



BENJAMIN C. ESTY

ALDO SESIA JR.

# Aluminium Bahrain (Alba): The Pot Line 5 Expansion Project

## Introduction

Ahmed S. Al Noaimi, general manager of finance at Aluminium Bahrain (Alba), was reviewing the proposed financing plan for the company's \$1.7 billion Pot Line 5 expansion project with his project finance team, which included A. Qader Mohamed and Hussain Haji. Alba wanted to add a fifth pot line to boost its aluminum (spelled aluminium in British English) production capacity by over 60% to more than 830,000 tons per year and had hired Taylor-DeJongh (TDJ) to be the project's financial advisor. Osman Shahenshah, a managing director at TDJ, was recommending a "structured corporate credit" using as many as four or five different financing sources with elements of both project and corporate finance. Traditionally, projects in the Middle East tapped into one or two financing sources such as commercial bank loans, project bonds, export credit agency (ECA) loans, or Islamic funds. A multisourced financing strategy drawing debt from international, regional, and local capital pools would be a novel approach to raising capital.

Having recommended the multisourced approach, TDJ was awaiting Alba's final decision on the financing strategy as of early August 2002. Once Alba made its decision, the next step would be to invite financial institutions to lead arrange or participate in the financing. The written invitations, which TDJ planned to send out in September 2002, would identify the different sources of capital and a range of amounts to be obtained from each one. Al Noaimi and his team, drawing on their experience with the company's Pot Line 4 expansion project, thought they would need financing from multiple sources. However, they wondered if the proposed plan called for the right number of sources and if TDJ had identified the right trade-off between capacity and pricing for each source, as well as the risks of the overall approach. If the market rejected the multisourced strategy—which was possible given the uncertainty in the region at the time and the uniqueness of the approach—Al Noaimi and his team, along with Alba CEO Bruce Hall, were concerned the project might become tainted, leaving them with few, if any, alternatives for financing a project that was critical to Alba's long-term growth objectives.

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Professor Benjamin C. Esty and Research Associate Aldo Sesia Jr. prepared this case. HBS cases are developed solely as the basis for class discussion. Certain details have been disguised. Cases are not intended to serve as endorsements, sources of primary data, or illustrations of effective or ineffective management.

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## Background Information

### *Bahrain: A Brief History*

The Kingdom of Bahrain (meaning “the two seas” in Arabic) was an archipelago of 712 square kilometers located in the Persian Gulf between the east coast of Saudi Arabia and the Qatar peninsula (see **Exhibit 1**). Considered a part of the Middle East region, Bahrain had a population of nearly 700,000 people, including about 235,000 foreign nationals, and was one of the most prosperous countries in the Middle East (see **Exhibit 2** for data on Middle Eastern countries). From 1861 until its independence in 1971, Bahrain was a British protectorate. The Al Khalifa family, which had ruled Bahrain prior to British control, regained power after independence and installed Shiek Isa as the country’s emir in 1971. When he died in 1999, his son, Sheikh Hamad, assumed power and initiated political reforms that included reestablishing a constitutional monarchy and creating an independent judicial system.<sup>a</sup> Hamad’s reforms, however, also drew criticism, leaving the political outlook, according to the Economist Intelligence Unit (EIU), less assured in 2002 than at any time since Hamad took office.<sup>1</sup>

Although energy was the most important industry in Bahrain, the country had limited oil and gas reserves, especially compared to other Middle Eastern countries. During the 1970s and 1980s, the government began to diversify the economy away from energy. By 2001, the energy industry remained the largest contributor to Bahrain’s economy yet accounted for only 25% of the country’s gross domestic product (GDP). Financial services and manufacturing (largely aluminum production) accounted for 19% and 12% of GDP, respectively.<sup>2</sup> The government planned to augment its diversification strategy by making Bahrain into a financial center for the Persian Gulf. One of the attractions of Bahrain was that government did not tax corporate income. The government, wanting more local citizens to benefit directly from the country’s economic growth, also initiated programs to train and employ Bahrainis. At the time, foreign nationals made up nearly 60% of the country’s workforce. The goal of the government’s work training programs was to lower the country’s 14.1% unemployment rate and employ more Bahrainis than foreigners, a process known as “Bahrainization.”<sup>3</sup>

In August 2002, the threat of an impending U.S.-led invasion of Iraq loomed as part of President George W. Bush’s “war on terror” campaign, a policy that emerged following the terrorist attacks on the U.S. in September 2001. The majority of Middle Eastern countries opposed the invasion and had urged the U.S. to exercise restraint. Bahrain, which had long-standing military and political ties with the U.K. and the U.S. (the U.S. Navy’s Fifth Fleet had been stationed in Bahrain since 1948) and had supported the U.S. military action in Afghanistan in retaliation for the terrorist attacks, also opposed an invasion of Iraq. Bahrain’s prime minister said: “We, the Arabs, must voice a clear stance against any new war in the region. The new war will certainly be disastrous; economically, politically and socially not only for our brothers in Iraq but for the whole region and all the Arab states.”<sup>4</sup>

### *Aluminum Industry*

Aluminum production, which began in the late nineteenth century, consisted of grinding the primary raw material bauxite ore, treating it with lime and caustic soda, and then heating the mixture to refine it into a white powdery substance called alumina. In the next step, called the smelting process, alumina went into an electrolytic cell known as a “pot” where electrical currents separated

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<sup>a</sup> A constitutional monarchy is a system of government in which a monarch is guided by a constitution whereby his/her rights, duties, and responsibilities are spelled out in written law or by custom. (Source: CIA, The World Factbook.)

the aluminum metal contained within the alumina. Smelting was a power-intensive process that made up as much as 25% of total operating costs. For this reason, some even referred to aluminum as “frozen electricity.” Once extracted from the alumina, the aluminum metal could be alloyed with other materials (e.g., iron, copper, etc.), rolled into sheets, cast into a variety of commodity shapes, or extruded to create custom products.

The demand for aluminum, particularly in the transportation, construction, and packaging industries, was high because it was light (one-third the weight of steel), strong, and corrosion resistant. By 2000, global production neared 25 million tons, while aluminum prices were around \$1,500 per ton (see **Exhibits 3** and **4**). The price of aluminum was set on the London Metals Exchange (LME), where aluminum was the most frequently traded contract in the nonferrous metals markets.

The short-term outlook for the primary aluminum industry was mixed. Some experts such as Australia’s Macquarie Bank predicted there would be excess capacity, while others predicted shortages and high prices in the next few years.<sup>5</sup> Over the longer term, Metal Bulletin plc, a London-based firm that provided information on the metals industries, forecasted annual consumption would grow 4.5% per year from 2002 to 2007 and 3.8% per year from 2007 to 2019.<sup>6</sup>

## Aluminium Bahrain (Alba)

Alba began in 1968 as a joint venture between the government of Bahrain, with an original ownership interest of 18%, and a consortium of aluminum users. Bahrain was ideally located for primary aluminum production because of its proximity to Australia, where bauxite was mined, and to the aluminum markets in the Middle East, Asia, and Europe. As the first aluminum smelter in the Middle East, Alba began with two pot lines and a production capacity of 120,000 tons per year. Over time, the company increased its annual capacity to over 500,000 tons and expanded into several downstream and related businesses such as the production of calcinated coke, which was needed to make anodes for the smelting process, and electricity (it had 1,540 megawatts of generating capacity).<sup>b</sup> During this period, the government’s ownership interest increased to 77%, yet the company remained private. SABIC Industrial Investment Co. (SIIC) and Breton Investments, a subsidiary of a private German company in the metals business, owned 20% and 3%, respectively.<sup>c</sup> As of 2001, Alba had assets of \$2.1 billion and net income of approximately \$179 million. Alba had a strong credit history, having operated for more than 30 years without a default. The company’s 2,600 employees, 90% of whom were Bahraini, used English for daily operations and virtually all of its business—the purchase of inputs and sale of aluminum—occurred in U.S. dollars.

