	60%	Oct-95
CQR	0	2		Oct-95
Pronor	63	64	2%	Oct-95
Nitrocarbono	30	30	0%	Dec-95
CBP	0	0		Dec-95
Polipropileno	81	81	0%	Feb-96
Koppol	3	3	0%	Feb-96
Deten	12	12	0%	May-96
Polibrasil	99	99	0%	Aug-96
EDN	17	17	0%	Jul-96

Sector/companies	Minimum Price	Selling Price	Premium Paid	Auction Date
Electricity				
Escelsa	345	519	50%	Jul-95
Light	2357	2509	6%	May-96
Steel Sector				
Usiminas	1238	1941	57%	Oct-91
Cosinor	12	15	25%	Nov-91
Acos Finos Piratini	42	107	155%	Feb-92
CST	339	354	4%	Jul-92
Acesita	348	465	34%	Oct-92
CSN	1267	1495	18%	Apr-93
Cosipa	174	586	237%	Aug-93
Acominas	285	599	110%	Jul-93
Fertilizers				
Indag	7	7	0%	Jan-92
Fosfertil	139	182	31%	Aug-92
Goiasfertil	13	13	0%	Oct-92
Ultrafertil	199	206	4%	Jan-93
Arafertil	11	11	0%	Apr-94
Railroads				
Malha Oeste	61	63	3%	Mar-96
Malha Centro Oeste	316	316	0%	Jun-96
Malha Sul	152	209	38%	Sep-96
Malha Sudeste	871	871	0%	Nov-96
Malha Tereza Cristina	16	18	13%	Dec-96
Other				
Celma	73	91	25%	Nov-91
Mafersa	19	49	158%	Nov-91
SNBP	8	12	50%	Jan-92
Caraiba	5	6	20%	Jul-94
Embraer	182	192	5%	Dec-94

Exhibit 7 - The CVRD Auction

In October 1996, the National Privatization Council published following resolution, regarding CVRD privatization auction:

- in order to bid, investors who form associations or consortiums would have to prove to the bank that they had at least R$ 500 million (US$476 million) in disposable resources and would have to deposit R$ 150,000 (US$143,000) to obtain information on Vale and a visit to its installations;

- the winning consortium would have 15 days to establish a holding company along the lines of a Special Purpose Company (SPC);

- Vale's largest customers and international competitors would have a limited participation in the SPC, but domestic mining companies would not suffer any restrictions;

- The federal government would retain a golden share in the SPC (through the issue of a class-A preferred share in the holding company, valid for five years), giving it the power to veto the sale of assets exceeding 1% of Vale's equity (nearly US$ 100 million) or which belong to one of its productive chains, in order to avoid post-privatization dismantling;

- parties interested in the first stage of the sale would only have access to 45% of the shares to be sold with the transfer of control; the quantity of shares to be auctioned by the federal government and minority shareholders must not exceed this percentage, otherwise the sale would be postponed;

- the auction's effective condition was the sale of at least 40% of the volume offered;

- the government would be able to punish those companies which do not comply with the rules; fines may reach up to US$ 300 million and guilty parties would lose the voting rights of their shares.

