
International Competition: Conflict and Cooperation in Government Export Financing

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Export credit agencies (ECAs) are rivals, competing with each other to finance exports on terms that advance both national and exporter interests. But they are also partners, limiting their rivalry by coordinating terms and conditions of support, sharing information on borrowers, and cofinancing projects. This chapter briefly reviews traditional export credit support in areas governed under the Organization for Economic Cooperation and Development (OECD) Arrangement, examines at greater length the diverging export financing practices in areas not presently regulated, and concludes with recommendations for US policy in areas where export financing practices presently differ (see table 8.1).¹

At the outset, it is important to recognize that debate over the role of government in export financing rests on differences in views on the

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1. For a historical discussion of competition and cooperation between the US Export-Import Bank and other export credit agencies, see Rodriguez (1987) and Hillman (1982).

Table 8.1 OECD arrangement: Regulated and unregulated issues (as of 2000)

Regulated issues

Minimum interest rates
Repayment tenor and installments
Special sectors—large civilian aircraft, nuclear power plants, and ships
Tied aid for commercially viable projects
Tied aid for commercially nonviable projects
Risk premiums

Unregulated issues

Untied aid
Market windows
Domestic-content requirements
Project financing risk standards
Foreign policy and human rights standards
Environmental and social standards

legitimacy of rationales, as well as differences in perceptions of fact. There are three fundamental justifications for a public role in export financing:

- One rationale centers on correcting for financial market failure. For example, scale effects and information asymmetries may contribute to incompleteness of private financial markets. ECAs may offset possible financial market failures by providing export credits directly, by gathering and sharing information on risks, and by insuring against risks. Controversies here center less on the logic of public intervention if private financial markets fail than on whether private financial markets are in fact failing.
- A second rationale centers on adjusting export financing to correct for failures of nonfinancial markets. For example, domestic economic spill-over benefits, national security costs, and environmental externalities may not be reflected in the private prices of goods and services. Governments have varied terms of access to public credit to take account of such nonfinancial externalities, subsidizing credit for exports from “strategic” sectors, denying credit for exports to states deemed security or foreign policy risks, subsidizing credit for environmentally beneficial projects, and denying credit to projects not meeting environmental standards. Because governments agree neither on the nature of nonfinancial market failures nor on the role that public export financing should play in internalizing nonfinancial externalities, this is a controversial area.
- A third rationale centers on offsetting perceived unfair promotional efforts of foreign official export credit and aid programs. For example, governments have matched and overmatched the terms and conditions offered by foreign competitors to level the playing field for national

exporters, to discourage unfair export financing practices by competitors, and ultimately to support multilateral rules that restrict unfair practices. This third rationale is also controversial. Some argue that meeting the competition triggers spirals of conflict at worst and exacerbates market distortions at best. Others argue that bilateral reciprocity helps contain counterproductive export financing competition.

In this chapter, we focus on the second and third rationales. The most striking current conflicts over financing practices rest on national differences as to the role of export financing in addressing possible nonfinancial market failures. These controversies are of more than academic interest, because differences between US and foreign export financing practices may operate to the detriment of US exporters. This chapter compares US government support for exporters with support provided by major foreign governments, and is organized into three sections.

The first section examines practices regulated by the OECD regime. For more than 20 years, the United States and its partners have gradually expanded coverage of the OECD Arrangement. They began with efforts to eliminate interest-rate subsidies, including restrictions on repayment tenors and installments; then they tried to regulate competition in nuclear power plants and large civilian aircraft, practically bar tied aid on commercially viable projects, require minimum grant elements for tied aid on commercially nonviable projects, and restrict country eligibility; and, most recently, they sought to limit subsidization of the price charged per credit risk by establishing floors for risk-based premium fees. In these regulated areas, US exporters operate on more or less level playing fields with their competitors.²

The second section examines export credit competition in areas not currently regulated by the OECD Arrangement or other international understandings. As surely as night follows day, export credit practices move one step ahead of the judge. These practices include domestic-content requirements and project financing risk standards, but also issues where manipulation of terms of access to financing are rationalized as responses to nonfinancial market failures—such as untied aid, environmental and social standards, and foreign policy and human rights standards. These new forms of competition are less transparent and harder to evaluate than traditional regulated practices. This section examines aggregate data on emerging markets and uses a case study on competition for the Chinese power plant market to describe and evaluate effects of differences in aspects of noncommercial tied aid, nominally untied aid, and conditionality placed on the exporter country's financing. So-called market windows are also an important area not regulated under

2. For a discussion of the relationship between bilateral reciprocity and the creation and defense of regimes, see Oye (1992) and Bayard and Elliott (1994).

the current OECD Arrangement; but this subject is addressed in the essay in this volume by Allan I. Mendelowitz (see chapter 9).

The third section examines major policy options for addressing differences between US and competitor export financing practices. Relative to its competitors, the United States maintains inflexible domestic-content and project risk acceptance standards, sets clearer environmental guidelines with extensive project documentation requirements, offers low levels of tied and untied official development assistance (ODA), and links ECA and ODA financing to foreign policy objectives. In response to these differences, US policymakers may rely on threats of retaliation to induce others to move toward US positions, emulate the positions of others, or live with the differences. The chapter concludes with recommendations as to when each of these strategies should be applied.

Export Credit Practices under the OECD Arrangement

The United States has worked with foreign partners to establish multi-lateral understandings to contain competition while verifying compliance and targeting violations. This strategy has placed US exporters on reasonably level playing fields, at least in those areas covered by agreements—the cost and terms of ECA financing and the uses of tied aid.³

Loans and risk guarantees provided by public and quasi-public ECAs finance goods and services that are typically capital intensive, such as aircraft, petrochemical plants, power plants, and telecommunications equipment. Because these are big-ticket items, important for job creation and economic growth, there are strong economic and political incentives for governments to sweeten export credits to improve their export competitiveness. In the past, this was done by subsidizing interest rates, by subsidizing prices charged for credit risk, or by combining development aid with export credits to create “mixed credits”—soft loans tied to purchases from the donor.

To control these practices, the initial OECD Arrangement on Guidelines for Officially Supported Export Credits (commonly known as the “Arrangement” or the “Consensus”) was established in April 1978. At the time of the negotiation of the Arrangement, US exporters operated at a substantial disadvantage relative to European competitors, who benefited from ECA interest-rate subsidization. With the system of reference rates devised under the Arrangement, interest-rate subsidies by ECAs no longer appear to place US exporters at a competitive advantage. Interest rates, as reported to the OECD under the terms of the Arrangement, may not be perfectly transparent. References to variable rates, without

3. For a comprehensive description of the evolution of the OECD Arrangement, see Ray (1995).

specifying the spread or index rate, do not provide sufficient information to verify whether interest rates are subsidized. Thus, there have been reports of a few examples of submarket interest rates that might be offset by inflated project prices. This is the equivalent of marking up the price of a car and cutting interest rates on financing packages. To check on whether this represents a subsidy, one must have standards for evaluating prices on large, lumpy, unique projects—a difficult task. These blemishes notwithstanding, the system of reference rates and reporting appears to be working well.

Soon after interest-rate subsidies began to be addressed by the Arrangement, tied aid credits started occupying center stage. Finally, in 1991, the Arrangement members agreed, largely through pressures exerted by the United States, to the “Helsinki package.” This agreement sets forth rules that attempt to limit the use of tied aid to promote exports. Helsinki was motivated in part by a desire to redirect tied aid credits away from commercial projects and creditworthy developing countries that can attract commercial finance, and toward true development projects in developing countries that are less well-off and have great difficulty attracting private funds. However, it was also motivated by the self-interest of OECD countries. The United States in particular had become concerned about credit races that developed in the 1980s and the level of subsidies that were being provided by governments to support exports (Moravcsik 1989).

When the debt crisis depressed orders of high-value-added goods and services in developing-country markets, conflicts among OECD nations over tied aid credits intensified. The United States lacked the ideological propensity and institutional arrangements to use aid funds to subsidize exports of capital goods. Complaints mounted among US exporters that they were losing contracts to firms in other countries because of substantial differentials in financing packages. By the end of the decade, tied aid and US export competitiveness had become a hot political issue in Washington (Praag 1989). To create bargaining leverage in the negotiation process with other OECD countries to end the tied aid practice in the mid-1980s, Congress created a \$300 million “war chest” that could be used by the US Export-Import Bank to initiate tied aid offers or to counter tied aid offers made by other countries. The war chest succeeded in its primary mission of bringing foreign governments to the negotiating table.

The tied aid negotiations achieved a degree of progress during the 1980s in establishing minimum levels of concessionality. The Helsinki package, which went into effect in February 1992, consolidated and enhanced this progress. The package distinguishes among recipient countries, according to their income per capita, and among projects, depending on whether they are commercially viable or nonviable. It prohibits tied aid for commercially viable projects. Tied aid for commercially nonviable projects requires a minimum level of concessionality and is restricted to poor countries—in 2000, countries with income per capita below \$2,995.

The exceptions to these rules are projects anywhere with a concessionality level of 80 percent or higher, and projects in poor countries when the project is commercially viable but below the minimum size of Special Drawing Rights (SDR) 2 million.

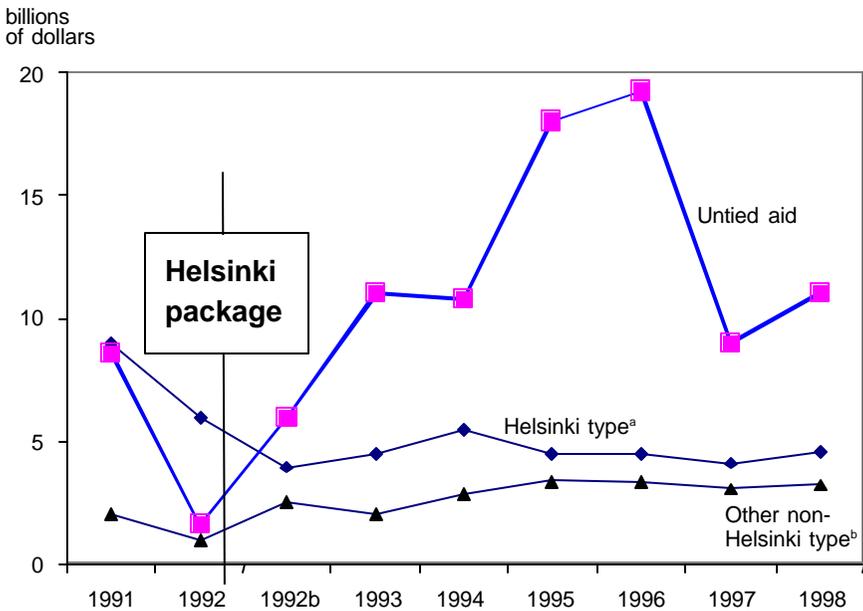
Tied aid for commercially nonviable projects is generally allowed on the grounds that such projects typically have some characteristics of public goods, such as roads and water supply; they are capital intensive, with slow capacity uptake, such as railroads and subway systems; or they have low-income groups as their principal beneficiary, such as coal gasification or rural electrification. The minimum level of concessionality required for commercially nonviable projects varies by income per capita of recipient countries. The agreement works through a notification system, with participating countries informing other countries of every tied aid offer made. These offers can be challenged by other members in a consultative process that takes place in Paris (OECD 1995).

The United States has been the key member in maintaining discipline within the Helsinki group. Of the 119 projects examined by the Consultations Group, 46 were accepted as commercially nonviable, 62 were rejected as commercially viable, and 11 were pending as of 1998. Energy and communications represented two-thirds of the challenges, with 23 of 44 power projects and 19 of 32 communications projects found to be commercially viable. From the perspective of US exporters, the strategy of challenging appears to deter the use of tied aid to support commercially viable projects. The number of cases challenged as commercially viable dropped from 39 in 1992 to 2 in 1997 and 4 in 1998 (US Export-Import Bank 1999).

