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The International Competitiveness of Developing Countries for Risk Capital

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Contents

List of Tables

List of Figures

Preface

At the beginning of the 1990s, global competition for internationally mobile risk capital has intensified. While OECD countries' savings are increasingly absorbed domestically, most notably in Germany, fresh demand for risk capital has evolved in Central Europe and the Soviet Union. Under such conditions, it may become more difficult for developing countries to maintain or even improve their attractiveness as hosts of investment.

Against this background, the overall aim of this study is to identify the major factors impacting on the developing countries' competitiveness for risk capital. The analysis of the determinants of foreign and domestic private investment is based on the experience of 26 mainly middle-income developing countries over the period 1979-1988.

The basic thrust of the study is to determine to what degree the attractiveness for private risk capital was shaped by immobile factors complementing risk capital in an international and intertemporal manner. As it turns out, both local and foreign investors were influenced - albeit not necessarily to the same extent - by similar factors, namely the availability of skilled labour, natural resources, and infrastructure, as well as the existence of an efficient macro- and microeconomic policy framework. More specifically, macroeconomic instability and policy-induced distortions in goods and factor markets are revealed as significantly reducing the locational advantages of individual countries in the global race to attract private investment.

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Kiel, October 1991 Horst Siebert

I. Introduction

Contrary to the 1960s and 1970s, real per capita income growth has on average been slightly lower in developing (1.6 per cent) than in developed countries (2.3 per cent) in the 1980s [World Bank, c, 1991, Table 1]. The poorer performance of developing countries partly reflects major disturbances in the international economic environment such as the emergence of the debt crisis, large exchange rate realignments and commodity price fluctuations. More importantly, however, the lower average income growth resulted from a sharply diverging performance among developing countries. Per capita income declined in Latin America (-.4 per cent) and Sub-Saharan Africa (-1.2 per cent), while in East and South-east Asia it grew even faster in the 1980s than in the 1970s (6.2 per cent compared to 4.9 per cent in 1973-1980).

Against this background, analyses of the preconditions for sustained and rapid economic development continue to be of vital academic as well as practical interest. Academically, the focus is on locational factors that are able to promote growth and increase social welfare. At the practical level, both governments and economic agents need insights on the instruments available to them for enhancing development. On both subjects, a vast literature has emerged in the last two decades. There is considerable consensus that the market-oriented economy outperforms the centrally planned economy, the availability of human capital is crucial, and government interventions into economic activities should be non-distortionary. The last point also implies that relatively open economies tend to be more efficient than closed economies because economic agents are forced to compete domestically as well as abroad with foreign suppliers. It has, therefore, repeatedly been argued that the international competitiveness of countries is a key to rapid economic development, and the evidence mostly from Asia appears to support this view [see e.g. Hughes, 1988; Naya et al., 1989].

Another strand of literature on the determinants of international competitiveness is concerned with factors influencing the level of economic activities in specific countries. They range from trade policies which are not biased in favour of domestic sales to macroeconomic stability and access to credit. Most studies focus on one or the other basket of determinants, but the relative importance of individual determinants

has rarely been analysed. This shortcoming has, among other things, induced a heated debate about the appropriate timing and sequencing of reform measures in distorted economies.

Notable exceptions to the above approaches are studies employing computable general equilibrium models [e.g. Fischer et al., 1982]; for an overview, see Robinson [1989, pp. 906 ff.]. This approach allows estimates of the relative performance and welfare effects of policy and other changes (e.g. international prices, endowments) to be calculated. They are, however, fairly aggregate images of individual countries, usually disregarding market imperfections and the manifold interdependencies between the monetary and the real world. Furthermore, policy prescriptions derived for one country cannot easily be transferred to other countries with different structural characteristics. In particular, it is questionable whether conclusions regarding the relative impact of policy measures hold across countries. Model building for many countries is, on the other hand, an extremely time-consuming and costly proposition.

Another approach is to identify a set of indicators of international competitiveness and to compare them across countries using an appropriate weighting scheme. The best known and probably most comprehensive studies of this sort are the annual "World Competitiveness Reports" compiled by the World Economic Forum in Geneva [World Economic Forum, various issues]. Ten baskets of indicators ranging from the dynamism of the economy to socio-political consensus and stability are combined into a composite index of international competitiveness for 22 industrialized and 9 developing countries. The obvious disadvantage of this approach is that the relative importance of each basket and indicators within each basket - as expressed by the applied weighting scheme - is assumed rather than estimated. The impact of "learned judgement" on the final index is even greater than the above implies since about one third of the roughly 300 indicators included in the study represent the opinions of business leaders or experts and are not based on hard data [ibid., 1986, p. 7].

And finally, the chosen indicators are not very precise from an analytical point of view. There are overlaps between indicators such as in the case of the basket "Financial Dynamism" which includes the financial regulatory framework, financial deregulation and the extent to which private sector borrowing is at disadvantage vis-à-vis the public sector.

These indicators capture both causes and effects, thus resulting in double-counting. Another example from the same basket is the inclusion of government deficits and the regulatory framework on the one hand and the supply of domestic bank credit on the other.

In the subsequent analysis, an attempt is made to overcome some of the shortcomings associated with the studies discussed above and to provide a broader picture of the international competitiveness of developing countries. The approach adopted here differs from that applied in the World Competitiveness Reports to the extent that competitiveness is defined in an analytically more satisfactory fashion; that is, the indicators are firmly rooted in theoretical underpinnings about causes as well as effects, they are solely based on easily accessible data, and econometric methods are employed to determine their relative impact.

The analysis focuses on policy and endowment variables as determinants of competitiveness. By doing so, the empirical estimates provide "clues" to policy-makers on how to improve their countries' position in international markets by appropriate reforms. In particular, the estimates suggest which areas of reform would deserve priority since they have a more immediate impact on competitiveness than others. For domestic and foreign investors the analysis does not only provide an index of a particular country's competitive position as revealed by data drawn from the past, but it also enables them to develop scenarios of changes in this position vis-à-vis responses to policy reform. Hence, the results may provide a yardstick concerning the future competitiveness of the developing countries included in the sample.

The study is organized as follows. Chapter II discusses the analytical approach adopted in the study and gives an overview of the economic performance of the countries included in the sample in the 1979-1989 period. A total of 26 developing and industrializing economies is considered to compete with each other in the global market for risk capital. Determinants of competitiveness are derived in Chapters III-VII with respect to the macroeconomic framework, goods and factor markets as well as the availability of locational factors that are complementary to private production. The empirical estimates of international competitiveness across countries are presented in Chapter VIII, and for some selected countries in Chapter IX. The final chapter is devoted to lessons to be drawn from the analysis both for policy-makers and the business community.

II. International Competitiveness and Economic Performance

1. Conceptual Issues

In economic analysis, the term "international competitiveness" has a clear-cut meaning in the context of firms competing in domestic or foreign markets with other suppliers. The definition of the term is much more vague when it comes to countries and their respective positions in the world market. A country is considered to be internationally competitive when it is a successful supplier of manufactured goods (in analogy to the case of firms) or when it achieves above-average rates of economic growth. Another, theoretically more convincing concept is that of countries competing internationally for mobile factors of production [Fagerberg, 1988; Giersch, 1989]. Competitiveness is determined by the availability of immobile resources and the institutional arrangements for the use of both mobile and immobile resources. In this concept, export performance and economic growth are the consequences rather than the sources of international competitiveness.

The next question is about the mobility of factors of production. Empirically, we observe both large and increasing capital flows across borders and an increasing international migration of labour. However, migration of unskilled labour mostly occurs from developing to developed or oil-rich countries. Developing countries rather compete for physical capital, technology and human capital. The latter is available internationally in terms of some categories of (highly) skilled labour (managers, consultants etc.). However, international hiring is likely to increase economic efficiency only if complementary indigenous human capital is available [Haddad et al., 1990]. This relationship suggests treating human capital as an immobile factor of production, the availability of which can be influenced by e.g. the allocation of resources to education and training.

Technology may be embodied in physical capital or obtained directly through purchase (e.g. software) or licensing agreements. These examples demonstrate the "product" character of disembodied technology which can be acquired if sufficient funds are available. For these reasons the present study focuses on the international competition for physical capital among developing countries. Abstracting from foreign aid

flows, this competition concerns private risk capital and has a geographical as well as an intertemporal component. A location may be attractive for investment in relation to other locations or for investment today rather than tomorrow. In other words, competitive countries have to be attractive for both domestic and foreign investors. Domestic investors can choose between present and future consumption and between investing domestically or abroad while foreign investors evaluate different countries as potential production sites.

2. Proxies for International Competitiveness

The international and intertemporal aspects of capital mobility should be considered when proxies for measuring international competitiveness are chosen. In the following, two proxies are discussed: the share of private investment in gross domestic product (GDP) and the inflow of foreign direct investment (FDI). The first proxy primarily takes account of the intertemporal aspect of mobility. An economy is called competitive if its endowment with immobile factors of production (e.g. natural resources, labour, institutions, property rights, tax systems) encourages a larger part of resources to flow into investment instead of consumption than in other economies.

The second proxy focuses on the international mobility of physical capital. This is not to deny that this aspect is also relevant for total private investment (including domestic investment). But there is no question that international capital mobility is especially high in the case of foreign investors who have already decided against present consumption and now choose between alternative sites of production. Thus, an economy is called competitive if it can attract relatively large inflows of FDI.

a. The Private Investment Ratio

Growth theory suggests that the share of investment in GDP determines GDP growth if the marginal productivity of capital is assumed to be constant. There is a direct link between competitiveness and performance.

Yet, experience has shown that high investment ratios coincide with both high and low growth rates, thus indicating considerable differences in the productivity of capital [Chenery et al., 1986]. To a large extent these differences can be attributed to the mix of public and private investment in total investment. Public investment usually concentrates on projects with positive externalities, long gestation periods, indivisibilities and high average capital coefficients. Such characteristics are typical for investment into physical and human infrastructure with no competition from the private sector. Thus, public investment can be treated as an internationally immobile factor of production and part of the resource endowment.

Private investors maximize private rather than social profitability. They will not invest at all if rates of return are too low, and they may even leave the country if foreign rates of return are higher, as amply demonstrated by the large extent of capital flight in recent years. It follows that private investment has a higher impact on economic growth than public investment in the short run. This conclusion is supported by Khan and Reinhart [1990]. In the long run, however, private and public investment are complementary since publicly financed infrastructure is indispensable for economic growth. In particular, public investment can promote private investment in low-income countries [Blejer, Khan, 1984].[1]

b. Foreign Direct Investment

Foreign investors are even more mobile than domestic investors because they generally possess superior information and have more alternatives available. For this reason, FDI was included as an additional proxy for

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[1] In periods when private investment is discouraged or constrained for a number of reasons (e.g. stabilization, restriction on capital goods imports), it is evident from the Harrod-Domar model that sustained public investment exerts a larger impact on growth than in other periods. This seems to have been the case in the first half of the 1980s - a period of declining private investment ratios [Pfeffermann, Madarassy, 1991] - when economic growth was reported to have been more responsive to public investment than in the 1970s [Sarmad, 1991].

locational competition. Another reason suggested in the literature concerns the technology aspect. Host countries are expected to gain access to commercial know-how and technologies which they would not be able to collect if they rely on domestic private investment only [Reuber et al., 1973]. In particular, FDI can link host countries to international goods markets and can transfer management skills that are not available locally [Hiemenz, Langhammer et al., 1987, Chapter IV].

The validity of the latter argument is difficult to assess. Inter alia, it hinges upon the absorptive and adaptive capacity of the host country, the orientation of FDI towards domestic or export markets, and the sectoral focus of investment. To start with the latter, foreign investment in primary activities (in particular exploration and exploitation of mineral resources) increases the production of Ricardo or Hotelling goods with less forward or backward linkages to the rest of the economy than in the production of manufactured goods. For this reason, the transfer of technology embodied in FDI into primary activities is associated with lower efficiency gains than in the case of FDI in manufacturing. And second, interventionist policies - such as quantitative restrictions on trade flows and exchange controls - may attract FDI to capital-intensive projects and favour a misallocation of resources in the economy. In such a setting, foreign investors may transfer technologies inappropriate for the factor endowment and the level of development of the receiving countries.

Notwithstanding these qualifications, foreign investment is expected to add to local investment. As a preliminary hypothesis, it is therefore postulated that countries are internationally all the more competitive the larger the amount of FDI they can attract. This relationship is of course valid only if FDI flows are not restricted by policy interventions. As foreign investors choose among different locations, their decisions are reflected in the magnitude of FDI flows to individual countries. Accordingly, the absolute amount of FDI received by the host country will be used to capture the inter-country component of competitiveness. Absolute annual figures are, however, known to be subject to considerable fluctuations. To smooth such fluctuations, three-year moving averages of annual FDI are used.

The above two indicators of international competitiveness are computed as follows (sources in parentheses):

I : investment ratios are computed using local currency units at current prices except for Peru. For this country, constant prices are used in order to correct for high inflation [Pfeffermann, Madarassy, 1991]. Data for Hong Kong: [Hong Kong, a, 1988]; for 1987-1989: [Hong Kong, b]. Data for Taiwan: [Republic of China, c, December 1989; d, November 1989];

FDI : three-year moving average of annual net FDI in US$ million [IMF, b, 1990]. Data for Hong Kong and India: [OECD, b]. Data for Taiwan: [Republic of China, c, December 1989; d, November 1989].

3. The Sample

The sample which constitutes the empirical backbone of the study consists of 26 countries. Most of them are classified as lower-middle and higher-middle-income countries. Low-income countries (according to the World Bank classification of 1986) have been generally disregarded because they do not compete on the same terms with more advanced developing countries for risk capital. They do not have access to international private credit markets and rely on politically determined access to external public savings. Except for very few commodity exporters they cannot attract private risk capital. Some low-income countries have nevertheless been included in the sample insofar as their resource endowment and past performance qualify them for playing in the "competitive" league of developing economies. India, Pakistan, Sri Lanka, and Kenya belong to this group.[1]

The sample countries (see Table 2 below) account for more than 90 per cent of private capital formation in developing countries and a similar share of manufactured exports. They constitute the core of competitive economies outside the OECD.

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[1] Small oil-exporting economies (Gulf region, Gabon, Brunei) as well as the socialist countries (for instance, China) were excluded for obvious reasons (lack of absorptive capacity of capital, no market mechanism).

4. Competitiveness and Performance

How competitiveness and performance indicators are correlated with each other in this sample of developing countries is shown in Table 1. For this analysis GDP growth (GDP) and export growth (X) were chosen as performance indicators: [1]

GDP: yearly growth rate of real GDP in national currency [IMF, b, 1990; c, October 1990; World Bank, b; d]. Data for Hong Kong: [Hong Kong, a, 1988]; for 1987-1989: [Hong Kong, b]. Data for Taiwan: [Republic of China, c, December 1989; d, November 1989];

X : annual growth rate of real exports in US$ (sources as for GDP; in addition: [UNCTAD, 1990; Republic of China, a, 1990; Hong Kong, c, 1989]).

The correlation matrix (Table 1) yields the expected positive correlation between private investment ratios and growth of real GDP. The relationship is weaker than could be expected from theory, indicating substantial productivity differences among countries. There are economies like Mexico, Costa Rica, and the Philippines which recorded relatively high investment ratios in the 1980s, but investment did not generate GDP growth rates in accordance with their ranking in investment (Table 2). On the other hand, economies like Turkey, Pakistan, and Chile succeeded in growing fairly rapidly with relatively low rates of private capital formation.

Almost all sample countries faced a U-shaped curve of investment ratios in the 1980s with a decline until 1985 and an upswing afterwards. This uniform pattern suggests that exogenous world-market-determined factors are partly responsible for the investment behaviour. Greene and Villanueva [1991, p. 34] suggest falling commodity prices, a decline in private external financing, the implementation of adjustment programmes and the presence of a large stock of foreign debt as major reasons for the decline of the total investment ratios which are mainly determined by the decline of private investment. For countries suffering from debt-service problems, this decline in private investment ratios was found to

[1] There is a large body of literature on the link between both proxies [Michaely, 1977; Jung, Marshall, 1985; Ram, 1985].

Table 1 - International Competitiveness and Economic Performance: Correlation Matrix, 1979-1988 (a)

	I	FDI	GDP	X
I	1 (256)	.30** (255)	.36** (256)	.08 (256)
FDI		1 (259)	.05 (259)	.16** (259)
GDP			1 (260)	.22** (260)
X				1 (260)

(a) For the definition of variables and data sources, see text; number of observations in parentheses; ** denotes statistical significance at the 1 per cent level.

Source: See text.

be more distinct [Greene, Villanueva, 1991, p. 38]. After 1986, investment ratios returned almost to previous levels in response to the economic recovery in OECD countries and successful domestic adjustment. As the U-shaped curve holds for a large number of developing economies, a pooled cross-country regression analysis of the determinants of competitiveness has to take these changes in the external economic environment into consideration.

Table 1 also shows the correlation between private investment and export growth to be statistically insignificant.[1] This may be due to a number of more inward-looking economies with a large domestic market for which external demand accounts for but a small share of total demand. In other countries, export growth may depend on primary commodities without stimulating capital formation in manufacturing and services.

[1] During the first subperiod many economies had slow rates of export growth or even a decline while their investment ratios were much higher (again relative to other economies), whereas in the final subperiod export growth did not regain momentum in the same way as private investment did.

Table 2 - Economic Performance and Competitiveness of the Sample Countries, 1979-1988 (a)

	GDP						X						I						FDI					
	1979-1981		1982-1984		1985-1988		1979-1981		1982-1984		1985-1988		1979-1981		1982-1984		1985-1988		1979-1981		1982-1984		1985-1988	
Argentina	0.63	2	0.24	8	0.18	1	2.39	9	1.81	8	4.63	9	11.63	8	7.90	6	6.10	24	45.13	22	453.43	21	525.58	20
Brazil	3.87	7	0.82	9	4.82	16	14.19	23	7.35	16	6.51	12	11.40	7	10.30	11	11.87	17	1946.80	26	2008.20	26	1148.78	25
Chile	7.20	19	-2.82	2	5.30	18	9.06	16	4.68	12	4.68	10	15.23	17	6.23	2	8.78	5	196.77	19	264.10	18	77.18	10
Colombia	3.92	8	1.96	13	4.50	14	-1.00	6	5.51	13	9.23	16	11.90	9	10.70	12	9.13	6	90.43	13	345.23	20	613.43	21
Costa Rica	1.15	3	1.20	12	3.62	12	3.25	11	-0.26	6	4.03	8	15.73	18	12.80	16	13.88	22	49.53	6	46.93	6	66.68	9
Ecuador	4.72	12	0.86	10	3.17	8	-10.03	1	7.22	15	2.84	5	13.43	13	10.20	10	11.28	15	58.00	11	51.13	8	64.68	8
Guatemala	3.04	6	-1.88	5	1.71	3	1.77	8	-0.49	5	-3.71	2	10.20	3	6.83	5	9.15	7	116.83	16	80.50	13	95.25	11
Hong Kong	10.64	26	6.33	22	7.82	24	10.70	19	15.8	24	13.74	22	27.50	25	20.60	24	20.28	24	390.07	21	709.97	22	1139.23	24
India	2.76	5	5.34	19	5.97	20	0.26	7	9.18	18	4.00	7	10.60	4	9.53	9	10.23	9	44.00	5	56.63	10	102.40	13
Indonesia	8.02	22	4.39	16	4.73	15	-6.25	3	4.23	11	9.37	18	13.50	14	13.00	17	10.50	10	218.23	20	214.10	16	322.83	19
Kenya	4.37	10	2.28	14	5.74	19	-7.93	2	1.98	9	6.37	11	13.03	11	10.97	13	11.63	16	57.40	10	14.13	3	17.43	5
Korea, Rep.	4.04	9	9.50	26	10.71	26	8.40	15	14.69	23	15.45	24	23.00	24	22.83	25	21.83	25	32.10	3	-17.33	1	268.33	17
Malaysia	7.91	21	6.65	23	3.57	11	-1.78	5	16.60	25	9.33	17	18.97	23	17.57	23	12.75	19	695.33	23	1219.37	23	658.50	22
Mexico	8.48	23	-0.72	7	0.51	2	18.56	24	13.96	22	3.77	6	13.90	16	11.70	14	13.25	20	1483.00	25	1566.97	25	868.40	23
Pakistan	6.81	17	6.13	20	6.64	22	13.42	22	3.85	10	15.10	23	6.10	1	5.90	1	6.20	3	54.10	8	65.43	12	106.43	14
Peru	4.83	13	-2.37	3	2.71	5	11.87	21	6.53	14	-9.14	1	18.07	21	15.17	20	13.68	21	55.10	9	45.33	5	1.58	4
Philippines	5.28	14	-0.73	6	2.03	4	2.79	10	0.33	7	6.74	14	18.30	22	17.13	22	11.05	13	43.77	4	56.10	9	174.18	16
Singapore	9.54	25	7.79	24	5.20	17	7.33	13	8.65	17	11.10	20	30.53	26	32.50	26	24.75	26	726.23	24	1306.90	24	1552.75	26
Sri Lanka	5.97	16	5.01	17	3.37	9	10.45	18	10.58	20	2.75	4	12.87	10	13.30	18	11.13	14	30.87	2	48.97	7	35.43	7
Taiwan	7.12	18	8.03	25	9.07	25	9.31	17	10.69	21	22.27	26	17.47	20	12.60	15	12.58	18	107.67	14	101.10	14	-98.90	1
Thailand	5.48	15	6.15	21	7.01	23	10.99	20	10.09	19	16.97	25	16.70	19	15.77	21	17.00	23	113.43	15	269.53	19	321.90	18
Tunisia	7.71	20	3.31	15	2.82	7	4.17	12	-5.13	2	12.60	21	13.37	12	14.40	19	10.55	12	131.00	17	257.87	17	97.75	12
Turkey	1.65	4	5.05	18	6.34	21	22.84	26	21.13	26	8.07	15	9.43	2	8.23	7	10.50	11	50.10	7	64.20	11	125.83	15
Uruguay	4.69	11	-5.57	1	3.56	10	7.52	14	-3.33	4	2.51	3	10.60	5	6.67	4	5.30	1	177.53	18	40.00	4	20.05	6
Venezuela	-0.32	1	-2.10	4	4.03	13	-3.03	4	-6.28	1	6.63	13	13.63	15	6.57	3	9.63	8	76.57	12	150.10	15	-90.98	2
Zimbabwe	8.93	24	1.00	11	2.79	6	19.45	25	-3.78	3	10.08	19	11.07	6	9.07	8	7.50	4	0.93	1	-0.03	2	-1.57	3

(a) Arithmetic averages and ranks. For the definition of variables and data coverage, see text and Table A1. 1 (26) denotes countries with the worst (best) performance.

Source: See text.

The correlation between the second proxy for competitiveness, i.e. FDI, and the performance indicators is significant for export growth only. FDI inflows were large in countries such as Hong Kong, Malaysia, and Singapore which also achieved an above-average export performance and high GDP growth (Table 2). However, these inflows were similarly large in countries such as Argentina, Mexico, and Brazil which recorded at least average rates of export growth but had a poor growth performance. These observations indicate that the weak correlations between FDI and economic performance are related to the neglect of different investment motives. Total FDI flows include investment in the commodity sector, inward-oriented investment, and export-oriented investment. The first two types of FDI will hardly increase national welfare if they are undertaken to secure market shares and access to raw materials in highly distorted economies. Moreover, excellent performers, such as Korea, received little FDI because of their restrictive investment policies and so did poor achievers like India, Peru, or Uruguay.

In addition, Table 2 yields some important results on the relative performance and competitiveness of individual countries in specific subperiods:

- Shifts in the ranking over subperiods are much more pronounced for the performance indicators than in the case of competitiveness. The most remarkable shift can be observed for Chile which belonged to the top growth performers in 1979-1981 but plunged to the "tail-end" group in the next subperiod (1982-1984). Economies passing through stabilization crises like Mexico, Uruguay, Peru, and the Philippines incurred similar declines. Some of these economies failed to recover until 1988 (Mexico, Peru, Philippines), others did, in particular Chile. On the other hand, some top performers remained remarkably stable over all the subperiods (Singapore, Hong Kong, Thailand), while others witnessed stability in a negative sense by staying in the "low-growth" segment during the entire period (Venezuela and Guatemala).
- The volatility of export performance is generally larger than that of GDP growth. Peru dropped from the top group to the bottom group, and Indonesia moved in the opposite direction. These are only a few examples for the large number of erratic ups and downs.
- The outstanding competitiveness of East and Southeast Asian countries relative to the rest of the sample clearly emerges from the private

investment ratio. High ratios were sustained by Singapore, Hong Kong, Korea, Thailand, and Malaysia which ranked among the eight leading economies over the entire period. Pakistan, Uruguay, Guatemala, Argentina, and Zimbabwe form the bottom group.[1]

- The ranking of FDI inflows into individual economies remained fairly stable over time. It is noteworthy that FDI inflows did not vary with country size. Small (and export-oriented) economies such as Hong Kong, Malaysia, or Singapore received as much FDI as large (inward-oriented) countries such as Argentina and Brazil.

The international competitiveness of all countries in the sample according to their combined achievement in both attracting foreign investment and total private investment over all three subperiods can be measured by the sum of all rankings. This method leads to the following groups of countries (maximum number of ranking points: 156; ranking points of individual countries in parentheses):

- low competitiveness (less than 40 per cent of ranking points): Zimbabwe (24), Uruguay (38), Pakistan (39), India (50), Turkey (53), Guatemala (55), Venezuela (56), Kenya (58), Sri Lanka (58);
- moderate competitiveness (40-65 per cent): Ecuador (65), Chile (71), Costa Rica (77), Argentina (79), Peru (80), Colombia (81), Taiwan (82), Philippines (86), Tunisia (89), Korea (95), Indonesia (96);
- high competitiveness (more than 65 per cent): Brazil (112), Thailand (115), Mexico (123), Malaysia (133), Hong Kong (140), Singapore (152).

A comparison between this combined ranking and that of the private investment ratio yields some interesting differences. For instance, Brazil would have been classified as a less competitive economy according to its investment ratio, but its sustained inflow of FDI places the country into the upper group of the combined ranking. Argentina and Chile tend in the same direction. They end up in the middle group according to the combined ranking. Mexico moves from the middle group (I) to the top

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[1] Peru's relatively good competitiveness is subject to qualifications as it is the only country in the sample for which a different methodology (constant instead of current prices) was applied in order to correct for the effect of high inflation [Pfeffermann, Madarassy, 1991, p. 9]. Peru's poor performance suggests a very low capital productivity in an inflationary environment.

group (I + FDI), while Peru - under the caveats mentioned above - and Taiwan drop from the top group (I) to the middle group (I + FDI).[1] In total, the combined ranking places economies attracting inward-looking or resource-based investment in a better position as compared to the ranking by private investment ratios.

5. The Model

The basic question for the empirical analysis is how investment behaviour can be related to immobile factors of production and the regulatory environment. The starting point is a simple investment function in which gross investment in period t (I_t) depends on the present value of returns to capital (r) and a risk factor (V_t) [Franke, 1989]:

$$[1] \quad I_t = I_t \left[\sum_{t=1}^{T} (1 + k_t)^{-t} \, (E(r_t) - V_t) \right],$$

where k_t is the discount rate. Assuming the market mechanism is working and production technology is given, returns on investment are a function of all product and factor market prices, production and income taxes and/or subsidies (including investment incentives) as well as the availability and/or user costs of immobile domestic factors that are complementary to production such as e.g. infrastructure or natural resources:

$$[2] \quad r_t = r_t \; (p^d_i \, , \, p^d_j \, , \, i, \, w, \, T_i \, , \, S_i \, , \, N),$$

where p^d_i and p^d_j denote nominal domestic prices for final and intermediate goods, i and w the user costs of capital and labour, T_i, S_i the respective taxes and subsidies, and N refers to the immobile factors of production.

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[1] Taiwan became a net investor abroad in 1985-1988 (Table 2). Therefore, FDI as an indicator of international competitiveness is no longer adequate for this country.

From a macroeconomic point of view all prices entering into [2] cannot be taken as given but need to be further specified. In the case of a small country, domestic prices may differ from world market prices (p^w) by the tariff equivalent (t) of trade interventions, product-specific domestic taxes (d), and the exchange rate (e):

$$[3] \quad p^d_i = [p^w_i (1 + t_i) (1 + d_i)] / e,$$

$$[4] \quad p^d_j = [p^w_j (1 + t_j) (1 + d_j)] / e,$$

where e becomes itself a function of international inflation differentials ($\hat{p}^d / \hat{p}^w$) if a flexible exchange rate regime is applied:

$$[5] \quad e = e (\hat{p}^d / \hat{p}^w).$$

Under fixed exchange rate regimes, changes of the inflation rate and the exchange rate may diverge and must be accounted for separately.

User costs of capital depend on domestic capital supply, the structure and functioning of the capital market, and the ease of access to international capital markets:

$$[6] \quad i = i (s^d, s^w, R^d_c),$$

with s^d and s^w denoting domestic and foreign savings, and R^d_c regulations pertaining to capital markets. In a similar way, total wage costs w can be expressed by the endowment with (in particular skilled) labour L, the structure of the labour market which determines the nominal wage rate l and labour market regulations (R^d_L) which specify non-wage labour costs:

$$[7] \quad w = w (L, l, R^d_L).$$

Finally, the risk premium has to be considered, i.e. the extra profit which investors require under different degrees of uncertainty concerning future revenues and costs. Uncertainty can arise from excessively large balance-of-payments or budget deficits, a debt-overhang

situation or volatile inflation and exchange rates. Therefore, V may be expressed as a function of expected price changes in goods and factor markets. It seems reasonable to assume that such expectations will focus on key prices such as the exchange rate or nominal wages while institutional aspects such as the regulatory environment tend to be taken as given. Accordingly, the size of the risk premium is stipulated to depend primarily on inflation and/or exchange rate expectations as well as the future supply of foreign capital:

$$[8] \quad V = V\left[d\left(\hat{p}^{d} / \hat{p}^{w}\right), de, ds^{w}\right].$$

Inserting [2]~[8] into [1] and taking world market prices as given yields after a slight rearrangement of the arguments for each discount rate k_t:

$$[9] \quad I_t = I_t(\underbrace{d\hat{p}^{d}}_{\text{(macro policies)}}, de, e, ds^{w}, \underbrace{T_i, \quad t_i, t_j, d_i, d_j, S_i,}_{\text{(goods markets)}} \quad \underbrace{s^{d}, s^{w}, R^{d}_{C},}_{\text{(capital markets)}}$$

$$\underbrace{L, l, R^{d}_{L},}_{\text{(labour markets)}} \quad \underbrace{N).}_{\text{(complementary immobile factors)}}$$

[9] shows that private investment behaviour can be interpreted as depending on the present level of and future changes in key prices, goods and factor market distortions and endowments with immobile factors of production. Key prices, the income tax regime and the future access to foreign funds are predominantly influenced by macroeconomic policies, while goods and factor market interventions can cause distortions in these markets which discourage investors. This conclusion is, however, valid only if market forces are not constrained by government regulations that prevent investors from entering into certain sectors of the economy or stipulate specific conditions for access. The subsequent sections will illustrate these relationships and suggest proxies for the variables in [9] to be used in the empirical analysis.

III. The Role of the Macroeconomic Framework

1. Theoretical Analysis

Economies offering promising markets and cost advantages may nevertheless be often considered as unattractive locations for investment by private economic agents. Other determinants of private investment behaviour may be overruled by highly distorted macroeconomic parameters, macroeconomic instability and instability of the politico-economic framework. Political instability has been found as discouraging investment activities in surveys on FDI [see e.g. Reuber et al., 1973]. Econometric studies based on cross-country data have produced mixed results.[1] This is mainly due to problems of defining political instability in a way suitable for empirical testing. The sometimes applied concept of evaluating the frequency of changes of party in power and the prevalence of riots and border conflicts, as suggested e.g. by Agarwal et al. [1991], cannot be adequately tested in the context of the present study. The pooling of time-series and cross-country data requires annual observations of the explanatory variables, while political stability in the above sense captures a long-term phenomenon. Consequently, political instability is not discussed in the following.[2]

In the subsequent paragraphs, it is hypothesized that both domestic and foreign investors will be reluctant to invest in countries characterized by severe macroeconomic distortions and relatively high macroeconomic instability (equation [9], Section II.5). It is obvious that an excessively high tax burden and unsustainable budget deficits financed either by inflation or by crowding out private borrowers reduce the profitability of private investment projects. In addition, fragile macroeconomic conditions give rise to increased uncertainty for potential investors. Economic instability renders it more difficult for private agents to assess the profitability of investment projects which are basically of long-term nature. The first reaction might be a shift in overall in-

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[1] See e.g. Green, Cunningham [1975]; Kobrin [1976]; Schneider, Frey [1985]; Barro [1991]; Edwards [1991].

[2] See Chapter VI on the impact of strikes and lockouts, i.e. uncertainty arising from labour markets which is sometimes subsumed under the label of political instability.

vestment activities towards projects with a relatively short pay-off periods in order to keep uncertainties within bounds.[1] However, economic instability is also likely to affect the volume of domestic and foreign investment in a country. As long as uncertainties remain manageable, investors will ask for higher risk premia (equation [8], Section II.5). Assuming constant financing costs, the incorporation of higher risk premia into the investment calculus will render some projects unprofitable so that they are not realized. The volume effects of macroeconomic instability are likely to be even more pronounced if uncertainties begin to dominate. Adjustment through higher risk premia is then no longer optimal. Private agents will rather refrain from investment altogether or apply a rationing strategy. Hence, it appears reasonable to expect that both the overall investment ratio and FDI inflows into a country are reduced by economic instability.

2. Empirical Validation

Basically, uncertainty of investors relates to fragile economic conditions prevailing in the country's domestic economy and in its international economic relations. Domestic macroeconomic distortions can be expected to discourage domestic-market-oriented investment in the first place, while adverse effects of external disequilibria are likely to be particularly strong in the case of world-market-oriented activities. Indicators of both types of distortions enter into the subsequent empirical analysis.

The investment impact of cyclical fluctuations in domestic economic activities is not considered in the following. It may be argued that investment is increased during the expansionary phase of the business cycle, when demand conditions are buoyant, and reduced during a recession. However, the expected effect of cyclical factors becomes highly ambiguous once the impact of excess capacity on input prices and the expectations of investors are taken into account. Blejer and Khan [1984, p. 395] found the cyclical response of private investment to be fairly weak. Moreover, problems of reverse causality, i.e. investment being a

[1] This effect will not be captured in the present study, since the data cannot be differentiated according to the lifetime of investments.

causal factor for the fluctuations in overall economic activity, cannot be avoided.

As far as domestic markets are concerned, macroeconomic investment conditions may be captured by the following variables:

Inflation: High inflation has frequently been considered as an obvious sign of unsound management of the economy [e.g. Greene, Villanueva, 1991]. Schneider and Frey [1985, p. 165] argued with regard to FDI: "A high rate of inflation is a sign of internal economic tension and of the inability or unwillingness of the government and the central bank to balance the budget and to restrict money supply. As a rule, the higher the rate of inflation, the less are foreign direct investment decision-makers inclined to engage in the country". Similar reasoning should apply to domestic investors: "High rates of inflation adversely affect private investment by increasing the riskiness of longer-term investment projects, reducing the average maturity of commercial lending, and distorting the information content of relative prices" [Greene, Villanueva, 1991, p. 41].

This suggests introducing the annual rate of inflation (INF) into the regressions. However, high inflation rates per se may be less harmful if they remain relatively stable. Economic instability and uncertainty of investors may rather be reflected by highly volatile inflation rates. Therefore, an alternative proxy of inflation-induced uncertainty is constructed by weighting the annual inflation rate by the degree of volatility in inflation observed during the past five years (IV).

Government budget deficit: Inflation usually results from public budget deficits financed by money creation. However, governments may also rely on the domestic credit market. From this point of view, budget deficits (BUD) could be an indicator of higher inflation or a tighter credit squeeze in the future. Overall investment may then be negatively affected by high budget deficits because investors anticipate either higher inflation or crowding out. Empirical estimates of BUD may suffer from data shortcomings. Reported public sector balances typically refer to the central government's budget, and the treatment of state enterprises differs considerably among the sample countries.

