

# TRADE AND DEVELOPMENT REPORT, 2004

## *Chapter IV*

### FOSTERING COHERENCE BETWEEN THE INTERNATIONAL TRADING, MONETARY AND FINANCIAL SYSTEMS

#### *Annexes to chapter IV*

- Annex 1*** The Concept of Competitiveness
- Annex 2*** The Set-up of Econometric Estimates of the Impact of  
Exchange Rate Changes on Trade Performance



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## **FOSTERING COHERENCE BETWEEN THE INTERNATIONAL TRADING, MONETARY AND FINANCIAL SYSTEMS**

Developing countries depend on a favourable international trading environment to reap the full benefits of their integration into the world economy. Equally important for their successful integration is the creation of strong supply capacities. An essential lesson from the experiences of countries that combined successful integration into the world economy with sustained growth is the critical role of active and well sequenced policies to augment the existing stock of physical and human capital, enable the use of more efficient technologies, and shift resources from traditional, low-productivity activities towards activities that offer a high potential for productivity growth.

This chapter examines the problem of insufficient coherence between the international trading, monetary and financial systems, and how it affects the formulation and successful implementation of national development strategies. It is argued that rapid financial liberalization, inasmuch as it makes developing countries vulnerable to sharp and abrupt shifts in the direction of largely autonomous short-term private international capital flows, can have negative effects on their trade performance. As demonstrated by the Asian cri-

sis, such vulnerability can arise even in countries with sound macroeconomic and external positions, and can contribute to problems in managing interest rates and exchange rates. Managed currency depreciations, proceeding on a smooth, long-term basis, can strengthen the international cost competitiveness of domestic exporters and generally improve developing countries' trade performance. However, this is not the case for the sharp and abrupt exchange rate depreciations that have occurred in many financially open developing countries over the past three decades; they did not result in proportionally larger improvements in trade performance. This is because they were often accompanied by sharp declines in imports and reduced access to trade finance and working capital, which compromised the ability of domestic exporters to benefit from their increased international cost competitiveness stemming from the depreciation. Finally, the chapter draws some conclusions on how developing-country policymakers can avoid a situation where insufficient coherence in the international monetary and financial system jeopardizes the successful implementation of national development strategies designed to foster domestic supply capacities.

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## A. Building the international competitiveness of developing-country exporters

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Historical evidence shows that countries raise the standard of living of their populations by raising labour productivity. This is associated with a substantial change in the sectoral pattern of production and employment, from agricultural to industrial products, and a shift from labour-intensive activities to a growing range of capital- and technology-intensive activities. As discussed in *TDR 2003* (chapter V), the production structure of an economy is of key importance for the development process, because, at any point in time, both the level of productivity and the potential for technical progress and productivity growth vary significantly across agriculture, industry and services, as well as within these sectors. The pace and scale of economic development varies substantially across countries. Many factors account for this diversity in performance, which, apart from a number of structural elements (such as resource endowments, economic size and geographical location), include variables that are susceptible to policy influences and choices. Of paramount importance among these variables are the pace and innovativeness of capital accumulation, human capital formation and the international competitiveness of domestic exporters.

Transformation of the production structure requires entrepreneurs who are capable and willing to invest in activities that are new to the domestic economy. Indeed, Schumpeter (1911) pointed to the importance of innovative investment for economic development, and Baumol (2002) argues that innovation, and the consequent rise in productivity, account for much of the ex-

traordinary growth record that has occurred in various parts of the world since the Industrial Revolution. He suggests that market pressures arising from oligopolistic competition force firms to integrate innovative investment into their routine decision processes and activities – thus, the innovation process is neither largely autonomous nor largely fortuitous. Market forces achieve much of this through financial incentives, by providing higher pay-offs to those firms that are more efficient and whose products are most closely adapted to the wishes of consumers.

However, the occurrence of innovative investment is not automatic; it could encounter structural and institutional impediments. Moreover, the macroeconomic environment could be inappropriate for encouraging and supporting investors seeking to create or expand productive capacity and, in particular, to increase productivity and international competitiveness. The main incentive for investors to discover a more efficient way of producing an existing good or to produce a new good arises when they can appropriate at least part of the rent generated by the creation of new knowledge. Within this framework, for an innovative entrepreneur to enjoy such benefits, a number of conditions must apply at different levels, as discussed in detail in annex 1 to this chapter.

Entrepreneurs invest in the industrial sector of that country in which they expect to realize the highest return on their investment. Cross-country differences in the expected return on investment, expressed in a common currency, are determined

by a number of factors, including relative rates of income growth; relative wages and labour productivity; macroeconomic and institutional factors that influence the average level of nominal labour costs in an economy as a whole; relative costs of intermediate production inputs; relative transaction costs associated with information, communications, transportation and distribution; and the use of different currencies. Moreover, market access and entry conditions and the availability of trade finance also determine whether improved cost competitiveness translates into improved export performance. This shows that a wide range of conditions must combine for firms that are competitive on the domestic market to become successful exporters.

First, the availability of adequate transport and communications infrastructure and information systems has a crucial influence on the ability of developing-country firms to conduct trade and to successfully compete in foreign markets.<sup>1</sup> Innovative investors in economies with comparatively high communication, transport and information costs may need to offset this disadvantage by paying lower wages or reducing costs elsewhere in the production process in order to be able to compete in world markets. Firms in countries that are landlocked or geographically distant from major international shipping routes are particularly disadvantaged in this respect. While this is a well-known problem, the impact on trade flows of other forms of trade facilitation, such as the availability of networked information technology and compliance with product standards, has gained in importance over the past few years.

Second, trade finance provides the liquidity for firms to bring their products to the market. Exporters with limited access to working capital often require credit to buy imported raw materials and intermediate production inputs, as well as financing to manufacture products before receiv-

ing payments. Trade finance may be provided directly through loans from commercial banks, prepayments by buyers, and delayed payments by sellers, or indirectly from either export-credit agencies (in the form of guarantees, insurance and government-backed loans), private insurance companies, or multilateral development banks.

Third, assuming constant nominal exchange rates, preserving the international cost competitiveness of domestic firms requires that the ratio of average nominal labour cost growth to average domestic productivity growth in the domestic economy does not rise faster than in the rest of the world. Macroeconomic and institutional factors play an important role in fulfilling this condition. For example, the pressure for sharp general wage increases in an economy approaching full employment is likely to be higher than in an economy with substantial unemployment. Moreover, indexation of wage rises based on factors other than productivity growth is likely to cause substantial and lasting divergence between wage and productivity developments.<sup>2</sup>

Fourth, stable nominal exchange rates are perhaps the single most important condition for the transmission of domestic productivity improvements to gains in international competitiveness. Exchange rate movements alter the relative competitive position of firms in different countries. On the one hand, this implies that a currency appreciation will wipe out improvements in international competitiveness achieved by innovative firms on the basis of improved labour productivity if the change in the exchange rate exceeds the gain in pro-

ductivity. If technological progress relies on cumulative and incremental innovations that individually lead to comparatively small productivity gains, it does not take exchange rate changes of a spectacular size for this to occur.<sup>3</sup> On the other hand, this implies that currency depreciation can

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give a further boost to the international competitiveness of an innovative firm and maintain the relative competitive position of non-innovative enterprises in the short run. However, there can be little doubt that long-term economic success and maintaining international competitiveness depend

on sustained improvements in productivity. Moreover, resorting to currency depreciation may allow for some breathing space to adjust to changes in the relative competitive position of foreign competitors, but it also entails the risk of igniting a process of competitive devaluations.

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## B. Impacts of monetary and financial factors on developing countries' export performance

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Only productivity growth and technological upgrading can ensure sustained improvement in the external balance of developing countries. This can be achieved by a national development strategy that is successful in augmenting the existing stock of physical and human capital, enabling the use of more efficient technologies, and shifting resources away from traditional, low-productivity activities towards activities that offer a high potential for productivity growth. Under some circumstances, and particularly when a period of real currency appreciation has hampered export performance, real currency depreciations can improve international cost competitiveness and boost exports.

The exchange rate has long been recognized as an important policy instrument to make domestic entrepreneurs internationally competitive and provide profit incentives for them to invest in non-traditional export sectors. For example, according to Agosin and Tussie (1993: 22) "The historical record ... shows that ... [a]ll countries that have succeeded in generating a sustained growth of their exports, leading to high rates of growth of output over the long term, have also been able to maintain exchange rates that are attractive to exporters over long periods of time. The exchange rate in such countries has also tended to be fairly stable,

enabling producers of tradeables to make long-term investment plans." In a similar vein, Rodrik (2003) argues that countries grow rich by increasing the range of products that they produce, and not by concentrating on what they already do well. Product diversification requires entrepreneurs who are willing to invest in activities that are new to the local economy, and that process may require positive inducements. Rodrik (2003: 21) concludes that "a credible, sustained real exchange rate depreciation may constitute the most effective industrial policy there is."

For successful trade performance, developing countries need to be able to manage their exchange rates in a way that allows them not only to sustain competitive rates over the longer term, but also to retain enough policy space to be able to make orderly adjustments when faced with exogenous shocks. On some theoretical accounts, a regime of freely floating exchange rates and free capital mobility would enable nominal exchange rate movements to stabilize real exchange rates. This argument is based on the premise that movements of the nominal rates eliminate temporary disequilibrium in the pricing of goods in different currencies, and that arbitraging currency speculators speed up the adjustment, thus helping to maintain a correct set of real prices on which in-

international traders and speculators can base their decisions (see, for example, Friedman, 1953).

Floating exchange rates between the main reserve currencies were introduced into the international system of trade and finance in the early 1970s. However, orderly balance-of-payments adjustments, increased real exchange rate stability, greater macroeconomic policy autonomy and removal of persistent currency misalignments and gyrations have not been achieved. This is partly due to the liberalization of capital flows in the last 30 years and to the sizeable increase in the scale and variety of cross-border financial transactions, whose direction can change rapidly in response to shifts in expectations of international portfolio investors. As a result, the currencies of the major developed countries, as well as those of financially open emerging-market economies, have been subject to strong volatility and gyrations, which often represent endogenous responses to large and sharp changes in the direction of international financial flows. These developments are reminiscent of the failure of financial markets to prevent currency disorders and contagion in the 1930s (an insight that was widely accepted as the basis for the attempt to put in place multilateral financial arrangements after the Second World War).

For developing countries, capital inflows, both private and public, can be a source of development finance. However, volatility in international financial markets, and particularly sharp and abrupt shifts in the direction of largely autonomous short-term private capital flows, have frequently contributed to problems in managing interest rates and exchange rates, and to financial crises including in countries with track records of macroeconomic discipline. Since the early 1990s, a number of developing countries, particularly those that had begun liberalizing their financial markets, have experienced substantial movements in their exchange rates. These movements have frequently been characterized by prolonged periods of exchange rate appreciation followed by abrupt and sharp devaluations, often associated with a sizeable slowdown in economic activity.

These episodes of sharp and abrupt currency depreciations include the well-known currency crises when countries abandoned pegged exchange rates, starting with Mexico in 1994, followed by East Asia (1997–1998), the Russian Federation (1998), Brazil (1999), Turkey (2001) and Argentina (2002). There were also instances of unusually sharp depreciations in countries with more flexible exchange rates, such as Mexico and South Africa in 1998.

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**The sharpness of recent real currency depreciations brings an additional dimension to the debate on the effect of exchange rate changes on trade flows.**

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The scale of nominal exchange rate depreciations in many developing countries – even those with a record of macroeconomic discipline – over the past few years has often caused large real exchange rate depreciations. Given that real currency depreciations can generally be expected to improve a country's trade balance, it could be assumed that sharp depreciations of the real exchange rate will provide an even greater impetus to the international cost competitiveness of domestic exporters and a boost to a country's exports.

The main argument of this section is that the sharpness of recent real currency depreciations brings an additional dimension to the debate on the effect of exchange rate changes on trade flows. This is because, in the short term, large depreciations of the real exchange rate can seriously compromise the ability of domestic exporters to benefit from their increased international cost competitiveness stemming from the depreciation. Adverse effects occur at two levels. At the level of individual enterprises, it can take the form of a sharp decline in the availability, and/or a strong rise in the cost, of trade finance and working capital. At the macroeconomic level, close trading relationships can provide a channel for the transmission of financial crises and raise the risk of competitive devaluations, which can offset the rise in demand for exports created by the depreciation. Moreover, the steep decline in economic activity, often associated with sharp and abrupt real currency depreciations, can have an adverse effect on the supply of exports. Such depreciations tend to violate two of the conditions necessary for domestic productivity growth to translate into sustained international competitiveness: access of

firms to reliable, adequate and cost-effective sources for financing their investments and stable nominal exchange rates at a level that does not impair the international cost competitiveness of domestic exporters. This section examines more closely the impact that the absence of these two conditions is likely to have on developing-country trade performance.

### **1. Impacts of exchange rate changes on enterprise investment and competitiveness**

Uncertainty in currency markets adversely affects many types of economic activities, particularly those that require forward planning and involve decisions that are only reversible, if at all, at high cost. Long-term investment by enterprises in export production capacity is a noteworthy example of such activities, particularly when their production process utilizes imports from third countries. Consider a production unit whose output would be sold in, for example, the United States for dollars, and which would utilize machinery and equipment purchased from Germany, partly on credit denominated in euros, with intermediate production inputs from Japan denominated in yen, and domestic labour remunerated in domestic currency. In such cases, the estimated rate of return on the investment project would be sensitive to the relative exchange rates between the currencies in which the output is to be sold, the currencies in which imported machinery, equipment and intermediate inputs are invoiced, and the domestic currency. The greater the range of exchange rate variation, the greater is the risk of the project. The project may be profitable only under a given configuration of exchange rates. As a consequence, the investor will realize an extra profit if the exchange rate configuration evolves favourably, but risk bankruptcy in the opposite case. Firm size and financial strength, diversification of operations across products and markets, managing assets and liabilities in different currencies, as well as the use of other risk management techniques, can limit exchange rate risk. But these measures entail additional costs and do not provide complete protection.