The war chest of the mid-1980s was transformed into the Tied Aid Capital Projects Fund in 1994, and its objectives were expanded beyond pursuing negotiating goals and enforcing the agreement. Mindful of the export potential of tied aid projects—even projects considered commercially nonviable under Helsinki rules—the Tied Aid Fund is designed to match (and therefore discipline) rule-compliant tied aid offers for projects that have a high commercial value. The Ex-Im Bank has implemented its new mandate by extending “willingness to match” letters for projects in “dynamic markets” that have the prospect of follow-on orders for US exporters.

US challenges to tied aid practices at the OECD and US matching strategies, even if inadequately funded, appear to have cut sharply into reliance on these practices. As figure 8.1 suggests, the Helsinki package drove down the volume of tied aid, though the volume of untied aid increased. This trend toward diminished reliance on tied aid was reversed in 1997-99, with Denmark, Japan, and Spain increasing official tied aid activity to the pre-Helsinki level. Furthermore, the Helsinki package has altered the composition of projects financed through tied aid, eliminating commercially viable agricultural, manufacturing, construction,

Figure 8.1 OECD notifications of aid offers classified by their status under the Arrangement, 1991-98



- a. Helsinki type: tied aid for projects notified as commercially nonviable.
- b. Other non-Helsinki type: Tied aid for any project under SDR 2 million in poor countries; tied aid for least-developed countries; tied aid with concessional level of 80 percent or higher; and tied aid for ships.

Source: US Export-Import Bank, *Report to the US Congress on Tied Aid*, 29 November 1999.

and communication projects—while reducing, but not eliminating, energy, transport, and social projects.⁴

However, the fact remains that in residual areas of tied aid competition, US tied aid programs at the Agency for International Development (AID) are less attractive than those of foreign competitors, because they do not fund capital projects. In addition, Ex-Im Bank funding is inadequate to match all tied aid offers facing US exporters. As the 1999 Ex-Im report on competitiveness (US Export-Import Bank 2000) observes, offers from the Tied Aid Capital Projects Fund sometimes come too late to allow the US supplier a real shot at winning the sale. Below, we examine tied aid for commercially nonviable projects and assess whether the United States should initiate as well as match tied aid on some commercially nonviable projects. Furthermore, we examine whether Japanese untied aid programs

4. See OECD (1998). On 1997-99 trends in tied aid, see US Export-Import Bank (2000).

in areas of commercial viability are serving as a de facto form of export financing.

Most recently, the OECD Arrangement has been expanded to discipline the subsidization of prices charged for credit risk (i.e., insurance premiums). The Knaepen package of 1997 sets forth principles for setting minimum premium benchmarks for sovereign credit risks. The goal of the package is to force convergence of premium rates, taking systematic account of differences in sovereign risk and the quality and percentage of risk cover. These rules apply to all officially supported export credits, whether provided by direct financing, refinancing, insurance, or guarantees. Since the Knaepen package came into effect in April 1999, fee differences remain only for nonsovereign risk. The 1999 Ex-Im Bank competitiveness report (US Export-Import Bank 2000) offers a caution on this point, noting that there is no standard methodology for evaluating commercial risk and that premiums may be expected to vary widely.

Finally, the OECD Arrangement includes three sectoral agreements. The 1979 Understanding on Export Credit for Ships covers any new sea-going ship or any conversion of a ship, and sets limits of 8.5 years and a minimum interest rate of 8 percent, net of all charges, on official export credits for ship financing. The 1984 Sectoral Understanding on Export Credits for Nuclear Power Plants specified similar restrictions, albeit in a sector that has not been strong. The significance of the 1986 Large Aircraft Sector Understanding, or LASU, has been increasing with robust demand for airliners. It limits export credit competition between the United States, on the one hand, and the French-German-UK Airbus consortium, on the other.

LASU sets a minimum cash payment of 15 percent, specifies a market-based interest rate, establishes a maximum 12-year repayment term, limits the amount of spare parts that may be included in the package, and bans the use of tied aid financing. In 1997-98, European (\$6.6 billion) and US (\$5.4 billion) support was of a similar magnitude and on similar terms. According to the 1999 Ex-Im competitiveness report (US Export-Import Bank 2000), Boeing and the surveyed banks expressed satisfaction with LASU, while criticizing two general limitations on the application of export credit support under LASU: US foreign-content allowances and cover policies. These areas of concern notwithstanding, the relatively well-ordered use of export credits in civil aircraft sales and shipping stands in sharp contrast to the disorderly, unstructured competition in the energy sector, which will be discussed below.

Unregulated Export Financing Practices

Although the evolution and gradual expansion of the OECD Arrangement have constrained or eliminated certain practices that provided com-

petitive advantage, many areas of export credit remain unregulated by the Arrangement or other international understandings. What are these areas, and how significant a role do they play?

First, the OECD Arrangement succeeded in dramatically reducing tied aid for commercially viable prospects. However, even as Helsinki-type aid dropped, unregulated untied aid from Japan expanded, and regulated tied aid from Europe—now for commercially nonviable projects—continued. In contrast, with the exceptions of agricultural and military areas, US tied aid assistance appears to be modest and to be targeted at areas with limited export potential.⁵

Second, the United States has often set self-imposed limitations on exports and export financing. It has done so through unilateral foreign policy and environmental restrictions, through domestic-content and shipping requirements, and through enforcement of strict credit standards for project risk financing. The United States stands alone among industrial exporters in the range and the restrictiveness of these limitations. The difference between US limits and those of other countries has widened as others have shifted toward more flexibility. To examine the effects of these differences in export financing practices, this section draws on two research strategies.

The first research strategy favors breadth over depth. It compares statistics on German, Japanese, and US exports and respective ECA and ODA financing in five critical emerging markets: Brazil, China, Indonesia, Russia, and Turkey—with breakouts by sector, for the period 1995-98. We present summary statistics and broad patterns on national export financing practices, as well as differences among exporting countries in the conditions they place on their ECA and ODA programs. This gives some sense of the magnitude of the differences. However, these statistics cannot provide clear conclusions on the effect that financing differences have on exports.

The second research strategy favors depth over breadth. It examines German, Japanese, and US export credit support for energy-related projects in China. Germany, Japan, and the United States are all competitive suppliers of energy equipment and services. To probe the role of ECA and ODA activity in the struggle for the Chinese power plant market, we examine the association between financing arrangements and contract winners for boilers, turbines, and generators. We do so for the \$28 billion worth of coal-fired power plants financed in China between 1988 and 1998 that were supported with official Western aid and credits.

5. US military aid programs provide significant support for exports of weapons systems and technologies. We do not address this important unregulated area. For a review, see Keller and Noland (2000).

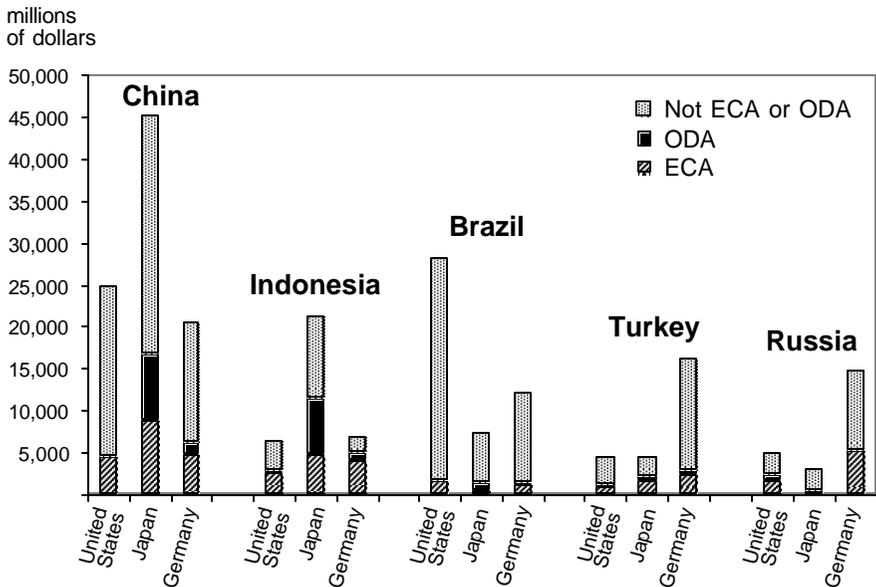
ECA and ODA Financing: An Overview of Activities and Conditions

The OECD Arrangement brought about convergence in the cost of ECA credits, pushed hard against the use of tied aid for commercially viable activity, and imposed restrictions on tied aid for commercially nonviable projects. To evaluate the responses of Germany, Japan, and the United States, this section reviews general patterns of ECA and ODA financing in five key emerging markets. Between 1995 and 1998, Germany, Japan, and the United States—the Big Three exporters—exported a total of \$671 billion in goods to Brazil, China, Indonesia, Russia, and Turkey. Approximately one-third—\$221 billion—of these exports were capital goods, including large-ticket items such as aircraft, machinery, power plants, ships, medical equipment, and fiber-optic networks. Official financial flows played a significant role in these exports.

A rough indicator of this role can be seen by combining the amounts of medium- and long-term ECA financing with ODA grant and loan commitments and comparing their total to trade flow volumes. This shows that ECA and ODA financing made up approximately 10 percent of the Big Three exporting countries' total exports, and 30 percent of their capital-goods exports, during the 1995-98 period. In the case of the United States, official financing made up approximately 9 percent of the \$142 billion in total exports to the five emerging markets. The role of bilateral financing was even larger for Japan and Germany. During this period, official flows made up 23 percent of Japan's \$139 billion in total exports and 18 percent of Germany's \$116 billion in total exports.

The specific role that bilateral financing plays varies greatly by exporter and recipient country. Figure 8.2 shows the value of capital-goods exports in dollars, and the portion that was financed by ECA, ODA, and other sources. Figure 8.3 shows these figures in percentage terms. Of the five emerging markets, China was the largest export market for the Big Three and the largest recipient of export credits and ODA. China imported \$45 billion in capital goods from Japan and received \$16.7 billion in export credits and ODA. In Indonesia, official financing from Germany, Japan, and the United States made up 45, 54, and 73 percent of capital-goods exports, respectively. In Turkey, official finance activity made up 28 percent of US capital-goods exports, 47 percent of Japan's, and 18 percent of Germany's. The role of official finance is substantially lower in some countries. For example, ODA and ECA activity in Brazil was relatively small, constituting 6 percent of US capital-goods exports, 20 percent of Japan's, and 11 percent of Germany's. The relatively low numbers for Brazil may be explained by the fact that ECA activity fell sharply when Brazil refused an International Monetary Fund structural-adjustment package, fell into arrears, and could not secure significant medium- or long-term credit from public sources during much of the early 1990s.

Figure 8.2 Total capital-goods exports to five key emerging markets: ECA, bilateral ODA, and other financing, 1995-98



ECA = Export credit agency.

ODA = Official development assistance.

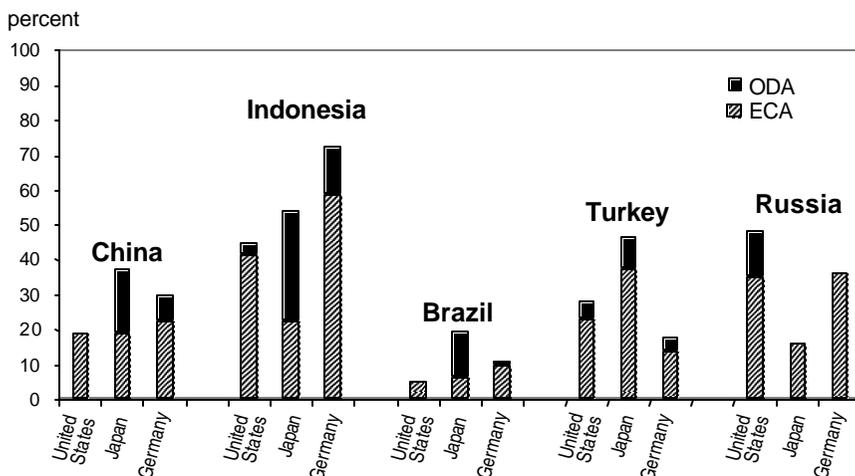
Notes: In some cases, ECA and ODA flows exceed reported exports. This is true for railroad construction and rolling stock sales from Japan (largely to China), for power plant equipment sales from the United States, and for aircraft sales from Germany. These results are a function of lags and anomalies in reporting. First, ECA and ODA are reported in the year when financial commitments are made, not when the goods are shipped. Trade flows are reported in the year that goods are shipped. As a result, data for ECA and ODA and data for capital-goods exports do not correspond perfectly.