Income tax burden: In the debate on macroeconomic investment conditions, the tax burden of enterprises figures prominently [e.g. Klodt, Schmidt et al., 1989, pp. 155 ff.]. Though the discussion focuses on the

relative attractiveness of advanced industrial countries, taxes on income, profits and capital gains (TI) may also affect the locational advantages of newly industrializing and developing economies. Basically, it is hypothesized that investors will be reluctant to engage in a developing country where entrepreneurial income is subject to comparatively higher tax rates than in major competing countries. However, the assessment of the income-tax conditions in a cross-country perspective may suffer from conceptual problems:[1]

- In many developing countries the share of income taxes in total government revenues is relatively low, simply because the tax system is biased towards indirect taxes and tax collection is particularly ineffective with respect to income taxes. Insofar as an efficient tax system and tax administration indicate sound macroeconomic management, the relation between TI and investment activity may become inconclusive in a developing country context.
- Virtually all countries included in the sample offer investment incentives such as tax holidays, special depreciation allowances and interest rate subsidies. In as much as these incentives reduce income tax revenues, it would appear to be desirable from an analytical point of view to separate genuinely low taxes from investment incentives to assess their respective effects on investment. This is, however, not feasible because of insufficient data. There are reasons to assume, though, that this omission does not necessarily bias the empirical findings. Most importantly, earlier studies [Agarwal, 1980, pp. 761 f.; UNIDO, c] have shown that the investment decisions of foreign investors are hardly influenced by incentives but by the general investment climate. Moreover, the effect of incentives would cancel out if all countries offer the same incentives. Finally, incentives are often granted to promote investment in certain sectors or regions of the economy and thus may not stimulate total investment.

Economic instability at the external front can be assessed in the following ways:

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[1] In addition, the data base is deficient. Reported data refer to the central government, while a breakdown of tax revenues is not available at the state and local level. Even at the central government level, corporate taxes cannot be isolated from non-corporate taxes as the unallocated amount of income taxes is considerable in several instances.

Balance-of-payments problems: An unsustainable balance-of-payments situation is likely to add to the uncertainty of both domestic and foreign investors. It creates incentives for capital flight and, thereby, reduces the overall amount of investment funds available in the economy. FDI might be negatively affected by balance-of-payments problems since "the danger increases that free capital movement will be restricted" [Schneider, Frey, 1985, p. 165].

In this study, however, it is argued that current account deficits should not be taken as an indicator of balance-of-payments problems. As discussed in Chapter V, the former may rather reflect the availability of external savings and enhance overall investment, unless deficits are unsustainable.[1] It appears more promising to consider the change in the import coverage of international reserves (RES) as an indication of balance-of-payments tension. Though conceptually superior, a particularly strong relationship between RES and investment activity is unlikely to exist unless international reserves are cut down below the minimum required to maintain current payments. Moreover, balance-of-payments problems may induce additional official transfers by donor countries and the IMF. While the import-coverage ratio is stabilized in this way, private investors may well be aware of the underlying external disequilibrium and the uncertainties involved.

Debt overhang: According to the debt-overhang literature, the presence of an inherited debt, sufficiently large for creditors not to expect with confidence to be fully repaid, creates strong disincentives for domestic investment and further capital inflows [Krugman, 1988; Sachs, 1989]. Foreign as well as domestic investors anticipate in such a case that investment-induced incremental income will be subject to high taxation in order to service the inherited debt. Under conditions of a considerable debt overhang, investors will thus refrain from productive investment.

It would be optimal to measure the degree of a debt overhang by the discounts on developing country debt prevailing in secondary markets. However, comprehensive data on secondary market discounts are not available. Therefore, the average amount of payment obligations re-

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[1] This view is supported by the empirical evidence presented by Agarwal et al. [1991].

scheduled in the current and the two previous years, relative to the debtor country's GDP, is taken as a proxy (DEB). From an analytical point of view, this proxy is preferred over the debt-service ratio and the ratio of external debt to GDP. The latter two are considered by Greene and Villanueva [1991] as an indication of the debt overhang. Both ratios are found by them to be negatively related to private investment. However, the conceptual weaknesses of debt and debt-service ratios are well documented in the literature [e.g. OECD, a].

Exchange rate: On theoretical grounds, the investment effects of exchange rate changes are highly ambiguous. According to the traditional neoclassical view, real devaluation induces expenditure switching in favour of the production of tradeables, thereby promoting efficient investment activities. This argument has been challenged recently. The ongoing debate on contractionary real devaluation rather suggests a negative impact on investment.[1] Recent empirical findings are mixed as well [Edwards, 1989; Schweickert, 1990]. In the case of FDI, further ambiguity is due to two-way causality: While devaluation may stimulate FDI, increased equity capital inflows, ceteris paribus, give rise to an appreciation of the recipient country's currency.

Instead of the annual change of real effective exchange rates (e), we consider the fluctuations of e(VOL) as an indicator of exchange-rate-induced uncertainty. Economic instability arising from the exchange-rate management is hypothesized to discourage investment. However, this argument is less relevant in the case of domestic-market-oriented FDI. This type of FDI provides an alternative to exports by the foreign parent company to the host country. If its exports are adversely affected by exchange-rate volatility there is an incentive to increase FDI.

Details of calculation of the above-mentioned variables and data sources are given below (expected sign of the correlation with investment in parentheses beside the respective variable):

INF (-) : annual inflation rate, measured in terms of GDP deflator [IMF, b; c; World Bank, d, 1989; national sources[2]];

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[1] For an overview on theoretical arguments underlying the opposite view, see Lizondo, Montiel [1988] and Nunnenkamp, Schweickert [1990].

[2] For Hong Kong: [Hongkong, c]; for Taiwan: [Republic of China, a, 1990; b].

IV (-) : INF weighted by its standard deviation for the period t to t-4;

BUD (-) : budget balance of the central government in per cent of GDP (negative in the case of deficits) [IMF, b; c; national sources[1]];

TI (+/-) : taxes on income, profits and capital gains in per cent of GDP [IMF, d; national sources[1]];

RES (+) : annual change in import coverage of international reserves (including gold), lagged one period (negative in the case of declining reserves) [World Bank, d, 1989; e; national sources[1]];

DEB (-) : average amount of debt rescheduled in periods t, t-1, and t-2 in per cent of GDP[3] [World Bank, d, 1989; e; Hardy, 1982];

e (+/-) : annual change in real exchange rate, national currency vis-à-vis SDR; nominal exchange rate deflated by the consumer price index for the respective economy vis-à-vis the CPI for the industrialized countries (e carries positive values in the case of real devaluations)[4] [IMF, b; c; national sources[1]];

VOL (+) : volatility (standard deviation) of e over the past five years; VOL carries low (high) values if exchange rate fluctuation is above (below) the average. It was calculated as the average standard deviation of e for all countries and years divided by the standard deviation of e for country i in the period t to t-4.

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[1] For Hong Kong: [Hongkong, c]; for Taiwan: [Republic of China, a, 1990; b].

[2] Alternatively, three-period moving averages were calculated for this variable. The correlations are hardly affected by this modification (results not shown in the following).

[3] Alternatively, rescheduled debt was related to total outstanding debt; the results (not shown) remain stable.

[4] Alternatively, e was lagged once; the results (not shown) are only marginally affected in this way.

3. Empirical Evidence

The correlation analysis presented in Table 3 provides first evidence in support of the hypotheses raised above with respect to the private investment ratio (I):

- High inflation is negatively related with I, irrespective of the definition of the inflation variable. Since the correlation between annual inflation rates and the volatility of inflation is extremely high, it was decided to concentrate on INF in the subsequent analysis.

Table 3 - Investment Activity and Macroeconomic Instability: Correlation Matrix, 1979-1988 (a)

	INF	IV	BUD	TI	RES	DEB	e	VOL
Dependent								
I	-0.17** (256)	-0.12* (256)	0.32** (256)	0.08 (240)	-0.03 (246)	-0.19** (255)	-0.18** (256)	0.29** (256)
FDI	0.18** (259)	0.09 (259)	-0.04 (259)	0.05 (241)	-0.06 (249)	-0.06 (257)	0.02 (259)	-0.09 (259)
Independent								
INF	1 (260)	0.92** (260)	-0.16** (260)	-0.21** (242)	-0.07 (250)	0.15** (258)	0.03 (260)	-0.23** (260)
IV		1 (260)	-0.11* (260)	-0.14* (242)	-0.07 (250)	0.10 (258)	-0.02 (260)	-0.12* (260)
BUD			1 (260)	0.07 (242)	0.21** (250)	0.06 (258)	-0.04 (260)	0.10 (260)
TI				1 (242)	0.03 (234)	-0.10 (241)	-0.04 (242)	-0.01 (242)
RES					1 (250)	0.03 (248)	-0.14* (250)	-0.01 (250)
DEB						1 (258)	0.22** (258)	-0.28** (258)
e							1 (260)	-0.24** (260)
VOL								1 (260)

(a) For the definition of variables and data sources, see text; number of observations in parentheses; ** (*) denotes significance at the 1 (5) per cent level.

Source: Own calculations.

- Private investment is also discouraged by high government budget deficits. Despite the fact that high deficits (i.e. negative values of BUD) are associated with higher inflation, the partial correlation does not seem strong enough to cause serious multicollinearity problems (for details, see Chapter VIII). Thus, BUD was considered as an additional indicator of macroeconomic instability.
- The insignificant correlation between income taxes and I adds to the aforementioned doubts about the appropriateness of TI to capture either investment incentive or the disincentive effects of a high tax burden on investment in a pooled cross-country perspective. This result supports the view that, in developing countries, investment conditions may be improved by an efficient tax system, and investment incentives may not play a decisive role in stimulating total domestic and foreign investment. In view of the shortcomings of this proxy, TI will not be considered in the regression analysis.
- Similarly, the conceptual flaws of taking RES as a proxy for balance-of-payments problems result in a completely insignificant correlation with investment activities and lead us to drop this variable in the following. By contrast, the existence of a debt overhang shows the expected negative investment effect. At the same time, the proxy for debt problems (DEB) is significantly correlated with higher inflation rates and exchange rate volatility, which is not at all surprising. Again, however, the partial correlation is not unreasonably strong so that the explanatory variables may be included simultaneously in the regressions.
- As expected, uncertainty of investors is mainly due to exchange rate volatility, as reflected by the particularly strong correlation between I and VOL. The view that real devaluation per se (i.e. positive values of e) induces higher investment is clearly rejected.

In contrast to I, the correlations between the explanatory variables and FDI are largely insignificant. The only exception, the positive correlation with INF, results from the large FDI flows to Latin America where inflation has traditionally been relatively high. In other cases, relatively weak correlations were to be expected for FDI since resource- and domestic-market-oriented FDI depends much less on macroeconomic stability than world-market-oriented FDI. Furthermore, the disincentive effects of a considerable debt overhang (DEB) on FDI have been offset

to some extent by debt-equity-swap programmes, through which over-indebted countries have attempted to attract FDI at highly subsidized conditions.

Tables 4-6 provide country-specific information on investment conditions in the areas discussed above.[1] Uncertainty of investors arising from high and volatile inflation rates was most pronounced in Latin America (Table 4). Throughout the 1980s, 8-9 out of the 10 sample countries with the highest inflation were located in this region, with Argentina, Brazil, and Peru at the top of the list in all the subperiods. On the other hand, some Asian countries succeeded in keeping inflation at the one-digit level during the 1980s, most notably Malaysia, Pakistan, Singapore, and Thailand. Hong Kong, Korea, and Taiwan improved their ranking with respect to INF considerably since 1982, while the ranking deteriorated most significantly for Ecuador, Guatemala, and Kenya. All in all, however, the relative positions remained fairly stable throughout the 1980s.

In terms of the government's budget balance (BUD), economic instability was most successfully avoided in countries such as Hong Kong, Korea (since 1982), Singapore, and Taiwan. In addition, Venezuela and, to a somewhat lesser extent, Chile ranked favourably in this respect. Persistently high budget deficits were observed in India, Malaysia (though somewhat reduced in 1985-1988), Mexico (particularly since 1982), Sri Lanka, and Zimbabwe. Comparing the last with the first subperiod, the budget situation deteriorated most drastically in Brazil, and less so in Mexico, Tunisia, Chile, Indonesia, and the Philippines. The ranking improved most significantly in Costa Rica, Guatemala, and Korea. The country-specific evidence for BUD underlines the correlation result of Table 3 of an only moderate, though significant, relation between budget deficits and inflation.

Until 1982, debt problems were of minor relevance (Table 5). The number of countries which rescheduled part of their foreign debt rose from three (1979-1981) to eleven (1985-1988). According to DEB, economic stability problems due to a considerable debt overhang were con-

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[1] Subsequently, the focus is on those variables which enter the regression analysis of Chapter VIII, i.e. INF, BUD, DEB, and VOL.

Table 4 - Investment Conditions in the Sample Countries, 1979-1988: Economic Instability in Domestic Markets (a)

	INF						IV						BUD						TI					
	1979-1981		1982-1984		1985-1988		1979-1981		1982-1984		1985-1988		1979-1981		1982-1984		1985-1988		1979-1981		1982-1984		1985-1988	
Argentina	119.10	1	395.37	1	309.00	2	97.95	1	552.70	1	716.59	1	-5.09	7	-8.42	5	-4.45	11	0.84	26	0.62	26	1.29	26
Brazil	83.87	2	151.40	2	314.48	1	14.10	5	50.95	2	373.15	2	-1.73	19	-3.79	16	-11.89	1	3.04	17	3.80	14	4.31	12
Chile	29.23	6	18.07	11	23.60	9	25.84	2	2.12	11	1.62	11	4.27	25	-2.19	19	-0.69	20	5.15	11	4.30	11	4.29	13
Colombia	24.80	9	22.47	10	26.15	8	0.97	11	0.60	13	0.64	13	-1.86	17	-4.41	13	-1.54	17	3.80	14	2.78	19	3.26	16
Costa Rica	23.00	10	43.20	6	17.43	11	2.00	8	11.32	5	2.60	9	-5.68	6	-1.22	22	-3.64	13	2.58	21	3.25	15	2.52	20
Ecuador	16.67	14	31.90	8	36.33	7	0.62	14	2.65	8	3.34	7	-2.29	16	-2.60	18	-0.66	21	4.48	12	6.20	7	8.06	5
Guatemala	9.03	23	5.23	22	20.03	10	0.31	21	0.09	24	2.28	10	-4.09	10	-4.01	14	-1.05	18	1.28	25	1.16	25	1.40	25
Hong Kong	14.54	15	7.90	19	5.42	20	0.75	12	0.29	18	0.12	20	5.23	26	-1.17	23	2.25	26	6.39	8	5.75	9	6.23	9
India	12.33	19	7.40	20	7.73	16	0.57	16	0.18	20	0.08	23	-5.96	5	-6.70	6	-8.49	5	2.33	22	2.13	22	2.06	21
Indonesia	26.70	7	10.87	16	6.75	17	2.16	7	0.98	12	0.42	15	-1.43	20	-1.39	21	-1.90	16	15.92	2	14.67	2	10.47	3
Kenya	8.93	24	10.73	17	8.60	15	0.45	18	0.27	19	0.16	17	-4.63	8	-3.82	15	-4.92	9	6.99	7	6.16	8	6.40	7
Korea, Rep.	20.27	11	5.27	21	4.10	22	0.58	15	0.35	16	0.08	21	-2.44	15	-1.75	20	0.20	24	4.22	13	4.12	13	4.73	11
Malaysia	6.70	26	4.40	23	0.05	26	0.29	22	0.13	22	0.02	24	-13.46	2	-13.29	1	-7.46	7	9.30	5	10.03	4	9.58	4
Mexico	25.40	8	71.70	4	95.33	4	1.28	10	15.72	3	22.08	4	-4.24	9	-9.86	3	-10.13	3	5.54	9	4.24	12	4.10	14
Pakistan	9.03	22	8.13	18	5.40	21	0.25	23	0.16	21	0.13	19	-6.91	4	-5.91	10	-7.80	6	2.17	23	2.35	20	1.68	24
Peru	74.27	3	93.13	3	219.88	3	15.45	4	15.06	4	257.25	3	-2.80	14	-5.96	9	-3.68	12	3.77	15	1.95	23	2.01	22
Philippines	13.93	16	23.27	9	9.08	13	0.41	19	2.61	9	1.39	12	-1.81	18	-2.67	17	-2.88	14	2.69	19	2.31	21	3.02	18
Singapore	7.83	25	2.93	24	0.30	25	0.23	25	0.08	25	0.00	26	1.64	24	3.05	26	-0.47	22	7.83	6	9.35	5	6.24	8
Sri Lanka	18.77	13	16.07	13	6.13	18	0.72	13	0.59	14	0.40	16	-14.22	1	-10.47	2	-10.30	2	2.71	18	3.09	17	2.67	19
Taiwan	13.25	18	2.08	26	1.39	24	0.48	17	0.10	23	0.02	25	1.52	23	0.21	25	1.23	25	3.13	16	3.17	16	3.05	17
Thailand	9.93	21	2.33	25	3.75	23	0.23	26	0.07	26	0.08	22	-4.05	11	-4.67	12	-2.82	15	2.66	20	3.03	18	3.31	15
Tunisia	10.23	20	10.90	15	5.45	19	0.24	24	0.30	17	0.14	18	-3.37	13	-6.35	7	-5.31	8	5.48	10	4.69	10	4.79	10
Turkey	70.60	4	35.20	7	44.70	6	18.52	3	9.30	6	4.20	6	-3.53	12	-5.72	11	-4.63	10	10.06	4	8.49	6	7.23	6
Uruguay	52.27	5	43.40	5	70.63	5	5.76	6	7.69	7	10.49	5	-0.49	21	-6.06	8	-1.05	19	1.98	24	1.42	24	1.72	23
Venezuela	19.53	12	17.90	12	16.15	12	1.43	9	2.60	10	2.77	8	0.19	22	-0.85	24	-0.26	23	19.39	1	15.83	1	13.12	2
Zimbabwe	13.43	17	12.17	14	8.68	14	0.39	20	0.37	15	0.48	14	-9.08	3	-8.98	4	-8.98	4	11.07	3	13.19	3	14.40	1

(a) For the definition of variables and data coverage, see text and Table A1. Figures are arithmetic averages of the respective indicator. The country ranking is as follows: 1 (26) is attached to the country with the worst (best) investment conditions, i.e. high (low) inflation, high budget deficits (budget surplus), and high (low) income taxes. For the economic rationale, see the text.

Source: See text.

Table 5 - Investment Conditions in the Sample Countries, 1979-1988: Balance-of-Payments and Debt Problems (a)

	RES						DEB					
	1979-1981		1982-1984		1985-1988		1979-1981		1982-1984		1985-1988	
Argentina	-0.39	8	-1.40	2	0.18	16	0.00	15	0.00	18.5	11.82	5
Brazil	-0.83	2	-0.20	14	0.35	18	0.00	15	1.07	8	3.74	9
Chile	1.17	23	-0.23	13	0.00	12	0.00	15	3.15	5	15.76	4
Colombia	1.60	25	-2.23	1	-0.13	7	0.00	15	0.00	18.5	0.00	19
Costa Rica	-0.27	11	0.50	23	0.13	14	0.00	15	7.47	1	6.78	8
Ecuador	-0.01	14	-0.43	10	-0.13	6	0.00	15	5.06	2	18.70	1
Guatemala	-0.58	5	-0.30	11	0.05	13	0.00	15	0.00	18.5	1.16	11
Hong Kong	na		na		na		0.00	15	0.00	18.5	0.00	19
India	-0.58	4	-0.67	5	-0.15	5	0.00	15	0.00	18.5	0.00	19
Indonesia	0.48	19	-0.67	6	0.45	20	0.00	15	0.00	18.5	0.00	19
Kenya	-0.59	3	0.23	20	-0.35	4	0.00	15	0.00	18.5	0.00	19
Korea, Rep.	-0.47	7	-0.13	16	0.00	11	0.00	15	0.00	18.5	0.00	19
Malaysia	-0.39	9	-0.60	8	0.70	23	0.00	15	0.00	18.5	0.00	19
Mexico	-0.26	12	0.33	21	0.93	24	0.00	15	3.89	3	17.49	2
Pakistan	0.10	16	0.47	22	-0.58	1	0.10	3	0.21	10	0.00	19
Peru	1.53	24	-0.67	7	-0.38	3	2.08	1	3.70	4	2.88	10
Philippines	0.27	17	-1.23	3	0.45	21	0.00	15	0.39	9	9.87	6
Singapore	-0.36	10	0.19	19	0.37	19	0.00	15	0.00	18.5	0.00	19
Sri Lanka	-0.97	1	0.07	18	-0.08	9	0.00	15	0.00	18.5	0.00	19
Taiwan	-0.16	13	2.13	25	5.22	25	0.00	15	0.00	18.5	0.00	19
Thailand	-0.56	6	-0.27	12	0.33	17	0.00	15	0.00	18.5	0.00	19
Tunisia	0.00	15	0.00	17	-0.03	10	0.00	15	0.00	18.5	0.00	19
Turkey	0.68	22	-0.50	9	-0.08	8	1.84	2	2.02	7	0.00	19
Uruguay	0.49	21	-1.07	4	0.63	22	0.00	15	2.33	6	8.35	7
Venezuela	0.36	18	0.63	24	-0.40	2	0.00	15	0.00	18.5	15.89	3
Zimbabwe	0.48	20	-0.17	15	0.15	15	0.00	15	0.00	18.5	0.00	19

(a) For the definition of variables and data coverage, see text and Table A1. Figures are arithmetic averages of the respective indicator. The country ranking is as follows: 1 (26) is attached to the country with the worst (best) investment conditions, i.e. a strong decline (increase) in international reserves and a high amount of rescheduled debt (no rescheduling; in the case of several countries without reschedulings, a medium rank position is attached to all these countries). For the economic rationale, see text.

Source: See text.

centrated in Latin America, but largely absent in Asia.[1] In 1982-1984, they were most pronounced in Costa Rica and Ecuador where the rescheduled debt amounted to more than 5 per cent of the countries' GDP. Subsequently, eight sample countries exceeded this benchmark. With more than 15 per cent, Ecuador, Mexico, Venezuela, and Chile ranked most unfavourably.

Unstable investment conditions due to exchange-rate volatility (reflected in low figures of VOL in Table 6) were a widespread phenomenon

[1] Since 1982 reschedulings took place in only three non-Latin-American sample countries (Pakistan, the Philippines, and Turkey).

Table 6 - Investment Conditions in the Sample Countries, 1979-1988: Exchange Rate Management (a)

	e						VOL					
	1979-1981		1982-1984		1985-1988		1979-1981		1982-1984		1985-1988	
Argentina	-11.00	2	35.51	26	6.77	9	0.83	3	0.56	2	1.33	19
Brazil	5.49	23	13.75	23	1.09	2	1.42	6	0.92	6	0.98	12
Chile	-9.92	4	16.18	24	14.91	21	1.78	9	1.18	10	0.49	1
Colombia	-4.12	9	3.43	11	17.91	23	3.12	20	2.74	19	0.77	7
Costa Rica	27.94	26	-9.09	1	8.82	15	1.50	7	0.41	1	0.83	10
Ecuador	-4.10	10	4.46	14	25.27	26	5.07	26	2.59	17	1.25	18
Guatemala	-2.49	13	-1.68	4	22.09	25	4.03	23	2.98	20	1.04	13
Hong Kong	1.39	19	3.15	10	5.45	7	2.18	12	3.71	23	1.65	24
India	0.12	18	1.17	7	7.49	10	2.57	14	6.24	26	1.55	21
Indonesia	5.70	24	8.04	19	17.72	22	0.88	4	1.28	11	0.52	2
Kenya	2.74	21	3.67	12	8.23	11	2.99	18	2.49	16	1.48	20
Korea, Rep.	-0.81	17	2.44	9	4.30	4	4.29	24	4.63	25	1.62	23
Malaysia	1.43	20	-2.78	2	12.62	20	2.96	17	3.66	22	1.55	22
Mexico	-10.41	3	12.19	22	11.11	18	1.08	5	0.83	5	0.54	3
Pakistan	-1.98	14	7.07	18	11.43	19	2.70	16	2.31	14	0.82	8
Peru	-9.49	5	7.04	17	-2.58	1	0.60	2	0.93	7	0.62	4
Philippines	-4.65	8	6.55	16	8.40	12	4.34	25	2.04	13	1.09	15
Singapore	-1.00	16	-1.20	5	8.75	14	2.61	15	2.63	18	2.30	25
Sri Lanka	-1.68	15	-2.53	3	8.52	13	0.27	1	1.91	12	0.96	11
Taiwan	-5.88	7	2.03	8	1.48	3	3.17	21	2.46	15	2.95	26
Thailand	-2.73	12	0.46	6	9.59	16	3.24	22	4.03	24	1.23	17
Tunisia	5.33	22	6.48	15	6.04	8	2.23	13	1.14	8	1.07	14
Turkey	9.75	25	9.96	20	5.13	6	2.15	11	0.72	3	0.82	9
Uruguay	-14.70	1	27.90	25	4.36	5	1.72	8	0.76	4	1.21	16
Venezuela	-7.01	6	11.33	21	18.68	24	3.03	19	1.17	9	0.66	5
Zimbabwe	-2.84	11	4.46	13	9.83	17	2.00	10	3.09	21	0.77	6

(a) For the definition of variables and data coverage, see text and Table A1. Figures are arithmetic averages of the respective indicator. The country ranking is as follows: 1 (26) is attached to the country with the worst (best) investment conditions, i.e. high real appreciation (depreciation) of the domestic currency and high (low) volatility of the real exchange rate. For the economic rationale, see the text.

Source: See text.

during the 1980s. Only four countries remained within the "top ten" in terms of low volatility (i.e. ranks above 16) in all three subperiods: Ecuador, Korea, Malaysia, and Thailand. At the same time, only four countries were consistently among the ten worst performing economies (i.e. ranks below 11): Chile, Costa Rica, Mexico, and Peru. In most countries, significant changes in the rankings took place during the 1980s. For example, the volatility of real exchange rates was considerably reduced in Argentina, Hong Kong, Singapore, Sri Lanka, and less so in Brazil, India, and Uruguay. On the other hand, the instability in exchange rate management increased most notably in Colom-

bia, Pakistan, Venezuela, Guatemala, and the Philippines. The latter two countries maintained a medium position in the ranking in 1985-1988.

Taking the four major indicators of economic instability (INF, BUD, DEB, and VOL) and the three subperiods together, Tables 4-6 report 12 rankings with a maximum of 286.5 ranking points which can be achieved by one country. The country-specific sums of rankings clearly reveal the wide spectrum of the sample in terms of economic instability. While Mexico achieved only 22 per cent of the possible ranking points, Singapore and Taiwan reached nearly 90 per cent of the maximum. The country sample may be divided into the following three subgroups in terms of economic instability (ranking points in parentheses):

- highly unstable (less than 40 per cent of possible ranking points): Mexico (64), Peru (71), Argentina (89.5), Brazil (97), Turkey (101), Costa Rica (110);
- moderately unstable (40-65 per cent): Uruguay (119), Sri Lanka (125.5), Chile (134), Zimbabwe (145.5), Pakistan (151), Ecuador (163), Indonesia (166.5), Tunisia (169.5), the Philippines (170), Colombia (172.5), Venezuela (174.5), India (184.5);
- relatively stable (more than 65 per cent): Kenya (194.5), Guatemala (197.5), Malaysia (198.5), Thailand (222.5), Korea (237.5), Hong Kong (240.5), Taiwan (255.5), Singapore (256.5).

All in all, this ranking underlines the crucial importance of macroeconomic stability with respect to the countries' relative attractiveness for investors and their overall economic performance. Comparing the two subgroups at the extremes, Table 2 reveals that the average investment ratio of the highly unstable sample countries amounted to 10.8 per cent in 1979-1988, while the respective figure was 17.8 per cent for the relatively stable countries. Export growth was also slightly better in the latter countries (8.7 per cent per annum on average as against 7.9 per cent for the highly unstable countries). The difference between the two subgroups was most pronounced in terms of average GDP growth in 1979-1988 (6.2 versus 2.4 per cent).

IV. Distortions in Goods Markets

1. Theoretical Analysis

Harry G. Johnson [1965] and Jagdish Bhagwati [1971] have elaborated on the crucial relevance of goods markets distortions for economic welfare. In particular, they have pointed out that distortions in the domestic or the foreign rate of transformation are welfare reducing. Such distortions may be endogenous to the economic system, e.g. externalities, or they may be exogenous such as in the case of economic policy interventions (unless they are implemented to correct for endogenous distortions). Assuming a neoclassical model of economic development, growth of welfare should be positively related to the private investment rate [see e.g. Blejer, Khan, 1984]. Thus, distortions of goods markets would slow down private investment activities as stipulated in equations [3] and [4] of Chapter II.

This relationship is, however, much less straightforward in a dynamic world with n goods and m factors of production. Policy interventions usually favour one economic activity over others and, therefore, encourage investment in the promoted sector while discouraging investment in the discriminated sectors. The net effect on total private investment remains ambiguous unless additional assumptions are made. It has been shown that policy interventions in goods markets tend to reduce the overall efficiency of production and, thereby, the expected long-term rate of return to investment. This is the approach adopted in the subsequent review of different types of distortions in goods markets.

Distortions of the foreign rate of transformation may be caused by trade policy interventions such as tariffs, trade taxes and subsidies, quantitative controls, state trading and a whole range of other non-tariff trade barriers. Import protection and export taxes benefit investors of import substitution activities while the production of exportables is discriminated against. The contrary applies in the case of net export subsidies. All trade policy interventions have in common that they reduce domestic competition and encourage a suboptimal structure of production, as underlined by a substantial body of literature (for a summary, see e.g. Krueger [1990, Part II]). Excessive import substitution as well as excessive export expansion cause an inefficient use of resources. This in

turn requires additional supportive policy interventions to prevent a collapse of the distorted production structures when easy import substitution or export expansion possibilities are exhausted. Hence, trade policy interventions tend to become tighter over time, and severe trade distortions are observed alongside of overvalued exchange rates, financial repression and interventions in labour markets. As all of these measures support rather than discourage an inefficient use of resources, it is hypothesized that policy-induced trade distortions negatively affect private investment activities.

Distortions of the domestic rate of transformation can arise from discriminatory taxes and subsidies, administrative price fixing and similar price and non-price measures which interfere with the relative profitability of production among sectors. When such policies do not compensate for endogenous distortions investors are attracted to economic activities in which the countries concerned do not necessarily possess comparative advantages. Concerning total private investment the reasoning is similar to the case of trade policies. At least in the long run, domestic market interventions distort the allocation of factors of production to an extent that reduces average returns to capital. Higher domestic market distortions would then lead to lower investment.

Another type of domestic market distortions may emerge from the institutional economic environment. This concerns restrictive entry and exit regulations by nationality, ethnic group or region, as well as public monopolies and officially sanctioned cartels. Since all these interventions are meant to exempt certain economic areas from private investment activities, it follows by definition that tighter entry regulations and higher government participation in economic activities have a negative impact on the level of private investment.

2. Empirical Validation

The above relationships do not lend themselves easily to empirical testing since the degree of policy distortions can neither be measured directly nor over time in a consistent and theoretically satisfactory manner in most developing countries. In addition to a lack of adequate measurement

techniques and data problems, proxies such as tariffs and taxes do not necessarily indicate a distortion. Some of these interventions may be perfectly justified on such economic grounds as market imperfections or externalities, but there is no way to distinguish them from distorting interventions. Similarly, price distortions that produce a loss of static efficiency may nevertheless increase dynamic efficiency. The chosen proxies have, therefore, to be analysed with great care.

Concerning trade policies, first-best indicators of the intensity of trade policy interventions would be average effective rates of protection and the range of these rates across economic activities. These indicators would allow inclusion of all kinds of trade policy measures related to imports and exports as well as the indirect effects of trade policies transmitted through intermediate inputs. Unfortunately, these indicators are neither available for all countries nor on an annual basis, and there is no other indicator which could capture their impact on production and investment in a way similar to the effective rates of protection. Other indicators rather describe specific aspects of trade policies. If import competition is considered to be important for improving efficiency and international competitiveness, an average market penetration ratio (imports over domestic production minus net exports) would provide an appropriate indicator. These ratios can, however, only be computed for manufactured products and a limited number of the countries included in the sample. An alternative, though inferior measure for the openness of countries to foreign competition which has frequently been used in the literature is imports in per cent of GDP, or more specifically, non-fuel imports in GDP (M). This variable has two clear shortcomings: it includes competitive as well as non-competitive imports, and it exhibits a large-country bias.

A second frequently implemented approach consists of approximating the size of trade distortions by government revenues derived from trade interventions. Instead of tariff collection rates which relate to imports only, the share of total foreign trade taxes in government revenue (TT) may provide a slightly superior measure. This indicator includes revenues derived from interventions in exports and imports, and it shows the extent to which governments have relied on trade taxes to finance expenditures. In order to provide a measure for openness, it has to be assumed, though, that tariff and non-tariff interventions are highly cor-

related. In light of the partial nature of M and TT, data for both variables will be assessed below.

Concerning the domestic rate of transformation, there is no summary measure of the distortionary impact of government interventions in domestic prices and production costs. General indicators such as the so-called "tax burden" (tax revenues in per cent of GDP) include all taxes irrespective of whether they discriminate among economic activities or not. Studies focusing on distortions either deal with individual markets or products [e.g. Ahmad, Stern, 1988] or provide an ordinal classification of countries only [Agarwala, 1983]. Both approaches are not appropriate for the present analysis. For this reason, a proxy was constructed which comprises the sum of all indirect taxes levied on goods and services and all subsidies granted by the government as a share in total government revenue plus subsidy payments (TD). The underlying assumption is that a heavy reliance of the government on indirect rather than on direct taxation and a large share of subsidies can be taken to indicate discriminatory practices. The advantage of this measure is the explicit inclusion of subsidies while other measures generally focus on taxes only. An obvious disadvantage is the inclusion of non-distortionary taxes such as a uniform value added tax.

Government encroachment on private investment through public enterprises could be approximated by the size of public investment on the grounds that public investment is crowding out private investment [Aschauer, 1989; Barro, 1991, pp. 426 and 430-432]. The argument is at least partly flawed since public investment, e.g. in infrastructure and education, is regarded as a complementary factor of production and may promote private investment. To test the validity of either hypothesis one would need a decomposition of public investment into different components or alternatively, the share of public enterprises in total output. Blejer and Khan [1984] have pursued the first approach and found a statistically significant positive relationship between private investment and longer term trends in public investment (PI) while deviations from this trend (dPI) appeared to capture excessive interference of the government with private sector activities. Therefore, the same proxies are employed in this study. To check the meaningfulness of the annual deviations from the trend, the share of non-tax revenues in total government revenues (NTR) was introduced as an additional variable. It com-

prises administrative fees and entrepreneurial income from government ownership of property. A larger government reliance on such sources of revenue could more appropriately portray the size of those government activities that have a negative impact on private investment behaviour.

The other aspect of government interference with private investment concerns investment regulations which restrict investment in quantitative terms. Such regulations are frequently applied to so-called strategic sectors such as the exploitation of raw materials, energy supply or defense-related industries which tend to be reserved for public investment. This effect may be captured in the dPI variable described above. However, some developing countries have - at least at times - preferred a generally restrictive attitude towards FDI which cannot be mirrored by dPI. Cases in point are e.g. India or Korea (until 1985). Since the degree of restrictiveness has varied over time and among countries, it is virtually impossible to construct a proxy for the impact of these regulations. A simple dummy variable would surely be inadequate and a more sophisticated measure is not available. For this reason, institutional investment barriers did not enter the regression analysis but were left to the interpretation of results for individual countries (Chapter IX).

The above considerations lead to the following set of variables for goods markets distortions (data sources and expected signs are given in parentheses):

M (+) : share of non-fuel imports in GDP, per cent [World Bank, c, 1990; national sources[1]];

TT (-) : share of taxes on international trade and transactions in total government revenue [IMF, d, 1988, 1989, Table A, 6; national sources[1]];

TD (-) : share of domestic taxes on goods and services plus subsidies in the sum of total government revenue and subsidies [IMF, d, 1988, 1989, Tables A, 5 and C, 3.1; national sources[1]];

PI (+) : 1979-1988 time trend values of the share of public investment in GDP [Pfeffermann, Madarassy, 1991; national sources;[1] own computations];

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[1] For Hong Kong: [Hong Kong, a, 1988, 1990; c]; for Taiwan: [Republic of China, c; d].

dPI (-) : residuals of trend estimates in per cent of trend values [own calculations];

NTR (-) : share of non-tax revenue in total government revenue [IMF, d, 1988, 1989, Table A, V; national sources[1]].

