

the JDB loans are themselves only a part of the companies' financing, they have an importance far beyond their yen amounts.

Likewise, Japanese semiconductor companies receive preferential taxation treatment. This takes many forms, including (1) accelerated depreciation and (2) special first-year depreciation allowance equivalent to one-third of the book value of production facilities using newly developed semiconductor technology. In addition, Japanese companies also benefit from other preferential taxation treatment designed to promote R&D and exports.



While Japan does have an R&D investment tax credit system similar to that in the U.S., albeit not as extensive, there is no special tax credit for new equipment investment. Some of this Japanese disadvantage may be offset by the availability of JDB financing, but financing must by its very nature be more limited in application and impact than a broad tax credit.

JDB financing is intended for the broad range of development issues, including energy projects, social infrastructure, and pollution prevention. Nearly half of the JDB's total loans outstanding are for urban redevelopment, pollution prevention, and other areas intended to improve the people's lives. Nearly 40% is for energy projects. By contrast, the total available for restructuring in the total electronics machinery field, including semiconductors, is less than 1% of JDB's loans. This JDB financing, approximately ¥10.5 billion in 1982, was equivalent to less than 0.5% of the total plant investment by the electronics machinery industry.

Because JDB loans are loans, industry has a full-repayment obligation at interest rates only about 1% less than at the commercial banks, and thus JDB can not even begin to compare in impact with the U.S. investment tax credit. (Because the JDB is required under the JDB Law to be self-financing, it cannot and does not make loans at less than cost.) In the years 1976-82, the U.S. semiconductor industry was enabled to write off a total of approximately \$650 million as a result of the investment tax credit. By contrast, the interest savings to the Japanese industry from JDB financing during 1976-82 was only about \$4 million.

As for the charge that JDB financing is a guarantee for the commercial banks, it should be clear to anyone who examines the situation that the commercial banks are not led into loans by the JDB but make each loan at their own discretion based upon their own evaluation of the borrower's creditworthiness. There are no government guarantees for these business loans.

Moreover, it should be noted that foreign-owned companies in Japan have non-discriminatory access to government financing institutions the same as Japanese companies do. In point of fact, loans are already outstanding to MRC, which is a 80% foreign-owned manufacturer of semiconductor manufacturing equipment, and government financing institutions have indicated a readiness to lend to Fairchild and other U.S. semiconductor firms in Japan should they so desire.

SIA claim re capacity buildup

Japanese semiconductor companies have made a major investment push in 1978-82, and investment levels for the major companies have tripled in that period, most of this attention going to production of the 64K RAM.

Because Japanese 64K RAMs were unloaded onto the market at very low prices and in very large volumes in 1981, prices for 16K RAMs and 64K RAMs virtually collapsed. In the period 1975-80, the per-bit price in dollars fell far faster than the 70% that the learning curve would explain.

The Japanese government's targeting policy played a crucial role in convincing the Japanese industry to undertake this major investment and then to embark upon this aggressive price-cutting for 16K RAMs and 64K RAMs.

(a) There are no major differences between the U.S. and Japanese semiconductor manufacturing industries in terms of production technology, labor costs and economies of scale, and the factor allowing the Japanese industry to price its products so low is government intervention in fields not directly related to company operating costs (e.g. R&D subsidies, research cartels, depreciation tax write-offs,

EIAJ rebuttal

There are two points to note here. First is the relative unimportance of the 64K RAM as less than 4% of the total semiconductor market. It is impossible to characterize the entire semiconductor industry with reference to this single sector. Moreover, and perhaps more important, is the fact that this SIA report completely ignores IBM, AT&T, and other giant captive makers (companies producing in-house for their own use) in its analysis of the 64K RAM market.

