OECD DEVELOPMENT CENTRE

Working Paper No. 45
(Formerly Technical Paper No. 45)

THE EXTERNAL FINANCING OF THAILAND'S IMPORTS
(SPECIAL SERIES ON MIXED CREDITS, IN COLLABORATION WITH ICEPS)

by

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Research programme on:
Financial Policies for the Global Dissemination of Economic Growth

OECD OCDE

October 1991
OCDE/GD(91)176

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PREFACE

The OECD Development Centre and the Institute for International Economic Cooperation and Development (ICEPS), with financial support from the Italian Government, have carried out a series of country studies on "mixed credits", following a methodology developed and tested by Professor André Raynauld.

Some Member countries of the Development Assistance Committee (DAC), and Italy in particular, were of the opinion that it was only through detailed analytical work that some of the misgivings about the use of mixed credits in development assistance could be clarified.

Following the completion of the pilot study on Tunisia (published by the Development Centre in 1988) a methodological seminar was organized by ICEPS in Rome in November 1988, where it was decided to undertake four additional country studies on Turkey, Indonesia, Thailand and Brazil. Each of these studies was carried out in close collaboration between the three partners: ICEPS, a national research institute in the country concerned, and the OECD Development Centre.

The present study examines the impact on Thailand of officially supported credits the country receives to finance its imports. Such support occurs when lender countries provide export credits on terms more favourable than those obtaining on the international capital market. Attention is focused in particular on those operations where the financing includes a component of Official Development Assistance (ODA) in the form of grants or loans on highly concessional terms. These operations consist of mixed, associated or parallel credits. They have long been the subject of examination and discussion within the OECD and have given rise to agreement protocols such as the "consensus" on export credits and the DAC "guidelines".

This study on Thailand has shown that between 50 and 60 per cent of all concessional funds went into infrastructure projects over the period 1976 to 1985. By contrast industry received minimal support. Rates of subsidy were also substantially higher on infrastructure than on industry projects. The resource allocation was thus heavily biased in favour of capital intensive investments and non-tradeable goods. However, the author argues — and it is an interesting point — that since general trade policies in Thailand have favoured industry over agriculture and infrastructure, the structure of subsidies has been a sort of compensation and may have led to a more desirable allocation of resources overall.

On the macroeconomic side, the study shows that the interest rate elasticity of supply of export credits is relatively high so that potential subsidies are likely to have been passed on to Thailand rather than captured by the exporters.

After directing this series of country studies, Professor André Raynauld has undertaken a comparative analysis of the results in a synthesis study with a view to drawing more general conclusions and offering policy recommendations for the future.

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RÉSUMÉ

Les objectifs principaux de cette étude sont au nombre de trois : d'abord établir les taux de subvention sur les financements extérieurs reçus par le secteur public thaïlandais, ensuite tenter de fournir une analyse des impacts de ces crédits subventionnés sur l'allocation interne des ressources; enfin, viser à définir des fonctions d'offre et de demande s'appliquant à ces crédits à l'exportation reçus par la Thaïlande au cours de la période allant de 1976 à 1985.

Un examen relativement détaillé de cette période 1975-1985 a révélé une aggravation de la dette extérieure de la Thaïlande. La dette extérieure publique est ainsi passée d'un faible niveau de 900 millions de dollars en 1973 à celui de 12.8 milliards en 1985 avec une hausse correspondante du coût du service de la dette rapporté aux exportations de 2.9 pour cent et de 11 pour cent respectivement. Cette détérioration s'est produite malgré une politique généralement prudente en matière d'emprunt extérieur de la part du gouvernement thaïlandais et malgré une gestion centralisée des nouveaux engagements d'emprunt.

L'APD à conditions libérales a représenté, en moyenne, 21 pour cent des entrées nettes totales de capitaux, suivant les données de la balance des paiements, au cours de la période 1977 à 1985. Les prêts d'APD ont augmenté par comparaison aux dons. Les entrées nettes au titre des crédits à l'exportation bénéficiant d'un soutien public ont été importantes, s'élevant, certaines années, de 6 à 18 pour cent comme entre 1980 et 1982.

Les taux de subvention, calculés sur la base de la valeur présente, se sont élevés de 16 à 44 pour cent pour les prêts d'APD et de 3 à 14 pour cent pour les crédits à l'exportation d'origine multilatérale et bilatérale. La moyenne globale pondérée des taux de subvention a été comprise entre 15 et 32 pour cent. Elle a d'abord eu tendance à monter jusqu'en 1980 pour redescendre par la suite. Le Japon, qui a beaucoup augmenté ses prêts à la Thaïlande pour devenir son principal créancier et dépasser même la Banque Mondiale, a accordé les taux de subvention les plus élevés, soit 24.41 pour cent. Les États-Unis se sont classés au second rang pour les taux de subvention, suivis dans l'ordre, par l'Allemagne, la France et le Royaume-Uni. Le Japon a fourni une plus forte proportion de ses crédits sous forme de prêts d'APD alors que la France a accordé les taux de subvention les plus élevés sur les crédits à l'exportation, au cours de chacune des années faisant l'objet de la comparaison. La moyenne pondérée des taux de subvention de la Banque Mondiale a atteint 14.36 pour cent.

Les emprunts extérieurs subventionnés ont varié suivant les secteurs d'activités. De l'ensemble de ces emprunts de 6.3 milliards de dollars, de sources bilatérales et multilatérales, 58 pour cent ont été consacrés au développement des infrastructures, suivi, dans l'ordre, par l'agriculture, le pétrole et le gaz naturel, l'aviation civile et les achats d'armements. Tous les autres secteurs, y compris la transformation, n'ont pratiquement pas bénéficié de ces emprunts extérieurs privilégiés. Ainsi calculés, les taux de subvention ont été plus élevés sur les projets d'infrastructure et d'agriculture et moins élevés au contraire dans les secteurs de la transformation et du pétrole et

du gaz. Comme les politiques de commerce et d'investissement du gouvernement thaïlandais défavorisent généralement l'infrastructure (et les biens non-commercialisables) et l'agriculture sous la forme de taux de protection effective faibles ou même négatifs, les emprunts subventionnés, surtout ceux d'origine bilatérale, ont eu tendance à servir de compensation ou de contrepoids, de sorte que l'allocation des ressources a pu favoriser une plus grande efficacité.

L'élasticité au taux d'intérêt de l'offre des crédits à l'exportation s'est avérée relativement élevée à 2.86, alors que l'élasticité de la demande est très faible. On peut en déduire d'une part qu'une bonne proportion des subventions associées à ces crédits a bénéficié au pays emprunteur. D'autre part, les conditions de demande, et notamment la croissance économique en Thaïlande ont été le facteur déterminant des flux de crédits à l'exportation à destination de ce pays. L'initiative, à l'origine de ces flux de capital, vient de l'économie intérieure de la Thaïlande plutôt que des pays prêteurs.

SUMMARY

This study has three basic objectives. First, it estimates the subsidy rates for the officially supported external financing received by the Thai public sector. Second, it attempts to provide some analysis of the impact of this concessional funding on the domestic allocation of resources. Third, it aims to estimate the supply and demand functions for the officially supported export credits received by Thailand from 1976 to 1985.

A relatively detailed review of the period from 1975 to 1985 revealed a deteriorating external debt situation for Thailand. External public debt rose from a low of US$900 million in 1973 to US$12.8 billion in 1985 with comparable public debt service ratios of 2.9 per cent and 11 per cent, respectively. This occurred despite the customary conservative external borrowing policy of the Thai government and its centralized administrative control of public debt creation.

Concessional ODA financing averaged 21 per cent of total net financial flows in the balance of payments during the 1977-1985 period. The ODA loans increased in relative importance to grants. Net inflow of officially supported export credits was substantial in certain years, amounting to 6-18 per cent during 1980-1982.

Subsidy rate estimates, using the present value concept, ranged between 16 and 44 per cent for ODA loans and 3 to 14 per cent for export credits from the major multilateral and bilateral sources. The overall weighted average rate of subsidy for these two types of finance amounted to between 15 and 32 per cent. The rate of subsidy tended to rise, peaked around 1980 and fell afterwards. Japan, which increased its concessional lending to Thailand substantially and became the most important lending country, surpassing even the World Bank's lending to Thailand, provided the highest calculated average subsidy rate (24.41 per cent). The United States ranked second in terms of the subsidy rate, followed by Germany, France and the United Kingdom in the five-country comparison. Japan provided a higher proportion of ODA loans than export credits, while France offered the highest subsidy rates for export credits in each year of the comparison. The weighted average subsidy rate for the World Bank loans was 14.36 per cent.

Subsidised borrowings from abroad varied in different economic sectors. Infrastructure development as a whole received approximately 58 per cent of the total concessional funding of US$ 6.3 billion from all the major bilateral and multilateral sources combined, followed by agriculture, oil and natural gas, commercial aircraft and arms procurement. All other sectors, including industry, received minimal support from subsidised external borrowings. The calculated subsidy rates were higher for subsidised borrowings in infrastructure and agriculture, and were lower for industry and oil and gas activities. Since the Thai Government's international trade and investment policies were generally biased against infrastructure (non-traded) and agricultural activities, these two sectors tended to receive low or negative rates of protection. Subsidised funding, especially with high subsidy rates from bilateral sources, tended to offset this biased incentive system and helped to move the domestic allocation of resources in a more efficient direction.

The estimated supply elasticity for export credits was found to be relatively high at 2.86 compared to the interest rate, while the elasticity on the demand equation was very low. This evidence indicated that a much greater proportion of the potential subsidy was captured by the borrowing country. Moreover, the demand condition — particularly economic growth in the borrowing country — played a crucial role in the determination of the inflow of export credits to Thailand. The initiative to seek foreign credits originated more from the domestic section of the Thai economy than from the lender countries.

I. INTRODUCTION, RATIONALE, OBJECTIVE AND OUTLINE OF STUDY

1.1 Introduction and Rationale

Like trade in commodities and services, factor movements are important for studying international economic relationships. Since financial capital flows and hence real capital flows can be treated as factor movements, they have been the subject of much analysis, as have real trade flows. Capital flows raise several issues. One of these which is still relevant today is analysing how an international financial transfer results in a real transfer. This analysis also concerns the mechanism by which the transfer of capital gives rise to changing terms of trade between the creditor and recipient countries.

Capital movements are also important in the analysis of various open macroeconomic models. This has been especially true since the advent in 1973 of the managed floating exchange rate regime in most major Western industrialised countries. Different levels of international capital movements are an important aspect of open macroeconomic analysis in both the fixed and relatively flexible, or managed, exchange rate models. The role of capital movements is treated either as a flow or a stock concept. At the microeconomic level, there are also a number of studies dealing with the determinants and consequences of various capital flows and relationships between a particular capital flow and other variables including, for example, between trade flows and foreign direct investment or between trade flows and credit flows.

Since governments also intervene in capital movements, as they often do in commodity trade, various studies have analysed the desirability, costs and benefits of such official intervention. One way that a government can intervene in capital flows is by using financial credit as a commercial policy. Industrialised countries have long provided official financial credit assistance to promote exports. This export financing support, which can be considered as a form of export subsidy, has also been increasingly used by developing countries.

Attempts to control subsidised export credit terms resulted in the creation of the Berne Union (the International Union of Credit and Insurance Insurers) as early as 1934. More recently, efforts to control the possible adverse effects of export subsidies on the free flow of international economic transactions gave rise to the "Arrangement on Guidelines for Officially Supported Export Credits", adopted by the OECD countries in 1978. This arrangement, based on the principles of the 1976 OECD accord, commonly known as the "Consensus", and later agreements basically provided minimum interest rates and maximum repayment terms for three categories of borrowing countries. With periodic revision of interest rates under officially supported export credits, export financing subsidies have been substantially reduced.

Despite the Consensus, governments of developed countries have been tending to use official aid and loans to support exports to developing countries, especially in conjunction with offers of large orders for capital goods. Of course, there has been a long tradition of such tied aid. As a result, there has been a blurring of the lines

between official aid, grants or loans, on the one hand, and purely commercial transactions, on the other. Some concessional element in terms of official export financing is often implicit in loan and grant transactions.

Subsidised export credits as well as loans which explicitly or implicitly promote exports at the expense of competitors raise a controversial issue for import financing of developing countries. Such discriminatory practices in financial export schemes give rise to unclearly defined costs and benefits, themselves divided in an uncertain way between the country providing the credits and the importing country. Most recent studies of export credit financing tend to concentrate on lending countries. Their main aim is calculating the rate of subsidy to determine the financial cost to the creditors. However, there are two studies of export credit subsidies from the standpoint of the borrower. The study by Fleisig and Hill (1984) of the World Bank gives estimates of the export credit subsidies provided by seven industrialised countries for the 1976-80 period. Yet Fleisig and Hill's estimates of the subsidy rates, in the form of an aggregated calculation for each lending country, did not allow recipient countries to be identified. In contrast, A. Raynauld's study (1988) focuses on a single borrowing country: Tunisia. Export credits and other officially supported external financing benefiting Tunisia are determined and the grant element in each particular flow of funds is estimated. The study also analyses the effects of these financial flows for the Tunisian economy. Our aim was to provide a similar study for Thailand.

1.2 Objective and Outline of the Study

The basic objective of this study, which is roughly comparable to the case study on Tunisia, is to determine the degree of concessionality of financial flows to Thailand from the major industrialised countries. The study takes into account subsidised export credits and bank loans, as well as other official flows in the form of bilateral official development assistance (ODA) funds from various sources received by the public sector in Thailand. As a subject of such a research endeavour, the case of Thailand is of particular interest because of the "openness" of the Thai economy, with commodity imports and exports together constituting 44 per cent of the country's gross national product (GNP) in 1984-85, the cut-off years of the present study. Net capital inflow in the same years was 5-6 per cent of the GNP on an annual basis. In that capital inflow, the concessional element, e.g. of loans and foreign export credits, forms an integral part of import financing.

Chapter 2 will describe the overall savings-investment gap of the open Thai economy. In this connection, the external debt profile will be analysed in relative detail. The Thai institutional framework in which borrowing gives rise to foreign debt of the public sector will also be discussed in this chapter.

Having discussed the stock of the debt, Chapter 3 will revert to the capital flows in the balance of payments, with the aim of determining the aggregate flow with concessionality.

Though the subsidy rates for external financial flows received by the Thai public sector have been calculated and published by international organisations, as shown in Chapter 2, they are unsatisfactory because hypothetical interest rates used for the subsidy estimates are not the actual rates paid by the borrower. Thus in Chapter 4 an estimated subsidy rate for Thailand has been calculated on the basis of actual rates used in loan agreements, as in the aforementioned case study on Tunisia. The subsidy rate calculation is essentially based on the present-value concept, since loan payments and disbursements involve time. The results are presented for the two major categories of financial flows, namely ODA funds and officially supported export credits and bank loans subject to concessionality.

In Chapter 5 there is an analysis of the probable effects of the various subsidised financial flows on the Thai economy. This is done by distributing flows of subsidised funds into sectors of the economy and discussing the effects on allocation of resources in the economy. The macroeconomic impacts will also be analysed in this chapter in terms of the estimated supply and demand functions for export credits. Chapter 6 presents the conclusions and some implications of the study.

II. FOREIGN DEBT IN THAILAND

2.1 The Savings-Investment Gap and the Balance of Payments

As we mentioned in the Introduction, Thailand has an open economy which is linked to the world economy by trade and other capital and financial flows. Table 1 provides statistics on the significance of international trade flows in the national economy. The ratio of exports and imports to total production, as measured by the gross national product (GNP), was quite high, fluctuating between 30 and 48 per cent from 1970 to 1985. In the latter year, this ratio was a negative balance of trade, with imports exceeding exports by as much as 9.93 per cent of the GNP in 1983. Although this negative balance declined to about 7.17 per cent of the GNP in 1984 and 1985, the combined surpluses in services and other transfers were insufficient to offset the commodity trade deficit. Thus in the period under study there was a large deficit in the current accounts. During the 1975-85 period the current account deficit peaked at 7.79 percent of the GNP in 1979 and remained quite high until 1984. In 1985, this ratio was down to 4.15 per cent[1]. Domestic absorption in relation to output was substantially higher in the 1975-85 period compared to earlier years (not shown in the table), despite a declining current account deficit in 1985.

