

Ronald Reagan Presidential Library
Digital Library Collections

This is a PDF of a folder from our textual collections.

Collection: Gunn, Wendell W.: Files
Folder Title: Semiconductor Industry Meeting US
Chamber of Commerce 02/28/1984 (binder)
(2 of 3)
Box: OA 9642

To see more digitized collections visit:

<https://reaganlibrary.gov/archives/digital-library>

To see all Ronald Reagan Presidential Library inventories visit:

<https://reaganlibrary.gov/document-collection>

Contact a reference archivist at: reagan.library@nara.gov

Citation Guidelines: <https://reaganlibrary.gov/citing>

National Archives Catalogue: <https://catalog.archives.gov/>

1984 LEGISLATIVE AGENDA

o R&D TAX CREDIT

The R&D Tax Credit, which provides a 25 percent tax credit for R&D expenditures which exceed prior years' levels, is due to expire soon. The R&D credit has succeeded in encouraging the technological development so essential to economic growth. Thus SIA strongly supports the High Technology Research and Scientific Education Act (S. 2165-Danforth/H.R. 4475-Shannon) which would make the R&D credit a permanent part of the tax code. SIA also endorses the bill's provisions that would expand credits for company contributions to university basic research and enhance the deduction for corporate donations of scientific equipment to post secondary institutions.

o EXPORT CONTROL

SIA, while supporting measures to strengthen national security, opposes measures that unnecessarily restrict exports and raise costs. SIA strongly supports the Comprehensive Operations License (COL) provisions found in the revised House version of the Export Administration Act Reform bill passed in 1983. The COL is designed to facilitate intercompany transfers of high technology between Western bloc nations through generalized two-year licenses rather than individual transaction licenses.

o TARIFF ELIMINATION AND TRADE LEGISLATION

SIA supports a free trade approach to trade problems. SIA seeks to eliminate tariffs on semiconductors and thus endorses a proposal by Senator Danforth and Representative Jones (S. 144/ H.R. 1571) which authorize the President to suspend tariffs as a means of encouraging other countries to take similar actions. (Japan has already agreed to suspend its semiconductor tariff in parallel with a U.S. suspension.) These bills also strengthen the President's hand in dealing with the harmful effects of foreign government targeting practices in high technology.

o ANTITRUST RELIEF—JOINT R&D

In the United States, the high costs of semiconductor R&D are multiplied by the redundant efforts of individual firms, while our foreign competition has the advantage of government financial support and organization. SIA supports legislative reforms which would 1) make clear that the rule of reason is the standard by which R&D joint ventures are to be judged, with the expectation that Congressional committee report language would give some guidance on how that standard would be applied; 2) award successful plaintiffs' only actual damages rather than treble damages in joint R&D cases; 3) establish a negative clearance procedure so that those in doubt could make full disclosure of their joint venture activities to the Department of Justice and receive protection against civil damage actions; and 4) allow successful defendants to collect attorneys fees from plaintiffs.

o COPYRIGHT PROTECTION

The threat of unauthorized copying of semiconductor chip designs is a deterrent to continued innovation in semiconductor products. Semiconductor circuit designs are not currently protected under existing patent and copyright laws. Two bills now before Congress, S. 1201 (Mathias/Hart) and H.R. 1028 (Edwards/Mineta), will provide semiconductor designs with copyright protection. This legislation must pass if innovative companies are to maintain America's technological edge.

INTRODUCTORY REMARKS

My name is Gary Tooker, I am executive Vice President of Motorola Inc., and General Manager of the Semiconductor Products Sector. I am currently serving as Chairman of the Board of the Semiconductor Industry Association (SIA).

As some of you may recall, last year we presented an assessment of the comparative performance of the U.S. and Japanese semiconductor industries today we will update that presentation. I should mention in advance that despite our joint industry-government efforts, the trends are not favorable.

In a few minutes I will ask my colleagues, George Scalise, Charlie Sporck and Eric Bloch to articulate an appropriate American response to the international competitive challenge in the areas of international trade, capital formation and tax policy, and innovation, productivity and joint research, respectively.

For seven years the SIA has been dealing with the problem of how to cope responsibly with competition from Japan. We actually jumped into the fray at an earlier stage than other industries when faced with a similar threat. Our philosophy is to seek open market solutions and not protection.

The strategy we have chosen has been to press for market access in Japan, the elimination of semiconductor tariffs and a portfolio of domestic legislation which provides tax incentives, removes impediments to joint research activities and provides copyright protection for semiconductor designs. The thrust of this approach is to access all markets, to access capital at reasonable cost and to encourage research-intensive activities.

The premise is that we are technological leaders, productivity-competitive, and achieving quality-competitiveness with the Japanese. Given a sound business environment, we can preserve and even enhance our world market leadership.

Following the above strategic approach, we have enjoyed excellent cooperation from the Reagan Administration and bipartisan support from the Congress. Some notable accomplishments include the High Technology Working Group agreement with Japan, the adoption of the incremental R&D tax credit, and the acceleration of MTN reduction of the U.S. and Japanese semiconductor tariff rates.

Now first let's look at our performance since last year.

CHART I

The first chart shows 1983 Worldwide market performance of U.S., Japanese and European based semiconductor companies.

- * The total market grew from \$14.5B to \$18B, or 24%.
- * Japan grew 35%, the U.S. 20%, and Europe 7%.

CHART II

This chart adds market share performance of U.S. and Japan.

- * The U.S. has the largest share at 53%, but lost 2% to Japan.
- * Japan gained an additional point from Europe -- a total of three points and now has 39% of the market.

CHART III

In the two major regional markets, the story is the same.

- * The U.S. market grew 23% to \$7.85B and the Japanese outperformed us in the U.S. with 47% growth versus our 21%.
- * Similarly, the Japanese market grew 31% and Japanese producers grew 32% while we grew only 9%.

CHART IV

In each market, U.S. firms lost share.

- * In the U.S. market, the Japanese gained two points to 14%.
- * In Japan, the U.S. lost one point to a 9% share.

CHART V

- * The performance of the Japanese may also be measured by following the changes in rank of the top 10 firms worldwide.

In 1980, the top 10 firms included 5 U.S., 3 Japanese and 2 European firms. By 1983, the score was U.S. 5 and Japan 5. All five Japanese firms increased their ranking and captured 49% of the top 10 volume, up from only 24% the previous years.. The two European firms dropped out of the top ten completely. In the U.S., only 1 firm gained rank, three maintained rank and 2 declined. One U.S. firm dropped out of the top ten.

The message of the charts is clear.

CHART VI

- * The U.S. is losing share to the Japanese, but retains market leadership in the U.S. and Worldwide.
- * Our efforts to penetrate Japan have not as yet been successful.
- * The Europeans are the big losers. (Their 17% duty has not protected them and probably has hurt more than helped their industry.)

If these trends continue, the Japanese industry will pass the U.S. in worldwide market share in 1986 or 1987 and will achieve dominance in the U.S. early in the 1990's.

We do not intend to let this occur. As an industry we have confidence in our ability to meet this competitive challenge, but our best efforts will not be successful without strong support from the U.S. government.

The next charts focus on the specific areas of concern in investment and research and development.