3. Empirical Evidence

Tables 8-11 provide values and ranks for the variables described above by country and subperiod while Table 7 shows correlation coefficients among these variables as well as vis-à-vis the dependent variables. Concerning the assumed relationships the evidence suggests the following:

- The openness of an economy is positively correlated with both private (I) and foreign direct investment (FDI). The coefficients for M and TT are statistically significant and show the expected sign. The extremely high correlation between M and I suggests, however, that non-competitive imports, i.e. in particular capital goods, play an important role in the import basket of the countries included in the sample. Investment behaviour is immediately reflected in a respective change of imports since domestic capital goods industries are still in their infancy or non-existent, and imports of capital goods are usually not restricted by trade barriers. Therefore, the trade tax variable appears to be more appropriate to capture the degree of competition allowed between foreign and domestic products.
- Domestic distortions caused by discriminatory taxes and subsidies (TD) engender the expected negative influence on private investment and FDI. Close correlations with other explanatory variables (PI, NTR) indicate, however, a danger of multicollinearity in regression analysis.
- The correlations for direct and indirect interference of governments with private investment (PI, dPI, NTR) show ambiguous results. Public investment is, on average, supportive of total private investment, but not of FDI. The deviations from trend values (dPI) - assumed to indicate excessive government encroachment - are not statistically significant, while the correlation coefficient of the other proxy for this

[1] For Hong Kong: [Hong Kong, a, 1988, 1990; c]; for Taiwan: [Republic of China, c; d].

Table 7 - Pearson Correlation Coefficients among Indicators of Goods Market Distortions, 1979-1988 (a)

	M	TT	TD	PI	dPI	NTR
Dependent						
I	.74** (253)	-.17** (253)	-.36** (244)	.12* (256)	-.08 (256)	.23** (241)
FDI	.26** (256)	-.34** (256)	-.16** (247)	.06 (259)	.05 (255)	.32** (242)
Independent						
M	1 (256)	-.10* (253)	-.55** (244)	.32** (256)	-.03 (253)	.44** (240)
TT		1 (257)	.05 (248)	.20** (257)	-.03 (253)	-.37** (243)
TD			1 (248)	-.35** (248)	-.11* (244)	-.45** (236)
PI				1 (260)	-.03 (256)	.14* (242)
dPI					1 (256)	.04 (231)
NTR						1 (243)

(a) For the definition of variables, see text. - ** (*) denotes statistical significance at the 1 (5) per cent level.

Source: Own calculations.

distortion (NTR) is statistically significant but carries the wrong sign. Table 11 below reveals that non-tax revenues were high in countries such as Hong Kong, Singapore, Taiwan, and Brazil. In the first three countries this revenue was largely derived from competitive state enterprises. In Brazil, non-tax revenue consisted primarily of social security contributions which may or may not deter private investment. Therefore, dPI was prefered over NTR in the subsequent regression analysis.

Concerning individual countries of the sample, openness to foreign competition appears to be a relatively stable phenomenon over time

Table 8 - Indicators of Openness (a)

	Share of non-fuel imports in GDP (M)						Share of taxes on international trade and transactions in total revenues (TT)					
	1979-1981		1982-1984		1985-1988		1979-1981		1982-1984		1985-1988	
Argentina	6.02	3	6.55	3	5.25	2	10.87	18	12.72	19	12.09	18
Brazil	5.10	2/	3.47	1	3.70	1	5.73	23	3.58	26	1.97	26
Chile	17.63	14	14.70	12	19.59	16	4.68	25	6.71	22	9.70	20
Colombia	11.65	7	11.32	7	10.87	5	19.60	14	13.51	18	17.39	13
Costa Rica	33.28	20	26.79	21	25.39	19	22.11	11	24.25	5	24.75	6
Ecuador	17.17	12	12.03	9	15.89	13	33.20	3	22.07	9	19.34	12
Guatemala	15.70	9	9.71	6	14.50	9	29.13	5	17.70	12	34.58	1
Hong Kong	55.02	25	50.49	25	48.79	25	4.17	26	6.34	23	6.67	22
India	4.88	1	5.15	2	6.57	3	21.51	12	23.34	7	27.88	4
Indonesia	17.25	13	16.49	16	14.41	8	7.34	20	4.10	25	5.49	23
Kenya	21.46	18	16.02	15	17.89	15	20.55	13	22.72	8	19.65	10
Korea, Rep.	25.52	19	23.86	19	25.74	20	15.14	16	14.67	13	14.97	16
Malaysia	39.89	24	41.99	24	39.28	24	31.38	4	23.91	6	16.61	14
Mexico	10.51	5	9.01	5	12.09	7	23.71	9	14.21	16	4.51	24
Pakistan	15.86	10	13.93	11	15.17	10	34.78	2	31.68	2	32.45	2
Peru	13.88	8	13.11	10	9.61	4	28.19	6	21.61	10	19.55	11
Philippines	16.55	11	15.52	14	15.48	11	23.11	10	26.79	4	21.60	7
Singapore	80.32	26	68.25	26	76.57	26	6.38	22	4.57	24	2.49	25
Sri Lanka	34.82	22	24.85	20	25.84	21	49.74	1	34.07	1	30.19	3
Taiwan	34.91	23	29.31	22	30.42	22	18.96	15	14.31	15	12.44	17
Thailand	19.85	15	17.96	18	21.86	18	25.22	7	21.00	11	20.58	8
Tunisia	33.32	21	34.85	23	30.62	23	24.99	8	29.03	3	26.19	5
Turkey	6.66	4	11.36	8	15.52	12	7.35	19	7.81	21	7.02	21
Uruguay	11.21	6	8.71	4	11.29	6	13.21	17	11.55	20	12.05	19
Venezuela	20.34	16	14.73	13	16.56	14	6.62	21	14.63	14	20.37	9
Zimbabwe	21.00	17	16.64	17	19.69	17	5.68	24	13.62	17	15.48	15

(a) Arithmetic averages (per cent) and ranks; for the definition of variables and data coverage, see text and Table A1. 1(26) denotes the country with the largest (smallest) distortion.

Source: See text.

(Table 8) and shows the expected pattern when imports (M) are considered. Singapore, Hong Kong, Malaysia, and Taiwan, but also Tunisia had the highest import to GDP ratios, while the lowest ratios were observed for Brazil, Argentina, Uruguay, and also India. The individual values for TT reveal some strengths and weaknesses of this variable. Liberal trade regimes are indicated for Singapore, Chile, and Hong Kong, as well as Turkey, Indonesia, and Brazil. In the latter three cases, trade taxes do not capture the non-tariff trade barriers which severely impede foreign trade in these countries. However, TT captures major trade liberalization efforts undertaken in the second half of the 1980s such as in Malaysia and Mexico, and it seems to adequately reflect

Table 9 - Domestic Taxes and Subsidies in Total Government Revenues (TD), 1979-1988 (a)

	1979-1981		1982-1984		1985-1988	
Argentina	56.15	2	61.40	3	40.22	15
Brazil	50.20	4	43.88	14	22.12	22
Chile	54.80	3	63.42	2	60.60	3
Colombia	36.83	17	47.48	11	40.85	14
Costa Rica	45.21	11	48.39	10	43.49	11
Ecuador	41.61		na		na	
Guatemala	35.44	18	40.89	16	41.08	13
Hong Kong	21.23	22	15.99	24	19.67	23
India	50.17	5	48.86	8	46.99	7
Indonesia	19.86	23	19.10	22	31.09	19
Kenya	41.23	15	45.74	12	46.31	9
Korea, Rep.	49.49	8	49.74	7	46.32	8
Malaysia	30.35	21	32.92	21	23.73	20
Mexico	46.31	10	69.29	1	69.13	1
Pakistan	41.52	14	37.23	19	34.61	18
Peru	46.67	9	55.11	5	54.24	4
Philippines	43.19	13	39.55	18	37.57	16
Singapore	17.34	24	15.63	25	17.38	25
Sri Lanka	31.42	20	40.13	17	41.30	12
Taiwan	43.52	12	41.94	15	37.17	17
Thailand	49.68	6	51.38	6	50.30	6
Tunisia	38.55	16	34.69	20	22.51	21
Turkey	31.47	19	44.23	13	51.20	5
Uruguay	58.31	1	60.51	4	60.87	2
Venezuela	12.60	25	18.69	23	19.32	24
Zimbabwe	49.56	7	48.86	8	45.74	10

(a) Arithmetic averages (per cent) and ranks; for the definition of variables and data coverage, see text and Table A1. 1(26) denotes the country with the largest (smallest) distortion.

Source: See text.

very restrictive trade regimes (such as in Sri Lanka, Pakistan, the Philippines, and Tunisia).

The size of domestic taxes and subsidies (Table 9) varied much more over time than the trade regime. Nonetheless, the emerging pattern matches expectations. The highest distortions were observed in Latin American countries (Chile, Mexico, Argentina, Uruguay, and Costa Rica) while East and Southeast Asian countries (Hong Kong, Singapore, Indonesia, Malaysia) interfere much less in domestic economic transactions. Surprising results are the minimal distortions measured for Venezuela and the high distortions observed for Thailand. In the case of Vene-

zuela, the economy of this country is almost entirely dependent on oil and, hence, there is hardly any basis for the government to intervene in other domestic goods markets. The high value of TD in the Thai case seems to contradict other studies [e.g. Agarwala, 1983] which have ranked Thailand in the group of countries with only moderate distortions of goods markets. This contradiction indicates a weakness of the proxy TD which was discussed above. High domestic taxes do not automatically mean high distortions as taxes may be levied in a non-distortionary manner. Hence, Thailand needs to be evaluated in greater detail. This is done in Chapter IX.

Concerning the trends in public investment (Table 10), it is hardly surprising that a poor overall economic performance also resulted in declining trend values for the ratio of public investment in GDP. Cases in point are again Latin American countries such as Argentina, Brazil, Guatemala, and Uruguay, but also the Philippines. This ratio may, however, also decline in response to fast economic growth such as in Taiwan or Thailand. The group of countries with the highest shares of public investment in GDP (1985-1988: India, Malaysia, Singapore, Sri Lanka, Tunisia, Turkey, Venezuela, Zimbabwe) bears witness to the fact that public investment is not always geared to improving the business environment through better infrastructure or educational facilities. Out of this group, Venezuela and Zimbabwe range at the low end of attractiveness for private investors while India, Turkey, and Tunisia belong to the bottom half of the sample.

The crowding-out aspect of public investment is to be captured by the deviation of actual public investment from the long-term trend (dPI) shown in Table 11. Positive deviations would indicate an excessive government involvement. Individual country data are somewhat difficult to interpret since the sign of the observation tends to turn around in 1982-1984 as compared to the other two subperiods. Based on these latter subperiods, excessive public investment was observed in Latin American countries such as Brazil, Uruguay, and Ecuador, as well as in Kenya.

Rather than looking at individual goods markets distortions, a cumulative appraisal of all distortions included in the final analysis may provide a better indication of the countries' attractiveness for private investment. This appraisal was done by summing up the ranks individual countries were given with respect to TT, DT and dPI across subperiods.

Table 10 - Trend Estimates of Public Investment in GDP (PI), 1979-1988 (a)

	1979-1981		1982-1984		1985-1988	
Argentina	9.53	14	8.36	13	6.99	8
Brazil	10.23	16	8.00	10	5.41	5
Chile	4.99	1	5.92	5	7.00	9
Colombia	8.59	10	8.59	15	8.59	16
Costa Rica	8.61	11	7.53	6	6.27	7
Ecuador	8.25	9	8.25	12	8.25	14
Guatemala	6.81	5	4.95	3	2.78	1
Hong Kong	5.57	2	4.60	2	3.47	3
India	8.88	13	9.67	17	10.59	19
Indonesia	12.65	21	11.20	19	9.51	18
Kenya	10.15	15	8.77	16	7.15	10
Korea, Rep.	7.56	6	7.56	7	7.56	12
Malaysia	15.11	25	15.11	25	15.11	26
Mexico	10.80	18	8.49	14	5.79	6
Pakistan	10.55	17	9.71	18	8.73	17
Peru	7.71	8	7.71	8	7.71	13
Philippines	7.61	7	5.77	4	3.62	4
Singapore	12.80	22	12.80	23	12.80	23
Sri Lanka	13.85	23	13.85	24	13.85	25
Taiwan	13.96	24	11.41	20	8.43	15
Thailand	8.67	12	7.99	9	7.20	11
Tunisia	17.79	26	15.82	26	13.52	24
Turkey	11.77	20	11.77	22	11.77	22
Uruguay	5.99	3	4.59	1	2.95	2
Venezuela	11.74	19	11.74	21	11.74	21
Zimbabwe	6.13	4	8.20	11	10.62	20

(a) Arithmetic averages (per cent) and ranks; OLS time trend estimates; when regressions coefficients were not statistically significant at the 10 per cent level, simple arithmetic averages over the whole period of observation were used.

Source: See text.

Thus, the most attractive country which is equal to the country with the least distorted goods markets could achieve a maximum of 231 ranking points. The least interventionist countries, Singapore and Hong Kong, have accumulated roughly 80 per cent of all possible ranking points while Ecuador had achieved only 21 per cent. Generally, the following three subgroups may be identified (ranking points in parentheses):

- highly distortionary (less than 40 per cent of all ranking points): Ecuador (49), India (75), Sri Lanka (89), Thailand (90), Uruguay (90);

Table 11 - Indicators of Government Encroachment on Private Investment (a)

	Deviations of public investment/GDP from trend values (dPI) (per cent) and ranks						Non-tax revenue/total revenue (NTR) per cent (arithmetic averages and ranks)					
	1979-1981		1982-1984		1985-1988		1979-1981		1982-1984		1985-1988	
Argentina	0.73	12	0.57	14	-1.24	13	17.42	9	14.03	14	9.25	23
Brazil	2.09	10	-12.60	26	13.20	1	21.45	5	27.64	4	38.71	1
Chile	5.80	7	-10.12	22	-2.63	15	19.13	6	20.52	6	22.89	8
Colombia	-14.67	22	5.89	9	6.18	4	13.83	13	18.67	8	10.61	19
Costa Rica	4.61	8	-11.53	25	-16.32	25	5.01	25	6.37	25	12.47	15
Ecuador	18.41	1	-3.41	17	2.75	7	4.86	26	1.77	26	2.30	26
Guatemala	6.26	4	-2.08	15	-0.37	11	9.22	18	17.78	10	12.12	16
Hong Kong	-8.43	20	19.80	2	-10.34	20	31.20	1	36.26	1	33.58	4
India	1.84	11	5.26	11	0.23	10	16.39	10	18.43	9	19.51	9
Indonesia	-12.06	21	4.63	12	3.86	6	8.86	19	11.98	16	19.33	10
Kenya	6.18	5	-10.29	23	6.75	3	12.54	14	10.70	20	11.06	17
Korea, Rep.	-1.16	15	-6.13	19	-13.74	23	11.93	16	11.78	18	10.65	18
Malaysia	-19.23	24	14.09	4	-13.61	22	12.34	15	16.74	11	23.45	6
Mexico	3.21	9	-8.86	20	-0.72	12	5.44	24	10.49	21	9.20	24
Pakistan	0.71	13	-2.86	16	0.92	9	17.93	8	19.77	7	22.95	7
Peru	-23.94	26	-10.97	24	-43.28	26	8.62	21	12.03	15	9.26	22
Philippines	-0.16	14	5.29	10	-1.60	14	10.93	17	11.47	19	13.83	14
Singapore	-23.67	25	17.49	3	1.79	8	26.53	3	31.10	2	38.32	2
Sri Lanka	9.03	3	6.14	8	-16.07	24	6.34	22	11.86	17	15.62	13
Taiwan	6.04	6	-4.14	18	-9.30	19	26.80	2	30.30	3	34.48	3
Thailand	-2.21	17	2.68	13	-3.03	16	8.66	20	9.22	23	9.74	21
Tunisia	-6.55	19	12.32	6	-10.45	21	22.21	4	23.59	5	25.99	5
Turkey	-1.73	16	-9.66	21	4.93	5	18.39	7	14.67	13	15.73	12
Uruguay	-6.23	18	10.40	7	12.95	2	5.73	23	8.55	24	5.24	25
Venezuela	14.43	2	13.01	5	-8.21	18	15.48	12	15.74	12	16.47	11
Zimbabwe	-18.57	23	28.29	1	-6.41	17	16.24	11	10.06	22	10.29	20

(a) For the definition of variables and data coverage, see text and Table A1. 1(26) denotes the country with the largest (smallest) distortion.

Source: See text.

- medium distortionary (40-65 per cent); Guatemala (95), Pakistan (95), Kenya (98), Mexico (102), the Philippines (106), Costa Rica (112), Argentina (114), Chile (119), Tunisia (119), Peru (121), Colombia (122), Zimbabwe (122), Korea (125), Taiwan (134), Malaysia (136), Turkey (140), Venezuela (141);
- relatively less distortionary (more than 65 per cent): Brazil (152), Indonesia (171), Singapore (181), Hong Kong (182).

This grouping of countries corresponds relatively closely to the attractiveness of the respective countries for investors (Chapter II). Yet, there are some results such as the relatively poor record of Korea, Taiwan, and Thailand and the good ranking of Brazil which are all in clear contrast to these countries' economic performance and their ranking with

respect to macroeconomic stability. The three Asian countries achieved a relatively low ranking because TD indicates severe distortions although indirect taxes may not be as distortionary in these countries as measured by TD. In the case of Brazil, trade distortions were underestimated because TT does not adequately capture non-tariff barriers. Nonetheless, the empirical analysis seems to suggest an economic policy conclusion: countries preserving a relatively stable macroeconomic environment have more leeway than unstable countries concerning interventions in foreign trade and domestic markets without discouraging private investors or damaging their economic performance.

V. The Role of Capital Markets

1. Theoretical Analysis and Empirical Validation

In the past, developing countries have generally kept their interest rates low, i.e. below equilibrium or market clearing rates, in order to encourage capital formation. This policy was challenged by McKinnon [1973] and Shaw [1973] who showed that the above policy often resulted in negative real rates of interest which discouraged savings and investment. Their hypothesis has found support in the literature [see e.g. Fischer, 1982]. In recent years, some developing countries have revised their capital market policies by liberalizing financial markets [Villanueva, Mirakhor, 1990]. This policy reorientation is well suited to improve financial intermediation and, thereby, to encourage investment in the medium run. However, the short-run effects of higher interest rates on investment remain ambiguous.

Given this ambiguity, the question arises of whether the interest rate is an appropriate variable to assess the role of capital markets for the competitive position of developing countries. The answer is negative because as long as financial markets of developing countries are repressed by government regulations it is not the interest rate as such which determines private investment but the volume of funds available for financing investment. The credit supply is assumed to be influenced primarily by the depth of capital markets, access of the private sector to domestic and foreign savings, and government regulations (equation [6] in Chapter II).

Financial deepening: Generally the ratio of financial assets to total wealth is considered to be an indicator of financial deepening. But this definition cannot be applied to our sample due to data problems. Therefore, a narrower definition of financial deepening, namely the broadly defined supply of money relative to GDP (M2), is used in the subsequent analysis; this is in line with other studies.[1] M2 is to indicate the stage of financial intermediation achieved in individual countries, i.e. the depth and coverage of banks and other financial institutions as well as the range of financial instruments. A higher level of financial inter-

[1] For a review of the literature, see Gupta [1984].

mediation encourages domestic savings and improves the availability of investable funds. Both effects are expected to promote domestic and foreign investment. However, M2 as a proxy for financial deepening has its limitations. A too rapid expansion of M2 may prove inflationary. Therefore, a careful balance between capital market liberalization to enhance financial deepening and macroeconomic stabilization has to be struck before drawing conclusions from this variable for policy purposes.

Bank credit: Notwithstanding financial deepening, bank credit available to the private sector may be subject to short-term fluctuations. In particular, credit supply may be constrained due to credit rationing, which generally favours state enterprises and other public institutions in most developing countries. Therefore, an additional variable was constructed, i.e. the annual change of bank credit extended to the private sector. Access to bank credits plays a decisive role especially for relatively smaller firms and new investors without own savings e.g. from retained earnings. Even in the case of FDI, local credit facilities exercise a positive influence to the extent that high inflation rates, political instability, and high indebtedness of host countries encourage the foreign investors to resort to local financing. Therefore, it is hypothesized that the annual changes of bank credits are positively correlated with both local and foreign private investments. This relationship was confirmed in earlier studies by Prano, Nugent [1966] and Leff, Sato [1980].

Current account balance: Current accounts of developing countries are generally in deficit. These deficits are commonly financed through economic aid, export credits, portfolio capital, or FDI. They constitute a transfer of foreign savings to these countries and ought to exercise a positive influence on local private investment. A similar positive relationship is expected in the case of FDI. Foreign investors tend to meet their demand for machinery and equipment as well as for other inputs through imports. Therefore, they will prefer countries in which the financing of current account deficits is not a bottleneck.

However, current account deficits may be unsustainable if they result from high imports of consumption goods and debt service payments implying a drag on domestic savings and to that extent on investment. Deficits can also be a reflection of imports of defense equipment or capital goods for industries in the public sector having a very long

gestation period. In such cases, deficits will negatively affect private investment. Some studies have in fact suggested that deficits may stifle domestic savings [Chenery, Strout, 1966; Weisskopf, 1972] and hamper investment. Thus, the hypothesized relationship between current account deficits and private investment ratios or FDI may not always hold especially when a country is living beyond its means on a long-term basis.

Definitions, data sources and expected signs of the above variables are given below:

M2 (+) : financial deepening defined as the ratio of broad money supply to GDP in national currency [IMF, b; c; World Bank, d, 1989; ADB, b; Republic of China, a, 1990];

BC (+) : annual percentage change of bank credit deflated by GDP deflator. Bank credit consists of claims on the private sector of monetary authorities, deposit money banks and other banking institutions such as savings and mortgage loan institutions, post office savings institutions, development banks and offshore banking institutions [IMF, b; Banque Centrale de Tunisie, various issues; Banco Central de Chile, various issues; Bank Indonesia, various issues; ABD, b; Republic of China, b];

CAB (-) : current account balance (deficit: -) as a percentage of GDP in US$ [IMF, b; ADB, a, 1990; b; Republic of China, a; World Bank, d, 1989].

2. Empirical Evidence

The evidence on the above hypotheses is provided by the following analysis based on correlation coefficients (Table 12) and sample averages and rankings (Tables 13 and 14). Total private investment as well as FDI are positively correlated with financial deepening (M2) as hypothesized above, though this relationship is statistically more significant for the former. This supports the view that domestic investors are more dependent on local financial deepening than foreign investors who can draw on their own, generally larger, internal funds than local firms of developing countries and who have an easier access to international capital markets.

Table 12 - Capital Market Conditions: Correlation Matrix, 1979-1988 (a)

	M2	BC	CAB
Dependent			
I	0.38**	0.25**	-0.09
	(249)	(245)	(252)
FDI	0.19*	0.02	0.03
	(251)	(248)	(255)
Independent			
M2	1	0.24**	0.36**
	(251)	(244)	(248)
BC		1	-0.09
		(248)	(243)
CAB			1
			(255)

(a) For the definition of variables and data sources, see text; number of observations in parentheses. **(*) denotes significance at the 1(5) per cent level.

Source: Own calculations.

Similarly, private investment (I) and real bank credit (BC) are positively correlated with each other. This is, however, not the case for FDI. Obviously, foreign investors can compensate short-term fluctuations of domestic credit supply either by using internal funds or by raising foreign bank credit. The coefficients of the current account balances are not statistically significant with respect to the dependent variables. However, there is a significant correlation between CAB and M2. The tight relationship could be explained by the fact that countries with high rates of inflation cannot usually maintain large current account deficits.

Financial deepening increased considerably in the sample countries in 1979-1988 (Table 13); for the sample as a whole, M2 rose from 35 per cent in the first period to 45 per cent in the last period. This ratio, however, varies considerably both among the sample countries and from period to period for the same country. Moreover, the increase of M2 has been accompanied with an increase in the country deviations from the

Table 13 - Indicators of Capital Market Conditions, 1979-1988: Financial Deepening (M2) and Bank Credit (BC) (a)

	M2						BC					
	1979-1981		1982-1984		1985-1988		1979-1981		1982-1984		1985-1988	
Argentina	29.70	9	31.98	13	24.39	6	40.28	26	-5.83	2	-3.80	4
Brazil	12.86	1	10.97	1	14.37	1	-2.68	2	1.95	7	-0.41	8
Chile	28.01		46.24		na		34.69	25	12.82	22	5.70	15
Colombia	20.27	3	21.27	3	19.84	2	9.96	16	6.42	12	7.90	18
Costa Rica	47.04	21	42.27	17	38.91	15	-5.11	1	-2.33	6	0.43	9
Ecuador	22.20	6	21.47	4	20.09	3	8.00	11	5.71	11	-6.24	3
Guatemala	21.97	5	24.61	6	25.22	7	8.78	13	5.44	10	-3.17	5
Hong Kong	70.43	25	120.45	25	175.98	25	29.51	24	9.52	16	16.91	25
India	37.64	16	40.16	15	45.27	18	6.86	8	11.00	18	8.13	20
Indonesia	16.59	2	18.87	2	27.06	9	-2.06	3	11.33	19	16.22	24
Kenya	32.04	12	29.87	9	28.94	10	7.74	10	3.35	8	4.83	14
Korea, Rep.	32.50	13	35.50	14	36.73	14	12.53	20	12.30	21	11.82	22
Malaysia	51.54	22	58.98	22	68.93	22	22.91	23	16.30	25	8.10	19
Mexico	31.39	11	30.09	10	26.76	8	10.26	17	-9.57	1	-0.92	7
Pakistan	41.24	19	41.51	16	42.75	17	9.07	14	10.05	17	9.97	21
Peru	23.33	7	27.41	7	22.70	5	8.44	12	5.37	9	-7.75	2
Philippines	21.11	4	22.81	5	21.86	4	11.61	19	-4.34	5	-11.51	1
Singapore	64.64	23	69.00	23	81.18	23	18.81	22	13.31	23	3.10	11
Sri Lanka	31.22	10	31.10	12	30.79	12	3.49	6	7.52	14	6.68	16
Taiwan	65.27	24	83.42	24	123.06	24	4.01	7	15.71	24	17.40	26
Thailand	37.83	17	49.56	21	62.70	21	7.65	9	18.49	26	12.14	23
Tunisia	41.77	20	44.53	19	48.28	20	9.79	15	11.36	20	3.90	13
Turkey	24.79	8	30.60	11	30.32	11	1.63	5	7.52	13	7.23	17
Uruguay	40.15	18	48.57	20	46.49	19	17.30	21	8.05	15	-1.23	6
Venezuela	35.74	15	42.32	18	41.49	16	-1.54	4	-4.45	4	3.55	12
Zimbabwe	33.32	14	29.71	8	31.09	13	11.26	18	-5.61	3	0.98	10

(a) For the definition of variables and data coverage see text and Table A1. The percentage numbers are arithmetic averages of the period. The highest rank is given to the country with the best possible capital market conditions, i.e. the highest M2 and BC.

Source: See text.

sample means. It is interesting to observe that relatively slow-growing economies like Brazil, Colombia, Ecuador, and the Philippines had ratios of less than 25 per cent (1979-1988) and fast-growing countries (Hong Kong, Taiwan, and Singapore) above 60 per cent. Except in the cases of Indonesia and Costa Rica, there has been hardly any major change in the rankings of the sample countries during the period examined in this study.

In contrast to financial deepening, growth of bank credit to private investors in the sample countries as a whole has slowed down from period to period. There are only a few major exceptions such as Indonesia, Sri Lanka, Taiwan, Thailand, and Turkey where bank credit to the

Table 14 - Indicators of Capital Market Conditions, 1979-1988: Current Account Balance as a Ratio of GDP (per cent) (a)

	CAB		
	1979-1981	1982-1984	1985-1988
Argentina	-2.45	-3.69	-3.44
Brazil	-4.62	-3.02	-0.34
Chile	-9.12	-8.71	-5.02
Colombia	-1.48	-6.42	-0.92
Costa Rica	-14.39	-9.15	-6.46
Ecuador	-6.57	-3.98	-2.63
Guatemala	-3.90	-3.65	-3.54
Hong Kong	-3.04	-0.35	4.07
India	-0.82	-1.15	-1.99
Indonesia	1.82	-5.06	-2.89
Kenya	-9.70	-2.60	-3.47
Korea, Rep.	-7.19	-2.34	4.74
Malaysia	-2.24	-10.01	2.83
Mexico	-5.51	0.82	0.73
Pakistan	-4.27	-2.28	-2.82
Peru	-0.91	-4.04	-2.47
Philippines	-5.31	-6.69	0.18
Singapore	-10.57	-4.68	2.05
Sri Lanka	-11.07	-6.84	-6.01
Taiwan	-0.20	8.29	15.62
Thailand	-7.14	-5.07	-1.78
Tunisia	-4.34	-8.31	-3.15
Turkey	-3.79	-2.80	-0.84
Uruguay	-5.32	-2.04	-0.89
Venezuela	4.91	2.64	-1.66
Zimbabwe	-5.68	-6.55	-0.23

(a) Period averages; for the definition of variables and data coverage, see text and Table A1.

Source: See text.

private sector has been expanded considerably. Nonetheless, there are strong variations among the sample countries. On the one hand, there are countries like Hong Kong, Malaysia, Taiwan, Thailand, Korea, and Singapore having an annual average growth of more than 10 per cent during the total period. The cases of Argentina and Chile are somewhat different. Here, the high growth of bank credit during the initial years has been reduced considerably. On the other hand, the Philippines, Costa Rica, Venezuela, Brazil, Zimbabwe, and Mexico had negative rates

of growth for the period as a whole. The contraction of bank credit in some of these countries is a result of policies to meet other macro-economic goals such as the reduction of inflation.

As far as the current account balance is concerned, almost all sample countries were faced with a deficit in the first period, Indonesia and Venezuela being the only exceptions due to their oil exports. By the end of the 1980s, quite a few countries, especially in South and Southeast Asia (Taiwan, Korea, Hong Kong, Malaysia, and Singapore), no longer absorbed foreign savings but rather were exporting their own savings as shown by their current account surpluses. Because surplus countries cannot be assumed to suffer from foreign exchange shortages, CAB is not considered for the subsequent country grouping.

Taking the two remaining indicators of capital market conditions (M2 and BC) and the three subperiods into account, the sample countries can be divided into the following three groups according to total ranking points given in parentheses:

- poor capital market conditions (less than 40 per cent of the total 153 ranking points): Brazil (20), Ecuador (38), the Philippines (38), Peru (42), Guatemala (46), Colombia (54), Mexico (54), Indonesia (59), Argentina (60);
- moderately distorted capital market conditions (40-65 per cent): Kenya (63), Turkey (65), Zimbabwe (66), Venezuela (69), Costa Rica (69), Sri Lanka (70), India (95), Uruguay (99);
- conducive capital market conditions (more than 65 per cent): Korea (104), Pakistan (104), Tunisia (107), Thailand (117), Singapore (125), Taiwan (129), Malaysia (133) and Hong Kong (140).[1]

Most of the countries with conducive capital market conditions are found in East and Southeast Asia. They rank high with respect to other determinants of private investment as well (Chapters III and IV). As a result, the average private investment ratio of the countries of this group was 17.2 per cent in 1979-1988 as compared to 11.1 per cent in the countries with poor capital market conditions, most of which are from

[1] Chile has not been included in this grouping due to the missing value of M2 for the period 1985-1988.

Latin America.[1] This comparison strengthens the hypothesized relationship between investment and capital market variables selected for regression analysis.

[1] The average of FDI in the latter group (US$526 million) was higher than in the former group (US$487 million) because it includes many countries highly endowed with natural resources (Brazil, Indonesia, the Philippines, Mexico, Argentina) and the other group includes Taiwan, which has become a net exporter of FDI.

VI. The Role of Labour Markets

1. Theoretical Considerations

Labour markets are the source of two essential factors of production, unskilled labour and human capital. As argued in Chapter II, a country's endowment with human capital is a binding constraint for economic development since this factor of production is only partially mobile across borders. By contrast, most developing countries are endowed abundantly with respect to unskilled labour.[1] Given an elastic supply of unskilled labour, economic development may still suffer from labour market distortions which lead to labour costs in excess of the equilibrium wage rate. Both effects will be discussed in the following.

Theoretically, the interrelationship between distortions in labour markets and the ability of an economy to fully exploit its investment potential is relatively straightforward. Generally speaking, the more difficult or rather more costly it is - relative to the value of labour's output - to efficiently tap the labour endowment of an economy, the lower the willingness of entrepreneurs to invest.[2] Private investment is thus reduced and/or channelled into more profitable - because less distorted - foreign operations (for an overview, see Krueger [1974; 1983]).

As far as domestic investors are concerned, they are more often confronted with the decision how or whether to invest domestically rather than internationally (see Chapter II). To the extent that domestic investors do decide to invest locally, distortions in labour markets - causing the relative price of labour to increase vis-à-vis capital - induce a shift to more capital-intensive methods of production. Such a shift can be considered as reflecting an inefficient allocation of resources, i.e. a move away from a combination of the factors of production in line with a country's factor endowments, with all the implications for competitiveness of such investments in an open economy. It follows that the level of do-

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[1] Average growth rates of the population in the sample countries over the period 1980-1988 (2.0 per cent) ensured that an ample reservoir of marginally employed or unemployed labour was available.

[2] See also Balassa [1988] for a useful summary of evidence on the impact of factor and product market distortions in developing countries.

mestic investment depends on the opportunities open to the investors to substitute capital for labour without jeopardizing profitability.

Foreign investors seeking to establish export platforms in developing countries tend to base their decisions on where efficient production facilities can be established. Hence, major distortions in the labour market of a country are - ceteris paribus - bound to have a far more negative impact on investment flows to that country than on total domestic investment. However, an equally important determinant behind the foreign investors' decision to invest abroad is to be able to profit from the domestic market in those cases where import substitution policies prevail. In such instances it will not tend to be the lack of labour market distortions which lead to investment but rather the potential profits which can be made in large protected domestic markets. [1]

The thrust to incorporate human-capital aspects into the theory dealing with the competitiveness of nations can be attributed to the seminal literature from the 1960s. [2] Becker [1975] broke ground on the micro-level in terms of the entrepreneur's demand for and renumeration of higher levels of human capital. As Becker noted, social benefits prevail, to the extent that education is of a general nature (e.g. attaining literacy). [3] Since these benefits do not fully accrue to those organizations which impart such knowledge, firms will hardly be interested in offering knowledge of this type, but rather rely on national institutions to prepare the groundwork. Countries that are better equipped with human

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[1] The foreign investor's reaction will, of course, be different to the extent that natural resources are to be exploited. That is, in such cases the option to seek a more conducive - that is a less distorted - economic environment usually does not exist. Furthermore, natural resource exploration and exploitation tend to be highly capital intensive so that the impact of labour market distortions can be considered not to be of crucial importance.

[2] See Schultz [1960], Kuznets [1966], and Denison [1967]. It was Denison's results which clearly underlined the impact of education and the advances in knowledge on growth rates of income; 50 per cent of the increases per worker in the USA and about 30 per cent in Europe in the 1950-1962 period can be accounted for by these factors.

[3] The social rate of return has been documented by McMahon [1986]. Among 26 developing countries the social rate of return on primary education amounted to 28 per cent, secondary 17 per cent and higher levels 14 per cent (for comparison's sake the figures for industrial countries were 15 per cent, 11 per cent and 11 per cent, respectively).

capital are attractive locations for investors. Human capital allows to increase total factor productivity and, thereby, profitability. For this reason it can generally be assumed that a positive correlation between human capital levels and I (FDI) exists.

2. Defining the Indicators

a. Labour Market Distortions

For the purpose of this study it will be attempted to analyse the impact of labour market distortions on the competitiveness of a country in terms of those measures which drive a wedge between compensation and the value of output at given productivity levels under (assumed) prevailing factor endowments. The following policy areas are frequently mentioned in the literature:

- policies directly influencing pay levels (e.g. excessive legal or contract minimum wages);
- non-wage, social-policy-induced labour costs (e.g. vacation, maternity and sick leave);
- measures directed toward legally specifying excessive job rights (e.g. employment security);
- collective bargaining arrangements.