It can reasonably be argued that a long-term deficit in the current accounts can be expected for a low-income, developing country having a fast growing economy like Thailand (see Table 2 for rate of growth of Thailand's GNP). In the context of the country's recent economic growth this deficit is linked with a desire for a level of domestic investment that exceeds the available domestic savings[2]. Table 3 reproduces the aggregate sectoral imbalances for the public and private sectors in Thailand for the 1969-85 period. Foreign savings must supplement domestic savings to make possible a higher rate of economic growth. Under the two-gap theory, foreign exchange is required because of the comparative advantage of using foreign capital goods and technology and also because of the balance-of-payments constraint accompanying economic growth. Table 4 provides balance-of-payments statistics for the 1969-85 period. Considering only the years 1975 through 1985, there was a cumulative deficit in the balance of payments for the five years 1975-79 and a deficit again in 1983. The nominal sum of the deficits for these six years amounted to 49.78 billion baht. This exceeded the combined surplus of 34.1 billion baht for the years 1980-82, 1984 and 1985. Thailand's foreign exchange reserves were $1.56 billion in 1974 and their annual average level from 1975 through 1979 was $1.42 billion. Foreign exchange reserves rose to $2.71 billion in 1985 as a result of surpluses in the balance of payments. However, the 1985 reserves were the equivalent of 3.4 months of imports while the 1974 reserves had been equal to six months of imports. Moreover, the ratio of net international reserves to medium- and long-term external debt fell substantially from 134.72 per cent in 1974 to 15.7 per cent in 1984 and 21.2 per cent in 1985. International indebtedness markedly increased during the ten years ending in 1985 (see Table 5).

2.2 External Debt: Growth Structure and Debt Service

A breakdown of outstanding medium- and long-term external debt from 1973 to 1985 is shown in Table 6. The external debt was $903 million in 1973, after which it increased rapidly but more or less in line with the short-fall in domestic savings. The outstanding medium- and long-term external debt was $5.7 billion in 1980 and then more than doubled to reach $12.77 billion in 1985. State enterprises were responsible for the largest part of this increase. State enterprises accounted for 24.02 per cent of this external debt in 1973, for 43.83 per cent in 1980 and for 46.11 per cent in 1985. The share of government (both central and local) in external borrowing remained relatively stable during the 1973-85 period, fluctuating around 25 per cent. In absolute terms, total government external debt was $242.2 million in 1975, $1.46 billion in 1980 and $3.52 billion in 1985. Although the private sector's medium- and long-term external debt increased in absolute terms, its share of the total declined from about one-half to a quarter in 1985.

The distribution of the outstanding public external debt by type of creditor for 1975-85 is given in Table 7, which indicates lenders by multilateral agency and by major country for official bilateral credit. It can be seen that multilateral agencies had provided about half these credits at the beginning of the period, but only one-fourth in 1980 and about one-third in 1984-86. Although the nominal and absolute value of official bilateral credits increased during the 1975-85 period, their percentage share declined from about 40 per cent in 1975 to an average of about 27 per cent for 1984 and 1985. Throughout the period, Japan was the leading source of bilateral credit. Moreover, 16-17 per cent of outstanding Thai public external debt in 1975-76 was owed to Japan and this figure was still 17.84 per cent of the total in 1985. Thailand's public debt owed to the United States and Germany, the two other major official creditors declined from 11.56 per cent and 9.19 per cent respectively in 1975 to 6.12 per cent and 2.61 per cent respectively in 1980, and to 4.66 per cent and 1.9 per cent respectively in 1985.

By contrast, lending by private creditors, mainly in the form of bank loans and bonds increased rapidly during the 1975-85 period. The share of private creditors, excluding supplier credits, of the total outstanding public external debt rose from 3.53 per cent in 1975 to a peak of 45.86 per cent in 1980. It then declined to 35-36 per cent in 1984-85. Most of the increase in medium- and long-term external public debt owed to private lenders can be attributed to direct borrowing by the Thai government for military procurement and other borrowing by government agencies.

Moving from stock to flows, Tables 8 and 9 give the total number and value by year, from 1973 to 1985, of public external loan commitments from all sources (Table 8) and the private financial market (Table 9), including both direct government borrowing and publicly guaranteed borrowing by state enterprises. Of the 77 external loan commitments contracted directly by state enterprises during this period all but one date from 1977 or later, the single exception being a 1973 loan. Thus state enterprises have made substantial use of private financial markets abroad for their investments. The largest single use of private credit was for the purchase of commercial aircraft. The second largest users of private credit among state enterprises were the electricity generating authorities. The Petroleum Authority of Thailand borrowed in private

financial markets for development of gas and related products as well for its working capital. Even the government Housing Authority has resorted to private credit abroad for investment and operational purposes. All direct government borrowing from private financial markets in the 1973-85 period, involving 29 loans, dates from 1977. Finally, it may be noted that most of the public loans from private financial markets, especially direct government loans, were denominated in US dollars or Japanese yen.

The growth of debt and use of credit from private sources predictably gave rise to a rapid increase in external debt service. Table 10 provides the ratio of servicing Thailand's medium- and long-term external debt to exports of goods and services for 1970-85. A moderate increase in this ratio (including both private and public sector debts) from 13.1 per cent in 1973 to 14.8 per cent in 1980, gave way to a more rapid increase and in 1985 the ratio was 21.9 per cent. Although this level was still manageable, it cannot be denied that debt service has become more burdensome, especially if the extent of short-term debt of the non-monetary and monetary (mainly commercial banks) sectors are included. Since data on short-term external debt are not readily available, Table 11 provides information on short-term net capital flows both in absolute terms and as a percentage of the non-monetary sector's net capital flow as presented in the balance of payments published by the Bank of Thailand. Table 11 also gives the net foreign exchange position of the country's commercial banks and their share of the total capital flow.

Three main factors account for the increase in external debt service. First, as shown above, there was a rapid rise in new commitments and corresponding disbursements. This was basically due to the surge in borrowing abroad by the public sector. Although medium-and long-term borrowing abroad by the private sector rose nominally and absolutely, the rise was not excessive compared to that of the public sector.

Second, there was an increase in the money market interest rates, mainly due to the anti-inflationary, contractional monetary policies of leading industrialised countries, especially in 1974-75 and in the early 1980s. As a result, the average interest rates were higher on new public debt contracted in both the so-called official market (multilateral and bilateral) and the private market. The average interest rates for the new debt weighted by the value of initial loans contracted from the official and private credit markets were 3.7 per cent and 7.2 per cent respectively in 1973, 6.8 per cent and 13.8 per cent in 1980, and 7.6 per cent and 10 per cent in 1984 (see Table 12). The increase in interest payments also resulted from a shift of the public debt towards more market-oriented sources, i.e. borrowing from the private financial market for variable terms, even though the maturity, as shown in Table 13, was on average 41 to 71 per cent shorter than for loans from official sources during 1973-85. The rate of interest paid on public loans from private creditors was on average 4.94 to 50.72 per cent higher than from official sources, with exceptionally large percentage differences in 1973-74 and 1979-81. The grace period for new public loans accorded by official creditors was generally significantly longer than that of private creditors, except in 1983 and 1984 (see Table 14). The provision of longer grace periods by private creditors, coming when it did, could do little to lessen the burden of debt, for the debt service payments had already risen considerably after 1980, when the earlier debts with shorter grace periods had begun to expire.

Third, the rapid increase of debt service payments was also due to the changing currency composition of the debt. Table 15 indicates the currency composition of external public debt. The percentage of the debt in yen grew rapidly in the 1973-85 period. From 6.22 per cent in 1970, yen-denominated debt increased to 16.69 per cent in 1975, 22.43 per cent in 1980 and 36.33 per cent in 1985. Although the percentage distribution of external debt as shown in Table 15 may be influenced by the exchange rates between the yen and dollar, as well as other currencies, the growth rate of yen-denominated debt is much higher than that of debt denominated in US dollars. External debts usually must be repaid in a specific currency and Table 16 indicates that between 1970 and 1985, the annual rate of growth Thailand's medium- and long-term, yen-denominated public debt ranged from about 12 per cent to nearly 114 per cent, while in most of these years, and notably in 1981-85 period, there was a lower growth rate of dollar-denominated debt. Relative to borrowing in yen, there was a decline in public sector borrowing in dollars from the United States and from multilateral sources such as the World Bank. Large loans from private financial markets and suppliers' credits to state enterprises are increasingly obtained from Japan and hence denominated in yen. The availability of Japanese capital led to increased public borrowing from Japan. However, the burden of repayment of this yen-denominated debt increased with the rise in value of the Japanese currency[3].

Before leaving this subject, it should be emphasized that the analysis in this paper does not wish to minimise the effective management by the Thai authorities of the country's external sector and the debt associated with it. By law, the total public debt service cannot exceed a specified percentage of annual foreign exchange earnings, which was raised from 5 to 7 per cent in 1974, to 9 per cent in 1977, and temporarily to 11 per cent in 1983 for the 1984-87 period (see Table 10 for the actual debt service ratios). In the most recent years, there have been increasing efforts to refinance public external debt obligations which were incurred in the late 1970s and early 1980s, when interest rates on the private credit market were extraordinarily high. Moreover, a global limit on public sector public external borrowing has been set for each year since 1986 to bring the external debt service ratio to within the ceiling under the law.

In addition to this legal ceiling for the external debt service ratio, there are also administrative controls on borrowing abroad. Regulations require all government agencies and state enterprises to obtain cabinet approval for all borrowing from abroad. External loans and credits are channelled through the National Debt Policy Committee (or the so-called External Debt Policy Committee before 1985).

Chaired by the finance minister, the Committee's membership includes various department heads of the Ministry of Finance and representatives from the Bank of Thailand (the central bank), Budget Bureau, National Economic and Social Development Board, Department of Technical and Economic Co-operation, and Ministry of Foreign Affairs. This important Committee has the basic responsibility for recommending policies and guidelines on new foreign borrowing for each year, the medium term and the long term (three to five years). Although this Committee usually

submits proposals for external borrowing to the cabinet for decision, various government agencies or state enterprises usually initiate requests for foreign funds for operations, investments or other specific purposes.

The procedure begins with a project or projects proposed by an agency. The project or projects may be proposed independently by an agency itself or in conjunction with the possible lending institutions or a consultant firm or team supported by a grant from the Department of Technical and Economic Co-operation. Identification, study and appraisal of the project is required and it must be included in the National Economic and Social Development Plan which is prepared by the National Economic and Social Development Board, a member of the National Debt Policy Committee. Projects not included in the national plan are not considered without a special cabinet decision to make an exception. The National Economic and Social Development Board, an economic and social planning agency, uses economic criteria to screen and give priorities to projects.

Once a project for external financing is approved by the cabinet, the Ministry of Finance is empowered to negotiate with lending institutions to obtain the best possible conditions for the loan. These proposed conditions for the loan are then submitted to the cabinet for final approval before an actual loan agreement can be signed. The signed agreement must then be sent to the Judicial Council for scrutiny before it can be considered legally binding. It is evident that all these administrative procedures can take years, although once the initial cabinet approval is secured for external borrowing the loan is obtained in one to two years. This long administrative procedure serves to screen appropriate projects and make agencies carry out better justification studies for external burrowing. Nonetheless, use of inappropriate criteria and wrangling between agencies during the long administrative process may also create long delays for appropriate projects. However, the conservative approach to financial policy, as is usually pursued by the Ministry of Finance, helps to create a cautious policy towards external borrowing by the various public sector agencies. In turn, this helps to improve the country’s external debt position by international standards.

III. CONCESSIONAL BORROWINGS

3.1 Capital Flows in the Balance of Payments

Turning from the stock of debt to the various capital flows, Table 17 provides statistics on capital movements. These include foreign direct investment, portfolio investment, and borrowing by the private sector, state enterprises and government, distinguishing between long-term and short-term flows. As shown in Table 17, net foreign direct investment in Thailand had not been very large during the period of this study. However, this type of investment, which has the advantage of being risk capital sometimes involving technology transfers (especially in joint ventures)[4], was an important contributor to the net capital inflow in the balance of payments from the mid-1960s (not shown in Table) until 1974. It accounted for 35.9 to 54.6 per cent in different years between 1969 and 1974 inclusive. It plunged to a low of 3.1 percent of the net capital inflow in 1979. It then recovered to approximately 11 per cent in the years 1981-82, 23.2 per cent in 1983 and 16.49 per cent in 1984. But it declined again in 1985 to 8.51 per cent, equivalent to direct investments of 4.38 billion baht.

Besides direct investment, borrowing has been the most important category of capital flow. Total external financial flows in the form of borrowing by the private sector, state enterprises and the government amounted to only 1.84 billion baht in 1969 and 5.22 billion baht in 1974. Thus in the course of this five-year period debt financing increased by a factor of 2.84, representing a compound annual growth rate of 23.22 per cent. This form of external financing increased by a factor of 9.41 in the 1974-84 period, equivalent to a compound annual growth rate of 25.13 per cent if 1974 is used as the base year. In the period under study, the overall capital inflow fell to 51.47 billion baht in 1985, compared to a peak of 58.37 billion baht in 1984, due to a 75.94 per cent decline in net direct investment. Only about 25 per cent of the total decrease in net capital inflow was attributable to the category of borrowing. Thus net borrowing to finance imports remained high in 1985, amounting to 47.09 billion baht.

3.2 Total Reported Flows with Potential Concessionality

a) Total Flows (Non-Monetary Sector)

In order to determine the net capital inflows which are potentially subject to some kind of subsidy or concessionality, it is necessary to begin with the total capital flows to Thailand. Then those flows which are considered subject to some elements of concessionality are separated out. In order to obtain the total net financial resource flow, the balance of payments statistics are used again. However, we have reclassified the Bank of Thailand's statistics to reflect more adequately the total annual financial flows received by Thailand.

The class of flows which can be considered 100 per cent concessional is untied aid provided by foreign governments and their officially supported agencies and multilateral institutions[5]. Unrequited private transfers can be treated conceptually in

the same way. Both of these flows are part of the total financial receipts and will be included in the country's net capital movements. In balance-of-payments statistics, financial flows of private banking institutions are put below the line which is, in effect, reserved for accommodating transactions. However, we have treated these flows of the banking sector like other capital flows. Hence they also constitute part of the country's total resources from abroad just like other real sector flows. Changes in official reserve transactions are excluded from our autonomous flow and remain accommodating items. Using these new classifications, the total net financial inflow from abroad in the 1969-85 period in US dollars is presented in Table 18.

The net annual financial resource flow to Thailand was approximately $200 million in 1969, 1970 and 1972, while it was about $90 million in 1971. After 1972 the inflow tended to rise quite rapidly. The total net financial inflow of $419 million in 1973 was approximately twice that of 1971. The level increased again by a factor of 2.4 between 1973 and 1977, just surpassing $1 billion in the latter year. The inflow continued to grow almost without interruption to reached a peak for the period being studied of $2.81 billion in 1984. The total net financial receipts were down to $1.6 billion in 1985, primarily because of the very large net capital outflow of $508 million from the private banking sector. However, the total inflow of financial resources from abroad was still substantial, having been 4.16 per cent of the gross domestic product in the latter year.

b) Official Development Assistance (ODA)

Most of the financial resource flows to Thailand can also be obtained from OECD data. But the totals of financial receipts as shown in Table 18 are not directly comparable with the figures for total net financial receipts in the OECD data for two main reasons.

First, aside from the use of a slightly different exchange rate conversion, the OECD data only include the financial flows from the OECD Development Assistance Committee (DAC) Member countries and multilateral institutions such as the World Bank, International Development Association, Asian Development Bank, and the OPEC Fund. However, the total financial (capital) flow in balance-of-payments statistics by definition includes all financial transactions between domestic and foreign residents. This difference was small for the years 1969-71 (See Table 18), but after that it increased. In part, this reflected a larger flow from non-DAC Member countries, especially private capital flows from Hong Kong, Singapore and Taiwan.

Second, total net financial resources in the OECD data exclude private unrequited transfers as well as short-term capital flows of the monetary and non-monetary sectors. As a result, the total net financial resource flows as reported in OECD publications tend to be lower than that from balance-of-payments statistics. Nevertheless, some of the OECD data are directly relevant to our research, especially the statistics on export credits for which we attempt to estimate the extent of subsidy in the flows.

The OECD data also provide some perspective on official financial flows with concessionality, although the definition of concessionality used is not entirely satisfactory. The OECD calculation of concessionality only includes the flow called official development assistance (ODA). These official OECD country flows are grants and loans. The latter are confined to loans with a maturity of more than one year, which have a grant element of at least 25 per cent and whose ostensible main objective is promoting economic development and welfare of developing (recipient) countries. The grant element, which reflects the softness or concessionality of the financial form of the capital flow, is calculated for a country receiving resources from the DAC Member countries and multilateral sources. The extent of the grant element depends on the difference between the ODA and market interest rates as well as the duration of the loan. To calculate the level of concessionality, the present value of each repayment at the market rate is ascertained. But this market rate of interest is operationally taken to be 10 per cent by the OECD. The excess of the loan's face value over the sum of the calculated present values, expressed as a percentage of the face value, is then the so-called grant element.