With the completion of Pot Line 4 in 1992, which added 235,000 tons of annual capacity at a cost of \$1.5 billion, Alba became not only one of the largest single-site smelters in the world but also one of the low-cost producers. According to Commodity Research Unit, a London-based metals consulting firm, it was in the bottom 20% of the industry cost curve. Alba financed the fourth pot line with a combination of commercial bank loans and export credits plus a small tranche of Islamic finance. It paid debt service out of revenue generated through a quota agreement with its shareholders. Under the quota agreement, Alba charged its shareholders a transfer price based on the company’s costs including debt service. Because the shareholders had agreed to purchase Alba’s output (assuming it

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<sup>b</sup>A megawatt (MW) equals 1 million watts, or the power needed to light 10,000 100-watt electric light bulbs. One MW could power approximately 1,000 households in the U.S.

<sup>c</sup> SIIC was owned by the Saudi government (70%) and private investors from the Gulf Cooperation Council (GCC) (30%). It had six business lines: basic chemicals, intermediates, polyolefins, PVC and polyester, fertilizers, and metals.

met certain quality specifications) up to a specific amount regardless of market conditions, they essentially were guaranteeing the debt.

Despite its size, Alba was short of production capacity. As of 1999, it sold 60% of its output to markets within the Gulf Cooperation Council (GCC) and 40% to international markets primarily in Asia.<sup>d</sup> Alba hired Kaiser Engineers, an engineering and construction consulting company, in May 1999 to assess the feasibility of building a new 650MW power station and a fifth pot line, which would run one kilometer (0.62 miles) in length, use the same Pechiney AP30 technology as Pot Line 4, and produce 264,000 tons per year (see **Exhibit 5**). Alba, wanting to maximize the utilization of its power capacity, convinced Pechiney to increase the capacity of the new pot line to 307,000 tons per year. The project was expected to cost \$1.7 billion and take 30 months to complete, with construction beginning in January 2003 and ending in June 2005. After reviewing Kaiser's analysis, Alba's board of directors approved the expansion project in November 2000. But before management could proceed, they had to analyze the project's economic feasibility (Phase 1) and assess their financing options (Phase 2).

## Phase 1—Economic Feasibility

In January 2001, Alba hired Taylor-DeJongh (pronounced dee-young, TDJ) to conduct the Phase 1 study, which entailed a review of the project's economic feasibility, a recommendation on the optimal organizational structure (e.g., as a stand-alone project or a project backed by all of Alba's assets and cash flows), and an assessment of the market's overall ability to finance the project.

TDJ, headquartered in Washington, D.C., was an independent merchant banking firm that specialized in the energy, oil and gas, metals and mining, and infrastructure industries. Founded in 1981 by Terry Newendorp, TDJ was not a lender but had arranged financings in more than 75 countries and had expertise in transactions involving export credit agencies (ECAs) and multilateral agencies (MLAs). TDJ ranked sixth in global advisory mandates in 2001 according to *Project Finance International* (see **Exhibit 6**). In recent years, TDJ had won advisory mandates for large projects in the Middle East, including mandates for a \$1 billion desalination project in the United Arab Emirates and for a \$1.4 billion liquefied natural gas train in Qatar.

Osman Shahenshah, a managing director and head of TDJ's London office, headed up the Phase 1 study. Over a five-week period, Shahenshah and his team met with Alba management, reviewed Kaiser's analysis, and conducted additional research on the aluminum industry. TDJ concluded the project was economically feasible at a cost of \$1.7 billion but only if the project was combined with Alba's existing operations. In TDJ's opinion, the project could not be financed on a stand-alone basis without significant structural changes to the company and, therefore, TDJ recommended the project's debt be paid by Alba's total cash flow without recourse to the sponsors. In this way, the financing would resemble a project-financed deal. However, given that the project would be supported by multiple assets, namely the cash flow from Pot Lines 1 to 5, the financing would also resemble a corporate-financed deal. Shahenshah explained:

We analyzed a classic, ring-fenced project-finance approach but quickly rejected the idea. Not only would it be significantly more expensive than a structured corporate credit, it would also have required a major restructuring of Alba's business model and assets as well as a much larger equity commitment from the sponsors of \$500 million or more.

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<sup>d</sup> Created in 1981, the GCC promoted cooperation in such areas as industry, investments, security, and trade among its five member nations (Bahrain, Kuwait, Oman, Saudi Arabia, and the United Arab Emirates).

To complete Phase 1, TDJ scanned the financial markets and concluded there was enough capacity at attractive prices and terms to finance the project. For Alba management, this analysis confirmed the need for and feasibility of expanding production capacity. In fact, based on the analysis, Alba's board of directors also approved a plan to add a sixth pot line by 2010, which would bring Alba's annual capacity to over 1 million tons. With Phase 1 completed, Al Noaimi and his team turned their attention to Phase 2, an assessment of the financing options.

## Phase 2—Financing Options

Alba hired TDJ in June 2002 to develop and help execute the project's financing strategy. For its services, TDJ received a monthly retainer fee, which partially covered its costs. It was also scheduled to receive a success fee at financial close. Industry success fees ranged anywhere from 5 basis points (bps) for large deals to 50 bps for smaller deals. Al Noaimi explained TDJ's selection as the project's financial advisor:

We sent out RFPs [requests for proposals] to nine firms. After reviewing the proposals, we chose TDJ for several reasons. First, we found the team's background, experience, and reputation for quality work to be very strong. Second, we saw their smaller size as an advantage—you can find your way through the organization and reach the people you need when you need them. Third, because they are not a lender, we knew there wouldn't be a conflict of interest between designing the financing strategy and participating in it. And finally, their selection saved time that would otherwise be spent getting a new advisor, who had not been involved in Phase 1, up to speed. We had also enjoyed working with them on Phase 1.

TDJ's Shahenshah elaborated:

Our big pitch, our selling point if you will, is our independence. Because we don't have a balance sheet, we don't lend or raise capital. As a result, we avoid the conflicts of interest that invariably arise for financial advisors that do lend. In those instances, the advice can be biased towards solutions that involve lending and the documentation—the term sheets and other deal documents—can end up being “lender friendly” rather than “sponsor friendly.”

However, not everyone in the financial industry believed Alba was better off using a financial advisor that was not also a lender. One anonymous banker said: “[Taylor-DeJongh] is not a bank, they don't lend; so how can they really understand a transaction from the lender's perspective, from documentation to syndication risk?”<sup>7</sup>

As a first step, Shahenshah met with Al Noaimi to discuss Alba's objectives for the financing. They determined there were three objectives. First, Alba wanted a speedy execution with financial close occurring by the end of 2002. Second, they wanted the lowest possible pricing. Third, they wanted to diversify their funding options and, to the extent possible, use local funding sources. To achieve these objectives, TDJ needed to decide how many financing sources to use, which ones, and how much to get from each one.