Sources: OECD ITCS/CTCI Revision 2, 1999; OECD CRS database, February 2000; *Annual Reports* of US Export-Import Bank; KfW *Annual Report of Financial Cooperation*; Export-Import Bank of Japan *Annual Report*, various years; trade press; author interviews.

Sectoral breakouts of official flows also show strong differences. Figure 8.4 shows the level of capital-goods exports to the five emerging markets broken out by four key sectors—power, telecommunications, aircraft, and rail and ship transport—from 1995 to 1998. Here the data on export credits cover financing with repayment terms of 5 years or more. Figure 8.5 shows the same data in percentage terms. These figures show that official finance was particularly important in the sales of aircraft, power plant equipment, and rail and shipping equipment, but played a smaller role in financing telecommunications equipment (Evans 1999).

Flows of ODA deserve special attention, given the large differences among the three donors and how ODA is treated under the OECD Arrangement. Germany, Japan, and the United States provided \$20.5 billion

Figure 8.3 Total capital-goods exports to five key emerging markets: Percentage financed by ECA and bilateral ODA, 1995-98



ECA = Export credit agency.
ODA = Official development assistance.

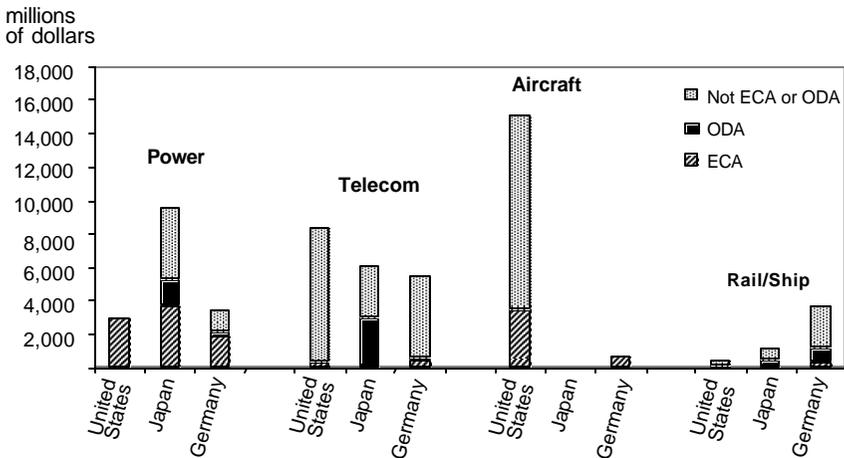
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in ODA commitments between 1995 and 1998. As shown in figure 8.6, China and Indonesia were the largest recipients of ODA. The majority of this concessional assistance was provided by Japan, which has consistently focused a large portion of its aid budget on these countries since the mid-1980s.

In comparison with Japan, the United States provided relatively little aid to the five countries, giving just \$1.2 billion over 4 years. And unlike Japan, the United States provided aid on a grant basis instead of concessional loans. The largest allocation of US assistance among the five recipients went to Russia, which received \$682 million, or 60 percent of US commitments. The United States provided no ODA to China. Germany provided a total of \$3.3 billion, with 45 percent going to China and most of the remainder going to Indonesia and Turkey. The concessionality level of German aid ranged from 42 percent for Indonesia to 70 percent for Turkey.

Figure 8.4 Capital-goods exports, by sector, to five key emerging markets: ECA, bilateral ODA, and other financing, 1995-98



ECA = Export credit agency.
ODA = Official development assistance.

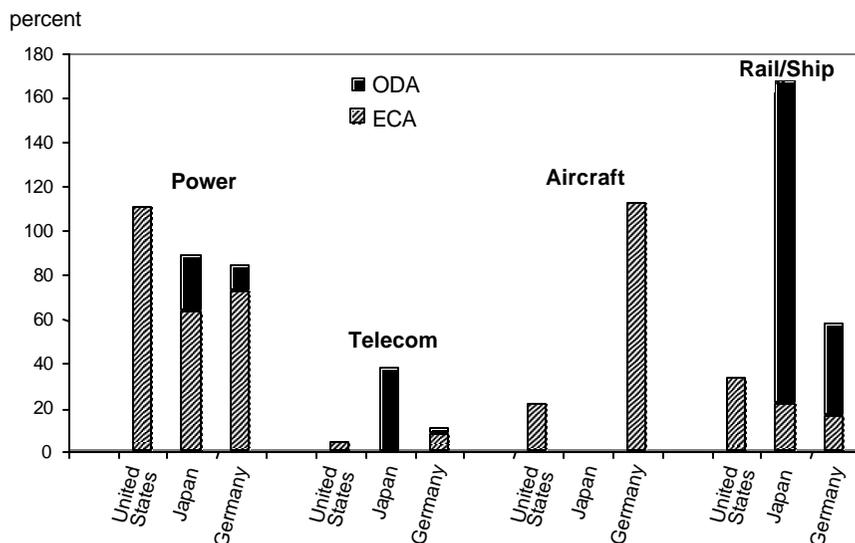
Notes: (a) In some cases, ECA and ODA flows exceed reported exports. This is true for railroad construction and rolling stock sales from Japan (largely to China), for power plant equipment sales from the United States, and for aircraft sales from Germany. These results are a function of lags and anomalies in reporting. First, ECA and ODA are reported in the year when financial commitments are made, not when the goods are shipped. Trade flows are reported in the year that goods are shipped. As a result, data for ECA and ODA and data for capital-goods exports do not correspond perfectly. (b) ECA figures exclude activity with repayment period under one year. (c) Figures for aircraft exports from Germany appear exceedingly low. This is because Airbus aircraft are assembled and exported from France and therefore do not show up as part of trade flows from Germany to emerging markets but instead as flows from Germany to France. Between 1995 and 1998, Germany exported \$22.2 billion in aircraft components and associated equipment. Once assembled, a portion of these goods are then sold with credit and insurance coverage provided by Hermes and KfW.

Sources: OECD ITCS/CTCI Revision 2, 1999; OECD CRS database, February 2000; *Annual Reports of US Export-Import Bank*; KfW *Annual Report of Financial Cooperation*; *Export-Import Bank of Japan Annual Report*, various years; trade press; author interviews.

These figures provide clear illustrations of the interaction between general foreign policy goals and the levels of ECA and ODA support. The low US profile in China follows from congressional aid restrictions that are part of the larger foreign policy debate over US relations with China. The low Japanese profile in Russia is part of a larger foreign policy debate over disputed territories occupied by Russia since 1945.

The commercial advantage derived from these flows is not fully transparent. As a result of international pressure to recycle trade surpluses and end the overt linkages between Japan's development assistance and mercantilist trade practices, Japan officially untied nearly all its tied aid in the 1980s, and untied aid now makes up the bulk of its aid program.

Figure 8.5 Capital-goods exports, by sector, to five key emerging markets: Percent financed by ECA and bilateral ODA, 1995-98



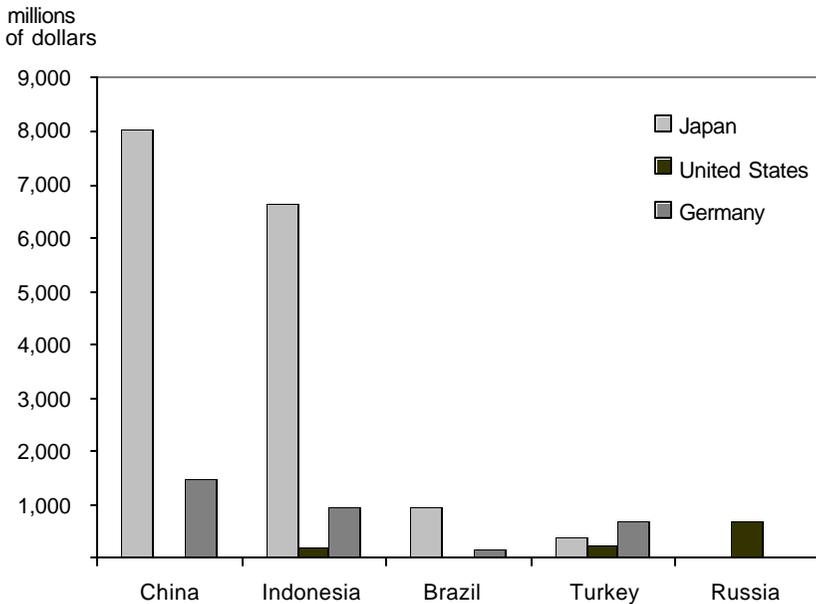
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Sources: OECD ITCS/CTCI Revision 2, 1999; OECD CRS database, February 2000; *Annual Reports of US Export-Import Bank*; KfW *Annual Report of Financial Cooperation*; Export-Import Bank of Japan *Annual Report*, various years; trade press; author interviews.

While non-Japanese firms win a portion of these contracts, it is unclear exactly how many or for how much. The Overseas Economic Cooperation Fund (OECF) and other Japanese government bodies release insufficient information to make a determination. Some programs are clearly untied and fall outside the disciplines of the OECD Arrangement. This is true for the Ministry of International Trade and Industry's (MITI's) Green Aid Plan, which has provided approximately \$1 billion over 10 years to support the demonstration of Japanese energy-efficient and clean environmental technologies in Asia (McGoldrick 1995).

Figure 8.6 ODA flows to five key emerging markets, 1995-98
(millions of dollars)



Source: OECD CRS database, February 2000.

Other programs are more difficult to evaluate. This is true of the special environmental aid program that Japan announced in late 1997 at the time of the Kyoto conference. Funding is in the form of loans of up to 40 years at 0.75 percent interest with grace periods of up to 10 years. Although the aid is not officially tied, officials have left open the possibility of tying on a case-by-case basis. From July 1998 to March 1999, this program funded \$2.5 billion worth of projects (see table 8.2). Projects include the Bangkok Metro at \$490 million, the rehabilitation of a power plant in Malaysia at \$446 million, electric power transmission upgrades in Chongqing at \$125 million, construction of an emergency power plant in Bosnia at \$10 million, equipment for the Humi power plant in Vietnam at \$119 million, and construction of a wastewater treatment plant in Mauritius at \$14 million. The range of projects funded includes items of clear commercial interest, such as the many power plants on the list, as well as commercially nonviable projects, such as metro systems. These are important projects for developing countries, in both environmental and economic terms. They are also important projects for the Japanese companies that are often beneficiaries of procurement contracts, whether the aid is tied or untied.