Table 19 provides statistics for net ODA flows for 1969-85 which include official grants and loans received by Thailand. Figures are given in terms of US dollars and as a percentage of net total capital flow in the balance of payments. Before 1975, net ODA loans were small, fluctuating below $30 million, and through 1976 their level remained less than ODA grants. During each year from 1977 through 1983, the net flow of ODA grants was less than ODA loans. In 1984 and 1985, the net flow of grants was $247.7 million and $263.7 million respectively, while ODA loans were $227.5 million and $217.2 million for the two years respectively. In the 1969-85 period, net flows of official grants and loans together ranged between 9.42 per cent and 69.55 per cent of the total financial flows. When the annual ODA flow is taken together with net total private transfers, the share of the recorded flow with concessionality increases to between 20.66 per cent and 76.52 per cent of the total financial flow of ODA into Thailand during the same period.

Table 19 indicates that the ratio of the net ODA inflow to total financial flows was somewhat greater from 1969 through 1972 than during succeeding years of the period under study, with the exception of 1976, 1982 and 1985. Another observable trend was a declining ratio of grants to loans in the ODA flows. Thus there tended to be a lower calculated grant element in the overall ODA flow. This was the case even though the grant element in ODA loans increased. Table 20 provides evidence for this observation for the 1976-85 period. The grant element was 86 per cent of the total ODA flow in 1976 and 65-77.8 per cent in the 1977-85 period. For ODA loans taken alone the grant element was 46 per cent in 1976 and 50-58 per cent in the 1977-85 period.

Two points should be emphasized again before leaving this section. First, as can be seen in Table 19, the ODA flows are not the totality of official financial flows with concessionality. There are other official financial flows having a degree of concessionality. Even though these flows are not recorded as ODA, their concessional element is potentially as real as that of ODA. Thus the ODA flows in Table 19 should be regarded as the minimum official flows with potential concessionality or subsidy. Second, since the market rate of interest is taken at

10 per cent for operational purposes, the subsidy or concessional element should be regarded as an approximation. This is not only because the interest rate used in the calculation is not the opportunity cost of lending funds of different currencies to a particular borrower, but is also due to not taking into account the nature of tied grants or loans.

c) The Flow of Officially Supported Export Credits to Thailand

As has been observed, ODA flows are not the totality of capital or financial flows with concessionality. The other major subsidised flows are government-supported export credits received by Thailand. Even though these credit flows also entail concessionality they are not reported as ODA flows because the primary purpose of these export credits is not economic development or, if intended for development, the financial terms involve a grant element below the 25 per cent threshold for being recorded as ODA flows.

Export credits for capital goods, e.g. machinery, equipment and commercial aircraft, usually enjoy two forms of support by governments of the exporting countries. On the one hand, there are direct loan and various credit support programmes; on the other, they provide insurance or insurance guarantees for exports.

In such programmes governments directly or indirectly insure exporters or financial institutions providing export credits against various forms of risks. The latter include political and commercial risks and also foreign exchange risks if the exports are denominated in currencies other than that of the exporting country[6]. The costs of these forms of insurance are subsidised.

Governments also use officially supported institutions to extend direct loans for export financing or provide indirect support though discounting facilities at preferential interest rates. In addition to government export loans or official export credits, there are subsidised private export credits known as supplier credits and buyer credits. Supplier credits are export credits extended by the supplier (or exporter) to foreign buyers (importers) with a typical long maturity of five years, or more. Suppliers then arrange their own financing at interest rates subsidised by the exporting countries. Buyer credits are extended by banks or other financial institutions in the supplier countries to banks or importers in the buyer countries. These buyer credits are also subsidised because the institution providing credits either can tap funds at lower-than-market rates or from rediscounting facilities at officially supported agencies such as central banks.

Table 21 provides statistics on guaranteed private export credits and official export credits in net terms received by Thailand from 1976 through 1985. Guaranteed private export credits are defined as credits provided at fixed interest rates. They encompass supplier and buyer credits as well as the discounting of export credits at preferential terms by an official agency. There were wide fluctuations in the total officially supported credits, i.e. direct official export credits and the guaranteed private export credits. The net inflow ranged between -$42.9 million in 1985 and $468.8 million in 1981. The share of export credits as a percentage of the total net

capital flow also fluctuated widely, ranging between -8,17 per cent in 1976 and 21.12 per cent in 1981. The total net inflow of officially subsidised export credits was very large in 1980-82, and amounted to 10.16 per cent in 1980, 21.12 per cent in 1981 and 13.9 per cent in 1982. After 1982, guaranteed private export credits became negative, resulting in a very small or negative overall net inflow of long-term export credits received by Thailand in 1983-85. In the next chapter, an attempt will be made to estimate empirically interest rate subsidies for ODA loans, officially supported export credits and bank loans.

IV. FINANCING SUBSIDIES RECEIVED BY THAILAND

This chapter will measure the rates of subsidy in Thailand's foreign borrowings from major sources. In the preceding analysis foreign debt and financial flows with concessionality were discussed as a stock concept and in terms of disbursement flows, but the calculation of the subsidy rates will be made in terms of commitment data on the Thai government's external obligations. This data is for the years 1977 to 1985. Commitment refers to a loan agreement signed by the Thai government and a lender. It is the most appropriate basis for subsidy calculations. It not only means the opening of a line of credit but it also contains the information required for applying our subsidy formula. The following information was supplied to us:

1. The recipient body in Thailand (generally either the central government or a state enterprise);
2. The project's name or nature;
3. The creditor (institution and/or country);
4. The amount of the loan and the agreement year;
5. The original currency; and
6. The maturity and grace period.

4.1 The Formula for Subsidy Rates

Various studies use different methods for calculating the rate of subsidy in a financial transaction. Although subsidies usually pertain to export credits provided by lending countries, they should also include all loans with a concessional element. To the author's knowledge, there are two studies or rates of subsidy from the point of view of borrowing countries. The first study, by Fleisig and Hill (1984), tried to estimate the interest subsidy on export credits by a country for a particular year for all loans still outstanding in the portfolio in that year. With detailed information on the loans outstanding in the portfolio or, in its absence, some simplified assumption on the average loan maturity in the portfolio, the formula for the subsidy in that year is written as follows.

$$S = \sum_{t=T}^{n} A_t(d_t - r_t) \qquad \textbf{(1)}$$

Where,

S	=	amount of subsidy
A_t	=	authorizations made in year t still outstanding in year n
r_t	=	average interest rate on loans authorized in year t
d_t	=	opportunity cost for the borrowing country
T	=	year during which oldest outstanding loans were authorized
n	=	year of the end of the period.

The second study was done by A. Raynauld (1988). It specifically attempted to provide estimates of the subsidy rates on export credits received by Tunisia in the 1980-85 period. The theoretically more relevant formula adopted by Raynauld is similar to one incorporating a discounted present value concept used by the OECD Secretariat. The subsidy rate is defined in terms of the value of the loans as the difference between the actual rate of interest of the loan and a reference rate. This reference or discount rate is considered to be the opportunity cost of the borrowing country, that is, the rate of interest it would have had to pay on the international market. The subsidy rate in this case is:

$$s = 100 \frac{(d-r)}{d} \left[1 - \frac{\frac{1}{(1+d)^g} - \frac{1}{(1+d)^T}}{d(T-g)} \right] \qquad (2)$$

Where,

s	=	rate of subsidy
r	=	actual rate of interest
d	=	the reference rate
g	=	the grace period
T	=	the nominal maturity of the loan.

If the grace period is assumed to be zero, the formula is:

$$s = 100 \frac{(d-r)}{d} \left[1 - \left[\frac{1 - \frac{1}{(1+d)^T}}{dT} \right] \right] \qquad (3)$$

In both of these formulas, it is assumed that the loan disbursement is made on the contracted date, that the principal is reimbursed in equal annual instalments, and that interest is also payable once a year. Based on Raynauld's two formulas, calculations are then made for public external borrowings from major lending countries or suppliers.

The reference interest rate, which reflects the opportunity cost of the borrowing country, is taken to be the annual return of medium- and long-term government bonds in each of the lending countries. This rate is theoretically relevant in the case of Thailand because all loan agreements considered here belong to the public sector (government and state enterprises). A premium is added to account for the difference between interest rates on bonds in the lending country and the rate Thailand would

have to pay in the international market. This premium reflects the additional trouble, cost, and, more importantly, the risk involved in lending to a foreign country. There is of course no reason why this premium should be fixed or constant over time. Other things being equal, it is reasonable to assume that this premium would rise with the borrowing country's indebtedness. Lenders can become increasingly concerned about a borrowing country's ability to finance its external obligations involving foreign exchange as the size of the debts grows.

For Thailand, we used the average actual premium paid by the public sector for floating rate loans on the international financial market. The premium ranged between 0.12 per cent and 1.15 per cent during the 1977-85 period, being higher in the early part of period and then tending to decline. The premium was quite small, only 0.12 per cent in 1985, the last year of our study.

The fall in premium for public sector foreign borrowing can be attributed to a perceived increase in creditworthiness. This perception was mainly a response to the Thai government's economic adjustment policies described in Chapter 2. These policies helped to set the stage for an improvement in the country's overall macroeconomic performance, especially an improvement in the balance of payments, which is particularly relevant for our study. The reference rates for various countries and the premium are shown in Table 22.

It can be seen in Table 22 that the nominal reference rates are not the same for different currencies (countries). These differences do not necessarily imply that it would be more advantageous to borrow in one currency than another. In an ideal international capital market with high capital mobility, arbitrage transactions on the currency futures market and currency spot transactions will ensure equality of return among different currencies. This is the essence of the well-known interest-rate parity theorem. Thus a lower rate of interest for the yen and deutsche mark than for the US dollar should be offset by a rise in value of the yen and deutsche mark against the dollar. With perfect foresight, the expected appreciation of currencies should be closely approximated by the forward premium on them. In an ideal financial market, the borrower's choice of currency for a transaction does not matter. This is reflected in the subsidy estimates which do not depend on the absolute rate of interest but upon the difference between the reference rate and the actual rate for each loan in a given currency. In addition to this difference or spread between interest rates, the size of the subsidy is determined by the loan's maturity and grace period. Finally, it may be noted that almost all of Thailand's loan agreements are in the currency of the lending country.

4.2 Subsidy Estimates

Before turning to our estimates of subsidy rates, we examine the amount of subsidised borrowing in ODA loans and export credits from selected major bilateral sources for 1977-85 (See Table 23). The major bilateral lenders are the United States, Japan, Germany, France and the United Kingdom. Together they provided a total of $3.67 billion of subsidised credits to Thailand during this period. Of these five countries, Japan provided the largest amount of subsidised financing

each year and thus for the 1977-85 period as a whole. During this period Thailand's concessional borrowing was relatively concentrated on Japan, which alone was the source of $2.513 billion or 68.48 per cent of the total from the five countries. The share of the United States, a regular supplier of subsidised loans to Thailand, was 13.88 per cent during 1977-85. The shares of Germany and France were 7.99 per cent and 6.87 per cent respectively. The share of the United Kingdom, which sporadically supplied concessional funds to the Thai public sector, was only 2.78 per cent for the 1977-85 period. The relative share of ODA and export credits is also of interest. During the 1977-85 period, ODA funds were 71 per cent of the total flows recorded for the five major creditors. Therefore, one would expect a relatively high level of subsidy in borrowings of the Thai public sector.

Table 24 provides estimates of the rates of subsidy for 1977-85 on loans to Thailand from major lending countries by category — ODA loans, export credits and bank loans with probable concessionality — without taking into account the grace period. As expected, the subsidy rates on ODA loans are generally much higher than on export credits from each lending country. ODA loans not only carry lower interest rates but have much longer maturities.

The rate of interest on ODA loans to Thailand was generally 2-3.5 per cent, although there were a few exceptions in which the rate of interest was less that 1 per cent or more than 3.5 per cent. However, there were noticeable differences in the interest rates of the five major lenders. ODA loans from the Federal Republic of Germany consistently carried a low rate of 2 per cent. The interest rates on ODA loans from Japan generally were 1-1.5 percentage points above the German lending rate and 0.5-1 percentage points above the US lending rate, which for ODA loans remained at 2.5 per cent for the whole 1977-85 period. The interest rates on ODA loans from France were comparable to the Japanese. Thus French ODA lending rates were also higher than those of Germany and the United States. Among the major lenders, the UK rates were the highest, reflecting the fact that the interest rates on bonds used as our reference rates in pounds sterling were likewise the highest for nearly the entire period studied here.

In almost all cases, the maturities on US ODA loans were 30 years. By contrast, a majority of Japanese and French ODA loans had maturities of 20 and 15 years respectively. The maturities on German loans varied between nine to 40 years, giving an unweighted average of 19.4 years. United Kingdom loans were extended for the shortest period, ranging from four to 14 years or an average of nine years.

Taking into account differences in interest rates and maturities, the US ODA subsidy rates were generally the highest during the 1977-85 period, with the exceptions of 1977, 1978, 1983 and 1984. The relatively lower subsidy rates of those years were mainly due to the inclusion of loans for defence projects. If defence spending were not included, the subsidy rate on US ODA loans would have been close to 50 per cent in 1977-78 and about 60 per cent in 1984, while no ODA loan would be recorded for 1983. Excluding the exceptional years, the US subsidy rate was between 51.29 and 64.05 per cent. The rate of subsidy on Japanese loans was 28.6 per cent in 1977, reached a peak of 40.32 per cent in 1980 and thereafter

declined steadily to 20.39 per cent in 1985. The rate of subsidy on German loans was generally lower than on Japanese loans and tended to decline during the 1977-85 period, except in 1983 and 1984, when the subsidies were 43.58 per cent and 40.55 per cent respectively. The short maturities on British ODA loans corresponded to the lowest rates of subsidy of the major lenders. As can be seen in Table 24, the subsidy rates on French loans were usually less than the normal US rates (when defence spending is excluded) but were generally higher than those for Japanese loans. It can also be seen that the French subsidy rates tended to rise, ranging from 31.18 per cent in 1979 to 51.64 per cent in 1984.

Turning to export credits (bank loans and supplier credits), terms differed widely between countries and on different loans from a given country. US bank credits had maturities of only four to six years. The maturities on credits from Japan, France and Germany were largely grouped around ten years, although the supplier credits from Japan were extended for periods of three to twelve years. Interest rates on export credits fell within a relatively narrow range of 6.75-8.5 per cent, with the exception of one bank loan from France in 1984 with an interest rate of 10.1 per cent.

Such differences in maturities and interest rates account for subsidy rates on export credits ranging from 1.26 to 28.11 per cent. In each year considered France offered the highest subsidy rates on export credits, which ranged from 6.63 to 28.11 per cent, while Germany's subsidy rates of 1.26 to 5.56 per cent were the lowest. Export credit subsidies from the United States were 3.31 to 13.35 per cent while those from Japan were 1.95 to 10.92 per cent.

It is obvious that in general subsidy rates are lower for export credits than on ODA loans. However, they were not negligible in the financing of export credits. The weighted averages of subsidy rates on export credits for the five major lending countries were between 3.85 and 13.57 per cent for 1977-85, as shown in Table 24. The same weighted averages for ODA loans were 16.31 to 44.76 per cent. It should also be noted that subsidy rates for the two categories of loans were similar, tending to rise to a peak in 1980-81, after which they tended to fall. The average for all loans in the last line of Table 24 provides the best indicator of this trend. This gives rates of 15-17 per cent for 1977-79, 30-32 per cent in 1980-81, and 18.86 per cent in 1985.

After this analysis of the subsidy rates for the two main categories of external funds from each country, ODA loans and export credits, it is of interest to determine the average subsidy rate for each country. The weighted average rate of subsidy for 1977-85 with a zero grace period is:

Japan	24.21 per cent
United States	22.51 per cent
Germany	19.29 per cent
France	17.02 per cent
United Kingdom	9.71 per cent

Japan's average subsidy rate for the period of 24.41 per cent was the highest of the five DAC countries, surpassing the US subsidy rate of 22.51 per cent. This is attributed mainly to the high proportion of ODA loans in the total financial flow from

Japan to Thailand during 1977-85. Table 25 provides statistics on ODA loans as a percentage of total credits extended to Thailand by each of the five major DAC countries. The ratio of Japanese ODA loans in its own total flow to the Thai public sector was 77.73 per cent, compared to 71.27 per cent for the five countries combined. The United States and Germany, whose subsidy rates ranked second and third respectively, also had relatively high shares of ODA loans. As noted earlier, France had higher ODA subsidy rates than Japan and Germany but its overall subsidy rate of 17.02 per cent ranked fourth as a result of its low level of ODA loans, only 9.23 per cent of total loans. The overall British subsidy rate of 9.17 per cent was the lowest of the five countries.