As a starting point, TDJ proposed a traditional financing strategy (the base case) using \$1,200 million of ECA financing and \$350 million of commercial bank loans, for a “sweet-sour ratio” (the ratio of “covered” ECA debt to “uncovered” bank debt) of approximately 4:1. In addition, the base case called for the sponsors to contribute \$150 million of equity to the project.

Traditional financing strategies for projects used one or two sources of debt, along with sponsor equity. Commercial bank loans provided the majority of project financing—representing from 75% to

90% of all global project lending in recent years (see **Exhibit 7**). The typical deal had one tranche of commercial bank debt priced off Libor with sponsors swapping the floating rate for a fixed rate (known as the fixed Libor swap rate). For example, the Dubai Aluminium Company Ltd.'s (Dubal) \$1.1 billion expansion project was financed with bank loans in early August 2002. In many cases, projects in developing countries used a combination of bank loans and ECA loans or loan guarantees. A recent example of this dual-sourced financing structure was the \$1.0 billion Sur Fertilizer Plant in Oman, which was financed in 2002 with a combination of bank loans, ECA covered loans, and sponsor equity.

More recently, sponsors had begun to use project bonds. Preston Industries, for example, used a private placement bond (i.e., 144A) in 1999 to finance its \$185 million Bulong nickel project in Australia. Other projects were financed with a combination of bank loans and project bonds: the \$3.7 billion Ras Laffan natural gas project in Qatar was financed in 1996 with \$1.4 billion of bank loans and \$1.2 billion of project bonds as well as sponsor equity.<sup>8</sup>

While TDJ's base case financing strategy—a combination of commercial bank loans and ECA covered or direct loans—was both a feasible and a proven approach, Shahenshah and his team wanted to explore other financing options that might better achieve their client's objectives. Shahenshah explained:

Clearly, there are projects, especially those in developing countries with political risk, where ECAs play a vital role in the financing. Given recent events in the Gulf region and the threat of military action in Iraq, we knew that there was a possibility that we would have to use the ECAs. The problem with the ECA approach, however, is that it tends to be slower [maybe 6 to 12 months or longer], more expensive, and significantly more restrictive when it comes to procurement because of constraints on choosing suppliers. If you involve an ECA, you have to use suppliers primarily from the country where the ECA is located. In addition, the up-front premiums on ECA covered loans can also hurt the project's economics. Incurring a large, up-front premium rather than a small, ongoing spread rarely makes sense unless you really need the capacity, longer maturities, or insurance.

Al Noaimi commented on the financing options:

Based on our experience in financing the fourth pot line—our first experience with raising large amounts of capital—we knew that we would probably have to tap two or more financing sources. There simply isn't that much liquidity or depth in any single source of capital. As a result, you have to pay a lot more to get large amounts of capital from any one source, including the commercial banks, because their appetite for the region and the aluminum industry is so limited. We did, however, want our financial advisors to verify this assumption.

To verify the assumption, TDJ contacted 35 potential lenders including commercial banks, ECAs, and Islamic financial institutions to gauge their interest in financing the project. TDJ discussed capacity, pricing, tenors, and terms with the lenders, and while the lenders did not formally commit to lend, they did show enough interest to convince TDJ that there was sufficient capacity and liquidity in the market to do the deal. One of the key insights learned during this process was that the amount of capital available from any single source was limited. Shahenshah explained:

The reality of the Middle East market is that loan spreads escalate rapidly as loan amounts from any single source of capital rise, especially for projects. Why this capital constraint exists is a very interesting question because there has been considerable liquidity in the region especially after 9/11 when capital flowed out of the U.S. But this liquidity tends to be located in multiple pools, most of which are not traditional project-finance lenders. One reason for the

constraint, at least historically, is that many banks simply don't have the personnel to underwrite the deals—it requires a unique combination of sovereign, commercial, and project-lending expertise. Consequently, the expertise needed to understand a deal like Alba's Pot Line 5 expansion is concentrated in only a few institutions. But this is changing over time as the number of conventional lenders interested in project finance increases and as new capital providers such as Islamic banks enter the market. Regional banks face a second constraint because loyalties in the Middle East are very strong—banks typically try to reserve lending capacity for their preferred customers. A final constraint on capacity is due to internal and external—notably the Basel II Capital Accord—capital-adequacy requirements. In fact, a large number of arranging banks have simply exited the project-finance field and reallocated their capital to other lines of business. Indeed, one of the complaints about Middle East projects is that pricing is simply too tight to meet internal return thresholds. In the end, highly structured credits in risky countries get penalized with large risk-capital charges even if the deals are not that risky in reality. Project loans in Bahrain are a good example: they end up looking “unprofitable” when scored against other capital uses because of the country's A- rating from Standard & Poor's. We have to be very cognizant of these lending constraints when we advise clients on financing strategies.

While using commercial bank loans and ECA credits (covered or direct loans) continued to be a viable financing strategy, Shahenshah and his team began to consider a multisourced financing strategy based on the rationale that tapping several liquidity pools would stimulate interpool competition among the various lenders. Shahenshah explained:

Our approach was to give Alba as many options as possible. Having multiple funding sources is much safer than relying on a single source. You end up with much more power to negotiate both within and across the tranches. Our goal was to find the liquidity, get the volumes approximately right, and then force the lenders to compete on price and terms.

As he considered the options, Shahenshah believed there were as many as eight possible sources of capital for the project (see **Exhibit 8** for a brief description of each source):

1. Commercial bank loans
2. Project bonds (local or international)
3. Islamic financial instruments
4. ECA financing: direct loans or guaranteed/insured loans (i.e., ECA covered bank loans)
5. Metals-linked facility: bank loan with repayment either in metal or linked to metal prices
6. Subordinated debt (also known as “quasi-equity”)
7. Private placement debt
8. Loans from multilateral agencies (MLAs) such as development banks

TDJ and Alba quickly eliminated four options. Al Noaimi explained:

At first, we contemplated issuing an international bond, but the price quotes coming in from the market were simply too high relative to our other options. Furthermore, Alba would have needed a rating from one or more of the major rating agencies, which would have added time to the process. We also considered private placement, but the spreads were too expensive. When financing the fourth pot line, we considered a loan from one of the development banks,

such as the International Finance Corporation (IFC) or the Islamic Development Bank (IDB), but knew that Alba would not qualify for a multilateral loan for the Pot Line 5 expansion project. As for using subordinated debt or quasi-equity, our sponsors were not interested in putting more capital into this deal. There was even some doubt about the remaining options because the appetite for this region and the aluminum industry was very limited at the time—few banks had large open credit lines for the region.

After eliminating these options, TDJ prepared a financing scenario that used up to five sources of debt: commercial bank loans, a local bond, an Islamic tranche, a metals-linked facility, and possibly ECA loans or loan guarantees/insurance. While bank loans would clearly form the foundation of the new strategy, incorporating a local bond into the financing plan would partially fulfill Alba's objectives for funding diversification and local participation. Al Noaimi explained:

We told Taylor-DeJongh that we wanted to issue a local bond if possible. Such a bond would not only allow local investors to participate in and benefit from the project, it would also help develop the local capital markets, consistent with the government's desire to become a regional financial center. Given that the Bahraini government is our largest shareholder, we wanted to make sure the Pot Line 5 project had very visible and very tangible benefits for local citizens and for the local economy.