Monetary factors in the form of nominal exchange rate changes can thus have a major impact on enterprise investment and international competitiveness. The form and strength of this impact depends on a variety of factors operating through two channels: (i) marginal cost, where the impact partly depends on the firm's ratio of imported to domestically sourced production inputs, the share of financing denominated in foreign currency, and the impact of exchange rate changes on domestic monetary conditions; and (ii) a possible mark-up of price over marginal cost. These factors can pull in opposite directions, and their relative strength can change with the length of time that elapses after the exchange rate change. Moreover, they affect the instruments that firms can use to foster international cost competitiveness in a sustainable way (i.e. making productivity-enhancing investment) and to fend off temporarily adverse influences on their competitiveness (i.e. accepting a profit squeeze or resorting to wage suppression or labour shedding).

#### *(a) The cost channel*

Regarding production costs, depreciations of the domestic currency lower the cost of domestic inputs and increase the cost of imported inputs. However, an enterprise can postpone the depreciation-induced price increase of imported inputs measured in domestic currency until it needs to rebuild its stock of such inputs.<sup>4</sup> Moreover, this effect is reduced if the foreign producers of imported machinery and intermediate goods respond to the depreciation of the domestic currency by lowering their prices denominated in domestic currency.

Empirical evidence supports the argument that large depreciations increase the cost of imported inputs relative to other factors of production. Using input-output tables for Argentina, Chile, Mexico and the Republic of Korea, Burstein, Neves and Rebelo (2004) show that nominal exchange rate changes have a much larger impact on prices of capital goods than consumption goods, and that this impact is strongest for tradable capital goods. Given that developing-country firms import a large share of their machinery and equipment, an increase in the cost of imported



capital goods is likely to have an adverse effect on investment dynamics, and hence on the firm's path of technological upgrading.

In addition to their effect on production costs, adverse impacts of sharp currency depreciations can render it difficult, if not impossible, for firms to obtain financing to increase productive capacity or even to obtain enough working capital to purchase the inputs necessary for maintaining production at pre-depreciation levels. Depreciations have an adverse effect on the financial position of firms, in particular when companies borrow abroad and have high unhedged debt exposure in foreign currency. In this case, sharp depreciations have balance-sheet effects, increasing the relative burden of repaying existing foreign-currency debt, and make the substitution of domestic for foreign sources of financing more onerous. Moreover, depreciations increase the cost of new loans as they reduce collateral values.

A growing concern for a number of developing countries is to ensure that, in the aftermath of sharp currency depreciation, reliable trade finance is available at an adequate level, a reasonable set of conditions and cost. According to a recent study (IMF, 2003: 17–18), bank-financed trade credits declined by as much as 30 to 50 per cent in Brazil and Argentina in 2002, by about 50 per cent in the Republic of Korea in 1997–1998, and by over 80 per cent in Indonesia during the Asian crisis; sharp declines in trade finance were also observed in the Russian Federation, the Philippines and Thailand in 1997–1998, and in Turkey in 2000–2001. The provision of short-term credit for trade financing has traditionally been considered a routine operation, because it is secured by contracts for the sale of goods that earn foreign exchange. Since this represents an implicit hedge for both the borrower and the lender, the default rate on this category of financing has been low. Thus the scale of the decline in trade finance seems to be disproportionate to the

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Sharp currency depreciations can render it difficult for firms to obtain financing ...

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... to increase productive capacity and take advantage of lower dollar export prices ...

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level of risk. Most importantly, a sharp decline in trade finance seriously compromises the ability of firms involved in foreign trade to maintain their investment, production and trade activities. As a result, this loss of financing may offset the stimulus for export expansion stemming from the currency depreciation.

During the years prior to the Asian crisis of 1997–1998, trade finance to developing countries rose sharply, with commitments from commercial banks increasing the fastest (World Bank, 2004: 128). This change in the composition of trade finance partly re-

flected the overall surge in commercial bank lending to developing countries until 1997, and the shift in such lending away from long-term finance, now predominantly provided by bond holders, towards short-term finance. As discussed in some detail in previous *TDRs*, supply-side factors, such as the emerging widespread availability of derivative instruments and the recession-related adoption of low interest rates by the major developed countries, were an important driving force behind this surge in short-term bank lending in the early 1990s. Financial liberalization, along with relatively high domestic nominal interest rates and comparatively stable nominal exchange rates, made a number of developing countries attractive locations for capital flows that were driven by short-term arbitrage motivations.

At the same time, documentation requirements for trade financing loans by commercial banks sharply declined. Given that an increasing share of world trade has been associated with international production networks and their often relatively long-term trading relationships, the share of commercial-bank trade-financing transactions relying on traditional documentary procedures (such as letters of credit) fell from about 90 per cent of all transactions in the late 1980s to about 30 per cent in the late 1990s (World Bank, 2004: 129–130). The less cumbersome, and often less costly, trade financing relationship, mostly

with foreign commercial banks, became increasingly attractive for export-oriented domestic firms also when these firms' export earnings represented an implicit hedge against foreign-exchange risk associated with borrowings in foreign currency. Thus, as happened in the build-up to the Asian crisis (*TDR 1998*: chapter III), assuming relatively stable exchange rates and sustained high export growth, generally, neither exporting firms nor their creditors consider it necessary to explicitly hedge credit risk due to currency fluctuations.

Views differ among market participants as to which factors were predominantly responsible for the shortages of short-term finance during recent currency crises, as discussed by Auboin and Meier-Ewert (2003: 6–8). However, there is widespread agreement that supply-side factors were primarily responsible for the sharp decline in trade finance. For example, international banks – the primary sources of trade credit to emerging markets – engaged in herd behaviour, characterized by a general withdrawal from all lending to developing countries. Their rush to exit was based on an assessment of economy-wide prospects, rather than of the financial conditions of their individual corporate clients. As a result, the majority of international banks, confounding country risk with credit risk, limited their overall exposure to the crisis-ridden markets, rather than maintaining a selective presence on the basis of the true risk profile of their clients.

It is likely that the reduced documentation requirements for trade finance, discussed above, have made it more difficult for commercial banks to distinguish between trade finance and other types of short-term finance. These changes largely explain the uncertainty among international lenders about the continued creditworthiness of domestic firms and about whether crisis-affected countries would continue granting reimbursement priority to trade credit over other types of short-term financing. Indeed, as noted by the World Bank (2004: 14): “One reason that trade credit was not always afforded differential treatment in the 1990s was that the easing of capital controls (under

which trade finance transactions often enjoyed preferential access to scarce foreign exchange) and the movement away from detailed documentation requirements underlying trade finance transactions have blurred the lines between trade credit and other forms of short-term financing.”

Domestic lenders may not be in a position to offset the sharp decline in the provision of trade finance from international banks because of adverse changes in domestic monetary conditions. A common feature of most of the recent large depreciations, and especially currency crises, is that they were accompanied by a contraction in domestic lending and/or a sharp increase in domestic interest rates. In some cases, the contraction in lending was a market response to the capital outflows that generated the currency depreciation. In others, the increase in interest rates was a policy

response designed to reverse capital outflows, halt the depreciation of the currency's value and reduce expenditure imbalances between imports and exports.<sup>5</sup> Furthermore, some of the measures introduced to strengthen the financial system, such as the imposition of stringent capital requirements on banks, have tended to seriously reduce the

availability of domestic credit. Evidence from the Asian crisis, for example, suggests that currency depreciation inflicted much less damage on firms than the rise in interest rates and cut-backs in domestic credit lines, because many firms with large foreign indebtedness were export-oriented (Choi and Kang, 2000). If credit lines had been maintained, greater competitiveness and growing export revenues would have provided a cushion against the rise in liabilities, measured in domestic currency, caused by the currency depreciations.

The above discussion documents the adverse effects on enterprise investment and international competitiveness that monetary factors originating in other countries can have. Perhaps most importantly, it shows that sharp currency depreciations have effects that can seriously compromise the ability of domestic exporters to take advantage of their increased international cost competitiveness stemming from the depreciation.

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... or even to obtain enough working capital to purchase the inputs necessary for maintaining production at pre-depreciation levels.

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**(b) The profit channel**

Regarding profits and sales prices, the impact of large changes in nominal exchange rates on enterprise investment depends on the firm's price-setting strategy and the persistence of the exchange rate change. Firms that set sales prices in foreign markets by adding a mark-up on domestic unit labour costs can temporarily insulate their competitive position from adverse movements in nominal exchange rates, if they limit the exchange rate pass-through into sales prices denominated in foreign currency. In other words, a strategy of "pricing to market" (i.e. discriminating between destination countries by setting different prices on different markets) allows exporters to maintain their price competitiveness even in the aftermath of an exchange rate appreciation. Exchange rate pass-through is complete when the exporter allows prices denominated in foreign currency to adjust entirely in line with exchange rate variations, while there is no pass-through if prices measured in foreign currency remain stable and the exchange rate change is absorbed entirely by a fall in profits.

However, individual firms can use pricing to market only for a limited period of time, because such a strategy has adverse effects on company profits. By using incomplete exchange rate pass-through in order to defend price competitiveness in the short run, firms expose themselves to a high degree of variability in – or even a complete loss of – their profit margins, which is likely to depress investment, and thus adversely affects competitiveness in the long run. This means that if a currency appreciation persists, firms may eventually have to give up pricing to market and transmit the appreciation into higher foreign-currency-denominated sales prices; this would, however, entail the risk of losing their market shares.

Pricing-to-market strategies reduce the visible impact of exchange rate changes on trade

flows. The question therefore arises as to how common is their actual use. Cross-country differences in strategic pricing behaviour are likely to reflect differences in the industry composition of exports, because high-technology-intensive differentiated products, which are typically produced in developed countries, provide more scope for price discrimination. Thus, systematic empirical evidence on the use of pricing to market is limited to exporters of large developed countries, indicating that "in many cases half or more of the effect of an exchange rate change is offset by destination-specific adjustments of mark-ups over costs" (Goldberg and

Knetter, 1997: 1270). Regarding empirical evidence for developing countries, changes in the difference between the real exchange rate, expressed in relative unit labour costs, and the real exchange rate, expressed in relative consumer price, provide an approximate indirect measure of the impact of exchange rate changes on profits of developing-country exports. As shown in *TDR 2003* (fig. 5.3), the large currency depreciations in Mexico in 1994–1995 and in the Republic of Korea in 1997 restored profit margins earned by exporters of manufactures, which had been eroded in the years prior to the exchange rate crises.

In addition to strategic pricing behaviour, shifts in the marginal cost curves, due to changes in imported input costs stemming from the exchange rate change, may give rise to incomplete exchange rate pass-through. Campa and Goldberg (1999) show that for major developed countries, the importance of the exchange rate for marginal profitability and for investment responsiveness to exchange rates varies over time: positively in relation to sectoral reliance on export share, and negatively with respect to the share of imported inputs in production. Moreover, in low price-over-cost mark-up sectors, mark-ups are relatively unresponsive to exchange rate changes, whereas investment is strongly affected. By contrast, high mark-up industries absorb much of the exchange

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"Pricing to market" allows exporters to maintain price competitiveness even after an exchange rate appreciation ...

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... but trying to do so over a longer period of time risks compromising profit-related incentives for investment.

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rate fluctuations in mark-ups and relatively little through real investment. Although systematic evidence for developing-country imports is not available, it is possible that foreign suppliers selling in large developing countries with sizeable import-competing sectors may engage in strategic pricing to market for selected important differentiated manufactured products. To the extent that this is the case, the price effect of exchange rate changes for domestic producers in import-competing industries and in export industries that have a large import content of differentiated products will be diminished.

Enterprises that cannot outweigh the adverse effect of exchange rate changes on competitiveness through productivity-enhancing investment or a squeeze in profit margins may need to resort to wage compression or labour shedding in order to stay in business. Assessments of the wage and employment response to real exchange rate movements often analyse net changes in wages per worker or employment across manufacturing industries. For example, *TDR 2003* (table 5.7) showed that wages were reduced in many African and Latin American countries in order to increase international competitiveness.

In brief, the impact of exchange rate changes on enterprise profits and investment varies across firms. Firms can limit the adverse effects of currency appreciations on their international cost competitiveness temporarily, if they are able to follow a pricing-to-market strategy and absorb at least part of the exchange rate change by a squeeze in profit margins. But trying to do so over a longer period of time risks compromising profit-related incentives for investment. On the other hand, firms may not be able to benefit from sharp real currency depreciations if the goods that they export have a large import content, so that the net effect of the currency depreciation on the firms' international cost competitiveness is very small. More importantly, recent experience shows that adverse impacts of sharp real currency depreciations can compromise the ability of firms to expand production capacity or even maintain production at pre-depreciation levels. Indeed, the easing of capital controls, combined with the movement away from detailed documentation requirements for trade financing transactions, have seriously compromised the availability of trade finance from

international sources in the aftermath of sharp currency depreciations. In addition, the tightening of domestic monetary conditions associated with the depreciation has made it difficult for domestic lenders to maintain their provision of short-term lending.

## **2. Sharp exchange rate changes and developing countries' export performance**

At the macroeconomic level, maintaining a stable exchange rate at an appropriate level is crucial for successful exporting and structural change towards high-productivity sectors. Discussions on the impact of exchange rate changes on trade flows have frequently emphasized the effect of exchange rate volatility on trade, or the contribution of currency depreciations to the removal of temporary imbalances in a country's current account. Typically, the focus has been on the impact of exchange rate changes that are relatively small compared to the large gyrations in developing countries' real exchange rates that have frequently occurred since the early 1990s. This section briefly addresses the two issues discussed in the traditional debate, with its emphasis on relative small exchange rate movements. However, its main focus is on large changes in real exchange rates, often associated with sharp and abrupt changes in the direction of short-term private international capital flows. Such changes can cause substantial shifts in relative production costs and output prices across countries, and hence in relative competitive positions.