Like other rapidly developing countries, Thailand also borrows from multilateral agencies, as noted in Chapter 2 and detailed in Table 26. First among them is the World Bank, which provided 62 per cent of the funds borrowed from all multilateral sources during 1977-85. The Asian Development Bank, International Development Association (IDA), International Fund for Agricultural Development (IFAD) and OPEC also provided loans. Many of the loans from OPEC and all IDA loans could better be described as grants provided at very low or even zero interest. However, the value of these loans was much less than that of the World Bank loans. There was no borrowing from the IDA after 1979 and loan agreements with the IFAD were signed only in 1978, 1980 and 1983.

There is lack of agreement on making subsidy estimates for World Bank loans. Some economists hold that World Bank loans should be considered as market transactions. As a general rule, the World Bank obtains a rate of interest that covers the cost of its funds plus an operational margin. That is the basis for the view that these loans do not carry any concessionality. Other analysts contend that the World Bank, an international institution whose own loans are guaranteed by all its member governments, has preferential access to the capital market. From this standpoint, the interest rate charged by the World Bank is lower than what borrowers would have to pay in its absence: hence the existence of a subsidy.

However it may be, in this study World Bank loans were subjected to the same subsidy calculations as other loans for comparative purposes. The rate of interest on World Bank loans to Thailand ranged from 7 to 11.6 per cent during 1977-85. It was assumed that repayments were made in US dollars since all the loans had been made in dollars. Thus the reference rates for the dollar given in Table 22 were used. During the 1977-85 period, Thailand borrowed $2.51 billion from the World Bank, while loans from OPEC and the IDA were only $58.8 million and $90.1 million respectively. Estimates of subsidy rates on loans from the World Bank, OPEC and the IDA are given in Table 27. It can be seen that the subsidy rates on World Bank loans were, as expected, generally lower than those for ODA loans, as shown for bilateral financial flows in Table 24. The weighted average for the period was 14.36 per cent. This lower subsidy rate was probably an important factor in the recent tendency to borrow less from the World Bank. With access to the Overseas Economic Cooperation Fund and the rising Japanese current accounts surplus for the period under study, much of the borrowing by the Thai public sector has shifted from the World Bank to Japan. Subsidy rates on loans from the IDA and OPEC were found to be high, as was expected. The IDA loans carried a substantially higher concessionality due principally

to their much longer maturity (40 years) than OPEC loans (9-15 years). However, the IDA provided funds to Thailand in only two of the nine years under study.

As analysed in this chapter, rates of subsidy are based on a zero grace period. Other things being equal, such estimates would tend to underestimate the subsidy. However, the formula used also assumes that the loan is disbursed in total at the time of signature of the agreement. To the extent that this is not the case the subsidy rates will be overestimated. In practice, the grace period can be said to compensate the borrower for the delay in utilising funds. Thus there is good reason to use equation 3 in the absence of information on disbursements and to assume the two conditions cancel out each other.

V. THE IMPACTS OF SUBSIDISED BORROWINGS ON THE DOMESTIC THAI ECONOMY

Subsidised borrowing probably has impacts on many areas of both lending and borrowing countries. Given international division of the subsidy between the lending and borrowing countries, notably terms-of-trade or price effects, the impact of subsidised financial flows on Thailand's economy will be analysed in terms of probable effects on the allocation of domestic resources. Borrowing of different economic sectors will be studied together with their respective subsidy rates. Finally the macroeconomic impact will be estimated in terms of the demand and supply equations.

5.1 The Allocating Impact of Subsidised External Financing

From the perspective of allocation of resources in the domestic economy of the borrowing country the inflow of subsidised external funds can be considered as a kind of import subsidy. Under the theory of international trade and in the narrower context of commercial protectionist policy, an import subsidy in any form tends to lower the price of the imported commodity. Hence it tends to substitute imports for domestic production. This gives rise to an anti-protective effect on domestic production of the existing import-competing product. If there is no domestic output of the commodity or service, the import subsidy may tend to delay potential start-up of domestic activities to replace imports.

However, if the imported product benefiting from subsidised financing clearly cannot be produced domestically, given the present and foreseeable technological capability of the borrowing country, the import subsidy can be beneficial to the domestic sector. This is highly probable for imports of specialised capital goods, e.g. certain machinery, equipment, aircraft, etc. Specifically, the domestic economic activity using such subsidised capital imports in its production will inevitably gain. In terms of the effective rate of protection, there is an increase comparable to a reduction in the tariff on the input.

Nevertheless, the lower imported price for the user activity due to the import subsidy depends not only on the calculated rate of the subsidy itself but also on the type of product subsidised. The type of product to which the financial subsidy flows is important because it concerns the product's production and market, and the price responsiveness of the relevant demand and supply curves. The details of these factors will permit a better analysis of the anti-protective effect on the domestic economy of the financial import subsidy for the particular product.

In most cases, information on the nature of products imported under subsidy schemes is not available, thus preventing a direct assessment of the impact of the financial import subsidy through details of the effective rate of protection. Despite the lack of this information, for this analysis we decided to classify the borrowings by the Thai government and state enterprises into broad economic sectors as follows:

agriculture, industry, infrastructure development, oil and natural gas, commercial aircraft, defence, public services and others. Infrastructure development encompasses loans dealing with construction or expansion of public facilities such as the electricity supply, water supply, railroad locomotives and equipment, highways and roads, port construction, telecommunications, construction and maintenance of irrigation facilities, and expansion of the Bangkok airport. The infrastructure category also includes a small amount of lending to the National Housing Authority of Thailand, which provides housing for low- and middle-income workers.

Table 28 breaks down public borrowing from major external sources into 16 economic categories for 1977-85. Borrowing not classified under 15 named sectors is lumped in a category designated "others", which accounted for 9.89 of the borrowing for the period. The shares of the subsidised financing varied from a low of 0.47 per cent used for residential construction to 16.5 per cent for non-agricultural public works. Electricity generation and distribution, taken as two sectors, obtained 12.23 per cent and 7.97 per cent of the subsidised funds respectively, while 6.48 per cent went to telecommunications. Agriculture and agricultural public works were also treated as separate categories which together obtained 16.32 per cent of the subsidised financing. Actually 27.62 per cent of the $578 million loaned to "agriculture" went to the Bank for Agriculture and Agricultural Co-operatives which, in turn, makes loans to farmers or farmer co-operatives. The rest of the external borrowing classified under agriculture primarily was used for seed production, land development and agricultural extension programmes.

Two other relatively large users of external financing were the energy and aircraft sectors. The energy sector, which used 9.86 per cent of the external financing, was primarily concerned with developing natural gas resources after the exploration and discovery of commercially exploitable oil and gas deposits. There was also one loan for restructuring an oil refinery. The 6.5 per cent of the external funds used by the aircraft sector were almost entirely devoted to purchases of the European Airbus or Boeing aircraft. Finally, another significant use of subsidised funds was arms procurement, to which nearly 4 per cent of these funds were allocated.

Residential construction, inland fishing, industry and public services used relatively small shares of the subsidised borrowing from abroad. Most of the subsidised funds for industry represented loans to the Industrial Finance Corporation of Thailand, which in turn makes medium- and long-term loans for domestic industrial development. The subsidised funds that went to public services were used for education and health (anti-malarial projects).

This overview includes loans from both major bilateral and multilateral sources. It is of interest to see if there is a different pattern for borrowing from bilateral sources, ODA loans and export credits. Table 29 provides the percentage share of bilateral to total borrowing by economic sector. This indicates that 60.21 per cent of the borrowing for development of infrastructure as a whole came from bilateral sources and that all the subsidised borrowing for inland fishing, commercial aircraft, arms procurement and residential construction came from ODA loans or export credits. A distribution by sectors of subsidised borrowing from bilateral sources is given in Table 30. This shows that infrastructure development obtained the largest single

share of bilateral subsidised credit, 59.77 per cent, as compared to the 57.57 per cent from all sources (Table 28). Non-agricultural public works and commercial aircraft obtained higher proportions of the bilateral subsidised credit than of the total borrowing from bilateral and multilateral sources. The picture was the inverse for agriculture which obtained 4.69 of the subsidised funding from bilateral sources, compared to 9.14 per cent of the total subsidised borrowing. It can be concluded that the lion's share of the subsidised inflow of funds to Thailand from major sources went to infrastructure development and agriculture as a whole. The concentration of concessional funding in infrastructure was even somewhat higher for ODA loans and export credits. However, World Bank loans for agriculture increased the proportion of total concessional funding for this sector quite substantially. Finally, it may be observed that subsidised borrowing for industrial activities from both bilateral and multilateral sources was limited during 1977-85, except for energy.

After analysing the distribution of subsidised financing in different economic sectors, it is appropriate to study the rate of subsidy in these sectors. Table 31 provides the weighted average subsidy rates for each sector using a zero grace period. The subsidy rates are given for the whole 1977-85 period for loans from all sources combined and for ODA funds and export credits combined during the period. The weighted average subsidy rate for the total subsidised borrowing from all major sources was 18.75 per cent and 22.43 per cent for ODA loans and export credits, or bilateral sources alone. This was in general true for individual sectors, except for lower subsidy rates from bilateral sources for oil and natural gas, public services and electricity generation. This lower subsidy rate for electricity generation was not unexpected since the funds from bilateral source included a relatively large amount of export credits, which carry a lower subsidy rate.

The rate of subsidy ranged from a low of 2.52 per cent for residential construction to a high of 46.99 per cent for public services. The range was from 2.52 to 59.75 per cent when borrowing from multilateral sources is included. This variation of subsidy rates for different sectors is important for analysing the distortion arising from the concessionality of financial flows to Thailand.

The inflow of subsidised funds can be considered as a form of import subsidy for a particular imported product. This tends to lower the rate of protection for competing domestic production, while it raises protection for the activity using the subsidised imported product, even if there are no domestic alternatives to the imported capital goods financed by the flow of subsidised funds. Table 32 give rates of effective protection for different economic activities. Table 33 provides the distribution by sector of the gross domestic product. Based on Thailand's input-output table, it can be seen that protection is biased against agricultural or agro-industrial production in favour of industrial activity. Major crops, livestock, forestry, charcoal, fishing and processing of food and other agricultural products face either negative protection or rates of protection lower than that given to industrial production. Services and utilities which can be considered non-tradable activities also have negative rates. This is because their tradable inputs are taxed and their outputs are sold domestically. However, externally financed borrowings for infrastructure and public services had subsidy rates of 20.69 per cent (or 24.99 per cent for ODA funds and export credits) respectively. These were higher than the weighted average subsidy rates of 18.75 per

cent or 22.43 per cent, the latter taking bilateral sources alone. Thus subsidised borrowings of these sectors helped offset discrimination against them in the government incentive system. Similar considerations hold for the fishing sector. Agriculture had a subsidy rate of 18.47 per cent for all sources of subsidised funds and of 30.99 per cent for bilateral ODA loans and export credits, also higher than the weighted averages.

Most other sectors had lower subsidy rates on their borrowing from external sources. These included oil and natural gas, aircraft, industry and defence procurement, among which only the oil and natural gas and industry sectors enjoyed relatively high protection rates, notably for production of crude oil and chemicals using oil or natural gas as raw materials. Subsidised lending to these sectors tended to increase their rankings in the incentive system which allocated resources flowing into these sectors. This might have been an inefficient allocation of domestic resources. However, only a small amount, about 1.14 per cent, of the total subsidised borrowing went to the industry sector. The 9.83 per cent of the external borrowing, or 9.12 per cent of that from bilateral sources, used for the oil and natural gas sector had subsidy rates of 12-14 per cent. (Table 31) This still was equivalent to a smaller proportion of the total subsidy than was devoted to other sectors, notably that of infrastructure development. Table 34 indicates the percentage share by sectors of the total subsidy. Out of the this total, estimated at $1,183 billion for 1977-85, oil and natural gas received 7.23 per cent and industry 1.04 per cent. By contrast, the group of activities concerned with development of the infrastructure obtained 63.66 per cent and one of them, non-agricultural public works, obtained 20.71 per cent. Agricultural public works enjoyed a relatively large 8.63 per cent share which does not include agriculture itself, the total share of these two categories being 17.66 per cent. This picture did not change substantially for the distribution of the total subsidy of $820 million from bilateral ODA loans and export credits. The three categories agriculture, inland fishing and public works for agriculture together received 17.7 per cent of this subsidy. The 66.67 per cent of the total bilateral subsidy which went to infrastructure development was even higher than the percentage for the subsidy from both bilateral and multilateral sources (Table 34). Thus it can be concluded that much of the subsidised external borrowing, from both bilateral and multilateral sources, contributed to the Thai economy by enhancing its capacity to produce and generally having a desirable effect on the incentive system. This potentially increased the efficiency of allocation of the domestic economy.

5.2 The Distribution of Gain Between the Borrowing and Lending Countries

a) Analysis of the Relative Gain

The subsidy estimates in the preceding analysis actually only indicate the potential gain of the borrowing country. A borrower's real gain will depend on how the subsidy is divided between it and the lending country whose export is financed. The trend of total officially supported export credits is also an issue since creditor countries contend that subsidies help increase the flow of funds to borrowers in developing countries. This implies that the more subsidised credit there is, the more financial

resources will be made available. However, what happens in reality will depend on the export credit demand and supply equations and on the market structure (competitive or monopolistic) of the specific product receiving export credit in the lending country. This is because the export credit demand and supply equations actually depend on the actual export credit demand and supply of the goods being financed.

An officially supported export credit is a form of export subsidy which generally gives rise to an increase in the demand for a good exported by a lending country (imported by a borrowing country). This is the usual objective of the export credit financing in a competitive market. If the price elasticity of export supply is completely inelastic, the increase in demand will raise the import price of the product bought by the purchaser. Since the supply cannot be increased, the price will rise by the amount of the subsidy, the full amount of the subsidy is recaptured by lending country, and the borrowing country gains nothing. If the supplying country is a relatively small supplier for the subsidised export product, its export price is determined by the world market, but the subsidy receiving country will bid up the price of the product. Again the borrowing country does not gain because the import price tends to rise by the full amount of the subsidy irrespective of the supply conditions in the exporting country. However, there are conditions which permit the borrower to gain from officially supported credits. The higher the price elasticity of the demand and supply of export credit, the higher the gain to the borrowing country. In the extreme case in which the supply price elasticity of the subsidised good is infinitely elastic over the range of the subsidy, all the subsidy is transferred to importer in the borrowing country[7]. We attempt to provide estimates of supply and demand conditions below.

b) The Estimate of Supply and Demand Functions for Export Credits

The export credits disbursed to Thailand during 1977-85 by the Federal Republic of Germany, Japan, and the United States are used to obtain a dependent variable in the estimation of demand and supply of export credits. This poses some difficulties since the disbursements are not the same as the commitments in the loan agreements signed by Thailand. Moreover, current disbursements of export credits are not necessarily consistent with the current flow of exogenous variables. Disbursements may relate to a loan agreement signed some years earlier. Therefore, it quite unlikely that a model could be constructed in which the demand for and supply of export credits are determined directly and simultaneously. Thus we begin with a single-equation estimation on the supply side.

The supply equation is hypothesised to be a function of the interest rate, economic climate in lending countries, creditworthiness of borrowing countries, ODA loans, etc. The final result of the estimated supply function is given below (See Table 35).

The export credits disbursed to Thailand by Germany, Japan, and the United States are grouped into a single dependent variable in order to increase the

observations. These are converted into logarithms and collectively called the variable "CRED".

Since we group the export credit disbursements together, the constant term in the export credit (both demand and supply) function takes the form of binary variables. GER, JSP and USA are the three binary variables included in this equation for each of three lending countries, Germany, Japan, and the United States. Each variable has the value of 1 if the export credit disbursement is from the relevant country and 0 otherwise.

In fact, there are disbursement flows from other countries such as Canada and the United Kingdom. However, the inclusion of these countries as binary variables improved the fitness of the equation at the expense of the T-values (see Equation 1).

We also include the rate of interest in the export credits supply function as an explanatory variable. In fact, the most relevant rate of interest is the rate currently applied to export credits or the rate under the loan agreement. However, we do not have sufficient information on this data consistent with our dependent variable. The yield on long-term government bonds in each of the three lender countries are used instead, as done in Raynauld's study of Tunisia. Assuming that the rates of interest on export credits are proportional to the yield of government bonds, we expect that export credits will increase in line with the rate of interest or yields on government bonds.

As shown in Table 35, the rate of interest with a three-year lag, RLAG-3, yields the best result. It has the correct sign and is statistically significant. It is positively correlated with export credits at the 99.5 per cent level. This supports our belief that disbursements are made as a result of an agreement signed three years earlier.

Since the supplied equation is semi-log in interest rate, the interest rate of export credits can be derived by multiplying the coefficient of RLAG-3 (0.282 in Equation 2) by the average long-term government bond yield. The result confirms the *a priori* hypothesis that the supply curve of export credits is interest elastic, 2.86.