Source: National Privatization Council

Exhibit 8 - CVRD Balance Sheet at December 31, 1996

* in US$ MM

	Constant Currency Method	
	Consolidated *	
Assets	**1996**	**1995**
Current Assets		
Cash and Banks	23	8
Marketable Securities	1,034	271
Deposits with Brazilian Central Bank	22	41
Accounts receivable from Customers	546	443
Subsidiaries, associated companies and foundations	427	655
Inventories	672	372
Judicial Deposits	6	138
Recoverable taxes	169	48
Others	246	116
	3,145	2,093
Long Term Assets		
Marketable Securities	26	28
Loans and financing	334	93
Subsidiaries, associated companies and foundations	55	263
Deferred Income Tax and social contribution	513	468
Guarantees and deposits	313	233
Others	146	79
	1,388	1,164
Permanent Assets		
Investments	454	3,125
Property, plant and equipment	12,548	7,955
Deferred charges	346	218
	13,348	11,298
	17,881	14,556
Liabilities and Shareholder's Equity		
Current Liabilities		
short-Term Debt	831	656
Current portion of long term debt	805	187
Payables to suppliers and contractors	316	323
Subsidiairies, associated companies and foundations	128	99
Dividends payable	186	85
Salaries and social changes	142	101
Others	188	134
	2,595	1,584
Long-Term Liabilities		
Long term debt	2,649	1,209
Subsidiairies, associated companies and foundations	36	48
Deferred income tax	594	105
Provision for contingencies	276	197
Provision for labor claims	169	175
Others	288	114
	4,012	1,848
Deferred income	380	7
Minority interest	38	72
Stockholder's equity		
Restated paid-up capital	2,061	2,061
Capital reserves	2,437	3,092
Revaluation Reserves	435	478
Revenue Reserves	5,925	5,414
	10,857	11,045
	17,881	14,556

Exhibit 9 - Calculation of the Real Overvaluation

	Inflation Rates		Exchange Rates (R$/US$)	
	INPC (BR)	CPI (US)	Diff. PPP	Actual
Jul-94	7.75%	0.18%	1.000	1.00
Aug-94	1.85%	0.27%	1.076	0.89
Sep-94	1.40%	0.31%	1.093	0.85
Oct-94	2.82%	0.40%	1.104	0.84
Nov-94	2.96%	0.26%	1.131	0.85
Dec-94	1.70%	0.13%	1.162	0.85
Jan-95	1.44%	0.22%	1.180	0.84
Feb-95	1.01%	0.22%	1.194	0.85
Mar-95	1.62%	0.22%	1.204	0.90
Apr-95	2.49%	0.22%	1.220	0.91
May-95	2.10%	0.17%	1.248	0.91
Jun-95	2.18%	0.30%	1.272	0.92
Jul-95	2.46%	0.34%	1.296	0.94
Aug-95	1.02%	0.21%	1.323	0.95
Sep-95	1.17%	0.17%	1.334	0.95
Oct-95	1.40%	0.17%	1.347	0.96
Nov-95	1.51%	0.17%	1.364	0.97

	Inflation Rates		Exchange Rates (R$/US$)	
	INPC (BR)	CPI (US)	Diff. PPP	Actual
Dec-95	1.65%	0.21%	1.382	0.97
Jan-96	1.46%	0.21%	1.402	0.98
Feb-96	0.71%	0.13%	1.419	0.98
Mar-96	0.29%	0.25%	1.427	0.99
Apr-96	0.93%	0.30%	1.428	0.99
May-96	1.28%	0.30%	1.437	1.00
Jun-96	1.33%	0.38%	1.451	1.00
Jul-96	1.20%	0.29%	1.465	1.01
Aug-96	0.50%	0.21%	1.478	1.02
Sep-96	0.02%	0.21%	1.482	1.02
Oct-96	0.38%	0.21%	1.480	1.03
Nov-96	0.34%	0.21%	1.482	1.03
Dec-96	0.33%	0.29%	1.484	1.04
Jan-97	0.81%	0.29%	1.485	1.05
Feb-97	0.45%	0.25%	1.492	1.05
Mar-97	0.68%	0.21%	1.495	1.06
Apr-97	0.60%	0.16%	1.502	1.06