In its review of the impact of exchange rate volatility on trade, a recent study by the IMF (2004: 7) concludes: "On balance, it is not clear whether the major changes in the world economy over the past two decades have operated to reduce or increase the extent to which international trade is adversely affected by fluctuations in exchange rates." The study argues that, on the one hand, the liberalization of capital flows in the last 30 years, and the ensuing strong growth in the scale and variety of cross-border financial transactions have clearly increased the magnitude of exchange rate movements in some countries; the recent currency crises in emerging market economies being espe-

cially notable for their large exchange rate volatility. On the other hand, the proliferation of financial hedging instruments has made it possible for firms to reduce their vulnerability to the risks arising from volatile currency movements. Moreover, the fact that a growing proportion of international transactions is undertaken by TNCs, and exchange rate fluctuations may have mutually offsetting effects on their profitability, may have further reduced the impact of exchange rate volatility on world trade. However, it is likely that trade involving developed countries is relatively less sensitive to the adverse effects of exchange rate volatility, because most TNCs are based in developed countries, and hedging instruments are more readily available for the currencies of these countries. The results of their empirical analysis of trade and exchange rate volatility at the bilateral level led the authors of the IMF study to conclude that there is a generally small negative effect of exchange rate volatility on trade, but that this evidence is not robust across different model specifications.<sup>6</sup>

In its treatment of the impact of exchange rate changes on international trade flows, standard international trade theory emphasizes the mechanism that removes temporary imbalances in a country's current account. It shows that a real depreciation of the domestic currency reduces import demand and increases export demand for goods and services, thus restoring the current account balance if the sum of the relative price elasticities of export and import demand exceeds unity. Empirical estimates for price elasticities for international trade in manufactured goods by developed countries generally show that a real appreciation is likely to worsen the trade account. Conversely, a real depreciation is likely to improve it, except over short periods where the elasticities are typically too small to satisfy the elasticity condition, thereby causing the trade account to deteriorate immediately following a real depreciation.<sup>7</sup>

There has long been a debate in the literature on the ability of changes in the real exchange rate to improve the merchandise trade balance of developing countries in the medium and long run.<sup>8</sup>

Elasticity pessimists have argued that in developing countries, (i) the elasticity of import demand is low because most imports are production inputs, and the elasticity of substitution in production between imports and domestic value added is essentially zero; (ii) the elasticity of export supply is low because exports are concentrated in a few primary products with a very low domestic supply response; and (iii) the elasticity of export demand is low because world demand is inelastic, with respect to both income and prices, for the products exported by developing countries. Indeed, many developing-country exporters of primary commodities appear to be trapped in a vicious circle, where real exchange rate changes can play a fairly small role in increasing exports and reducing imports at the same time. The existing production structure in these countries can generate little diversification and export growth

in the absence of new investment in industry, which requires substantial imports and foreign exchange. Export growth is thus constrained by the inability to increase imports due to inadequate export earnings. This dilemma is accentuated when the loss of the purchasing power of exports is not compensated, and imports have to be reduced.<sup>9</sup> In coun-

tries that face this dilemma, the persistent excessive reliance on exports of primary commodities to finance imports of goods and services has contributed to the accumulation of unsustainable debt burdens. However, while this is likely to limit, sometimes substantially, the positive response of the trade balance to real currency depreciations, empirical evidence shows that, in general, a real depreciation of the domestic currency improves the merchandise trade balance of developing countries (Ghei and Prichett, 1999).

The large size of recent real exchange rate changes brings an additional dimension to the traditional elasticity debate for at least two reasons. First, the external trade position of countries that are not directly subject to a sharp exchange rate change themselves can, nevertheless, be adversely affected. Second, the impact of sharp and abrupt exchange rate changes on the economy of the depreciating currency is more complex than the ad-

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Sharp currency depreciations are often associated with economic recession and a sharp decline in the availability of trade finance.

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justments resulting from small exchange rate fluctuations, because sharp currency depreciations are often associated with economic recession and, as discussed in some detail in the preceding section, with a sharp decline in the availability of trade finance.

Looking first at the effects of crisis on countries other than the crisis-hit country, the literature shows that financial crises can be transmitted through trade linkages from a directly affected country to other countries that export similar goods, even if those countries have relatively

good fundamentals. The way in which changes in relative prices and/or quantities of goods traded by a crisis-hit country can have spillover effects in other economies operates through a number of distinct channels that can counteract each other (see, for example, van Wincoop and Yi, 2000).

For example, sharp exchange rate changes have a significant impact on relative output prices. These, in turn, affect the relative competitiveness of countries' exports, even if a country does not directly compete with exports from the crisis-affected country in any specific market. This is because the depreciation reduces the relative price of a country's exports, and therefore shifts demand away from countries that produce similar goods. If exports from the crisis-affected country constitute a large enough share of global markets in a given industry, prices in that industry will fall worldwide (for a numerical example, see Pesenti and Tille, 2000: 9). One example of this is the electronics sector in the aftermath of the Asian crisis. Barth and Dinmore (1999) show, for instance, that part of the reason for the price slump in electronic components was the glut in supply created by the troubled Asian economies in their attempt to pursue export-led recoveries from the recession.

A diametrically opposite effect occurs when a country not affected by crisis imports produc-

tion inputs from a crisis-affected country. The decline in prices of these imported inputs, resulting from the crisis, leads to a change in relative inputs prices, so that the effect is equivalent to that of a positive productivity shock.

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**Both external demand and the competitiveness of domestic exporters have a significant impact on developing countries' export performance ...**

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Finally, a crisis-affected country may experience a sharp contraction in economic growth and a reduction in aggregate demand, followed by a reduction in import demand. If imports by the crisis-affected country constitute a large enough share of global markets in a given industry, prices in that industry will fall worldwide. For example, the Asian crisis was followed by a widespread and pronounced fall in commodity prices, which was reflected in a decline in the price index for non-oil commodities by about 30 per cent (*TDR 2000*: 33). This price slump created balance-of-payments and fiscal difficulties for a number of commodity-exporting developed and developing countries.

There is an ongoing debate as to whether these trade linkages have been large and/or significant determinants of how different countries were affected by recent financial crises. The debate is unresolved partly because of the difficulty in disentangling trade and financial linkages. In spite of variations in currency crisis events, approaches and estimation techniques, most empirical studies have, nevertheless, found support for the importance of trade in the international transmission of crises.<sup>10</sup>

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**... but the relative importance of these two factors differs, depending on the composition of exports and different periods of time.**

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One recent study on the Asian crisis (Duttagupta and Spilimbergo, 2004) emphasizes competitive depreciations as an important form of contagion through trade linkages. This means that countries whose exporters compete directly with those in the crisis-affected country face pressure to depreciate their currencies as well, in order to allow their firms to reduce export prices and avoid a loss in international competitiveness. On the other hand, this also means that exporters in the crisis-affected

country do not experience a rise in demand for their products, as would have been the case had the competitive depreciations not enabled their competitors to cut prices.

Turning to the impact on trade performance of the country with the strongly depreciating currency, the large size of recent real exchange rate changes complicates empirical analysis. This concerns, for example, statistical measurement, given that comprehensive data on the price and volume components of export values are not available. One study shows that changes in export prices, rather than changes in export volumes, were mainly to blame for the poor performance of dollar-denominated export revenues in Hong Kong (China), Indonesia, Malaysia, the Republic of Korea, Singapore, Taiwan Province of China and Thailand in the aftermath of the East Asian crisis in 1997–1998. The export prices of these six economies fell by 4.8 per cent in 1997 and by a further 9.1 per cent in 1998. Thus, while aggregate export revenue for these six economies was nominally up by 6.1 per cent in 1997 and fell by 3.6 per cent in 1998, export volumes rose by 8.8 and 0.7 per cent respectively in these two years (Barth and Dinmore, 1999).

The UNCTAD secretariat conducted some econometric estimations with the basic objective of assessing the impact of changes in international cost competitiveness on developing countries' merchandise trade performance for the period 1970–2002. Annex 2 to this chapter explains the set-up of these estimations, where international cost competitiveness is measured by the exporting country's real effective exchange rate, and merchandise trade performance is captured by four variables: (i) the merchandise trade balance; (ii) total merchandise exports as a percentage of nominal income; (iii) total merchandise imports as a percentage of nominal income; and (iv) the country's market share in total world manufactured exports. Due to its strategic importance for policy-making and the development of external indebtedness, the current account balance was included in the estimations as a fifth dependent vari-

able. Given that cross-country variations in the rate of real income growth are also likely to influence countries' trade flows, the estimations also consider the impact of changes in world income and in the exporting country's income. Following the discussion above, the anticipated impact of real exchange rate changes on the trade performance variables is that a depreciation increases exports and export market shares, while it reduces imports; these effects combined imply that a depreciation is expected to improve the merchandise trade balance, as well as the current account balance. At the same time, accelerated domestic (world) income growth is expected to boost imports (exports).

It is not immediately clear whether the econometric estimation can be expected to reveal the anticipated inverse relationship between changes in competitiveness, as measured by the real effective exchange rate, and changes in a country's share in world exports of manufactures. Firstly, the market share of a country whose currency depreciates declines due to a statistical effect. For example, if a country's currency depreciates by 10 per cent vis-à-vis the dollar, its market share, measured in dollar terms, also drops by 10 per cent. However, a statistical method that would allow taking account of this effect is not available. Secondly, cross-country differences in the rise of export market shares following a currency depreciation are influenced by differences in the growth rate of aggregate demand in the exporting country's trading partners. Thirdly, the entry of countries into the world trading system automatically reduces the market shares of the other countries, as occurred when China and the countries of the former Council For Mutual Economic Assistance (CMEA) began to participate more actively in world trade.

Fourthly, Kaldor found that between 1956 and 1976 the United States and the United Kingdom suffered a decline in their share of manufactured exports to major developed-market economies, while they became more competitive – as measured by changes in relative unit labour costs – and Germany, Italy and Japan saw a rise in their market

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Major exchange rate depreciations neither give a sizeable additional boost to export performance nor result in proportionally larger improvements in the trade balance.

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shares, while they became less competitive on this measure. Based on these findings (frequently referred to as the ‘Kaldor paradox’), Kaldor (1978: 104) argued that “the changes in exchange rates and in ‘competitiveness’ as conventionally measured were not the cause, but the consequence of differing *trends* in the market shares of different industrial countries, and the ‘trends’ themselves must then be due to factors not susceptible to measurement.”

However, this argumentation does not take account of the level from which changes have occurred. At the beginning of the 1970s, the currencies of both Germany and Japan were undervalued by more than 10 per cent (Williamson, 1983), so that currency appreciation had substantial leeway to reduce these countries’ advantage in exchange-rate-based competitiveness before eliminating or even reversing it. Thus part of the explanation of this “paradox” is likely to be found in the fact that the observed currency movements implied a correction of previously accumulated misalignments, rather than movements away from an equilibrium value. Moreover, Kreinin (1977) estimated for the early 1970s that the exchange rate pass-through to United States import prices was only 50 per cent, and to German and Japanese import prices about 60–70 per cent. This means that exporting firms transmitted exchange rate changes only partially to sales prices measured in foreign currency, and absorbed the other part through changes in their profit margins.<sup>11</sup>

The relationship between the real exchange rate and market shares in world manufactured exports in developing countries diverges widely, as shown in figure 4.1 for six major developing-country exporters of manufactures. In East Asia, relatively stable real effective exchange rates accompanied the dramatic rise of the share in world manufactured exports of the Republic of Korea and Taiwan Province of China between the early 1970s and the late 1980s. But most East Asian economies, in order to maintain their cost competitiveness, have successfully stabilized their real exchange rates – although sometimes at an undervalued level – through a consensus based on nominal wage increases, in line with productivity growth, capital controls and interventions in the currency market. Following the Asian crisis in 1997–1998, the experience of the Republic of

Korea and Taiwan Province of China has been characterized by a combination of a trend towards real currency depreciation and an increase in market share. For Brazil, India and Turkey, periods of rapidly increasing market shares in world manufactured exports have broadly coincided with periods of real currency depreciations. Mexico is the only country in the figure where, during the second half of the 1990s, a rise in market shares was accompanied by real currency appreciation. However, as discussed in previous *TDRs*, given that Mexico’s exports of manufactures increased rapidly following the entry into force of the North American Free Trade Agreement (NAFTA) in 1994, and since they have a significant import content and comparatively little domestic value added, it is no surprise that real currency appreciation had no significant adverse impact on the evolution of market shares. Taken together, the figure provides broad statistical evidence to support the argument that, over the long term, increases in market shares in world manufactured exports are associated with periods of real currency depreciations.

This contrasts with the results of the econometric estimation in table 4.1, which shows that, in general, over the period 1971–2002 as a whole, exchange rate changes had no statistically significant impact on changes in the share of world manufactured exports for the selected 28 developing economies and Central and Eastern European countries (CEECs). Looking at the results for different country groups, this finding also holds for the group of Asian and Latin American economies included in the sample. Similar to the above discussion of the Kaldor paradox, a possible explanation for this finding is that the analysis focuses on changes in the real effective exchange rate, but does not take account of the level from which these changes occurred. As already mentioned, the growth of exports from East Asian economies was associated with a strategy of maintaining real exchange rate stability, sometimes at an undervalued level. This implies that these countries’ market shares were able to increase even with a slight real currency appreciation. In contrast, in much of Latin America, periods of sometimes prolonged exchange rate overvaluation, followed by real currency depreciations, may not have led to increasing market shares for their exports.<sup>12</sup>



Figure 4.1

**EXCHANGE RATES AND SHARE IN WORLD EXPORTS OF MANUFACTURES,  
SELECTED DEVELOPING ECONOMIES, 1970–2002**



**Source:** UNCTAD secretariat calculations, based on JP Morgan (2003) for exchange rate data; and the UNCTAD database for trade data.