Although the use of Islamic financing would also satisfy several of Alba's objectives, it did have some drawbacks. Islamic finance institutions earned profits based on asset ownership, not by earning interest on loans, which was prohibited by Islamic religious principles known as Sharia'a (see **Exhibit 9** for a financial overview of the Islamic finance industry). And while there were several precedents for using Islamic financing in Middle East projects—both Equate, a \$2 billion petrochemicals plant in Kuwait, and Thuraya, a \$1.1 billion satellite telecommunications project in Abu Dhabi, had used a tranche of Islamic finance—Shahenshah had some reservations about the idea:

Right from the start, Alba management and the sponsors expressed an interest in having a large Islamic tranche. After all, Bahrain is an Islamic country and a regional center for Islamic finance. Even though I thought we could do it, I must admit I was a little worried about incorporating the Islamic tranche with the other funding sources given the requirement for asset ownership. I wondered if it would create structural impediments related to collateral rights or complicate the documentation.

In terms of using a metals-linked facility, Shahenshah noted:

While both the bank loan tranche and the metals-linked facility would come from commercial banks, we believed they could be viewed as competing sources of capital. The metals-linked facility is really two transactions in one. First, there is a lending component that is a straight commercial bank loan. And then there is a hedging component similar to a call option on aluminum. This hedging component provides some risk management benefits to Alba by lowering the cost of debt. We were betting that the banks, even the ones that might participate in both tranches, would view them separately and price them accordingly.

While the multisourced financing strategy clearly had benefits, TDJ had to consider the risks and the costs as well. The most obvious disadvantage was added complexity. The more parties involved in the deal, the more complex the transaction would be. Specifically, it would be more difficult to structure the original deal, to manage the deal on an ongoing basis, and to restructure the deal in the event of default. Moreover, additional complexity could extend the closing date and add implicit costs to all parties. In terms of structuring the original deal, there were two main costs: advisory fees and execution fees. Advisory fees included fees paid for financial and legal advice. Alba and the



lenders would need representation by both local and international law firms. Legal fees for each party would cost as much as \$500,000, even without any delays or much in the way of added complexity. Execution fees included expenses to raise the debt, such as arranging, commitment, and guarantee fees. Finally, in terms of day-to-day management and the possible need to resolve financial or technical defaults, additional complexity would make the restructuring process more difficult and costly. Having so many parties sitting at the table would make it more difficult to reach consensus. In contrast, the up-front structuring and ongoing management costs would be lower—the question was how much lower—under a single- or dual-sourced financing strategy.

To minimize the additional complexity resulting from the multisourced financing strategy, TDJ recommended using only agents that knew Alba well (i.e., that had previously been a lender or advisor to Alba) and a single global agent to manage all of the tranches. In addition, TDJ proposed using a single law firm to represent all of the lenders and structuring the deals with some commonality across the tranches—that is, having some lenders participate in more than one tranche. TDJ also wanted all commitments to be fully underwritten and wanted to establish strict rules and procedures for administering the lending process such as allowing only the agents to speak with Alba directly. Lastly, TDJ proposed all of the debt would be *pari passu* (i.e., have equal seniority). Even with these attempts to minimize complexity and transaction costs, Shahenshah admitted the multi-sourced strategy was not appropriate for all deals:

I would not endorse the multisourced financing strategy for all deals, but I would endorse competition among the funding sources for all deals. Competition results in better pricing and faster execution. All else being equal, I would prefer to use fewer funding sources. For example, when the capital markets are well developed and integrated, the various capital pools tend to be very deep. As a result, you can rely on competition within a single source, say among competing bank consortia, to get low pricing and attractive terms. The biggest deals, of course, may still need a second or third source if the amount needed is really large. On the other hand, when the capital pools are fairly shallow, as they are in developing countries, you are forced to use ECAs or the development banks—there really isn't much choice. In between these two extremes is where things get interesting. That's where you can use the multisourced financing strategy to maximum advantage. To some extent, you get competition within tranches, but the real benefit is the competition that occurs across the tranches.

## Conclusion

As the August days ticked by, Shahenshah and his team were eager to send out the preliminary information memorandum (PIM), which would invite institutions to lead manage and/or participate in the financing of Alba's Pot Line 5 expansion project. TDJ was convinced the multisourced financing strategy would create a competitive bidding process that would give Alba the best deal possible. (See **Exhibits 10** and **11** for a comparison of the base case and the multisourced financing strategies, and sources and uses of funds.) In fact, TDJ had speculated that the plan could save Alba millions of dollars in financing costs.

To calculate the savings, Shahenshah and his team would analyze the bids using two types of analysis (see **Exhibit 12** for financial projections). First, they would perform an "all-in cost" analysis that considered the cash flows (inflows and outflows) associated with a loan, including interest payments, principal payments, and fees from the lenders' perspectives. Given the total loan cash flow, TDJ would then calculate the internal rate of return (IRR). However, because the analysis calculated the lenders' return, it did not necessarily capture the total benefit to the borrower. To

estimate the benefits to Alba, TDJ would also calculate the net present value (NPV) by discounting the debt cash flows at the project's cost of equity.

Even if the analyses showed Alba could lower its financing costs by using the multisourced approach, the strategy still entailed several disadvantages and risks, only some of which could be quantified easily. Al Noaimi cautioned: "The Alba Pot Line 5 structured corporate credit is not an easy deal to understand. It has elements of corporate, project, and sovereign lending all wrapped up in a single deal." Before TDJ could send out the invitations, Shahenshah needed to convince Alba that the plan would work and that the market would be receptive to the multisourced financing strategy.