Attempts to secure minimum income levels via legislated or contracted wage minima will - when they exceed productivity (i.e. market clearing levels) - reduce the demand for such labour [Squire, 1981]. They primarily result in a shift towards more physical-capital/human-capital-intensive production processes. Both aspects immediately increase labour costs per unit of output and - ceteris paribus - reduce the profitability of investment. While legislated minimum wages in numerous developing countries (particularly in Africa and Latin America) have often been allowed to be eroded by inflation in recent years, the prevalence of excessive contracted minimum wages (particularly in state and foreign-owned enterprises) is still a factor.

Paid vacation as well as paid maternity and sick leave are measures which can imply considerable increases in non-wage labour costs since the remuneration for time not at work must be averaged over time at

work. If wages for time at work are already in line with the value of output, such social policies obviously increase wages above the market-clearing rate. As opposed to minimum wages, however, they are also measures which embody a certain return to the investor in the form of more productive workers, be it due to the ability to relax during vacations, recuperate during sick/maternity leave or just to the better social climate which can be engendered. Notwithstanding such returns, there is little question that investors cannot always be sure that the returns will accrue or whether moral-hazard risks will prevail.

With respect to job rights and collective bargaining arrangements the degree of direct accountability to unit labour costs and hence to an impact on the willingness to invest becomes difficult. If job security means that releasing an employee is extremely difficult, time-consuming and expensive in terms of additional compensation, then employers will invest and employ all the less, the tighter such restrictions are. To the extent that investment is still undertaken it will definitely be labour saving in order to avoid the incalculable mortgage implied by each employment contract [Spinanger, 1984].

With reference to the regulatory framework within which labour markets function, there can be little doubt that an efficient codex, specifying permitted actions and reactions on the part of employers and employees, can help to avoid the negative impact of industrial disturbances on investment activities. This can be assumed to be all the more relevant if generally accepted impartial arbitration procedures can be called upon. In other words, what matters is the predictability of implications of specific actions and reactions. However, in many countries a regulatory framework in line with the above principles does not exist, or the existing framework permits breaches and reveals biased treatment. Under such conditions investment behaviour will be negatively influenced.

In line with the above discussion it is assumed that distortions of wage and non-wage labour costs can be imputed into an indicator of unit labour costs. In addition, an indicator of the socio-political framework is required which can capture the impact of the socio-political environment on wage levels and investment behaviour. For the purpose of this study the following variables were specified:

dW (-) : is used to represent labour market distortions causing wages to deviate from equilibrium levels. The variable dW has been calculated from the ratio of earnings to value added (W) in the manufacturing industry [World Bank, d, 1990; UNIDO, d].

To estimate dW, the following regression equation was specified:

W = f (CII, LII, ED2, S1D),

thereby (expected signs in parentheses):

W : earnings in per cent of value added in manufacturing industry;

CII (-) : share of value added from six industries classified as definitely capital-intensive[1] in total manufacturing value added;

LII (+) : share of value added from six industries classified as definitely labour-intensive[1] in total manufacturing value added;

ED2 (?) : share of students enrolled in secondary schools as per cent of corresponding population cohort;[2]

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[1] Based on Spinanger [1987] where it was shown that certain industries remain relatively capital/labour intensive over countries and through time. The six industries designated as being CII or LII in this study are based on analyses of factor intensity indicators covering Korea, Malaysia, the Philippines, Singapore, Taiwan, and the USA for years around 1970 and 1980. The CII industries were (ISIC classification in parentheses) food products (311), industrial chemicals (351), petroleum refineries (353), other non-metal mineral products (369), iron and steel (371), and non-ferrous metals (372). The LII industries were clothing (322), leather products (323), footwear (324), furniture and fixtures (332), electrical machinery (383), and other manufactures (390). Due to difficulties in procuring consistent data for all years, available data for 1975, 1980, and 1986 were interpolated (or rather extrapolated to 1987). It might be noted that the 3-digit ISIC classification is comprised of about 30 industries, hence an extremely high simple correlation coefficient between CII and LII does not prevail.

[2] This variable in essence removes any possible impact stemming from ED2 which will also be included as a variable in the ensuing regression analysis.

S1D (-) : strike dummy adjusting for impact of exceptionally high levels of strike activities (S1D=1).[1]

These calculations were necessary knowing that W is strongly influenced by the structure of production (i.e. relative importance of capital/labour-intensive industries), levels of human capital (i.e. productivity differences) and non-wage factors attributable to the socio-political environment.

The residuals of these cross-country regression estimates[2] (i.e. actual minus estimated W values) became dW; if they are positive (negative) they are interpreted as lying above (below) equilibrium levels. Concerning the impact on investment, above-equilibrium labour costs are assumed to be detrimental. Labour costs below equilibrium levels also indicate a distortion. They are welfare decreasing, but may nonetheless increase the short-term profitability of private investment. In this context it is necessary to note that the estimates of dW may be flawed. When countries encourage the use of capital-intensive techniques of production in all industries, CII will not capture this effect, and dW becomes negative although it may actually be positive (or zero). Similarly, dW is misleading when all industries of a country are relatively more labour-intensive than in other comparable countries of the sample.

S1 (-) : is used to pick up those factors not being captured in the wage distortion indicator, which were described above as relating to the socio-political environment. Two variables were considered. The first variable (S1) was constructed from information on the number of strikes and lockouts during a given year divided by the total number of workers (in 1,000s) in the manufacturing sector. A second variable (S2) was defined as work days lost in per cent of total work days

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[1] Since statistics on strikes are less than complete it was not possible to include an appropriate strike variable to cover all countries. Hence, knowing that the strike activities in the missing countries (Table A1) exceeded those levels in the best countries in the sample, it was possible to at least achieve a partial adjustment for exceptionally low levels of strike activities.

[2] The regression produced the following result: W = 40.75 - .26 CII + .60 LII - .15 ED2 - 5.64 S1D. All four variables in the regression were significant at a 2 per cent level. CII, ED2, and S1D each accounted for roughly 20 per cent and LII for about 40 per cent of the explained variance ($\bar{R}^2$ = .30).

in the manufacturing industry. While it might be considered even more relevant than S1 in capturing the overall impact of strikes and the socio-political environment, it was decided to use S1 basically because of the number of observations. It was assumed that a strike variable most openly and accurately captures the ramifications of both wide-sweeping social legislation as well as a non-effective regulatory framework. Both S1 and S2 are drawn from ILO [various issues].

b. Human Capital

Defining the endowment with human capital in an economy can be accomplished in various ways. What matters for investors is, first, the general level of education of the labour force, in particular literacy and numeracy. These basic educational attainments also have a bearing on work attitudes such as punctuality and sense of accomplishment. The general level of education differs among countries but hardly changes substantially over time, at least not in a decade. For this reason, such variables would not be very useful for the present analysis. In addition to general education, locational advantages accrue from the availability of skilled labour ranging from basic skills required of secretaries or foremen to higher skills required, for example, of engineers. Such skills can be acquired through vocational training and/or higher formal education. Since no information is available with respect to vocational training, endowment with human capital can only be approximated by participation rates in formal educational institutions. Among the various possible indicators, secondary school enrollment ratios (ED2) were chosen to represent the internationally immobile part of human capital which was assumed to determine locational advantages (Chapter II). These ratios pertain to the younger age cohorts of the labour force, but are taken as proxies for the total availability of skills.

ED2 (+) : is calculated as a ratio between secondary school enrollees in per cent of the respective population age cohort. The data were drawn from: [World Bank, d, 1990; UNESCO, various issues; Republic of China, d].

3. Empirical Evidence

Table 15 contains the simple (Pearson) correlations between these variables and the dependent variables, as well as between the independent variables. The correlations between dW as well as S1 and the dependent variables are mixed. Whereas in the case of I they are statistically insignificant, they possess the correct sign and are significant in case of FDI. The insignificant correlation between I and dW seems to puzzle. However, it should be remembered that the possibility was considered that distortions in factor and product markets could cause domestic investors to substitute capital for labour and to invest in

Table 15 - Pearson Correlation Coefficients for Indicators of Labour Market Distortions and Human Capital Endowment, 1979-1988 (a)

	Labour market distortions			Human capital endowment
	dW	S1	S2	ED2
Dependent				
I	-.04 (233)	.04 (201)	-.16* (189)	.40** (237)
FDI	-.31** (235)	-.17** (202)	.05 (192)	.06 (238)
Independent				
dW	1 (235)	.09 (196)	-.09 (184)	.00 (235)
S1		1 (203)	.92** (185)	.10 (198)
S2			1 (192)	.14* (186)
ED2				1 (238)

(a) For the definition of variables and data coverage, see text and Table A1; number of observations in parentheses; **(*) denotes significance at the 1(5) per cent level.

Source: Own calculations.

capital-intensive manufacturing processes. Foreign investors definitely prefer to invest where labour market distortions are lower. Hence the hypothesized, somewhat differentiated behaviour between domestic and foreign investors receives initial empirical support.

The human capital indicator is strongly correlated with I as expected. The insignificant correlation of ED2 with FDI is possibly due to the fact that labour market characteristics tend to be less important for FDI in natural resources or import-substituting activities.

The values for dW, S1, S2, and ED2 have been listed for three time periods in Tables 16-18. Under ideal conditions the variable dW captures deviations from equilibrium labour costs. These deviations varied con-

Table 16 - Indicators of Distortions in Wages: dW (a)

	1979-1981		1982-1984		1985-1988	
Argentina	-2.88	16	-6.62	21	-6.24	19
Brazil	-11.02	24	-14.67	26	-19.88	26
Chile	-3.73	17	-2.57	15	-4.12	14
Colombia	-12.47	25	-10.13	24	-7.88	21
Costa Rica	14.26	2	15.47	3	21.52	1
Ecuador	5.99	7	15.76	2	10.37	5
Guatemala	-5.91	20	-5.04	18	-6.14	18
Hong Kong	-0.06	2	1.98	10	6.09	7
India	17.13	1	16.83	1	13.19	2
Indonesia	-10.81	23	-8.25	23	-1.58	13
Kenya	7.55	6	9.33	5	9.05	6
Korea, Rep.	-1.91	14	0.65	11	-5.61	16
Malaysia	-4.51	19	4.05	9	3.81	8
Mexico	0.44	11	-4.69	17	-6.24	20
Pakistan	-4.02	18	-2.51	14	-0.29	12
Peru	-13.34	26	-5.74	20	1.23	11
Philippines	-2.11	15	-6.97	22	-9.40	24
Singapore	-6.57	22	-4.20	16	-9.05	23
Sri Lanka	-1.39	13	-5.39	19	-8.80	22
Taiwan	13.02	3	14.02	4	12.58	3
Thailand	-6.35	21	-10.24	25	-12.31	25
Tunisia	8.00	5	7.86	7	10.37	4
Turkey	3.64	9	-0.48	12	-5.87	17
Uruguay	4.64	8	-1.35	13	-4.18	15
Venezuela	3.02	10	4.79	8	3.17	10
Zimbabwe	8.16	4	8.13	6	3.26	9

(a) Arithmetic averages and ranks; for the definition of variables and data coverage, see text and Table A1.

Source: See text.

Table 17 - Indicators of Socio-Political Distortions in Labour Markets: S1 and S2 (a)

	S1						S2					
	1979-1981		1982-1984		1985-1988		1979-1981		1982-1984		1985-1988	
Argentina	na		na		na		0.22	11	1.35	4	154.11	1
Brazil	1.88	19	6.11	14	20.80	9	na		na		na	
Chile	14.32	10	7.88	13	7.49	15	0.24	9.5	0.06	12	0.09	13
Colombia	40.87	7	31.50	7	8.90	12	0.00	19	0.00	18.5	0.00	19.5
Costa Rica	30.53	9	14.57	10	12.77	10	0.82	5	0.91	5	0.17	11
Ecuador	66.00	3	96.59	3	73.15	2	1.95	3	2.00	3	1.53	4
Guatemala	25.40		na		na		0.23		na		na	
Hong Kong	4.92	17	2.17	17	0.97	18	0.01	15.5	0.00	18.5	0.00	19.5
India	47.85	6	37.70	6	28.78	6	3.85	2	4.31	2	2.39	3
Indonesia	13.48	13	10.90	12	3.69	17	0.02	13.5	0.01	14.5	0.06	14
Kenya	50.58	5	54.52	4	60.77	3	0.09	12	0.09	11	0.26	8
Korea, Rep.	7.00	16	3.74	16	40.59	5	0.00	19	0.00	18.5	0.44	6
Malaysia	7.37	15	4.92	15	4.53	16	0.01	15.5	0.01	14.5	0.02	16.5
Mexico	51.11	4	40.71	5	8.88	13	0.24	9.5	0.17	10	0.03	15
Pakistan	13.92	11	12.37	11	7.62	14	0.67	6	0.55	7	0.19	10
Peru	996.51	1	889.83	1	893.79	1	16.00	1	14.64	1	13.48	2
Philippines	10.33	14	16.29	9	26.93	7	0.38	7	0.52	8	0.70	5
Singapore	0.34	20	0.33	19	0.33	19.5	0.00	19	0.00	18.5	0.00	19.5
Sri Lanka	126.44	2	105.40	2	56.93	4	0.87	4	0.89	6	0.25	9
Taiwan	0.05	21	0.04	21	0.04	21	0.00	19	0.00	18.5	0.00	19.5
Thailand	2.51	19	1.02	18	0.33	19.5	0.02	13.5	0.02	13	0.02	16.5
Tunisia	na		na		129.37		na		na		0.12	
Turkey	13.73	12	0.18	20	9.57	11	0.00	19	0.00	18.5	0.29	7
Uruguay	na		na		na		na		na		na	
Venezuela	36.00	8	17.69	8	23.24	8	0.34	8	0.29	9	0.10	12
Zimbabwe	95.09		35.27		na		0.06		0.03		na	

(a) Arithmetic averages (per cent) and ranks; for the definition of variables and data coverage, see text and Table A1.

Source: See text.

Table 18 - Human Capital Indicators: ED2 (a)

	1979-1981		1982-1984		1985-1988	
Argentina	56.50	19	61.17	18	72.67	22.5
Brazil	34.33	9	34.67	7.5	37.00	5
Chile	55.67	18	62.33	19.5	71.75	21
Colombia	45.67	12	47.00	13	54.67	13
Costa Rica	47.33	13.5	44.00	12	41.67	8
Ecuador	53.00	17	54.00	15	55.67	16
Guatemala	16.00	3	17.00	2	18.00	2
Hong Kong	63.00	24	68.00	23	70.00	20
India	31.33	8	34.67	7.5	37.33	6
Indonesia	28.00	6	37.00	9	45.00	10
Kenya	17.67	4	19.33	3	20.33	3
Korea, Rep.	78.33	26	86.67	26	94.75	26
Malaysia	50.33	15.5	51.00	14	55.33	15
Mexico	47.33	13.5	54.33	16	55.00	14
Pakistan	14.00	2	16.00	1	17.67	1
Peru	58.67	20	62.33	19.5	65.67	17.5
Philippines	62.33	23	67.00	21	66.75	19
Singapore	59.67	21	68.33	24	74.67	24
Sri Lanka	50.33	15.5	59.00	17	65.67	17.5
Taiwan	78.20	25	85.05	25	91.14	25
Thailand	28.67	7	30.17	4	29.33	4
Tunisia	27.33	5	33.67	6	39.33	7
Turkey	36.50	10	38.00	10	44.00	9
Uruguay	60.67	22	67.33	22	72.67	22.5
Venezuela	39.33	11	43.67	11	46.00	11
Zimbabwe	10.33	1	30.67	5	46.25	12

(a) Arithmetic averages (per cent) and ranks; for the definition of variables and data coverage, see text and Table A1.

Source: See text.

siderably among subperiods, but on average they were relatively low in Hong Kong, Korea, and Pakistan. Excessive labour costs were consistently observed in Costa Rica, Ecuador, India, Kenya, and Tunisia. The distortion estimated for Taiwan reveals a weakness of the proxy already discussed in Section VI. 2. The Taiwanese manufacturing sector is across the board more labour-intensive than manufacturing industries in countries at a similar level of development due to a high share of small and medium-scale industries [Wu, Chou, 1988]. This implies a larger wage share in value added in Taiwan which cannot be captured in the regression estimating dW.

Negative deviations from equilibrium labour costs were considered as conducive to investment. However, in some cases, especially in Brazil, the negative deviations were overestimated because of the high average capital-intensity of manufacturing (as was pointed out in Section VI.2).

Table 17 reveals the degree of socio-economic distortions as measured by the occurance of strikes and lockouts. Not surprisingly, the emerging pattern is rather stable over time. A favourable socio-economic environment is indicated for Hong Kong, Singapore, Taiwan, and Thailand. The opposite group comprises Ecuador, Peru, and Sri Lanka.

The human capital endowment shown in Table 18 was high in East and Southeast Asian countries (except for Indonesia and Thailand), but also in Argentina, Chile, and Uruguay. Low values were observed in Guatemala, Kenya, and Pakistan, in accordance with the level of development of these countries. The case of Zimbabwe proves that a government's devotion to education can substantially improve the supply of human capital. When skills are acquired by vocational rather than formal training, ED2 underestimates the human capital endowment such as in Brazil (for details, see Spinanger [1988]).

Combining the ranking points of dW, S1, and ED2 from Tables 16-18 in order to determine how the individual countries rank with respect to the attractiveness of their labour market conditions, the following picture emerges:

- least attractive labour market conditions (less than 40 per cent of a maximum of 219 ranking points): Kenya (39), India (43.5), Costa Rica (68.5), Ecuador (70), Pakistan (84), Venezuela (85);
- medium attractive (40-65 per cent): Turkey (110), Sri Lanka (112), Mexico (113.5), Peru (117), Indonesia (126), Malaysia (126.5), Colombia (134), Brazil (139.5);
- most attractive labour markets (more than 65 per cent): Thailand (142.5), Chile (142.5), Hong Kong (148), Taiwan (148), the Philippines (154), Korea (156), Singapore (188.5).

The picture drawn here more clearly reveals a possible source of competitiveness in the fast-moving Asian economies of Hong Kong, Singapore, Taiwan, and Korea. If more weight were to be placed on the socio-political influences the picture could be sharpened. This is underlined by Edgren [1990], who notes that the foreign investment activities throughout Asia have been affected by government policies towards the

utilization of capital and labour, whereby unions have had little influence in shaping the policy environment. The other side of the coin is portrayed by Latin America [Bronstein, 1990], where unions and governments have long since instituted highly distorting labour codes, which - inter alia - attempt to guarantee permanent employment by making dismissal difficult or at least very costly.

VII. Mineral Resource Endowment

It has been acknowledged since long that the availability of natural resources such as minerals or oil is another determinant of comparative advantages in production and trade which developing countries may possess [see e.g. Chenery, 1964]. The exploitation and processing of mineral reserves can, therefore, be attractive for both domestic and foreign investors (see also Chapter II).

Measuring the mineral resource endowment of individual countries entails the twofold task of quantifying total known reserves and of tracing changes of the values of these reserves over time (for an analysis of measurement problems, see Brown and Field [1978]). Studies explaining the international division of labour among countries have usually employed either gross output of the mining sector or the value of mineral exports as proxies (for a summary, see Sautter [1983, pp. 137-138]). Using these proxies implies the heroic assumption of a fixed ratio between output or exports and reserves. Furthermore, output and exports are the consequences of investment activities rather than their cause.

For these reasons, it was decided to estimate the mineral reserve endowment based on information about known reserves and world market prices. The German "Bundesanstalt für Geowissenschaften und Rohstoffe" had undertaken several surveys of known mineral reserves in the early 1980s which give quantities of reserves for all major minerals including oil and natural gas on the condition that they could be exploited economically at the prevailing level of world market prices [Schmidt, Kruszona, 1982; Bundesanstalt für Geowissenschaften und Rohstoffe, 1989]. The value of total reserves (R) for individual countries and years was, then, obtained as the sum of the quantities multiplied with respective world market prices. Furthermore, separate calculations were made for reserves of oil and natural gas (RO) and other mineral resources (RM). The quantities reflect the mining technology and the price level of the early 1980s. Since quantities were not changed over time, variations of the value of reserves only reflect changes of world market prices. This implies a certain weakness of the variable since quantities may also change over time.

The hypothesis stipulated in this study is that a value differential of known reserves across countries or higher values over time attract

Table 19 - Pearson Correlation Coefficients for Indicators of Mineral Resource Endowment, 1979-1988 (a)

	R	RO	RM
Dependent			
I	-.13* (256)	-.09 (256)	-.11* (256)
FDI	.48** (259)	.34** (259)	.42** (259)
Independent			
R	1 (260)	.18** (260)	.98** (260)
RO		1 (260)	-.02 (260)
RM			1 (260)

(a) For the definition of variables and data coverage, see text and Table A1; ** (*) denotes statistical significance at the 1 (5) per cent level.

Source: Own calculations.

investment in exploiting and processing activities which could stimulate additional investment in other economic areas through linkages. The partial correlation coefficients presented in Table 19 confirm such a relationship for FDI and oil as well as non-oil mineral reserves in a statistically significant way. For total private investment there is a weak negative correlation with the value of non-oil reserves. However, partial correlation coefficients do not describe the underlying economic relationship adequately if there are other independent influences affecting the dependent variables as the subsequent regression analysis will show.

Table 20 shows the total value of known mineral reserves by country and subperiod. Obviously, changes of world market prices affect the total value of reserves but not the countries' relative positions in the sample. Concerning oil and natural gas, Mexico, Venezuela, Indonesia, and Argentina were the leading countries while Brazil, India, and Indonesia had the by far largest reserves of other minerals. A total of six, mostly small countries or city states did not possess any reserves at all.

Table 20 - Total Value of Known Mineral Reserves (US$ million and ranks)

	All reserves (R)						Oil & natural gas (RO)						Other mineral reserves (RM)					
	1979-1981		1982-1984		1985-1988		1979-1981		1982-1984		1985-1988		1979-1981		1982-1984		1985-1988	
Argentina	136560	17	160895	19	114092	18	128881	23	153892	23	107938	23	7679	13	7002	13	6154	13
Brazil	6585242	26	6167631	26	7665239	26	38662	16	45077	16	28167	15	6546580	26	6122554	26	7637072	26
Chile	356270	21	298455	21	280957	21	17027	13	20246	13	13929	13	339243	23	278209	23	267028	23
Colombia	262355	20	250111	20	211131	20	39013	17	46443	17	32129	18	223343	22	203668	22	179002	22
Costa Rica	0	3.5	0	3.5	0	3.5	0	4.5	0	4.5	0	4.5	0	5	0	5	0	5
Ecuador	39400	11	46461	11	30730	11	39400	18	46461	18	30730	17	0	5	0	5	0	5
Guatemala	482	7	558	7	335	7	482	9	558	9	335	9	0	5	0	5	0	5
Hong Kong	0	3.5	0	3.5	0	3.5	0	4.5	0	4.5	0	4.5	0	5	0	5	0	5
India	3223956	25	2899420	25	3573013	25	112225	21	131944	21	86012	21	3111731	25	2767475	25	3487001	25
Indonesia	1842496	24	1691091	23	1942596	24	317103	24	372119	24	240315	24	1525393	24	1318971	24	1702281	24
Kenya	0	3.5	0	3.5	0	3.5	0	4.5	0	4.5	0	4.5	0	5	0	5	0	5
Korea, Rep.	5136	8	4681	8	4125	8	0	4.5	0	4.5	0	4.5	5136	11	4681	11	4125	11
Malaysia	139128	18	157355	18	107068	17	118055	22	139864	22	94607	22	21073	15	17491	15	12461	15
Mexico	1496811	23	1715633	24	1106996	23	1378866	26	1609886	26	1011168	26	117944	19	105748	20	93829	19
Pakistan	55469	13	65805	13	51903	14	48745	19	59673	19	46513	20	6724	12	6132	12	5389	12
Peru	92649	15	80320	15	79683	15	19716	14	23056	14	14630	14	72933	18	57264	18	65054	18
Philippines	131105	16	89550	16	106951	16	520	10	602	10	362	10	130585	20	88948	19	106588	20
Singapore	0	3.5	0	3.5	0	3.5	0	4.5	0	4.5	0	4.5	0	5	0	5	0	5
Sri Lanka	0	3.5	0	3.5	0	3.5	0	4.5	0	4.5	0	4.5	0	5	0	5	0	5
Taiwan	13839	10	13485	10	11534	10	2766	11	3391	11	2657	11	11073	14	10094	14	8877	14
Thailand	51101	12	54352	12	41952	12	29607	15	36478	15	29154	16	21493	16	17874	16	12798	16
Tunisia	58517	14	68937	14	45382	13	58517	20	68937	20	45382	19	0	5	0	5	0	5
Turkey	12150	9	13299	9	9240	9	8607	12	10069	12	6401	12	3542	10	3230	10	2839	10
Uruguay	0	3.5	0	3.5	0	3.5	0	4.5	0	4.5	0	4.5	0	5	0	5	0	5
Venezuela	638645	22	742250	22	481871	22	614270	25	720021	25	462335	25	24376	17	22228	17	19536	17
Zimbabwe	162978	19	135192	17	153702	19	0	4.5	0	4.5	0	4.5	162978	21	135192	21	153702	21

Source: Schmidt, Kruszona [1982]; Bundesanstalt für Geowissenschaften und Rohstoffe [1989]; Metallgesellschaft [various issues]; UNCTAD [1989]; BMWi [a; b]; Republic of China [a, 1981].

VIII. Regression Analysis

1. The Econometric Model

In setting out the initial overall specification of the model in equation [9] (Section II.5), private investment behaviour was posited as depending on the present level of and future changes in key prices, factor/product market distortions, and the endowment with immobile complementary factors:

- Concerning the macroeconomic environment, four key variables were chosen for the regression analysis. Domestic price changes ($d\hat{p}^d$) are to be captured by INF while exchange rate movements (de) are represented by VOL. The expectations of economic agents are further reflected in the governments' budget stance portrayed by BUD and future supply of foreign non-equity capital (ds^w) proxied by DEB.
- With respect to product markets no attempt could be made to differentiate between tariff/tax measures directed towards intermediate goods (t_j and d_j) and those aimed at final products (t_i and d_i). Hence, domestic product market distortions, including those stemming from subsidies (S_i), were assumed to be adequately covered by TD, whereas tariffs were meant to be encompassed by TT. The degree to which governments crowded out private demand for capital is proxied by dPI.
- In capital markets the crucial variables tracking the availability of funds from domestic (s^d) or foreign (s^w) sources were specified as annual changes of bank credit available to the private sector (BC) and the current account balance (CAB), respectively. Some aspects of the regulatory environment (R_c^d) are implicitly captured by these two variables while M2 explicitly measures the degree of financial deepening of the capital market.
- In modelling the labour market, deviations of wages from market clearing levels are conceived as being revealed by dW. The crucial aspect of labour supply (L) is considered to be the educational level of the population, designated as ED2. The frequency of strikes and lockouts (S1) is used to portray the socio-political environment.
- Immobile complementary factors (N) describe primarily the current value of the potentially exploitable natural resources, be they oil (RO)

or other minerals (RM). Moreover, the level of infrastructure necessary to permit national resources to be effectively tapped is deemed to be represented by the trend line of public investment (PI).

Reformulating equation [9] in terms of the above variables yields the following regression equation:

$$
\begin{aligned}
I_{(FDI)} = {} & a_0 + a_1 \underset{(-)}{INF} + a_2 \underset{(+)}{VOL} + a_3 \underset{(+)}{BUD} + a_4 \underset{(-)}{DEB} \\
& \text{(macro-policies)} \\
& + b_1 \underset{(-)}{TD} + b_2 \underset{(-)}{TT} + b_3 \underset{(-)}{dPI} \\
& \text{(product market policies)} \\
& + c_1 \underset{(+)}{BC} + c_2 \underset{(-)}{CAB} + c_3 \underset{(+)}{M2} \\
& \text{(capital market policies)} \\
& + d_1 \underset{(-)}{dW} + d_2 \underset{(+)}{ED2} + d_3 \underset{(-)}{S1} \\
& \text{(labour market policies)} \\
& + e_1 \underset{(+)}{PI} + e_2 \underset{(+)}{RO} + e_3 \underset{(+)}{RM} + u_i . \\
& \text{(complementary immobile factors)}
\end{aligned}
$$

This model is estimated with OLS regressions across all 26 countries in the sample and the time period 1979-1988. A complete data set would thus yield 260 observations. However, as could be seen in the earlier chapters, missing data considerably reduce the number of observations. The most limiting factor is S1 which reduces the sample size to 176 observations. Therefore, regression equations are estimated both including and excluding S1 (214 observations). Table A1 provides the necessary overview of data availability by variables, years and countries, and Table A2 summarizes the specification of variables included in the regressions.

The regression analysis may suffer from multicollinearity problems because of the difficulty to clearly differentiate between the economic impact of closely related variables. A first indication for multicollinearity could be provided by high simple correlation coefficients among independent variables. Table 21 shows that the sample is seemingly free from

Table 21 - Simple Correlations between Independent Variables in Regression Data Set - With (a) and Without (b) Strikes

	Macro-policies				Product markets			Capital markets			Labour markets			Locational factors		
	DEB	VOL	BUD	INF	TD	TT	dPI	M2	BC	CAB	dW	S1	ED2	PI	RM	RO
DEB	-	-.31	-.10	.35	.38	-.11	-.17	-.15	-.16	.04	-.02	.12	.06	-.31	-.07	.25
VOL	-.29	-	.10	-.35	-.09	.06	.27	.14	.18	-.01	.15	-.23	.05	-.00	-.08	-.20
BUD	-.05	.12	-	-.12	-.29	-.52	-.15	.29	.14	.32	.06	-.08	.34	-.31	-.06	-.16
INF	.24	-.28	-.12	-	.32	-.19	-.28	-.37	-.34	.01	-.28	.40	-.06	-.19	.48	.16
TD	.30	-.16	-.27	.32	-	.14	-.16	-.39	-.10	-.14	-.01	.19	-.05	-.26	.12	.16
TT	-.12	.06	-.45	-.15	.05	-	-.04	-.21	-.13	-.22	.04	.21	-.23	.19	-.22	-.11
DPI	-.11	.23	-.17	-.13	-.14	-.05	-	.04	.10	-.27	.12	-.30	-.13	.13	-.00	.09
M2	-.14	.15	.28	-.22	-.37	-.20	.05	-	.28	.40	.26	-.20	.40	-.06	-.25	-.15
BC	-.14	.14	.11	-.28	-.11	-.12	.16	.23	-	-.09	.02	-.09	.09	.03	-.10	-.16
CAB	.04	-.02	.29	.02	-.11	-.23	-.27	.38	-.09	-	.04	-.02	.30	-.06	.00	.14
dW	-.05	.14	-.02	-.21	-.04	.06	.13	.26	.04	.01	-	-.12	.03	-.06	-.09	-.01
S1													.11	-.10	-.08	-.07
ED2	.14	-.00	.29	.12	.03	-.30	-.09	.39	.06	.31	.01		-	-.07	-.24	-.06
PI	-.29	.04	-.28	-.15	-.39	.20	.12	-.02	.09	-.08	.18		-.11	-	-.03	.06
RM	-.07	-.04	-.05	.16	.07	-.21	-.01	-.23	-.07	.02	-.09		-.21	-01	-	-.02
RO	.23	-.18	-.14	.08	.11	-.09	.08	-.13	-.11	.14	-.02		-.04	.08	-.01	-

(a) Above diagonal; 176 observations. - (b) Below diagonal; 214 observations.

Source: Own calculations based on data explained in the text.

such distortions. There are only three coefficients in excess of .40 while most other coefficients are fairly low. This, of course, does not preclude the existence of multicollinearity between a specific variable and the set of variables already within a given regression vis-à-vis the unexplained rest. However, in this connection all regressions carried out are accordingly checked for multicollinearity using standard procedures.[1]

Aside from estimating the basic model across 26 countries and 10 years, there was a need to ensure that the sample countries are drawn from the same population, i.e. to establish that the regressions are not misspecified. The discussion of the international investment environment in Chapter II as well as country-specific experiences presented in Chapters III-VII suggest the necessity to estimate separate regressions for specific subsamples:

- The international investment environment has significantly changed over time. An initial period, 1979-1981, encompasses the second oil price shock and the first bottoming out of the US dollar. In 1982-1984, the debt crisis erupted, and the value of the dollar surged. Finally, the 1985-1988 period is characterized by the rapid dollar devaluation and a resurgence of non-oil primary commodity prices. For these reasons, separate regressions are run for the individual subperiods.
- The sample of 26 countries contains 8 from East and Southeast Asia, 4 from South and West Asia, 3 from Africa, and 11 from Latin America. Experience suggests [e.g. Rodrik, 1990] that investors behave differently depending on the degree of distortions prevailing in an economy. In highly distorted economies such as those in Africa and Latin America expectations play a more important role than in economies with a more rational policy framework such as in East and Southeast

---

[1] The regression analysis is run with the SPSS package, which offers a statistic, entitled tolerance, to check for the existence of multicollinearity. Tolerance is defined as $1-R_i^2$, which is the portion of the variance not explained by the other variables in the regression. R_i^2 is the squared multiple correlation of the ith independent variable when run as a dependent variable against all other independent variables in the regression [Norusis, 1985, pp. 40-41 and 54-55]. It might be noted that in none of the regressions specified below did multicollinearity prove to be a problem. Even if the test applied is not all-encompassing, as none of the standard methods are [Gujarati, 1988, pp. 283-315], and hence a degree of uncertainty still exists that multicollinearity is prevalent, none of the available statistics pointed in this direction.

Asia. The investment response to policy reform may be lagging in highly distorted economies because of credibility problems while any policy improvement is likely to generate additional investment in less distorted economies. Therefore, separate regressions are performed for East and Southeast Asian countries and the rest of the sample.

- The dependent variable FDI comprises different types of investment as was pointed out in Chapter II. It is to be expected that the domestic policy framework is much less important for resource-oriented than for other types of FDI. Since FDI could not be differentiated by investment motives due to lack of data, the sample is broken down into resource-rich and resource-poor countries in order to capture the determinants of FDI. It is assumed that regression results for resource-rich countries[1] reveal the calculus governing resource-oriented FDI.

The above discussion results in the following specifications of the regressions to be examined in the ensuing section:

- 1979-1988 (considered to be the base run);
- 1979-1981, 1982-1984, and 1985-1988;
- East and Southeast Asia and rest of sample;
- resource-oriented FDI and other FDI.

2. Regression Results

a. The Base Run

The results of the regression analysis of I and FDI for all countries and the whole time period - specified with and without S1 - are presented in Table 22.[2] The statistical fit of the base run is fairly good for cross-

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[1] Argentina, Brazil, Chile, Colombia, India, Indonesia, Malaysia, Mexico, Peru, the Philippines, and Venezuela are classified as resource-rich countries (see Table 20). Zimbabwe is excluded from this subsample because the country received hardly any FDI.

[2] In Table 22 and all subsequent tables, t-values of the coefficients (C) are characterized by *** (**,*) in accordance with statistical significance at the 1 (5,10) per cent level. The Beta weights represent each variable's contribution to the explained variance. They are transformed into percentage shares in the sum of their absolute values.