Table 4.1

**IMPACT OF CHANGES IN EXCHANGE RATES AND INCOME ON  
EXTERNAL PERFORMANCE: ESTIMATION RESULTS, 1971–2002<sup>a</sup>**

	<i>Share in world manufactured exports</i>	<i>Merchandise trade balance</i>	<i>Current account balance</i>	<i>Income share of exports</i>	<i>Income share of imports</i>
<b>Total sample</b>					
Real effective exchange rate	0.01	-0.35*	-0.23*	-0.59*	-0.17**
Real domestic income	0.94*	-1.02*	-0.90*	-0.32**	0.76*
Real world income	1.81*	2.67*	1.25*	2.56*	-0.42
R-square	0.25	0.21	0.26	0.27	0.09
Total panel observations	679	677	585	679	684
<b>Asia</b>					
Real effective exchange rate	-0.02	-0.28*	-0.18*	-0.47*	-0.14
Real domestic income	1.51*	-0.57*	-0.66*	0.05	0.61*
Real world income	1.82*	2.55*	0.74**	2.50*	-0.03
R-square	0.47	0.24	0.38	0.28	0.08
Total panel observations	330	328	247	330	328
<b>Latin America</b>					
Real effective exchange rate	-0.05	-0.46*	-0.33*	-0.82*	-0.28**
Real domestic income	-0.20	-2.73*	-1.83*	-1.20*	1.41*
Real world income	3.19*	5.28*	3.81*	2.89*	-2.29*
R-square	0.06	0.37	0.39	0.37	0.13
Total panel observations	192	192	167	192	192
<b>Central and Eastern Europe</b>					
Real effective exchange rate	0.30**	-0.18	-0.24	-0.42*	-0.14
Real domestic income	0.39	-1.33	-1.04***	-0.76	-0.11
Real world income	-4.84*	-0.96	-1.03	2.89**	3.44*
R-square	0.51	0.27	0.27	0.36	0.30
Total panel observations	46	46	46	46	46

**Source:** UNCTAD secretariat calculations, based on JP Morgan (2003) for exchange rate data; IMF, *International Financial Statistics* database for current account data; and the UNCTAD database for trade and income data.

**a** For Central and Eastern Europe, estimations refer to the period 1995–2002.

\* Denotes significant at the 1 per cent level.

\*\* Denotes significant at the 5 per cent level.

\*\*\* Denotes significant at the 10 per cent level.

The estimation results in table 4.1 also show that, as anticipated, depreciations led to a statistically significant improvement in the merchandise trade balance, as well as in the current account balance. However, contrary to expectations, the results show that depreciations led to a rise – in most cases statistically significant – in the income

shares of both imports and exports. But this result for the entire sample period masks a noteworthy evolution of the impact of exchange rate changes on the income shares of imports and exports (table 4.2). Looking only at the 1970s, the results show that depreciations led to the anticipated decline in the income share of imports and to a rise

in the income share of exports, although the coefficient on imports is statistically not significant. The coefficient on the income share of exports rises in size and maintains both its sign and statistical significance for the 1980s and for the period 1990–2002. By contrast, the coefficient on the income share of imports changes its sign, and for the period 1990–2002 the results show that depreciations led to a statistically significant rise in the income share of imports. It is likely that this evolution in the impact of exchange rate changes on imports mirrors the increased import content of developing-country exports, which has occurred with the rising importance of developing-country participation in international production networks since the mid-1980s. High import intensity of exports makes imports and exports move in the same direction, independently of the direction of exchange rate changes.

Concerning the impact of changes in income on trade performance, the results in table 4.1, for the entire sample and for the group of Latin American countries, show that, as expected, rising growth in domestic demand led to growing income shares of imports and declining income shares of exports. For the group of Asian economies, higher domestic (world) demand had no statistically significant impact on the income share of exports (imports). The increasing importance of changes in regional income for the trade performance of these countries might explain this finding. The results also show that an increase in world income leads to a sharply rising income share of exports in both regions and to a strong improvement in the merchandise trade balance.

Possible lagged reactions of trade performance can reverse the impact that occurs immediately after exchange rate changes (i.e. J-curve effects may arise). Imposing time lags on the exchange rate variable to detect such lagged reactions reveals that statistically significant effects on exports occur in the same period as the exchange rate change as well as in the subsequent period, while the effects on imports are statistically significant up to three years after the exchange rate change. The combined effect of these cumulative changes implies that a 10-per-cent depreciation leads to an improvement in the trade balance by more than 0.6 percentage points in the year following the depreciation, and that this improvement remains

Table 4.2

**IMPACT OF CHANGES IN EXCHANGE RATES AND INCOME ON INCOME SHARES OF IMPORTS AND EXPORTS: ESTIMATION RESULTS FOR SELECTED PERIODS**

	<i>Income share of exports</i>	<i>Income share of imports</i>
<b>1971–1980</b>		
Real effective exchange rate	-0.28*	0.10
Real domestic income	0.09`	1.07*
Real world income	1.98*	-2.62*
R-square	0.17	0.13
Total panel observations	192	192
<b>1980–1990</b>		
Real effective exchange rate	-0.56*	-0.05
Real domestic income	-0.06	0.94*
Real world income	1.70*	1.31*
R-square	0.23	0.23
Total panel observations	208	213
<b>1990–2002</b>		
Real effective exchange rate	-0.97*	-0.46*
Real domestic income	-0.43*	0.98*
Real world income	3.72*	1.31*
R-square	0.72	0.28
Total panel observations	272	272

**Source:** See table 4.1.

**Note:** All results refer to country samples excluding CEECs.

\* Denotes significant at the 1 per cent level.

\*\* Denotes significant at the 5 per cent level.

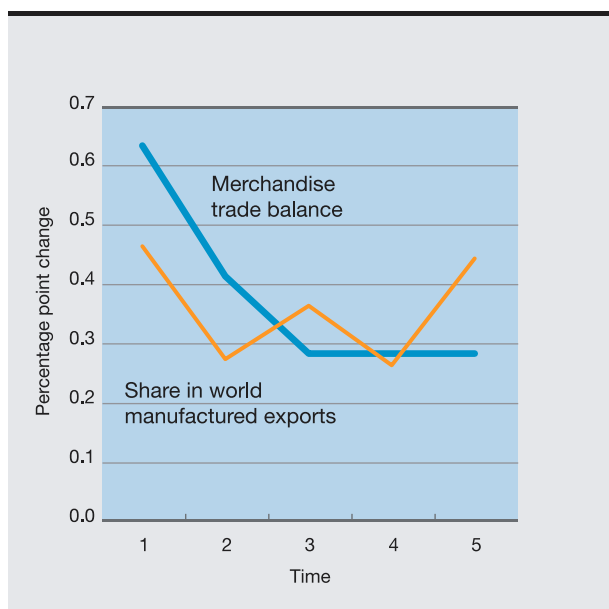
\*\*\* Denotes significant at the 10 per cent level.

at about 0.3 percentage points in the medium term, as shown in figure 4.2. The figure also shows that a 10-per-cent depreciation leads to a cumulative increase in the market share in world manufactured exports by about 0.4 percentage points during the five-year period following the depreciation.

A country's export composition is likely to influence the relative strength of the impact on trade performance of changes in the real exchange rate on the one hand, and of external demand on the other. External demand will tend to be rela-

Figure 4.2

**CURRENCY DEPRECIATIONS AND TRADE PERFORMANCE: TIME PATH OF ADJUSTMENT**



**Source:** See table 4.1.

**Note:** The graph shows the cumulative effect of a 10-percent currency depreciation occurring in time  $t = 0$  on trade performance over the subsequent five years.

tively more important for countries that rely for most of their export earnings on comparatively homogeneous primary products. Changes in supply and demand conditions on world markets determine price changes on the world market for homogeneous products. As a result, rather than boost its export performance, a country's currency depreciations would diminish its export earnings, measured in domestic currency, and hence worsen its barter terms of trade. By contrast, relative changes in domestic production costs of countries' manufacturing exports influence price changes on world markets for manufactures. Hence, price competitiveness (as measured by the real exchange rate) will be a relatively more important determinant of the trade performance of major exporters of manufactures.

Dividing the country sample into countries that are major exporters of manufactures and other countries<sup>13</sup> leads to no change in the general pat-

tern of the results obtained for the entire sample discussed above. However, the results presented in table 4.3 reveal that, with respect to the relative impact of changes in the real effective exchange rate and in world income on changes in the merchandise trade balance, the former is indeed more important for major exporters of manufactures, while the latter is more important for the other countries. A further noteworthy difference in the trade performance of these two groups of countries relates to the lag structure of the impact of changes in the real effective exchange rate on the countries' share of world export markets. Changes in the real effective exchange rate have a statistically significant impact on changes in the share of major exporters of manufactures in both total world exports and world exports of manufactures over several years, with a 10-percent depreciation leading to a cumulative increase in world market shares by about 0.2 percentage points over the subsequent five years (fig. 4.3). By contrast, none of the coefficients on the lagged exchange

Table 4.3

**IMPACT OF CHANGES IN EXCHANGE RATES AND INCOME ON THE MERCHANDISE TRADE BALANCE: ESTIMATION RESULTS FOR SELECTED COUNTRY GROUPS, 1971–2002**

	<i>Merchandise trade balance</i>
<b>Major exporters of manufactures</b>	
Real effective exchange rate	-0.43*
Real domestic income	-0.69*
Real world income	2.63*
<b>Other countries</b>	
Real effective exchange rate	-0.24***
Real domestic income	-1.89*
Real world income	3.92*
R-square	0.24
Total panel observations	631

**Source:** See table 4.1.

**Note:** See table 4.2.

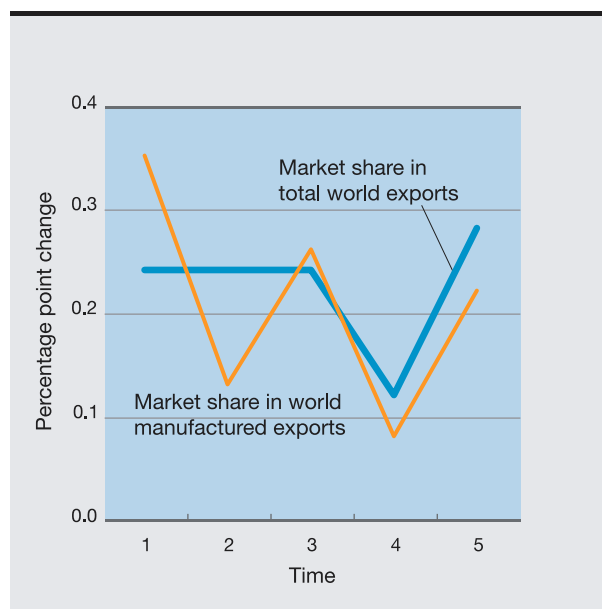
rate variable is statistically significant for the share of other countries in total world exports.

Concentrating on the income share of exports, the results in table 4.2 discussed above show that real currency depreciation boosted exports, but that export growth was particularly sensitive to an increase in world income. In this sense, while both factors had a significant impact, external demand appears to have been a relative more important factor influencing merchandise trade performance than the competitiveness of domestic producers. On the other hand, comparing the size of the coefficients for the real effective exchange rate and world income growth for the 1970s and for the period 1990–2002, reveals that the relative strength of the effects of improved domestic supply capacity increased and that of greater external demand decreased. This is true for all the developing countries combined, as well as for the group of Latin American and Asian countries and economies taken separately. By contrast, splitting the country sample into the group of major exporters of manufactures and other countries reveals that this pattern applies to the former group, while for the export performance of developing countries that rely on primary commodities, the impact of external demand became increasingly pronounced (table 4.4). This shows that both external demand and the competitiveness of domestic exporters have a significant impact on developing countries' export performance, but their relative importance differs, depending on the composition of exports and different periods of time.

Separating changes in the real exchange rate based on changes in fundamental factors (such as relative productivity and wage developments) from those based on other factors would ideally rely on an assessment of changes in the equilibrium exchange rate and deviations from the equilibrium rate. However, there is no agreement as to whether, or how, an equilibrium exchange rate can be determined theoretically, and the data required to test existing concepts empirically are often not available for developing countries or incomplete. A second way of gaining a general insight into when exchange rate changes are unrelated to changes in fundamentals that do not depend on the credibility of any particular estimates of an equilibrium exchange can be based on the assumption that changes in those funda-

Figure 4.3

#### CURRENCY DEPRECIATIONS AND EXPORT MARKET SHARES: TIME PATH OF ADJUSTMENT FOR MAJOR EXPORTERS OF MANUFACTURES



Source: See table 4.1.

Note: See figure 4.2.

mentals are usually not very large. Hence, it can be assumed that changes in the real exchange rate that exceed a certain threshold level are unlikely to reflect changes in fundamentals; rather they are likely to reflect substantial changes in the nominal exchange rate, partly due to changes in the demand for currencies as capital assets.

Consequently, in order to separate major from minor changes in the real effective exchange rate, the following analysis defines “major changes” as any change in a three-month period during 1970–2002, when a country’s real effective exchange rate depreciated or appreciated by 15 per cent or more.<sup>14</sup> The resulting list of major changes in real effective exchange rates (table 4.5) includes the well-known recent currency crises, such as the series of devaluations in East Asia in 1997–1998; the devaluations in Mexico, the Russian Federation, South Africa and Brazil in the late 1990s; and the Argentinean devaluation in early 2002 following the collapse of its currency board. It also includes a number of strong appreciations, some

Table 4.4

**IMPACT OF CHANGES IN EXCHANGE RATES AND INCOME ON INCOME SHARE OF EXPORTS:  
ESTIMATION RESULTS FOR SELECTED COUNTRY GROUPS AND PERIODS**

	<i>Country groups by geographical region</i>		<i>Country groups by export structure</i>	
	<i>Asia</i>	<i>Latin America</i>	<i>Major exporters of manufactures</i>	<i>Other countries</i>
<b>1971–1980</b>				
Real effective exchange rate	-0.11	-0.25**	-0.19	-0.32*
Real domestic income	0.37	-0.50	0.29	-0.39
Real world income	2.03**	2.58*	1.93*	2.02**
R-square	0.20	0.17	0.19	0.16
Total panel observations	100	60	110	82
<b>1980–1990</b>				
Real effective exchange rate	-0.31*	-0.95*	-0.48*	-0.75*
Real domestic income	0.48**	-1.53*	0.30	-0.89**
Real world income	1.97*	4.12*	1.38**	2.45***
R-square	0.28	0.49	0.24	0.31
Total panel observations	110	66	121	87
<b>1990–2002</b>				
Real effective exchange rate	-0.91*	-1.18*	-0.83*	-1.06*
Real domestic income	-0.27*	-0.94*	-0.55*	-0.29*
Real world income	3.28*	4.82*	3.49*	4.35*
R-square	0.77	0.69	0.64	0.73
Total panel observations	140	78	153	119

**Source:** See table 4.1.

**Note:** See table 4.2.

of which reflect a sharp rebound of the exchange rate following a currency crisis (as in Indonesia in 1998). It is interesting to note that there were more than twice as many major depreciations than there were appreciations. Moreover, the fact that almost one third of the major depreciations during the 33-year period occurred after the Mexican crisis at the beginning of 1995 reflects the increasing frequency of exchange rate crises or their contagion effects. While each of these episodes had its own special characteristics, two common features are: (i) that the crises were preceded by periods of sharply increasing capital inflows attracted by an interest rate differential (i.e. a relatively high level of domestic interest rates, of-

ten in the context of tight monetary policy designed to attain or maintain price stability), and associated with a slow but continuous appreciation of the real exchange rates, and (ii) that they were triggered by a sharp swing in expectations of international investors – often associated with rising international rates and a deterioration of domestic macroeconomic conditions resulting from the effects of the capital inflows, rather than with shifts in domestic policies – which led to large-scale selling of the country's currency (*TDR 2003*, chapter VI).