Exhibit 1 Maps of the Middle East Region and Bahrain

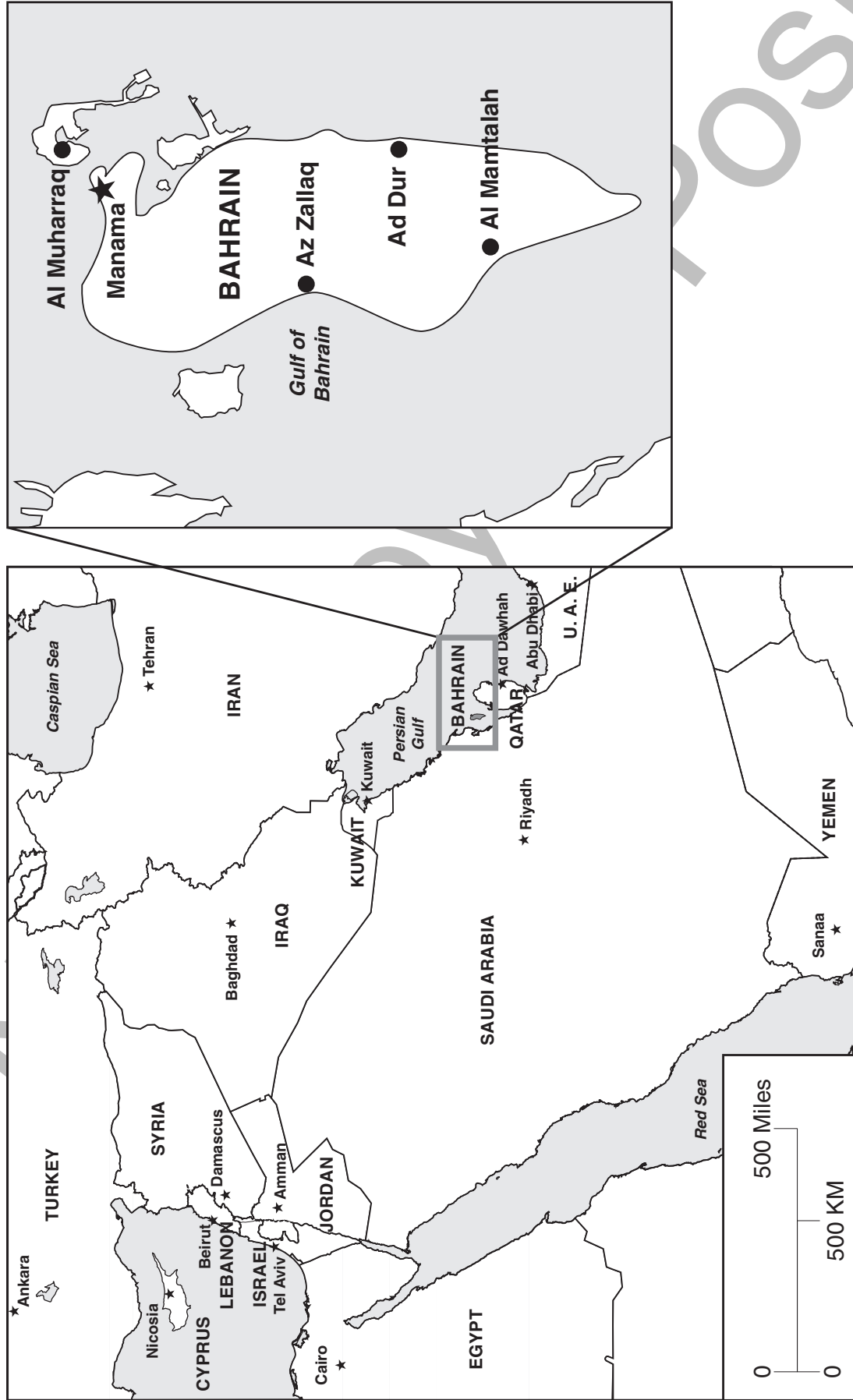


Exhibit 2 Middle East Development, Macroeconomic, and Political Risk Data (2001 unless otherwise noted)

Country	Population (000)	Life Expectancy (Years)	Literacy Rate <sup>a</sup>	Human Development Index <sup>b</sup>	Power Consumption Per Capita (kwh)	Type of Government	Gross Domestic Product (US\$ mil.)	GDP Per Capita (\$)	GDP Annual Growth Rate 1997 to 2001	S&P Long-Term Foreign Currency Rating	Coface Credit Rating <sup>c</sup>	Country Credit Rank <sup>d</sup> Sept. 2002
<b>Bahrain</b>	684	73.2	85%	37	8,700	Constitutional Monarchy	\$7,935	\$11,601	4.5%	A-	A2	48
Egypt	65,177	63.7	51	120	1,046	Republic	98,476	1,511	4.9	BB+	B	63
Iran	64,528	70.0	72	106	1,570	Theocratic Republic	117,056	1,814	4.3	—	C	77
Iraq	23,683	70.0	58	—	1,475	Republic	—	—	18.2	—	D	146
Israel	6,439	78.7	95	22	5,841	Parliamentary Democracy	112,714	17,505	3.5	A-	A3	44
Jordan	5,031	77.5	87	90	1,252	Constitutional Monarchy	8,829	1,755	3.5	BB-	B	73
Kuwait	2,275	76.3	79	46	10,251	Nominal Constitutional Monarchy	34,222	15,043	1.1	A+	A2	36
Lebanon	4,385	71.5	86	83	1,824	Republic	17,554	4,003	0.9	B-	C	95
Oman	2,478	72.0	80	79	3,078	Monarchy	19,943	8,048	3.9	BBB	A2	46
Qatar	598	72.6	79	44	15,308	Traditional Monarchy	17,127	28,640	7.3	A-	A2	42
Saudi Arabia	21,285	68.1	63	73	5,117	Monarchy	183,257	8,610	NA	—	A4	45
Syria	16,587	68.8	71	110	973	Republic Under Military Régime	19,043	1,148	3.0	—	C	102
Turkey	68,529	71.2	85	96	1,391	Republican Parliamentary Democracy	145,244	2,119	1.2	B-	C	78
United Arab Emirates	3,488	74.3	79	48	9,290	Federation	69,217	19,844	4.2	—	A2	27
West Bank & Gaza Strip	3,096	71.9	—	98	—	None	4,034	1,303	—	—	—	—
Yemen	18,046	60.2	38	148	109	Republic	9,542	529	4.2	—	C	—
World	6,127,387	63.8	—	—	—		\$31,253,650	\$5,101	1.2%	—	—	—

Sources: Adapted from World Bank World Development Indicators, Economist Intelligence Unit (EIU) Country Profiles, 2001 CIA World FactBook, Coface Handbook of Country Risk 2002, Standard & Poor's Credit Ratings, United Nations Human Development Indicators, and casewriter estimates.

<sup>a</sup>Literacy rate represented the percent of individuals aged 15 years or older who could read and write.

<sup>b</sup>The United Nations Human Development Index (HDI) provided a rating of health, education, and income across 175 countries. The rankings ranged from 1 (high) to 175 (low).

<sup>c</sup>Coface country credit rating measured the probability of corporate short-term payment default in a given country. There were seven ratings: A1 (lowest probability of default), A2, A3, A4, B, C, and D (highest probability of default).

<sup>d</sup>*Institutional Investor* country credit ratings were based on a survey of 75 to 100 international bankers who were asked to rate each country on a scale of 0 (very high chance of default) to 100 (very low chance of default). The country credit rank was based on a comparison of country ratings. In 2002, *Institutional Investor* ranked 151 countries from 1 (best credit) to 151 (worst credit).