Table 22 - Regression Results for I and FDI over Entire Period 1979-1988

	I with S1			I without S1			FDI with S1			FDI without S1		
	C	t	Beta	C	t	Beta	C	t	Beta	C	t	Beta
Macro-policies												
DEB	0.0815	0.765	1.71	-0.0735	-0.849	1.70	6.7282	0.719	1.44	3.7554	0.540	0.97
VOL	1.1096	5.097***	10.32	1.0330	5.034***	9.64	21.9342	1.148	2.08	12.6289	0.766	1.31
BUD	0.2542	2.686***	7.18	0.2398	2.821***	6.79	0.2288	0.028	0.07	-5.7259	-0.838	1.80
INF	-0.0034	-0.255	0.77	-0.0061	-1.491	3.02	2.6068	2.257**	6.09	0.4641	1.420	2.57
Product markets												
TD	-0.0900	-3.135***	7.68	-0.0887	-3.285***	7.88	-1.4189	-0.563	1.24	-1.2251	-0.565	1.21
TT	-0.0528	-1.387	3.49	-0.0363	-1.080	2.40	-5.3951	-1.615	3.64	-8.2162	-3.044***	6.05
dPI	-0.0583	-2.699***	5.70	-0.0770	-3.901***	7.74	-0.3128	-0.165	0.31	-0.8963	-0.565	1.00
Capital markets												
M2	0.0490	3.332***	8.83	0.0491	3.490***	8.55	9.1032	7.051***	16.74	8.1985	7.251***	15.85
BC	0.0303	1.209	2.47	0.0253	1.339	2.54	-2.0955	-0.953	1.74	-1.6707	-1.098	1.86
CAB	-0.5245	-8.456***	18.76	-0.5266	-8.710***	18.39	-30.7792	-5.656***	11.25	-28.8418	-5.935***	11.19
Labour markets												
dW	-0.1062	-3.172***	6.20	-0.0877	-2.716***	5.19	-18.7147	-6.373***	11.17	-18.9195	-7.291***	12.44
S1	0.0033	1.794*	4.07				-0.1827	-1.148	2.34			
ED2	0.1312	7.575***	16.38	0.1227	7.657***	16.19	2.4980	1.643	3.19	1.9941	1.548	2.92
Locational factors												
PI	0.0875	0.687	1.60	0.1893	1.781*	4.04	35.5272	3.178***	6.62	26.5733	3.109***	6.30
RM	0.0000	0.359	0.85	0.0000	0.652	1.25	0.0002	7.818***	16.64	0.0002	10.827***	18.52
RO	0.0000	1.974*	3.98	0.0000	2.443**	4.67	0.0007	8.540***	15.45	0.0007	9.385***	16.02
Constant	5.3441	2.240**		4.6450	2.167**		-735.1182	-3.512***		-495.6257	-2.876***	
Adjusted R^2	0.6030			0.5634			0.6362			0.6206		
F	17.6113			19.3262			20.1232			24.2269		
Number of observations	176			214			176			214		

Note: For explanation, see text.

Source: Own calculations based on data described in text.

country analyses. All adjusted R^2's are close to .60. The variable S1 does not reveal the expected impact on investment behaviour. S1 is statistically significant but has the wrong sign in the case of total private investment, and it is insignificant in the case of FDI. Furthermore, the exclusion of S1 does not change the signs and the level of significance of the other independent variables in an important way. Since similar results emerge for regressions based on subsamples, subsequent tables only report regression estimates without S1.

The estimates given in Table 22 support the basic hypothesis of this study that domestic investment can be explained by policy-induced distortions and factor endowments. In each policy category, two independent variables are statistically significant and show the expected sign. The Beta weights indicate that factor market conditions and macroeconomic stability strongly influence the decisions of investors. The highest Beta weights are observed for the current account deficit (CAB) as a proxy for the availability of foreign savings, human capital measured by secondary school enrollment (ED2), and the volatility in the key price of an economy, the exchange rate (VOL). Other factor market conditions which matter for I are the degree of deepening of capital markets, measured by M2, and an appropriate pricing of labour (dW). Stability is not only important on the external front (VOL) but also for the domestic macroeconomic framework as shown by the significant impact of the government budget deficit (BUD).

Taken together, product market distortions show an explanatory power similar to macro-policies, while other locational factors have much lower Beta weights. In product markets, domestic-policy-induced distortions (TD) as well as excessive encroachment of governments on private activities, proxied by dPI, strongly discourage private investment. By contrast, private investment is supported by an adequate supply of infrastructural facilities (PI) and the availability of energy (RO).

All other independent variables have the correct signs but are not statistically significant. Explanations may be sought in shortcomings of the applied proxies as well as in flaws of the assumed theoretical relationships. Trade taxes can obviously not cover all aspects of the foreign trade regime as was already mentioned in Chapter IV. TT underestimates non-tariff trade restrictions, in particular in Latin America. Concerning macroeconomic stability, investors seem to worry more about expected

than actual inflation. Therefore, BUD is significant, but not INF. In the case of the debt variable different explanations are possible. Investors may have been aware of debt problems long before a rescheduling of debt actually occurred. They could have anticipated the deterioration of investment conditions arising from a debt overhang situation and adjusted their investment accordingly. On the other hand, attempts to reduce a debt overhang may have created promising investment opportunities connected to swap operations subsidized by the debtor government. And finally, a debt overhang may not always create a disincentive to invest as argued e.g. by Krueger [1989].

The regression results for FDI in Table 22 reflect some of the major determinants of FDI flows which were expected, taking into account the different objectives of foreign investors. The attractiveness of individual countries depends on the availability of raw materials, domestic finance and cheap labour. The first (RO, RM) is decisive for resource-oriented investment while the latter (dW) is relevant for export-oriented FDI. Both export- and inward-oriented FDI require well-functioning domestic capital markets (M2) and an assured supply of imported intermediate inputs (CAB). An adequate supply of infrastructure (PI) tends to benefit all types of investment.

However, the relatively large number of insignificant variables seems to indicate that the actual impact of the economic policy framework is obscured by lumping different types of FDI together. In particular, it is unlikely that macroeconomic conditions or the human capital endowment should not enter into the decisions of foreign investors in manufacturing activities. Likewise, product market distortions can attract inward-oriented FDI, but will discourage export-oriented investors.

These considerations confirm the necessity to run separate regression estimates for various subsamples as was suggested in Section VIII.1. Table 23 shows that this is not only required for FDI, but also for I. The F-statistics from Chow tests[1] reveal that regression estimates by time periods and regions differ significantly from the base run.

---

[1] The F-statistic of a Chow test is calculated from following the formula

$$F = \frac{S5}{S4/(N_1+N_2-2k)},$$

Table 23 - Testing for the Statistical Significance (a) of Differences between Two Regressions within Total Sample: F-Statistics from Chow Tests

Estimate criteria	I	FDI
Time periods:		
1979-1981	1.51*	1.28
1982-1984	1.13	0.89
1985-1988	2.13**	2.94***
Regions:		
East/Southeast Asia(b)	18.74***	8.23***
Resource rich(c)		25.51***
Resource poor(d)		6.78***

(a) Identifiers for level of significance: *** = 1 per cent (F=2.11); ** = 5 per cent (F=1.72); * = 10 per cent (F=1.51). All regressions are estimated without S1. - (b) Applies analogously to rest of sample. - (c) Includes RM and RO. - (d) Excludes RM and RO.

Source: Own calculations based on data explained in text.

b. The Impact of the International Economic Environment

The U-shaped development of total private investment shares in GDP and the steep decline of FDI in developing countries in the 1980s suggest that exogenous factors play a role in the explanation of investment behaviour (see Chapter II). Exogenous factors may be sought in the international economic environment of developing countries (Section VIII.1). The realignment of exchange rates, the emergence of the debt crisis and commodity price fluctuations come to mind. The importance of such influences is tested by running separate regression estimates for the three subperiods 1979-1981, 1982-1984, and 1985-1988.

Concerning total private investment (Table 24), the goodness of fit substantially declines over time. The best fit is obtained for the 1979-

whereby S4 is the difference between the residual sum of squares of the specified breakdown and the rest of the sample, while S5 is the difference between the residual sum of squares of the total sample and S4. k is the number of parameters and N_1 (N_2) the number of observations in the specified breakdown (rest of sample).

Tabelle 24 - Regression Results for I Based on Three Time Periods

	1979-1981			1982-1984			1985-1988		
	C	t	Beta	C	t	Beta	C	t	Beta
Macro-policies									
DEB	0.5156	0.769	1.90	0.1842	0.667	2.63	-0.0982	-0.685	4.45
VOL	0.7399	2.567**	6.60	1.5788	3.898***	14.88	1.0215	1.719*	8.51
BUD	0.1009	0.921	2.93	0.4102	2.202**	10.51	0.1542	0.770	5.17
INF	-0.0182	-1.086	3.49	0.0009	0.135	0.50	-0.0113	-1.644	8.54
Product markets									
TD	-0.1600	-4.260***	12.06	-0.1057	-1.742*	9.47	0.0194	0.338	2.23
TT	-0.0242	-0.528	1.72	0.003	0.053	0.20	-0.1212	-1.634	9.29
dPI	-0.1286	-5.051***	12.24	-0.022	-0.468	2.12	-0.0485	-1.084	5.75
Capital markets									
M2	0.1032	3.151***	9.60	0.0349	1.070	4.92	0.0502	2.067**	15.27
BC	0.0312	1.372	3.12	0.0029	0.072	0.26	0.0000	0.000	0.00
CAB	-0.4723	-5.868***	14.16	-0.5291	-3.932***	15.52	-0.3405	-2.453**	15.27
Labour markets									
dW	-0.0471	-1.012	2.60	-0.1160	-1.696*	6.24	-0.0918	-1.543	7.32
ED2	0.1525	7.191***	17.20	0.1511	5.030***	18.31	0.0539	1.536	9.82
Locational factors									
PI	-0.1451	-1.042	2.80	0.4698	2.123**	8.95	0.1144	0.463	3.29
RM	0.0000	2.363**	6.10	-0.0000	-0.102	0.36	0.0000	0.411	1.98
RO	0.0000	1.510	3.49	0.0000	1.449	5.12	0.0000	0.551	3.09
Constant	8.3350	2.821***		0.0346	0.008		6.1557	1.309	
Adjusted R^2	0.7754			0.5722			0.3017		
F	17.3370			7.5976			2.9010		
Number of observations	72			75			67		

Note: For explanation, see text.

Source: Own calculations based on data described in the text.

1981 subperiod for which regression results are identical to the base run results in the sense that capital market conditions, the human capital endowment and product market distortions strongly influence investment decisions. The impact of macroeconomic stability is smaller than in the base run and limited to external stability as measured by the exchange rate volatility (VOL).

This picture changes dramatically with the advent of the debt crisis and large exchange rate movements of major currencies in the second subperiod. Beta weights indicate the cardinal importance attached by investors to macroeconomic stability and a sustainable current account situation, while distortions in product markets become less relevant. Macroeconomic stability matters both on the external and internal front since large budget deficits nourished inflationary expectations (expressed by BUD) in most of the highly indebted countries.

The 1985-1988 subperiod is characterized by a gradual recovery of private investment ratios [Pfeffermann, Madarassy, 1991, p. 32]. On average, these ratios bottomed out in 1985-1986, but the speed of recovery differed considerably among countries. Since many countries did not exhibit significant increases in investment ratios until 1988, much of this upswing is not captured in the regression analysis due to the missing values of numerous independent variables for 1988 and in some cases even for 1987 (Table A1). This may explain the unsatisfactory fit of 1985-1988 regression estimates and concomitantly the small number of statistically significant explanatory variables. However, the estimates seem to pick up the growing importance of capital market conditions in developing countries. In the face of increasingly intense international competition for capital and declining bank lending to developing countries, a successful mobilization of domestic savings and sound balance of payments policies became crucial for the recovery of private investment.

For FDI flows (Table 25) the Chow test did not show significant differences between the base run and the first two subperiods (Table 23). As in the base run, factor market conditions and the availability of other locational factors determine the attractiveness of countries for foreign investors. In sharp contrast to the base run are the estimates for the 1985-1988 subperiod. To understand the regression results, it has to be borne in mind that the overall share of developing countries in total FDI flows declined from 20 per cent in 1981 to about 11 per cent in

Tabelle 25 - Regression Results for FDI Based on Three Time Periods

	1979-1981			1982-1984			1985-1988		
	C	t	Beta	C	t	Beta	C	t	Beta
Macro-policies									
DEB	-16.4743	-0.300	0.64	-9.2989	-0.423	1.21	20.8258	1.947*	9.29
VOL	51.7715	2.192**	4.84	-12.850	-0.398	1.10	43.3145	0.977	3.55
BUD	-2.3486	-0.262	0.71	-5.615	-0.379	1.31	-26.2317	-1.755*	8.65
INF	3.5565	2.583**	7.12	0.0390	0.074	0.20	0.2222	0.433	1.65
Product markets									
TD	1.5441	0.502	1.22	3.1306	0.648	2.55	-10.0361	-2.341**	11.35
TT	-3.3087	-0.883	2.46	-7.7633	-1.474	4.07	-22.2207	-4.016***	16.76
dPI	-0.8737	-0.419	0.87	-2.2338	-0.592	1.94	-2.9383	-0.880	3.42
Capital markets									
M2	10.2300	3.812***	9.96	14.842	5.709***	18.99	4.0998	2.262**	12.27
BC	1.2671	0.681	1.33	-5.1347	-1.625	4.30	-1.6573	-0.479	1.92
CAB	-34.3228	-5.205***	10.78	-39.1367	-3.653***	10.44	-9.6262	-0.930	4.25
Labour markets									
dW	-19.2898	-5.055***	11.14	21.6811	-3.981***	10.61	-17.0628	-3.844***	13.38
ED2	1.9947	1.148	2.36	0.9629	0.402	1.06	-2.9557	-1.129	5.30
Locational factors									
PI	24.0331	2.106**	4.85	46.405	2.633**	8.04	9.8703	0.535	2.79
RM	0.0002	9.684***	21.44	0.0003	7.577***	19.35	0.0001	1.472	5.19
RO	0.0010	10.233***	20.28	0.0008	5.792***	14.82	-0.0000	-0.056	0.23
Constant	-1039.5463	-4.295***		-1045.3644	-3.001***		658.0876	1.875*	
Adjusted R^2	0.7969			0.6736			0.4823		
F	19.5728			11.1821			5.0995		
Number of observations	72			75			67		

Note: For explanation, see text.

Source: Own calculations based on data described in the text.

1989 [Husain, Jun, 1991, Table A2). FDI in highly indebted resource-rich countries even declined in absolute terms. Table 2 shows this to be the case e.g. in Brazil, Chile, Mexico, and Venezuela. On the other hand, some highly successful Asian economies such as Hong Kong, Korea, and Singapore could attract substantially larger inflows of FDI. This observation suggests not only changing priorities of foreign investors with respect to countries but also with respect to the preferred type of investment, i.e. a larger role of export-oriented FDI. The regression results for 1985-1988 seem to support this view. Product market distortions and the availability of cheap labour emerge as the major determinants of FDI while raw materials are no longer statistically significant. The high Beta weight of TT can be interpreted as a clear sign for a growing share of export-oriented in total FDI since this type of investment can only be viable if economies are open, i.e. if intermediate inputs and capital goods can easily be imported at world market prices.

All in all, the estimates by time periods confirm expectations that changes in the international economic environment have influenced the behaviour of investors. Although these changes were exogenous to the model applied in this study, they were at least partly captured by shifts in the relative importance of independent variables. In general, however, the influence of external changes during the first two subperiods was not strong enough to challenge the base run results. Only the estimates for the last period differ significantly from the base run, but they are statistically considerably weaker. Whether these results indicate a growing importance of external influences not captured in the model or whether they must be attributed to weaknesses of the data base cannot be determined at this point.

c. Policy Coherence and Investment Response

In addition to the external environment, the internal policy framework was postulated to impact on investment (Section VIII.1). Investors were expected to be particularly responsive to policy changes in an economically rational policy environment in which serious inconsistencies between major policy areas are successfully avoided. Regression results for East

and Southeast Asia as well as for the rest of the sample lend support to this hypothesis. Private investment behaviour in East and Southeast Asia[1] (Table 26) is extremely well explained by the regression model as indicated by the adjusted R^2 of .86. The fit reflects the investment response in the posited direction vis-a-vis virtually all policy changes. Furthermore, the response is fairly even among policy areas as reflected by Beta weights. The statistical fit is poorer for the subsample of African, Latin American and the rest of the Asian countries, and the investors' response is focused on specific policy changes.

All policy variables which emerged as statistically significant in the base run are also significant in the East and Southeast Asia case, except for M2. Additional significant variables with the right sign are DEB, TT and BC. The only major difference between the base run and results for East and Southeast Asia concerns the impact of raw materials on private investment. The negative signs of RM and RO mirror high investment ratios in resource-poor countries such as Hong Kong and Singapore while these ratios were much lower in Indonesia and the Philippines.

The high coefficient for a short-term variable such as the annual change of bank credit (BC) is particularly indicative of the investors' quick response to policy changes. The negative sign of TT is in line with the vast empirical evidence on the efficiency gains in an open trading environment (Hiemenz, Langhammer [1989], and the literature cited therein) which provide investment incentives. Finally, DEB incorporates in the case of East and Southeast Asia (only) the experience of the Philippines where investment seems to be discouraged by a debt overhang. The finding that DEB could not explain I in the regression for the rest of the sample further supports the initial reasoning about the minor importance of individual policy failures in a highly distorted policy environment.

A comparison of the results for the two regional subsamples suggests that there are some indispensable prerequisites for private investment. These are the absence of excessive government activities (BUD, dPI), a sustainable current account deficit (CAB) as well as a sufficient supply of human capital and infrastructure (ED2, PI). In other respects

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[1] The subsample includes Hong Kong, Indonesia, Korea, Malaysia, the Philippines, Singapore, Taiwan, and Thailand.

Table 26 - Regression Results for I and FDI Based on two Regions over Entire Period 1979-1988

	I						FDI					
	East and Southeast Asia			Rest of Sample			East and Southeast Asia			Rest of Sample		
	C	t	Beta	C	t	Beta	C	t	Beta	C	t	Beta
Macro-policies												
DEB	-0.4733	-3.047***	5.00	-0.0063	-0.102	0.27	5.6863	0.310	0.93	-1.9676	-0.347	0.66
VOL	0.4491	1.731*	3.10	-0.1064	-0.554	1.50	-9.9667	-0.326	1.07	-50.1653	-2.849***	5.59
BUD	0.2233	1.868*	5.25	0.1736	2.359**	6.88	-31.1628	-2.210**	11.37	10.8394	1.606	3.40
INF	0.0725	1.403	2.87	-0.0042	-1.449	3.94	-0.9244	-0.152	0.57	0.4431	1.685*	3.32
Product markets												
TD	-0.1196	-2.897***	7.72	0.0217	0.826	2.82	-14.6626	-3.010***	14.67	3.7167	1.540	3.82
TT	-0.2066	-2.657**	8.71	0.0758	2.785***	8.40	-10.3211	-1.125	6.74	-2.2321	-0.894	1.96
dPI	-0.0415	-1.813*	3.01	-0.0302	-1.769*	5.01	3.7800	1.402	4.26	1.1763	0.752	1.55
Capital markets												
M2	-0.0159	-0.892	2.99	-0.1742	-6.036***	17.58	4.1608	1.975*	12.12	-8.3426	-3.151***	6.66
BC	0.1329	4.733***	8.57	0.0248	1.723*	4.19	0.4671	0.141	0.47	-0.5013	-0.380	0.67
CAB	-0.3866	-4.661***	12.87	-0.2649	-4.390***	12.02	-10.4073	-1.064	5.37	-29.2935	-5.291***	10.51
Labour markets												
dW	-0.2524	-4.112***	9.42	0.1233	4.547***	12.55	-20.1598	-2.785***	11.66	-9.4145	-3.785***	7.58
ED2	0.0754	2.968***	7.35	0.0435	2.772***	7.72	0.4241	0.142	0.64	-1.8571	-1.289	2.61
Locational factors												
PI	0.3009	2.523**	5.37	0.2344	2.496**	7.63	53.5193	3.804***	14.80	10.8649	1.261	2.80
RM	-0.0000	-2.255**	8.51	0.0000	0.484	1.21	0.0001	0.335	2.31	0.0002	13.400***	24.30
RO	-0.0000	-2.156**	9.25	0.0000	3.226***	8.29	-0.0016	-1.658	13.01	0.0008	13.186***	24.58
Constant	17.0097	4.095***		9.4877	4.890***		263.0166	0.537		187.4462	1.053	
Adjusted R^2	0.8556			0.4136			0.6522			0.7978		
F	28.6514			7.6759			9.7521			38.3416		
Number of observations	71			143			71			143		

Note: For explanation, see text.

Source: Own calculations based on data described in the text.

estimates differ fundamentally, such as for TT, M2, and dW. The negative sign of M2 contradicts the basic hypothesis of a positive effect of financial deepening. The estimate reveals that M2 fails to track as posited when applied to a highly inflationary environment as was observed for major Latin American countries. High rates of inflation contribute to a demonetization of the economy, i.e. to a lower M2. If inflation is approaching hyperinflation (as e.g. in Argentina or Brazil) M2 may decline even faster than current investment at least for a certain period of time, thus leading to a perverse result for M2.

The other seemingly perverse results for the rest of the sample, namely the positive signs for TT and dW, can, however, be explained by the consequences of excessive import substitution policies implemented in virtually all countries in this subsample. Protection against foreign competition creates excess profits in domestic market-oriented lines of production and provides an incentive to engage in the production of capital-intensive goods. This is known to be the starting point of a vicious circle [Bhagwati, 1978; Krueger, 1983]. Demand pull and a higher marginal product of labour lead to higher wages which in turn encourage the use of more capital-intensive technologies in all economic activities and generate new demand for protection. This vicious circle is reflected in the positive relationships between I on the one hand and trade protection as well as artificially high wages on the other.

Contrary to I, the regional breakdown did not provide an economically more satisfactory explanation of the behaviour of foreign investors compared to the base run. Rather, the results for both regions (Table 26) are even less plausible since a number of variables emerge as statistically significant with the wrong signs. This is not surprising since both the base run and the estimates for the rest of the sample point to the overriding importance of the resource endowment as a determinant for FDI. Both regional subsamples include resource-rich and resource-poor countries (Table 20) and, therefore, FDI flows to both subregions comprise resource-oriented as well as other FDI. Thus, this regional breakdown is not suited to reveal the true determinants of the different types of FDI. What is needed is a separation of the sample countries by their resource endowment in order to identify the determinants of FDI in manufacturing as opposed to resource-based FDI as was proposed in Section VIII. 1.

d. Resource Endowment and FDI

The subdivision of the sample by resource endowments yields some extremely interesting results (Table 27). They support the proposition that the base run results for FDI are dominated by the experience of resource-rich countries attracting FDI in resource-oriented activities. This type of FDI is undertaken independently of macroeconomic conditions and the degree of product market distortions in the host country. However, resource-oriented FDI requires the availability of a number of complementary factors of production. These are access to domestic financing (M2) and balance of payments conditions (CAB) which allow uninterrupted imports of capital goods. Likewise, an adequate supply of infrastructural facilities is important. Concerning labour inputs, resource-oriented FDI depends on undistorted labour markets (dW) and higher levels of human capital endowment (ED2) in the host country. The latter corresponds to the high capital intensity of mining and processing activities which require a skilled work force.

Favourable capital market conditions, cheap labour and public infrastructure are also complementary factors for FDI in manufacturing. This follows from the regression estimates for resource-poor countries given in Table 27. Contrary to resource-oriented FDI, the attractiveness of countries for this type of FDI depends on the macroeconomic framework and interventions in product markets. Actual (INF) as well as expected (BUD) inflation strongly discourage FDI in manufacturing. However, Beta weights indicate that product market distortions are even more important for the evaluation of locational advantages by foreign investors. Production costs are usually increased by trade restrictions and interventions into domestic product markets because necessary inputs cannot be procured at world market prices. The influence of domestic product market distortions is likely to be exacerbated by local content requirements imposed on foreign investors by most developing countries. The negative signs of TD and TT suggest that cost considerations have outweighed the potentially positive impact of product market distortions on the volume and prices of domestic sales. This leads to the conclusion that FDI inflows in resource-poor countries were world-market- rather than inward-oriented.

Table 27 - Regression Results for FDI Based on Resource Endowments over Entire Period 1979-1988

	Resource-poor countries			Resource-rich countries		
	C	t	Beta	C	t	Beta
Macro-policies						
DEB	8.3396	0.809	2.43	-6.2542	-0.733	1.22
VOL	-19.7284	-1.168	3.41	43.1566	1.562	2.54
BUD	17.3824	2.130**	8.58	-4.6180	-0.446	0.86
INF	-3.0712	-2.237**	7.38	0.1509	0.421	0.70
Product markets						
TD	-8.9704	-3.623***	13.18	2.9992	0.871	1.94
TT	-11.0002	-3.944***	14.38	-1.5186	-0.336	0.58
dPI	2.8587	1.774*	4.87	1.6151	0.590	1.08
Capital markets						
M2	2.7905	2.467**	10.48	9.4843	2.097**	5.40
BC	-3.4634	-1.867*	5.39	-0.4973	-0.252	0.38
CAB	-14.6128	-3.128***	10.40	-29.4938	-3.126***	5.57
Labour markets						
dW	-12.1667	-5.011**	13.71	-36.2448	-6.350***	12.42
ED2	0.0262	0.024	0.08	27.2195	4.647***	13.38
Locational factors						
PI	13.0515	1.788*	5.72	86.9737	3.604***	10.20
RM				0.0003	11.012***	25.71
RO				0.0010	9.545***	18.01
Constant	648.0048	3.398***		-2952.9718	-6.885***	
Adjusted R^2	0.5923			0.8028		
F	14.2999			24.3368		
Number of observations	120			87		

Note: For explanation, see text.

Source: Own calculations based on data described in the text.

In general, the subsamples according to resource endowment yield an analytically more satisfactory picture of the determinants of different types of FDI than all earlier estimates. In particular, the wide range of policy implications for FDI in manufacturing described in Chapters III-VI has now emerged from the regression results for resource-poor countries. Therefore, the subsequent analysis of FDI will largely be based on the estimates presented in Table 27.

e. Ex Post Predictions

The regression analysis presented so far has highlighted determinants of the international competitiveness of developing countries for risk capital. The goodness of fit of the various equations attests to the high explanatory power of the approach chosen in this study. Another way of assessing the predictive power of the model is to examine for the individual countries the ex post predictions of their relative attractiveness for investors. This will be done by comparing the actual ranking of the countries' international competitiveness (Table 2) with the ranking revealed by the model.[1] If this test yields satisfactory results for the past, the model could possibly be used with some confidence to predict shifts in competitive positions in the future.

Ex post predictions for I and FDI were undertaken for all countries in the sample and the three subperiods 1979-1981, 1982-1984 and 1985-1988. Predicted ranks of individual countries were alternatively calculated from base run results and the estimates for the regional breakdown of the sample. In the case of I, the subdivision between East and Southeast Asia and the rest of the sample was used while the subdivision by resource endowment was applied in the case of FDI. Table 28 shows Pearson correlation coefficients for actual and predicted rankings. All coefficients but one are statistically significant at the 1 per cent level confirming the reliability of the predictions. In almost all cases, the predictive power of the regional estimates (B) proves to be superior to the base run estimates (A). The extremely high correlation coefficients obtained for the predictions based on regional estimates suggest that the actual competitive positions of individual countries in the sample are almost completely matched by the model results. The fact that correlation coefficients remain high over time points to the robustness of the underlying estimates which will be scrutinized more closely in Section X.2 below.

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[1] The reader should not confuse this with the ex post **projections** which refer to results of the model carried out for a time period outside the model's coverage, but for which data exist vis-à-vis both exogenous and endogenous variables. This will be done in Chapter X.

Table 28 - Pearson Correlation Coefficients for Actual and Predicted Ranks of International Competitiveness (a)

	I		FDI	
	A(b)	B(c)	A(b)	B(d)
1979-1981	.82** n=25	.81** n=25	.55** n=25	.65** n=24
1982-1984	.68** n=25	.95** n=25	.88** n=25	.84** n=24
1985-1988	.40* n=23	.81** n=23	.67** n=23	.85** n=22

(a) **(*) denotes statistical significance at the 1 (5) per cent level. - (b) Period averages of regression results for the total sample, see Table 22. - (c) Period averages of regression results for the regional subsamples "East and Southeast Asia" and "Rest of the Sample", see Table 26. - (d) Period averages of regression results for the subsamples "Resource-poor Countries" and "Resource-rich Countries", see Table 27.

Source: Own calculations.

The quality of ex post predictions for individual countries is displayed in Figures 1 and 2 which show actual and predicted[1] competitive positions for I and FDI by time period. In the competition for private investment the relative positions of individual countries are accurately (including divergences of up to two ranks) predicted in 60 to 76 per cent of all cases, depending on the time period. For East and Southeast Asian countries, ranks are accurately predicted for all countries and subperiods. The only exceptions are Taiwan (1982-1984) and Malaysia (1985-1987). Large discrepancies between actual and predicted values are mainly observed for Latin American countries such as Argentina, Brazil, Mexico, Peru, and Venezuela. In the case of Peru, these discrepancies may well be related to the data problems discussed in Chapter II. More generally, the outcome for Latin American countries is in line with the earlier reasoning about the weakness of the model to capture the impact of individual policy variables in a highly distorted economic environment.

[1] Based on the regional breakdown of the sample according to Tables 26 and 27.

Figure 1 - The International Competitiveness for Risk Capital: Actual and Predicted Ranks of I

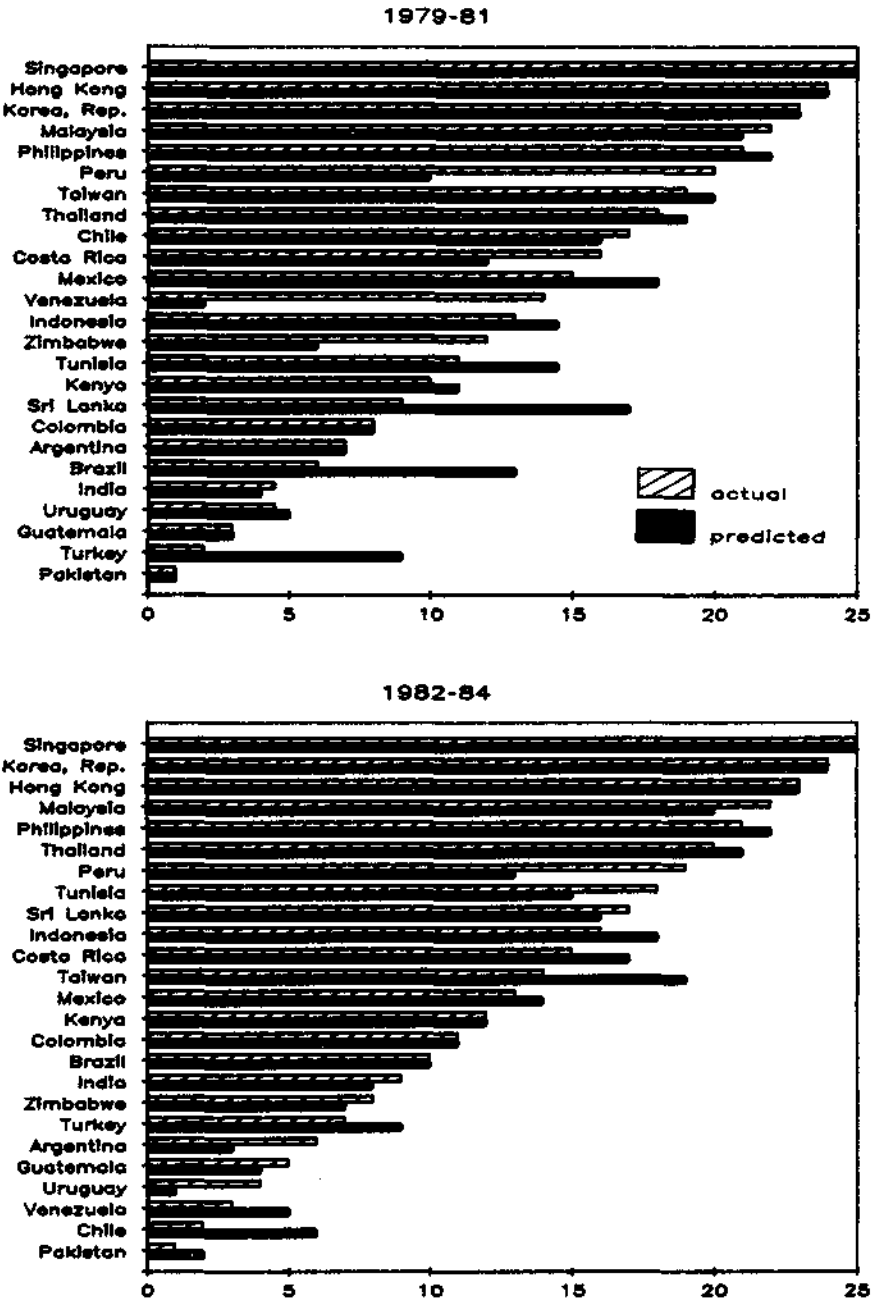
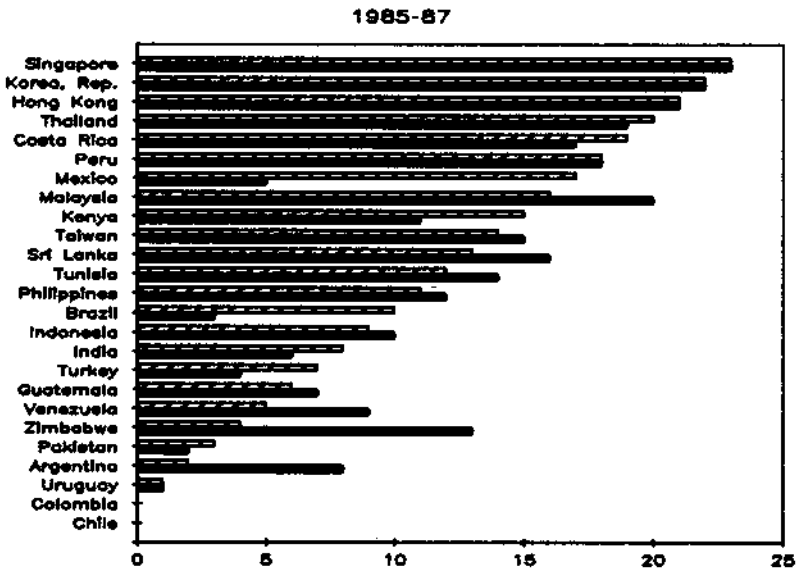


Figure 1 continued



Source: See text.

Figure 2 - The International Competitiveness for Risk Capital: Actual and Predicted Ranks of FDI

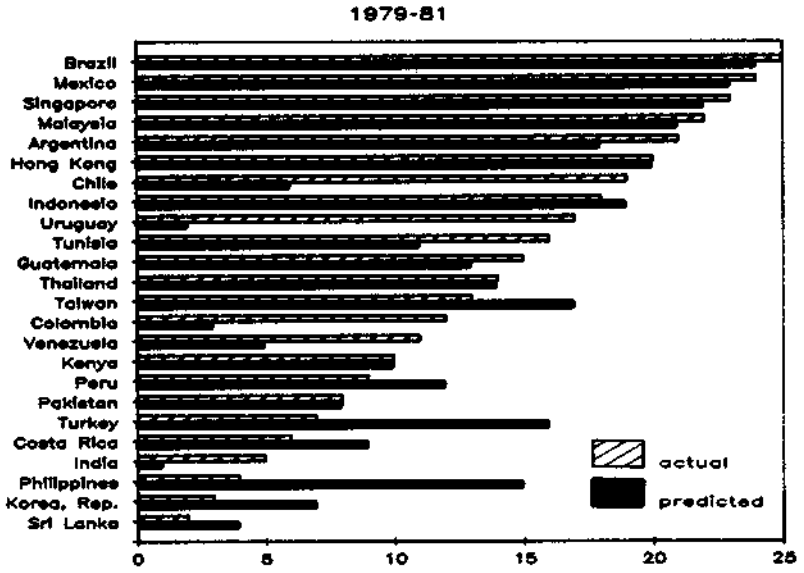
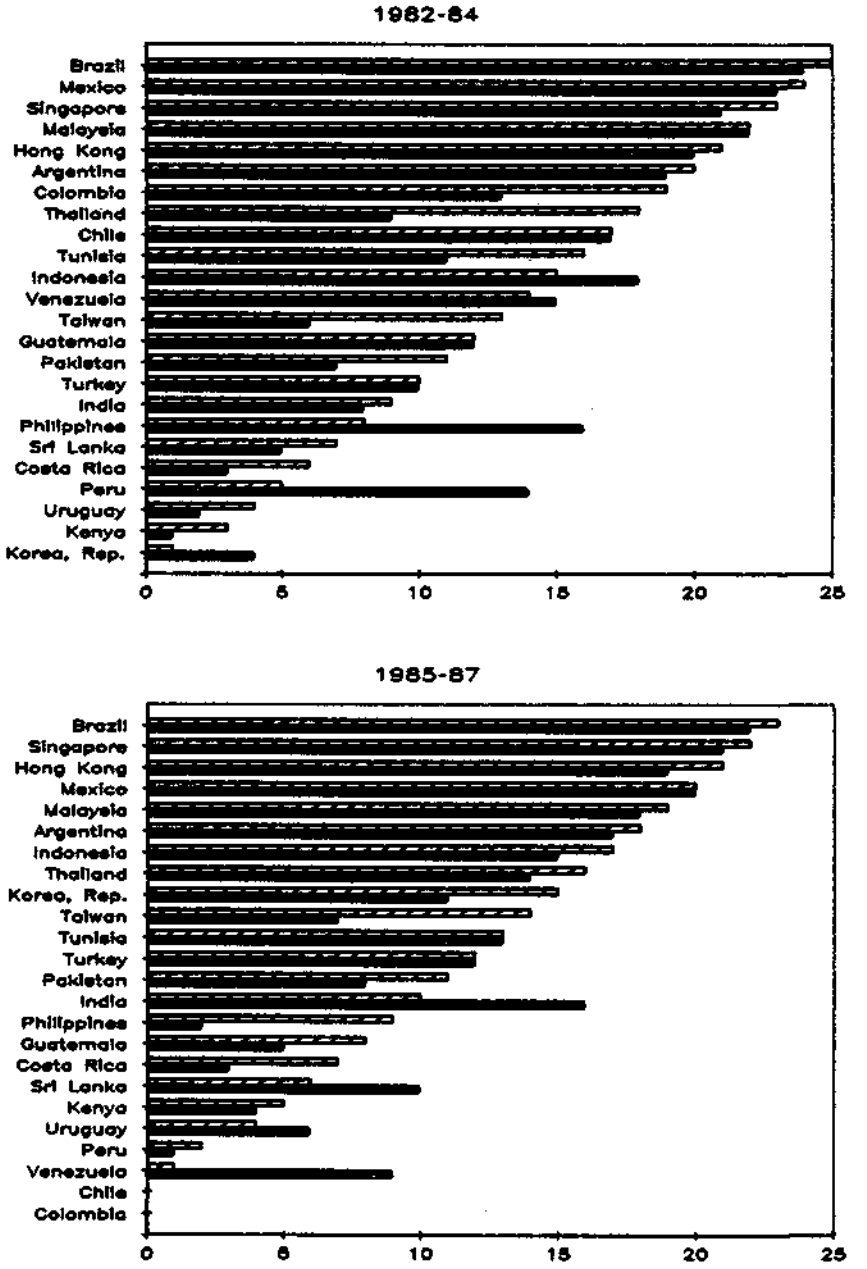


Figure 2 continued



Source: See text.