The varying impact on trade performance between major and other real currency deprecia-

Table 4.5

**MAJOR CURRENCY DEPRECIATION AND APPRECIATION EVENTS,  
SELECTED ECONOMIES, 1970–2002**

	<i>Major depreciations</i>					<i>Major appreciations</i>		
Argentina	1975 (2)	1977 (1)	1981 (2)	1989 (2)	2002 (1)	1976 (1)	1988 (3)	1990 (2)
Brazil	1971 (4)	1983 (1)	1999 (1)	2002 (3)		1990 (1)		
Chile	1973 (3)					1972 (2)		
China	1986 (3)	1988 (2)						
India	1991 (3)							
Indonesia	1978 (4)	1983 (2)	1986 (4)	1997 (4)		1971 (1)	1998 (4)	2001 (3)
Mexico	1976 (4)	1982 (3)	1995 (1)					
Morocco	1974 (2)							
Pakistan	1972 (2)							
Republic of Korea	1998 (1)							
Russian Federation	1998 (3)					1995 (2)		
Saudi Arabia						1974 (4)	1976 (3)	
South Africa	1984 (3)	1998 (3)	2001 (4)			1986 (1)		
Taiwan Prov. of China						1974 (1)		
Thailand	1997 (3)					1974 (1)		
Turkey	1994 (1)					2002 (1)		
Venezuela	1984 (1)	1987 (1)	1989 (2)	1996 (2)	2002 (3)			

**Source:** UNCTAD secretariat calculations, based on exchange rate data from JP Morgan (2003).

**Note:** Major depreciation or appreciation events here are defined as a change in the real effective exchange rate of 15 per cent or greater in any three-month period between 1970 and 2002; the three quarters following such an event are excluded, so that there can be at most one event within any four-quarter period. The numbers in brackets indicate the quarter in which the event occurred.

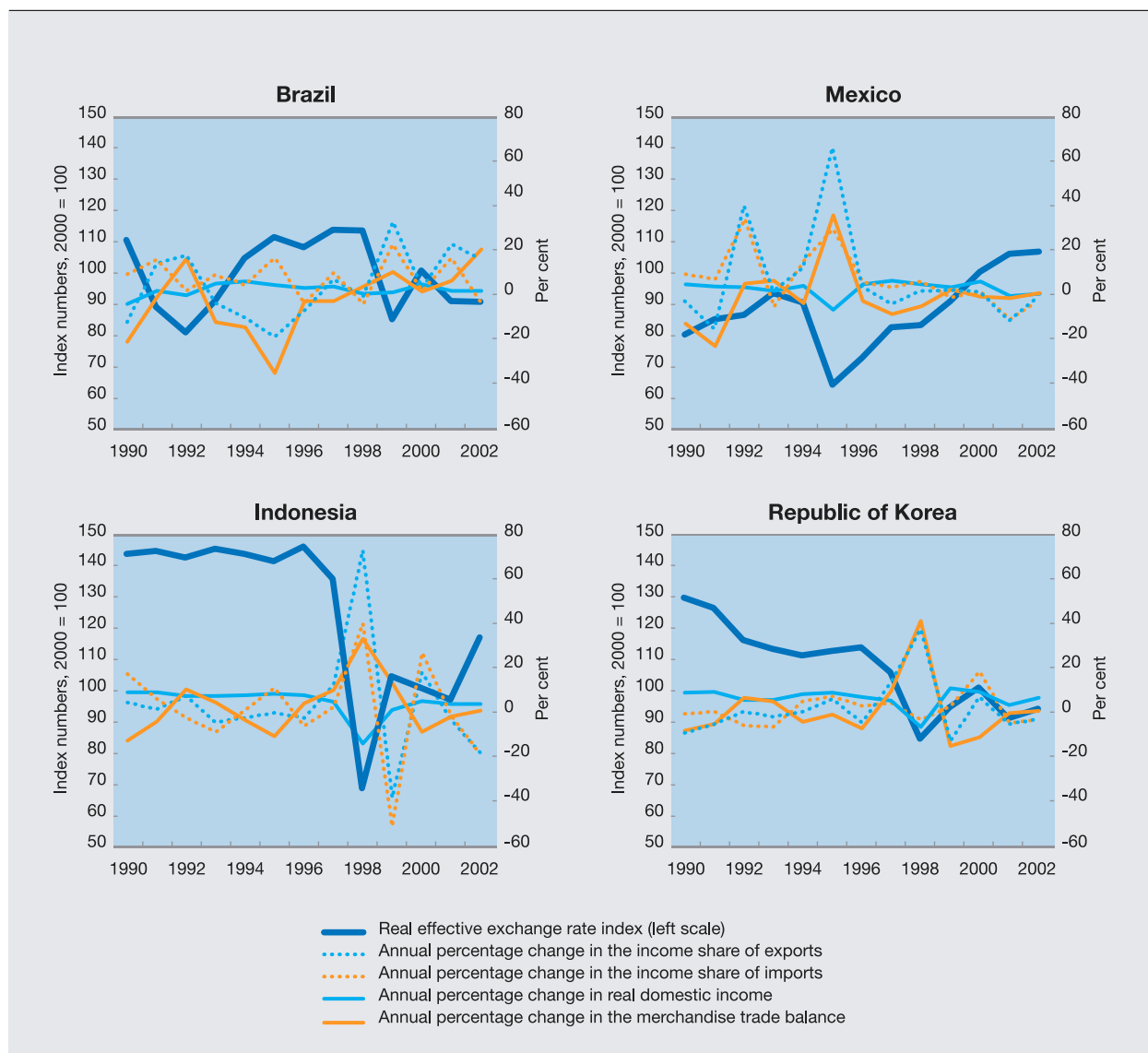
tions is illustrated in figure 4.4, which shows the experience of four countries recently affected by a currency crisis: Brazil (1999), Indonesia (1997), Mexico (1995) and the Republic of Korea (1998). While the underlying mechanisms are undoubtedly complex, partly due to the varying divergence of the exchange rates from their equilibrium values prior to the currency crisis, some general observations can be made. Looking only at the relationship between changes in the real exchange rate and in the merchandise trade balance (represented by the ratio of merchandise exports to imports), Mexico and the Republic of Korea experienced a sharp real depreciation and a strong improvement in the trade balance during the period 1990–2002. The improvement in the trade balance of Brazil and Indonesia associated with

the sharp currency depreciation, is also large, but smaller than in Mexico and the Republic of Korea. This may be due to the fact that the share of manufactures in total merchandise exports of the latter two countries was considerably larger than that in Brazil and Indonesia. Overall, this could lead to the conclusion that, regarding their impact on trade performance, sharp real depreciations are simply extreme examples of real depreciations of a more ordinary size.

However, looking at the evidence more closely reveals two specific features of sharp real currency depreciations. One is that they were accompanied by a sharp decline in real domestic income in all four countries shown in the figure, except Brazil. Moreover, the income share of imports increased

Figure 4.4

**TRENDS IN THE REAL EFFECTIVE EXCHANGE RATE, INCOME AND TRADE PERFORMANCE, SELECTED DEVELOPING COUNTRIES, 1990–2002**



Source: See table 4.1.

much less than the income share of exports. Thus, contrary to more ordinary real currency depreciations, sharp real currency depreciations are often accompanied by a decline in domestic economic activity and imports. Combined with the sharp decline in the availability of trade finance, which often follows sharp currency depreciations, as discussed above, this is likely to hamper the supply response of the country with the depreciating currency.

The results of the estimations relating to the impact on trade performance of these major exchange rate changes as compared to others, are shown in table 4.6. They show that major currency depreciations boosted countries' export performance only slightly more than more normal depreciations. Most importantly, contrary to depreciations of relatively small size, major depreciations did not lead to a statistically significant improvement in the trade balance. By contrast,



Table 4.6

**IMPACT OF CHANGES IN EXCHANGE RATES AND INCOME ON EXTERNAL PERFORMANCE:  
ESTIMATION RESULTS FOR DIFFERENT SIZES OF EXCHANGE RATE CHANGE, 1971–2002**

	<i>Merchandise trade balance</i>	<i>Current account balance</i>	<i>Income share of exports</i>	<i>Income share of imports</i>	<i>Share in world manufactured exports</i>
Major appreciations and depreciations					
Real effective exchange rate	-0.30	-0.08	-0.56*	-0.26	-0.18
Real domestic income	-2.27*	-1.79*	-1.77*	0.65	0.51
Real world income	3.91*	2.47**	5.75*	1.15	0.38
Other appreciations and depreciations					
Real effective exchange rate	-0.31*	-0.23*	-0.49*	-0.11	0.07***
Real domestic income	-0.88*	-0.83*	-0.05	0.86*	1.00*
Real world income	2.57*	1.09*	2.34*	-0.58**	1.80*
R-square	0.22	0.24	0.31	0.10	0.27
Total panel observations	677	585	679	684	679
Major appreciations					
Real effective exchange rate	-0.13	0.13	-0.44	-0.29	-0.27
Real domestic income	-1.54	-1.26	-0.72	0.86	1.01
Real world income	2.57	2.41	5.51**	2.69	1.22
Major depreciations					
Real effective exchange rate	-0.45	-0.41*	-0.86*	-0.46	-0.19
Real domestic income	-2.85*	-2.13*	-2.24*	0.78	0.41
Real world income	3.70**	0.57	4.23**	-0.37	0.16
Other appreciations and depreciations					
Real effective exchange rate	-0.31*	-0.22*	-0.49*	-0.10	0.07
Real domestic income	-0.89*	-0.84*	-0.06	0.86*	1.01*
Real world income	2.62*	1.16*	2.41*	-0.56***	1.79*
R-square	0.23	0.26	0.31	0.10	0.27
Total panel observations	677	585	679	684	679

**Source:** See table 4.1

**Note:** \* Denotes significant at the 1 per cent level.  
\*\* Denotes significant at the 5 per cent level.  
\*\*\* Denotes significant at the 10 per cent level.

changes in domestic income and world income had a sizeable and strongly significant impact on the ability of exporters to take advantage of increased international price competitiveness. Indeed, the results show that following major currency movements, a rise in the income share of exports was

strongly and adversely affected by changes in domestic demand, while changes in domestic demand had no statistically significant impact on the income share of imports.<sup>15</sup> Thus currency depreciations and changes in domestic income and world income had a markedly different short-term

Table 4.7

<b>IMPACT OF CHANGES IN EXCHANGE RATES AND INCOME ON THE MERCHANDISE TRADE BALANCE: TIME PATH OF ADJUSTMENT, 1971–2002</b>	
	<i>Merchandise trade balance</i>
<b>Major appreciations and depreciations</b>	
Real effective exchange rate	-0.10
One year lagged	-0.51
Two years lagged	0.32
Three years lagged	0.23
Four years lagged	0.20
Five years lagged	-0.89**
Real domestic income	-2.65*
Real world income	5.20*
<b>Other appreciations and depreciations</b>	
Real effective exchange rate	-0.26*
One year lagged	-0.26*
Two years lagged	0.22*
Three years lagged	0.13**
Four years lagged	0.11**
Five years lagged	-0.01
Real domestic income	-0.79*
Real world income	1.19*
R-square	0.31
Total panel observations	547

**Source:** See table 4.1

**Note:** \* Denotes significant at the 1 per cent level.  
 \*\* Denotes significant at the 5 per cent level.  
 \*\*\* Denotes significant at the 10 per cent level.

impact on countries' trade performance when they were associated with major exchange rate changes rather than with comparatively smaller ones.

This finding is supported by the results in table 4.7, which show that comparatively small exchange rate changes improved the trade balance in the short run, while there was no similar statistically significant effect of major exchange rate changes. The results in table 4.6 also show that, contrary to their impact on the trade balance, major currency depreciations led to a statistically significant improvement of the current account balance. This is likely to be related to the decline in the commissions and fees such as for letters of credit or lines of credit that accompanied the sharp decline in the access of firms to trade finance and working capital provided by foreign banks in the aftermath of financial crises. It may also reflect changes in the provision of services with a relatively high elasticity with respect to changes in exchange rates and income.

The finding that, compared to depreciations of a more normal size, major exchange rate depreciations neither give a sizeable additional boost to export performance nor result in proportionally larger improvements in the trade balance is likely to reflect also the impact of at least one other factor discussed earlier. The observed worsening of firms' access to trade finance from both international and domestic sources in the aftermath of major currency depreciations makes it difficult for those firms to expand or even merely maintain activity levels. This seriously inhibits their supply response to benefit from lower dollar-denominated export prices.

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### **C. Policy adjustment with open capital accounts**

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For policy makers in developing countries, the fact that exchange rate changes can influence the overall competitiveness of a country and have the potential to directly improve the overall trade performance of the majority of their firms and the balance of payments is a promising prospect. On the other hand, the use of the exchange rate as a powerful tool of economic policy is often strictly limited by the influence that the global capital market and the policy of other countries exert on that rate. The exchange rate of any country is, by definition, a multilateral phenomenon, and any rate change has multilateral repercussions.