Nationality of Leading Producers in IC Fields (1982)

Rank	IC Total	MOS	MPU (Micro-processor)	64K DRAM	64 KEP ROM	Bipolar Digital	
						Linear	Linear
1	U.S.	U.S.	U.S.	Japan	U.S.	U.S.	U.S.
2	U.S.	Japan	Japan	U.S.	Japan	U.S.	U.S.
3	Japan	U.S.	U.S.	Japan	Japan	U.S.	U.S.
4	Japan	U.S.	U.S.	Japan	U.S.	U.S.	Japan
5	U.S.	Japan	Japan	U.S.	U.S.	U.S.	Japan
% of total IC market	100	55	15	4	2	25	20

Source: EIAJ

NB: This table shows only the rankings for the merchant makers.

Besides these merchant makers, there are also some captive makers in the U.S.

In this same connection, as has been pointed out by Phillip Trezise of the Brookings Institution (in a panel discussion on "Outlook for U.S.-Japan Economic Relations in 1983" at the Johns Hopkins University U.S.-Japan Study Center on February 3, 1983):

"I am by no means an expert or even knowledgeable about the so-called "high-tech" industries where presumably Japan is mounting this fearsome challenge, but it is evident that IBM is still the dominant producer of data processing equipment in the world by a wide margin.

"When people say that the Japanese came along in the semiconductor field and grabbed off a big chunk of the American market with a government-organized research cartel and whatever, they must remember that IBM produced the 64K semiconductor at

and the like).

(b) By indicating the areas of future growth, Japanese government targeting policy puts pressure on industry to expand their market shares (lest they have their shares eroded by other companies and thus lose their government subsidies), and this is conducive to this predatory pricing.

By the end of 1981, it is estimated that Japanese companies commanded 38% of the global market for 16K RAMs and 70% of the market for 64K RAMs. The other side of this coin has been major market share erosion for U.S. firms.

This rapid expansion in production capacity resulting from Japan's targeting policy has resulted in a production capacity far outstripping domestic Japanese demand, and the brunt of this policy has thus been borne not by Japanese companies but by foreign companies. In fact, the Japanese government is promoting exports with a wide range of export-promotion policies.

The Japanese export drive is having wide-reaching effects, and already a number of leading U.S. companies in the D-RAM market have decided against expanding production in the face of this Japanese assault. Whereas the U.S. had 10 companies making 16K RAMs, only half of these companies have gone into 64K RAMs. By contrast, all 6 of the Japanese companies making 16K RAMs have gone on to 64K RAMs.

the same time and so did AT&T and so did some others without this elaborate structure. Nobody talked about that.

"IBM now, if I am correctly informed, makes more 64Ks than all the rest of them put together. I think there is a good deal of mystification here. Much of it, of course, is promoted by the merchant producers who have had to compete against a very vigorous Japanese semiconductor industry."

Even if we look only at the 64K RAM commercial market, as the SIA report does, it is clear that Japanese companies have managed to grab a major share of the market because poor investment timing by the U.S. companies meant that they were unable to meet the U.S. demand for these 64K RAMs. In fact, there are a number of U.S. manufacturers (e.g. Motorola and Texas Instruments) which did begin 64K RAM production about the same time as the Japanese companies did, and these companies have been strong from the very beginning. Even given the U.S. industry's overall late start, U.S. production has now come up to speed and the Japanese share of the U.S. market is expected to decline (*vide* Department of Commerce 1982 "U.S. Industrial Outlook," *FORTUNE*, June 1982).

Moreover, in light of the fact that the captive manufacturers of IBM and AT&T did begin 64K RAM production very early on and are expanding their capacity, it is clear that the Japanese companies' competitiveness in the commercial 64K RAM market is not explainable by Japanese government policies. The scale and timing of investment are things which each company decides based upon its own assessment of the market outlook, and this is not something which is subject to government guidance in either the U.S. or Japan—even in 64K RAMs.

Most of the main Japanese semiconductor companies are involved in the whole field of electrical and electronic equipment. (By contrast, most of the U.S. semiconductor companies specialize in semiconductor production.) Thus the Japanese companies tend to make their investment and R&D decisions based upon their assessment of the competition in the broader field of electronic equipment. As such, this is a pattern of investment and R&D decision-making similar to that in such U.S. companies as IBM, Western Electric, Texas Instruments, and Motorola.