**Exhibit 3** World Aluminum Annual Production and Consumption from 1992 to 2001 (millions of metric tons)

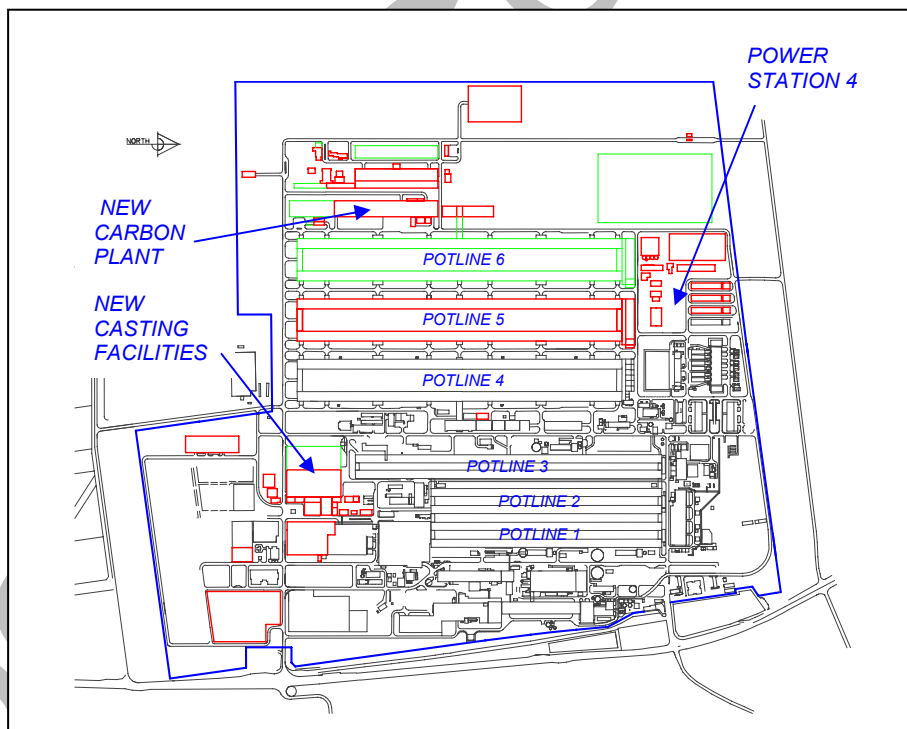
Year	Consumption	Production	Consumption as Percent of Production
1992	18.5	19.5	94.9%
1993	18.2	19.7	92.4
1994	19.8	19.1	103.7
1995	20.5	19.7	104.1
1996	20.7	20.8	99.5
1997	21.8	21.8	100.0
1998	21.8	22.7	96.0
1999	23.4	23.7	98.7
2000	24.9	24.5	101.6
2001	23.5	24.5	95.9
<b>5-Yr CAGR</b>	<b>2.6%</b>	<b>3.3%</b>	

Source: Adapted from the World Bureau of Metal Statistics, World Metal Statistics Yearbook 2002, published May 1, 2002.

Note: Figures were for primary aluminum only, which was the weight of liquid aluminum as tapped from the pots excluding alloying elements returned to scrap or remelted products.

**Exhibit 4** Aluminum Prices from January 1992 to September 2002

Source: London Metal Exchange prices adapted from Thompson Financial Datastream (accessed September 20, 2004).

**Exhibit 5** Diagram of Alba's Planned Facility Layout

Source: Company documents.

**Exhibit 6** Top Global Project Finance Advisors (ranked by number of mandates won), 2000 and 2001

2001 Rank	Name	2001		2000	
		Number of Mandates	Percent of Total	Number of Mandates	Percent of Total
1	PricewaterhouseCoopers	98	15.4%	95	12.9%
2	Ernst & Young	83	13.1	42	5.7
3	Macquarie	72	11.3	71	9.6
4	Société Générale	38	6.0	23	3.1
5	KPMG	33	5.2	27	3.7
6	<b>Taylor-DeJongh</b>	<b>30</b>	<b>4.7</b>	<b>32</b>	<b>4.3</b>
7	Investec European Capital	29	4.6	23	3.1
8	Andersen	24	3.8	13	1.8
8	ABN AMRO	24	3.8	38	5.2
10	Babcock & Brown	20	3.1	15	2.0
	Top 10 Total	451	71.0	379	51.5
	Total for all firms	635	100%	736	100%

Source: Adapted from *Project Finance International* (IFR Publishing, London, United Kingdom), January 24, 2001, and January 23, 2002.

**Exhibit 7** Project Lending from 1994 to Midyear 2002 (US\$ billions)

Year	Bank Loans			Project Bonds		
	Middle East	World Total	Middle East as Percent of Total	Middle East	World Total	Middle East as Percent of Total
1994	—	\$13.7	—	—	\$4.0	—
1995	\$0.2	23.3	0.9%	—	3.8	—
1996	5.8	42.8	13.6	\$1.4 <sup>a</sup>	4.8	29.2%
1997	6.0	67.4	8.9	0.0	7.5	0.0
1998	3.3	56.7	5.8	0.3	9.8	3.1
1999	4.8	72.4	6.7	0.7	20.0	3.5
2000						
Jan. to June	0.4	23.2	1.7	—	9.2	—
Full year	6.3	110.9	5.7	0.2	20.8	1.0
2001						
Jan. to June	2.2	41.1	5.4	0.0	13.8	0.0
Full year	8.3	108.5	7.6	0.0	25.0	0.0
2002						
Jan. to June	0.8	23.8	3.4	0.0	7.7	0.0

Source: Adapted from *Project Finance International Magazine* (Thomson Deals: Project Finance), various issues.

<sup>a</sup>Qatar's Ras Laffan Gas Project.

**Exhibit 8** Summary of Financing Options for Projects**1. Commercial Bank Loans**

For large projects, one or more commercial banks arrange (structure) the loan with the borrower (the project company) and then syndicate it to other commercial banks in a process that generally takes 6 to 18 months. Bank loans typically have variable or floating interest rates based on a spread over a base rate such as Libor. Many loans use “step-up” pricing whereby the spread increases over time. For example, a borrower might pay 120 basis points (bps) for years 1 to 3, 140 bps for years 4 to 6, and 160 bps for years 6 to 10. Banks use “step-up” pricing to recognize the higher risk associated with longer tenors and to encourage borrowers to refinance their loans. To eliminate interest rate risk, sponsors often swap their floating rate obligations for fixed-rate obligations (the equivalent fixed rate is known as the Libor swap rate). In this case, the effective borrowing rate equals the fixed Libor swap rate plus the loan spread. Loan maturities (also known as tenors) are generally less than 12 years with an average closer to 8 to 10 years.

In most cases, bank loans are accompanied by strict covenants, contractual clauses that dictate what actions a borrower can or cannot take in various situations. Covenants cover both financial and operating performance and provide mechanisms for lenders to control project cash flows. Amending the loan agreement or obtaining covenant waivers is easier with bank loans than with bonds because there are fewer lenders and the lead arranger in a syndicated loan usually has an ongoing relationship with the borrower. Borrowers do not need a credit rating to obtain a bank loan, which helps accelerate the process. There are three other benefits of bank loans. First, borrowers can draw the loans down in increments to match their investment needs, thereby avoiding the negative carry associated with raising large blocks of capital. Second, public reporting is not required, making it easier to protect confidential information. Third, additional funds can be obtained more easily, if needed.

**2. Bonds**

To raise financing in the capital markets, project companies issue bonds that are purchased by institutional investors. Bonds offer borrowers several advantages over other types of financing. They have fixed interest rates, long tenors (often 10 to 20 years or more), and few covenants. But there are some important disadvantages. Before issuing a bond, a firm has to get a rating from one of the major credit-rating agencies such as Standard & Poor's Corporation or Moody's Corporation. Although bonds can be closed fairly quickly once a firm has a rating (typically three to six months later), they are more difficult to amend due to the large number of bondholders and the absence of a lead bondholder. Another disadvantage, known as “negative carry,” occurs because all of the funds have to be raised at one time. Because borrowing rates are higher than deposit rates, any unused funds will earn a negative spread. Furthermore, institutional investors rarely provide additional financing. In terms of transaction/issuance costs, they are relatively very high, though there are significant economies of scale. Bonds also require more extensive public reporting requirements than bank loans and many other types of capital. See also the section on private placement debt below for more information on Rule 144A bonds, a type of quasi-public bond.