In the last three decades, developing and emerging-market economies in all the major regions have had to struggle with financial crises or their contagion effects once they have tried to manage the exchange rate unilaterally or even opted for free floating. Nevertheless, in the Bretton Woods era, as well as in the period of floating or managed floating thereafter, some patterns of successful adjustment to the vagaries of the international capital market emerged, which have been increasingly adopted by developing countries' economic and financial policies. Since the Second World War, some experiences of successful catching up – such as by Western Europe, Japan and the NIEs – suggest that, among other factors, long-lasting currency undervaluation can be extremely helpful to fully reap the benefits of open markets. Today, as multilateral arrangements do not exist on a global scale, a strategy to avoid overvaluation by any means has become the preferred tool of many governments and central banks.

This is in stark contrast to the experience of the 1990s in Latin America. During that decade many Latin American countries maintained hard or soft currency pegs with some overvaluation during the 1990s, and used the exchange rate as a nominal anchor to achieve rapid disinflation. This led to an impressive improvement in their monetary stability (Fischer, 2001: 9; Mussa et al., 2000) but also to currency appreciations that impaired the competitiveness of exporters in these countries. Today, with inflation rates being relatively low and stable due to favourable domestic conditions, adopting a strategy designed to avoid currency overvaluation has become feasible for a much larger number of developing countries. Indeed, many developing countries (such as China, Brazil and South Africa) have recently sought to avoid a revaluation of their currencies through direct central bank intervention, with the result that they have accumulated substantial amounts of foreign-exchange reserves.

It is clear that for these countries, avoiding currency overvaluation is not only a means to preserve or improve macroeconomic competitiveness, but also an insurance against the risk of future financial crises. The accumulation of current account deficits, and frequent financial crises, with overshooting currency depreciations, proved very costly in the past. Surges in inflation, huge losses of real income, and rising debt burdens have been a common feature of all recent financial crises.

However, a strategy of avoiding currency overvaluation cannot easily be implemented if the

capital account is open. If inflation rates in developing countries exceed those in the developed world, or if there are expectations of an imminent currency appreciation, monetary policy will often face a dilemma in trying to keep the exchange rate stable and yet at a level that preserves the international cost competitiveness of the country's exporters.

### 1. *The dilemma posed by capital account openness*

Even a slightly diverging inflation trend between two open economies is sufficient for highly volatile short-term international capital flows to force the central bank of the country with high inflation to give up its undervaluation strategy or to face the severe fiscal costs that can be associated with this strategy.<sup>16</sup> Differences in inflation rates are usually reflected in differences in nominal interest rates, with the high-inflation country having higher interest rates than the low-inflation country, even if both countries have similar growth trends and a similar monetary policy stance (e.g. if they try to apply a Taylor rule<sup>17</sup>). The reason for this is that nominal interest rates have to be higher in the high-inflation country if the central bank is to bring the domestic real interest rate in line with the given real growth rate and degree of capacity utilization.

However, short-term capital flows are not driven exclusively by interest rate differentials. Speculators may attack the currencies of countries that follow an undervaluation policy, because they expect a revaluation to occur sooner or later. This means that, contrary to textbook scenarios, in the real world, international investors do not form short-term exchange rate expectations on the basis of the purchasing power parity (PPP) rule.

Since the PPP rule is relevant only over the long term, policy-makers in financially open developing countries need to be aware that international investors in short-term deposits base their

decisions on the expected nominal return rather than the expected real return on investments. This is because portfolio investors do not intend to buy goods in the country in which they invest, but simply invest money for a day, a week or three months. If, during that period of time, the inflation divergence between the high-inflation and the low-inflation country does not trigger the generally expected depreciation of the high-inflation country's currency, portfolio investment will be more attracted to the high-inflation than to the low-inflation country. As discussed in *TDRs 1998* and *2001*, most of the financial crises in the post-Bretton Woods era have been characterized by unsustainable nominal interest rate differentials. The differential in nominal interest rates attracts portfolio investment in the currency of the high-inflation country. This, in turn, improves the short-term attractiveness of the high-inflation country's currency, because an appreciation would increase the expected return from such an investment. On the other hand, if governments try, from the outset, to limit the extent of an appreciation of the domestic currency by buying foreign currencies, this will usually add to the confidence of international investors as the high-inflation country's international reserves increase.

Thus, independently of whether high nominal interest rates or the expectation of a revaluation attract short-term capital inflows, the currency of the high-inflation country will tend to appreciate in the short-term.<sup>18</sup> This undermines the fundamental external equilibrium between the high-inflation and the low-inflation country and risks increasing the volatility of the nominal and real exchange rates. The presence of an interest-rate differential, which determines the movement of the real exchange rate in the short term, does not preclude the exchange rate from eventually returning to PPP. In the medium term, the clearly visible deterioration of the international competitive position of the high-inflation country will reverse expectations of international investors: they will lose "confidence" in the high-inflation country's currency, thus making a correction of the overvaluation unavoidable.

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**International investors in short-term deposits base their decisions on the expected nominal return rather than the expected real return on investments.**

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Even in the absence of short-term capital flows, internal and external equilibrium cannot be achieved at the same time by adjusting interest rates, if inflation rates in the two countries diverge, for example, because of different institutional arrangements on the labour market. This is because the central bank cannot fight inflation without attracting capital inflows in the short term, and provoking volatility of capital flows and exchange rates in the medium term. Neither can it lower interest rates without running the risk of failing to reach the inflation target.<sup>19</sup>

Independently of whether a high-inflation country with a fully liberalized capital account chooses to fight inflation by maintaining high interest rates, or to keep the real interest rate at a level at least as high as in the low-inflation country, its currency will attract international investors in short-term assets. The high-inflation country can achieve domestic price stabilization only if it maintains nominal interest rates at a level higher than those of the low-inflation country. But if, in the short run, the inflation differential between the two countries is not matched by a corresponding expectation of depreciation of the high-inflation country's currency, the occurrence of a fundamental disequilibrium will be unavoidable. However, choosing the alternative approach and trying to fix the nominal exchange rate is, in this framework, also very costly. Intervention by the central bank of a developing country implies buying foreign currency against bonds denominated in domestic currency that bear relatively high interest rates, and investing the foreign currency purchased at a lower interest rate in the developed country. Thus a strategy of intervening in currency markets and accumulating foreign currency reserves amounts to a permanent subsidization of foreign investors with domestic taxpayers' money.

Free capital flows between countries with differing rates of inflation usually break the link between interest rate differentials and the risk of currency depreciation, because exchange rates do not follow PPP in the short term. Introducing PPP as a "theoretical norm" (Schumpeter, 1939) or a political target is the only way out. With exchange rate expectations being "rational" in terms of PPP, exchange rate expectations should always equal the interest rate differential and the price level differential. But this solution does not apply in

reality. Expectations are not formed rationally along the lines of PPP, as unhedged borrowing offers a short-term profit in most exchange rate regimes only if major imbalances have not occurred.

## 2. *Patterns of adjustment*

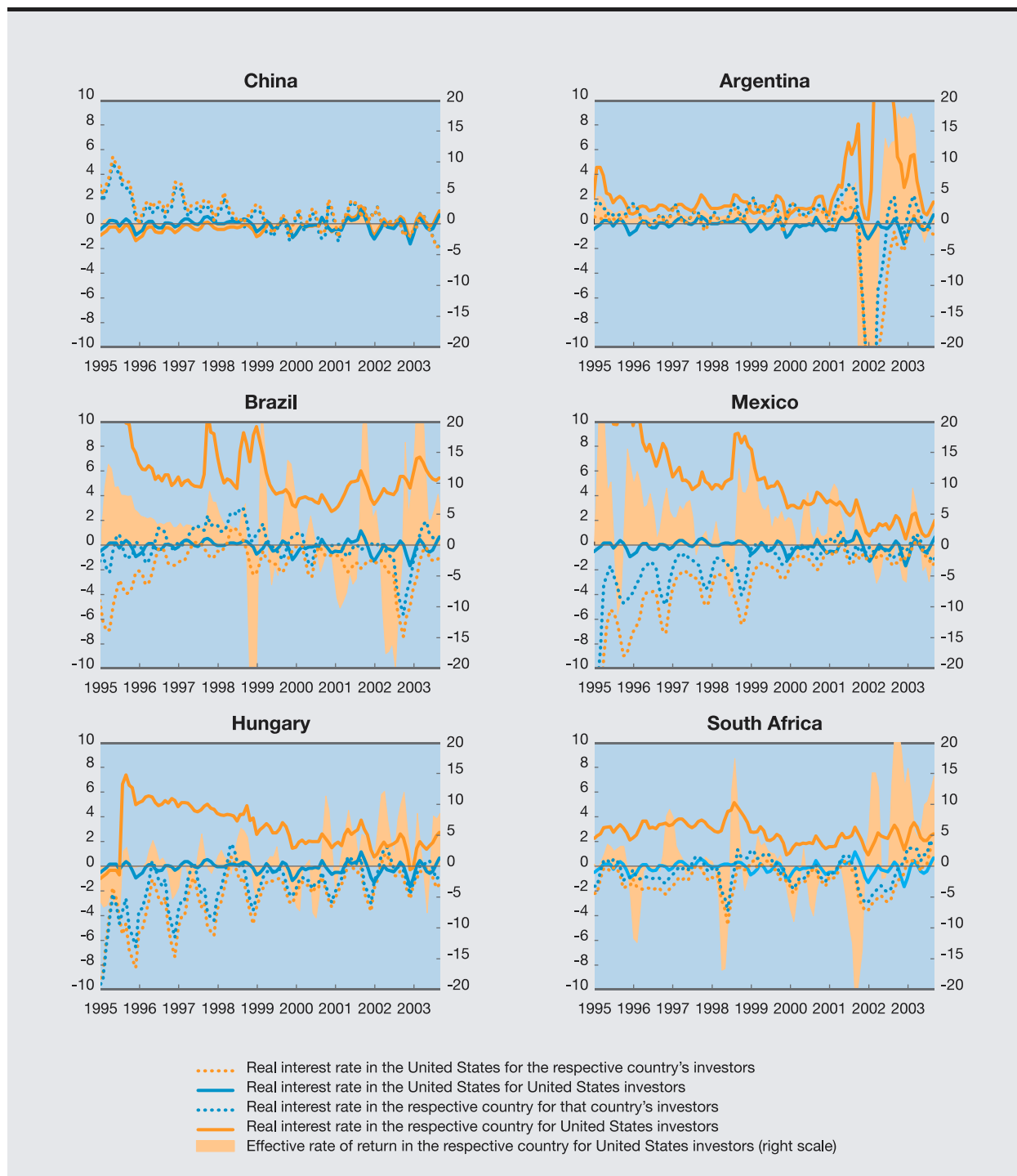
The UNCTAD secretariat conducted some calculations in order to examine the evolution of returns on short-term international portfolio investment in a number of developing countries over the period 1995–2003. As a first step, assuming exchange rates to remain stable, the real interest rate that is relevant for the decision of an investor from the United States to make, for example, a three-month investment in a developing country, is the three-month nominal interest rate in the developing country minus the inflation rate in the United States. International investors base their decisions on the inflation rate in their home country, and not on the rate in the country in which they invest, because they intend to reimport the invested money at the end of the investment period rather than to buy goods in the country in which they invest.<sup>20</sup>

The results of these calculations are shown in figure 4.5 for six countries. The exchange rate regimes that govern the relationship between the dollar and the currencies of these six countries strongly differ. China has maintained a stable currency peg against the dollar for a long time. The figure indicates that from the financial side, this peg is sustainable, as China does not offer real interest rates for international investors that could directly endanger the peg. The incentive to invest in China on a short-term basis, as reflected by the line showing the real interest rate for United States investors, has consistently been either only marginally positive or even negative. By contrast, Mexico and Brazil maintained a very high real interest rate for international investors throughout the second half of the 1990s. Even Argentina maintained positive real interest rate differentials during this period – reflected by the difference between the two solid lines in the figure – despite its hard currency peg with the dollar. Indeed, the real interest rate that underlies decisions of United

Figure 4.5

### INCENTIVES FOR SHORT-TERM INTERNATIONAL PORTFOLIO INVESTMENT IN SELECTED COUNTRIES, 1995–2003

(Per cent)



**Source:** UNCTAD secretariat calculations, based on data from IMF, *International Financial Statistics*; and Thomson Financial Datastream.

**Note:** The scenario that underlies the figure is based on a 3-month investment horizon. Real interest rates lower than minus 10 per cent or higher than plus 10 per cent, and effective returns lower than minus 20 per cent or higher than plus 20 per cent are not shown for expositional clarity.

States investors to invest in the Latin American countries has, in many instances, been much higher than in the United States over a long period. Thus transactions of a huge size must have taken place, assuming that the money and currency markets operated efficiently. The crises in Mexico (in the mid-1990s), Brazil (1999), and Argentina (2001–2002) demonstrate that, as a rule, financial crises and the collapse of the exchange rate are preceded by phases of enormous effective returns and extremely high interest rates for foreign investors. Only in 2002 did Mexico manage to bring inflation and its short-term interest rate down, and to avoid attracting foreign investors with offers of high financial yields. Brazil, on the other hand, still offers investors very attractive conditions.

In addition to the interest rates calculated at a fixed exchange rate, a second step in the calculations takes account of the actual change in the bilateral exchange rate in order to calculate the effective rate of return for United States investors in the developing country. This rate (shown by the shaded area in figure 4.5) reflects the *ex-post* observed change in the exchange rate, but provides no information on the rate that the investors expected. Indeed, the calculations are based on *ex post* known interest and exchange rates, which may differ from the rates the investors expected. As such, the results of the calculations do not allow any assessment of the actual size of capital flows that may have been induced by the configuration of these rates at any point in time. At some points there may have been huge flows, while at others there may have been no flows at all. While these limitations need to be kept in mind when interpreting the results, the calculations reveal the dilemma of developing countries that liberalize their capital account without being able to keep their inflation rate at the level of the developed economies.