The last explanatory variable is the rate of change in the price level, or rate of inflation, in the lending countries. It is used as a proxy for the state of the economy in the lending countries. The relationship of export credits and economic activity is hypothesised to be negative. If economic activity in the lending country is sluggish, the lender will tend to increase its offer of credit in negotiating a loan agreement. The underlying purpose is getting external demand to replace domestic demand to spur production. The converse is true for a buoyant economy. We assume that a rise in the price level signals that the economy is booming and approaching maximum capacity. For those reasons, we use the rate of inflation as a proxy for economic activity. One might argue that the growth rate of a lending country might be more appropriate, but in the case of Thailand it yields statistically less satisfactory results.

The rate of inflation with a 3-year lag PT-3, gives the best result. The value of the coefficient is very high (-19.55) and statistically significant at a 99.5 per cent

level. This leads to the conclusion that the expected economic climate in the lending country has a relatively strong influence on the supply of export credits.

Other variables were included in the equation but were later omitted since the estimated coefficients they yielded were either statistically insignificant or had the wrong signs. Those variables included ODA loans (denoted ODA), creditworthiness for which the debt-service ratio (DS) serves as proxy, and imports from the corresponding lending countries (IMP). The results are provided, equations 1 to 5 being the supply equations and equations 6 and 7 being the demand equations in Tables 35 and 36.

The estimated high interest rate elasticity of the supply equation is important for the division of the export credits subsidy. Lending countries normally argue that financial subsidies benefit the borrowing countries, especially developing countries. There is intense international competition in the offering of export credits, something which would explain why it has been difficult for the lending countries to reach agreement on limiting or abolishing them despite the high costs involved in subsidised export credits. Nonetheless, the high price elasticity shown in Table 35 only indicates that subsidised export credits are potentially available. Demand determines whether a borrowing country will actually borrow. The demand for export credits is found to have a lower estimated coefficient with respect to the rate of interest, as shown in Table 36. The estimated coefficient of this variable is only -0.09 in equation 7 with a low t-value of only -0.56. This is not significantly different from zero. Although the t-value is almost two times greater in equation 6, its significance is still low. Thus the calculated interest elasticity of the demand for export credits indicates that it is very inelastic or, at the very best, is much less elastic than the supply.

These findings imply that most of the subsidy associated with export credits taken by the borrowing country is not transferred back to the lender. Thailand, the borrowing country in our case, captures a high proportion of the subsidy in the export credits it uses. However, it should be noted that despite the availability of resource flows made possible by competition between lenders, actual borrowing depends importantly on the borrower's decision. The elasticity of the demand in this case is estimated to be only -0.521. Thus even if Thailand can retain a relatively high proportion of the interest rate subsidy, its demand for export credits, which are assumed to pay for imports of capital goods, will not expand greatly with respect to the availability of export credits.

This conclusion is reinforced by our estimate of the income elasticity of demand for export credits. This is the variable LGNP3 in our demand equation. The income elasticity of demand was estimated statistically to be 0.488. This implies that as income rises the demand for subsidised export credits by the public sector also increases but at a rate less than proportional to the increase in income. It is interesting to note that one can indirectly obtain the elasticity of demand for export credits with respect to imports by dividing the income elasticity of export credits by the income elasticity of the demand for imports. The income elasticity of the demand for imports is estimated to be 0.989.

Thus the elasticity of demand for export credits in relation to imports is 0.493. Therefore, an empirical analysis of the export credits supply and demand equations indicates that demand plays a crucial role in determining the flow of export credits to Thailand. Thus it would be correct to treat export credits as accompanying credits, as was done in the case study of Tunisia. The initiative for using the credits comes from the real sector of the domestic economy. The growth of domestic income is an important factor. Hence, the empirical results for Thailand do not support the notion that export credits generate trade.

VI. CONCLUSIONS AND SOME POLICY IMPLICATIONS

Officially supported export financing in any form has long been an issue of contention, especially among industrialised countries which provide this financing for the purpose of promoting their exports. The controversies over subsidised export financing have given rise to studies on its rationale and on its implications, especially for the economies of developed countries which provide subsidised funds. However, the implications for developing countries, recipients of most of these subsidised export credits, have received comparatively little attention.

This case study of Thailand begins by describing the savings-investment gap which is filled by the inflow of capital from abroad. Although a long-term deficit in the current accounts can be expected for a rapidly growing, low-income developing country, there was a surge in external borrowing and thus of debt during 1977-85, the period covered by this study. Medium- and long-term external debt was $1.35 billion in 1977 and $12.77 billion in 1985. The government's share of this external debt remained at approximately 25 per cent throughout the period. However, the share of state enterprises rose from about 25 per cent in 1973-74 to 46.11 per cent in 1985, while the private sector's dropped from about 50 per cent to 26.38 per cent in the same period.

There were also changes in the distribution of external debt by type of creditor. The shares of multilateral agencies and official bilateral sources both fell. More than half of Thailand's external loans came from multilateral sources in the early 1970s, about one-fourth in 1980 and about one-third in 1984-85. Conversely, borrowing on the international financial market increased substantially, mostly in the form of floating interest rate loans and bond issues. The share of such borrowing in the public external debt rose from a mere 3.53 per cent in 1975 to 45.86 per cent in 1980, before falling back to 35-36 per cent in 1984-85. Japan was Thailand's largest bilateral official creditor, remaining the source of 16-17 per cent of external financing. The shares of external debt owed to the next two largest bilateral creditors, the United States and Germany, had been 11.56 per cent and 9.19 per cent respectively in 1975 but dropped significantly during the period studied. There was a predictable rise in the debt service ratio as a result of the growth of and charges in composition of the external public debt, and the increased borrowing in stronger currencies on the international financial market, especially the yen. The debt service ratio for public sector external debt, which had been 2-3 per cent in the early 1970s, rose to 5.3 per cent in 1980 and 11 per cent in 1985. The Thai government historically has had a good record of managing external public debt, based on a cautious approach to foreign debt and highly centralised control of annually aggregated foreign borrowing under a legal ceiling for debt service. Nonetheless, the growth and changes in composition of foreign debts led to a deterioration in the position of Thailand's reserves of foreign exchange during 1977-85.

Turning from a profile of the external debt, the study focuses on financial flows with and without concessionality. Multilateral agencies and other countries are the major sources of concessional funds, the latter providing official development assistance (ODA) and various officially supported export credits. It was found that the

proportion of ODA in Thailand's net capital inflows tended to decline from 40-70 per cent in the 1969-72 period to about 20 per cent in succeeding years, except for 1976, 1979, 1982 and 1985. Grants also declined in relation to loans in ODA, the grant portion generally being less than the loan portion, except in 1984-85. In 1985, the ratio of loans to grants was 41.17 per cent and the ODA flow was 29.32 per cent of Thailand's total net capital inflow. During the 1976-85 the net inflow of subsidised export credits fluctuated widely between -8.17 and 21.12 per cent of the total net capital flow, with exceptionally high net inflow in 1980-82. Total ODA inflow and officially supported export credits amounted to nearly 40 per cent of the net capital inflow in 1981-82. Thus the inflow of capital with potential concessionality was quite large (Tables 19 and 21).

The subsidy rates were calculated for ODA and export credits and it was found that the overall rate of financial subsidy from major sources ranged between 14.45 and 31.88 per cent during 1977-85. The rate of subsidy of ODA was higher, ranging between 16.31 per cent in 1978 and 43.74 per cent in 1981, while the rate of subsidy in export credits ranged between 13.57 per cent in 1981 and 3.41 per cent in 1982. Subsidy rates tended to rise from 1977 to a peak in 1981 and then tended to fall (Table 24).

There was also a variation in the subsidy rates of different countries. France tended to offer a high rate of subsidy in its export credits but it ranked fourth when comparing overall subsidy rates for 1977-85 of major official sources of bilateral financing. In this comparison Japan ranked first with a rate of subsidy of 24.41 per cent, primarily because of a high proportion of ODA loans and not because of the rates of subsidy, *per se*, on ODA loans and exports. The overall subsidy rates of the United States and Germany, which ranked second and third respectively, were not much lower than Japan's. A weighted average subsidy of 14.36 per cent on World Bank loans probably provided an incentive to shift Thai sector public borrowing from the World Bank towards the cheaper available funds from Japan.

In the borrowing by different economic sectors, there were significant differences in the subsidy rates and in their shares of loans and credits. Infrastructure as a whole was the largest recipient of subsidised financing from major sources, amounting to 57.57 per cent of the total during 1977-85, or 59.77 per cent of the bilateral ODA and export credits. The weighted average subsidy rate for this domain was found to be 20.69 per cent, or 24.99 per cent for the bilateral ODA and export credits. This was higher than the weighted average subsidy rate for all sectors combined of 18.76 per cent, or 20.43 per cent for the bilateral ODA and export credits. Thus infrastructure obtained 63.66 per cent of the total subsidy of $1.18 billion, or 66.67 per cent of the total subsidised bilateral ODA and export credits of $820 million (Table 34). Agriculture, which was the second largest recipient of subsidised funds, if borrowing from multilateral sources is included, also had a relatively high rate of subsidy on funds from bilateral sources. Other sectors received an average or lower rate of subsidy. The bias of government trade and investment policies against infrastructure and agricultural activities gave them negative effective rates of protection or rates that were lower than on other activities. The use of subsidised loans, especially those with relatively high subsidy rates from bilateral sources, tended to offset the bias of the Thai government's incentive system to promote domestic

industrialisation and investment. From this standpoint, the subsidised borrowing tended to increase the efficiency of the allocation of resources in the domestic economy. Of equal importance, the estimated supply and demand equations for export credits for Thailand indicated that a good proportion of the subsidies were split in favour of the borrowing country.

It can be concluded from the present study that the public sector's subsidised borrowing from abroad tended to be beneficial to the Thai economy. The almost double-digit rate of real economic growth in the last several years and the expectation of continued rapid economic growth, have required and will continue to require substantial domestic investment. If domestic savings cannot provide sufficient funds for investment in this period, then foreign savings must be tapped by borrowing from abroad. In this context, our study has a policy implication that there should be continued judicious borrowing of subsidised funds. Perhaps a more streamlined central agency is needed to help in studying and tapping funds from abroad for public sector borrowing, rather than the present loosely centralised agency. The various forms of subsidised credits from different sources abroad can provide relatively low cost funding for domestic needs in Thailand. Higher cost funds from the private financial market should be considered as the last alternative for public sector borrowing abroad. Other forms of external borrowing than loans and credits might also be seriously explored.

NOTES AND REFERENCES

1. There was a rapid shift from a deficit in the current accounts to a small surplus of 5.5 billion baht in 1986, basically due to much lower international oil prices, increased international competitiveness resulting from exchange rate policy after November 1984, and a better monetary policy by the Central Bank. The current accounts then reverted to a deficit in 1987. However, the 1987 deficit of 13.62 billion baht was relatively small, representing only 1.14 per cent of the GNP.

2. There were other causes of the trade deficit. One factor was the Thai government's commercial policy, especially prior to the devaluation and introduction of a discretionary floating exchange rate regime in November 1984. This commercial policy resulted in an overall incentive system biased toward import substitution in a number of industrial activities. The other factor contributing to the deficit was a relatively easy monetary policy accompanying aggregate overspending in many years during the 1975-85 period, when Thailand's terms of trade were deteriorating (Chunanuntathum *et al.*, 1987). However, the terms of trade improved by approximately 9-11 per cent in 1986-87, compared with 1985, as a result of lower prices for imported oil and higher prices for Thai exports.

3. The Japanese yen actually became much stronger after the collapse of the Bretton Woods system in the early 1970s. Floating under the managed regime, the yen appreciated strongly against the US dollar and Thai baht. The Thai currency had been officially tied to the dollar until near the end of 1984. Since November 1984, the baht has been tied to a basket of currencies in a discretionary float. The devaluations of the baht, especially those of July 1981 and November 1984, increased the baht equivalent of dollar-denominated debt. However, the baht depreciated proportionally more via-à-vis the yen than the dollar. Hence, the burden of debt must increase as a result of the denomination of external debt.

4. Foreign direct investment, which is primarily undertaken by multinational firms with an international marketing network, can also be beneficial by providing access to markets for the initial export industries of a developing country. However, many foreign (and domestic) firms can easily be attracted to the highly protected sphere of import-substitution industry. In cases of distorted incentives, the net benefit to the recipient country cannot readily be ascertained or inferred, especially with respect to real resources used for a net savings of foreign exchange.

5. Untied aid is rare.

6. Exchange risk insurance covers exporters against losses from depreciation of foreign currencies (denominated in the export payment contracts) relative to the domestic currency. A guarantee refers to a type of insurance, covering political and commercial risks of non-repayment by a buyer, offered to financial institutions that provide exports credits.

7. For a clear mathematical treatment of this subject see Fleisig and Hill (1984). The case of a monopolist exporter is also discussed in this analysis.

Table 1

PERCENTAGE SHARE OF MERCHANDISE TRADE, SERVICES TRADE, AND CURRENT ACCOUNT DEFICIT TO GNP, 1969-85
(per cent)

Year	Merchandise		Trade balance	Service balance	Current account balance
	Export	Import			
1969	11.07	19.85	-8.78	4.62	-3.24
1970	10.46	19.43	-8.97	4.42	-3.81
1971	11.54	18.41	-6.87	3.74	-2.51
1972	13.24	18.65	-5.41	4.00	-0.65
1973	14.46	19.46	-5.00	3.16	-0.46
1974	18.01	23.26	-5.25	2.79	-0.66
1975	14.86	21.61	-6.75	2.06	-4.14
1976	17.95	21.24	-3.29	0.49	-2.67
1977	18.02	24.57	-6.55	0.62	-5.73
1978	17.71	23.85	-6.14	0.92	-5.05
1979	19.56	28.17	-8.61	0.59	-7.79
1980	19.64	28.26	-8.62	1.66	-6.31
1981	19.64	28.26	-8.62	0.79	-7.33
1982	19.18	23.58	-4.4	1.07	-2.82
1983	16.14	26.07	-9.93	1.86	-7.37
1984	18.08	25.25	-7.17	1.58	-5.15
1985	18.97	25.07	-6.1	1.51	-4.15

Source: Bank of Thailand, *Monthly Bulletin*, various issues.

Table 2

GROWTH RATE OF REAL AND PER CAPITA GROSS NATIONAL PRODUCT AT 1972 PRICES, 1969-85
(per cent)

Year	Real gross national product	Per capita gross national product
1969	7.82	4.39
1970	6.67	7.16
1971	7.86	4.7
1972	4.03	1.02
1973	9.4	6.39
1974	6.05	3.22
1975	6.67	3.87
1976	8.29	5.56
1977	6.99	4.37
1978	9.1	6.52
1979	5.0	2.63
1980	5.44	4.73
1981	4.82	2.53
1982	3.63	1.5
1983	6.39	4.3
1984	5.46	3.5
1985	4.1	2.27

Note: It should be noted that there was probably a discrepancy in the statistics of real GNP and per capita GNP in 1970. The per capita GNP is a ratio of the real GNP and population. Hence, its annual growth rate should generally be lower than the corresponding growth rate of GNP itself when population growth is positive.

Source: Bank of Thailand, *Statistical Bulletin*, various issues.

Table 3

SECTORAL BALANCES, 1969-84
(millions of Baht)

Year	Private sector (SP-Ip)	Government enterprises (Sgp-Igp)	Government sector (I-G)	Net foreign investment	Statistical discrepancy
1969	-161	-2 022	-2 809	-4 156	836
1970	187	-1 344	-5 481	-5 197	1 441
1971	2 020	-877	-7 281	-3 267	2 871
1972	11 542	-2 136	-7 674	-1 063	-2 795
1973	12 850	-762	-4 874	-997	-8 211
1974	2 056	-1 341	2 006	-1 785	-4 506
1975	2 008	-3 633	-6 730	-12 368	-4 013
1976	14 927	-6 389	-16 155	-8 978	-1 361
1977	5 719	-10 899	-12 458	-22 392	-4 754
1978	9 769	-14 983	-12 715	-23 445	-5 516
1979	2 456	-21 315	-13 154	-42 591	-10 578
1980	27 997	-34 853	-25 658	-42 409	-9 895
1981	29 496	-38 531	-21 360	-56 049	-25 654
1982	51 652	-31 988	-41 120	-23 138	-1 982
1983	14 914	-36 467	-22 824	-66 102	-21 725
1984	15 214	-44 865	-33 183	-49 450	13 384

Source: Bank of Thailand, *Monthly Bulletin*, various issues.

Table 4.