The relevance of this weakness will be further assessed by the country analyses provided in Chapter IX.

For FDI, the general quality of predictions for individual countries (Figure 2) is somewhat lower than for I. The share of predictions deviating by no more than 2 ranks ranges between 46 per cent for the first and 59 per cent for the last subperiod. Good predictions are obtained for the major recipients of FDI, irrespective of their resource endowment. Cases in point are resource-rich countries such as Brazil, Mexico, Malaysia, Argentina, and Indonesia (in the order of FDI inflows), as well as the resource-poor countries Singapore and Hong Kong. These countries accounted for almost 80 per cent of total FDI in the sample countries in 1985-1988. In the remaining countries of the sample FDI was small and highly volatile due to indivisibilities and the small number of projects. Hence, their ranking often depends on decisions of one or two investors which may be strongly influenced by locational factors not included in the model.

Predictions for FDI generally suffer also from the shortcoming that restrictive investment regulations are not explicitly modelled. Except for Hong Kong, all countries in the sample have implemented a wide variety of such regulations which have also been changed substantially over time. The degree of restrictiveness influences the ranking of countries by actual FDI flows but not the predictions. The limitations placed on FDI predictions by the existence of investment regulations will be evaluated on the basis of the experience in individual countries in the subsequent chapter.

IX. Country-Specific Evidence

1. Choice of Countries

The pooled cross-country regressions provided considerable support to the hypotheses on the impact of macroeconomic stability, factor and goods markets distortions, as well as resource endowments on the relative attractiveness across all sample countries for domestic and foreign investment. The next step in our analysis is to determine how the model captures the peculiarities of selected economies. In the subsequent discussion, the focus is on three questions: (1) the goodness of fit of the model equations for particular countries; (2) the impact of major policy changes such as comprehensive macroeconomic stabilization programmes or significant changes in domestic market distortions (e.g. trade liberalization); and (3) the influence of factors that are not captured by the regression analysis and may, therefore, cause deviations of particular countries from the normal pattern revealed by the cross-country estimates (e.g. revisions of the countries' attitudes towards FDI).

These questions are analysed for six sample countries, i.e. Argentina, India, Indonesia, Korea, Mexico, and Thailand. The reasons for selecting this country group are as follows:

- Argentina provides an interesting case insofar as the government continued with muddling through in the 1980s. Its ranking was extremely unfavourable in terms of economic performance and macroeconomic stability, while capital markets were heavily distorted and external debt problems became almost unmanageable.
- The constellation is less straightforward for India, as one example of a low-income country with rich natural resources. Although macroeconomic instability was held within bounds, the country was one of the less attractive investment locations. The evidence on policy-induced distortions is mixed as well: they were considerable in goods and labour markets but comparatively low in capital markets.
- Indonesia represents the second case of a resource-rich low-income country with moderate macroeconomic instability. According to the evidence presented above, however, goods and labour markets were less distorted than in India, which may have contributed to the higher ranking in terms of attractiveness for investment. Moreover,

significant policy changes took place which opened the Indonesian economy to world markets, reduced financial repression and eased investment restrictions.

- Korea ranked among the top group of our sample in many respects. Investors could take advantage of the relatively rich endowment with human capital, and macroeconomic stability was quickly restored after the stabilization crisis around 1980. Nevertheless, investment conditions could have changed considerably in the recent past due to increased disputes in labour markets and the opening-up of the economy for FDI.
- Mexico, which traditionally has been one of the prefered locations of foreign investors, provides another example of a Latin American country seriously threatened by considerable debt problems. In contrast to Argentina, however, Mexico introduced major policy reforms recently. Most notably, foreign trade has been liberalized and conflicts in labour markets have been contained, which may have helped to restore more favourable investment conditions.
- Finally, the example of Thailand suggests that a country may be attractive for investment and achieve favourable economic performance although goods markets may be significantly more distorted than in major competing countries. It can be argued that such distortions are of less relevance if macroeconomic instability is avoided. Moreover, Thailand has benefitted from cooperative industrial relations.

The subsequent discussion on the relative importance of factors impacting on investment conditions in particular countries forms the basis for proposals to maintain or improve the attractiveness for domestic and foreign investors. Of course, such an approach crucially depends on the validity and predictive power of the regression model. As shown above, the model provided fairly good ex post predictions of the ranking of all 26 sample countries with respect to their relative attractiveness. Evidence on the six selected prototype economies provides further support to the validity of the model. A Pearson correlation analysis reveals a strong relationship between the ranking of **annual** observations of the realized private investment ratio (I) as well as actual foreign direct investment (FDI) in the 1979-1987 period on the one hand and the ranking of predicted values of these variables on the other. All rank cor-

Table 29 - Pearson Correlation Coefficients for Actual and Predicted Ranks of Selected Countries, 1979-1987 (a)

		Predicted(b)	
		A	B
		Private investment ratio (I)	
Actual		0.60**	0.89**
Predicted(b)	A	1	0.80**
	B		1
		Foreign direct investment (FDI)	
Actual		0.57**	0.79**
Predicted(b)	A	1	0.81**
	B		1

(a) Argentina, India, Indonesia, Korea, Mexico, and Thailand; annual observations. - (b) A: predictions based on the regression for the overall sample; B: predictions based on the regression for the respective subsample.

Source: Own calculations.

relation coefficients reported in Table 29 are significantly positive at the 1 per cent level.[1]

Similarly strong results are achieved when the ranking of the selected countries within the overall sample with respect to actual and predicted values of I and FDI is compared (the predicted rankings in Table 30 are based on the regressions for the respective regional subsample). In 20 out of 36 cases the difference between actual and predicted rank positions is less than 2, and in only 4 cases the difference is larger than 4 rank positions. Table 30 also confirms that by selecting the 6 countries, the entire spectrum of the overall sample in terms of attractiveness for domestic and foreign investors is covered. Korea and Thailand were highly attractive for domestic investors while the opposite was true for Argentina and India. Foreign investors revealed a preference in particular for Mexico while FDI inflows were very small in India and Korea during the 1979-1987 period. Therefore, the selected country

[1] 9 annual observations are available for 5 sample countries and 7 for Indonesia, i.e. the total number of observations amounts to 52.

Table 30 - Actual and Predicted Ranks of Six Selected Countries, 1979-1987

	Period	I		FDI	
		actual	predicted	actual	predicted
Argentina	1979-1981	7	7	21	18
	1982-1984	6	3	20	19
	1985-1987	2	8	18	17
India	1979-1981	4.5	4	5	1
	1982-1984	9	8	9	8
	1985-1987	8	6	10	16
Indonesia	1979-1981	13	14.5	18	19
	1982-1984	16	18	15	18
	1985-1987	9	10	17	15
Korea, Rep.	1979-1981	23	23	3	7
	1982-1984	24	24	1	4
	1985-1987	22	22	15	11
Mexico	1979-1981	15	18	24	23
	1982-1984	13	14	24	23
	1985-1987	17	5	20	20
Thailand	1979-1981	18	19	14	14
	1982-1984	20	21	18	9
	1985-1987	20	19	16	14

Source: Own calculations.

set can be expected to provide ample evidence on the relative importance of factors impacting on investment conditions in a country-specific context.

2. A Successful, Resource-poor Country: Korea

Apart from the city states Hong Kong and Singapore, Korea realized by far the highest investment ratios among the sample countries in the 1979-1988 period. At the same time, Korea's FDI inflows were extremely low until 1984, due to its restrictive stance towards foreign investors. Being positioned at such extremes, Korea could be suspected to be an outlier in the regression analysis, but this is not the case.

Most notably, the model's predictions clearly reveal the extraordinarily high level of the private investment ratio (I). Both actual and predicted values of I generally exceed 20 per cent (Table 31). Obviously, the fairly good ex post prediction of I has been achieved because the independent variables of the regression analysis correctly reflected the major strengths of the Korean economy. Macroeconomic instability was largely avoided by containing inflation, budget deficits and exchange rate volatility (see also Tables 4 and 6). Capital and labour market conditions were more conducive to investment than in many other sample countries (Chapter V). Yet, Korea was characterized by considerable distortions in goods markets (Chapter IV). Contrary to I, FDI was overestimated in the early 1980s, and the recent recovery in FDI was much more pronounced than predicted, a point that will be assessed in greater detail below.

Annual observations and predicted values of dependent variables are depicted in Figure 3 for the regressions based on the total sample and subsamples. The high standardized residuals of the estimates of the investment equation point to the relevance of country-specific peculiarities not captured by the regression analysis.

First, the temporary deterioration of the investment climate in Korea in the first subperiod 1979-1981 and the subsequent recovery could not be traced by the model. The change of actual investment ratios reflects the slump in Korean economic activity after the second oil price shock, the ensuing stabilization problems and the successful adjustment to external and internal disturbances since 1982 (for details, see Aghevli, Márquez-Ruarte [1985]). 1979-1982 were years of crisis for Korea [Collins, Park, 1989]: Output declined by about 5 per cent in 1980, and inflation soared. The country underwent a major shift in economic strategy motivated by the critical review of the "big push" programme of massive investments in heavy and chemical industries in the 1970s. Concern over rising inflation rates and economic distortions from the "big push" led the government to implement stabilization and adjustment measures, including monetary and fiscal restraint (see INF and BUD in Table 31), relaxation of price controls, import liberalization, and financial market reform. This programme helped Korea to return quickly to a path of high and stable economic growth with an ensuing recovery in investment activities. These business cycle fluctuations escape the model

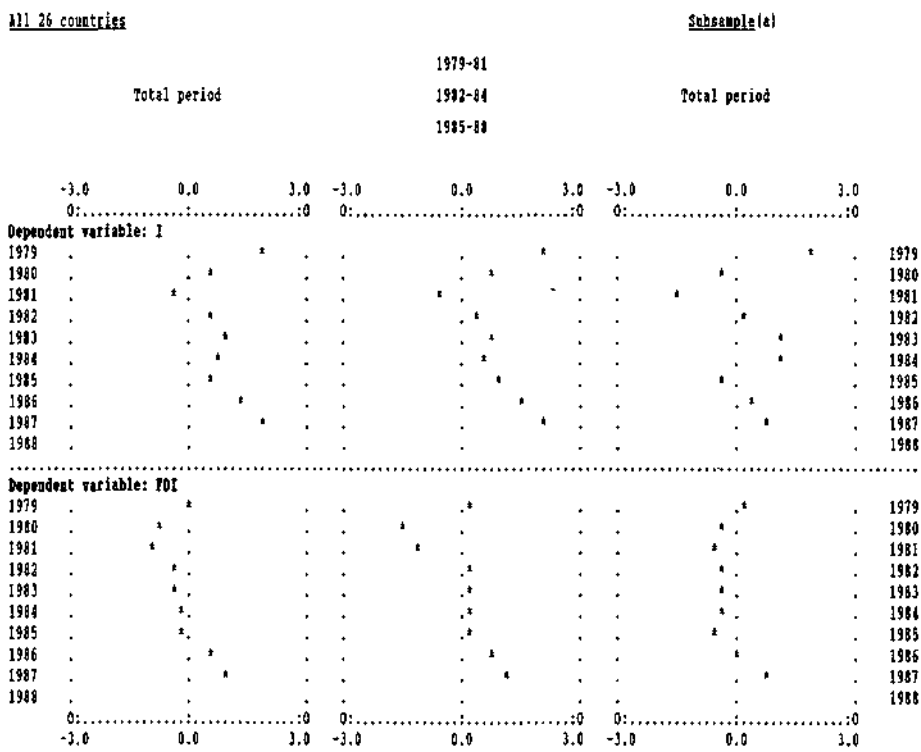
Table 31 - Synopsis of Dependent and Independent Variables for Korea, 1979-1989

	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Dependent variables											
I actual	25.80	23.40	19.80	21.70	23.50	23.30	20.80	20.60	22.40	23.50	25.60
I predicted(a)	21.04	24.50	23.51	21.29	20.73	20.55	21.70	19.69	20.34	na	na
FDI actual	50.00	23.30	23.00	-7.70	-24.30	-20.00	72.00	199.30	314.30	487.70	530.30
FDI predicted(a)	10.59	123.53	170.30	76.02	64.38	52.42	183.19	186.28	137.64	na	na
Independent variables											
Macroeconomic stability											
INF	19.80	24.00	17.00	6.90	4.90	4.00	4.10	2.80	3.60	5.90	4.80
BUD	-1.74	-2.23	-3.34	-3.04	-1.04	-1.16	-1.17	-0.09	0.44	1.60	-0.98
DEB	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	na
VOL	2.865	5.205	4.807	4.706	4.416	4.763	2.696	1.301	1.138	1.360	1.377
Goods markets											
TT	16.80	14.80	13.82	13.19	15.59	15.24	14.01	14.83	17.18	13.84	10.68
TD	48.99	50.51	48.96	49.20	49.58	50.44	48.87	48.21	44.58	43.63	41.79
dPI	-8.38	3.12	1.80	0.48	-10.10	-8.78	-2.17	-7.46	-20.68	-24.64	-22.00
Capital markets											
M2	31.536	32.949	33.004	36.559	35.934	34.010	35.332	36.214	37.148	38.245	41.216
BC	16.454	13.650	7.473	16.142	11.494	9.277	13.758	10.733	15.356	7.443	19.041
CAB	-6.414	-8.496	-6.664	-3.559	-1.952	-1.522	-0.955	4.356	7.476	8.095	2.386
Labour markets											
dW	5.5100	-2.3123	-4.0238	1.5637	0.6781	0.8293	-4.4314	-7.3629	-9.9489	na	na
S1	0.0416	0.0880	0.0803	0.0360	0.0363	0.0399	0.0884	0.0872	0.9842	0.4829	0.3868
ED2	75	76	84	82	87	91	94	95	95	95	na
Complementary immobile factors											
PI	7.56	7.56	7.56	7.56	7.56	7.56	7.56	7.56	7.56	7.56	7.56
RO	0	0	0	0	0	0	0	0	0	0	0
RM	4273	5242	5892	5541	4520	3981	4360	4374	3988	3779	4130

(a) Predicted values of I (FDI) based on the regression for East and Southeast Asia (sample countries with relatively poor resource endowment) and total period 1979-1988.

Source: See text.

Figure 3 - Standardized Residuals, 1979-1988: Korea



(a) East and Southeast Asia in the case of I; sample countries with relatively poor resource endowment in the case of FDI.

since short-term demand factors are not considered explicitly (see also Chapter III).

Second, liberalization measures introduced in the early 1980s and extended subsequently, resulted in positive deviations of the Korean investment ratio from the cross-country pattern when the stabilization crisis had been overcome. The adopted measures provided strong incentives for more efficient investment projects, but they could not be captured fully by the proxies for goods and factor market distortions that entered the cross-country regressions. Most notably, significant policy reforms took place with respect to imports, taxes and subsidies, and credit allocation. They further improved Korea's locational attrac-

tiveness, notwithstanding that the independent variables presented in Table 31 point to rather stable investment conditions:

- The average nominal tariff rate was reduced from 35.7 per cent in 1978 to 21.9 per cent in 1984, 18 per cent in 1988, and 11 per cent in 1990 [Koo, 1984; Young, 1990]. At the same time, the dispersion of tariff rates was substantially narrowed, and tariff exemptions for heavy and chemical industries were largely abolished. This encouraged more efficient investment, without dramatically reducing overall tariff revenues. What is even more important is that quantitative import restrictions were lifted; the ratio of unrestricted imports rose from 54 per cent (1978) to 85 per cent (1984) and was scheduled to reach 95 per cent in 1988 [Koo, 1984]. As a result, nearly all industrial products are now essentially free of import restrictions. Nonetheless, the import of a large number of agricultural products remains restricted [Young, 1990, p. 21].
- Tax laws were revised along similar lines. The number of industries eligible for tax incentives was reduced, thereby alleviating the allocative distortions arising from preferential tax treatment. The attempt to make the tax system more neutral with respect to resource allocation also included a minimum tax levied on state enterprises and an increased tax collection effort [Aghevli, Márquez-Ruarte, 1985, p. 13]. Nevertheless, the sum of domestic tax revenues and subsidies (see TD in Table 31) remained largely unaffected until 1986. This is because subsidies were reduced, e.g. by phasing out preferential interest rates for priority sectors which further contributed to a more balanced incentive system across different industries. Interest-rate reforms also included a new term structure for deposit rates in order to encourage a shift of financial savings into longer-term deposits and, thereby, enhance efficient financial intermediation. However, interest rates remained highly regulated.
- It has been shown elsewhere that, traditionally, public loan allocation and financial market segmentation in Korea affected the productivity of investment negatively [Schweickert, 1989]. Although credit allocation remained a cornerstone of Korean industrial policy, the government moved toward financial liberalization since 1982 [Collins, Park, 1989, p. 135]. Its influence on credit allocation was eased to some extent by the privatization of commercial banks. Direct control over bank lending

through credit ceilings and quotas was replaced by indirect reserve control [Park, 1984, p. 37]. Moreover, the amount of directed "policy loans", e.g. extended through the National Investment Fund, was reduced significantly.

The development of FDI inflows into Korea represents the third notable deviation from the cross-country pattern (Figure 3). The distinctive picture for Korea, i.e. actual FDI being below predicted values in the first half of the 1980s and positive deviations in 1986/87, is mainly due to the significant change in the government's attitude towards FDI [Koo, 1984; Schweickert, 1989]. Traditionally, FDI inflows were kept very low by restrictive and highly selective approval procedures as well as due to tremendous uncertainty of foreign investors about the final decision of the authorities. In 1983, however, the Korean government substantially overhauled its FDI regulations. Most notably, a negative list system was introduced which signified the government's determination to minimize the number of industries closed to foreign investors; 86 per cent of manufacturing industries were opened to FDI (this ratio increased to 98 per cent in 1990; Young [1990, p. 22]). Restrictions on the extent of foreign ownership were largely abolished, and the repatriation of capital liberalized. Moreover, the formerly prevailing bureaucratic arbitrariness in approval procedures was eliminated to a significant extent by an automatic approval system introduced for FDI projects that met certain criteria (refering to ownership, investment outlays and tax treatment). FDI inflows increased dramatically, although general tax exemptions were abolished. Principally, the deregulation of FDI represents a precondition for any meaningful projection of future FDI inflows into Korea. On the other hand, the recent significant change in Korean attitudes towards FDI renders such projections extremely difficult. This is because the former restrictive stance and the ensuing pent-up supply of FDI may continue to result in an overshooting of FDI flows.

Summarizing, the Korean example suggests that a country might become an attractive location for investors even though the government pursues an active and interventionist policy, provided that: (1) such a policy is credible, consistent, and coherent; (2) the government is able to distinguish between permanent and temporary shocks and responds appropriately; and (3) macroeconomic stability is maintained [see also

Collins, Park, 1989]. The second lesson may be, however, that the attractiveness for domestic and foreign capital can perhaps be further enhanced if the interventionist stance is relaxed with economic interrelations becoming increasingly complex in the course of economic development. Projections of the future investment behaviour in Korea may help to substantiate this proposition (see Chapter X).

3. A Rising Star: Thailand

Over the last decade, the Thai economy "has exhibited a remarkable ability to transform itself from one that was heavily dependent on primary commodities to one that is diversified and in which an important and rapidly developing industrial sector plays a dominant role alongside a strong agricultural sector and a rapidly growing services sector" [ADB, a, 1990, p. 111]. In many respects, Thailand resembles the Korean case. Both countries belonged to the vanguard of our sample in terms of the average private investment ratio and economic performance in 1979-1988. Striking similarities also exist with respect to major explanatory variables. Macroeconomic instability was largely avoided in both countries. The development of capital markets was relatively conducive to economic development, though some financial regulations were still in place. On the other hand, the indicators used here point to considerable distortions in goods markets: On average, Thailand ranked among the lower third of the sample countries in terms of foreign trade interventions (TT) and domestic product market distortions (TD; see Chapter IV and Table 32).

The investment effects of these factors are captured by the applied model. The average deviation of predicted from actual values of I is 1.3 percentage points. Furthermore, the predictions, by and large, mirror the development of the investment ratio over the period considered, i.e. the decline between 1979 and 1982, the recovery in 1983/84 which was followed by another decline (though the latter changes were overstated by our model), and the recent improvement. The pattern of deviations of the private investment ratio from its predicted values reveals strong similarities to the Korean case (Figures 3 and 4). The common features are: (1) a consistently positive deviation of I from the normal pattern

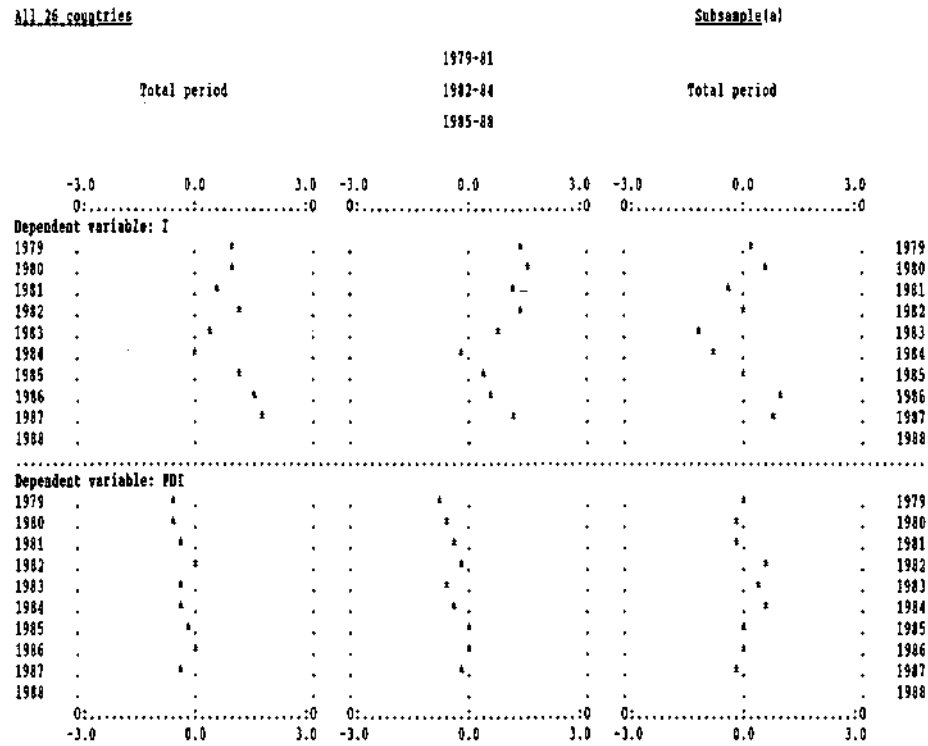
Table 32 - Synopsis of Dependent and Independent Variables for Thailand, 1979-1989

	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Dependent variables											
I actual	18.00	16.30	15.80	15.30	15.90	16.10	14.60	14.10	17.30	22.00	25.30
I predicted(a)	17.32	15.04	16.71	15.14	18.56	18.01	14.45	11.76	15.48	na	na
FDI actual	69.00	96.00	175.30	221.30	275.00	312.30	303.30	274.30	201.70	508.30	971.30
FDI predicted(a)	69.90	140.97	205.05	102.06	180.04	200.68	317.23	260.31	234.86	na	na
Independent variables											
Macroeconomic stability											
INF	8.70	12.50	8.60	3.70	3.50	-0.20	0.70	3.30	4.00	7.00	5.91
BUD	-3.83	-4.94	-3.37	-6.47	-4.05	-3.49	-5.42	-4.45	-2.38	0.99	2.03
DEB	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	na
VOL	3.080	3.360	3.291	3.083	2.940	6.075	2.090	1.122	0.842	0.866	1.414
Goods markets											
TT	25.59	26.20	23.86	20.03	20.46	22.51	20.69	18.77	19.98	22.88	22.20
TD	52.03	48.26	48.75	51.92	53.53	48.69	49.23	51.54	53.11	47.31	46.93
dPI	-14.61	2.62	5.36	-1.46	1.34	8.15	19.36	5.29	-11.11	-25.66	-21.60
Capital markets											
M2	36.799	38.235	38.469	44.261	49.157	55.261	58.601	61.460	65.522	65.233	67.378
BC	12.944	1.465	8.542	13.448	25.078	16.945	10.439	1.311	16.086	20.711	23.639
CAB	-7.621	-6.437	-7.374	-2.813	-7.263	-5.122	-4.115	0.593	-0.761	-2.854	-3.523
Labour markets											
dW	-6.5605	-7.1926	-7.7980	-8.4545	-9.1272	-9.9544	-11.0114	-9.9512	-12.6241	na	na
S1	0.0371	0.0101	0.0282	0.0100	0.0128	0.0078	0.0018	0.0039	0.0043	na	na
ED2	28	29	29	29.5	30	31	30	30	28	na	na
Complementary immobile factors											
PI	8.90	8.67	8.45	8.22	7.99	7.77	7.54	7.31	7.09	6.86	6.63
RO	21187	31551	36084	39303	37951	32180	36093	34745	22945	22833	na
RM	20720	23327	20433	18276	18131	17216	16539	10540	11774	12338	14487

(a) Predicted values of I (FDI) based on the regression for East and Southeast Asia (sample countries with relatively poor resource endowment) and total period 1979-1988.

Source: See text.

Figure 4 - Standardized Residuals, 1979-1988: Thailand



(a) East and Southeast Asia in the case of I; sample countries with relatively poor resource endowment in the case of FDI.

for all sample countries, while observed values of I are more evenly distributed around the reference line in the regional context; and (2) a temporary deterioration of investment conditions relative to the other sample countries, followed by a quick recovery and increasingly positive deviations from the normal pattern in recent years.

Macroeconomic stability represents an important key to explain Thailand's attractiveness for investment in the context of the other East and Southeast Asian countries and even more so relative to the total sample. The Thai experience strongly suggests that preserving a stable macroeconomic policy framework provides more leeway (than unstable countries typically have) to intervene in specific markets without strong-

ly discouraging private investors. Moreover, credibility and consistency are key features of the economic policy management in Thailand [Warr, Nidhiprabha, 1989]:

- Inflation rates were kept very low by developing country standards. This can at least partly be attributed to the relative independence of the central bank that discouraged the government from financing budget deficits by money creation. Monetary policy was highly credible. Inflationary expectations started to abate as soon as the central bank raised its lending rate.
- Monetary and fiscal policies were consistent, i.e. periods of monetary expansion (contraction) coincided with periods of fiscal expansion (contraction). Moreover, they were countercyclical. Coordinated monetary and fiscal policies were used in a discretionary manner to stimulate economic growth, to reduce inflation and to contain balance-of-payments deficits.
- In addition, macroeconomic stabilization was helped by built-in stabilizers, e.g. a rising trade deficit automatically resulting in lower budget deficits due to the large proportion of government revenues stemming from import tariffs. Similarly, income growth and the ensuing demand for money led automatically to higher interest rates because of rigid money supply targets and constraints imposed on international capital inflows.

Steadiness and consistency also prevailed on the external front. The basically fixed exchange rate policy followed over several decades did not undermine monetary stability as the capital account remained fairly closed. The import tariff structure was somewhat rationalized in the early 1980s, but the importance of trade taxes in government financing remained relatively high (see TT in Table 32). According to estimates of the effective rate of protection, the overall structure of protection tended to be similar from the mid-1970s to the mid-1980s, and biased in favour of import-competing industries and against export industries even when export incentives are taken into account [Chunanuntathum et al., 1987; Akrasanee, Tambunlertchai, 1990]. Nevertheless, the commodity structure of Thailand's exports, comprising mostly agricultural and labour-intensive products, was consistent with the country's perceived comparative advantages, and the share of imports in GDP pointed to an increasing openness towards world markets (see M in Table

8). This was probably the result of a relatively high transparency of the foreign trade regime. Protection was granted primarily through price-related measures rather than quantitative restrictions, and excessive inter-industry dispersion of protection was apparently avoided.

As oil-importing economies, both Korea and Thailand suffered from external shocks in the late 1970s and early 1980s, but their reactions were different. In the case of Thailand, the impact of the second oil price shock and the subsequent worldwide recession was aggravated by the decline of prices for agricultural products. Current account deficits became unsustainably large and foreign exchange reserves dwindled [Warr, Nijathaworn, 1987]. Austerity measures were adopted by the government to alleviate these problems. But economic adjustment to external shocks was postponed in other respects. The exchange rate was defended for quite some time after the 1981 devaluation as the Baht was pegged to the US dollar.[1] It was only in late 1984 that the effective exchange rate depreciated considerably. In the interim period, the country rather resorted to foreign debt financing, in addition to running down international reserves.[2]

Thailand's export performance deteriorated due to the overvaluation of the Baht in the early 1980s [Chunanuntathum et al., 1987, p. 38]. Slower growth of the domestic economy as well as concerns about the unsustainable current account situation and the rising foreign debt burden added further to the temporary decline in Thailand's attractiveness for investment until 1982 (Table 32). The economic policy framework was improved by the 1984 devaluation and the more flexible exchange rate regime adopted since then. Moreover, the foreign exchange positions of commercial banks have been subject to regulation since 1984 and previous external borrowings were used more efficiently than in other debtor countries. Consequently, repayment problems could be avoided and investors' concerns were overcome. Though deferred, Thailand's

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[1] The Baht was devalued considerably against the US dollar in July 1981 (8.7 per cent) and November 1984 (14.9 per cent). Particularly the first devaluation was hardly effective, however, as it was preceded by an appreciation of the effective exchange rate induced by the US$-appreciation relative to other major currencies [Warr, Nidhiprabha, 1989].

[2] During the first half of the 1980s, total outstanding debt more than doubled, reaching US$17.5 billion in 1985 [World Bank, e, 1990-91].

adjustment to external shocks was successful in preventing major economic crises [Warr, Nijathaworn, 1987; Warr, Nidhiprabha, 1989]. Improved investment conditions are reflected in the country's relative competitive position among the sample countries (Figure 4). Actual investment ratios remained, however, low in 1985/86 because investment activities were overshadowed in Thailand as well as in all other countries by the uncertainties created by the US dollar exchange rate movements and the huge US budget deficit (see also Section VIII.1).

Economic adjustment to external shocks and especially the expansion of Thai exports have been helped by foreign direct investment. FDI increased significantly since the mid-1970s apart from a temporary shortfall in 1986/87 (Table 32). This development is almost perfectly mirrored in the model predictions. With only few exceptions, the predicted FDI values are close to actual flows. Thailand has become a prefered site for world market-oriented FDI [Akrasanee, Tambunlertchai, 1990, p. 107]. Recently, mainly Japanese and Taiwanese companies relocated their plants in response to rising domestic costs of production. Thailand's attractiveness for FDI largely stems from the stability, credibility and consistency of the macroeconomic policy framework. Moreover, the country opened up to FDI much earlier than e.g. Korea.[1] The principal features of the Thai government's stance towards FDI can be summarized as follows (for details, see Sibunruang, Tambunlertchai [1986]):

- Official policy is characterized by a long-standing commitment to promote FDI, avoiding different treatment of domestic and foreign investors, as well as refraining from nationalizations and from restricting capital and profit remittances.[2] An even better competitive position vis-à-vis other host countries was prevented, however, by the counter-productive complexity of institutional arrangements, the fairly

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[1] Even in the mid-1980s, i.e. after Korea had begun to revise its FDI policies, Thailand was considered to be more open in terms of general attitudes towards FDI, the extent to which the government allows enterprises to freely negotiate ventures (except foreign majority shareholdings), and expatriate work permits [World Economic Forum, 1986, pp. 193 ff.].

[2] These commitments were maintained although the political situation was characterized by frequent changes in government and military coups. While any adverse impact of political risks was generally contained in this way, uncertainty created by the coup attempt in 1985 may have contributed to the temporary shortfall of FDI in 1986/87.

bureaucratic policy implementation and time-consuming approval procedures.

- Restrictions were due to the government's preference for joint ventures, the attempts to diversify the sources of FDI, limitations of foreign ownership in specified activities, and regulations on the use of land by foreign firms. However, such restrictions were less binding because of numerous exceptions.[1]
- Incentives included tax holidays, exemptions from import duties and protection against competing imports [see also Chunanuntathum et al., 1987, pp. 45 ff.].

All in all, the Thai case suggests that a favourable macroeconomic environment and cooperative industrial relations help considerably to reduce the damaging effects of any remaining impediments to investment. The fact that serious macroeconomic imbalances were largely avoided provides a good starting point for projections on Thailand's attractiveness for private investors in the future. In particular, Thailand is a good example to assess the economic costs of high product market interventions by running alternative policy scenarios.

4. A Resource-rich Asian Country: Indonesia

With an average private investment ratio of about 12 per cent in the 1980s, Indonesia ranked in a medium position among the 26 sample countries. Such a position is also revealed by the regression model. The predicted values of I given in Table 33 are fairly close to actual observations; the average deviation is less than 1 percentage point. The applied model provides not only a reasonably good prediction of the level of Indonesia's private investment ratio, but also reflects the decline of I in the mid-1980s.

This result can be attributed to the fact that Indonesia is rarely found at the extremes, i.e. among the best or worst performers as far

[1] Moreover, policy has tended to be more lenient recently regarding foreign ownership; no local participation was required in the case of export-oriented firms. In 1982-1983, a one-step service centre was established to reduce red tape, and attempts were made to enhance the transparency of approval procedures and incentive systems.