Hungary and South Africa are examples of countries with rather flexible exchange rate regimes and high *de facto* exchange rate volatility. Since 2002, both countries have tried to reduce domestic inflation by maintaining relatively high interest rates. This has resulted in a decline in competitiveness due to real currency appreciation. Figure 4.5 shows that the real interest rate incentive for foreign investors is significant and induces

short-term capital inflows, causing an adverse impact on the real exchange rate. During 2003, for example, a three-month investment in South Africa could yield as much as 10 to 20 per cent, which may add up to an annual rate far beyond 50 per cent.

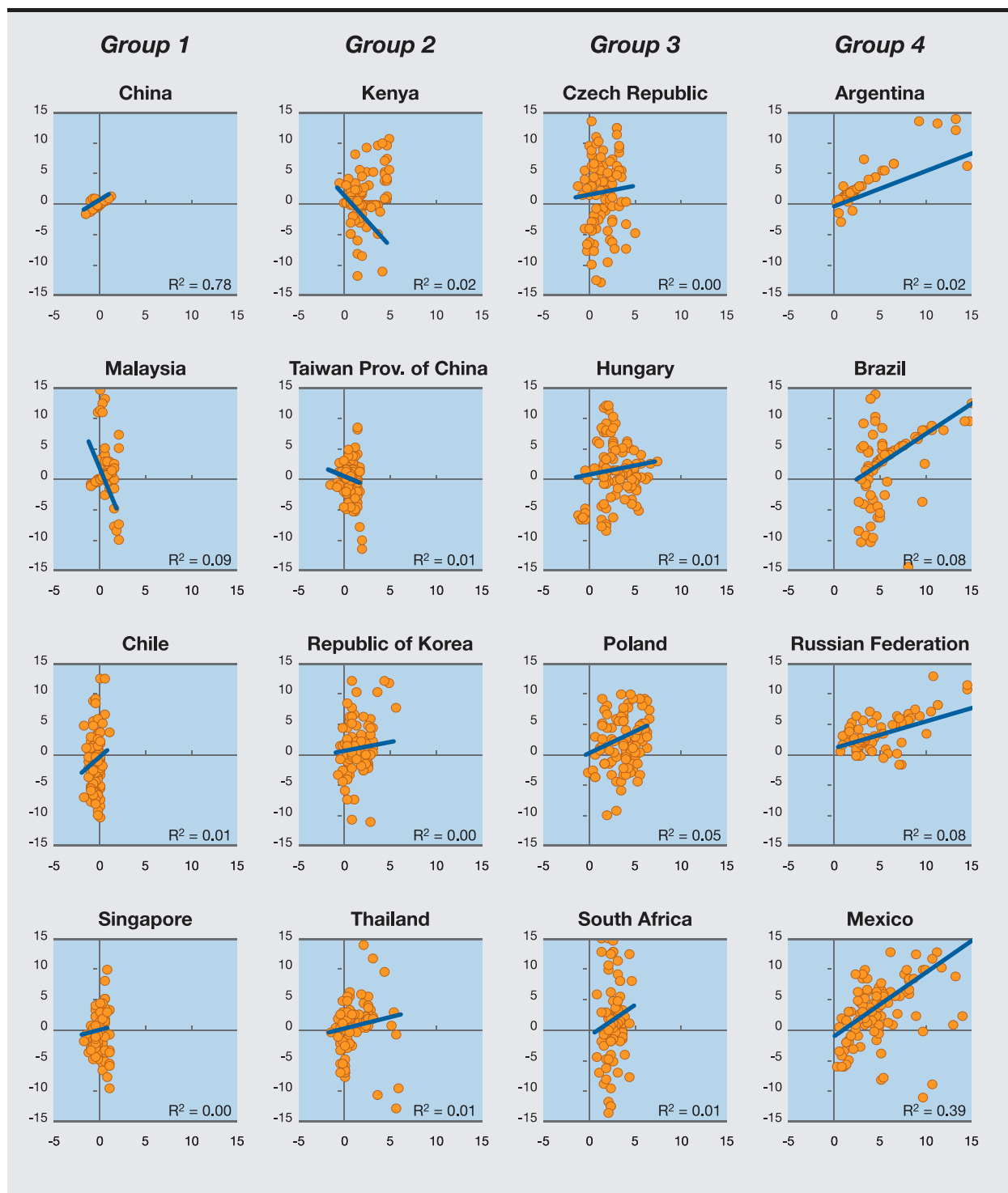
Argentina and Brazil followed similar approaches in the second half of the 1990s but with varying rigour. Argentina fixed its exchange rate very strictly to the dollar, offering a positive and, over many years, fairly stable real rate of return to foreign investors; this rate increased sharply in the run-up to the crisis of its currency board system and led to the collapse of that system. Brazil adopted a crawling peg, visible in the stable difference between the real interest rate for United States investors and the effective rate of return. This system *per se* was less restrictive than the Argentinean one on the external side, but had to be complemented by higher domestic interest rates to avoid a return of inflation. Under conditions of free capital flows, the Brazilian soft peg offered very high real rates of return until the beginning of the crisis in 1999. However, even after the crisis, the Brazilian central bank did not fundamentally change its policy of maintaining a high level of interest rates relative to that in the United States. The resulting recent rise in capital inflows has put sharp pressure on the Brazilian real to appreciate.

Looking at the experience of a larger group of economies, figure 4.6 reveals sharp differences in patterns of adjustment. In this figure, the real interest rate for a United States investor is correlated with the effective rate of return for that investor. The economies are grouped according to the attractiveness of their currencies for international portfolio investors. If the nominal exchange rate is perfectly stable, there is no scattering of the points and the correlation is very high, as is the case for China. The position of the curve (right of the zero point or on the zero point) indicates whether, in terms of the interest rate differential, the country has been attractive (Argentina, Brazil) or not (China) for international investors. In group 1 (column 1 of the figure), the countries aim at a rather low nominal interest rate, with or without fixing the exchange rates. In Malaysia, Singapore and Chile, the exchange rate is not as stable as in China, but these three countries' cen-

Figure 4.6

ALTERNATIVE EXCHANGE RATE REGIMES AND INCENTIVES FOR SHORT-TERM  
PORTFOLIO INVESTMENT IN SELECTED ECONOMIES, 1995–2003

(Per cent)



Source: See fig. 4.5.

Note: For the calculation of the real interest rate and the effective rate of return, see text. Vertical scale: effective rate of return in the respective economy for United States investors; horizontal scale: real interest rate in the respective economy for United States investors.



tral banks avoid giving incentives to foreign investors to speculate on an overvaluation.

In group 2, the interest rate incentives are fairly small and the effective returns (including exchange rate changes) scatter quite remarkably along the vertical axis. This means that these economies – as demonstrated by the Republic of Korea, Taiwan Province of China and Thailand – avoid one-sided flows by maintaining high exchange rate volatility and low interest rates.

Countries in group 3, consisting mainly of transition economies, have adopted a floating exchange rate regime but with some interest rate incentives for international investors, as the inflation rate in these countries was relatively high during the 1990s.

The fourth group of countries follows a different approach. By keeping the exchange rate fairly stable and offering incentives for financial investors, their central banks try to use the exchange rate to stabilize inflation. This implies prolonged periods of rather risk-free arbitrage for international investors. These hard or soft pegs are sustainable only if the high interest rate does not depress the rate of domestic investment, or if an appreciation of the real exchange rate can be avoided. In most cases, however, these conditions do not apply. Sooner or later, the currency peg, soft or hard, has to be discontinued and replaced by a new system.

The examples of intermediate systems of managed floating (as in Poland, Hungary, the Czech Republic, South Africa, or in Brazil and Argentina after their currency crises) show that the variability of the exchange rate may increase the risk for the international investor at certain points, but it may increase the reward as well. If, for example, the country with the floating currency has been going through a crisis phase with real depreciation, the exchange rate expectation tends to turn around for a time, as the international investors expect revaluation and not a new devaluation. This has been the recent experience of Brazil and South Africa. To avoid a quick and strong real currency revaluation, which would destroy the gains in competitiveness the country has just achieved, the monetary authorities intervene by buying foreign currency and piling up interna-

tional reserves. This is costly for the country involved, as its interest rates are higher than the rates it can earn by recycling the money to the country of origin or to another safe haven. In these circumstances, it is difficult, if not impossible, to strike a balance between the domestic needs to fight inflation and the negative repercussions of incentives for foreign investors in portfolio capital on domestic growth and employment.

### **3. Multilateral solutions are the answer**

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The message of the preceding analysis is a simple one. If the nominal short-term interest rate in a financially open emerging-market economy exceeds that in a developed country by more than the growth differential, the nominal exchange rate of the former should depreciate at a (annual) rate that equals the difference in (annual) interest rates. If this is not the case, the situation is not sustainable, as either the high interest rate or the overvalued exchange rate hampers sustainable economic development in the emerging market economy.

Hence the political choice to combine floating of the currency with restrictive domestic monetary policy to bring down inflation will destabilize the external account. Speculation on uncovered interest rate parities will yield high returns to arbitraging international portfolio investors, as nominal and real interest rates in the developing economies are higher than in the leading industrialized economies. The currencies of the high-inflation countries will tend to appreciate, thereby, temporarily, even increasing the incentive for foreign investors to buy domestic assets and the incentive of domestic borrowers to borrow abroad.

Overall, the dilemma for developing-country policy-makers of a situation in which international investors earn high rates of return in their countries, despite falling real income, domestic profits and employment, cannot be resolved under conditions of free capital flows. Developing-country policy-makers are usually unable to reduce interest rates to stop the speculative capital inflow, because doing so would endanger the credibility of their monetary policy domestically. The political will to achieve economic stability is reflected

in the decision to keep nominal interest rates high. How long an external economic imbalance following an exchange rate peg or an appreciation can be sustained is an open question. With growing visible external imbalances the developing country's exchange rate policy will begin to lose credibility in markets. Once investors are convinced that the anchoring country will not be able to manage slowing down the growth of its external debt smoothly, confidence will deteriorate. This will lead to renewed crisis, a reduction of reserves and eventually a depreciation of the country's exchange rate.

In any case, exchange rate changes are necessary to compensate for the opening scissor blades of the price and cost developments between a high-inflation and a low-inflation country. As long as developing countries are not able to perfectly converge in nominal terms with the developed countries, devaluations are unavoidable in order to preserve the competitiveness of the high-inflation countries. However, exchange rate changes, and in particular, real exchange rate changes, that determine the competitiveness of the whole economy, cannot be left to the market. Given the arbitrage opportunities between high- and low-inflation countries, a rule of competitive neutrality of the exchange rate, like the PPP rule, has to be enforced by governments and/or central banks. Ideally, such a rule should be the result of multilateral agreements, as exchange rate changes always have multilateral repercussions. But if the international community is not able to agree on rules to avoid competitive devaluations and huge destabilizing shocks, countries will continue to manage the floating of their currencies unilaterally.

Managed floating, however, faces an adding-up problem on the global scale. Not all countries can simultaneously manage the movements of

their exchange rate and achieve their targeted rates. The exchange rate, by definition, is a multilateral phenomenon, and attempts by many countries to keep their currencies at an undervalued rate may end up in a race to the bottom – or in competitive devaluations – that would be as harmful for the world economy as in the 1930s. Moreover, given the size of international short-term capital flows and the inherent volatility of these flows, only those developing countries

that are big and competitive enough to withstand strong and sustained attempts of the international financial markets to move the exchange rate in a certain direction will be able to manage the floating successfully. A small and open developing economy will hardly be able to continue fighting a strong tendency to appreciate over many years or even decades.

Multilateral or even global arrangements are clearly the best solutions to this problem. The idea of a cooperative global monetary system would be to assure, on a multilateral basis, the same rules of the game for all parties involved, more or less in the same way as multilateral trade rules apply to every party equally. That is why the main idea behind the founding of the International Monetary Fund in the 1940s was to avoid competitive devaluations. In a well-designed global monetary

system, the need and the advantages of the currency depreciation of one country have to be balanced against the disadvantages to the others. As changes in the exchange rate, deviating from purchasing power parity, affect international trade in exactly the same way as changes in tariffs and export duties do, such changes should be governed by multilateral regulations. Such a multi-

lateral regime would, among other things, require countries to specify their reasons for real devaluations and the dimension of necessary changes. If such rules were strictly applied, the real exchange rate of all the parties involved would remain more

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To combine floating of the currency with restrictive domestic monetary policy to bring down inflation will destabilize the external account.

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If the international community is not able to agree on rules to avoid competitive devaluations, countries will continue to manage the floating of their currencies unilaterally ...

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or less constant, as strong arguments for creating competitive advantages at the national level would rarely be acceptable.

In a world without a multilateral solution to the currency problem, the only way out for high-inflation or high-growth countries that are not members of a regional monetary union is to resort to controls of short-term capital flows or to follow a strategy of undervaluation and unilateral fixing.

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... managed floating,  
however, faces an adding-  
up problem.