BALANCE OF PAYMENTS, 1969-85
(millions of Baht)

	1969	1970	1971	1972	1973	1974	1975	1976
1. Trade balance	-11 310.7	-12 244.8	-9 940.9	-8 884.6	-10 802.4	-14 302.2	-20 161.2	-11 084.9
1.1 Exports	14 254.2	14 269.7	-16 692.1	21 750.2	31 252.5	49 002.4	44 364.5	60 361.2
1.2 Imports	-25 564.9	-26 514.5	-26 633.0	-30 634.8	-42 054.9	-63 304.6	-64 525.7	-71 446.1
2. Net service balance	5 954.4	6 036.2	5 404.1	6 583.0	6 836.4	7 600.7	6 160.8	1 642.5
2.1 Net freight, insurance and other transportation	219.9	222.1	283.5	458.5	548.4	899.8	1 032.8	1 036.9
2.2 Net travel	766.5	902.6	914.4	1 431.2	1 944.4	2 171.1	1 746.9	108.7
2.3 Net investment income	226.1	379.3	29.6	-327.3	-424.3	-14.3	111.1	-847.5
2.4 Net government services	4 591.2	4 444.5	4 115.2	4 925.7	4 589.5	3 919.8	3 216.1	1 595.7
2.5 Other services	150.7	87.1	61.4	94.9	178.4	624.3	53.9	-311.3
3. Net goods and services balance	-5 356.3	-6 208.6	-4 536.8	-2 301.6	-3 966.0	-6 701.5	-14 000.4	-9 442.4
4. Transfers	1 187.2	1 011.7	904.1	1 238.8	2 968.8	4 916.9	1 632.1	464.5
4.1 Net private	89.2	57.4	131.1	630.7	2 398.9	4 375.6	1 134.5	100.8
4.2 Net government	1 098.0	954.3	773.0	608.1	569.9	541.3	497.6	363.7
5. Current account	-4 169.1	-5 196.9	-3 632.7	-1 062.8	-997.2	-1 784.6	-12 368.3	-8 977.9
6. Capital movements	2 897.6	2 478.8	1 733.1	3 643.2	2 937.6	9 054.7	7 754.7	9 263.5
6.1 Direct investment	1 057.5	890.5	808.4	1 427.1	1 604.9	3 836.3	1 744.8	1 614.1
6.2 Private long-term	1 399.7	1 252.1	499.9	1 670.4	-987.2	2 833.4	1 351.2	557.8
6.2.1 Loans and credits	1 299.2	1 007.7	397.0	1 392.5	-1 199.0	2 637.1	1 316.7	689.3
6.2.2 Portfolio and others	100.5	244.4	102.9	277.9	211.8	196.3	34.5	-21.5
6.3 Private short-term	186.0	183.4	154.8	309.1	1 292.4	1 131.3	2 600.3	2 778.5
6.4 State enterprises	272.2	90.7	60.2	338.3	372.7	1 173.9	2 203.0	1 839.3
6.4.1 Long-term	272.2	90.7	60.2	338.3	372.7	1 173.9	2 203.0	1 839.3
6.4.2 Short-term	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6.5 Local and central government	-17.8	62.1	209.8	-101.7	654.8	79.8	-144.6	2 363.9
7. SDRs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8. Net errors and omissions	357.7	66.1	1 266.2	1 090.3	-1 076.2	741.9	1 755.6	-368.5
9. Overall balance	-913.8	-2 652.0	-335.2	3 991.4	864.2	8 012.0	-2 858.0	-82.8

Source: Bank of Thailand, *Monthly Bulletin*, various issues.

Table 4 (continued). **Balance of payments, 1969-85**
(millions of Baht)

	1977	1978	1979	1980	1981	1982	1983	1984	1985
1. Trade balance	-25 598.8	-28 540.0	-47 053.1	-57 984.8	-65 781.9	-36 136.7	-89 237.1	-68 795.8	-61 671.5
1.1 Exports	70 462.8	82 250.8	106 881.1	132 040.5	150 218.2	157 203.4	145 076.1	173 520.0	191 703.0
1.2 Imports	-96 061.6	-110 790.8	-153 934.3	-190 025.3	-216 000.1	-193 340.1	-234 313.2	-242 315.8	-253 374.5
2. Net service balance	2 405.2	4 279.1	3 237.9	11 144.9	6 042.4	8 795.0	16 758.4	15 199.5	15 248.2
2.1 Net freight, insurance and other transportation	1 219.2	833.8	1 079.2	1 589.7	1 570.3	2 562.2	3 614.4	4 641.4	4 914.5
2.2 Net travel	1 423.2	5 315.5	6 584.2	12 776.5	15 428.3	17 727.7	17 154.3	20 026.9	24 146.1
2.3 Net investment income	-1 479.4	-4 811.7	-9 105.1	-11 685.4	-20 726.8	-24 982.7	-23 933.3	-38 177.8	-38 177.8
2.4 Net government services	633.0	813.2	1 142.7	1 795.1	688.8	731.8	1 134.8	1 302.3	1 940.5
2.5 Other services	609.2	2 128.3	3 536.9	6 669.0	9 081.8	12 756.0	18 604.6	19 477.9	22 424.9
3. Net goods and services balance	-23 193.6	-24 260.9	-43 815.2	-46 839.9	-59 739.5	-27 341.7	-72 662.3	-53 596.3	-46 423.3
4. Transfers	801.9	816.0	1 224.0	4 430.5	3 690.2	4 203.5	6 376.6	4 128.1	4 474.1
4.1 Net private	443.3	128.0	461.9	1 529.9	1 100.8	1 723.4	3 517.9	1 407.3	1 273.6
4.2 Net government	358.6	688.0	762.1	2 900.6	2 589.4	2 480.1	2 858.7	2 720.8	3 220.5
5. Current account	-22 391.7	-23 444.9	-42 591.2	-42 409.4	-56 049.3	-23 138.2	-66 285.7	-49 468.2	-41 929.2
6. Capital movements	13 966.9	14 858.3	33 766.8	50 736.6	55 130.2	38 345.2	34 680.7	58 365.0	51 468.8
6.1 Direct investment	2 163.8	1 010.8	1 047.7	3 816.0	6 363.2	4 338.6	8 191.9	9 624.6	4 379.2
6.2 Private long-term	970.7	888.3	8 460.3	14 861.0	19 076.7	9 971.7	5 087.2	25 577.5	7 585.0
6.2.1 Loans and credits	867.2	689.3	6 314.5	13 708.4	18 948.0	9 066.7	4 956.8	24 947.5	3 269.0
6.2.2 Portfolio and others	103.5	199.0	2 145.8	1 152.6	128.7	905.0	130.4	630.0	4 316.0
6.3 Private short-term	5 226.4	1 696.2	3 567.2	6 846.9	-4 379.6	2 960.4	4 987.5	6 949.9	7 657.9
6.4 State enterprises	4 767.3	5 170.8	12 143.6	19 003.1	26 044.4	13 477.6	10 325.2	10 547.4	12 806.9
6.4.1 Long-term	4 767.3	5 170.8	12 143.6	18 184.4	19 173.3	15 478.6	12 372.2	11 665.0	16 482.0
6.4.2 Short-term	0.0	0.0	0.0	818.7	6 871.1	-2 001.0	-2 047.0	-1 111.6	-3 675.1
6.5 Local and central government	838.7	6 092.2	8 548.0	6 209.6	8 025.5	7 596.9	6 088.9	5 665.5	19 039.8
7. SDRs	0.0	0.0	493.6	506.4	488.0	0.0	0.0	0.0	0.0
8. Net error and omissions	886.9	-4 711.4	405.8	-3 654.3	2 962.3	-11 892.7	13 527.0	1 691.2	2 924.3
9. Overall balance	-7 537.9	-13 298.0	-7 925.0	5 179.3	2 531.2	3 314.3	-18 078.0	10 588.0	12 463.9

Source: Bank of Thailand, *Monthly Bulletin*, various issues.

Table 5

RATIO OF INTERNATIONAL RESERVES AND THE EXTERNAL MEDIUM- AND LONG-TERM DEBTS, 1973-85
(millions of US dollars)

Year	Net foreign exchange position (1)	Total outstanding public and private external debt (2)	Net reserves/total external debt (%) (1)/(2)
1973	1 082.00	903.3	119.78
1974	1 564.20	1 161.1	134.72
1975	1 368.80	1 346.2	101.68
1976	1 484.40	1 603.9	92.55
1977	1 219.40	2 021.4	60.32
1978	1 293.90	2 711.3	47.72
1979	1 749.10	3 951.0	44.27
1980	2 125.00	5 699.8	37.28
1981	2 156.70	7 171.4	30.07
1982	2 402.60	8 314.0	28.90
1983	3 486.60	9 517.1	36.64
1984	1 694.90	10 794.1	15.70
1985	2 708.30	12 773.3	21.20

Source: Bank of Thailand.

Table 6

DISBURSED AND OUTSTANDING MEDIUM- AND LONG-TERM EXTERNAL DEBT, 1973-85
(millions of US dollars)

Year	Private sector	Public sector		Total
		Government	State enterprises	
1973	461.20 (51.06)	236.04 (26.13)	206.13 (22.82)	903.30 (100.00)
1974	648.00 (55.81)	240.32 (20.70)	272.78 (23.49)	1 161.10 (100.00)
1975	736.20 (54.69)	231.01 (17.16)	378.91 (28.15)	1 346.20 (100.00)
1976	785.10 (48.95)	343.76 (21.43)	475.81 (29.67)	1 603.90 (100.00)
1977	879.80 (43.52)	397.27 (19.65)	744.26 (36.82)	2 021.40 (100.00)
1978	930.60 (34.32)	724.24 (26.71)	1 056.44 (38.96)	2 711.30 (100.00)
1979	1 243.40 (31.47)	1 129.74 (28.59)	1 577.83 (39.93)	3 951.00 (100.00)
1980	1 751.40 (30.73)	1 458.66 (25.59)	2 489.70 (43.68)	5 699.80 (100.00)
1981	2 098.60 (29.26)	1 791.37 (24.98)	3 281.40 (45.76)	7 171.40 (100.00)
1982	2 296.30 (27.62)	2 127.91 (25.59)	3 889.84 (46.79)	8 314.00 (100.00)
1983	2 655.30 (27.90)	2 457.38 (25.82)	4 404.40 (46.28)	9 517.10 (100.00)
1984	3 372.00 (31.24)	2 709.68 (25.10)	4 712.40 (43.66)	10 794.10 (100.00)
1985	3 370.00 (26.38)	3 513.51 (27.52)	5 889.90 (46.11)	12 773.30 (100.00)

Note: Figures in parentheses are percentages of total external debt.

Source: Bank of Thailand.

Table 7

EXTERNAL PUBLIC DEBT (DISBURSED AND OUTSTANDING) BY SOURCE, 1975-85
(millions of US dollars)

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
1. Multilateral	333	412	499	639	792	975	1 336	1 790	2 280	2 650	2 979
IBRD+IDA	274	309	365	458	579	692	990	1 343	1 741	1 994	2 198
ADB	59	103	134	181	212	281	337	432	516	607	721
IFAD							3	6	8	29	36
OPEC					1	2	6	9	15	20	24
2. Bilateral official	246	283	378	546	734	1 134	1 358	1 528	1 844	1 962	2 595
Japan	100	141	210	357	407	709	806	870	1 111	1 190	1 678
United States	72	68	91	105	196	242	277	328	355	382	438
West Germany	51	52	54	56	75	103	126	133	137	127	179
United Kingdom				2	4	8	50	52	53	55	60
Others	23	22	23	26	52	72	99	145	188	208	240
3. Private creditors	22	118	259	593	1 181	1 813	2 302	2 530	2 516	2 597	3 470
4. Suppliers credit	22	17	15	10	6	31	81	173	225	216	362
Total	623	830	1 151	1 788	2 713	3 953	5 077	6 021	6 865	7 425	9 406

Note: This table refers to public debt as opposed to total debt in Table 6.

Source: Bank of Thailand.

Table 8

TOTAL NUMBER OF PROJECTS AND ANNUAL VALUE OF PUBLIC EXTERNAL BORROWING COMMITMENTS BY GOVERNMENT AND STATE ENTERPRISES, 1973-85

(millions of US dollars)

Year	Direct government obligations		State enterprise borrowings guaranteed by government		Non-guaranteed state enterprise borrowings	
	Number	Value	Number	Value	Number	Value
1973	5	47.40	5	53.66	—	—
1974	6	46.65	14	374.88	—	—
1975	3	102.40	6	101.27	—	—
1976	11	176.04	5	97.72	—	—
1977	10	200.40	13	397.45	—	—
1978	24	616.23	15	429.81	—	—
1979	19	513.68	35	1 050.06	—	—
1980	21	727.04	20	1 193.51	—	—
1981	19	537.69	30	1 046.00	1	1.62
1982	19	735.78	34	1 415.98	2	2.69
1983	19	581.12	22	589.70	3	2.63
1984	14	411.94	24	807.51	2	79.56
1985	13	1 008.78	32	1 749.13	—	—
Total	183	5 705.19	255	9 306.68	8	86.5

Source: Bank of Thailand.

Table 9

TOTAL NUMBER OF PROJECTS AND ANNUAL VALUE OF PUBLIC EXTERNAL BORROWING COMMITMENTS FROM THE PRIVATE FINANCIAL MARKET, 1973-85

(millions of US dollars)

Year	Direct government obligations		State enterprise borrowings guaranteed by government		Non-guaranteed state enterprise borrowings	
	Number	Value	Number	Value	Number	Value
1973	—	—	1	15.72	—	—
1974	—	—	—	—	—	—
1975	—	—	—	—	—	—
1976	—	—	—	—	—	—
1977	2	61.21	3	93.38	—	—
1978	9	234.17	4	147.00	—	—
1979	4	226.47	13	314.35	—	—
1980	3	249.26	5	413.12	—	—
1981	2	104.26	10	420.58	1	1.62
1982	1	50.00	13	560.65	2	2.69
1983	1	43.07	8	195.31	3	2.63
1984	3	169.31	8	452.91	2	79.56
1985	4	759.00	12	802.78	—	—
Total	29	1 896.75	77	3 416.00	8	86.50

Source: Bank of Thailand.

Table 10

DEBT SERVICE RATIO, 1970-85
(billions of baht, per cent)

Year	Private debt	Public debt	Total
1970	11.30	3.70	15.00
1971	12.90	3.40	16.30
1972	8.90	2.90	11.80
1973	10.20	2.90	13.10
1974	6.30	2.00	8.30
1975	10.00	2.60	12.60
1976	8.20	2.60	11.80
1977	7.80	3.10	10.90
1978	12.60	4.10	16.70
1979	10.00	4.60	14.60
1980	9.50	5.30	14.80
1981	7.80	7.00	14.80
1982	7.70	8.90	16.60
1983	9.20	10.30	19.50
1984	9.80	10.10	19.90
1985	10.90	11.00	21.90

Note: Ratio of debt service payments to exports of goods and services.

Source: Bank of Thailand.

Table 11

SHORT-TERM NET CAPITAL FLOW (NON-MONETARY AND MONETARY SECTOR), 1969-85
(millions of baht and percent)

Year	Non-monetary sector			Monetary sector[3]	As percentage of total capital flow	
	Private[1]	State enterprise[2]	Total		Non-monetary sector	Monetary sector
1969	186.00	n.a.	186.00	165.30	6.42	5.46
1970	183.40	n.a.	183.40	1 010.80	7.40	25.99
1971	154.80	n.a.	154.80	-820.40	8.93	-89.89
1972	309.1	n.a.	309.10	-341.1	8.48	-10.33
1973	1 292.40	n.a.	1 292.40	2 638.60	44.00	47.32
1974	1 131.30	n.a.	1 131.30	6 561.00	12.49	42.05
1975	2 600.30	n.a.	2 600.30	2 286.80	33.53	22.77
1976	2 778.50	n.a.	2 778.50	44.9	29.99	0.01
1977	5 226.40	n.a.	5 226.40	5 854.80	37.42	29.54
1978	1 696.20	n.a.	1 696.20	11 763.00	11.42	52.00
1979	3 567.20	n.a.	3 567.20	2 379.50	10.57	6.58
1980	6 848.90	818.70	7 667.60	-9 877.60	15.11	-24.18
1981	-4 379.60	6 871.10	2 491.50	-7 629.10	4.52	-16.06
1982	2 960.40	-2 001.00	959.40	7 369.20	2.50	16.12
1983	4 987.50	-2 047.00	2 940.50	15 697.50	8.48	31.16
1984	6 949.30	-1 117.60	5 831.70	1 688.70	9.99	2.81
1985	7 657.50	-3 675.10	3 982.40	-18 615.00	7.74	-56.66

1. Trade credits and others.

2. Short term loans and credits. Before 1980, this data is not available, it is included in the 'other short-term' flow which is already part of the private flow above.

3. This is defined as the change in net foreign exchange position of commercial banks.

Source: Bank of Thailand.