In the case of the United States, the provision of ODA appears to provide

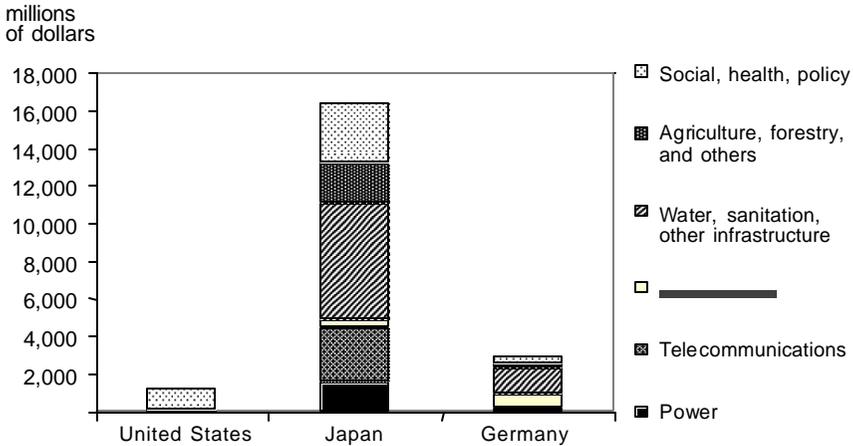
Table 8.2 Japan special (0.75 interest rate) environmental official development assistance, fiscal 1998 (millions of dollars)

Country	Project	Date ^a	Amount
Thailand	Bangkok Metro system	July 02	270.8
The Philippines	Metro Manila transportation planning	September 02	215.2
The Philippines	Metro Irigan industrial park infrastructure development	September 02	10.6
The Philippines	Mindanao coastal environmental reservation	September 02	20.3
The Philippines	Financial support policy for municipal governments	September 02	6.3
The Philippines	Fisheries management	September 02	0.1
Mauritius	Wastewater treatment plant	September 02	14.0
Sri Lanka	Support for environmental policy/management	September 02	24.8
Thailand	Credits for agricultural sector regional development	September 02	22.9
Thailand	Bangkok Metro system	September 02	212.2
Thailand	Regional development	September 02	4.8
Bosnia	Emergency power plants	December 02	10.1
China	Heilongjiang pollution control along Sunghuajiang River	December 02	95.8
China	Jiling pollution control along the Sunghuajiang River	December 02	116.4
China	Dam construction in Panshito, Henan Province	December 02	2.7
China	Hydroelectric power in Yuanmu, Henang Province	December 02	160.6
China	Efficiency improvement in transmission network, Chongqing	December 02	125.0
China	Comprehensive control of acid rain and air pollution in Liujou	December 02	43.3
China	Flue gas desulfurization unit, Hancheng No. 2 power plant	December 02	12.6
China	Control environmental pollution	December 02	29.4
China	Water pollution control in Huihe River, Henan Province	December 02	65.7
China	Pollution control in Xianjiang River, Hunan Province	December 02	56.1
Malaysia	Rehabilitation of Port Dixon thermal power plant	March 03	446.2
The Philippines	Metro Manila air pollution control	March 03	330.0
Vietnam	Humi thermal power plant construction	March 03	119.0
Vietnam	Hydroelectric power in Dining	March 03	36.6
Vietnam	Regional development for environmental improvement	March 03	14.8
Total			2,466.5

a. Projected completion date.

Source: Overseas Economic Cooperation Fund, 1999.

Figure 8.7 ODA flows by sector to five key emerging markets, 1995-98



ODA = Official development assistance.

Source: OECD CRS database, February 2000.

little direct export advantage in the five markets examined. Although US ODA is fully tied, a breakout of this assistance by sector reveals that 95 percent went to social, health, and policy initiatives (see figure 8.7). The remaining 5 percent was allocated to agriculture and forestry projects, primarily in Indonesia. The commercial gains from German ODA are much more apparent. Only 15 percent of German ODA went to social, health, and policy initiatives. The rest went to support rail, shipping, water, sanitation, and other infrastructure-related projects (see table 8.3). Moreover, in the five markets studied, more than \$2.5 billion, or 77 percent, of German aid was officially tied to the purchase of goods and services from German firms.

The core question raised by these cases may be narrowly framed in terms of possible violations of Helsinki, with set-piece debates over the precise definition of commercial viability. But there is a larger, more subtle issue here. The world market for commercially nonviable products, as defined under the evolving Helsinki regime, is substantial and important. The Helsinki list of projects generally considered commercially nonviable runs well beyond social capital. The list includes road and bridge construction, airport terminal and runway construction, passenger rail-road locomotives, cars and signaling equipment, water treatment facilities, fire trucks, hospital supplies, urban rail and metro systems, sewage and sanitation systems, and water treatment facilities. The market for these noncommercial projects is created by local public spending, as leveraged by international aid, and demands for goods and services tend to be filled by firms from donor states.

**Table 8.3 Germany tied official development assistance:
Some examples, 1996-98** (millions of dollars)

Country	Project	Date	Type	Amount pledged	Amount tied
China	Commodity aid (flood relief)	1998	Grant	14.2	14.2
China	Windpark in Hainan and Zheijiang provinces	1996	Loan	15.3	15.2
China	Wind power project	1997	Loan	13.8	13.8
China	Technological research and development	1997	Loan	16.5	16.5
China	Flue gas desulfurization, Beijing power plant	1997	Loan	30.0	30.0
China	Flue gas desulfurization equipment, Hangzhou power plant	1997	Loan	31.7	31.7
China	Flue gas desulfurization equipment, Chongqing power plant	1997	Loan	34.6	34.6
China	Municipal sewage treatment plant	1997	Loan	34.6	34.6
China	Credit program to purchase capital goods	1997	Loan	75.0	37.5
China	Two cargo ships	1996	Loan	48.7	48.7
China	Three ships	1996	Loan	81.1	81.1
China	Ten multipurpose cargo ships	1996	Loan	288.1	288.1
China	Shanghai Metro, phase II, line 2	1996	Loan	518.4	518.4
Indonesia	Rehabilitation of 12 district hospitals	1998	Loan	12.3	12.1
Turkey	Wastewater disposal project, Isparta	1997	Grant	15.0	8.1
Turkey	Environmental protection project, Dalyan/Koycegiz	1997	Grant	11.5	11.5
Turkey	Municipal sewage treatment plant, Ankara	1996	Loan	29.9	13.3
Turkey	Biogas power plant, Ankara	1996	Loan	13.3	13.3
Turkey	Wastewater disposal project, Kayseri	1997	Loan	55.4	43.8
Turkey	Flue gas desulfurization unit, Yatagan power plant	1996	Loan	62.5	62.5
Turkey	Rail transportation services and equipment	1997	Loan	143.6	143.6
Total				1,545.5	1,472.6

Note: This table includes tied aid commitments above \$8 million. There were no German projects of this type in Brazil or Russia between 1996 and 1998.

Source: OECD CRS database, February 2000.

The expression “export competition in markets for commercially non-viable projects” may sound oxymoronic. But competition clearly exists. The project may not be commercially viable, but the export sales to those projects clearly are! As indicated in table 8.3, Germany offers substantial support for commercially nonviable activities on a tied basis, as is permitted under Helsinki. Japan has relied largely on untied aid to support these projects, but is now beginning to retie its development aid. The percentage of OECF loans for capital goods officially tied by Japan rose from 0 percent in 1996 to 9 percent in 1998 (Limura 2000). The United States offers grants that are tied on a much smaller scale than Germany or Japan, and not for capital projects. As a consequence, US firms that produce engineering services, renewable energy systems, hospital supplies, and water treatment facilities operate at a disadvantage relative to their German and Japanese counterparts.

Differences in ECA Conditionality

Many factors influence why German, Japanese, or US firms win orders for steel plants, chemical complexes, and paper mills. These include differences in exchange rates, geographic proximity, regional trade pacts, and the price competitiveness and technical prowess of firms competing for contracts. However, given the large role of official financing in capital-goods exports, differences in country practices in the unregulated areas may also play a role. Unfortunately, aggregate figures provide only a limited basis for determining how large this role is. To better explain the limitations and possibilities of the use of ECA financing from different countries, we turn to look at differences in explicit and implicit access conditions on official export credits and guarantees.

Domestic-Content Requirements

A number of differences in practice among ECAs are long-standing and widely recognized. There are no common guidelines regarding domestic-content requirements of ECAs. The United States imposes the strictest, most complex content requirements. The US Export-Import Bank will provide loans or guarantees for the entire shipment only if the domestic content is 85 percent or more of the total contract value (and 85 percent or more of major line items within the contract). If the domestic content does not meet the 85 percent threshold, the available extent of Ex-Im Bank loans and guarantees is reduced proportionally.⁶

6. This item-by-item requirement substantially limits the availability of Ex-Im Bank support and imposes a substantial documentation burden on the exporter. To promote use of the US merchant marine, foreign shipping costs are considered a foreign component if included in the total contract price of the item. This requirement has been the object of

Other countries are much more flexible. Japan, for example, does not have explicit content requirements, but it has maintained targets of approximately 30 percent, with a shift to 70 percent in the late 1980s and early 1990s, when unemployment and “hollowing out” were major concerns. Canada (as a general rule) and European Union members (for procurement within the EU) allow more than 15 percent foreign content and apply the content rules more flexibly than does the United States. US exporters have long complained about stricter domestic-content requirements. Aggregate figures do not reveal the losses to US-based production and employment from the stiffer US standards. However, US multinational companies with manufacturing sites in multiple countries can and do shift production to other locations if they cannot find competitive sources within the United States.

Risk and Project Financing Standards

Eligibility for ECA support for projects financed on a limited-recourse or nonrecourse basis varies across creditor countries. In the past, most large-scale infrastructure development was undertaken by national or local governments. Credits for purchases by these agents were generally backed by sovereign repayment guarantees that provided ECAs with reasonable assurances. However, a combination of factors—capital constraints, privatization of government-owned assets, and efforts by governments to move large infrastructure projects off their balance sheets—increased the number of projects that sought financing on the basis of project cash flows in the 1990s. The role of sovereign guarantees, accordingly, diminished. This created a new basis for competition among ECAs. Some have taken a more flexible approach toward assuming project finance risk, whereas others have taken a more conservative, less flexible stance and have lost contracts for their exporters.

Foreign Policy and Human Rights Standards

The United States has imposed foreign policy sanctions that affect export financing more frequently, across a broader array of programs, and for longer periods than any other country.⁷ The United States often makes its export credit conditional on the human rights, narcotics, terrorism,

much criticism by US exporters because it often places significant constraints on the timing and sequencing of their overseas deliveries. Finally, Ex-Im Bank eligibility for local content—costs incurred in the buyer country—is determined on a case-by-case basis, depending on the competitive situation and the availability of local cost support from commercial resources.

7. For a comprehensive assessment of ECA conditionality and US export performance, see Richardson (1993).

and nuclear proliferation practices of the importing country. What effect do these sanctions have on US exporters? The most severe and enduring of US economic sanctions are directed at smaller countries, such as Burma, Iraq, and Libya, with markets of limited significance to exporters. In the case of larger countries—such as China following the 1989 Tiananmen Square massacre, or India and Pakistan following the 1998 nuclear tests—the United States has often lifted its initial sanctions, but more slowly than other countries. For example, in the case of China, the United States still blocks the Overseas Private Investment Corporation and the Trade and Development Agency (but not Ex-Im Bank) from doing business—more than 10 years after sanctions were first imposed. Other countries have long since removed whatever restrictions they imposed in 1989. How are US exporters affected by this characteristically American stance?

The effects of foreign policy sanctions on exporters are difficult to determine from aggregate figures alone. However, specific cases suggest that the effects on exports can be large. A recent example of how sanctions affect export contracts may be found in the second phase of the Dabhol power plant in India. In early 1998, the Enron Corporation awarded the engineering and procurement contract for the 1,444 megawatt (MW), \$1.2 billion project to Bechtel Enterprises. General Electric (GE) was short-listed in the competitive bidding process against Asea Brown Boveri for the major equipment orders. GE's bid was submitted with the expectation that Ex-Im Bank would provide up to \$500 million in credits to cover gas turbines and other equipment exported from the United States.

However, two days after India detonated nuclear devices on 11 May 1998, President Bill Clinton announced sanctions that barred Ex-Im Bank and other federal agencies from approving new loans, loan guarantees, or insurance to India. Enron was able to move forward with the project with GE as the primary contractor when the Japanese and Belgian export credit agencies stepped in with financing packages.⁸ GE shifted production to its manufacturing plants in Japan and Belgium and gave a portion of the project to Japanese manufacturers, including four heat-recovery steam generators awarded to Kawasaki Heavy Industries. The Japanese government joined the United States in imposing sanctions on India, but its sanctions applied only to ODA programs and not to official export credit financing supplied by the Japan Export-Import Bank (JEXIM) or to trade insurance provided by the Export-Import Insurance Department and Ministry of International Trade and Industry of Japan (EID-MITI). The Belgian Export-Import Bank, Office National du Ducoire, was also free to support the project, allowing Belgium to capture export orders that otherwise would likely have gone to the United States.

8. "Enron Ties Up \$1 Billion Loans with Japanese, Belgian Ex-Im Banks," *Hindustan Times*, 1 September 1998.