In a field such as 64K RAMs which entails precision processing of minute products, factors such as shop production skills, quality control, and other intangibles will show up as major productivity differences even among companies using the same materials and same production equipment. It is these intangibles that the Japanese companies have emphasized.

SIA claim re Japanese market protection

Although the Japanese market was liberalized in 1974, the U.S. share of this Japanese market has never exceeded 12% for any length of time. Compared to the U.S. companies' roughly 56% share of the European market, the share of the Japanese market is abnormally low, hinting that barriers still remain in the Japanese semiconductor market.

Even after the Japanese market was supposedly liberalized, U.S. firms continued to encounter import-exclusion measures. As soon as domestic Japanese companies developed products able to compete with imports from the U.S., there was a massive market shift away from the imports.

The Japanese market has responded very differently to Japanese and U.S. products, so much so that these differences cannot be explained simply by differences in product characteristics, quality or delivery times.

The Japanese government has given its tacit approval to buy-Japanese policies and practices, and, for example, NTT is virtually closed to U.S. suppliers. In fact, there has been no conspicuous growth in the U.S. presence in the Japanese semiconductor market over the past decade.

This continuing Japanese market resistance to imports is a major problem for the U.S. semiconductor industry. Blocked from exporting to Japan, U.S. firms have seen their sales drop and their ability to finance R&D and new plant investment sapped. Moreover, this inability of the U.S. firms to compete effectively in the Japanese market has given the Japanese firms

EIAJ rebuttal

Foreign investment in the Japanese semiconductor market was completely liberalized in November 1974 as was trade in December 1974. The tariff rate of 4.2% is the same as the U.S. tariff rate and one of the lowest anywhere. The Japanese market for semiconductors is one of the most open in the world.

Whereas the U.S. share of the Japanese IC market is approximately 12%, the Japanese share of the U.S. IC market is approximately 5%. From this, it would appear that the U.S. has been the more successful in penetrating the other's market. It is very misleading to compare the U.S. share of the European market (where domestic semiconductor manufacturers are weak) with the U.S. share of the Japanese market. By the SIA's logic, the fact that Japanese automobiles have a 94% share of the Southeast Asian market and only 21% of the U.S. market, means that the U.S. automobile market is very closed to imports.

There is fierce competition among all manufacturers (both Japanese and foreign) in the Japanese semiconductor market, and each company scrambles hard to respond to customer needs so as to survive this competition. Generally, the customer requirements in purchasing ICs are summarized as QCD (quality, cost and delivery) as well as the after-service capability. In comparing suppliers, most customers say that Japanese companies have the edge in quality and delivery.

Trade in Japan is not restricted either by company affiliations (*keiretsu*) or by buy-Japanese policies.

If anything, company affiliations which tend to restrict trade are seen more in the U.S. For example, in July 1982, AT&T announced that it was accepting bids for optical fiber telecommuni-

the opportunity to justify major production expansion and hence to mount a major export drive with all of its deleterious effects on the U.S. industry.

Were the Japanese government not protecting and encouraging the domestic Japanese semiconductor industry, the Japanese industry would not have been so successful in its challenge to the U.S. industry. Now is the time for the U.S. government to act so that further Japanese government support does not further erode the competitive position of U.S. companies in this very important field.

cations equipment with the explicitly nationalistic stipulation that the main parts had to be produced and assembled in the United States. In January 1983, this contract was awarded, not surprisingly, to AT&T's Western Electric subsidiary.

Looking at government procurement, Japanese procurement is non-discriminatory in keeping with the GATT Government Procurement Code. For example, whereas virtually all of the main computers used by U.S. government agencies are U.S. products, the Japanese government is not as closed. (The Prime Minister's Office uses IBM; MITI uses IBM and DEC; and the Japanese National Railways, NTT, and Bank of Japan use IBM.)

Even looking at NTT procurement, agreement was reached between the Japanese and U.S. governments in December 1980 reaffirming the principle of non-discriminatory access. In fact, U.S. sales to NTT in 1982 were twice their 1981 level. (This is perhaps overlooked by SIA because the Japanese government and NTT do not have production facilities and are thus not in the market for ICs of whatever national origin.)