Table 12

AVERAGE INTEREST RATE OF EXTERNAL PUBLIC DEBT (NEW COMMITMENTS), 1971-85

Year	Official creditors (1)	Private creditors (2)	All creditors (3)	Private rate-official rate/private rate (2)-(1)/(2)
1971	6.40	6.00	6.40	-6.67
1973	3.70	7.20	4.40	48.61
1975	7.40	8.90	7.50	16.85
1976	7.70	8.10	7.80	4.94
1977	6.10	8.30	7.00	26.51
1978	5.60	8.90	6.80	37.08
1979	5.40	10.50	7.60	48.57
1980	6.80	13.80	9.30	50.72
1981	7.50	13.70	10.00	45.26
1982	8.60	10.90	9.30	21.10
1983	8.00	8.90	8.20	10.11
1984	7.60	10.00	8.70	24.00
1985	—	—	—	—

Source : World Bank, *World Debt Tables*, various issues.

Table 13

AVERAGE MATURITY OF NEW PUBLIC BORROWING COMMITMENTS, 1970-85

Year	Official sources (1)	Private sources (2)	Total (3)	(1)-(2)/(1)
1970	19.60	11.50	19.20	41.33
1971	20.00	9.70	19.90	51.50
1972	—	—	—	—
1973	33.20	12.90	29.30	61.14
1974	—	—	—	—
1975	24.20	7.00	22.90	71.07
1976	20.60	7.30	17.40	64.56
1977	19.60	7.90	14.50	59.69
1978	21.20	9.40	17.10	55.66
1979	22.40	10.00	17.00	55.36
1980	21.10	8.60	16.60	59.24
1981	22.40	9.90	17.20	55.80
1982	21.60	12.20	18.90	43.52
1983	22.90	10.70	20.30	53.28
1984	22.60	11.20	17.20	50.44

Source: World Bank, *World Debt Tables*, various issues

Table 14

AVERAGE GRACE PERIOD OF NEW PUBLIC BORROWING COMMITMENTS, 1970-85

Year	Official sources (1)	Private sources (2)	Total (3)	(1)-(2)/(1)
1970	4.40	3.00	4.30	31.82
1971	4.80	2.60	4.80	45.83
1972	—	—	—	—
1973	8.60	1.90	7.30	77.91
1974	—	—	—	—
1975	6.40	0.50	5.90	92.19
1976	5.20	2.30	4.50	55.77
1977	5.20	2.30	3.90	55.77
1978	5.70	3.90	5.10	31.58
1979	6.10	3.60	5.00	40.98
1980	6.00	4.00	5.30	33.33
1981	6.20	3.50	5.10	43.55
1982	6.10	4.10	5.50	32.79
1983	7.30	6.00	7.10	17.81
1984	6.90	6.80	6.90	1.45

Source: World Bank, *World Debt Tables*, various issues

Table 15

GOVERNMENT EXTERNAL DEBT CLASSIFIED BY CURRENCIES, 1970-85

(US$ equivalent in millions)	1970	1971	1972	1973	1974	1975
Government debt	176.76	198.61	211.18	238.55	243.66	235.57
Strong currencies	46.67	62.11	73.40	89.66	87.60	78.40
Weak currencies	130.09	136.50	137.60	148.40	154.71	154.88
Other currencies	0	0	0.18	0.49	1.35	2.29
Government guarantee obligations	137.05	139.42	159.34	187.72	256.31	365.59
Strong currencies	30.10	31.60	30.92	33.60	43.07	72.73
Weak currencies	104.40	105.10	121.10	145.45	205.00	286.38
Other currencies	2.55	2.71	7.31	8.67	8.24	6.47
Grand total	313.81	338.03	370.52	426.27	499.98	601.15

(percent)	1970	1971	1972	1973	1974	1975
Government debt	56.33	58.76	57.00	55.96	48.73	39.19
Strong currencies	14.87	18.38	19.81	21.03	17.52	13.04
Weak currencies	41.45	40.38	37.14	34.81	30.94	25.76
Other currencies	0.00	0.00	0.05	0.11	0.27	0.38
Government guarantee obligation	43.67	41.24	43.00	44.04	51.27	60.81
Strong currencies	9.59	9.35	8.35	7.88	8.61	12.10
Weak currencies	33.27	31.03	32.68	34.12	41.00	47.64
Other currencies	0.81	0.80	1.97	2.03	1.65	1.08
Grand total	100.00	100.00	100.00	100.00	100.00	100.00

Table 15 (continued) **Government external debt classified by currencies, 1970-85**

(US$ equivalent in millions)	1975	1976	1977	1978	1979	1980
Government debt	235.57	348.26	401.98	728.71	1 134.50	1 463.36
Strong currencies	78.40	79.82	92.52	188.65	223.46	320.38
Weak currencies	154.88	265.29	305.69	535.50	906.97	1 139.59
Other currencies	2.29	3.15	3.77	4.56	4.07	3.39
Government guarantee obligations	365.59	465.06	733.74	1 047.92	1 573.15	2 460.08
Strong currencies	72.73	113.35	171.89	343.87	517.81	891.58
Weak currencies	286.38	346.08	557.12	698.11	1 041.73	1 528.92
Other currencies	6.47	5.62	4.73	5.94	13.60	39.38
Grand total	601.15	813.32	1 135.72	1 776.63	2 707.64	3 923.44
(percent)	1975	1976	1977	1978	1979	1980
Government debt	39.19	42.82	35.39	41.02	41.90	37.30
Strong currencies	13.04	9.81	8.15	10.62	8.25	8.17
Weak currencies	25.76	32.62	26.92	30.14	33.50	29.05
Other currencies	0.38	0.39	0.33	0.26	0.15	0.09
Government guarantee obligation	60.81	57.18	64.61	58.98	58.10	62.70
Strong currencies	12.10	13.94	15.13	19.36	19.12	22.73
Weak currencies	47.64	42.55	49.05	39.29	38.47	38.97
Other currencies	1.08	0.69	0.42	0.33	0.50	1.00
Grand total	100.00	100.00	100.00	100.00	100.00	100.00

Table 15 (continued) **Government external debt classified by currencies, 1970-85**

(US$ equivalent in millions)	1980	1981	1982	1983	1984	1985
Government debt	1 463.36	1 795.24	2 131.26	2 459.49	2 713.93	3 812.16
Strong currencies	320.38	371.08	398.13	479.71	580.11	1 194.28
Weak currencies	1 139.59	1 413.22	1 704.61	1 944.94	2 072.72	2 534.62
Other currencies	3.39	10.94	28.52	34.84	61.1	83.26
Government guarantee obligations	2 460.08	3 156.12	3 882.74	4 394.11	4 712.24	5 776.96
Strong currencies	891.58	1 036.68	1 303.43	1 623.14	1 800.62	2 702.07
Weak currencies	1 528.92	2 073.62	2 518.48	2 692.02	2 815.96	2 960.87
Other currencies	39.38	45.82	60.83	78.95	95.66	114.02
Grand total	3 923.44	4 951.37	6 014.01	6 853.60	7 426.18	9 589.12

(percent)	1980	1981	1982	1983	1984	1985
Government debt	37.30	36.26	35.44	35.89	36.55	39.76
Strong currencies	8.17	7.49	6.62	7.00	7.81	12.45
Weak currencies	29.05	28.54	28.34	28.38	27.91	26.43
Other currencies	0.09	0.22	0.47	0.51	0.82	0.87
Government guarantee obligation	62.70	63.74	64.56	64.11	63.45	60.24
Strong currencies	22.73	20.94	21.67	23.68	24.25	28.18
Weak currencies	38.97	41.88	41.88	39.28	37.92	30.88
Other currencies	1.00	0.93	1.01	1.15	1.29	1.19
Grand total	100.00	100.00	100.00	100.00	100.00	100.00

Sources: Bank of Thailand, *Monthly Bulletin*, various issues.
International Monetary Fund, *International Financial Statistics*, various issues.

Note:
1) Strong currencies refer to the deutsche mark, Japanese yen, Swiss franc and Dutch guilder.
2) Weak currencies refer to the US dollar, pound sterling, Canadian dollar, French franc, Belgian franc, Australian dollar, Swedish krona and New Zealand dollar.
3) Other currencies refer to Danish krone, Special Drawing Rights, Saudi Arabian riyal, Kuwaiti dinar, Singapore dollar and Austrian schilling.

Table 16

ANNUAL GROWTH RATE OF PUBLIC EXTERNAL DEBT IN US DOLLAR AND YEN
(percent)

Year	Debt in US dollars	Debt in yen
1970	—	
1971	3.00	76.45
1972	7.10	38.97
1973	12.53	33.01
1974	17.03	12.09
1975	21.42	40.53
1976	42.30	40.78
1977	37.60	48.67
1978	40.59	113.95
1979	61.98	36.64
1980	36.76	16.51
1981	34.04	61.42
1982	21.28	24.73
1983	9.46	28.92
1984	5.22	11.52
1985	12.22	68.25

Source: Bank of Thailand, *Montly Bulletin*, various issues.

Table 17

PERCENTAGE DISTRIBUTION OF CAPITAL MOVEMENTS, 1969-85
(millions of baht and %)

	1969	1970	1971	1972	1973	1974	1975	1976	1977
Direct investment	36.5	35.9	46.6	39.2	54.6	42.4	22.5	17.4	15.5
Private long-term	48.3	50.5	28.8	45.8	-33.6	31.3	17.4	7.2	7.0
Loans and credits	44.8	40.7	22.9	38.2	-40.8	29.1	17.0	7.4	6.2
Portfolio and others	3.5	9.9	5.9	7.6	7.2	2.2	0.4	-0.2	0.7
Private short-term	6.4	7.4	8.9	8.5	44.0	12.5	33.5	30.0	37.4
State enterprises	9.4	3.7	3.5	9.3	12.7	13.0	28.4	19.9	34.1
Long-term	9.4	3.7	3.5	9.3	12.7	13.0	28.4	19.9	34.1
Short-term	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Local and central government	-0.6	2.5	12.1	-2.8	22.3	0.9	-1.9	25.5	6.0
Capital movements	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Value of capital movements	2 897.6	2 478.8	1 733.1	3 643.2	2 937.6	9 054.7	7 754.7	9 263.6	13 966.9
Long-term private and state enterprises	57.7	54.2	32.3	55.1	-20.9	44.3	45.8	27.1	41.1
Short-term private and state enterprises	6.4	7.4	8.9	8.5	44.0	12.5	33.5	30.0	37.4

Source: Bank of Thailand, *Monthly Bulletin*, various issues.

Table 17 (continued) **Percentage distribution of capital movements, 1969-85**
(millions of baht and %)

	1978	1979	1980	1981	1982	1983	1984	1985
Direct investment	6.8	3.1	7.5	11.5	11.3	23.6	16.5	8.5
Private long-term	6.0	25.1	29.3	34.6	26.0	14.7	43.8	14.7
Loans and credits	4.6	18.7	27.0	34.4	23.6	14.3	42.7	6.4
Portfolio and others	1.3	6.4	2.3	0.2	2.4	0.4	1.1	8.3
Private short-term	11.4	10.6	13.5	-7.9	7.7	14.4	11.9	14.9
State enterprises	34.8	36.0	37.5	47.2	35.1	29.8	18.1	24.9
Long-term	34.8	36.0	35.8	34.8	40.4	35.7	20.0	32.0
Short-term	0.0	0.0	1.6	12.5	-5.2	-5.9	-1.9	-7.1
Local and central government	41.0	25.3	12.2	14.6	19.8	17.7	9.7	37.0
Capital movements	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Value of capital movements	14 858.3	33 766.8	50 736.6	55 130.2	38 345.2	34 680.7	58 365.0	51 468.8
Long-term private and state enterprises	40.8	61.0	65.1	69.4	66.4	50.6	64.8	46.7
Short-term private and state enterprises	11.4	10.6	15.1	4.5	2.5	8.5	10.5	7.8

Source: Bank of Thailand, *Monthly Bulletin*, various issues.

Table 18

COMPARISON OF THE TABLE NET RESOURCE FLOW TO THAILAND FROM BALANCE OF PAYMENTS STATISTICS AND OECD PUBLISHED DATA, 1969-85
(millions of US dollars)

Year	From balance of payments	From OECD data
1969	203.0	218.3
1970	208.7	199.4
1971	90.3	60.6
1972	217.0	45.7
1973	419.2	207.0
1974	765.7	140.8
1975	570.1	190.3
1976	477.6	207.3
1977	1 001.2	273.9
1978	1 327.6	635.6
1979	1 831.4	947.7
1980	2 204.3	1 113.5
1981	2 219.6	1 563.2
1982	1 561.4	1 238.2
1983	2 457.0	1 277.0
1984	2 377.2	1 444.4
1985	1 639.9	900.2

Source: Bank of Thailand, *Monthly Bulletin*.
Organisation for Economic Co-operation and Development (OECD), *Geographical Distribution of Financial Flows to Developing Countries*.

Table 19

PERCENTAGE SHARE OF THE NET INFLOW OF OFFICIAL DEVELOPMENT ASSISTANCE (ODA) AND NET PRIVATE TRANSFERS IN THAILAND'S TOTAL NET CAPITAL RECEIPTS, 1969-85
(millions of US dollars)

Year	Net ODA flow		Net private transfers	Total net capital flow	Share of ODA in total flow (%)	Share of ODA and private transfer in total flow (%)
	Grant	Loan				
1969	58.3	10.0	4.3	203.00	33.65	35.76
1970	54.7	19.5	2.7	208.70	35.55	36.85
1971	51.1	11.7	6.3	90.30	69.55	76.52
1972	46.6	7.4	30.1	217.00	24.88	38.76
1973	43.2	17.9	117.7	419.20	14.58	42.65
1974	43.2	28.9	214.8	765.70	9.42	37.47
1975	52.8	37.0	55.6	570.10	15.75	25.50
1976	125.6	43.6	4.9	477.60	35.43	36.45
1977	64.3	68.3	21.7	1 001.20	13.24	21.83
1978	103.5	156.7	6.3	1 327.60	19.60	20.07
1979	146.6	245.8	22.6	1 831.40	21.43	22.66
1980	178.3	240.1	74.2	2 204.30	18.98	22.35
1981	190.2	216.5	47.9	2 219.60	18.32	20.48
1982	185.2	203.7	74.9	1 561.40	24.91	29.70
1983	209.5	222.2	153.0	2 457.00	17.57	23.80
1984	247.7	227.5	51.8	2 377.20	19.99	22.17
1985	263.7	217.2	48.9	1 639.90	29.32	32.31

Source: Bank of Thailand, *Monthly Bulletin*, OECD, *Geographical Distribution of Financial Flows to Developing Countries.*

Table 20

CONCESSIONALITY OF THE NET INFLOW OF OFFICIAL DEVELOPMENT ASSISTANCE (ODA) TO THAILAND, 1976-85
(millions of US dollars)

Year	Total grant element (%)	Grant element in loans (%)
1976	86.0	46.0
1977	65.0	50.0
1978	70.0	57.0
1979	69.0	58.0
1980	76.0	57.7
1981	73.5	56.2
1982	73.1	57.1
1983	75.2	56.7
1984	77.8	55.6
1985	77.8	54.4

Note: A grant element of zero for grants and a 10% discount rate for loans.

Source: OECD, *Geographical Distribution of Financial Flows to Developing Countries*.

Table 21

PERCENTAGE SHARE OF THE NET INFLOW OF OFFICIALLY SUPPORTED EXPORT CREDITS FROM OECD COUNTRIES IN THAILAND'S TOTAL NET CAPITAL INFLOWS, 1976-85
(million of US dollars)

Year	Guaranteed private export credit	Official export credit	Total export credit	Total net capital flow	Share of guaranteed private export credit in total flow (%)	Share of official export credit in total flow (%)
1976	-32.8	-6.3	-39.1	477.6	-6.87	-1.32
1977	-2.5	45.8	43.3	1 001.2	-0.24	4.58
1978	72.0	31.9	103.9	1 327.6	5.42	2.40
1979	68.7	96.6	165.3	1 831.4	3.75	5.28
1980	130.0	93.9	223.9	2 204.3	5.90	4.26
1981	403.5	65.3	468.8	2 219.6	18.18	2.94
1982	209.0	8.2	217.2	1 561.4	13.39	0.53
1983	-66.5	137.2	70.7	2 457.0	-2.71	5.58
1984	52.9	62.0	114.9	2 377.2	2.23	2.61
1985	-72.3	29.4	-42.9	1 639.9	-4.41	1.79

Note: Guaranteed private export credit is derived from the OECD data. It is defined as all borrowings at fixed terms other than financial credits extended by the banking sector. Official export credit data is from the same source and is taken to be approximated by the series called (Other Official Flows) for the case of Thailand.