Environmental and Social Standards

Exporting countries apply different degrees of rigor in evaluating the social and environmental impacts of ECA-financed projects. During the 1980s, US-based nongovernmental organizations (NGOs) with links to groups in developing countries were successful in forcing the World Bank and other multilateral institutions to take greater account of the environmental and social impacts of their lending activities. During the 1990s, campaigns by NGOs and other interests spilled into ECA activity. In 1992, as part of Congress's revision of the charter of the US Export-Import Bank, it required the agency to establish review procedures for projects with potential major environmental impacts. Interim procedures were issued in 1993 and formally adopted in 1995, based largely on World Bank guidelines. However, NGOs have been less successful in forcing other ECAs to adopt more than cursory checklists of environmental impacts.

The differences among OECD countries on this issue have raised concerns that US exporters are at a competitive disadvantage. These procedures give Ex-Im Bank the authority to withhold financing for projects that exceed criteria established for air, water, and other negative environmental impacts. Ex-Im Bank does not always invoke this authority. Seven of the 157 transactions completed by Ex-Im between February 1995 and September 1996 were approved even though they did not fully comply with the agency's published guidelines. This included financing for a coal-fired power station in China that did not comply with established nitrogen oxide (NO_x) criteria. Conversely, environmental concerns, specifically the failure of China to provide requested documentation on environmental issues, were used to deny support for US exporters bidding on contracts for the Three Gorges hydroelectric project. In 1995, Ex-Im's board rejected a request for letters of interest worth \$414 million that were submitted by US companies. British, Canadian, German, and Japanese ECAs stepped in with financing packages. More than \$750 million in contracts was awarded to firms that sourced their equipment from Brazil, Canada, and Europe.

As a result of such incidents, the US government has pushed to establish common environmental guidelines among major ECAs, within the framework of the OECD Arrangement as well as within the Group of Eight (G-8) largest industrial countries. Exporting countries differ in their assessments of environmental costs associated with projects, in their views on altering terms of export financing to offset acknowledged environmental costs, and in the weight attached to mercantile relative to environmental goals. As a consequence, US initiatives to negotiate common environmental guidelines have met with resistance. Other countries argue that the United States is trying to "multilateralize" restrictions imposed by the US Congress.

ECA and ODA Financing: Fighting over the Power Plant Market in China

To estimate the effects of state-backed export financing on exports, it is necessary to go beyond country aggregates and look at which firms in particular win contracts and why. This subsection examines the competition between Germany, Japan, and the United States for a slice of China's booming power plant market during the 1990s. Although the three countries each have competitive suppliers of power plant boilers, turbines, and engineering and banking services, they vary widely as to the level and type of government financing programs available to exporters. This experience provides an in-depth record to test how differences in the volumes, types, and conditions of government financing influence contract outcomes. What effect did the diverse export financing strategies deployed by the Big Three have on the ability of firms to win large Chinese contracts for power plant equipment and services? We address this issue for two reasons.

First, general observations on changes in volume and form of financing do not provide an adequate basis for inferring how changes in financing affect exports. This subsection of the chapter works through the details in one area to secure a stronger basis for inferring the export effect.

Second, during the past decade, China was the most dynamic export market in the world and, together with aircraft, power plants were the most hotly contested segments of the Chinese market. The case is important in and of itself.

China's Power Market Builds Steam

In 1991, Chinese officials expanded their search for international sources of capital and equipment for the power market. This turn abroad was motivated by domestic capital constraints, a desire for advanced technologies, and the limitations of domestic producers. Strong economic growth was driving double-digit power demand growth. Each year the government announced larger, more ambitious lists of priority infrastructure projects. Between 1993 and 1997, China's State Planning Commission approved investment in more than 52,000 MW of coal-fired capacity alone, approximately three-fourths of which was targeted for foreign investment. At a commissioning rate of 12,000 to 15,000 MW per year by the middle of the decade, China represented about one-fourth of total world demand for new installed electric power capacity.⁹

9. Stefan Wagstyl, "Power Generating Equipment: Intense Competition Squeezes Margins," *Financial Times*, 26 June 1996.

The booming China market represented an increasingly important market for foreign power plant equipment manufacturers.¹⁰ Deregulation and slow growth in electricity demand in North America and Europe had created strong downward price pressure, a squeeze on margins, and surplus capacity in the industry. Heavy competition, poor profitability, and a dwindling supply of orders drove painful consolidation, including large-scale layoffs and plant closures. Westinghouse shut down its factory in Pensacola, Florida, with the loss of 650 jobs in 1996. The restructuring of GE's power division cost 4,000 jobs between 1991 and 1996.¹¹

Conditions were even more severe in Europe, where the industry's turbine manufacturers were running at 60 percent of capacity and boiler manufacturers at just 20 percent. These conditions drove a wave of consolidation, including the merger of Sweden's Asea and Switzerland's Brown Boveri to create ABB, and British GEC and French Alstom to create GEC Alstom. In each case, job losses followed. The French boilermaker Stein Industries, a subsidiary of GEC Alstom, announced it was cutting more than 250 jobs in 1991, a month after ABB announced that it was shedding 900 workers, including 600 at its boiler and turbine plants in Germany. The need to cut costs spilled over to firms that were not a part of major mergers. During this period, Babcock Energy (later to become Mitsui-Babcock Energy) cut more than 800 jobs at its main boiler plant in Renfrew, Scotland.¹²

The growing export opportunities in China for power plants and other large-ticket items drew the attention of those at the highest levels of foreign governments during the 1990s. Between 1993 and 1997, all the major OECD governments sent high-profile trade delegations to China. The first major government mission was led by German Chancellor Helmut Kohl in November 1993. Kohl told the press that deals landed during his trip were worth DM7 billion (\$4.1 billion).¹³ Germany's lead was quickly followed by Canada, France, Japan, and the United Kingdom, each of which organized major trade delegations with hundreds of industry officials in tow. The United States also got into the act with large delegations led by Commerce Secretary Ron Brown in 1994, Energy Secretary Hazel O'Leary in 1995, and Vice President Al Gore in 1997. Each claimed

10. See, e.g., Xiao Gao, "Siemens: China Key to Asian Sales Strategy," *Beijing China Daily*, 24-30 August 1997, 2.

11. William Carley, "GE Taps Trains Chief in Effort to Shore up Troubled Energy Unit," *Wall Street Journal*, 6 May 1996.

12. "Survey of Power Generation Equipment—Weakest Will Go to the Wall," *Financial Times*, 25 May 1993.

13. Andrew Quinn, "Kohl Leaves Beijing, Bags Brimming with Big Orders," Reuters News Service, 17 November 1993.

deals worth from \$3 to \$6 billion, including major contracts for aircraft, automobiles, and power plants.¹⁴

During this period, each government studied how its bilateral trade finance and aid programs could be better enlisted to support ties with China and help exporters win contracts. This attention also extended to the lending priorities of multilateral institutions such as the World Bank and Asian Development Bank, which were rapidly expanding their lending programs to China.

ECA Credit Flows

China—a major test for the OECD Arrangement countries—has often been a complicity partner in intensifying export credit competition, seeking to reduce the cost of imported equipment by enticing suppliers to offer better financing terms or assume more project risk. Export credits directed at China have steadily increased since they were temporarily halted after Tiananmen Square. Between 1995 and 1998, medium- and long-term ECA activity supported by France, Germany, Japan, the United States, and the United Kingdom alone totaled more than \$27 billion.

Energy projects make up a major part of ECA portfolios and are a battleground in the fierce competition for equipment and engineering orders. Export credits have played a central role in China's civilian nuclear power program. Credits for nuclear power have been dominated by French and, to a lesser extent, Canadian contractors, owing to restrictions imposed by the US government on the sale of nuclear equipment, which were not lifted until 1997. The French export credit agency *Compagnie Française d'Assurance pour le Commerce Extérieur* (COFACE) offered nearly \$6 billion to finance engineering and equipment orders for Daya Bay I and II and Ling'ao I facilities in Guangdong Province, and Canada's Export Development Corporation (EDC) provided more than \$1.1 billion to support the third phase of Qinshan in Zhejiang Province.

ECAs have been active in financing large-scale hydropower, most notably for the controversial Three Gorges dam. In 1997, export credit agencies from Canada, France, Germany, and the United Kingdom alone provided \$600 million in export credits for the first round of \$1.1 billion in foreign contracts awarded for the \$25 billion project. Renewable power has also received a small amount of financing. For example, in 1996, the US Export-Import Bank provided \$12 million in support for wind turbines supplied by Zond Systems.¹⁵

14. "Brown's Delegation Signs China Deals," *Financial Times*, 30 August 1994; "O'Leary Visit Nets US \$6 billion in Contracts," *South China Morning Post*, 25 February 1995; "Gore China Trip Reaps Trade Bounty," *Daily Telegraph*, 26 March 1997.

15. In the case of the wind turbine contact won by Zond Systems, Ex-Im Bank drew on resources available from its war chest to counter a mixed-credit offer by the Danish government.

By far the largest share of energy-related export credits has gone to support the construction of coal-fired power plants. During the 1990s, export credit agencies extended loans and guarantees for services and capital goods associated with 21 coal-fired power plants totaling more than 20,000 MW in new capacity and a total investment cost of approximately \$16.5 billion (see table 8.4, p. 142). This includes engineering services, boiler components, steam turbines, generators, automated control systems, and electric static precipitators to control particulate emissions.

The upsurge in export credits to China's power sector in the late 1980s and early 1990s corresponded to the strong demand for electric power and the shift in financing away from the central government to local authorities and foreign investors. From 1980 to 1990, the central government's share in financing power plants in China fell from 55 to 17 percent.¹⁶ In its place, provincial authorities and foreign equity and debt took a larger share. Export credit agencies financed approximately 55 percent of the power projects supported with official foreign financing, not including power plants financed as part of barter trade with Russia.

Like many emerging economies in the 1990s, China shifted from exclusive reliance on sovereign guarantees to finance imported equipment for large-scale infrastructure projects to various forms of limited-recourse and nonrecourse financing. Efforts to raise foreign and domestic capital for power-sector investment were spearheaded by several hybrid Chinese corporate entities established with a mixture of government and private ownership. These companies were potentially lucrative financial bets because they benefited from preferential government policies that guarantee a profit after costs and taxes, including all debt-service costs and exchange rate losses. They also were politically well connected, with former high-ranking government officials sitting on their boards and holding senior management positions (Chow 1997). However, they were required to raise funds and purchase equipment for projects—such as Heze Phase II, Liaocheng, and Shiheng Phase II—without sovereign guarantees and therefore still carried substantial risks. This was particularly true given the weak legal framework for currency conversion, dispute resolution, and other aspects of project finance in China.

Among the largest of these Chinese companies were China Power International Holdings and the subsidiaries of China Huaneng Group, which operated directly under the State Council. These subsidiaries included Shandong Huaneng and Huaneng Power International, which both floated shares on the New York Stock Exchange in 1994. In addition, the central government approved several experimental build-own-operate projects open to 100 percent foreign ownership. Several were sponsored by the central government, starting with Laibin B in Guangxi and Changsha in Hunan Province. Other coal-fired power projects open to full foreign

16. Murray, Vietor, and Reinhardt (1998, 652); see also Yang and Yu (1996).

ownership on a project-finance basis were sponsored by provincial governments, including the Zhuhai project in Guangdong, the Meizhouwan project in Fujian Province, and the Hefei project in Anhui Province.

ODA Flows

China has received a large amount of concessionary financing from multilateral and bilateral sources. Between 1988 and 1997, China got commitments for more than \$50 billion in below-market-interest-rate loans and grants for a wide range of infrastructure and social investments.