CHART VII

Let's turn to capital investment. The Japanese industry outinvested the U.S. merchant industry in absolute dollars for the first time in 1983, \$1.54 billion dollars to \$1.45 billion whereas as recently as 1978 the U.S. merchant companies were out investing the Japanese firms' by nearly 2:1. Although the Japanese sales base is much lower they have invested more percentagewise. U.S. merchant's capital investments are approximately 20% of sales while Japanese investments are close to 30% of sales. This Japanese performance is

aided by a decisive advantage in cost of capital compared to their American counterparts. Charlie Sporck will elaborate on this point in a few minutes.

This chart also indicates that we have not increased our spending through the slow years of 1981 and 1982 while the Japanese did. This does not reflect superior strategic planning on the part of the Japanese, but rather is further evidence of the advantages of the availability of adequate capital at a low cost and of other targeting practices. Also they have in the U.S. an open market for excess production that exceeds the size of their domestic market.

Chart VIII

In terms of R&D since 1977 the Japanese have increased their R&D expenditures to from 40c per dollar of U.S. expenditures to 90c by 1983. Between 1977 and 1983, the Japanese R&D expenditures have been at a level of 13-16% of sales, while the U.S. expenditures have ranged from 8-12% of sales.

In R&D, the U.S. still leads in dollar expenditures, but if one takes into account exchange rate changes, and the cost of semiconductor engineering professionals, we can conclude that the Japanese surpassed the U.S. in 1983 in R&D.

CHART IX

The payoff for all these capital and R&D investments for the Japanese is accelerated sales growth. They are rapidly catching us in worldwide IC sales

volume. Should the economy flatten in the next 18 months, the inertia of this newly built capacity will result in a tremendous influx of low priced ICs into the U.S.

I have outlined many serious concerns here but there are also some bright spots which I'll discuss after the next presentation.

George Scalise will now discuss international trade.

CONCLUDING REMARKS

We have presented today our fundamental strategy for coping with Japanese competition in semiconductors. We have shown you several charts indicating trends in U.S. - Japan competition. And we have explained in some detail the SIA version of an American response in each key area: international trade policy, capital formation and tax policy, and innovation and productivity.

It is our conclusion that our program is sound, cooperation between the industry and the Administration is excellent, perhaps unprecedented in the area of bilateral trade negotiations, and our legislative program is progressing with bipartisan support. We have embarked upon major joint research efforts with further programs on the drawing boards.

But the issue of our continuing leadership remains in doubt. Some ominous recent signals from Japan demonstrate that in spite of our combined efforts, their industrial targeting practices have not changed in any fundamental way -

U.S. software companies selling in Japan are threatened with compulsory licensing, Japanese satellites may bar foreign content. We cannot and will not tolerate frustration of political origin in our pursuit of all world markets.

Offsetting the undeniable progress being made by the Japanese in market share, capital investment, in R&D the United States can draw upon several factors to improve the trend lines.

First, a confidential survey of SIA companies by our Washington trade counsel reveals that individual U.S. Semiconductor companies are undertaking extraordinary efforts to upgrade their performance in the Japanese market and thereby take full advantage of MITI guidance under the High Technology Working Group agreement: more frequent senior executives visits, strengthened marketing staff, product support in times of shortages, and (in some cases) investment projects to manufacture in Japan.

Second, while the U.S. companies have been impacted by Japanese RAM imports during the down cycles, the U.S. retains a clear advantage in microprocessors and other logic circuits. Microprocessors and peripheral circuits are forecasted to surpass RAMs in volume by 1986 and become the largest market segment. Also the U.S. companies benefit from market shifts to gate arrays and semicustom devices. And we do not wish to imply that the U.S. is withdrawing from the RAM market.

Third, the largest market segment for U.S. semiconductor companies is the U.S. computer industry. The U.S. computer companies remain well ahead in personal

computers and office automation based on the strength of U.S. semiconductors and software.

So we would say, as Mark Twain said before us, that "The rumors of (our) death have been exaggerated."

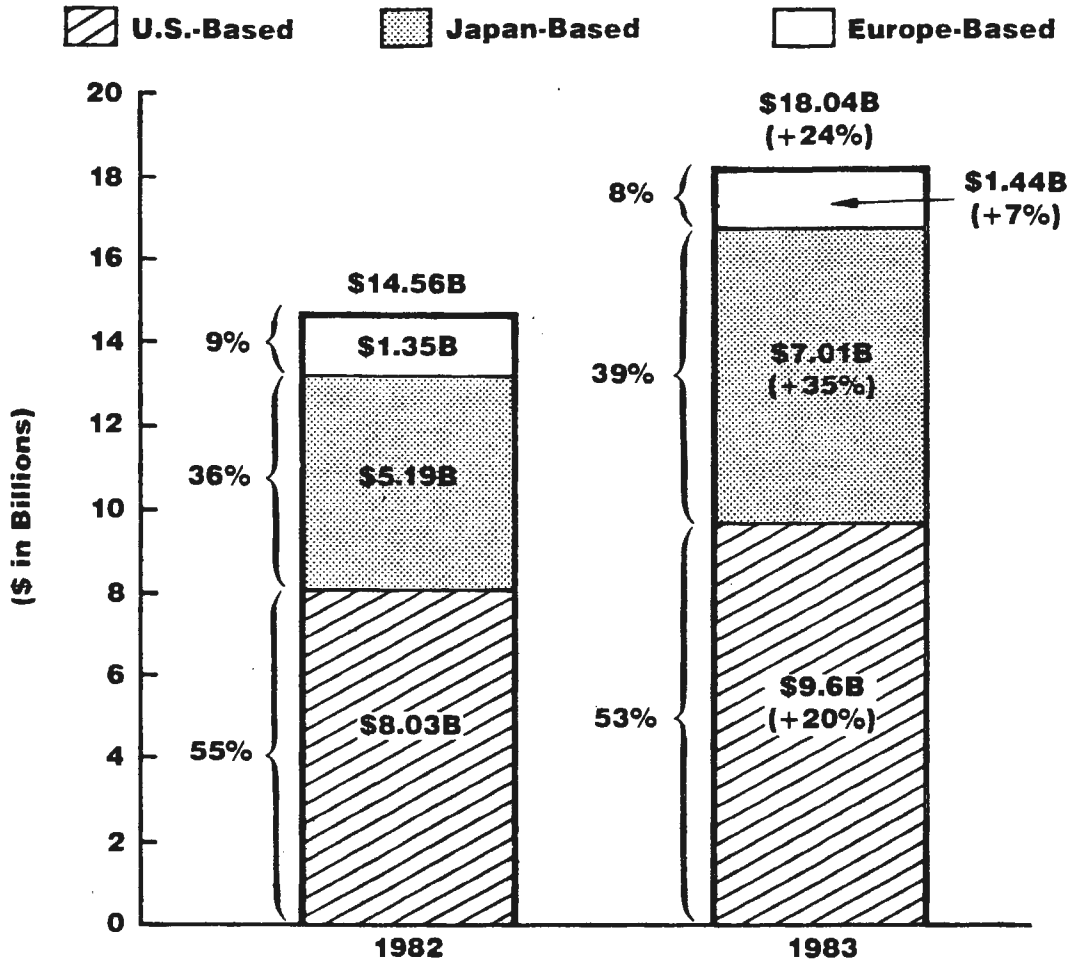
We are fully aware that our progress must rely primarily on our individual companies working in an environment where the outcome of competition is based on market attributes - cost, quality service - rather than government intervention.