Table 22

REFERENCE INTEREST RATE AND PREMIUM USED IN SUBSIDY RATE CALCULATIONS

	1977	1978	1979	1980	1981	1982	1983	1984	1985
United States	7.67	8.49	9.33	11.39	13.72	12.92	11.34	12.48	10.97
Japan	7.33	6.09	7.69	9.22	8.66	8.06	7.42	6.81	6.34
France	9.61	8.96	9.48	13.03	15.79	15.69	13.63	12.54	10.94
FRG	6.2	5.8	7.4	8.5	10.38	8.95	7.89	7.78	6.87
United Kingdom	12.76	12.47	12.99	13.79	14.74	12.88	10.81	10.69	10.62
Premium	1.146	1.0089	0.6363	0.8125	0.5136	0.3568	0.3291	0.1875	0.1238

Source: *International Financial Statistics*, IMF, various issues, and Bank of Thailand's data for the calculated premium rate.

Table 23

THAILAND'S FOREIGN BORROWING COMMITMENTS BY CATEGORY OF LOAN AND COUNTRY OF ORIGIN FROM MAJOR SOURCES, 1977-85
(million US dollars)

	1977	1978	1979	1980	1981	1982	1983	1984	1985	Total 1977-85
United States										
ODA loans	13.7	27.1	8.0	5.8	81.3	23.9	76.0	104.7	26.5	367.0
Export credits	—	—	95.4	43.7	—	3.2	—	—	—	142.3
Japan										
ODA loans	110.4	179.4	219.8	193.1	184.5	337.3	284.2	207.5	236.9	1 953.1
Export credits	43.5	—	151.6	35.5	143.5	185.6	—	—	—	559.7
Germany										
ODA loans	9.9	—	100.2	—	20.4	1.1	19.0	12.7	6.2	169.5
Export credits	27.9	24.7	71.1	—	—	—	—	—	—	123.7
United Kingdom										
ODA loans	—	44.2	—	11.6	—	46.1	—	—	—	101.9
Export credits	—	—	—	—	—	—	—	—	—	—
France										
ODA loans	—	—	5.8	3.7	—	4.0	—	9.9	—	23.4
Export credits	28.0	26.7	70.4	6.7	77.4	5.7	—	13.9	—	228.8
Total for 5 countries										2 615.2
ODA loans	134.0	250.7	333.8	214.2	286.5	412.4	379.2	334.8	269.6	1 054.5
Export credits	99.4	51.4	388.5	85.9	220.9	194.5	—	13.9	—	
Total	233.4	302.1	722.3	300.1	507.4	606.9	379.2	348.7	269.6	3 669.7

Source: Bank of Thailand.

Table 24

SUBSIDY RATES, BY CATEGORY OF LOAN AND COUNTRY OF ORIGIN, RECEIVED BY THAILAND, 1977-85

(per cent, g=0)

	1977	1978	1979	1980	1981	1982	1983	1984	1985
United States									
ODA loans	10.59	16.42	51.29	59.80	64.05	61.26	4.61	7.69	55.17
Export credits	—	—	3.31	13.50	—	7.38	—	—	—
Average	10.59	16.42	7.01	18.84	64.05	54.89	4.61	7.69	55.17
Japan									
ODA loans	28.60	24.19	31.59	40.32	36.94	32.30	30.57	23.46	20.39
Exports Credits	1.95	—	4.43	10.92	8.91	2.55	—	—	—
Average	25.63	24.19	20.15	35.75	23.21	21.74	30.57	23.46	20.39
Germany									
ODA loans	34.17	—	26.49	—	24.50	7.10	43.58	40.55	17.96
Export credits	1.26	3.91	5.64	—	—	—	—	—	—
Average	9.87	3.91	18.81	—	24.50	7.10	43.58	40.55	17.96
United Kingdom									
ODA loans	—	12.17	—	14.17	—	6.22	—	—	—
Export credits	—	—	—	—	—	—	—	—	—
Average	—	12.17	—	14.17	—	6.22	—	—	—
France									
ODA loans	—	—	31.18	43.87	—	49.17	—	51.64	—
Export credits	9.44	6.63	8.88	24.06	22.24	28.11	—	9.85	—
Average	9.44	6.63	10.58	31.04	22.24	36.75	—	27.17	—
Total									
ODA loans	27.15	16.31	30.53	39.49	43.74	31.17	26.04	20.00	18.96
Export credits	3.85	5.33	5.18	13.18	13.57	3.41	—	9.85	—
Average	17.22	14.45	16.90	31.88	30.60	22.29	26.04	19.59	18.96

Note: Total for the above countries and rates of subsidy are weighted by the value of the loans.

Table 25

ODA LOANS AS A PERCENTAGE OF TOTAL CREDITS EXTENDED ON A BILATERAL BASIS, 1977-85

Year	United States	Japan	Germany	United Kingdom	France	Total five countries
1977	100.00	71.72	26.17	—	—	57.41
1978	100.00	100.00	—	100.00	—	82.99
1979	7.74	59.18	58.51	—	7.60	46.21
1980	11.71	84.46	—	100.00	35.42	71.38
1981	100.00	56.29	100.00	—	—	56.46
1982	88.15	64.51	100.00	100.00	40.99	67.95
1983	100.00	100.00	100.00	—	—	100.00
1984	100.00	100.00	100.00	—	41.44	96.01
1985	100.00	100.00	100.00	—	—	100.00
Average	72.10	77.73	57.81	100.00	9.23	71.27

Table 26

THAILAND'S FOREIGN BORROWINGS FROM THE WORLD BANK, OPEC AND IDA, 1977-85
(million US dollars)

Year	World Bank	OPEC	IDA
1977	129.51	7.0	—
1978	235.07	—	30.11
1979	166.19	7.0	60.00
1980	602.90	8.0	—
1981	227.73	21.8	—
1982	514.10	—	—
1983	376.10	15.0	—
1984	144.10	—	—
1985	112.50	—	—
Total for 1977-85	2 508.20	58.8	90.11

Source: Bank of Thailand.

Table 27

SUBSIDY RATES BY INTERNATIONAL BODIES, 1977-85, AS A PERCENTAGE OF THE VALUE OF THE LOANS

Year	World Bank	OPEC	IDA
1977	2.71	45.67	—
1978	8.66	—	67.94
1979	10.45	47.27	71.08
1980	17.89	37.02	—
1981	19.88	55.34	—
1982	7.87	—	—
1983	5.98	19.43	—
1984	12.98	—	—
1985	8.79	—	—
Weighted average	14.36	51.23	81.49

Table 28

THE DISTRIBUTION BY ECONOMIC SECTORS OF SUBSIDISED BORROWINGS BY THAILAND'S PUBLIC SECTOR FROM MAJOR BILATERAL AND MULTILATERAL SOURCES, 1977-85

Sector	Amount (million US dollars)	Percentage
Agriculture	578.08	9.14
Inland fishing	39.47	0.62
Industry	71.83	1.14
Oil and natural gas	621.61	9.83
Aircraft (commercial)	407.92	6.45
Public services	102.98	1.63
Defence procurement	236.87	3.74
Infrastructure	3 642.31	57.57
— Railroad locomotives and equipment	224.04	3.54
— Electricity distribution	504.13	7.97
— Electricity or power generation	836.91	13.23
— Water distribution	167.63	2.65
— Residential building	29.79	0.47
— Public works for agriculture	454.45	7.18
— Non-agricultural public works	1 015.16	16.05
— Telecommunications	410.20	6.48
Others	625.52	9.89
Total for all sectors	6 326.59	100.00*

* Error due to roundings.

Note: The total amount of borrowing is the sum of borrowing given in Tables 23 and 26.

Table 29

PERCENTAGE SHARE OF THE BILATERAL BORROWING (ODA LOANS AND EXPORT CREDITS) IN TOTAL BORROWING FROM MAJOR BILATERAL AND MULTILATERAL SOURCES BY ECONOMIC SECTORS, 1977-85

Sector	Percentage for each sector
Agriculture	29.77
Inland fishing	100.00
Industry	58.39
Oil and natural gas	53.83
Aircraft (commercial)	100.00
Public services	36.77
Defence procurement	100.00
Infrastructure	60.21
— Railroad locomotives and equipment	78.09
— Electricity distribution	51.28
— Electricity or power generation	57.35
— Water distribution	76.14
— Residential building	100.00
— Public works for agriculture	55.31
— Non-agricultural public works	66.58
— Telecommunications	47.56
Others	32.86

Table 30

THE DISTRIBUTION BY ECONOMIC SECTORS OF SUBSIDISED BORROWINGS BY THAILAND'S PUBLIC SECTOR FROM MAJOR BILATERAL SOURCES (ODA LOANS PLUS EXPORT CREDITS), 1977-85

Sector	Amount (million US dollars)	Percentage
Agriculture	172.09	4.69
Inland fishing	39.47	1.08
Industry	41.94	1.14
Oil and natural gas	334.61	9.12
Aircraft (commercial)	407.92	11.12
Public services	37.87	1.03
Defence procurement	236.78	6.45
Infrastructure	2 193.15	59.77
— Railroad locomotives and equipment	174.96	4.77
— Electricity distribution	258.53	7.05
— Electricity or power generation	479.95	13.08
— Water distribution	127.63	3.48
— Residential building	29.79	0.81
— Public works for agriculture	251.35	6.85
— Non-agricultural public works	675.84	18.42
— Telecommunications	195.10	5.32
Others	205.57	5.60
Total for all sectors	3 669.40	100.00*

* Error due to roundings.

Table 31

SUBSIDY RATES BY ECONOMIC SECTORS, 1977-85

Sector	Percentage	
	Bilateral and multilateral sources	Bilateral sources
Agriculture	18.47	30.99
Inland fishing	33.38	33.38
Industry	17.14	17.56
Oil and natural gas	13.75	12.22
Aircraft (commercial)	8.12	8.12
Public services	59.75	46.99
Defence procurement	4.83	4.83
Infrastructure	20.69	24.99
— Railroad locomotives and equipment	27.62	31.43
— Electricity distribution	23.14	29.93
— Electricity or power generation	16.22	13.24
— Water distribution	23.37	24.30
— Residential building	2.52	2.52
— Public works for agriculture	22.46	31.29
— Non-agricultural public works	24.14	30.46
— Telecommunications	12.75	28.33
Others	17.50	46.79
Weighted average	18.76	22.43

Table 32

NOMINAL AND EFFECTIVE RATES OF PROTECTION, 1984

Sector	Nominal rate (per cent)	Effective rate (per cent)
Major crops	6.56	-5.42
Other crops	8.93	31.30
Vegetables	68.26	25.07
Livestock	6.09	-1.48
Forestry	7.18	20.66
Charcoal	6.29	-2.91
Fishing	3.99	-1.60
Coal, lignite	8.13	26.21
Crude petroleum	0.01	30.39
Mining	13.01	40.11
Slaughtering	8.80	-2.36
Canning, preservation of food	8.81	17.36
Milling	26.87	-47.83
Animal feed	1.73	-1.32
Beverages	32.52	2.50
Tobacco processing	13.01	6.32
Other foods	20.39	16.24
Spinning, weaving	16.86	19.97
Other textiles	27.81	9.61
Wood	12.74	19.87
Paper	16.26	54.84
Printing and publishing	10.38	-1.59
Basic chemicals	11.85	58.44
Fertilizers	3.78	-33.32
Plastic, chemicals	9.94	67.64
Tyres, rubber products	42.98	-61.64
Other chemicals	21.96	48.04
Plastic wears	58.32	85.61
Pottery	53.53	48.85
Glass	36.55	78.84
Cement	0.00	6.18

Sector	Nominal rate (per cent)	Effective rate (per cent)
Concrete	19.55	4.66
Other non-metallic products	27.54	38.40
Iron, steel	7.52	25.21
Manufactured metal products	26.25	56.20
Engines	12.27	46.67
Electrical machinery	18.64	35.46
Other machinery	9.86	26.54
Motor vehicles	13.59	11.56
Aircraft repairing	0.04	10.78
Other metal products	12.41	36.35
Other manufactured products	40.42	59.83
Fuel	8.51	11.64
Utilities	0.00	-0.98
Hotels, restaurants	0.00	-0.32
Transportation services	0.00	-2.01
Miscellaneous services	0.00	-2.54
Entertainment	12.48	-1.55
Other services	0.00	-24.72

Source: S. Devarajan and C. Sussangkarn (1987), Table 2, p. 22. This is the case for the assumption of 4 for the elasticity of substitution between imported and foreign products.

Table 33

PERCENTAGE SHARE OF THE GROSS DOMESTIC PRODUCT BY INDUSTRIAL ORIGIN, 1977-85
(per cent)

Sector	1977	1979	1981	1983	1985
Agriculture	27.44	25.78	24.96	23.73	23.23
Crops	19.59	18.71	18.80	18.04	17.80
Livestock	3.39	3.22	3.05	3.01	2.97
Fisheries	3.14	2.63	2.18	1.91	1.75
Forestry	1.32	1.22	0.93	0.77	0.71
Non-agriculture	72.58	74.22	75.05	76.27	76.77
Mining	1.48	1.64	1.49	1.29	1.61
Manufacturing	20.13	20.89	20.72	21.05	20.71
Construction	5.02	5.25	1.98	4.64	4.76
Electricity and water supply	1.74	1.87	2.03	2.14	2.38
Transportation and		6.38	6.49	6.79	6.91
communications	6.76	1.55	1.52	1.51	1.50
Ownership of dwellings	1.60	16.43	16.42	16.05	15.81
Wholesale and retail trade	17.26	5.63	6.17	7.13	7.43
Banking, insurance and real		4.19	4.24	4.22	3.99
estate	4.85	10.39	10.99	11.45	11.68
Public administration	4.00				
Services	9.74				
GDP (million Baht)	238 841	276 907	311 270	343 169	379 869

Source: National Economic and Social Development Board.

Table 34

AMOUNT OF SUBSIDY BY ECONOMIC SECTORS FROM MAJOR LENDING SOURCES AS A PERCENTAGE OF THE TOTAL SUBSIDY, 1977-85

Sector	Percentage	
	Bilateral and multilateral sources	Bilateral sources
Agriculture	9.03	6.50
Inland fishing	1.11	1.61
Industry	1.04	0.90
Oil and natural gas	7.23	4.99
Aircraft (commercial)	2.80	4.04
Public services	4.91	2.17
Defence procurement	0.97	1.39
Infrastructure	63.66	66.67
— Railroad locomotives and equipment	5.23	6.71
— Electricity distribution	9.86	9.44
— Electricity or power generation	11.35	7.60
— Water distribution	3.31	3.78
— Residential building	0.06	0.09
— Public works for agriculture	8.63	9.59
— Non-agricultural public works	20.71	25.10
— Telecommunications	4.51	4.36
Others	9.25	11.73
Total percentage	100.00	100.00
Total amount (million of US dollars)	1 183.08	820.07

Table 35

THE ESTIMATION OF THE SUPPLY OF EXPORT CREDITS FUNCTION

	Equation 1	
variable	coefficient	t-stat
GER	1.5362	1.3281
JAP	2.3955	2.0834
UK	1.2165	0.6717
USA	2.7938	2.1902
CAN	0.3335	0.8696
RLAG_3	0.1808	1.2948
PT_3	-18.9507	-3.0664
r-squared		0.3345
durbin-watson stat		2.5053
f-statistic		3.0153

	Equation 2	
variable	coefficient	t-stat
GER	0.7318	1.3723
USA	1.6094	3.2192
JAP	1.9143	3.5750
RLAG_3	0.2827	4.4326
PT_3	-19.5517	-3.3155
r-squared		0.3189
durbin-watson stat		2.4567
f-statistic		4.4477

	Equation 3	
variable	coefficient	t-stat
GER	1.3984	1.5035
USA	2.4106	2.9893
JAP	2.9900	1.8904
PT_3	-18.9077	-2.5967
RLAG_3	0.2413	1.8199
DS_3	1.3744	1.1483
LODA	-0.4099	-1.1307
r-squared		0.3564
durbin-watson stat		2.5760
f-statistic		3.3226

	Equation 5	
variable	coefficient	t-stat
GER	0.5625	0.9929
USA	1.7570	3.1131
JAP	1.3294	2.2554
PT_3	-16.2896	-2.3507
RLAG_3	0.1865	1.5057
DS_3	1.0530	0.9023
r-squared		0.3335
durbin-watson stat		2.5142
f-statistic		3.7036

Table 36

THE ESTIMATION OF THE DEMAND FOR EXPORT CREDITS FUNCTION

	Equation 6	
variable	coefficient	t-stat
GER	-0.1048	-0.1134
JAP	-0.0554	-0.0560
USA	-0.0803	-0.0696
RLAG_3	-0.1162	-1.0662
LGNP3	0.4882	1.9450
r-squared		0.2014
durbin-watson stat		2.4736
f-statistic		2.3952

	Equation 7	
variable	coefficient	t-stat
GER	0.0902	0.0715
JAP	-0.5276	-0.2704
USA	O.3102	0.2049
RLAG_3	-0.0921	-0.5590
LIMP3	0.4870	1.1146
r-squared		0.1497
durbin-watson stat		2.3408
f-statistic		1.6719

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