Multilateral assistance. In 1981, the World Bank began lending in China. Since 1988, the Bank has made commitments to China totaling \$21.8 billion, and China became the Bank's largest client in 1993. Approximately 75 percent of this lending is at or near market interest rates, through the International Bank for Reconstruction and Development (IBRD). The remaining 25 percent has been provided on a concessional basis through the International Development Association (IDA). The World Bank has been a major source of financing for hydropower development in China. This includes the massive Ertan hydropower station in Sichuan Province, where the Bank is providing \$1.05 billion in loans, including \$270 million for transmission lines. At 240 meters, the double-arched dam is the highest in China and the third highest in the world. When completed, it will have six 500 MW turbines, for a total installed capacity of 3,300 MW. The Bank is also supporting five other hydropower projects, including Shuikou, Tianhuangping, Xiaolangdi, and Daguangba, for an additional 3,560 MW. Moreover, the Bank has been an important source of financing for large coal-fired power stations, providing more than \$2.7 billion for 9,600 MW. This includes the 3,000 MW Beilungang project in Zhejiang Province and the 1,800 MW Waigaoqiao expansion in Shanghai.

The second largest source of multilateral assistance has been the Asian Development Bank (ADB). Like the World Bank, the ADB also has a concessional loan program, but most power projects have been financed through its ordinary capital resources. The ADB has been a major source of financing for hydropower projects, providing \$1.8 billion since the late 1980s for a total installed capacity of 3,580 MW. This includes the 1,000 MW Zhanghewan pumped storage project in Hebei Province and the Guangzhou pumped storage project in Guangdong Province. Like the World Bank, the ADB has been an important source of financing for coal-fired power stations. Through its conventional lending, it has provided nearly \$600 million to support the provision of equipment for four power stations totaling 1,800 MW. The ADB has also promoted foreign privately funded projects by taking an equity position. For example, it took a 5 percent stake in the Meizhouwan project in Fujian Province, a project jointly developed by the independent power developer InterGen—a 50-50 joint venture between Bechtel and Royal Dutch Shell—and the

Lippo Group of Hong Kong, which was financed largely by official ECAs and by commercial banks.

Bilateral assistance. Bilateral aid to China has been dominated by Japan. Japan began its official aid program in 1979, a year after it normalized diplomatic relations with China. Since that time, official aid flows have grown steadily. Between 1988 and 1997, Japan made commitments of more than \$12 billion in loans and grants. As with the World Bank, China became Japan's largest client for official assistance in 1993. Between 1988 and 1997, 13 European countries also provided assistance to China that was worth \$8.5 billion. Germany has been the largest European donor, with \$3.6 billion in projects. Together, France and the United Kingdom have provided \$1.6 billion in official assistance, although their terms have been quite different: French assistance is nearly all loans, whereas British assistance has consisted solely of grants. Other countries that have an active assistance program in China include Canada and Australia, which have provided \$676 million and \$295 million respectively during the past decade.

The United States stands out among the major OECD countries for providing no ODA funds to China. Restrictions written into the authorizing legislation of the US Agency for International Development (US AID) against operating in communist countries have blocked the agency from offering programs in China. As US-China relations warmed in the 1980s, other US agencies took up cooperative activities with China that were principally directed toward supporting US trade interests. For example, between 1981 and 1989, the Trade and Development Agency provided \$24 million to US companies for feasibility studies and training activities in the Chinese power sector. These programs were brought to a halt by Tiananmen Square and congressional sanctions. After 1994, a number of agencies launched China-related studies—research and training activities not categorized as ODA—but the amounts have been small, totaling less than \$10 million. Norway, by comparison, provided grants worth \$18 million in 1996 alone.

Energy-related projects figure prominently in bilateral flows. Japan has been the dominant source of concessional financing for hydropower development. During the 1990s, Japan provided more than \$1.4 billion to support the construction of nearly 5,000 MW of hydroelectric capacity, including the massive 2,520 MW Tianshengqiao project in Guizhou Province. Japan has also been the dominant bilateral donor for coal-fired power plants, financing nearly 3,000 MW of power. Canada, Finland, Germany, and the United Kingdom have financed approximately 850 MW. A much smaller amount (less than \$25 million) has gone to other types of thermal power generation, such as gas, diesel, and oil-fired power plants from Finland, Germany, and the United Kingdom. A somewhat larger amount of bilateral financing, approximately \$60 million, has gone to renewable energy projects—mostly wind turbines from Denmark and Germany and geothermal projects supported by New Zealand. In the

case of Japan, lending for the power sector generally has been done on an untied basis, whereas bilateral loans made by Canada, Finland, Germany, the United Kingdom, and other donors (most in the early 1990s) were provided on a tied basis.

Winners and Losers: The Effects of Official Export Financing

What effect did the diverse strategies of export financing deployed by Germany, Japan, the United States, and other OECD countries have on contracts for key components of power plants—boilers, turbines, and generators? Tables 8.4 and 8.5 summarize financing sources and procurement outcomes for all coal-fired power plants in China above 100 MW with financing commitments made during the boom years of 1988-98. Table 8.4 presents the power plants financed using ECAs. Table 8.5 presents the plants financed through multilateral and bilateral ODA.

Contract wins and losses on ECA-financed projects should roughly indicate the competitive positions of different firms if credit terms are in fact held constant. The OECD Arrangement attempts to move toward a more level financial playing field, leaving firms to compete on quality, price, and source of equipment. However, the pattern of power plant orders in table 8.4 suggests that ECA decisions significantly affect the sourcing of exports. ECA financing, when offered from different countries, may be fairly similar as to the financing cost quoted. But the critical question is whether ECA financing is provided at all and, if so, what are the associated conditions. These decisions not only influence which firms win and lose, but also where the winners—often large, diversified multinational enterprises with production facilities in multiple countries—source their equipment. The main findings for ECA-supported coal-fired power plant contracts may be summarized as follows:

- Consistent with standard ECA requirements, these agencies provide financing support for firms that source within their nations. These included US Export-Import Bank financing support for components supplied by ABB Combustion Engineering, Babcock & Wilcox, Foster Wheeler, General Electric, and Westinghouse; German financing for turbines and generators supplied by Siemens and ABB Kraaftwerke; French financing for GEC Alsthom; British support for boilers and engineering services sourced from Mitsui-Babcock; and Spanish support for Foster Wheeler boilers sourced from its factory in Spain.
- Because power plants often combine large equipment orders from different firms, many power plants bring together financing from several ECAs. This was true of projects such as the Hanfeng and Rizhao power

Table 8.4 ECA-financed coal-fired power plants in China, 1988-98

Project	Province	Development period	Total (mega-watts)	Financing source	Agency	Estimated project cost ^a (millions of dollars)	Supplier	
							Boiler supplier	Steam turbine generator supplier
Laibin B ^c	Guangxi	1998-03	700	France	COFACE	560	GEC Alsthom-Stein Industrie	GEC Alsthom
Luohuang I	Sichuan	1986-89	720	France	COFACE	576	GEC Alsthom-Stein Industrie	GEC Alsthom
Luohuang II	Sichuan	1996-99	700	France	COFACE	560	GEC Alsthom-Stein Industrie	GEC Alsthom
Heze II ^b	Shandong	1998-04	600	United Kingdom	ECGD	480	Mitsui-Babcock Energy	Shanghai United Electric Corp.
Liaocheng ^b	Shandong	1997-00	1,200	United Kingdom	ECGD	960	Mitsui-Babcock Energy	Shanghai United Electric Corp.
Shiheng II ^b	Shandong	1998-02	600	United Kingdom	ECGD	960	Mitsui-Babcock Energy	Shanghai United Electric Corp.
Fuzhou II	Fujian	1996-98	700	United Kingdom, Germany, United States	ECGD, Hermes/Kfw, US Ex-Im	560	Mitsui-Babcock Energy	Siemens Power Generation Group

Dalian II	Liaoning	1995-98	700	United Kingdom, United States	ECGD, US Ex-Im	560	Mitsui-Babcock Energy	Westinghouse Electric Corporation
Dandong	Liaoning	1995-98	700	United Kingdom, United States	ECGD, US Ex-Im	560	Mitsui-Babcock Energy	Westinghouse Electric Corporation
Hefei II ^b	Anhui	1997-01	700	Germany	Hermes/KfW	560	ABB Kraftwerke	ABB (Switzerland)
Yahekou	Henan	1994-97	700	Spain	CESCE	560	Babcock & Wilcox (Spain)	GEC Alsthom
Meizhouwan ^b	Fujian	1997-02	700	Spain, France	CESCE, COFACE	560	Foster Wheeler (Spain)	GEC Alsthom
Hanfeng ^b	Hebei	1996-00	1,320	Spain, Germany	Banco de España/CESCE; Hermes/KfW	1,056	Foster Wheeler (Spain)	Siemens Power Generation Group
Rizhao ^b	Shandong	1996-99	700	Spain, Germany	Banco de España/CESCE; Hermes/KfW	560	Foster Wheeler (Spain)	Siemens Power Generation Group
Ligang I	Jiangsu	1989-93	700	Spain, United States	IDC, US Ex-Im	560	Foster Wheeler (Spain)	Westinghouse Electric Corporation
Zhuhai ^b	Guangdong	1995-00	1,320	Japan	JEXIM/EID-MITI	1,056	Mitsubishi Heavy Industries	Turbine-MHI; Gen-Shanghai
Nantong II	Jiangsu	1996-98	700	United States	US Ex-Im	560	Babcock & Wilcox (United States & China)	GE Power Systems

(table continues next page)

Table 8.4 ECA-financed coal-fired power plants in China, 1988-98 (continued)

Project	Province	Development period	Total (mega-watts)	Financing source	Agency	Estimated project cost ^a (millions of dollars)	Boiler supplier	Steam turbine generator supplier
Shidongkou No. 2-1	Shanghai	1988-92	1,200	United States	US Ex-Im	960	ABB Combustion Engineering (United States)	ABB (Switzerland)
Shajiao C	Guangdong	1995-00	1,980	United States; United Kingdom	US Ex-Im, ECGD	1,496	ABB Combustion Engineering (United States)	GEC Alsthom
Dezhou III	Shandong	1998-02	1,320	United States, Germany	US Ex-Im, Hermes/KfW	1,056	Foster Wheeler; Deutsche Babcock	GE Power Systems
Yangcheng	Shanxi	1996-02	2,100	United States, Germany	US Ex-Im, Hermes/KfW	1,680	Foster Wheeler (United States)	Siemens Power Generation Group
Totals			20,060			16,440		

ECA = Export credit agency; COFACE = Compagnie Française d'Assurance pour le Commerce Extérieur; ECGD = Export Credits Guarantee Department; Hermes = Hermes Kreditversicherungs-AG; KfW = Kreditanstalt für Wiederaufbau; US Ex-Im = US Export-Import Bank; CESCE = Compañía Española de Seguros de Crédito a la Exportación; JEXIM = Japan Export-Import Bank; EID-MITI = Export-Import Insurance Department and Ministry of International Trade and Industry; GE = General Electric; ABB = Asea Brown Boveri.

a. The total cost of power plants is estimated on the basis of \$800 per installed kilowatt, unless more accurate information was available.

b. Build-own-operate project, with limited-recourse project financing, by contrast with financing that has recourse to China sovereign guarantees (the situation for the other projects).

Source: Electric Power industry in China, State Power Corporation, Beijing, various years; trade press; author interviews with vendors.