So we are at a crucial stage as an industry. If we commit to work together constructively and boldly we can assure leadership in microelectronics. If we desire technological leadership entering the Twenty First Century, we must settle for nothing less.

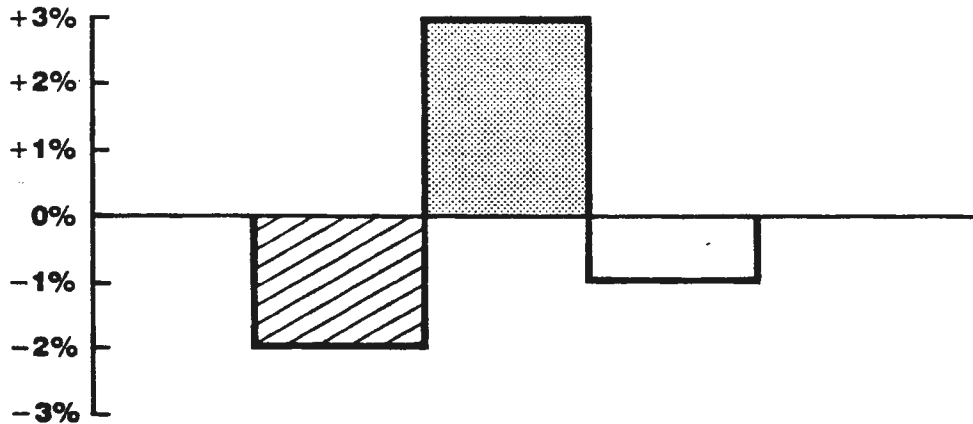
b:namegt.b

Market Share – Total Semiconductors

Worldwide Market



Change in Market Share 1982 v. 1983



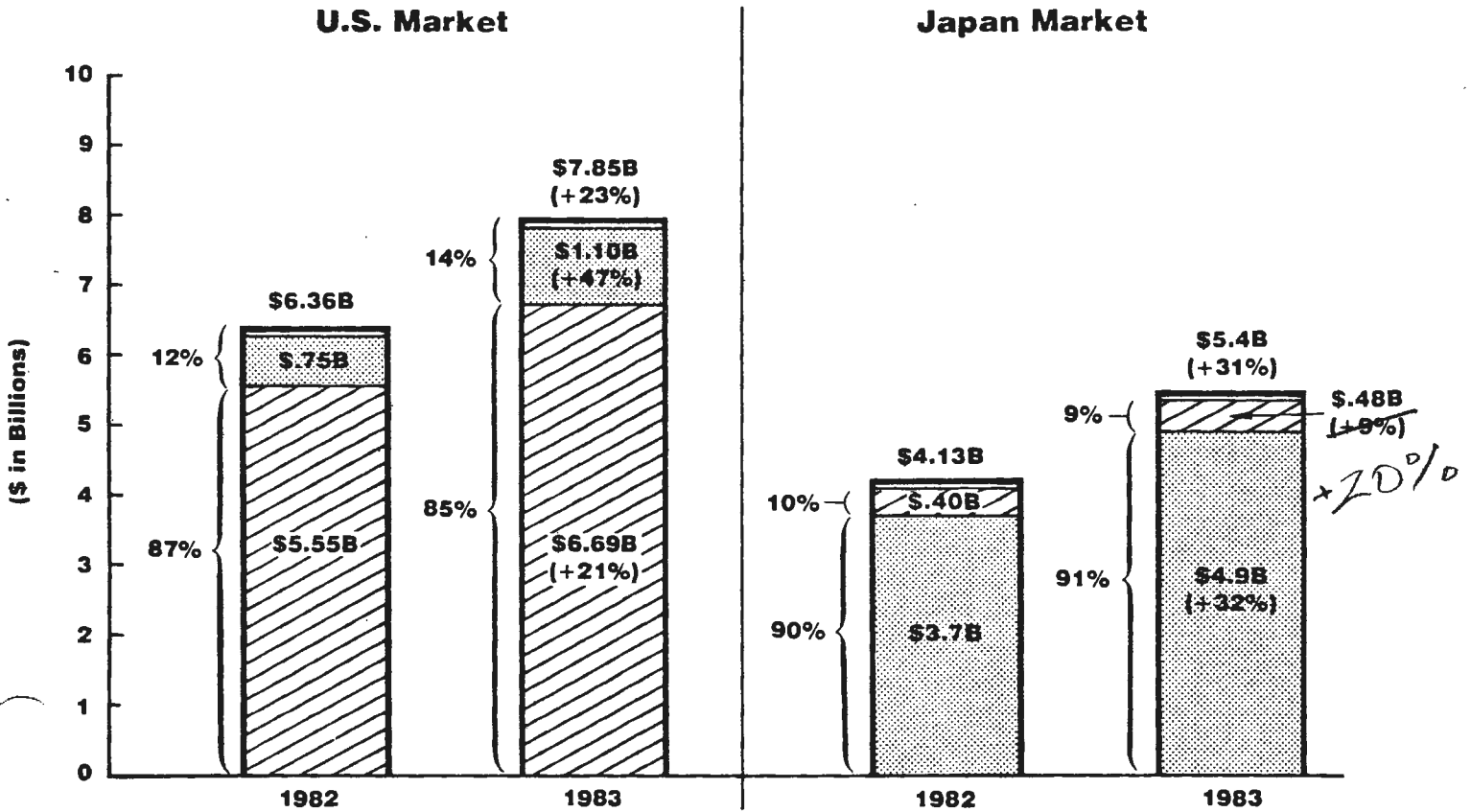
Source: SIA, EIAJ, U.S.D.O.C

\$ Exchange Rate Variation (1983-82): Europe +10.1%
 Japan - 5.5%

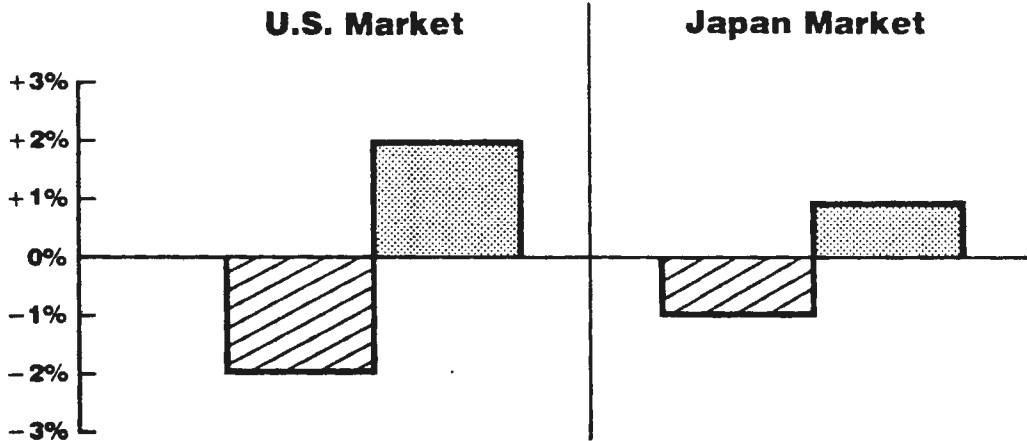
Charts III & IV