SIA claim re Japanese semiconductor policies and the rules of the international trading system

Japanese government policy for the semiconductor industry is solid grounds for a charge under Article 23 of GATT. For example, the Japanese import quotas on semiconductors until 1975 were in conflict with GATT; through its administrative guidance, the Japanese government is encouraging production cartels and fostering buy-Japanese practices; the Japanese government has determinedly and directly restricted U.S. investments in Japan; and the Japanese government has extended massive assistance to the domestic industry for more than 15 years.

Given Japanese government policy, the tariff concessions which have been made in the semiconductor field are meaningless.

It would also be possible to file charges against Japan under the MTN Subsidies Code provisions against the assistance to the VLSI project, the new-function element project, optoelectronics project, super-computer project, and other projects which constitute major technological subsidies; special low-interest loans for the restructuring and modernization of production facilities; special low-interest loans for the Japan Electronic Computer Company; and special depreciation provisions for production facilities.

EIAJ rebuttal

Japanese government policy in the semiconductor field is intended to complement and enhance the workings of market mechanisms with full respect for the free flow of goods, capital and technology. When necessary to complement these market mechanisms, the Japanese government does provide R&D assistance, financing, preferential taxation, and other encouragement, but even these measures are less in amount and more indirect in mode than those employed by the U.S. and European governments. Japanese government policies are well within the letter and spirit of the relevant international agreements.

The Japanese semiconductor industry is subject to fierce competition, and the Japanese government has never encouraged production cartels or fostered buy-Japanese policies through its administrative guidance.

The Japanese government has worked hard to ensure full liberalization of both goods and capital. In fact, Motorola, Texas Instruments and a number of other U.S. semiconductor companies now operate in Japan.

The Japanese government offers industry far less help than the U.S. government does. For example, Japanese government R&D assistance is less than half of U.S. assistance, the U.S. offers more advantageous R&D testing tax write-offs, and the U.S. investment tax write-off system has no equivalent in Japan.

SIA conclusion

1. The U.S. semiconductor industry owes its decline not to market competition but to the Japanese government's targeting policy of (a) financial assistance, (b) cartel formation, and (c) domestic market protection.
2. In response to this Japanese challenge in semiconductors, the U.S. government should:
 - a. State clearly that it is the policy of the U.S. government to refuse to recognize foreign targeting policies which result in the loss of U.S. technological or economic leadership in the semiconductor field.
 - b. In cooperation with the industry, form a monitoring system for the main semiconductor products in order to identify, analyze, and counter the distorting effects of targeting policy by foreign governments, and deal appropriately with

EIAJ rebuttal

The growth of the Japanese semiconductor industry has been characterized by fierce competition in a free market.

The Japanese government has never encouraged cartel formation or otherwise intervened directly in the semiconductor market, and even the financial incentives which have been offered have been far fewer than those offered the U.S. industry by its government.

Were the Japanese market a protected market with no competition for the domestic industry, how could the domestic Japanese semiconductor industry have developed the competitive strength to compete in international markets?

If one of two trading partners is free to indulge in protectionism simply because it does not like the domestic policies of its trading partner, this permissiveness threatens to engulf the world

unfair trade practices under the Trade Act.

- c. Insist that U.S. companies in Japan be accorded the same treatment as is accorded to Japanese firms, including MITI's favored companies (e.g. Hitachi, NEC, Toshiba, Fujitsu, etc.).
- d. Demand in multinational forums (e.g. GATT and negotiations and procedures under the MTN Subsidies Code) that Japan promptly fulfill its responsibilities and, if necessary, be prepared to exercise U.S. rights under international agreements to protect U.S. interests.
- e. Receive from Congress the necessary authority and procedures to enable the government to effectively undertake the policies and measures outlined above.

in-a tidal wave of protectionism.

Likewise, criticism of R&D policy easily has a chilling effect on basic research, even though the lack of basic research would halt economic development and human progress everywhere. In fact, no less an authority than the President of the U.S. has spoken (in San Francisco on March 4, 1983) of expanding R&D "to enhance the competitiveness of U.S. industry in the world markets." Such policies in support of R&D should be promoted to push back the frontiers of knowledge.