**3. Islamic Financial Instruments**

Islamic financial institutions operate under Islamic law, known as Sharia'a. As a result, they are prohibited from charging interest (technically they are prohibited from making money on money).



Instead, they earn profits based on asset ownership. Islamic financing comes in many forms. One of the most common forms for long-term financing is the *ijara*, which resembles a leasing transaction.

The requirement for asset ownership stands in sharp contrast to other lending arrangements in which the project company owns all of the assets. This distinction raises complications particularly when Islamic funds are used in conjunction with “western” or “conventional” financing transactions such as bank loans—a phenomenon known as “cofinancing.” First, asset ownership confers control rights, which means the Islamic lender can control asset use. Second, there are additional complications that arise in the event of default because Islamic institutions can, as owners, reclaim their assets, possibly to the detriment of the project’s operations and going-concern value. Yet the goal of many restructurings, particularly in project finance, is to preserve going-concern value. Another complication in cofinanced deals is that Islamic institutions are prohibited from earning penalty interest on late payments or in default situations.

#### 4. ECA Financing

Export credit agencies (ECAs), bilateral organizations established to promote trade between countries, play a critical role in project financings when there are few or no commercial lenders willing to provide funding because of political and/or sovereign risks. ECAs provide direct loans to borrowers and credit support (loan guarantees or insurance) to lenders up to but not exceeding the value of the goods (e.g., capital assets) or services (e.g., construction) exported from the ECA’s home country. Most ECAs are members of the Berne Union, whose objective is to create sound principles of export credit insurance and foreign investment insurance and agree to abide by the lending guidelines established in the Organization for Economic Cooperation and Development (OECD) Consensus (Arrangement on Guidelines for Officially Supported Export Credits). Leading ECAs include Compagnie Française d’Assurance pour le Commerce Extérieur (Coface from France), Schweizerische Exportrisikogarantie (ERG from Switzerland), Japan Bank for International Cooperation (JBIC), and the Export-Import Bank of the United States (Ex-Im Bank).

With direct loans, ECAs charge a loan spread over the commercial interest reference rate (CIRR), the official ECA base lending rate. The CIRR is recalculated every month but fixed for the life of the loan. Like commercial lenders, ECAs charge borrowers commitment fees on undrawn loan amounts and exposure fees.

Through loan guarantees or insurance, ECAs cover as much as 90% to 95% of loan losses due to political risk and as much as 85% to 95% of losses associated with commercial risk. Guarantees/insurance typically cover either political risk or a combination of political and commercial risk. The specific risks covered (and language used in documentation) are fairly standard throughout the industry; however, guarantees differ from insurance. A guarantee is a nonconditional agreement whereby ECAs commit to cover the lenders’ losses under a wider range of scenarios than is the case with insurance, which is considered a conditional commitment with specific events of liability. ECAs charge lending banks a fee/premium for the coverage provided, which is calculated based on the credit risk of the country the project is located in, the tenor of the loan agreement, and the types of risks covered. Lenders then pass the fee/premium on to the project company. The fee/premium can typically range from 2.5% to 17% of the loan amount but can fall outside this range. For example, the fee/premium for a 95% coverage of loss from political and commercial risks in a country with a high risk rating (e.g., the Congo Republic) and with a loan tenor of 12 years might approach 20%. Regardless of the type of coverage, the premium/fee is due up front but can be spread over the loan’s drawdown period. With ECA coverage, banks base loan spreads on the CIRR.

The major advantages of ECA financing are availability—it was difficult or nearly impossible to raise funds in certain countries because of risks. ECA financing can bring a “halo effect” to projects, which helps sponsors attract financing. The disadvantages include the length of time it can take to complete a deal (3 to 18 months of incremental time depending on the industry sector and the parties involved), short tenors (less than 12 years), extensive and restrictive covenants, and cost. Additionally, the project company is limited to procuring its capital assets or services from a manufacturer located in the country the ECA represents.

## 5. Metals-Linked Facility

A metals-linked facility ties the interest rate and debt service requirements to the underlying price of a commodity such as aluminum. Most facilities have two components. First, there is a basic commercial loan with a spread over Libor. Second, there is a hedging transaction whereby the lenders have the right to buy a certain amount of the borrower’s output (e.g., aluminum) at a fixed price. In exchange for giving up some of the upside potential to the lenders, borrowers receive an interest rebate or concession that lowers the cost of debt. For a company like Alba, the terms are something like the following: the lenders have a call option giving them the right to buy up to 250,000 tons of aluminum at \$1,600 per ton. There is, in all likelihood, a cap on the option, as well. For example, Alba might retain the right to sell aluminum at prices over \$2,000 per ton. In exchange for getting this call option (the banks are long a call option on aluminum and Alba is short the option), the banks provide a rebate of between 20 and 40 basis points on the loan spread. Typically, the lending and hedging transactions are handled by different groups within investment or commercial banks.

## 6. Subordinated Debt (“Quasi-Equity”)

The majority of subordinated debt comes in the form of loans provided by project sponsors, vendors, or other related parties. Subordinated debt is junior to senior debt, such as commercial bank loans, but senior to sponsor equity. Payments to subordinated debtholders are made before dividends. Because it is a junior security and provides additional protection for the senior debt, subordinated debt is often referred to as “quasi-equity.”

## 7. Private Placement Debt

Private placement debt consists of fixed-rate securities purchased by institutional investors such as insurance companies. Because borrowers often secure their financing from just a few investors and the transaction does not need to be registered with the U.S. Securities and Exchange Commission (SEC), these deals can be closed more quickly and at lower cost than other types of bonds. Pricing and tenors are fairly comparable with public bonds. Private placement securities cannot be traded unless they are classified as Rule 144A debt under the SEC. Considered “quasi-public” securities, Rule 144A debt allows qualified institutional buyers (QIBs) to own and trade the securities. Like regular private placement debt, Rule 144A securities are not required to go through the SEC registration process. Because the market is larger and more liquid than that for regular private placement debt, pricing is often lower, and tenors can be as long as 30 years in the 144A market. In addition, security arrangement and covenants are less restrictive—even when compared to commercial bank loans. It generally takes three to six months to close a Rule 144A transaction.

## 8. Loans from Multilateral Agencies (MLAs)

Multilateral agencies (MLAs), organized to foster economic development and eliminate poverty, provide loans and loan guarantees. Leading MLAs include the World Bank's International Finance Corporation (IFC) and the Islamic Development Bank (IDB). The IFC provides loans to for-profit borrowers in developing nations, while the IDB provides interest free loans to projects located in Islamic countries. Before making loans, the development banks conduct rigorous environmental assessments (EAs) to determine the project's likely social and environmental risks.

The major advantages of MLA funds are availability (they are the only source of funds in some developing countries), deterrence (the presence of one of the large MLAs often deters sovereign interference in the project and lowers the threat of expropriation), and encouragement (the presence of an MLA often encourages other lenders, particularly commercial banks, to participate in the deal). While pricing, including fees, is moderate and amendments and waivers relatively easy to negotiate, it generally takes 6 to 18 months longer to close the transaction than other types of financing, tenors are usually less than 12 years, and covenants are extensive and restrictive. Although a borrower does not need a credit rating, the host country's creditworthiness is relevant.

Source: Casewriter.