Market Share - Total Semiconductors

U.S.-Based
 Japan-Based
 Europe-Based



**Change in Market Share
1982 v. 1983**

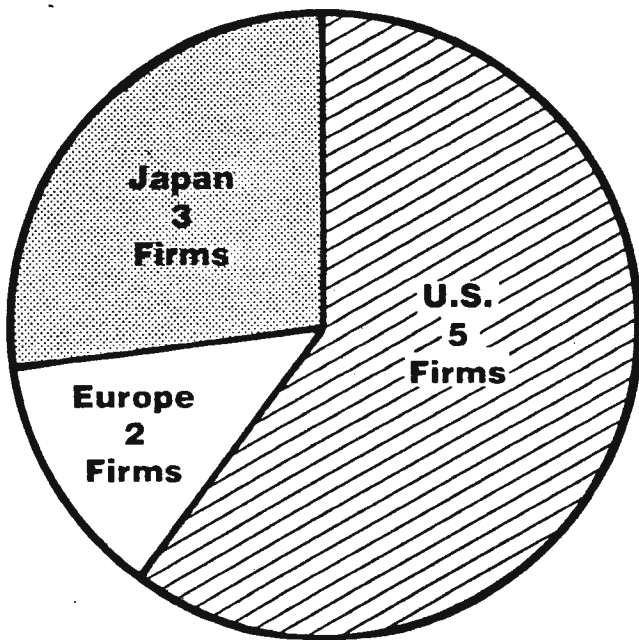


Source: SIA, EIAJ, U.S.D.O.C.

\$ Exchange Rate Variation (1983-82): Japan - 5.5%

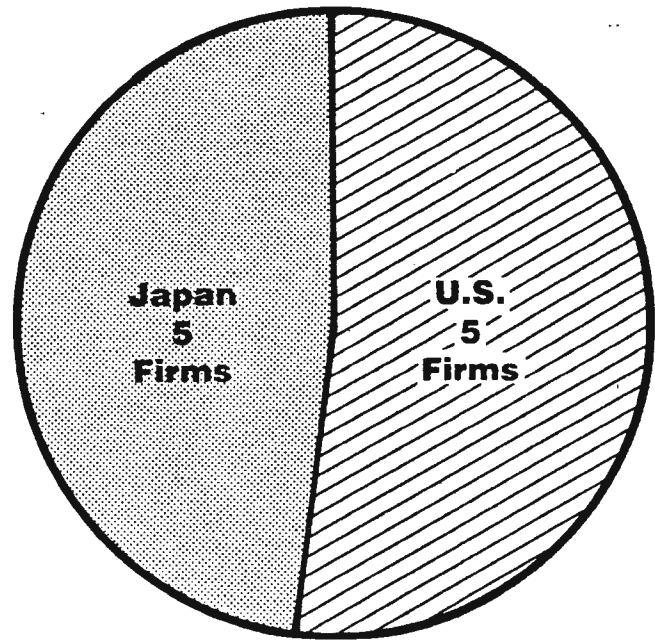
Chart V

Top Ten Semiconductor Firms Worldwide Sales



1980

63% of Total Sales



1983

65% of Total Sales

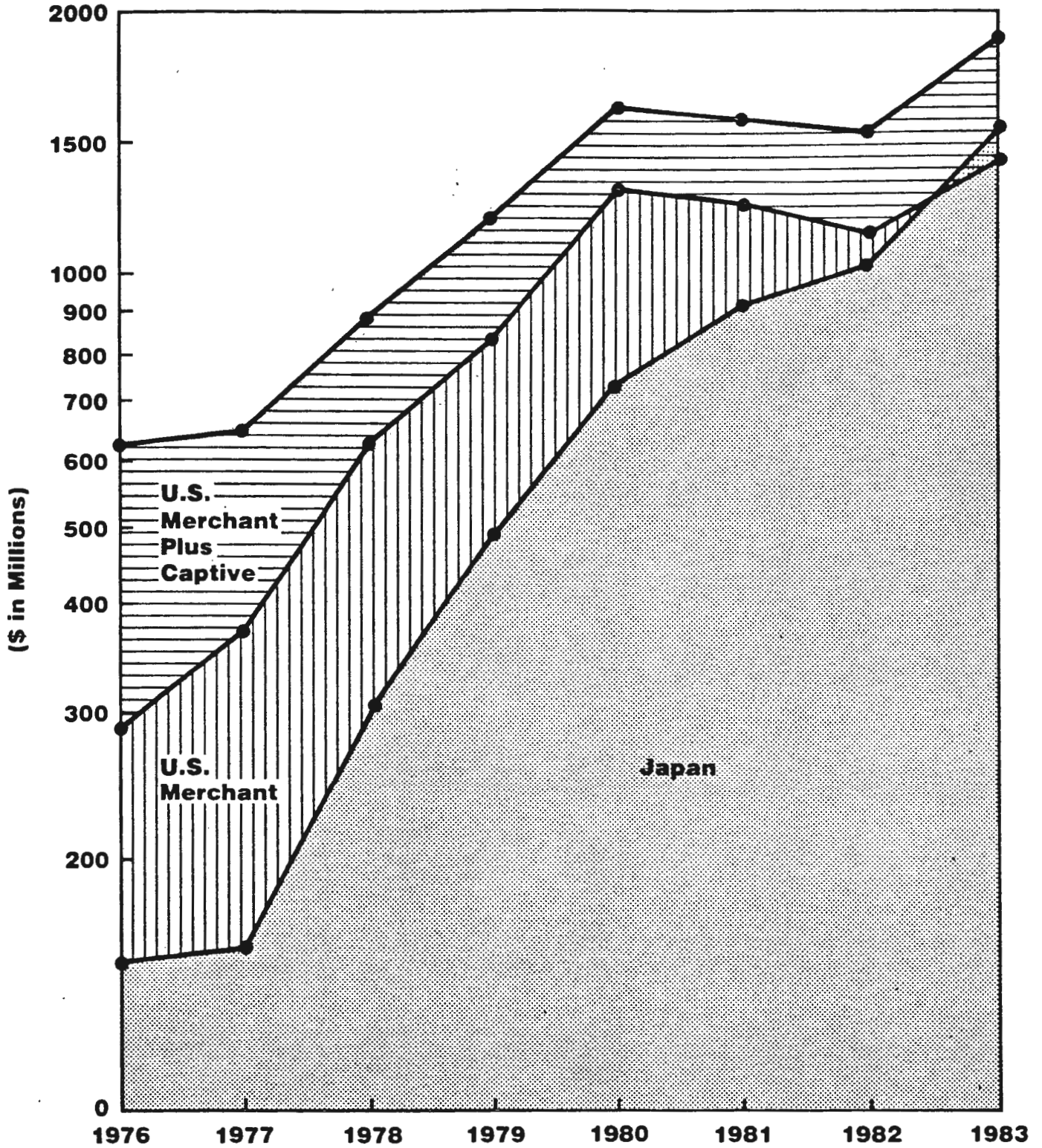
Source: Dataquest

Chart VI

- **The U.S. is losing share to the Japanese**
- **We are not penetrating Japan**
- **The Europeans are the big losers**