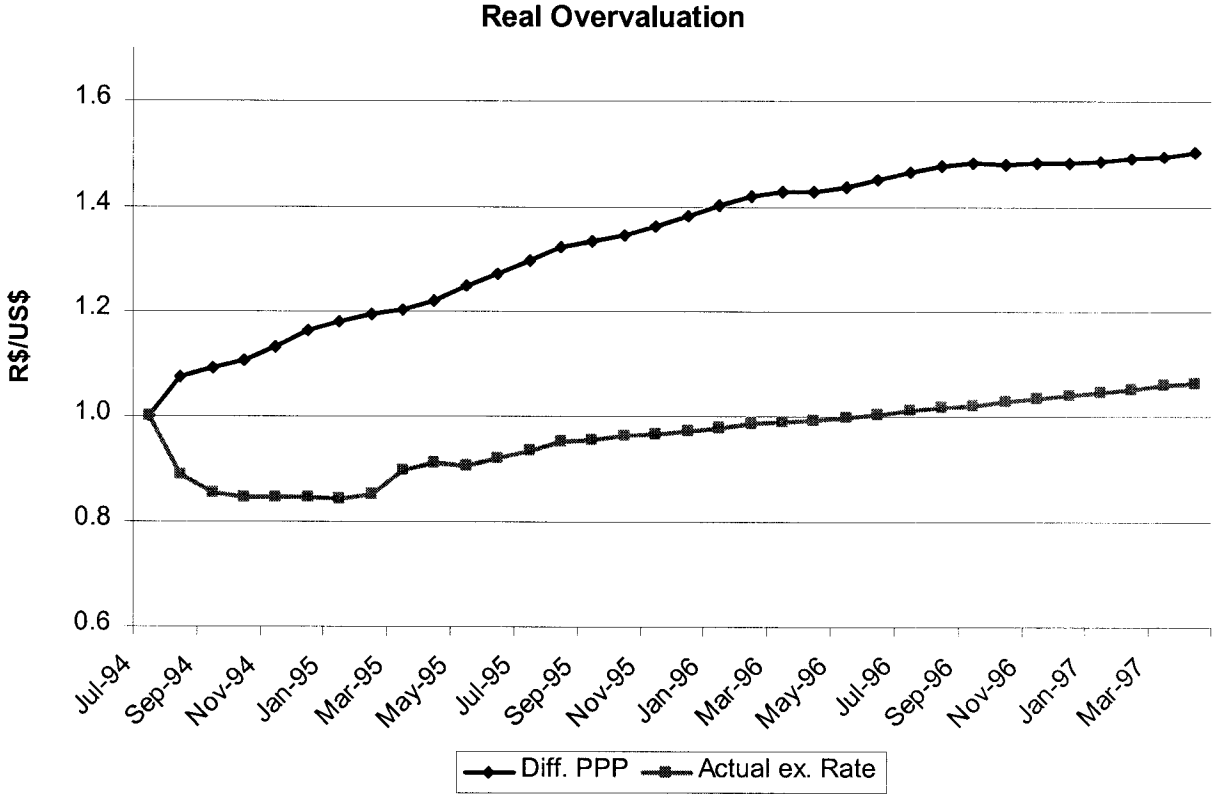


Exhibit 10 - CVRD Cost/Revenue Origination

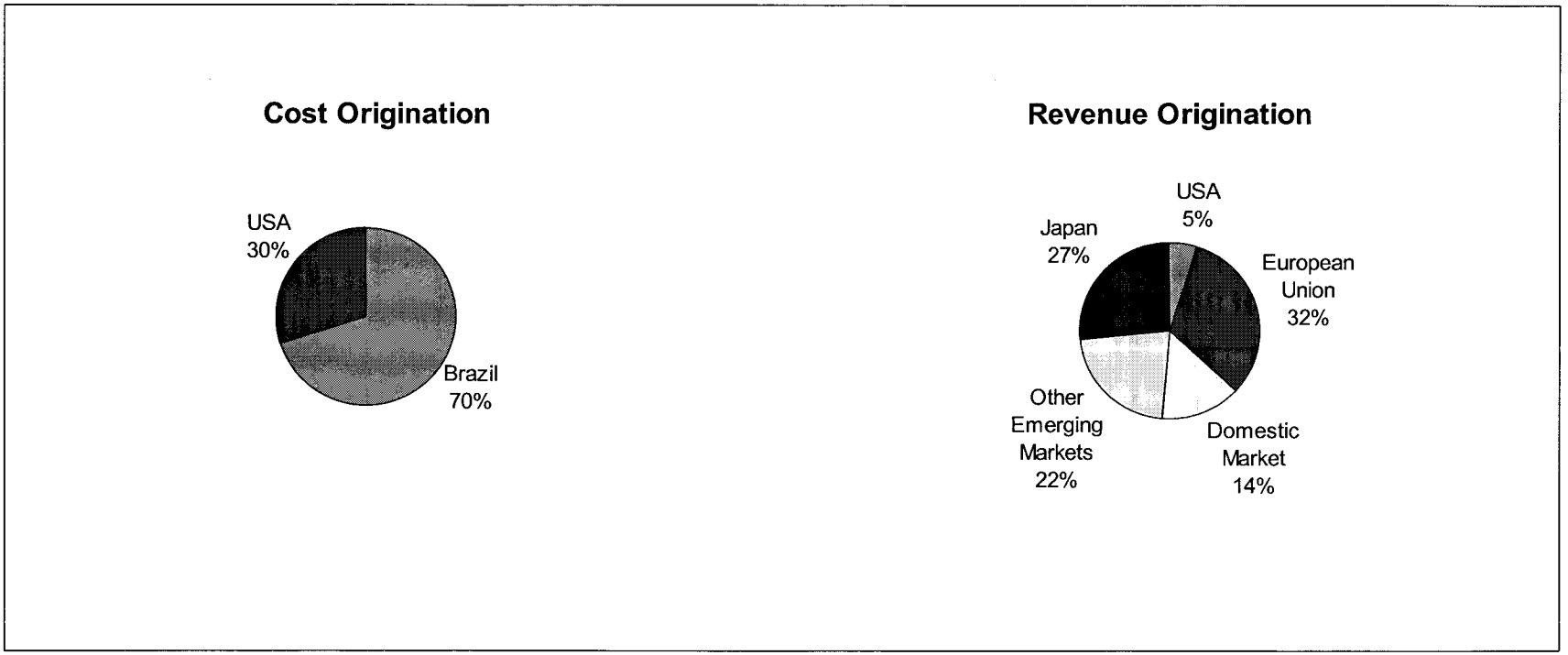


Exhibit 11.A - CVRD Statement of Income at December 31, 1996

* in US$ MM

	Constant Currency Method	
	Consolidated *	
	1996	**1995**
Operating Revenues		
Sales of Ore and Metals		
Iron Ore and pellets	1,824	1,921
Gold	218	209
Others	171	104
	2,213	2,234
Revenues from Transportation Services	816	913
Sales from aluminum	643	545
Sales from steel products	918	-
Sales of timber, pulp and paper products	250	-
Others	54	157
	4,895	3,848
Value added Tax	(257)	(182)
Net Operating Revenues	4,638	3,666
Cost of Products and Services	(1,538)	(1,796)
Ore and metals sold	(606)	(688)
Transportation Services	(519)	(493)
Aluminum	(695)	-
Steel Products	(224)	-
Timber, pulp and paper	(54)	(132)
Others	(3,636)	(3,109)
Gross Profit	1,003	558
Gains on investments (equity method)	11	82
Operating income (expenses)	-	-
Selling	(106)	(47)
Administrative	(301)	(224)
Financial expenses	(237)	(100)
Financial expenses - interest on stockholder's equity	(185)	-
Financial Income	206	101
Monetary Variation	-	-
Price-level restatement of the balance sheet	-	-
Studies and research	(58)	(55)
Others	22	124
Operating income	356	438
Non-operating Expenses, net	(3)	(23)
Gains on investments (equity method)	51	-
Income before income tax and social contribution	404	415
Income tax and social contribution	13	69
Change of income tax and social contribution rates	-	(138)
Income before minority interest	416	347
Minority interest in consolidated subsidiaries income	7	(2)
Net income considering the interest on stockholder's equity	423	345
Reversal of interest on stockholder's equity	185	-
Net income	608	345