Table 33 - Synopsis of Dependent and Independent Variables for Indonesia, 1979-1989

	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Dependent variables											
I actual	na	na	13.50	13.60	13.20	12.20	9.90	10.70	10.40	11.00	12.50
I predicted(a)	na	na	12.38	13.90	13.06	13.02	11.23	11.12	8.78	na	na
FDI actual	246.70	228.30	179.70	179.30	216.70	246.30	274.70	263.30	338.00	415.30	574.30
FDI predicted(a)	na	na	440.85	575.05	566.88	239.91	203.70	313.41	431.11	na	na
Independent variables											
Macroeconomic stability											
INF	32.50	29.10	18.50	5.10	19.30	8.20	5.30	-0.10	15.90	5.90	na
BUD	-0.50	-2.42	-1.36	-2.26	-1.34	-0.55	-0.29	-2.58	-1.57	-3.14	na
DEB	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	na
VOL	0.930	0.796	0.910	1.272	1.378	1.192	0.931	0.540	0.323	0.285	0.326
Goods markets											
TT	10.00	7.20	4.83	4.72	4.26	3.32	3.23	4.87	8.26	5.60	na
TD	19.00	21.01	19.58	19.99	19.92	17.40	19.07	31.93	32.56	40.80	na
dPI	na	na	-12.06	5.28	12.50	-3.89	6.52	0.51	2.51	5.89	3.61
Capital markets											
M2	16.106	16.959	16.696	17.725	18.885	19.986	23.932	26.929	27.224	30.170	na
BC	-12.303	-2.656	8.786	21.938	-1.543	13.598	11.837	19.235	7.338	26.456	na
CAB	1.907	4.154	-0.615	-5.636	-7.419	-2.122	-2.205	-4.892	-2.769	-1.689	na
Labour markets											
dW	-8.8503	-11.2488	-9.8146	-6.8643	-5.3242	-2.0438	0.5963	3.0945	0.7286	na	na
S1	0.0766	0.2043	0.1235	0.2099	0.0929	0.0242	0.0463	0.0432	0.0212	na	na
ED2	24	29	31	35	37	39	41	46	48	na	na
Complementary immobile factors											
PI	13.13	12.65	12.17	11.68	11.20	10.72	10.23	9.75	9.27	8.78	8.30
RO	213087	345605	392616	406833	364389	345136	347831	217967	214115	181346.9	na
RM	1456927	1659789	1459462	1344497	1308956	1303462	1287392	1627864	1893892	1999975	1711622

(a) Predicted values of I (FDI) based on the regression for East and Southeast Asia (sample countries with relatively rich resource endowment) and total period 1979-1988.

Source: See text.

as the dependent variables and most of the explaining factors covered by our regression analysis are concerned. According to the variables defined in Chapters III-VII, the country was characterized by a moderately unstable macroeconomic framework, moderately attractive labour market conditions and poor (but not excessively poor) capital market conditions. By contrast, there were relatively smaller distortions in goods markets while the endowment of Indonesia with both oil and other mineral resources was outstandingly favourable.

Strict investment regulations represent a major factor underlying the afore mentioned moderate competitiveness of Indonesia for risk capital. Until the early 1980s, heavy regulation limited domestic competition, led to a high cost structure, discouraged non-oil exports, and perpetuated the economy's dependence on oil [Itam, 1988, p. 262]. The policy environment was characterized by proliferation of administrative procedures and excessive government intervention in the process of industrialization [Pangestu, 1987].[1] In 1982, the government further increased the number of import quotas and monopoly licences, and weakened the tradeables sector by allowing holders of monopoly licences to raise the prices of imported inputs [Goldstein, 1989, p. 131]. As far as FDI is concerned, the open-door policy adopted until 1974 was replaced by increasingly restrictive regulations afterwards. The approval procedure became highly selective with respect to sectors and locations, local participation rules in terms of ownership and management of foreign firms were enforced, the engagement of foreign investors in distribution and marketing activities was restricted, and the access of joint ventures to the domestic credit market was regulated [UNIDO, b, p. 45]. All in all, both private domestic investment and FDI were likely to be constrained by the unfavourable policy framework.

Comparing actual and predicted values (Figure 5), the observed FDI inflows and, though to a somewhat lesser extent, the private investment ratio (I) are generally lower than the values predicted by the regression for the total sample. Typically, the regression estimates revealed a positive relationship between the resource endowment and the dependent variables, particularly in the case of FDI. Hence, Indonesia's

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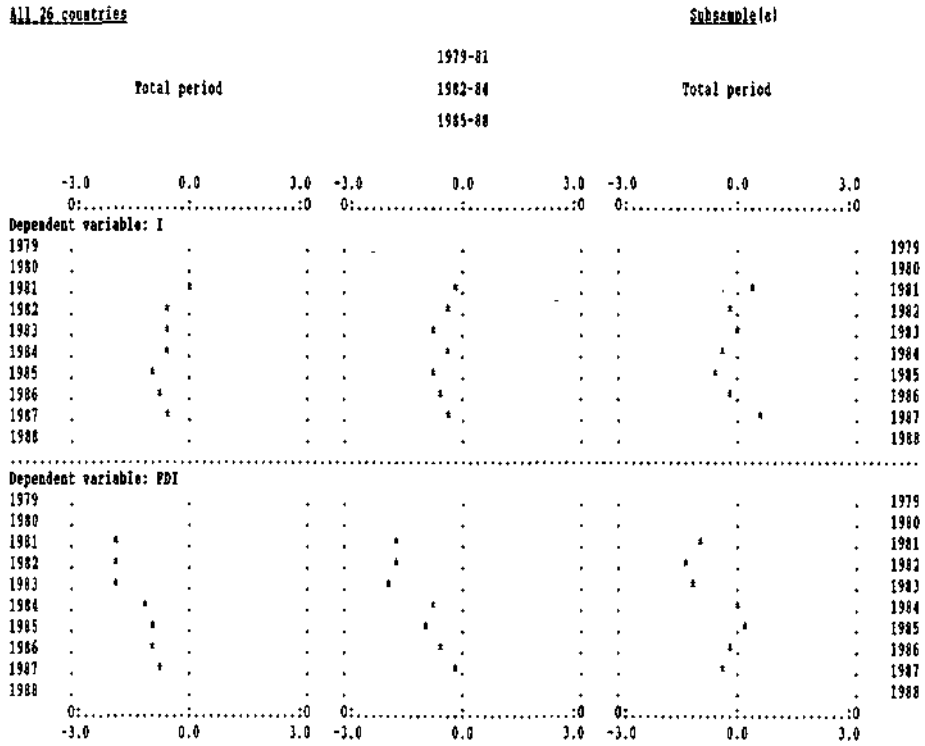
[1] The industrialization strategy aimed at extending import substitution into upstream industries such as iron and steel and motor vehicles.

Figure 5 - Standardized Residuals, 1979-1988: Indonesia



(a) East and Southeast Asia in the case of I; sample countries with relative rich resource endowment in the case of FDI.

exceptional resource endowment should have resulted in particularly high values of I and FDI. This, however, was not the case. In fact, the relationship between the resource endowment and I turned out to be significantly negative for East and Southeast Asia. The latter result was probably largely determined by the Indonesian experience. This would explain why the deviations revealed in a regional context are distributed around the reference line indicating the normal pattern.

Even in the case of the regional estimates, there are, however, a number of deviations between actual and predicted values which require an explanation. Indonesia was hit by adverse external shocks which contributed to the significant decline in the private investment ratio from

13.5 per cent in 1981-1982 to less than 10 per cent in 1985 (Table 33). By the early 1980s, the oil sector accounted for about one fourth of GDP, more than two thirds of government revenues, and four fifths of merchandise exports [Itam, 1988, p. 262]. Consequently, the country suffered from the decline of world oil prices since 1983. Indonesia's exports of crude oil and petroleum products were nearly halved in nominal terms within three years (1982: US$14.9 billion; 1985: US$7.7 bil- [IMF, c]). Current account deficits soared to US$5.6-7.4 billion in 1982/83. At the same time, foreign currency reserves dwindled and capital flight was accelerating [Goldstein, 1989, p. 131]. The government responded by devaluing the Rupiah in 1983 and imposing stricter quantitative import restrictions. The latter reaction led to a deterioration of investment conditions which could not be captured by the variable TT that served as a proxy for foreign trade regulations in the regression analysis.[1] The stimulating effect of the nominal depreciation on non-traditional exports which, in turn, might have induced additional investment was largely eroded by rising inflation and the lack of supporting policies, i.e. the removal of other distortions facing potential exporters [Pangestu, 1987, p. 7]. Hence, it is not surprising that the negative deviation of I from its predicted values was the largest in the mid-1980s.

After 1985 there was a recovery of private investment which is not fully traced by the regional estimates. The recovery may come as a surprise as Indonesia experienced a further series of external shocks. Official oil prices fell by nearly 50 per cent in 1986 [IMF, c]. The prices of the country's other primary commodity exports remained weak. In addition, the US dollar depreciated against other major currencies, exacerbating Indonesia's debt burden as most of the foreign debt was non-dollar denominated [Itam, 1988]. In recent years, however, the government has taken important steps to restructure the economy and to reduce the strong dependence on the oil sector. Economic adjustment encompassed fiscal and monetary restraint, appropriate exchange rate pol-

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[1] In the case of Indonesia, the variable TT is strongly misleading in indicating goods markets distortions arising from the foreign trade regime (see also Chapter IV). Although tariff protection remained moderate on average, the import regime was fairly restrictive due to non-tariff barriers [Woo, Nasution, 1989]. Moreover, tariffs were often replaced by import licensing and quotas, while tariffs were increased when quantitative restrictions were relaxed.

icies, reforms of trade and industrial policies, and tax and financial reforms [Itam, 1988]. To some extent, the ensuing improvement of investment conditions is reflected in the development of the explaining variables given in Table 33. However, some of the reform measures escaped the regression analysis. Important policy changes may be summarized as follows:

- The government adopted prudent fiscal policies in 1986-1988, though budget deficits (BUD) could not be prevented from rising. Public expenditure was considerably reduced in nominal terms. An improved tax administration succeeded in raising higher revenues from the non-oil sector. The tax reforms resulted in the doubling of TD. Relatively speaking, however, the negative effects of TD on investment were probably weaker than the effects of stronger reliance on external financing of government expenditure. Arguably, the tax reforms helped considerably to stabilize the fragile current account situation [see also Woo, Nasution, 1989; Goldstein, 1989].
- In contrast to 1983, the 1986 devaluation of 45 per cent was more successful in the sense that inflation was kept lower and supporting policies were implemented [ADB, a, 1990, p. 84].
- Especially trade policies were supportive in achieving high growth of non-traditional exports (for details, see Pangestu [1987]).[1] The bias against export production was reduced, inter alia, by abolishing the difference in tax rates between imports and domestic sales, liberalizing domestic content requirements, removing export bans and quotas, reducing export taxes substantially, lowering the interest rate on export credits, and improving the duty drawback scheme. Moreover, the earlier shift towards quantitative import restrictions was reversed recently. In 1987, import controls were removed for one fourth of the value of imports that had previously been restricted [Itam, 1988, p. 263].[2] The effects of import liberalization were strong since trade flows were removed from the arbitrariness of customs offi-

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[1] The composition of Indonesian exports changed significantly between 1982 and 1987: The share of fuels, minerals and metals declined from 85 to 57 per cent, while the share of manufactures rose from 4 to 22 per cent, and agriculture from 11 to 21 per cent [ibid, Table 1].

[2] As a result, the share of manufacturing protected by non-tariff barriers fell from 42 to 35 per cent.

cials in 1985 and placed under the sole control of a private (Swiss) company which since then ensures efficiency and expediency [WEFA, 1990, p. 132].

- Traditionally, financial intermediation had been extremely poor in Indonesia which could at least partly be attributed to financial repression (for details, see Nunnenkamp [1986]). However, the respective indicator M2 improved steadily, especially since 1984, as a result of gradual financial market reforms. The deregulation of interest rates in 1983 induced a shift towards longer-term deposits, thereby alleviating the refinancing of commercial banks and adding to the supply of funds for productive investment. Financial liberalization resulted in greater competition among financial institutions. More recently, an attempt was made to broaden the capital market, e.g. by easing listing requirements for companies and facilitating stock trading.
- Extensive controls on production and investment were relaxed since 1986. Firms were permitted to produce up to 30 per cent beyond licensed capacity without requiring new investment approval and to diversify production within broader product categories [Itam, 1988, p. 264].[1] Investment licensing for both domestic and foreign investors was lifted if more than 85 per cent of planned production were to be exported. Foreign investors were granted access to low-interest export credits and to Indonesia's stock market. Domestic ownership requirements and the marketing of Indonesian exports by joint ventures were eased, and foreign companies were allowed to purchase domestic inputs freely. These measures contributed to the significant rise in FDI inflows since 1986 (Table 33). This increase was slightly overestimated by the estimates based on the subsample of resource-rich countries because the increase of mineral prices in 1985-1988 (R) provides a strong stimulus to the predictions.

The Indonesian case provides important lessons to avoid the Dutch disease syndrome of resource-based economies and how to adjust to adverse external shocks. Evidently, an inherited dependence on primary commodities and unfavourable world-market developments do not preclude

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[1] Under the traditional system, new approvals were required even for a slight modification of the product mix as well as for any renewal and expansion of productive capacity.

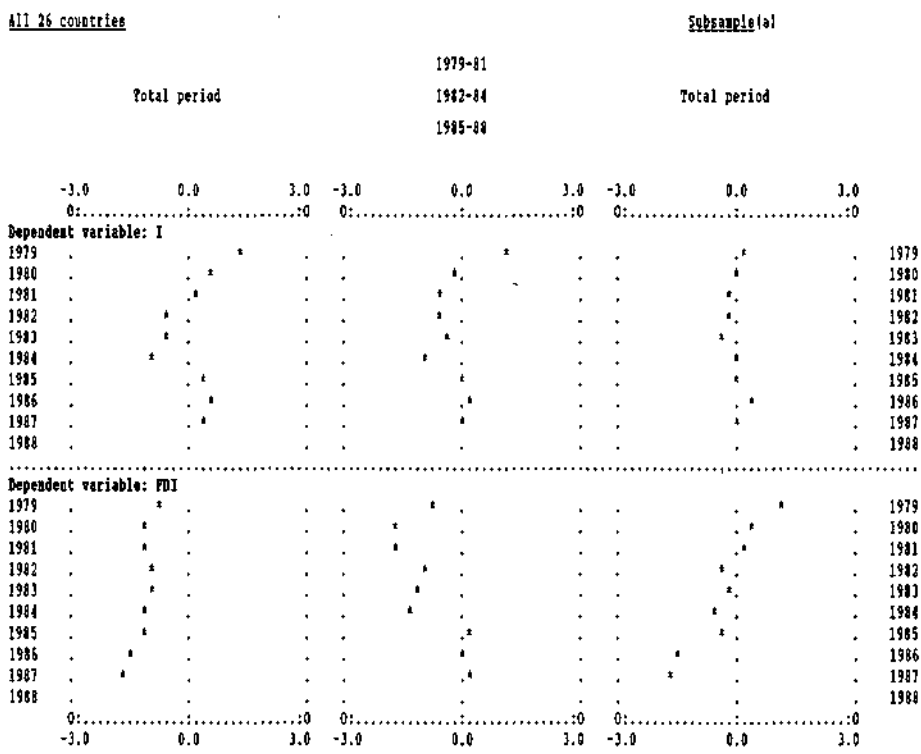
a country from improving its attractiveness for domestic and foreign investment, provided that appropriate economic policy responses take place. Three factors appear to be critical [see also ADB, a, 1990, p. 84]: prudent fiscal and monetary policies, favourable exchange rates, and comprehensive structural reforms. Despite the recent major policy changes, however, the economic system of Indonesia has remained regulated, e.g. with respect to non-tariff trade barriers and industrial licensing. Projections of the future investment behaviour in countries such as Indonesia will, therefore, have to be supplemented by a careful analysis of foreseeable changes in terms of further deregulation or re-regulation.

5. Inward-Orientation Continued: India

The private investment ratio (I) in India is one of the lowest of the 26 sample countries. During the first period of this analysis (1979-1981), only Guatemala, Pakistan, and Turkey had lower investment ratios than India (Table 2). In the third period (1985-1988), some more countries, especially in Latin America (Argentina, Chile, Uruguay, Venezuela), slipped to lower investment ratios. Generally, Indian private investment was similar to the estimates for the regional subsample comprising the rest of the sample. This shows that the problems and policy implementation in India bore a greater resemblance to those of Latin American and other South Asian countries than to those of high-performing East and Southeast Asian countries.

Also, the inflow of FDI into India was very low, if its size is taken into consideration. The ratio of FDI to GDP for India was the lowest (.04 per cent in 1979-1988) among the sample countries (except Zimbabwe), although India had improved its ranking from 5 to 13 between 1979-1981 and 1985-1988 in terms of absolute amounts of net FDI (Table 2). However, this relative improvement reflects capital outflows from some Latin American countries rather than a surge of FDI flows to India. The regression estimates for the sample as a whole show Indian FDI far to the left of the reference line indicating large negative gaps between the observed and predicted values of FDI (Figure 6). When the resource-poor countries are excluded from the sample, actual FDI flows have little

Figure 6 - Standardized Residuals, 1979-1988: India



(a) East and Southeast Asia in the case of I; resource-rich countries in the case of FDI.

resemblance with the amounts predicted by the model. This is likely to be a result of initially high and then declining labour costs, rising current account deficits as well as an increasing value of mineral reserves in the late 1980s (Table 34). On all the three grounds the model would expect an increase in the inflow of FDI to India. However, the actual increase in FDI did by far not match model expectations.

The question now arises why private capital formation in India including FDI has been lower than in many other sample countries, especially during the first half of the 1980s. There are several reasons:

- Among the indicators of macroeconomic stability, the deficits in government budgets have been most critical. They amounted on an

Table 34 - Synopsis of Dependent and Independent Variables for India, 1979-1989

	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Dependent variables											
I actual	10.50	10.70	10.60	9.70	9.40	9.50	10.50	10.40	9.70	10.30	10.20
I predicted(a)	9.78	10.82	10.94	10.22	10.25	9.72	10.27	9.28	9.65	na	na
FDI actual	10.20	48.60	73.20	81.10	56.50	32.30	43.60	81.00	145.00	140.00	na
FDI predicted(a)	-331.51	-48.84	42.20	167.59	90.00	221.30	135.32	509.46	664.17	na	na
Independent variables											
Macroeconomic stability											
INF	15.30	11.60	10.10	7.10	7.20	7.90	6.80	6.80	10.00	7.30	na
BUD	-5.86	-6.53	-5.48	-6.04	-6.45	-7.62	-8.48	-9.27	-8.47	-7.72	na
DEB	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	na
VOL	1.386	2.962	3.350	5.990	5.605	7.130	2.941	1.388	0.970	0.892	0.827
Goods markets											
TT	20.30	21.80	22.42	23.71	22.52	23.78	26.37	28.13	28.50	28.51	26.46
TD	51.93	50.68	47.89	46.29	50.23	50.07	47.95	46.56	46.53	46.91	45.55
dPI	7.98	-3.12	0.66	11.67	2.41	1.71	3.01	7.11	-2.05	-7.13	-11.98
Capital markets											
M2	38.248	37.324	37.348	39.287	39.462	41.732	42.844	45.206	46.393	46.656	na
BC	3.998	5.377	11.216	12.050	10.521	10.431	7.804	10.618	3.193	10.898	na
CAB	0.034	-1.033	-1.465	-1.344	-0.954	-1.155	-1.968	-1.976	-2.024	na	na
Labour markets											
dW	15.8962	17.1943	14.6488	15.6032	15.4903	15.2910	15.5455	10.0838	11.1845	na	na
S1	0.5211	0.4864	0.4281	0.3971	0.3956	0.3382	0.2838	0.3019	0.2869	0.2787	na
ED2	30	31	33	35	34	35	37	37	38	na	na
Complementary immobile factors											
PI	8.61	8.88	9.14	9.40	9.67	9.93	10.19	10.46	10.72	10.98	11.25
RO	75598	122209	138867	144170	129523	122140	123618	79203	76200	65026	na
RM	2898335	3388698	3048159	2856191	2743875	2702361	2683759	3402726	3904804	3956717	3408018

(a) Predicted values of I (FDI) based on the regression for rest of sample countries (resource-rich countries) and total period 1979-1988.

Source: See text.

average to 7.2 per cent of GDP as compared to 3.8 per cent for the sample in 1979-1988 (Tables 34 and 4). Budget deficits have - as shown by the regression estimates for the subsample (Table 26) - a negative impact on private investment because they create inflationary expectations. These deficits were financed partly by borrowing from the Reserve Bank of India [Government of India, various issues]. These borrowings were used to finance not only capital expenditure but also a part of current expenditure putting pressure on inflation [ADB, a, 1989]. Traditionally, the Indian fiscal policy had been short-term (budget-year) oriented creating considerably uncertainty for investors. In December 1985, a long-term fiscal policy for five years was announced in an attempt to remove this uncertainty and to reduce the deficits by tax reforms and a more effective collection of taxes. But the success of these and other revenue enhancing measures adopted in 1987 has been limited especially due to increased defence expenditure, interest payments on public loans, drought related expenditure in 1986-1988, and a short-fall of remittances from state enterprises [see Government of India, 1985-1986; 1989-1990; ADB, a, 1989].

- The Indian domestic goods markets were subject to various kinds of distortions affecting private investment, both local and foreign. The proxy of these distortions as far as foreign trade is concerned (TT) is higher for India than the sample average. However, non-tariff barriers and foreign exchange regulations play a greater role in India than tariffs alone. The other proxy relating to domestic taxes and subsidies (TD) is also likely to underestimate the degree of distortions. Goods markets in India are plagued by price ceilings, production quotas, statutory entry barriers, selling regulations involving compulsory delivery to certain sectors or groups of customers, state procurement and trading, restrictions on interregional transport of selected goods, especially food items, etc.

  Since the mid-1980s, the government has taken a number of policy initiatives to deregulate the domestic industry and liberalize foreign trade [UNIDO, a]. They included the exemption of an increasing number of industries from government licensing, automatic capacity re-endorsement, more freedom to change the product-mix (broad-banding), raising the minimum size of assets of firms subjected to rigorous

scrutiny in granting licences, a gradual substitution of import tariffs for quantitative controls, a reduction of import duties, fiscal and monetary incentives for exports, liberalization of imports for industrial uses, etc. All these measures have increased the competitiveness of the Indian economy for risk capital, but the reforms have been accompanied by even greater budget and balance-of-payments deficits. Their financing has created severe problems in recent years, thereby laying the groundwork for the political crises of 1990 and 1991.

- Although the capital market in India appears to have provided the private investors with relatively good conditions according to the underlying variables (Table 13), the country remains financially a highly repressed economy. Most of the bigger banking institutions belong to the state and are generally geared to the needs of the public sector. In spite of some liberalization, interest rate and credit ceilings are wide spread. The real interest rate tends to be negative or near zero.[1] Bonds issued by the public enterprises enjoy fiscal concessions and distort the overall structure of interest rates. Though there has been a rapid growth of bank branches in the rural areas, they are not enough to mobilize the rural savings efficiently and to integrate the informal with the formal banking sector. Securities markets are far from being efficient. A number of institutions (Securities Exchange Board, Credit Rating and Information Services of India Ltd., Stock Holding Corporation) were established in 1988 to improve the functioning of this market. But the securities market continues to suffer from many handicaps, for example, from a shortage of qualified and financially solid brokers, from cumbersome procedures of transferring stocks from sellers to buyers, and from a high volatility of prices.
- Until the beginning of the 1980s, the Indian policy towards FDI had been highly restrictive. The restrictions included a list of industries in which foreign equity participation was not allowed, ceilings on foreign ownership of share capital and on the transfer of dividends, limits on imports of inputs, export requirements, etc. Therefore, it is not surprising that the inflow of FDI into India was very low. The

[1] Measured in terms of interest on commercial bank deposits for one to two years and consumer price indices [Government of India, 1987-1988, 1988-1989; 1989-1990].

restrictions on FDI were relaxed successively during the 1980s [Kumar, 1990], which has shown its effect - with a due time lag - in slightly increased flows of foreign capital into India during the third period of our analysis (Table 34). Nonetheless, the Indian policy towards foreign private investors still remained highly selective, favouring technology and export-intensive areas of manufacturing. Insofar as this policy blocked the market forces, the competitiveness of the Indian economy for private investment from abroad was reduced in spite of its natural resource abundance (Table 20) and a rise in the value of the Indian mineral reserves in the third period (Table 34).

In conclusion it can be maintained that the model based on the regional subsample has succeeded in picking up the effects of the economic policy framework on private investment in India. However, this does not apply to FDI. Restrictive investment regulations have governed the inflow of foreign capital so that other economic determinants, which are reflected in the model predictions, could not exert any influence. The model indicates, however, that India would gain much from liberalizing foreign investment, but it is not suited to estimate Indian competitiveness for foreign funds as long as the restrictions are still in place.

6. A Debt-ridden Latin American Country: Argentina

In the 1970s and 1980s, successive military and civilian governments have unsuccessfully struggled to overcome the chronic overspending in the public sector of the Argentine economy. Large public sector deficits had to be financed first by domestic and foreign borrowing with ensuing balance-of-payments problems, and then by an ever increasing inflation tax [Fischer et al., 1985]. By 1980, Argentina was a virtually closed economy with an already high external debt burden, a highly distorted private sector and an extinct capital market replaced by government credit allocation at negative real rates of interest. Five stabilization plans implemented by the Alfonsín administration (1983-1989) have not been able to reverse economic trends but rather contributed to making conditions even worse, largely because of insufficient adjustment in the public sector [World Bank, a, Chapter II]. Each time public sector

deficits quickly returned, and inflation surged to higher levels than on the previous occasion.

Given this policy scenario, it is hardly surprising that Argentina belonged to those countries in the sample which suffered from the highest degree of macroeconomic instability (Chapter III). This is reflected in the economic performance of the country: real growth of GDP remained below 1 per cent on average throughout the 1980s, per capita income was about 23 per cent less in 1989 than in 1977 [World Bank, a, p. xi], and private investment steadily declined from roughly 12 per cent of GDP in 1979-1981 to only 6 per cent in 1985-1988 (Table 2). In this latter subperiod Argentina was only surpassed by Uruguay in terms of lacking competitiveness for private funds. Domestic savings declined, and there was large-scale capital flight estimated to have accumulated to about US$50 billion by the end of the decade. However, the country could maintain a relatively high inflow of FDI in the 1980s, a fact that needs to be assessed in greater detail below.

The model predicts reasonably well the decline of private investment activities from 12.5 per cent of GDP (estimate: 12.29 per cent) in 1979 to 5.5 per cent in 1985 (estimate: 5.68 per cent)[1] when the first sweeping stabilization programme, the Plan Austral, was launched. The good ex post prediction was achieved because the independent variables capture the major ills of the Argentine economy (Table 35):

- Macroeconomic instability is created by high and volatile public deficits which cause steeply increasing rates of inflation. These, together with ad hoc devaluations, contributed to a volatility of exchange rates hardly matched by any other country in the sample (Table 6).
- Distortions of the domestic rate of transformation are also among the highest included in the sample (Table 9) while trade protection granted to domestic producers is clearly underestimated by the share of trade taxes in government revenues (TT) because - in response to lacking foreign exchange - imports were restricted by tight quantitative controls [Fischer et al., 1985, p. 14].

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[1] The somewhat better fit of the regressions based on the total sample, compared to the regional subsample, is caused by the inadequate reflection of the effects of exchange rate volatility in the subsample (Table 26).

Table 35 - Synopsis of Dependent and Independent Variables for Argentina, 1979-1989

	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Dependent variables											
I actual	12.50	13.00	9.40	8.90	7.90	6.90	5.50	6.00	6.80	na	na
I predicted(a)	12.29	11.02	10.44	11.22	6.23	7.32	5.68	15.44	14.11	na	na
FDI actual	227.70	442.00	665.70	663.00	461.30	236.00	456.70	587.00	491.30	567.30	718.70
FDI predicted(a)	154.73	174.49	380.54	623.83	543.07	449.66	481.56	548.98	305.60	na	na
Independent variables											
Macroeconomic stability											
INF	154.40	96.00	106.90	183.60	348.90	653.60	683.80	77.70	131.70	342.80	3079.30
BUD	-2.60	-3.53	-9.13	-7.45	-12.74	-5.06	-7.39	-2.64	-3.76	-4.00	na
DEB	0.000	0.000	0.000	0.000	0.000	0.000	8.444	7.050	19.956	na	na
VOL	0.882	0.808	0.797	0.588	0.542	0.547	0.657	1.738	1.422	1.510	0.554
Goods markets											
TT	10.88	10.99	10.74	8.70	16.04	13.41	14.66	12.03	10.27	11.40	na
TD	51.01	55.26	62.18	61.14	61.40	61.67	56.62	40.97	38.22	25.08	na
dPI	2.80	-3.47	2.86	-7.40	13.69	-4.57	-10.20	-2.52	9.00	na	na
Capital markets											
M2	27.972	28.269	32.847	31.165	33.690	31.093	21.294	23.895	27.971	na	na
BC	94.579	-7.723	33.989	5.878	-8.540	-14.823	-40.552	3.102	29.093	-6.823	na
CAB	-0.472	-3.099	-3.786	-4.129	-3.747	-3.194	-1.447	-3.628	-5.251	na	na
Labour markets											
dW	-5.0350	-1.2432	-4.1513	-10.8177	-6.2755	-2.7069	-5.8384	-7.2296	-1.8360	na	na
S1	na	na	na	na	na	na	na	na	na	na	na
ED2	56.0	56.5	57.0	58.5	60.0	65.0	70.0	74.0	74.0	na	na
Complementary immobile factors											
PI	9.92	9.53	9.14	8.75	8.36	7.96	7.57	7.18	6.79	6.40	6.01
RO	88580	139369	158695	167365	154106	140207	146899	110589	91538	82725	na
RM	6378	7842	8817	8305	6771	5931	6504	6543	5958	5613	6142

(a) Predicted values of I (FDI) based on the regression for all sample countries (resource-rich countries) and total period 1979-1988.

Source: See text.

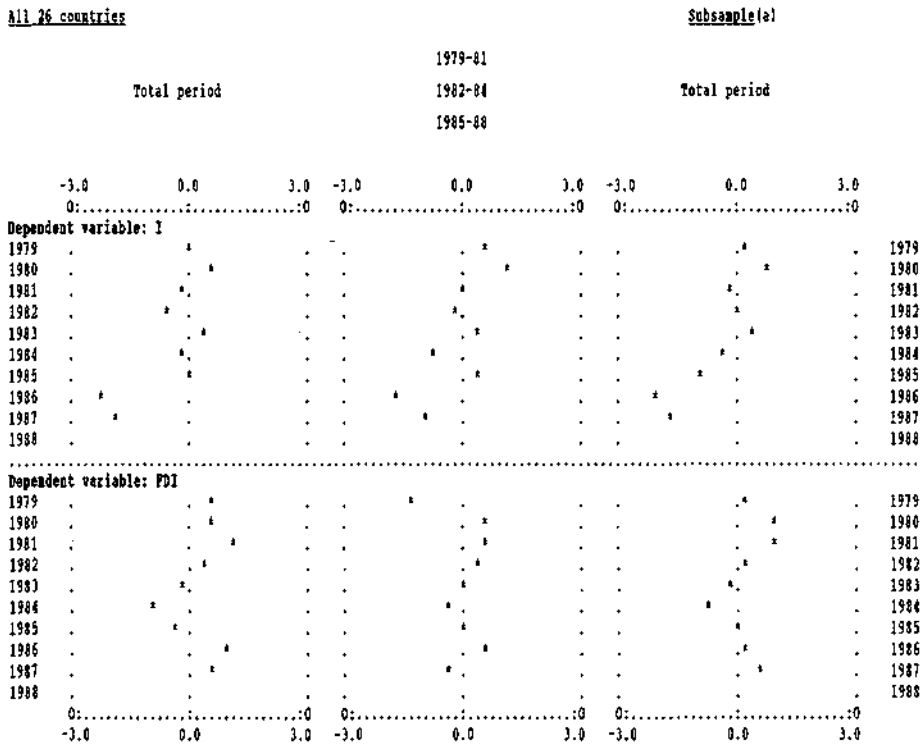
- Financial repression is evident from an erosion of the financial system depicted by M2 and the absolute decline of domestic credit supply after 1982. Simultaneously, foreign funds also became scarce as shown by CAB.

The Argentine economy was firmly on the road to hyperinflation in 1985, when the Alfonsín administration finally announced a far-ranging stabilization programme including a wage-price freeze, tightened fiscal and monetary policies, and a new currency, the Austral, combined with a steep devaluation [World Bank, a, pp. 12-14]. The data presented in Table 35 clearly reflect the favourable first-round effects of this programme. The government deficit (BUD) declined dramatically and so did inflation (INF). Some degree of exchange rate stability (VOL) was restored, and foreign exchange shortages (CAB) were eased considerably. Nonetheless, private investment did not pick up, but remained at rather low levels contrary to the model prediction (Table 35 and Figure 7).

The muted reaction of investors indicates that the stabilization attempt was not credible from its very beginning. Lacking credibility was based on the fact that the budget deficit continued to be financed by monetary expansion, and its improvement largely resulted from temporary measures (such as forced savings which were not sustainable over a longer period of time). Expectations were proven to be entirely correct by the subsequent turnaround of inflation rates in 1987 and 1988. Furthermore, Argentina's foreign indebtedness had reached a level at which debt became unserviceable. In 1985, the country began debt rescheduling at a substantial scale which continued during 1986 and 1987. Debt rescheduling must have additionally increased uncertainty surrounding investment in Argentina, and is likely to have had a stronger negative impact on investment than predicted by the regression estimates.

Against this background, the poor estimates for private investment in 1986 and 1987 are easily explained. The regression results react positively to the improved macroeconomic environment but fail to reflect expectations adequately. The lessons to be learned from this failure are that (a) in highly distorted and destabilized economies, stabilization and adjustment programmes can only provide new incentives to investors when they are comprehensive and consistant - ergo, credible - and (b) the model cannot distinguish between partial and comprehensive pro-

Figure 7 - Standardized Residuals, 1979-1988: Argentina



(a) East and Southeast Asia in the case of I; sample countries with relatively rich resource endowment in the case of FDI.

grammes. An assessment of the future investment behaviour in countries such as Argentina or Brazil will, therefore, have to be supplemented by a careful analysis of necessary or foreseeable policy changes.

Contrary to total private investment, Argentina continued to be a moderately attractive location for foreign investors throughout the 1980s. The model was able to capture the average level of foreign investment flows to Argentina, but there are substantial deviations between actual and estimated inflows in some of the years under observation (Figure 7). The best fit was obtained from the regression based on the subsample of resource-rich countries to which Argentina belongs because of its oil reserves. Comparing actual and predicted values (Table 35), it is quite

obvious that the model could not capture the collapse of FDI following the emergence of the debt crisis in 1982.

By 1984, FDI had declined to but one third of 1981/82 inflows. Another reason for the observed deviations stems from the distribution of FDI among economic activities. Most foreign investment is in oil, gas, motor vehicles as well as the financial sector and is composed mainly of reinvestment of earnings [EIU, a, pp. 32 and 35]. It appears that foreign investors were active in Argentina primarily to exploit natural resources and to defend their previous investment, e.g. by sustaining necessary productivity levels or introducing new products. In these circumstances, FDI flows will react less to macroeconomic changes or a deterioration of capital market conditions, but rather follow prices of raw materials and bottlenecks emerging at the firm level. When the value of oil reserves (RO) soared in the early 1980s, there was a threefold increase of FDI (1979-1981) despite a surge in the budget deficit (BUD). Likewise, FDI inflows returned to relatively high levels after 1984 despite the failure of the 1985 stabilization programme.

The model estimates, on the other hand, tend to reflect the movement of oil prices and the changes in the domestic economic environment, in particular the changes of labour costs (dW). A worsening of labour-cost advantages in 1980 and 1981 compared to 1979 kept the increase of predicted values due to higher oil prices in bounds and were responsible for the underestimation of actual inflows. The same constellation explains the low estimate for 1987. The oil price decline was reinforced by higher labour costs while actual inflows were only moderately lower than in 1986. These observations lead to the conclusion that the regression results allow projections of future FDI flows only for countries which are not subject to severe macro- and microeconomic imbalances.

7. On the Road to Recovery: Mexico

As a large oil-rich economy, Mexico was exposed to heavy external shocks in the 1970s and 1980s which were not sterilised by domestic policy measures. A boom period following the second oil price shock gave rise to public overspending and a massive accumulation of foreign debt. When oil prices plunged, Mexico was the first large debtor country which

defaulted (in August 1982). Various programmes of debt rescheduling and short-term adjustment could not prevent the country from tumbling into a deep stabilisation crisis which lowered real income, real wages and capital goods imports and - as a result of import compression - discouraged public and private investment activities. It was not earlier than 1987 that the economic tide turned for the better. The Mexican government supported by the international community implemented a growth-oriented adjustment programme which yielded considerable progress in trade liberalisation, privatisation of public sector enterprises and monetary control [IMF, a]. The policy reforms contributed to strengthening the tax base, encouraged non-traditional exports, and reduced public sector deficits.[1]

Mexico was the most unstable economy in the entire sample if the four major indicators of macroeconomic instability are taken as a yardstick (Chapter III). The country's economic performance deteriorated rapidly, both in absolute terms as well as relative to other sample countries (Table 2). The private investment ratio dropped by more than 3 percentage points after the emergence of the debt crisis (Table 36; 1981 compared to 1983) and recovered only slowly thereafter. The reaction pattern of FDI inflows was even more pronounced. 1985 inflows were only one fifth of 1981/82 levels.