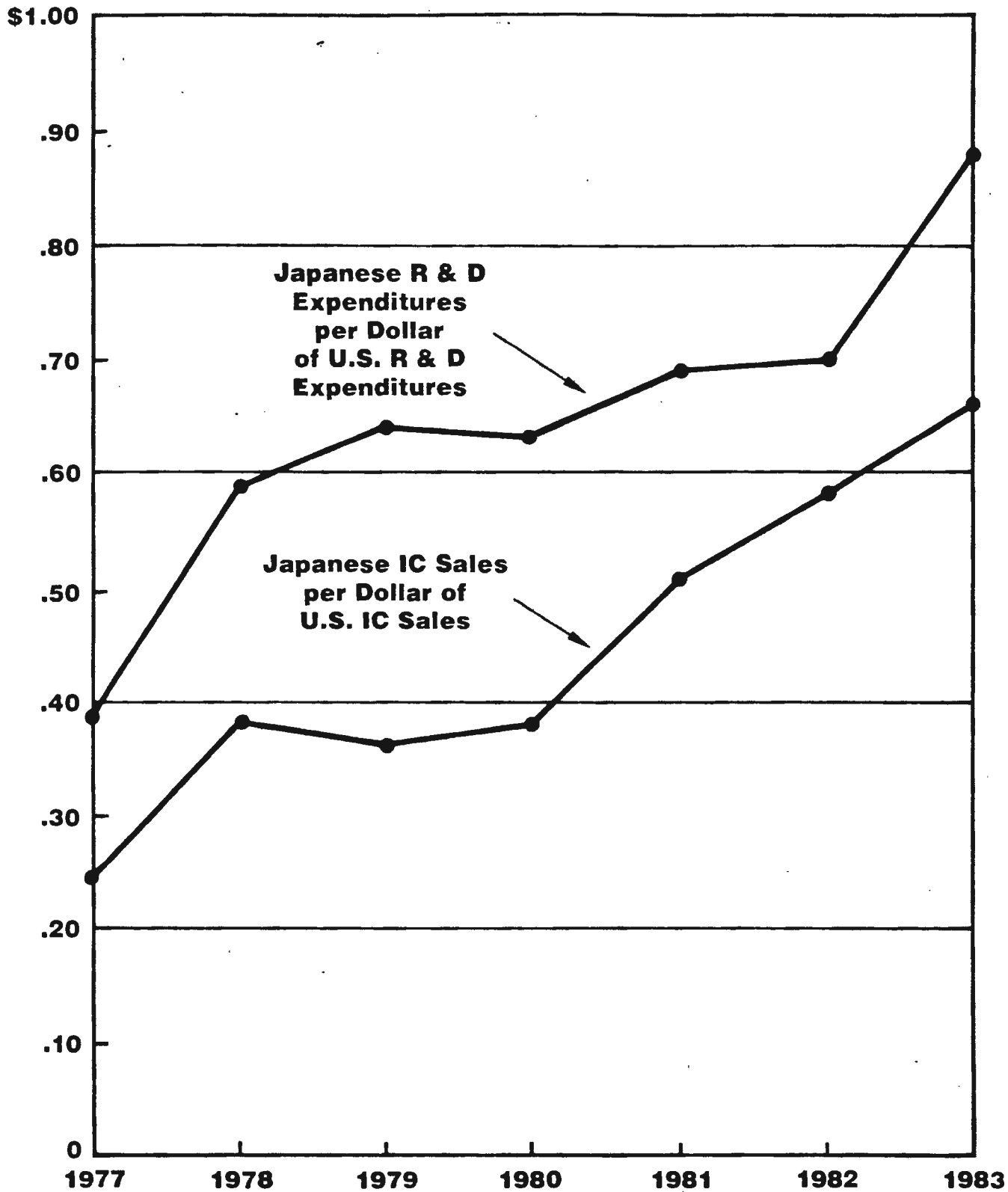
Chart VII

Capital Investment



Source: U.S. International Trade Commission (1976-78)
SIA (1979-83)

Research & Development



Japanese R & D Totals Exclude NTT and Government Sponsored R & D

Source: Dataquest, Japan Economic Journal, BA Asia Ltd., SIA

Copies of TAB G -- "An Overview of Competitive Situation, U.S. vs Japan" and "Summation of of Industry Presentations", by Mr. Gary Tooker, Motorola -- will be distributed at the meeting.

H



CABINET COUNCIL REVIEW

OF THE

SEMICONDUCTOR INDUSTRY

INTERNATIONAL NEGOTIATIONS, LEGISLATION

AND REGULATIONS

GEORGE M. SCALISE

SENIOR VICE PRESIDENT

CHIEF ADMINISTRATIVE OFFICER

ADVANCED MICRO DEVICES

DEPARTMENT OF COMMERCE

FEBRUARY 28, 1984



THE HIGH TECHNOLOGY WORK GROUP AGREEMENT WITH JAPAN IS AN EXCELLENT EXAMPLE OF WHAT CAN BE ACHIEVED WHEN GOVERNMENT AND INDUSTRY WORK TOGETHER TOWARD A COMMON GOAL.

THE SEMICONDUCTOR INDUSTRY ASSOCIATION COMMENDS CLYDE PRESTOWITZ AND HIS STAFF IN THE DEPARTMENT OF COMMERCE AND JIM MURPHY AND HIS STAFF IN THE UNITED STATES TRADE REPRESENTATIVE'S OFFICE FOR THEIR EFFORTS IN CONCLUDING THIS AGREEMENT.

THE FIRST PHASE OF THE AGREEMENT HAS BEEN PUT INTO EFFECT WITH THE IMPLEMENTATION OF THE MONITORING SYSTEM. AN ACCURATE DATABASE WILL NOW BE AVAILABLE TO ANALYZE IMPORTS AND EXPORTS IN STATE-OF-THE-ART SEMICONDUCTOR PRODUCTS IN ADDITION TO TOTAL INTEGRATED CIRCUIT AND SEMICONDUCTOR TRADE FLOW. THE FIRST MEETING OF BOTH GOVERNMENT AND INDUSTRY OFFICIALS TO REVIEW THE DATA HAS BEEN SUGGESTED FOR LATE MARCH OR EARLY APRIL. WE SUGGEST THAT A CABINET LEVEL MEETING WITH INDUSTRY REPRESENTATION BE CONVENED IN LATE JUNE TO REVIEW THE FIRST THREE QUARTERS' DATA AND TO UNDERSCORE THE IMPORTANCE OF THIS AGREEMENT.

A DETAILED SECTORAL ANALYSIS OF THE U.S.-JAPAN SEMICONDUCTOR TRADE AND INVESTMENT PROBLEMS LED TO THE ESTABLISHMENT OF A JAPAN IMPORT PROMOTION PROGRAM. THE IMPORT PROMOTION PROGRAM MARKS A NEW LEVEL OF COOPERATION BETWEEN OUR TWO COUNTRIES AND MAKES CLEAR OUR INTENTION TO MAINTAIN A COMPETITIVE ENVIRONMENT AND TO ELIMINATE ALL BARRIERS TO A FREE, FAIR FLOW OF TRADE.

THE DATA GENERATED BY THE MONITORING SYSTEM MUST BE CAREFULLY ANALYZED ON A TIMELY BASIS SO THAT WE CAN EVALUATE THE EFFECTIVENESS OF THE IMPORT PROMOTION PROGRAM. IN THE EVENT MARKET DISTORTING PRACTICES ARE TAKING PLACE, WE WILL BE ABLE TO RESPOND TO THEM IN A TIMELY AND EFFECTIVE MANNER.