Table 8.5 ODA-financed coal-fired power plants in China, 1988-98

Project	Province	Development period	Total (mega-watts)	Financing source	Agency	Estimated project cost^a (millions of dollars)	Boiler supplier	Steam turbine generator supplier
Bilateral								
Baoshan	Shanghai	1991-96	350	Japan	OECD	280	Mitsubishi Heavy Industries	Mitsubishi Heavy Industries
Ezhou	Hubei	1992-97	600	Japan	OECD	480	Foster Wheeler (Spain)	Hitachi; Dong Fang
Hejin	Shanxi	1994-98	700	Japan	OECD	560	Mitsubishi Heavy Industries	Mitsubishi Heavy Industries
Jiujiang	Jiangxi	1994-98	700	Japan	OECD	560	Foster Wheeler	Hitachi/Itochu
Sanhe	Hebei	1996-99	600	Japan	OECD	480	Mitsubishi Heavy Industries	Mitsubishi Heavy Industries
Fushun	Liaoning	1992-95	124	United Kingdom	ECGD	99	Mitsubishi-Babcock Energy	ABB
Neijiang	Sichuan	1992-96	100	Finland	Finnish Guarantee Board	80	Foster Wheeler (Varkaus Finland)	Beijing Heavy Machinery
Yang Liu Qing	Tianjin	1994-00	600	Germany	KfW	480	Babcock Lentjes	Shanghai United Electric Corp.
Totals			3,744			3,019		

(table continues next page)

Table 8.5 ODA-financed coal-fired power plants in China, 1988-98 (continued)

Project	Province	Development period	Total (mega-watts)	Financing source	Estimated project cost ^a (millions of dollars)			
					Agency	Boiler supplier	Steam turbine generator supplier	
Multilateral								
Changsha	Hunan	1988-90	200	Multilateral	Asian Development Bank	\$61	Ansaldo SPA (Italy)	Ansaldo SPA (Italy)
Liulin	Shanxi	1991-96	200	Multilateral	Asian Development Bank	160	China National Machinery & Equipment	China National Machinery & Equipment
Qitaihe	Heilongjiang	1994-99	700	Multilateral	Asian Development Bank	560	Harbin Boiler Works	GE Power Systems
Yuzhou	Henan	1995-01	700	Multilateral	Asian Development Bank	560	Harbin Boiler Works	Westinghouse Electric Corporation
Beilungang I	Zhejiang	1986-93	1,200	Multilateral	World Bank (IBRD)	960	Combustion Engineering	Toshiba/AST

Beilungang II	Zhejiang	1995-98	1,800	Multilateral	World Bank (IBRD)	1,440	Babcock & Wilcox (Canada); IHI	Toshiba/IHI (Japan)
Tuoketuo I	In. Mongolia	1996-00	1,200	Multilateral	World Bank (IBRD)	960	Harbin Boiler Works	Hitachi/Itochu (Japan)
Waigaoqiao II	Shanghai	1997-02	1,800	Multilateral	World Bank (IBRD)	1,440	GEC Alsthom/EVT	Siemens Power Generation Group
Wujing Electric Corp.	Shanghai	1995-98	600	Multilateral	World Bank (IBRD)	480	Shanghai United Electric Corporation	Shanghai United Electric Corporation
Yandzhou	Jiangsu	1994-98	1,200	Multilateral	World Bank (IBRD)	960	Babcock & Wilcox	Westinghouse/Siemens
Yanshi	Henan	1992-96	600	Multilateral	World Bank (IBRD)	480	Dong Fang Boiler Works	Hitachi/Dong Fang Turbine Works
Zouxian	Shandong	1992-97	1,200	Multilateral	World Bank (IBRD)	960	Foster Wheeler	Hitachi/Dong Fang Turbine Works
Totals			11,400			9,021		

ODA = Official development assistance; OECF = Overseas Economic Cooperation Fund; ECGD = Export Credits Guarantee Department; KfW = Kreditanstalt für Wiederaufbau; GE = General Electric; ABB = Asea Brown Boveri.

a. Total cost of power plant estimated on the basis of \$500 per installed kilowatt, unless more accurate information was available.

Sources: OECD CRS database, 1999; OECF loans to China, various years; World Bank Group in China: Facts and Figures, World Bank Resident Mission in China, June 1998; Asian Development Bank, Energy Division West, e-mail communication; trade press; author interviews with vendors.

plants in which Kreditanstalt für Wiederaufbau (KfW) financed Siemens turbines and generators and the Spanish government financed boilers manufactured by Foster Wheeler.

- Japan's Export-Import Bank and EID-MITI financed only one project on an export credit basis during 1988-98. The 1,320 MW Zhuhai power plant in Guangdong Province uses boilers and turbines from Mitsubishi Heavy Industries and generators from Shanghai United Electric Corporation. This project was established on a project financing basis, entailing a structure with higher levels of risk than Ex-Im Bank was prepared to accept in China at the time.
- Variation in the stringency of environmental conditions imposed by ECAs appears to have played little role in determining contract outcomes. Ex-Im Bank imposes the strictest, most transparent guidelines and procedures for environmental considerations among ECAs. However, these conditions were not a significant factor in determining winners and losers for coal-fired power plants in China. US firms competing for contracts were either able to modify the project sufficiently to meet the guidelines (through measures such as switching to better quality fuels) or the project was approved by Ex-Im without fully meeting the guidelines. The latter was true in the case of boilers supplied by Foster Wheeler for the 2,100 MW Yangcheng project in Shanxi Province.¹⁷
- Relatively restrictive US content requirements and the conservative US posture on assuming project finance risk in China explain why only 4 out of 21 contracts for boilers, and only 5 out of 21 contracts for steam turbine generators, were sourced from the United States. Although there has been substantial progress in leveling the playing field on interest-rate subsidies and other financial conditions and in the provision of mixed credits, competition among governments has moved to other areas, such as the degree of risk that an ECA will accept. In China, this has been particularly critical for firms competing

17. In the case of Yangcheng, the proposed power plant exceeded NO_x emissions by almost twice the Ex-Im guideline of 700 milligrams per normal cubic meter. Financing for Foster Wheeler's boilers was approved by the Ex-Im board in 1996. Ex-Im Bank's procedures allow it to balance strict application of the guidelines against factors such as foreign competition and the ability of the project to absorb the cost associated with mitigating the identified environmental problems. See US Export-Import Bank (1997). The Bank found that Foster Wheeler's boilers represented state-of-the-art technology. The low-volatility coals to be burned in these boilers require high combustion temperatures that result in high NO_x production. The Bank found that application of advanced postcombustion technologies, such as selective catalytic reduction that would have brought NO_x emissions down to levels specified under Ex-Im guidelines, would also have raised capital costs by more than \$20 million and increased annual operating costs by more than \$20 million, effectively knocking Foster Wheeler out of the running.

to win orders in limited-recourse financing deals not backed by sovereign repayment guarantees from the host government.

The US Export-Import Bank's inflexible stance on project financing in China contributed to the loss of a significant number of orders. Westinghouse was knocked out of the Shandong deal involving the Heze, Liaocheng, and Shiheng power stations and was able to participate only on a much more limited basis through its joint venture and licensing arrangements with Shanghai United Electric Corporation, which won the orders.¹⁸ This was a blow to the company, which posted a \$207 million loss in its power systems division in 1996, and contributed to the decision to close its Pensacola, Florida, factory and consolidate its US operations in Charlotte, North Carolina.

Foster Wheeler lost its bid for the Zhuai project to Mitsubishi Heavy Industries, when JEXIM and EID-MITI agreed to finance the project under the structure offered by China without sovereign guarantees. Foster Wheeler was able to win boiler orders for the Meizhouwan, Hanfeng, and Rizhao power plants, but only by sourcing its equipment from its manufacturing facilities in Spain and elsewhere in Europe.¹⁹ This was made possible when the Spanish government stepped in with loans from Banco de España and guarantees from its ECA, *Compañía Española de Seguros de Crédito a la Exportación* (CESCE). US vendors were likewise put at a disadvantage when France's ECA, COFACE, agreed to assume a large portion of the risks associated with the 700 MW Laibin B project.

Our findings on the effects of ODA financing invite alternative interpretations. Four observations emerge from table 8.5:

- The United States has no horse in this race. When a lack of bilateral aid has left the United States unable to favor US suppliers or support preferred technologies directly, the United States has turned to multilateral institutions. A high-profile example is the US Department of Energy's (DOE) controversial effort to deploy integrated gasification combined cycle (IGCC) technology in China by running the project through the Asian Development Bank.²⁰

18. "Export-Import Bank of the United States—Ex-Im, Westinghouse Row over Shandong Power Scheme," *Power in Asia*, 5 May 1997.

19. Personal communication with Foster Wheeler representative, 21 April 2000. See also Boston Pacific Company (1997, chap. 5).

20. IGCC is an advanced power generating technology that has the ability to achieve better energy efficiencies than conventional pulverized coal-fired power plants, as well as eliminating most sulfur dioxide (SO₂) and NO_x emissions. This technology received substantial support through DOE's domestic clean-coal technology program. In 1994, DOE proposed reallocating funding authorized under its domestic program to finance the additional cost of "showcasing" advanced US technologies in overseas markets. (See US Department of Energy 1994.)

- European and Canadian subsidies are on the decline. Germany and others have gradually withdrawn from this race because of the additional expense associated with raising the concessional content of ODA to meet Helsinki guidelines. The last large coal-fired power plant financed by KfW on a concessional tied basis was in 1993, for the Yang Liu Qing power plant in Tianjin.²¹

After public meetings were held, DOE proposed that \$50 million be allocated to offset part of the costs and risks of demonstrating a \$400 million IGCC project in China. DOE argued that public-sector resources were justified to facilitate the commercialization of the technology; however, Congress rejected the proposal. (The House Appropriations Committee report stated: "The Committee does not support the construction of 'showcase' facilities in international markets as proposed by the Administration. . . . Providing a subsidy to one more gasification project will not make it commercial even if it makes it 'welcome'"; US House of Representatives, "US Department of the Interior and Related Agencies Appropriations Bill, 1995," Report 103-551, 17 June 1994.

The inability to deliver on the \$50 million proposal was a major diplomatic setback for DOE and reinforced the opinion among Chinese officials that US rhetoric concerning the desire to assist China on energy and environment needs was hollow. Despite the setback, DOE continued to promote IGCC through other more limited means. In late 1994, DOE allocated \$200,000 from already authorized resources to undertake an engineering prefeasibility study and continue cultivating constituencies for the technology in China. In 1995, DOE secured an additional \$500,000 in funding to continue feasibility and promotional work.

Vice President Gore's trip to China in the spring of 1997 offered another opportunity for DOE to seek more substantial budgetary support for IGCC. This time a \$70 million proposal was prepared, including a wider array of technologies, with IGCC as the largest budget item. This proposal never received congressional support. However, efforts to secure funds through other means did bear fruit. With US backing, the Asian Development Bank approved a \$500,000 grant in 1997 to undertake a more detailed engineering study of the technology. This was the first step in laying the groundwork for the ADB to provide funding for a large-scale demonstration project. However, a project has yet to go forward.

The cost of IGCC technology is significantly higher than conventional coal-fired technology and difficult for China to justify without foreign concessional financing beyond what the ADB itself is willing to provide. This may explain why China's State Development and Planning Commission has yet to approve or allocate local funds to the project.

21. The \$158 million contract for Yang Liu Qing was won by Babcock Lentjes. Since this time, few tied aid projects have been initiated by Germany. The ones that have proceeded are smaller and more concessional, which complies with the Helsinki rule that if credits are tied for commercially viable projects they must have a concessionality level of 80 percent or greater. The last oil-fired power station KfW supported with tied aid was for \$7.7 million, in 1995, to rehabilitate the Yang Shu Pu. This tied aid contract had a concessionality level of 82 percent.

The last power project supported by the United Kingdom was a \$23 million project, in 1992, for the Fushun power plant in Liaoning. The work for this project went to Mitsui-Babcock Energy. Canada and Finland have both offered concessional financing for smaller-scale 50 MW coal-fired power plants using more environmentally friendly, circulating fluidized-bed technology. Finland provided \$6.5 million in tied credits in 1993, and Canada provided \$8.6 million, of which \$5.3 million was tied. These contracts went to Ahlstrom Pyropower's factory in Varkaus, Finland, which has since been taken over by Foster Wheeler, and to Babcock Wilcox, which has operations for small boilers in Canada.

- Japan's OECF provided untied aid for 7 projects, with contracts awarded on 5 projects. Japanese firms are supplying 3 of 5 boilers and 5 of 5 turbine-generators.²²
- The World Bank and Asian Development Bank financed 12 projects. In contrast to the high success rate of Japanese suppliers in projects financed with Japanese *untied* OECF aid, Japanese firms won no boiler contracts and won only 5 of 12 turbine-generator contracts in the projects financed by the multilateral banks.