The model predictions of the investment ratio based on the regional subsample capture the initial level of investment in 1979 and the direction of changes until 1985 (Table 36). There was an increase of the ratio until 1981 when inflation and exchange rate volatility could be contained. Thereafter, the predictions accurately trace the decline of I because the model incorporates the factors behind the deterioration of the investment climate:

- inflation rates more than doubled,
- the private sector was cut off from bank credit (BC), and
- the budget deficit (BUD) could not be redressed to its pre-1981 level.

Moreover, the model precisely predicts the slight recovery of investment ratios in 1984-85 when macroeconomic conditions recovered tem-

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[1] For an overview of Mexican stabilisation policies in the 1980s, see Buffie [1989; 1990], Balassa [1990], and Ros Bosch [1986].

Table 36 - Synopsis of Dependent and Independent Variables for Mexico, 1979-1989

	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Dependent variables											
I actual	13.50	13.90	14.30	12.80	11.00	11.30	12.50	12.90	12.90	14.70	14.40
I predicted(a)	14.21	16.30	15.77	13.69	10.97	11.37	12.01	8.92	8.07	na	na
FDI actual	904.00	1437.30	2107.70	2215.30	1650.30	835.30	447.30	680.30	1149.00	1197.00	1427.70
FDI predicted(a)	694.32	1394.19	1650.61	1659.93	1486.23	1494.97	1226.24	781.34	624.41	na	na
Independent variables											
Macroeconomic stability											
INF	20.20	28.70	27.30	61.20	92.10	61.80	54.40	80.90	131.80	114.20	20.00
BUD	-3.33	-3.00	-6.40	-14.84	-7.62	-7.11	-8.40	-13.10	-9.41	-9.61	na
DEB	0.000	0.000	0.000	0.000	6.371	5.308	14.338	13.124	24.994	na	na
VOL	0.963	1.324	0.946	0.947	0.764	0.765	0.793	0.573	0.404	0.407	0.481
Goods markets											
TT	14.51	27.55	29.08	33.03	6.86	2.74	4.02	5.62	5.08	3.30	7.99
TD	49.08	44.51	45.35	58.35	72.21	77.30	74.79	68.24	69.45	64.04	63.98
dPI	-11.89	0.89	20.61	10.14	-22.25	-14.48	-4.98	5.28	1.81	-4.99	-1.53
Capital markets											
M2	30.937	30.329	32.905	32.441	28.848	28.982	26.182	26.810	27.292	na	na
BC	12.285	9.770	8.711	-21.340	-22.088	14.722	3.633	-4.257	6.492	-9.547	51.075
CAB	-4.058	-5.782	-6.698	-3.777	3.786	2.448	0.637	-1.288	2.834	na	na
Labour markets											
dW	2.5198	1.4353	3.5985	3.9568	-5.6823	-8.1349	-2.9936	-7.3436	-9.8057	na	na
S1	0.42	0.65	0.47	0.93	0.10	0.19	0.07	0.13	0.07	na	na
ED2	44	47	51	53	55	55	55	55	55	na	na
Complementary immobile factors											
PI	11.58	10.80	10.03	9.26	8.49	7.72	6.95	6.17	5.40	4.63	3.86
RO	920458	1506202	1709939	1762802	1565880	1500976	1495358	879641	917059	760614	na
RM	99861	120229	133743	124890	101945	90408	97969	98785	91730	86831	94754

(a) Predicted values of I (FDI) based on the regression for rest of sample countries (resource-rich countries) and total period 1979-1988.

Source: See text.

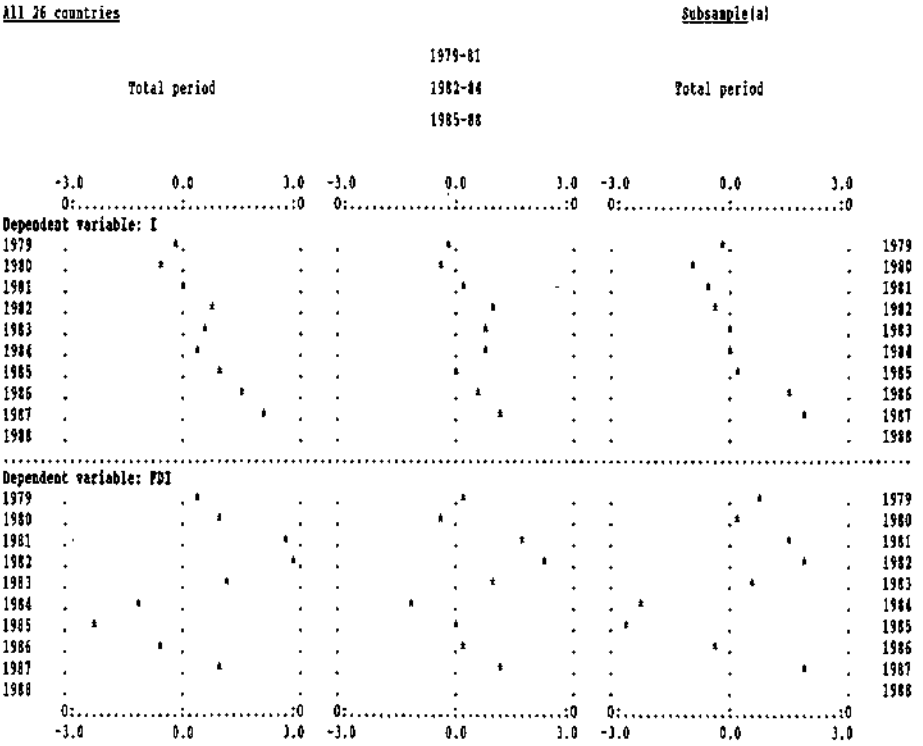
porarily in terms of lower inflation. What the model does not adequately capture is the level of private investment in 1980/81 and, hence, the pace of decline until 1983 (Figure 8). In addition, the stabilisation and recovery of investment activities after 1985 is not predicted. Instead, the model reveals a massive decline in investment ratios.

The initial deviations can be explained by various factors. First, financial resources accruing from the second oil price hike were primarily channeled into public rather than private investment. Mexico was a classical case of public overspending [Kaufman, 1990, p. 95]. Not surprisingly, the stabilisation attempts after 1982 basically concentrated on cutting public sector investment, including the expenditures of the big Mexican public enterprises such as the state oil company PEMEX. Between 1982 and 1984, public investment in GDP fell from 10.2 to 6.6 per cent [Pfeffermann, Madarassy, 1991].

Second, the major variable which is responsible for the high values and the sharp decline in predicted investment ratios is the current account deficit. After having reached an unsustainable level in 1981, Mexico untertook strong efforts to correct the trade balance by reducing internal absorption and promoting exports as well as by introducing tough import restrictions. As a result, exports rose and imports of mostly capital goods and intermediate inputs slumped heavily. This was the major reason that the current account turned into a surplus by 1983. According to the model, this should have had a strongly negative effect on the investment ratio since private investors were expected to be cut off from necessary imports. Yet, most of the imports had been absorbed by state enterprises, and not by the much less capital-intensive private firms which could rely on domestic capital goods industries [Kaufman, 1990]. Thus, the negative effect of reducing imports was far less painful for the private than for the public sector.

The predicted major down swing in Mexican private investment after 1985 (Figure 8) mainly stems from the negative effects of continued macroeconomic instability. The surge of inflation in 1986 and 1987, substantial debt rescheduling and a sharp increase of the budget deficit in 1986 added to the effect of the collapse of oil prices (in 1986) on investment (Table 36). Yet, what the model fails to capture is the credibility of economic policy reforms introduced since 1985. These reforms contributed to stabilize expectations and shifted incentives from

Figure 8 - Standardized Residuals, 1979-1988: Mexico



(a) East and Southeast Asia in the case of I; sample countries with relatively rich resource endowment in the case of FDI.

private consumption to investment. The government started to replace the import licensing system by a generalised tariff system and showed a strong commitment to implement expenditure cuts and to maintain the austerity programme. The success in terms of strongly reduced inflation rates was, however, only achieved by 1989. In 1986, Mexico signed the GATT treaty, thus introducing a further constraint against discretionary trade policy manoeuvring. In 1987, the government agreed to a framework for expanding bilateral trade relations with the US which together with the Peso devaluations led to a significant expansion of private investment in "maquiladora" industries along the Northern border. Finally, Mexico implemented a growth-oriented adjustment programme in

1986/87. In total, these reforms substantially reduced uncertainty and were instrumental in promoting domestic private investment after 1985.

Turning to FDI, model predictions did not match actual inflows of FDI into Mexico which ranked among the four leading host countries during the entire period of observation. The critical variable determining the annual predicted FDI values for Mexico is the value of oil reserves. The slump in oil prices in 1983 compared to 1982 and even more dramatically again in 1986, is precisely reflected in the predicted FDI values. Yet, FDI in Mexico is not concentrated on the primary sector in general or the oil sector in particular. Almost 80 per cent of FDI originating from the US, the largest investor, is in non-primary activities [US Department of Commerce, various issues], and the same holds for Japan (70 per cent) as well as for Germany (more than 90 per cent). Actual FDI inflows reacted sharply to the loss of confidence after the Mexican default in 1982 and recovered not earlier than 1986 when the various policy reforms mentioned above contributed to regaining credibility. Among these reforms, the intensified relations with the US seem to have been of particular importance. While US investment stagnated until 1986, it expanded rapidly after the reforms were implemented.

The Mexican case is another example for the failure of the model to predict FDI flows in the presence of restrictions. The assumed positive relationship between resource endowment and FDI cannot hold for Mexico, since the oil sector was closed to foreign investors. FDI in manufacturing seems to have been guided by considerations similar to those of private domestic investors.

X. Policy Conclusions and Applicability of Results

1. Lessons from the Analysis

This study has provided an empirical assessment of the proposition that developing countries compete among each other for mobile factors of production. The central hypothesis was that their international competitiveness is determined by the availability of immobile factors of production which are in one or another sense complementary to internationally and intertemporarily mobile risk capital. The pooled cross-country regression analysis undertaken for a sample of mostly middle-income countries and the 1979-1988 period has provided strong support for this hypothesis. From the point of view of both domestic and foreign investors, the attractiveness of individual countries depends on the domestic supply of crucial inputs for the production process such as skilled labour, natural resources and infrastructural facilities as well as the macro- and microeconomic policy environment which investors face. More specifically, macroeconomic instability and policy-induced distortions of goods and factor markets were all shown to significantly reduce locational advantages of individual countries in the international competition for investable funds.

The findings match a priori expectations, but the approach chosen in this study reveals some new insights. The first concerns the dominating importance of the few indicators entering the analysis of investment behaviour. In almost all the regression runs, about two thirds of the variance in investment ratios and FDI flows was explained by independent variables derived from basic theoretical underpinnings rather than from dummies or catch-all variables. Second, the regression results underlined the interrelatedness of different policy areas, i.e. a consistent policy framework is essential for the behaviour of investors. Distortions in one market reduce investment even if the policy framework is conducive in all other markets. Third, while the reaction of domestic investors to the business environment in individual countries was found to differ from the response of foreign investors, both groups of investors seem to adjust their behaviour to the general economic policy environment prevailing in different regions of the world.

Policy-induced distortions of goods and factor markets were on average much lower in East and Southeast Asia than in other developing regions in the 1980s. Producers were forced to compete with foreign suppliers both at home and abroad, and hence, efficiency considerations such as assured access to intermediate inputs or factors of production at undistorted prices played an important role in decisions of domestic private investors. The responsiveness of these investors in East and Southeast Asia is reflected in the statistical significance of almost all variables entering the model (except for INF and M2) and the virtually equal influence (expressed by the Beta weights) of all the different policy areas - ranging from macro policies via goods, capital and labour market policies to the supply of complementary local goods such as infrastructure - on the shares of investment in GDP.

By contrast, domestic private investors focused much more on production for the local markets, e.g. in debt-ridden and highly distorted Latin American economies. Their incentives to invest were derived from the degree of trade protection granted to domestic producers and, even more so, the supply of domestic and foreign savings since inward-oriented investment tends to be in rather capital-intensive lines of production. As a corollary to the capital intensity of production, domestic investors in Latin America and South Asia were also prepared to pay wages far in excess of equilibrium wage rates.

Domestic investors in all developing regions share, however, some common assessments. They are discouraged by inflationary expectations and rely on the availability of skilled labour and adequate infrastructural facilities. Only the last aspect turned out to be a decisive factor in the calculus of foreign investors evaluating alternative investment locations. Other determinants of their behaviour were shown to depend on the motives governing the investment decisions.

FDI geared towards the exploitation of natural resources is undertaken in resource-rich countries independently of macroeconomic conditions and goods markets distortions since investors have no choice or do not need to care. They do, however, assess domestic capital and labour market conditions including the supply of skilled labour because the establishment of highly capital-intensive mining activities requires at least some local financing, imports of equipment and the employment of both unskilled and skilled workers.

Foreign investors in resource-poor countries focus on manufacturing and the service sector. Although it was not possible to differentiate explicitly between inward- and export-oriented FDI, the estimates of the determinants of foreign investment in resource-poor countries appear to be particularly relevant for FDI in manufacturing in a highly competitive environment. This conclusion is derived from the strong negative impact of distorted product market prices. The weight attached to a remuneration of labour commensurate with productivity levels points in the same direction. Needless to say that this type of FDI does respond strongly to macroeconomic instability, i.e. high actual or anticipated inflation rates.

Summarizing, the model developed and tested in this study does not only provide a highly satisfactory analysis of major determinants of domestic and foreign investment; it also generates good ex post predictions of the relative competitiveness of developing countries for risk capital as measured by a ranking of sample countries according to the size of domestic and foreign investment. Changes in the international economic environment not captured by the model have been shown as not invalidating the model predictions. A comparison of annual actual and estimated values of I and FDI for selected countries does, however, reveal a few limitations of the analysis. The model describes medium-term trends rather than short-term fluctuations of investment behaviour essentially for two reasons. First, immobile factors of production constitute an important part of the general business environment, but they do not generate business cycle movements. And second, stability issues are not sufficiently represented by the chosen explanatory variables. The model results show the importance of macroeconomic instability for investment decisions as reflected in actual and expected inflation or exchange rate volatility. Other aspects of instability such as unsustainable current account deficits or an excessive expansion of money supply could, however, not be adequately separated from the positive impact on investment accruing from an assured supply of imported inputs and improved financial deepening. Furthermore, political instability was not explicitly modelled although it may at times lead to investment attentism.

Another limitation has emerged from the empirical observation that policy reform needs to be credible in order to promote additional investment. Partial policy reforms undertaken in an otherwise highly distor-

tionary policy environment may not be considered as sufficient for a lasting improvement of the business climate. Under these circumstances, investors will not respond to the policy reform in the same way in which they would respond in a less distorted environment e.g. in East and Southeast Asia.

And finally, the ranking of countries according to FDI inflows is fairly accurately portrayed for countries receiving large amounts of foreign investment, be they resource-rich or resource-poor. Actual and estimated rankings deviate more often for countries with relatively small inflows of FDI. One obvious reason for such a failure of the model is the existence of investment restrictions which could not be captured by a respective variable. These reduce FDI to a level below the one expected under the given economic conditions. Another reason is related to the size of FDI itself. If there is only a small number of projects undertaken by foreign investors actual FDI in a given period may simply reflect the execution of investment decisions taken in earlier periods rather than the response of foreign investors to present economic incentives.

Keeping these limitations in mind, the study provides important lessons for policy-makers on how to improve the international competitiveness of their countries, and for private investors on how to assess the attractiveness of alternative investment locations. The relevance of the conclusions will be greatly enhanced if the explanatory power of the model can be shown to be robust over time and across countries. For this purpose, some tentative ex post projections are undertaken.

2. Robustness of the Model

Two different types of ex post projections are conceivable to test the robustness of the model, namely applying it to countries not included in the sample or to time periods other than the period of observation. The first approach is not followed here. As argued in Chapter II, the group of 26 countries considered in this study encompasses all major economies playing in the same competitive league. The model can neither be easily transferred to industrialized economies nor to low-income countries lacking the basic economic, political and institutional prerequisites for international competitiveness. It is more promising to test the robustness

of the model by running ex post projections for individual sample countries and more recent years. But this approach has its limitations as well, due to data problems. A test of robustness requires data on actually realized investment. Such data have been provided by Pfeffermann and Madarassy [1991] only until 1989. And second, the test requires actual values of the independent variables. The latter information was readily available only for Korea and Taiwan. For these two countries, the data set was almost complete for 1989 and could be easily supplemented by a few estimates. Moreover, ex post projections of the competitiveness of Korea and Taiwan had to be restricted to the private investment ratio (I). Similar projections of FDI were not feasible: Taiwan has recently become a major exporter of equity capital while the liberalization of FDI in Korea could be expected to result in a continuing overshooting of FDI inflows (see also Chapter II and Section IX.2).

In the subsequent ex post projections, the coefficients of the regression analysis presented in Chapter VIII were applied. The 1989 values of the explanatory variables are inserted into the regression equation for the East and Southeast Asian subsample which was found to provide more reasonable ex post predictions. The independent variables entering for 1989 indicate important changes of the policy environment in both countries as compared to 1985-1987.[1] In Korea, continued liberalization of foreign trade as well as domestic product and capital markets is reflected in lower trade barriers, reduced goods markets distortions, and increased availability of bank credit for the private sector. Similar changes took place in Taiwan, though to a lesser extent than in Korea. In addition, budget surpluses increased in Taiwan, while the surplus of the current account declined partly in response to the appreciation of the national currency in 1989.

The model is robust if predicted private investment ratios do not deviate substantially from actual 1989 ratios. Results are reported in Table 37. Similar to the ex post predictions, the ex post projections for Korea and Taiwan reveal two major strengths. First, the vastly different levels of I in the two countries are clearly captured. Second, higher values of actual I in both countries after 1987 are mirrored by an increase of the predicted values. Comparing 1989 with the average of 1985-

[1] For data sources, see the sources given in Chapters III-VII.

Table 37 - Ex Post Projections of the Private Investment Ratio for Korea and Taiwan, 1989 (per cent) (a)

		Korea	Taiwan
1989	actual	25.6	13.6
	projected	24.4	15.1
Memo items:			
1985-1987	actual	21.3	11.5
	predicted	20.6	11.2
1982-1984	actual	22.8	12.6
	predicted	20.9	14.5
1979-1981	actual	23.0	17.5
	predicted	23.0	16.9

(a) All projections and predictions based on the regression for the subsample of East and Southeast Asian countries.

Source: See text.

1987, the actual increase by 4.3 percentage points in Korea is nearly matched by the predicted increase of 3.8 percentage points, while the increase by 2.1 percentage points in Taiwan is overstated (predicted: 3.9 percentage points). This overstatement is mainly because the model neglects short-term cyclical factors (Chapter III). Growth of Taiwanese exports and GDP declined in 1988/89 [ADB, a, 1990, pp. 77 ff.]. Hence, the level of investment was lower due to the economic recession than could have been expected in another phase of the business cycle.

In both cases, the differences between actual and predicted values of I are relatively small in 1989, more specifically, they are well within one standard error (s = 2.32), thus allowing the estimates to be considered statistically significant at the 1 per cent level [see e.g. Pindyck, Rubinfeld, 1981, pp. 203-215]. The fact that the average deviation is considerably less pronounced for 1985-1987 should not be taken as an indication of a deteriorating quality of the ex post projections. The average figures for 1985-1987 reported in Table 37 disguise higher absolute deviations on an annual basis with which the 1989 results should be compared. Taking the absolute annual deviations as a yardstick, the quality of the ex post projection for Korea is as good as the

ex post prediction for this country while it is only slightly worse in the case of Taiwan.[1]

All in all, it can be maintained that the model applied in this study proves to be fairly robust and is well suited for ex post projections of the competitiveness of developing countries for risk capital. This provides confidence that the model can be used by policy-makers and investors to investigate the effects of policy changes on the relative competitive position of individual countries.

3. Policy Scenarios

In order to quantify the investment effects of specific policy changes, major bottlenecks to improve competitiveness have to be identified in the first place.[2] The preceding discussion has shown that a lack of competitiveness in highly distorted economies is not so much due to specific impediments to investment, but rather to a seriously inconsistent economic policy framework and the ensuing credibility problems. Under such circumstances, only comprehensive and consistent reform programmes and not partial policy reforms are likely to generate additional investment. Therefore, the subsequent analysis is focused on East and Southeast Asian countries which do not suffer from a generally detrimental policy environment and serious macroeconomic imbalances. Yet, even some of these countries have implemented policy measures which strongly discouraged private investors (Chapters III-VI). Cases in point are:

- Indonesia, exhibiting a high degree of exchange rate volatility (VOL),

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[1] The average deviation calculated from absolute annual deviations amounts to 1.3 percentage points in the case of Korea and to 1.1 percentage points in the case of Taiwan. In 1989, deviations were 1.2 and 1.5 percentage points for Korea and Taiwan, respectively.

[2] The subsequent analysis is again restricted to the private investment ratio. The country experiences of Chapter IX have shown that predictions of FDI are less reliable. Actual FDI flows are strongly influenced e.g. by changes in the host countries' attitudes towards foreign investors, the effects of which cannot be captured by the model. Moreover, FDI inflows to most sample countries are fairly small and highly volatile, which renders predictions extremely difficult (Section X.1).

- Korea, where the government put priority on repayment of foreign debt and activated the current account (CAB), rather than to rely on a continued inflow of foreign savings,
- Malaysia, revealing relatively high wages (dW) and large budget deficits (BUD),
- the Philippines, with a fairly restrictive foreign trade regime (TT) and an inadequate financing of the private sector through bank credits (BC), and
- Thailand, where goods markets distortions remained high (TT and TD) and the endowment with human capital was deficient (ED2).

This list indicates that all major policy areas, i.e. macroeconomic stability, goods markets distortions as well as labour and capital market conditions, are covered by performing policy scenarios for the five East and Southeast Asian sample countries mentioned above. The policy scenarios are based on the regression for the regional subsample. The procedure is as follows: (1) The three countries among all 26 sample countries are identified which revealed the most favourable investment conditions in 1985-1987 with respect to the explaining variable considered in each particular case. (2) The actual observations of the respective variable for the country in question are replaced by hypothetical figures amounting to 65 per cent of the average observed for the three best-performing economies.[1] All other independent variables are assumed to remain as they were in the 1985-1987 period. This scenario implies that the country would hypothetically join the group of countries with relatively favourable investment conditions.

Hypothetical investment ratios which would result from policy reforms are compared to the model predictions for 1985-1987 (Table 38). The investment effects of the policy reforms depend on the degree to which the particular country deviated from the standard set by the three best performers and on the impact of the respective policy variable on I as revealed by the regression coefficient. The effects remain negligible in the case of Indonesia when the volatility of exchange rates is reduced, because the distance of Indonesia from the top performers is

[1] The 65 per cent share refers to the classification of sample countries in Chapters II-VI.

Table 38 - Policy Scenarios for Selected Sample Countries: Predicted Private Investment Ratios, 1985-1987 (per cent) (a)

		Without policy change	With partial policy change		All policy changes combined
			VOL		
Indonesia	1985	11.23	12.22		12.22
	1986	11.12	11.42		11.42
	1987	8.78	9.18		9.18
	1985-1987(b)	10.38	10.94		10.94
			CAB		
Korea, Rep.	1985	21.70	23.24		23.24
	1986	19.69	23.08		23.08
	1987	20.34	25.32		25.32
	1985-1987(b)	20.58	23.88		23.88
			dW	BUD	
Malaysia	1985	17.40	20.27	19.49	22.36
	1986	15.13	18.92	17.61	21.39
	1987	12.62	15.97	14.59	17.94
	1985-1987(b)	15.05	18.39	17.23	20.56
			TT	BC	
Philippines	1985	11.85	15.99	17.83	21.96
	1986	9.95	12.59	16.01	18.65
	1987	10.33	14.47	11.42	15.57
	1985-1987(b)	10.71	14.35	15.09	18.73
			TT+TD	ED2	
Thailand	1985	14.45	21.02	16.37	22.94
	1986	11.76	17.98	13.74	19.96
	1987	15.48	22.01	17.66	24.19
	1985-87(b)	13.90	20.34	15.92	22.36

(a) For the calculation procedure and definition of variables, see the text. - (b) Period averages.

Source: Own calculations.

rather small in absolute terms.[1] In all other cases, however, the improvement in one particular policy area would result in an increase of

[1] Exchange rate volatility increased in all sample countries since 1985 (see also Chapter III). Therefore, the variance of this variable was greatly reduced.

the predicted values of I by at least 2 percentage points if period averages for 1985-1987 are compared. The following results are particularly noteworthy:

- Starting from an already high level of I, the private investment ratio of Korea could be even higher by about 3 percentage points if the country were prepared to run current account deficits in the order of 4-5 per cent of GDP, compared to the average surplus of 3.6 per cent in 1985-1987. This result supports the argument of Aghevli and Márquez-Ruarte [1985, p. 21] that "in view of Korea's development needs and its relatively high marginal productivity of capital, a case could be made for continued reliance on foreign savings".
- For Malaysia, a reduction in the relatively high wage share in value added by 10-15 per cent also results in additional private investments of about 3 per cent of GDP. The increase of I would reach 5.5 percentage points if high budget deficits (8.5 per cent of GDP in 1985-1987) were converted into small budget surpluses of about 1 per cent of GDP.
- By far the largest improvements in competitiveness could be achieved by the Philippines and Thailand. In the former case, both the liberalization of the foreign trade regime (TT) and a better access of the private sector to bank credit (BC) are shown to have strong effects on I. These two policy changes together would raise the predicted private investment ratio by 8 percentage points.
- A similarly pronounced increase is also revealed by the simulations for Thailand (8.5 percentage points). The assumed reduction in goods markets distortions (TT and TD) account for three fourths of this improvement of competitiveness while a larger supply of skilled labour (ED2) would add another 2 percentage points. However, such reforms would require the possibility to tap other sources of government revenues. The reliance on indirect taxes (TD) must be halved, and taxes on international transactions (TT) reduced to 20 per cent of actual values.

Higher investment ratios as a consequence of policy reforms must not necessarily improve a country's relative competitive position in international markets for risk capital. If investment ratios differ considerably among countries the ranking may not change despite policy reforms. The same applies if several countries undertake reforms simul-

Table 39 - Policy Scenarios for Selected Sample Countries (a): Impact on Rankings, 1985-1987 (b)

	Without policy change(c)	With policy changes in											With all policy changes in all five countries
		Indonesia	Korea	Malaysia			Philippines			Thailand			
		VOL	CAB	dW	BUD	dW+BUD	TT	BC	TT+BC	TT+TD	ED2	TT+TD+ED2	
Argentina	8												8
Brazil	3												3
Costa Rica	17												16
Guatemala	7												7
Hong Kong	21												19
India	6												6
Indonesia	10	14											13
Kenya	11												10
Korea, Rep.	22		22										22
Malaysia	20			20	20	21							20
Mexico	5												5
Pakistan	2												2
Peru	18												17
Philippines	12						19	20	20				18
Singapore	23												23
Sri Lanka	16												15
Taiwan	15												14
Thailand	19									21	20	22	21
Tunisia	14												12
Turkey	4												4
Uruguay	1												1
Venezuela	9												9
Zimbabwe	13												11

(a) For the calculation procedure and definition of variables, see text. Chile, Colombia, and Ecuador excluded due to missing data. - (b) Period average of the ranking with respect to the private investment ratio; ranks 23(1) denote the most favourable (unfavourable) position in terms of attractiveness for risk capital. - (c) Based on predicted values of I without any policy change.

Source: Own calculations based on Table 26.

taneously and attract more investment. The policy scenarios performed for East and Southeast Asian sample countries provide examples for both possibilities (Table 39). Korea cannot improve its ranking because the next competitor, Singapore, achieved a private investment ratio which was 5 percentage points higher than that of Korea (1985-1987).[1] Malaysia is another case in point. Thailand can only gain a maximum of three positions despite the large increments of I accruing from policy reforms.

By contrast, Indonesia and the Philippines can translate their higher attractiveness for risk capital into significantly better rankings. The change in the ranking is most pronounced in the case of the Philippines which joins the top third of the sample if policy reforms were undertaken. This is not surprising given the relatively small private investment ratio under current economic policy conditions and the significant increase of I once policy reforms took place. Indonesia would improve its ranking by four positions despite the rather small gain from policy reform. In this case, the improved ranking is mainly due to the small differences of I among countries with moderate attractiveness for risk capital (ranks 8-15).

The last column of Table 39 shows the effect of simultaneous policy reforms in the selected countries on the ranking of all sample countries. The implementation of reforms by major competitors may in fact erode the gains in the relative position achieved through domestic policy measures. Examples are Malaysia, Indonesia, the Philippines, and Thailand. The latter three countries would, nonetheless, be able to secure a better position compared to the original estimates. The implementation of reforms may also be of crucial importance to maintain the attractiveness for risk capital if major competing countries attempted to catch up by revising their domestic policies. For example, Korea would drop behind Thailand without policy adjustment.

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[1] In addition, it is all the more difficult to improve the ranking for countries already close to the top, i.e. for those which had already achieved high private investment ratios before policy reforms are simulated.

4. Relevance for Investors

The policy scenarios presented in the previous section indicate the way in which the analysis undertaken in this study may be relevant for private investment decisions. Investors are only interested in the past competitiveness of individual countries to the extent that this information is relevant for the evaluation of their present or future attractiveness. It has been shown that key prerequisites are met to use the model developed in this study for ex ante projections. The model includes the major determinants of the profitability of investment in developing countries; these determinants and the structure of the model have proven to be robust over time; and the data requirements are kept within manageable bounds. These are advantages which other approaches towards assessing the international competitiveness of countries do not possess. Results of general equilibrium models are not necessarily transferable to other countries, and the data requirements for the 300 indicators presented in the World Competitiveness Report are prohibitive.

Ex ante projections have to be based on information about the future changes of the explanatory variables. One way of processing this information is to use the envisaged development scenario incorporated in the development plans published by government authorities. Expectations of investors concerning the likelihood which can be attached to the implementation of announced policy change may, then, be reflected in model simulations with alternative assumptions on the future policy framework. Such simulations can describe the potential attractiveness of individual countries for private investors and changes in their relative competitive position in the way shown in Section X.3, i.e. under the assumption of a constant policy framework in other countries.

Estimates of the future value of explanatory variables have, however, to be undertaken with care. As was discussed above, some of the variables have certain limitations. To alleviate such deficiencies is a topic for future research. Specifically, non-tariff trade barriers are not always adequately mirrored in the indicator of trade policies, namely the share of trade taxes in government revenues (TT). There is no ready solution on how to account for non-tariff trade barriers in the given model. If information on implicit nominal tariffs, i.e. the difference between domestic and world market prices, is available these tariff

equivalents can be multiplied by import quantities and then related to total government revenues. Similar caution has to be exercised in the case of unsustainable monetary expansion (M2) and current account deficits (CAB).

Furthermore, ex ante projections need to be supplemented by an evaluation of factors not included in the model, but nonetheless relevant for investment behaviour. This concerns, above all, investment restrictions and other investment regulations which had a strong impact particularly on the inflow of foreign investment in a number of countries. Constraints on the remittance of profits and the repatriation of capital, local content requirements and ownership regulations were shown to spoil an otherwise attractive investment climate. In the same vein, investment incentives granted by governments can improve the investment climate. However, such incentives should only be considered as a net benefit to the investor if they are higher than in other countries and do not merely compensate for other locational disadvantages.

Beyond the economic sphere delineated by the inherent characteristics of the model, investment decisions are known to depend on the political and institutional environment prevailing in individual countries. One such aspect concerns the existence of cooperative or non-cooperative industrial relations. More importantly, political instability increases uncertainty of investors and, thereby, the required risk premium. While such considerations may - at some point - ultimately override the purely economic calculus, the fact that the model performed so well across a wide spectrum of countries, exhibiting manifold political and institutional environments, nonetheless gives credence to the confidence placed in the model.

Table A1 - Overview of Coverage of Variables

	79	80	81	82	83	84	85	86	87	88
I	-11	-11	x <-	-	-	-	-	-	-	-> x
FDI	+ <-	-	-	-	-	-	-	-	-	-> x
DEB	x <-	-	-	-	-	-	-	-> x		-1,15
VOL	x <-	-	-	-	-	-	-	-	-	-> x
BUD	x <-	-	-	-	-	-	-	-	-	-> x
INF	x <-	-	-	-	-	-	-	-	-	-> x
TD	-7	x <---> x		-7 <-	-	-	-	-> -7	-6,7,26	+4,8/11,13/15,20/22,24,27
TT	x <-	-	-	-	-	-	-	-	-> x	+4,8/11,13/15,20/22,24,27
dPI	-11	-11	x <-	-	-	-	-	-	-> x	-1,3
M2	x <-	-	-	-	-	-> x	-4	-4,3	-4,3	-1/4,15
BC	-4,9,27	-27	x <-	-	-	-> x	-5	-3,5	-3,4,5	-3,4,5
CAB	x <-	-	-	-	-	-	-	-	-	-> x
dW	x <-	-	-	-	-	-	-	-	-> x	+21
S1	-1,25 <-	-	-	-	-	-	-	-	-> -1,25	
	-12	-12		-8 <-	-	-	-	-	-> -8	
	-23 <-	-	-	-	-> -23		-26		-12,26	
						-27 <-	-	-	-> -27	
ED2	x <-	-	-	-	-	-	-	-	-> x	+4,13,18,21,27
PI	-11	-11	x <-	-	-	-	-	-> x		+4/27
RM	x <-	-	-	-	-	-	-	-	-	-> x
RO	x <-	-	-	-	-	-	-	-	-	-> x

Country numbers:

1 Argentina	7 Ecuador	12 Kenya	17 Peru	22 Thailand	27 Zimbabwe
3 Brazil	8 Guatemala	13 Korea,Rep.	18 Philippines	23 Tunisia	
4 Chile	9 Hong Kong	14 Malaysia	19 Singapore	24 Turkey	
5 Colombia	10 India	15 Mexico	20 Sri Lanka	25 Uruguay	
6 Costa Rica	11 Indonesia	16 Pakistan	21 Taiwan	26 Venezuela	

Explanation: an x means complete data; a "-"("+") sign in front of country number means data missing (available) only for these countries.

Table A2 - Overview of Dependent and Independent Variables in Regressions (a)

Dependent variables

I = private investment expenditures in per cent of GDP;

FDI = net foreign direct investment flows, three-year moving average over t_0 to t_{-2}.

Independent variables

Macro-policies

DEB(-) = amount of debt rescheduled over t_0 to t_{-2} in per cent of GDP;

VOL(+) = standard deviation of all annual real exchange rate changes of sample countries in time period 1975-1989 over the specific country's standard deviation over t_0 to t_{-4};

BUD(+) = central government's budget balance in per cent of GDP;

INF(-) = annual percentage rate of inflation based on GDP deflator;

Goods market policies

TD(-) = indirect taxes (excluding trade taxes) and subsidies in per cent of total government revenues and subsidies;

TT(-) = trade taxes in per cent of total government revenues;

dPI(-) = residual from trend of public investment in per cent of GDP;

Capital market policies

M2(+) = broad money supply in per cent of GDP;

BC(+) = annual percentage change in real bank credits (deflated by GDP deflator);

CAB(-) = current account balance in per cent of GDP;

Labour market policies

dW(-) = residual of percentage share of earnings in value added regressed on educational (i.e. productivity) levels, industrial structure and socio-political influences;

S1(-) = number of strikes and lockouts per 1,000 employees in manufacturing industry;

ED2(+) = number of pupils enrolled in secondary schools in per cent of corresponding population cohort;

Complementary immobile factors

PI(+) = trend value of public investment in per cent of GDP;

RM(+) = current value of known mineral resources;

RO(+) = current value of known oil and gas resources.

(a) The variables are listed with the posited signs of the coefficients of the independent variable vis-à-vis the dependent variables in ().

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