THE TARIFF ELIMINATION AGREEMENT WITH JAPAN IS AN ESSENTIAL FACTOR IN OUR TRADE PROGRAM. IT EMPHASIZES OUR FREE TRADE POSTURE AND ELIMINATES SOME COST AND ADMINISTRATIVE EFFORT THAT GETS IN THE WAY OF AN EFFECTIVE INTERNATIONAL TRADE PROGRAM. WE NEED THE LEGISLATIVE AUTHORITY TO IMPLEMENT THIS AGREEMENT.

WITH REGARD TO REGULATORY MATTERS, WE HAVE BEEN WORKING CLOSELY WITH BOTH THE ADMINISTRATION AND THE LEGISLATIVE BRANCH ON THE EXPORT ADMINISTRATION ACT TO ENSURE THAT BOTH THE LEGISLATION AND THE REGULATIONS WILL PROTECT OUR NATIONAL SECURITY CONCERNS WITHOUT INTERFERING WITH OUR ABILITY TO EFFECTIVELY COMPETE IN WORLD MARKETS. THE COMPREHENSIVE OPERATING LICENSE IS THE FOUNDATION ON WHICH WE BUILD THAT POSITION.

WE HAVE ALSO BEEN WORKING CLOSELY WITH THE DEPARTMENT OF COMMERCE RELATIVE TO THE PROPOSED CHANGES TO THE EXPORT LICENSE REGULATIONS. IT IS OUR BELIEF THAT WE CAN ACCOMMODATE THE CONCERNS OF THE DEPARTMENT OF COMMERCE WITHOUT MAKING THE LICENSING PROCESS ADMINISTRATIVELY BURDENSOME AND UNACCEPTABLY LONG. IT IS IMPORTANT THAT THE REGULATIONS PERMIT US TO COMPETE IN WORLD MARKETS ON AN EQUAL FOOTING WITH OUR FOREIGN COMPETITION.

OUR LEGISLATIVE PROGRAM IS ONE THAT TARGETS THE PROCESS BY WHICH INDUSTRY INVESTS IN NEW TECHNOLOGIES, BUILDS COST AND QUALITY EFFECTIVE CAPACITY, AND COMPETES IN WORLD MARKETS.

- TRADE LEGISLATION & TARIFF ELIMINATION
(S. 144; H.R. 1571)
- EXPORT ADMINISTRATION
(S. 979; H.R. 3231)
- AN EXTENSION AND MODIFICATION TO THE R&D TAX CREDIT
(S. 2165; H.R. 4475)
- COPYRIGHT LEGISLATION
(S. 1201; H.R. 1028)
- ANTITRUST LEGISLATION FOR R&D TO INCLUDE SAFE HARBOR, NEGATIVE CLEARANCE, RULE OF REASON, DETREBLING OF DAMAGES, AND SUCCESSFUL DEFENDANT ATTORNEY FEES

*Trade Reciprocity
(Dunfey)*

WE ENCOURAGE YOUR SUPPORT IN GETTING THIS LEGISLATION ON THE AGENDA FOR THIS SESSION OF CONGRESS. IF THE PROGRAM CAN BE ENACTED, WE ARE CONFIDENT THAT IT WILL PROVIDE THE FOUNDATION FOR:

- U.S. INDUSTRY TO MAINTAIN ITS TECHNOLOGY AND INNOVATION LEADERSHIP POSITION
- U.S. INDUSTRY TO COMPETE EFFECTIVELY IN WORLD MARKETS
- REDUCE U.S. TRADE DEFICITS
- PROMOTE A FREE, FAIR TRADE ENVIRONMENT
- REDUCE MARKET DISTORTING PRACTICES OF OUR TRADING PARTNERS
- PROVIDE A FRAMEWORK FOR THE ENTREPRENUERIAL PROCESS TO CONTINUE TO MAKE IMPORTANT INVESTMENTS IN NEW TECHNOLOGIES AND COMPANIES
- PERMIT OLDER, ESTABLISHED INDUSTRIES TO MAKE THE NECESSARY INVESTMENTS IN R&D AND CAPITAL IMPROVEMENTS TO ENHANCE THEIR ABILITY TO COMPETE IN WORLD MARKETS

Good afternoon. My name is Charlie Sporck. I am the President and Chief Executive Officer of National Semiconductor Corporation of Santa Clara, California.

I am here today to discuss two problems which are seriously impacting the ability of U.S. semiconductor manufacturers to compete with semiconductor firms from Japan.

These two problems involve capital formation and U.S. tax policies as they impact the semiconductor industry. I will discuss both of these problems as well as recommendations for change which are consistent with a market-oriented approach.

The major problem in the area of capital formation relates to the significant cost of capital advantage that Japanese firms have over U.S. companies in the semiconductor industry (or many other U.S. industries).

Briefly, the cost of capital for a company is the weighted average cost of equity and debt (after tax cost) in the financial structure of the company. While there is disagreement as to the exact differential, there is widespread agreement that equity financing is more expensive than debt because equity investors require a higher return and because of the tax deductability of interest expense on debt.

Much of the cost of capital advantage of Japanese firms is the result of a much higher debt to equity ratio for Japanese firms than for U.S. companies in the semiconductor industry. For example, as of March 31, 1981, five leading Japanese semiconductor producers (Hitachi, Nippon Electric, Toshiba, Fujitsu, and Mitsubishi) had an average debt to equity ratio of 145.3% (with

a range from 90.2% to 283.3% for the companies within the group). The five leading U.S. producers (Texas Instruments, Motorola, Intel, National Semiconductor, and Advanced Micro Devices) had an average debt to equity ratio of 26.4% (with a range from 19.5% to 37.3% for the companies within the group).

This higher debt to equity ratio results in a lower over- all cost of capital to the firm, and allows a lower level of profitability without hampering access to external sources of capital. For a more equity-oriented U.S. firm, some attention has to be paid to publicly reported quarterly results, although the semiconductor industry has kept research and development spending high even during periods of recession. For the firm with a high level of debt, cash flow becomes even more important than reported profit increases, and increasing cash flow may require an increased market share.

There have been numerous reports during the last several years discussing the cost of capital differential between U.S. and Japanese firms and its implications for U.S. industry. For example, on December 20, 1982, Paine Webber Mitchell Hutchins Inc. published a report entitled "U.S. and Japanese Competition in the Semiconductor Industry". Among the findings of this report were the following:

"Because after tax debt is cheaper than equity, the debt- dominated average Japanese semiconductor company has a cost of capital that is at least 35% lower than its average equity-dominated U.S. competitor."

?
Should seek to eliminate the double taxation of dividends.

"Since equity investors in publicly owned U.S. companies are required to make an 'arms-length' assessment of the potential risks involved in any given firm's securities, U.S. firms require high short-term reported profits to maintain access to external capital; since, on the other hand, lenders merely desire to have their interest paid and the principal returned, Japanese firms instead require stable, long-term cash flow."

"The lower cost of Japanese companies' capital means that the required rate of return on that capital is lower. Other things equal, the Japanese company requires less profit than the higher capital cost U.S. companies and can therefore, price products lower."

On February 11, 1983, Kidder Peabody and Co., Inc. published a report entitled, "Semiconductor Industry: Market Overview and Forecast". The latter part of this report noted that Japanese spending on semiconductor related equipment was growing much faster than spending by U.S. firms. The report noted that "to develop the type of manufacturing capability the Japanese are developing will take money; more important, it will take patient money. Whether that type of money will be forthcoming in the U.S., is the single most important short-term determinant of the fate of the U.S. semiconductor industry."