EIAJ conclusion

Once the Japanese reality is seen clear of the intentional distortions of the SIA report, it is clear that Japanese policy is neither unfair nor in violation of free market principles.

For example, even though a number of Japanese companies may join together to do basic research, competition is the rule when it comes to commercializing the results of this joint research. Rather than allowing one company a technological monopoly, this system fosters competition.

While it is claimed that the U.S. does not have a Japanese-like industrial policy, military procurement and military-sponsored R&D function as a very powerful industrial policy and have done much to assist the development of U.S. industry. At the same time, the U.S. is even today unveiling new policies to assist the high technology fields which are so research- and capital-intensive. This is nothing if not industrial policy.

Yet such is not to imply criticism of this U.S. industrial policy. Rather, this U.S. policy is to be appreciated as having played a major role in Western postwar economic development.

Today, the U.S. and Japan stand as the two leaders of the industrialized West. It is most detrimental to the sound technological and economic development of Western society for these two leaders to be carping at each other's policies and to be in an adversary relationship.

While Japanese industry is showing rapid growth in the high technology fields, the U.S. is still the undisputed leader in such fields as computers, space and biotechnology. Even in semiconductors, Japan still lags behind the U.S. Despite this, Japan has made a determined effort to uphold the principles of free trade and to avoid the pitfall of high technology protectionism. For example, at the May 1982 quadrilateral (the U.S., Canada, EC and Japan) conference in Paris, Japan openly stated its three principles governing its policy in the high technology field and pledged itself to pursuing

trade and industrial policies in line with the three principles of (a) world economic revitalization through high technology, (b) liberalization of high technology trade, and (c) international cooperation in high technology development.

(a) By world economic revitalization through high technology is meant the realization that high technology industries push back the economic frontiers and contribute to the revitalization of the world economy. This is a field in which all of the industrialized countries should cooperate.

(b) Trade in high technology and high technology products should be free. Not satisfied with the considerable progress which has already been made or with simply stating principles, Japan is determined to continue to work untiringly for even greater international access in high technology. Likewise, Japan will continue to adhere firmly to its principle of non-discriminatory access for Japanese and foreign firms wishing to take advantage of technology accruing to the Japanese government as a result of government-supported R&D projects.

(c) Japan is interested in promoting international cooperation in the high technology field, and this means cooperating with foreign governments and foreign companies in those high technology projects which lend themselves to such international cooperation. By the same token, Japanese government-supported R&D projects are open on a non-discriminatory basis to participation by foreign-owned companies in Japan.

Such a forthright statement by the government would not have been possible in Paris were the Japanese semiconductor market closed or protectionist. Far from despairing at this government position, the Japanese semiconductor industry has welcomed this strong expression of support for free trade.

It is in this same spirit of hoping that the U.S. and Japanese high technology industries will thrive in a free exchange of goods, capital and technology that the Japanese government has been unwavering in its support of the Japan-U.S. Working Group on High Technology, which is

playing such an important role as a forum for discussion on semiconductors and other high technology fields.

The Western world has been able to build prosperity under the postwar Pax Americana of U.S. leadership and international cooperation promoting free trade and investment. Today, the U.S., Japan and Western Europe must act in concert to promote free trade and economic and technological development. We must reject protectionism with its implicit trade-off and willingness to sacrifice world progress for the false hope of temporary economic relief for a few domestic industries, and in protectionism's place we must take up the banner of free trade in goods, capital and technology for all.

Happily, there has been increasing cross-technology and cross-investment cooperation between the U.S. and Japan as the Japanese semiconductor industry has grown competitively stronger. Joint data collection on semiconductors has begun and a subcommittee including private-sector representatives has been established in line with the recommendations of the Japan-U.S. Working Group on High Technology.

It is to be hoped that the two countries' governments and industries will avail themselves of such forums to further mutual understanding in all fields, including "industrial policy," and hence to pave the way for further development in the spirit of cooperation and competition. Only then can we build a stronger U.S.-Japan relationship for the greater mutual good. ●

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