With the European withdrawal from ODA competition, the big remaining question is the effect of the substantial Japanese bilateral untied aid program on export performance. The issue here is the superior performance of Japanese firms in winning contracts on projects financed by Japanese untied aid, in contrast to their performance on projects financed by the World Bank, the Asian Development Bank, and ECAs (see table 8.6). Given that ECA financing is constrained by the OECD Arrangement, while World Bank and Asian Development Bank procurement are constrained by international competitive bidding requirements, there are three explanations for the higher success of Japanese firms in capturing untied aid contracts:

- Japanese firms and government officials contend that performance outcomes reflect the superiority of Japanese technology and the willingness of Japanese firms to enter into superior after-service relationships with Chinese partners. They contend that international competitive bidding requirements do not take sufficient account of difficult-to-quantify elements, including quality and after-service.
- US firms and officials contend that Japanese firms and the Japanese government have rigged outcomes to favor Japanese firms. For example, they commonly accuse the Japan International Cooperation Agency of using preliminary engineering studies to define project specifications that place Japanese firms in an advantageous position in subsequent rounds of bidding.
- An alternative explanation of this pattern would emphasize the interests and strategies of the Chinese recipients. Japan's ODA is a critical source of financing for China's infrastructure development, and levels of future support from Japan are certainly not harmed by awarding contracts to Japanese firms. Even if contracts are not rigged, tacit "back-scratching" might play a large role in accounting for these outcomes.

22. This finding is restricted to untied OECF-financed projects. Japan has also provided untied financing for coal-fired power plants through its Export-Import Bank, with contracts won by Chinese and Russian suppliers. The interest rates on Japan Export-Import Bank projects were near commercial rates, far higher than on OECF projects.

Conclusions and Recommendations

John E. Ray (1995) directed attention to justifications for public support in the field of export credits. He noted that “the venerable and fundamental argument for public support in the field of export credits is market failure,” and observed that a more recent rationale holds that public support for export credit is necessary to counter the promotional efforts of foreign export credit agencies. He warned that policies designed to counter unfair practices of others can easily give rise to subsidized and counterproductive export credit competition (Ray 1995).

Five years later, the United States competes on a reasonably even footing on terms, conditions, and implicit levels of subsidization in formal ECA activities regulated under the OECD Arrangement and in sectors regulated by annexes to the Arrangement. The US strategy of regulation and retaliation has been a qualified success. But in areas that are not regulated under the Arrangement, US practices differ markedly from those of other industrial countries. And many of these differences operate to the detriment of potential US exporters.

A first set of differences lies in the levels and implementation of ODA financing. The volume of US aid is low—for the size of the US economy—and aid is heavily focused on social and policy applications, with prohibitions on aid to China and meager flows of ODA, apart from the Middle East. By contrast, other industrial nations, including Germany and Japan, have developed sophisticated programs of ODA that serve mercantile as well as developmental and political ends. These programs are heavily focused on energy, environment, and infrastructure in emerging markets. German programs of tied aid for commercially nonviable projects and Japanese untied aid programs appear to provide material advantages for their exporters relative to US firms.

A second set of differences lies in the nature of eligibility for ECA and ODA financing. The United States retains restrictive requirements on domestic content, project risk, and environmental standards, and it enforces foreign policy conditionality on the basis of human rights, narcotics, terrorism, and the nuclear nonproliferation practices of the importing country. Other exporters proceed with greater flexibility in government financing. Canada and Japan operate with very flexible standards for domestic content, Japan and most European nations appear to operate with greater flexibility on environmental standards, and all other industrial nations retain greater flexibility in coverage relative to their foreign policy goals.

As noted above, US ECA and ODA conditionality directly limit the availability of financing for US exporters. Furthermore, to certify compliance with these many and varied conditions, project documentation required by the US Export-Import Bank is more stringent and more complex than paperwork required by other ECAs. These documentation costs

decrease the appeal of Ex-Im financing relative to financing by foreign ECAs and impede joint ECA financing of projects with mixed US and foreign content.

What measures should the United States adopt? To begin with the obvious, practices that violate the OECD Arrangement should continue to be targeted. The United States should continue to maintain a war chest, monitor the actions of competitors, and offset advantages in areas regulated under the Arrangement. The United States should press to improve the quality of reporting on ECA and ODA transactions regulated under the Arrangement, and examine with care transactions that may violate rules. We noted reports that information on ECA and ODA transactions provided to the OECD did not contain sufficient information on projects and financing terms to verify compliance with several aspects of the current Arrangement. At present, it is difficult to verify levels of (unspecified) ECA floating-interest rates, to determine whether required concessionality levels on tied ODA were offset by inflated project values, and to ascertain whether contracts funded by nominally untied aid may be steered by donor governments toward donor firms through manipulation of engineering studies and other illegitimate practices. The United States should seek to improve reporting under the Arrangement, while continuing with its basic strategy of monitoring and retaliating against breaches of the Arrangement.

But the most significant areas of competitive difference now fall beyond the purview of the Arrangement. The United States has three basic choices with reference to the practices of other industrial nations. First, the United States can push to regulate, trying to persuade others to converge toward its practices. Second, the United States can tolerate divergent behavior, standing aside and accepting differences in export financing practices. Third, the United States can emulate other countries, moving away from its somewhat idiosyncratic approach and instead trying best practices. Our recommendations on practices not presently regulated vary sharply from issue to issue.

First, to what extent should the United States extend the Arrangement model, mixing bargaining and threats of retaliation, in an effort to induce others to move toward its combination of a market-oriented stance on ECA and ODA, and an interventionist stance on linkages to foreign policy goals? The Arrangement took on its present form as a consequence of an odd combination of US power and a near consensus on the fundamental justification for ECA support as a corrective to financial market failures. The United States mustered the resources necessary to target subsidization by other countries. The shift from bilateral targeting to multilateral codification was facilitated by near consensus against market-distorting activities—such as subsidization of interest rates and risk premiums—and the toll that this competition imposed on national treasuries.

This classic retaliation-reciprocity-codification strategy cannot be easily applied to further expand the OECD Arrangement because of the difficulty of devising targeting strategies, and because of the absence of consensus on most of the issues treated in this chapter. Simply put, there is no consensus on the inappropriateness of offering packages of tied aid for commercially nonviable projects. Nor is there consensus on the inappropriateness of untied development assistance that may be shaped by recipients to favor donor-country exports. Nor is there consensus on the foreign policy, environmental, project-risk, or domestic-content requirements that the United States imposes rather more restrictively than its partners. In each of these areas, the governments of industrial countries differ over the nature of nonfinancial externalities and on the appropriateness of using export financing to offset nonfinancial externalities. Under these conditions, creating a level playing field for US exporters by inducing convergence to US standards will be difficult.

These difficulties notwithstanding, in some areas, multilateral convergence toward US standards may be possible. Unless other nations converge toward US or multilateral standards, maintaining conditionality and sanctions will continue to harm US exporters without serving environmental or foreign policy goals. We suggest that common ECA standards for environmental conditionality are within sight. The United States cannot force partners to converge toward US positions, as was done with interest-rate subsidization. But movement toward ECA acceptance of the most recently revised World Bank environmental guidelines appears to be a legitimate focal point for discussion. And within all industrial states, NGOs have been mobilizing with some effectiveness on these issues. Transnational political pressure from NGOs, coupled with more assertive US governmental leadership, is likely to bring about convergence on ECA environmental conditionality, and may even offer some possibility of convergence on human and labor rights.²³

Second, to what extent should the United States live with differences in export credit practices, broadly defined, even at some expense in terms of the competitiveness of US exporters? Diverse national export credit and aid practices may legitimately reflect different societal values and forms of economic and political organization.

Even without substantial US pressure, Japanese and European positions may evolve toward the American position in some areas. This is particularly true for project risk and untied ODA because of growing internal financial constraints. The growing Japanese fiscal crisis and continuing European budgetary constraints have already compelled reappraisals of the more expensive export financing activities discussed above.

23. For a clear presentation of arguments for setting uniform environmental conditions, see Rich (1998; 1999). For an assessment of ECAs and environmental conditionality, see Hsieh et al. (1998).

European and Japanese countermeasures against each other are having an effect. Even without aggressive US matching, it seems likely that the next financial crisis in emerging markets may become an object lesson on the virtue of conservative project risk standards.

Third, to what extent should US practices converge toward those of other industrial societies? Should the United States follow the Japanese model on environmental aid, the Canadian and Japanese models on domestic content, and the German model on promotion of tied noncommercial infrastructure and commercially nonviable projects?

There are problems with a general strategy of emulation, problems that spring from US domestic politics. The intensity of support for traditional content standards, the unpopularity of expanded aid programs, and the ideology against market distortions—all cut against a strategy of convergence toward the behavior of major US competitors.

Nonetheless, in several areas, US emulation of foreign practices may be desirable and possible. With reference to domestic-content standards, we urge the United States to emulate Canadian and Japanese practices. The feasibility of this shift will hinge on how key interest groups, most centrally US unions, come to see their interests. In an increasingly global economy, multinational firms switch production venues and associated export financing packages to minimize costs and to win contracts.

Meanwhile, importing nations in emerging markets often mandate a degree of domestic sourcing. It is not clear that the arbitrary US content requirement, set at 85 percent, maximizes US employment benefits in this world. This key issue mixes economics and politics. Economic analysis can help interest groups evaluate their interests. How would an adjustment in the content requirements affect the prospect of winning contracts? For what sectors or markets would winning a higher share of contracts with lower content requirements be preferable to winning a lower share of contracts with higher content requirements? In this instance, a more systematic sectoral analysis of employment effects will be essential before unions reassess their positions, and before the US Export-Import Bank can frame a strategy of greater flexibility in managing domestic-content requirements.

With reference to tied aid in support of commercially nonviable projects, US exporters operate at a disadvantage relative to German and Japanese competitors. Environmental and developmental constituencies have long been dissatisfied with minimal US support for international environmental and infrastructure activities. These groups may form a coalition in support of more US aid, with sensitivity to commercial, developmental, and environmental goals. Political as well as economic-supply conditions should be considered here. In Germany and Japan, coalitions of export-oriented firms and environmentally and socially oriented movements favor *de facto* and *de jure* tied aid. Indeed, the recent Japanese move from untied aid back toward tied assistance may be driven by the need to

demonstrate the mercantile benefits of development assistance to domestic constituencies.

If noble programs of developmental and environmental aid in the United States are fused with mercantile commercial purpose, support for aid is likely to increase. Steps in this direction would indicate further discussions among Ex-Im Bank, the Environmental Protection Agency, the Department of the Treasury, the Department of State and AID, exporters, and NGOs to identify support for commercially nonviable projects, to devise appropriate financing packages, and to reconcile financing arrangements with the charter of Ex-Im and the terms of the Arrangement. New activities in this area should be funded by higher appropriations, not by diverting funds from minimally funded existing programs.²⁴

Finally, we should note that our position favoring US emulation of the somewhat mercantile ODA practices of foreign competitors, rather than measures to limit ODA competition, is a second-best proposal intended to take account of the interests of developing countries.²⁵ In countries with the most substantial developmental and environmental aid programs, coalitions of export-oriented firms and environmentally and socially oriented forces favor aid. If programs of developmental and environmental aid are severed from crassly bilateral commercial purposes, then aid supplied by donor states is likely to decline. If mildly mercantile ODA competition is contained, access by developing nations to credit on subsidized terms would be reduced. The irony here is that doing good in terms of limiting trade distortions may do harm by reducing development and environmental assistance to emerging markets.

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24. For examples of financing arrangements that have not been adopted, see US Environmental Protection Agency (1999).

25. In our view, a first-best outcome of higher volumes of untied environmental and developmental assistance may not be politically feasible. The conventional argument against tied aid rests on the observation that tying distorts trade, with efficiency losses associated with tying reducing the effectiveness of each unit of aid for recipients. We agree with these observations, but note that increases in the efficiency of each unit of untied aid may be offset by decreases in the volume of aid provided.

The conventional argument notes that untied aid provides more bang for the buck, without considering whether this means that fewer bucks will be provided. We note that tied aid offers more bucks with less bang. The precise terms of the trade-off hinge on whether the effects of mercantile tying on increasing the supply of aid are substantial enough to offset efficiency losses and distortions associated with tying.

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