On June 9, 1980, Chase Financial Policy, a division of ^{Joel Stern?} The Chase Manhattan Bank, published an extensive study of the financial advantages enjoyed by Japanese semiconductor companies.

Page Four

This report indicated that "the lower cost of capital of the Japanese companies provides them with the advantage that their required rates of return on investment are lower than those of the U.S semiconductor companies. As a result, the Japanese companies can accept lower profit margins and/or capital turnover ratios than their U.S. counterparts."

The cost of capital differential was also discussed in the December 22, 1983 issue of the Far Eastern Economic Review and in an April 1983 report by the U.S. Department of Commerce, International Trade Administration, entitled "A Historical Comparison of the Cost of Financial Capital in France, The Federal Republic of Germany, Japan, and the United States." The conclusions of both of these reports was very similiar to those reports I mentioned earlier.

Operating with a higher cost of capital than your competition will obviously impact a company in any industry, but it can be especially difficult in a research-intensive and capital-intensive industry such as the semiconductor industry.

A few examples from my own company may indicate some of the financial pressures facing the industry. During the last five years, National Semiconductor spent \$468 million on research and development. To put that number into perspective, for that same five year period, the after tax profits of the corporation were \$100 million. Research and development averaged 9.4% of sales while after-tax profits averaged 2.0% of sales. Also during the last five years, National Semiconductor had \$626 million in capital spending.

Currently the semiconductor industry is enjoying a strong increase in demand. To meet this demand National will spend approximately \$300 million on research and development and \$600 million on capital spending during the current and next fiscal years combined, or about as much in capital spending as the total of the prior five years. That level of spending for new plant and equipment is necessary to retain market position as the Japanese semiconductor industry is apparently currently spending as much in total as the U.S. semiconductor industry on new plant and was able to maintain high levels of spending even during the recent recession. Capital spending is running about 20% of annual revenues for many companies in the industry. I think that gives some indication of the impact that a cost of capital differential can have on this industry.

In addition to a lower cost of capital resulting from a higher debt to equity ratio, Japanese semiconductor firms have had the advantage of both lower and more stable interest rates in recent years.

Given this background, what does the semiconductor industry need to offset, some, if not all of the capital formation advantages of the Japanese semiconductor industry?

Let me say that we do not want to leverage our companies to the extent that some companies in Japan are leveraged, and in any event, the financial community in this country would not support that type of action.

However, I believe that there are some specific actions which will allow our industry to offset the Japanese capital formation advantage.

First, given the high level of research and development spending necessary to maintain a technological advantage over the Japanese semiconductor industry, we need a continuation of the tax credits for increased research and development which were provided for in the 1981 Economic Recovery Tax Act. As you know, this credit is scheduled to expire on December 31, 1985. We support legislation to make the credit permanent and to enhance the credit in 1984. The key bills on this issue are S.2165 (Danforth) and H.R.4475 (Shannon). These companion bills make the credit permanent, clarify the definition of "Qualified Research" for credit purposes, allow startup companies to use the credit, expand credits for company contributions to university basic research by excluding them from the base period, and enhance the deduction for corporate donations of scientific equipment to post secondary institutions.

Second, because of the large investments required to remain competitive in technology and manufacturing cost, and the increasing rapidity with which these facilities and equipment become obsolete, we need faster depreciation of new equipment. This actually reduces reported profits, but it improves cash flow and is a recognition of the rate of technological change in this industry.

The Economic Recovery Tax Act of 1981 (ERTA) used the ~~Asset~~ ^{Accelerated} Cost Recovery System (ACRS) as a means of encouraging business investment. This system as originally enacted in 1981 and modified

Page Seven

in 1982 by the Tax Equity and Fiscal Responsibility Act of 1982 (TEFRA) provided a major incentive for investments in long-lived equipment. However, it actually had a negative impact on the electronics industry where the majority of equipment has a very short life span. Therefore, I support efforts to allow the expensing of short-lived equipment.

In summary, the semiconductor industry faces some severe international competitive pressures, in part due to the capital formation problems I have discussed. I believe that some rather basic changes in tax policies can allow the industry to overcome its disadvantage in the area of cost of capital and continue to provide the building blocks for the modernization of all sectors of the U.S. economy.

INNOVATION & PRODUCTIVITY

Erich Bloch
IBM Corporation

Subcabinet Review of the Semiconductor Industry
U.S. Department of Commerce

February 28, 1984

INTRODUCTION

The U.S. semiconductor industry's challenge is to reverse the decline of its margin of leadership over foreign competition. This can only be accomplished by:

- being the leader in advancing the state of the art of technology,
- being first in the marketplace with a full range of innovative products using new technology,
- being the world's lowest cost producer,
- being the world's highest quality producer.

Only through this strategy will U.S. manufacturers be able to maintain and increase their position in the world market for semiconductor products.

In order to implement this strategy the industry must be able to

- devote major resources to research on a continuous basis,
- have available adequate numbers of state-of-the-art engineers and scientists,
- have an educated and educatable work force,
- operate the most modern manufacturing facilities,
- focus on the quality of the whole enterprise.

The time has long past where each company independent of other companies in the industry can accomplish these tasks by itself. Joint cooperative efforts are mandatory.

The Semiconductor Industry Association (SIA) has recognized this fact and will be active in mounting a visible and major program with its membership to address these strategic areas.

SEMICONDUCTOR RESEARCH COOPERATIVE

In 1982, the SIA formed the Semiconductor Research Cooperative (SRC) as a not-for-profit organization to fund semiconductor research at U.S. universities.

In its first year, the SRC implemented a 6 million dollar research program made up of 49 research projects at 31 universities. An \$11.7 million research program is being implemented in 1984, with a 15 million dollar program projected for 1985.

An equally important objective of the SRC is to attract students to this field of research and this industry, and increase the supply of engineers and scientists with relevant skills, experience, and education.

A further objective is to utilize university research in addressing and solving basic semiconductor industry problems.

The SRC recognizes that education and research objectives will be best met if a wide spectrum of institutions is included in its research program. In its first two years of contracts, the budget was split almost evenly between the six leading schools with existing strong research programs in semiconductors and those that had capabilities that were worthy of further development and expansion. As a consequence, twelve private and nineteen public universities are participants and the funding is distributed across the nine regions of the country.

The benefits to SRC member companies are many. They participate in defining the research agenda, have advanced and detailed knowledge of research results, have free access to and use of resulting patents, and develop close relationships with individual investigators and participating universities.

In addition, the industry in general benefits from the reduction in the amount of redundant research activity, the increased academic and public sector awareness of the needs and requirements of the semiconductor industry, and the increased pool of trained people.

As a consequence, twenty five companies have joined the SRC. This includes large and small companies, semiconductor, computer and aerospace companies as well as enterprises that provide equipment and materials to the semiconductor industry.

PROJECT LEAPFROG

With the positive experiences of the SRC as a base, it is now important to turn to areas closer to the development and manufacturing arenas. In particular, issues of productivity, quality and reducing the development cycle are important to address and improve.