**Exhibit 9** Financial Highlights of the Islamic Finance Market: 1999–2001

	1999	2000	2001
<b>Number of Islamic Financial Institutions</b>	—	—	267
<b>Financial Highlights (US\$ millions)</b>			
Capital	\$6,917.2	\$10,557.0	\$12,596.6
Assets	163,048.4	226,029.0	256,648.9
Reserves	1,754.8	1,979.7	2,275.3
Net Profits	1,101.5	2,338.5	1,883.1

Source: Adapted from General Council for Islamic Banks and Financial Institutions at <http://www.islamicfi.com>, accessed November 15, 2004.

**Exhibit 10** Comparison of Financing Strategies for Pot Line 5<sup>a</sup>

Sources	Amount (US\$ mil)	Tenor (years)	Base Lending Rate	Spread (bp)	Up-front Guarantee Fee (bp)	Commitment Fee (bp)	Arranging Fee (bp)
<b>Base Case Financing Strategy</b>							
Commercial bank loans	\$350	10	LIBOR	110	n/a	25	75 to 100
ECA guar./insured loans	<u>1,200</u>	8.5 to 12	CIRR	60	600	25	75 to 100
Total debt	<u>\$1,550</u>						
Shareholders' equity (cash)	<u>150</u>						
Project total	<u>\$1,700</u>						
<b>Proposed Financing Strategy</b>							
Commercial bank loans	300	10	LIBOR	115	n/a	25	75 to 100
	500	10	LIBOR	125	n/a	25	75 to 100
	750	10	LIBOR	145	n/a	25	75 to 100
Metals-linked facility <sup>b</sup>	300	12	LIBOR	110	n/a	25	75 to 100
	500	12	LIBOR	120	n/a	25	75 to 100
Islamic lease	200	12	LIBOR	130	n/a	25	75 to 100
	400	12	LIBOR	140	n/a	25	75 to 100
Local bond	200	10	LIBOR	100	n/a	25	75 to 100
ECA guar./insured loans	<u>150</u>	8.5 to 12	CIRR	60	600	25	75 to 100
Total debt	<u>\$1,550</u>						
Shareholders' equity (cash)	<u>150</u>						
Project total	<u>\$1,700</u>						

Source: Company (Alba Line 5 Expansion Project Executive Summary Financing Study Report, February 2001).

Assumptions: As of August 15, 2002, the one-year LIBOR rate was 1.65%, the fixed LIBOR swap rate was 4.65%, and the CIRR rate was 4.90%.

<sup>a</sup>Some numbers were changed to protect confidentiality.

<sup>b</sup>The spread does not reflect the interest rebate of 20 bps to 40 bps.

**Exhibit 11** Proposed Sources and Uses of Funds for Pot Line 5

Uses of Funds			Possible Sources of Funds	
	US\$ millions	% of Total		US\$ millions
Smelter facilities	\$967	56.9%	Commercial bank loans	\$300 to \$750
Power expansion	453	26.6	Metals-linked facility	300 to 500
Working capital	45	2.7	Islamic lease	200 to 400
Financing costs	117	6.9	Local bond	200
Contingency	<u>118</u>	<u>6.9</u>	ECA guar./insured loans	<u>150 to 1,250</u>
			Total debt	1,550
<b>Project Total</b>	<b>\$1,700</b>	<b>100.0%</b>	Shareholders' equity (cash)	<u>150</u>
			<b>Project Total</b>	<b>\$1,700</b>

Source: Company (Alba Line 5 Expansion Project Executive Summary Financing Study Report, February 2001 and Preliminary Information Memorandum, September 2002).

## Exhibit 12 Financial Projections, 2002–2018

Year	Total Production (000 tons)	Aluminum Prices <sup>a</sup>	Total Revenue (millions)	Base Case Financing Strategy				Proposed Multisourced Financing Strategy						
				Comm. Bank Loans	Guar./Insured Loans	ECA	Total Debt Outstanding	Comm. Bank Loans	Local Bond	Islamic Lease	Metals- Linked Facility	Guar./Insured Loans	ECA	Total Debt Outstanding
2002	512	\$1,560	\$795	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
2003	512	1,560	795	140.0	480.0	0.0	620.0	320.0	0.0	0.0	300.0	0.0	0.0	620.0
2004	757	1,560	1,180	280.0	960.0	0.0	1,240.0	440.0	200.0	200.0	300.0	100.0	0.0	1,240.0
2005	819	1,560	1,278	350.0	1,200.0	0.0	1,550.0	500.0	200.0	400.0	300.0	150.0	0.0	1,550.0
2006	819	1,560	1,278	315.0	1,100.0	0.0	1,415.0	450.0	180.0	366.7	275.0	137.5	0.0	1,409.2
2007	819	1,560	1,278	280.0	1,000.0	0.0	1,280.0	400.0	160.0	333.3	250.0	125.0	0.0	1,268.3
2008	819	1,560	1,278	245.0	900.0	0.0	1,145.0	350.0	140.0	300.0	225.0	112.5	0.0	1,127.5
2009	819	1,560	1,278	210.0	800.0	0.0	1,010.0	300.0	120.0	266.7	200.0	100.0	0.0	986.7
2010	819	1,560	1,278	175.0	700.0	0.0	875.0	250.0	100.0	233.3	175.0	87.5	0.0	845.8
2011	819	1,560	1,278	140.0	600.0	0.0	740.0	200.0	80.0	200.0	150.0	75.0	0.0	705.0
2012	819	1,560	1,278	105.0	500.0	0.0	605.0	150.0	60.0	166.7	125.0	62.5	0.0	564.2
2013	819	1,560	1,278	70.0	400.0	0.0	470.0	100.0	40.0	133.3	100.0	50.0	0.0	423.3
2014	819	1,560	1,278	35.0	300.0	0.0	335.0	50.0	20.0	100.0	75.0	37.5	0.0	282.5
2015	819	1,560	1,278	0.0	200.0	0.0	200.0	0.0	0.0	66.7	50.0	25.0	0.0	141.7
2016	819	1,560	1,278	0.0	100.0	0.0	100.0	0.0	0.0	33.3	25.0	12.5	0.0	70.8
2017	819	1,560	1,278	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2018	819	1,560	1,278	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Source: Casewriter, company estimates.

<sup>a</sup>Forecast London Metals Exchange price plus an Alba price premium.

## Endnotes

<sup>1</sup> "Bahrain Country Report," The Economist Intelligence Unit, August 2002, p. 1.

<sup>2</sup> "Bahrain Business Profile," Hongkong Shanghai Banking Corporation, 11<sup>th</sup> ed., second quarter 2003, p. 8.

<sup>3</sup> "Bahrain Country Profile 2002," The Economist Intelligence Unit, p. 18.

<sup>4</sup> "Bahrain Urges Arabs to Oppose War," *Gulf News*, September 2, 2002.

<sup>5</sup> "Aluminium Market to See Lengthy Surplus," *Reuters News*, August 5, 2002.

<sup>6</sup> Aluminium Bahrain Line 5 Expansion Financing Preliminary Information Memorandum, September 2002, p. 10.

<sup>7</sup> "TDJ Brings Independence," *Middle East Economic Digest*, July 5, 2002.

<sup>8</sup> G. Randolph and A. Schrantz, "The Use of the Capital Markets to Fund the Ras Gas Project," *The Journal of Project Finance*, vol. 3, no. 2 (Summer 1997): 7.