Exhibit 11.B - CVRD Cash Flow Statement at December 31, 1996

* in US$ MM

	Constant Currency Method	
	Consolidated *	
	1996	**1995**
Funds were provided by:		
Net income for the year		
Expenses (income) not affecting working capital	608	345
Gains on investments accounted for by the equity method.	(11)	(82)
Gains on investments accounted for by the equity method (art. 36)	(51)	-
Depreciation, depletion, amortization	644	513
Deferred Income tax and social contribution	66	13
Provision for contingencies	17	(191)
Monetary variation and gains (losses) on unindexed assets and liabilities	(82)	(4)
Price Level restatement of certain balance sheet accounts	-	-
Amortization of discounts on investment	(42)	(45)
Others	(101)	(106)
Total funds from operations	1,049	442
Transferred to current assets	-	-
Loans and financing	95	152
Subsidiaries, associated companies and foundations	11	1
Long Term debt	582	477
Loans from Subsidiaries, associated companies and foundations	15	-
Dividends from Subsidiaries, associated companies	10	87
Disposal of permanent assets	(1)	50
Others	39	11
Total funds Provided	1,800	1,219
	-	-
Funds were used for:	-	-
Transferred to current liabilities	-	-
Long term debt	297	178
Subsidiaries, associated companies and foundations	1	41
Loans to Subsidiaries, associated companies and foundations	88	152
Additions to permanent assets	713	432
Capital subscrition in subsidiary and associated companies	37	105
Investments transferred to permanent assets	-	151
Loans Granted	27	14
Dividends and interest on stockholders' equity	269	141
Guarantees and deposits	35	43
Others	176	116
Total Funds used	1,643	1,375
Increase (decrease) in working capital	157	(156)
Changes in working capital	-	-
Working capital at the beginning of the year related to investments consolidated as of 95	116	-
Current assets	-	-
At the end of the year	3,145	2,093
At the begginig of the year	2,093	2,098
	1,052	(5)
Current liabilities	-	-
At the end of the year	2,595	1,584
At the begginig of the year	1,584	1,433
	1,012	151
Increase (decrease) in working capital	157	(156)

Exhibit 12 – Exchange Rate Scenarios

Scenario 1 - Maintenance of 7.5% Annual Devaluation Rate

	Jan-97	Feb-97	Mar-97	Apr-97	Rest-97	1998	1999	2000	2001
INPC (BR)	0.81%	0.45%	0.68%	0.60%	3.00%	3.50%	3.50%	3.50%	3.50%
CPI (US)	0.29%	0.25%	0.21%	0.16%	2.37%	3.50%	3.50%	3.50%	3.50%
R$/US$	1.05	1.06	1.06	1.07	1.13	1.21	1.31	1.41	1.52
Diff. PPP	1.49	1.50	1.50	1.51	1.52	1.52	1.52	1.52	1.52

Scenario 2 - Crash in 1998

	Jan-97	Feb-97	Mar-97	Apr-97	Rest-97	1998	1999	2000	2001
INPC (BR)	0.81%	0.45%	0.68%	0.60%	3.00%	15.00%	10.00%	7.00%	3.50%
CPI (US)	0.29%	0.25%	0.21%	0.16%	2.37%	3.50%	3.50%	3.50%	3.50%
R$/US$	1.05	1.06	1.06	1.07	1.13	2.00	1.95	1.90	1.85
Diff. PPP	1.49	1.50	1.50	1.51	1.52	1.69	1.79	1.85	1.85

Scenario 3 - Constant Exchange Rate

	Jan-97	Feb-97	Mar-97	Apr-97	Rest-97	1998	1999	2000	2001
INPC (BR)	0.81%	0.45%	0.68%	0.60%	3.00%	3.50%	3.50%	3.50%	3.50%
CPI (US)	0.29%	0.25%	0.21%	0.16%	2.37%	3.50%	3.50%	3.50%	3.50%
R$/US$	1.05	1.06	1.06	1.07	1.13	1.13	1.13	1.13	1.13
Diff. PPP	1.49	1.50	1.50	1.51	1.52	1.52	1.52	1.52	1.52

Source: Historical INPC and CPI supplied by IBGE and the US Federal Government. Projections by Dunmore Capital.