A major activity in the planning stage is "Project Leapfrog". This is envisioned to be a development and pilot manufacturing activity jointly funded and operated by participating companies to significantly accelerate the development of processes, tools, instruments and equipment for novel future semiconductor products (memory, logic, microprocessors) and to operate a fully automated pilot line to prove feasibility and gain the necessary experience and training.

Since the area of activities will be concentrated in the .5 micron range feature size, this activity will challenge materials, processes, and general understanding of advanced

semiconductor phenomenas at least five years before products will be announced utilizing these new insights.

The benefits of this effort are the following:

- acceleration of the timescale for normal progress,
- provision for a better understanding of implementation problems,
- a more rapid learning and yield experience,
- early focus by equipment and materials suppliers,
- a reduction in the development cost to participants.

The whole area of automated and computer integrated manufacturing, which the U.S. semiconductor industry has only minimally addressed, will be a prime focus of this activity. In this activity in particular, DOD support and participation might be mutually desirable.

STRATEGIC SIA DIRECTIONS

Since 1982 the industry has had an extraordinary focus on the quality of U.S. semiconductor products. As a consequence, the gap between the quality of U.S. and Japanese semiconductor products has been considerably narrowed. This is a continually moving target and the exchange of information and experiences between users and manufacturers to further the U.S. industry goal of

being first in quality is a continuing and important effort and concern of the SIA.

Other areas that the SIA is focusing on are:

- Managing technology and accelerating the process of innovation. Beside "Leapfrog" and the SRC, the early and close cooperation and working relationships between U.S. manufacturers and their suppliers of equipment and materials could significantly enhance the whole area of process and product innovation.

A strategy to that end that still maintains the marketplace competition is an important next step.

- Training and continuing education of employees. The continuing training and education of both the technical professional and the direct and support people is more important in the future than it has been in the past.

Reasons:

- rapid changes in technology
- shortages of personnel
- high salary and other high support costs.

The cost of much of this effort could be reduced by sharing the development and execution of learning programs across various industry members.

Technology Transfer

There are many difficulties - some real, some psychological - when it comes to technology transfer within companies, between companies and between academia and government and industry.

Newer Technologies such as computer conferencing and database access through computer network, are tools that need exploitation.

- Relationships with international technical efforts.

Just as there is a need to take advantage of developments within the U.S. and utilize real information, we can gain much by utilizing the output of international technical efforts, from Europe and Japan especially.

This is not only accomplished by scanning the literature, but on a fair quid pro quo basis to exchange information of importance to all parties.

Cost of Capital $\hat{=}$
Debt/Equity Ratios
(J. M. Stern of Chase)

I support expensing of
everything, short- and
long-lived, — the
ultimate ACRS

R&D Tax Credit

3 years not enough?

I generally dislike
tax credits. But temporary
credits are worse.

What in the Japanese system allows firms to have higher D/E ratios?

More debt financing. Savings channeled to financial institutions which provide debt financing.

by gov't?

and induces lenders to accept the higher financial risks

LEGISLATION

In order to provide a climate conducive to the implementation of this ambitious program, the SIA is focusing on the following legislation.

Passage of antitrust bill which provides necessary predictability to encourage joint research efforts such as SRC and leapfrog. The SIA in coalition with other associations and companies favors a bill which provides for rule of reason, detrebleization, defendant, attorney's fees, and negative clearance.

Passage of the Chip Protection Act of 1983 S 1201 and HR 1028.

Passage of the R&D tax credit extension, S 2165 and HR 4475.

K

THE U.S. HIGH-TECHNOLOGY INITIATIVE IN THE GATT

Background Paper

ISSUE:

Under current GATT agreements and codes, international trade in high technology areas is covered within the broader framework of its overall trade provisions. The US has, however, recently pressed for inclusion of a specific study of high technology trade problems in the GATT work program to determine if these general guidelines are adequate to ensure fair and equitable trade in high technology products and services. Unfortunately, this initiative was rejected at the 1982 GATT Ministerial but the US has retained hopes that the GATT Council, to which the proposal was referred, will authorize undertaking the study as originally constituted.

SUMMARY OF THE PROPOSAL:

The US high-technology initiative, which has been considered several times by the GATT Council since January 1983 recommends undertaking a study of high technology trade problems that emphasizes "aspects of trade in high technology products relating to tariffs, non-tariff measures, and other factors affecting such trade."

BACKGROUND TO THE PROPOSAL:

The assumptions behind the USG's GATT initiative on high-technology, derived largely from the CCCT report on the competitiveness of US high technology industries, are as follows:

- 1) that those industries make essential contributions to the overall health and international standing of the US economy, but that their market share has declined over the last several years relative to their foreign counterparts;
- 2) that other countries see high technology development as pivotal for their future economic success and have therefore promoted this sector through a broad range of policy instruments, and that these targeting practices may have adversely affected US competitiveness through trade distortion and interference;
- 3) that in this context, it is essential that the US attempt to seek fair treatment for U.S. high technology companies, lest a fragmenting world market characterized by nationalistic policies results in a proliferation of protectionist pressures and a slow down of technological progress essential for world economic growth; and

- 4) that only if the GATT can address the core problems of high technology industries with respect to world trade will it remain an institution relevant to the trade issues of the future.

OBJECTIVES OF THE PROPOSAL:

- 1) Heighten international awareness of distortions and barriers to trade in high technology goods, related services, and investments.
- 2) Limit, to extent possible, interventionism by other governments with significant adverse trade impacts, particularly for US export interests.
- 3) Augment justification for improvements in GATT structure or expanded coverage under current GATT rules and codes.
- 4) Lay groundwork for in-depth negotiations on a bilateral or multilateral basis on trade barriers and distortions not adequately dealt with in current GATT instruments.
- 5) Achieve agreements on reduction in tariffs on high technology goods in the context of some progress on non-tariff barriers.

CURRENT STATUS OF THE PROPOSAL:

The U.S. GATT high-technology initiative, a proposal for the study of high-technology trade problems, was accepted by the preparatory Committee at its meetings leading up to the 1982 Ministerial Conference. Unfortunately, an unanticipated last-minute change in the French (and therefore the EC) position led to its exclusion from the Ministerial Declaration issued at the close of the plenary session.

Instead, the proposal was referred to the GATT Council, a lower-level body which convenes representatives of all signatories on a monthly basis. The EC, largely due to the French, have blocked adoption of this initiative in the GATT Council for the past 14 months. They have expressed continued concern about the goals of the initiative and have questioned the need for such a GATT study. Presumably they are concerned about signing on to something that would conflict with their domestic high technology promotion programs.

The U.S. has made numerous attempts to allay these concerns and emphasize this is only a study and that the U.S. has no hidden agenda. However, they have continued to block adoption of the study at recent GATT Council meetings.

In February 1984 the U.S. and the EC agreed to initiate bilateral consulting on high technology in March. The issues to be discussed include: global perceptions of the high tech industry, definition of high technology, efforts undertaken with Japanese, specific sectors to be examined, and possible areas of cooperation. We have emphasized to the EC our view that such a group will neither be used to press the issue of the GATT initiative nor lessen our desire that a GATT working group be established.

While these discussions will not be linked directly to the GATT initiative we are hopeful that there will be some positive spillover effects, helping to block the impasse in the GATT. Similarly, progress in the OECD's high technology work program could at some time in the future be instrumental in moving the GATT initiative ahead.

JPGRadoville
2/22/84
ID #277