Exhibit 13 – Data for WACC Calculation

Credit Ratings Mar-97*

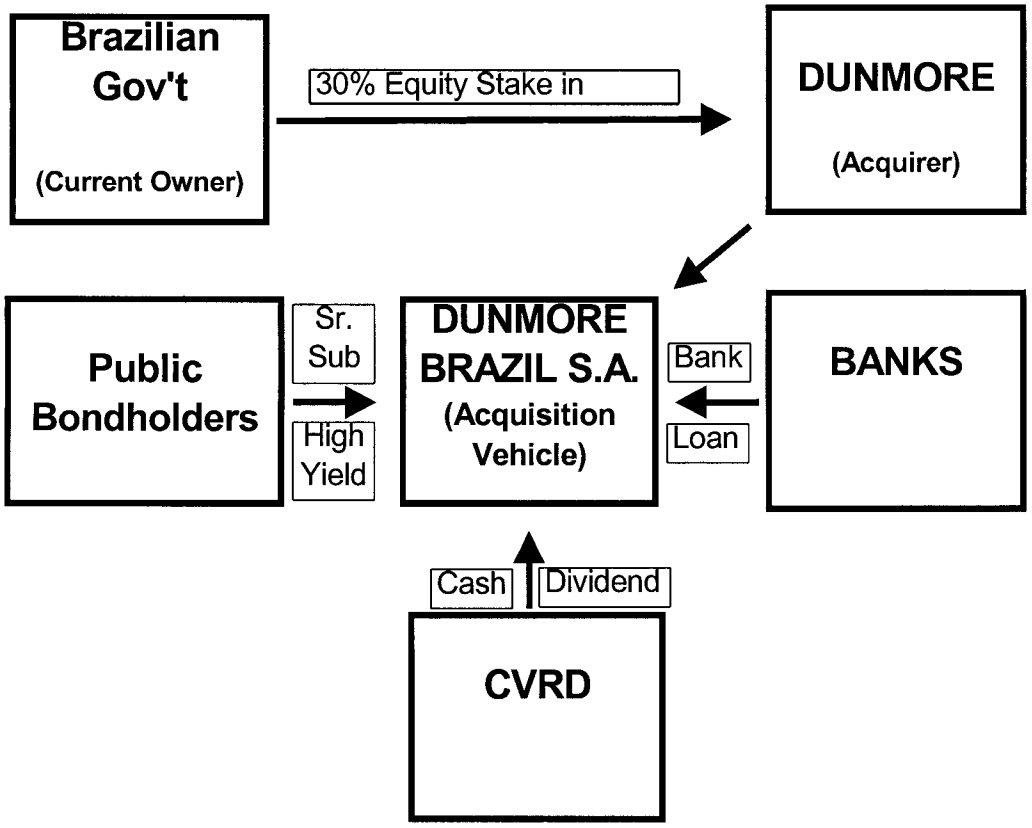
	3 year Average	Mar-97
Brazil	34.3	38.8
Argentina	38.2	39.8
Mexico	43.9	42.6
Korea	71.2	71.4
Tailand	62.6	61.1
Philipines	36.6	42.3
Germany	90.7	91.5
France	88.4	88.2
United Kingdom	87.6	88.4
Italy	72.6	74.3
USA	90.6	91.2
Japan	91.3	91.3

Other Needed Data*

Beta Asset	0.9
Tax Rate	30%
Debt to Value	30%
Cost of Debt	8.50%
Risk Free	5%

Source: Dunmore Capital.

Exhibit 14 - CVRD Deal Structure



Source: Dunmore Capital.