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If developing countries are able to avoid destabilizing inflows and outflows, either by taxing those flows or by limiting their impact through direct intervention in the market, the hardest choices and misallocations due to erratic exchange rate changes can be avoided; but the resort to controls or permanent intervention should not replace the search for an appropriate exchange rate system at the regional or global level. ■

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## Notes

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- 1 Local wholesale and distribution costs also affect trade costs. But since they apply to both imports and domestic goods, they do not affect relative prices to buyers and international competitiveness.
- 2 This is the case, for example, if wage increases are indexed to inflation, and if external supply shocks such as price increases of imports (e.g. oil) have a strong impact on inflation.
- 3 For example, according to Gordon (2003: 208), the average annual rate of growth of labour productivity in the United States during the period of the information and communications technology boom (1995–2000) was about 2.5 per cent.
- 4 See Forbes (2002a) for a theoretical model and econometric evidence for this argument.
- 5 However, as discussed in *TDR 1998* (chapter III), the sharp rise in domestic interest rates may prove largely unsuccessful in stopping the downward spiral in exchange rates, as demonstrated by the 1997–1998 East Asian crisis.
- 6 The conclusion that the finding of an adverse impact of exchange rate volatility on trade flows is not robust relies on the result of one out of seven regressions. This result has by far the lowest level of statistical significance among the regressions that rely on the chosen model specification. Moreover, the authors note that the set-up chosen for this regression may not be able to reveal the entire negative effect of exchange rate volatility on trade (IMF, 2004: 49–50).
- 7 This initial deterioration of the trade account following a real depreciation is known as the J-curve effect, and the mentioned elasticity condition is known as the Marshall-Lerner condition.
- 8 Ghei and Pritchett (1999) review the literature and discuss factors that determine whether real depreciations improve the trade balance in developing countries, as well as the empirical challenges in measuring these effects.
- 9 For a full discussion of this dilemma faced by many African countries, see *TDR 1998*.
- 10 Especially those by Glick and Rose (1999), Forbes (2002b), and Duttagupta and Spilimbergo (2004). Other studies find that trade linkages have some role, but are overshadowed by financial linkages and/or macroeconomic variables (*TDR 1998* (chapter II); van Rijckeghem and Weder, 2001; and Caramazza, Ricci and Salgado, 2004). Baig and Goldfajn (1998) are among the few authors who do not find support for the importance of trade in the international transmission of crises, but their evidence is contradicted by Duttagupta and Spilimbergo (2004).

- 11 Indeed, similar “paradoxes” regarding persistent external imbalances, in spite of substantial movements in relative exchange rates among major currencies, have become a frequent feature of the world economy. For example, the strong appreciation of the yen against the dollar in 1985 and 1994–1995 was not followed by a collapse in Japanese output of traded goods relative to the United States and other countries. Similarly, the recent strong depreciation of the dollar and the strong appreciation of the euro have had only a modest impact on trade flows. While the reasons for these developments are undoubtedly complex, incomplete exchange rate pass-through appears also to have played an important role in all these instances, as documented for Japan by Athukorala and Menon (1994) and Goldberg and Knetter (1997), and for the euro area by Faruqee (2004).
- 12 For the group of CEECs, the results indicate a statistically significant positive relationship between real currency appreciations and increases in export-market shares – a finding in line with the Kaldor paradox. However, as data for earlier years were not available, the results for the CEECs refer to a relatively short period (i.e. 1995–2002). More importantly, during the early 1990s these countries carried out major exchange rate depreciations to facilitate the massive industrial restructuring associated with their transition from a centrally planned system to a market economy system. In addition, their gain in market shares in world manufactured exports during the 1990s was in large part due to a reorientation of their trade flows towards developed and developing countries, and away from their traditional trading partners in the former CMEA. Intra-CMEA trade flows were not market-driven, and valuations on the basis of so-called transfer roubles were arbitrary. Conversion to dollar values were, moreover, complicated by inconsistent national rouble/dollar cross rates. These specific circumstances largely explain why the CEECs included in the sample experienced, on average, a combination of real currency appreciation and rising shares in world manufactured exports during the period 1995–2002.
- 13 This division is based on the country classification used in the UNCTAD *Handbook of Statistics*. Wollmershäuser (2004) uses different categories and classifies countries for each individual year, based on whether manufactures, fuels, or non-fuel primary products account for the highest share in the country’s total merchandise exports in a specific year. However, he obtains similar results.
- 14 This resembles the approach of Forbes (2002c: 218), who determined yearly dummy variables for depreciation events on the basis of monthly data, and defined a depreciation event as a 10-per-cent or greater increase in a country’s exchange rate versus the dollar in any four-week period during the sample period.
- 15 This is likely to reflect a decline in both imports and domestic income.
- 16 Diverging inflation trends in open economies are much more important for the viability of an exchange rate strategy than the usually discussed “asymmetric shock”, first introduced by Mundell in his paper on optimum currency areas (Mundell, 1961). With diverging inflation trends grounded in different labour market regimes, the arguments used to defend hard pegs or dollarization (e.g. Calvo, 1999) no longer apply, as long-lasting remedies to preserve competitiveness are sought and not just one-off measures.
- 17 The monetary policy rule presented by Taylor (1993) postulates that the central bank should base the setting of the short-term interest rate on the current situation with regard to inflation and the business cycle.
- 18 A striking example of this is Hungary’s recent switch from a crawling peg to a flexible exchange rate following a strategy of inflation targeting. Immediately after the move, although the country had an inflation rate of around 10 per cent (compared with 2 per cent in its main trading partner Germany), its currency appreciated sharply, as Hungary offered much higher nominal interest rates than Germany.
- 19 Laursen and Metzler (1950: 277–278) summarize the experience of the 1930s in a similar way: “Exchange rates at that time underwent frequent and substantial fluctuations ... the fluctuations that occurred nevertheless created serious doubts concerning the effectiveness of a flexible-exchange system in equalizing a country’s international payments and receipts”. They conclude that “a regime of flexible exchange rates would not be successful unless capital movements were subject to some kind of control”.
- 20 The same reasoning applies for a developing-country enterprise seeking a low-interest, short-term credit. In other words, the enterprise will have an incentive to obtain the credit in the United States if the nominal interest rate in the United States is lower than in its home country.

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**Annex 1 to chapter IV**

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## THE CONCEPT OF COMPETITIVENESS

Linkages between investment, productivity growth, successful integration into the international trading and financial systems, and economic development have been seen in recent years through the lens of international competitiveness. A wide range of criteria and measures of the competitiveness of countries have been elaborated, some of which have been extensively publicized. Indeed, “competitiveness” has become not only a management buzzword, but also a term widely used in economics and economic policy-making.

The concept of competitiveness can contribute to an understanding of the distribution of wealth, both nationally and internationally, if it is recognized that: (i) it can be applied at both the enterprise and the country level, (ii) when applied at the enterprise level, it relates to profits or market shares, (iii) when applied at the country level, it relates to both national income and international trade performance, particularly in relation to specific industrial sectors that are important in terms of, for example, employment or productivity and growth potential, (iv) it is based on a Schumpeterian logic that sees the nature of capitalist development as a sequence of innovative investments associated with dynamic imperfect competition and productivity gains, and that sees a major role for public policy in facilitating productivity-increasing investment,<sup>1</sup> and (v) not all countries can simultaneously improve the competitiveness of their firms

or sectors relative to other countries, but all countries can simultaneously raise productivity and wages to improve their overall economic welfare without altering their relative competitive positions.

If new technology in the form of added capital per worker (or embodied technological change) is at the heart of the development process through which nations become rich, and if embodied technological change is driven by investment based on either innovation of domestic entrepreneurs or putting imported capital equipment to efficient use, then approaching the concept of competitiveness in the context of economic development needs to take account of the interdependence of investment, trade, finance and technology.

Looking at competitiveness from the perspective of interdependence, two key questions relate to how different price, wage, exchange rate and trade arrangements (i) influence the determinants of innovative investment, and (ii) determine whether productivity gains of individual firms translate into benefits for the overall economy, as reflected in rising living standards, while maintaining external balance.

Emphasizing interdependence also implies that competitiveness in international markets is determined by both real and monetary factors. Competitiveness may increase as a result of the

relatively strong productivity performance of companies or the national economy as a whole. But greater competitiveness can result also from a depreciation of a country's real effective exchange rate following either a depreciation of its nominal effective exchange rate or a smaller rise in the ratio between wages and productivity (i.e. unit labour costs) than in other countries.

There have been strong objections to the use of the concept of competitiveness at the level of countries rather than at the level of individual firms. Some of these objections raise valid concerns. Indeed, caution is needed in presenting the concept as one of the economic challenges facing developing countries. The first major objection is that countries, unlike companies, do not compete with each other (Krugman, 1994). This means that, strictly speaking, if the international mobility of labour was very high, and the monetary and trading conditions in the world economy mirrored exactly those that apply within national economies, the concept would be useful only to define the position of individual enterprises vis-à-vis each other. By contrast, it would not be useful for comparisons between national economies, or even between industries comprising many firms with different characteristics.

However, most of the factors underlying the competitiveness of individual enterprises are determined at the level of the national economy, implying that the national economy is indeed a meaningful entity for the concept of competitiveness.<sup>2</sup> More precisely, one characteristic of the world economy today is that labour mobility is much lower across, than within, countries. Where labour mobility is relatively low even within countries, rules and regulations that govern labour costs are designed to apply at the level of the national economy.<sup>3</sup> Moreover, most national economies are individual currency areas, so that fluctuations and misalignments of nominal exchange rates directly influence the competitiveness of firms operating in different countries, even if factors determining competitiveness at the firm level are similar. Further, government interventions that affect the determinants of trade flows and exchange rates usually have a similar effect across all sectors and enterprises of the national economy. However, from an individual firm's perspective, it may matter little whether its international competitiveness

improves through productivity growth, lower labour costs or a devaluation of the currency. But from a broader, socioeconomic point of view, these have different implications for national economic development, as well as for systemic stability and welfare in the global economy.

The second major objection raised against the concept of competitiveness is that international trade is not a zero-sum game, and it is therefore meaningless to say that a national economy is becoming more or less competitive. In traditional trade theory, relative changes in the importance of different sectors reflect changes in relative resource endowments; in a general equilibrium framework, this simply implies a shift from one setting of optimal resource allocation to another. As such, sector-specific changes imply shifts in the countries' relative positions of comparative advantage, but the underlying general equilibrium framework does not allow for any definition of national competitiveness. However, as argued by Krugman (1996: 18), these mechanisms come into play only in perfect markets, while in imperfect markets, "involving imperfect competition, external economies, or both", there are valid concerns about national competitiveness. Of the many departures from perfect markets in actual economic relations – including scale economies, externalities and linkages, product differentiation, cumulative learning and first-mover advantages, and technological leads and lags – technology factors are of key importance in the concept of competitiveness, because it is mainly technological innovations that drive productivity gains, which provide the micro-economic basis for improved competitiveness.

All this implies that developing countries have valid concerns about their external economic performance. First, countries in the early stages of industrialization require foreign-exchange earnings from exports to finance machinery and equipment imports that enable innovative investors to obtain productivity gains. Second, countries further advanced in industrialization, and strongly integrated into international trading and financial markets, may find it difficult to maintain a sufficient degree of flexibility in their monetary, wage and trade policies. Flexibility is needed to accommodate price adjustments that arise from productivity-enhancing investment and to prevent profits earned through innovative investments from being spent on luxury

imports rather than being reinvested. Third, and most importantly, changes in the relative importance of different economic sectors are a key factor for rapid and sustained productivity growth and higher living standards. This implies that the concept of competitiveness is of immediate policy relevance. It can be used to analyse under which conditions productivity gains at the microeconomic level translate into structural change at the level of the national economy and enable upgrading of the technology content of a country's export basket. It is also useful for identifying policy measures that reduce the vulnerability of national economies to disturbances emanating from the international

economy and which may have adverse effects on national economic development.<sup>4</sup>

Given the complexity of the issue of competitiveness, it is not surprising that there is a multitude of competitiveness indicators. Some analysts use competitiveness indices that combine several dozens of individual measures spanning across a wide range of economic and non-economic factors.<sup>5</sup> However, the indicator that is most widely used in applied economic analysis is the real exchange rate, based on either relative consumer price or relative unit labour cost indices expressed in a common currency.

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## 1. Conditions for competitiveness at the microeconomic level

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Linkages between capital accumulation, technological progress and structural change constitute the basis for rapid and sustained productivity growth, rising living standards and successful integration into the international economy. Investment holds a central place in this interplay, because it can simultaneously generate income, expand productive capacity, and carry strong complementarities with other elements in the growth process, such as technological progress, skills acquisition and institutional deepening.

However, a given rate of investment can generate different growth rates, depending on its nature and composition as well as the efficiency with which production capacity is utilized. Particularly important for productivity growth and structural change is investment in new techniques and/or new products. This is because new procedures generally reduce production costs of established products, while new products are often more attractive to consumers than any of the previously

available alternatives. Assuming constant wages, successful innovative investment will be reflected in growing market shares, if the investor chooses to pass on innovation rents in the form of lower prices; or it will lead to (temporary) monopoly profits, if the investor chooses to leave sales prices unchanged and enjoy innovation rents from the rising revenue-cost ratio until competitors succeed in imitating the innovator. Which of these strategies the investor chooses will depend on the intensity of competition. This means that in the microeconomic sphere, changes in competitiveness relate to changes in relative labour productivity across different firms, and that technological progress and the ensuing growth in labour productivity (i.e. the drivers of sustainably rising competitiveness) are associated with oligopolistic, rather than perfect, competition.

Innovative investment in developed countries extends the technological frontier. By contrast, in developing countries it generally relates to the

adoption, imitation and adaptation of technology invented elsewhere. While this does not affect the key importance of productivity-enhancing investment for competitiveness at the firm level, or significantly alter the determinants of investment decisions, there are three issues that specifically concern productivity-enhancing investment in developing countries. First, in building their industrial capacity and competitive strength, newly industrializing countries must typically import a large volume of capital goods and intermediate inputs. However, an inability to obtain additional export earnings (i.e. if the country's products are not competitive on international markets or face prohibitive market access or entry barriers), and thus to finance these imports, may be a serious constraint on the industrialization process. The extent of this balance-of-payments constraint and dependence of developing countries on foreign technologies embodied in imported capital goods are perhaps greatest during the initial stages of industrialization. However, the need for large-scale imports of machinery and equipment persists throughout much of the industrialization process, especially when catching up is based on imitating technological leaders.

Second, in addition to directly facilitating a rise in the level of technology used by domestic firms, developing-country imports of goods that embody foreign technology positively affect domestic imitation and innovation. For example, a notable feature of the process of technological improvement in the East Asian economies in the early stages of their industrialization was their emphasis on research and development (R&D) spending, not only for backward engineering but also to match or surpass the product quality of foreign manufacturers by adapting and improving imported technology. The former enabled firms, for example, to fully assess the merits of a new foreign technology and thus to determine whether to secure a licence or not, and to unbundle foreign technology, thereby enhancing their bargaining power in negotiating with suppliers. As the industrialization process unfolded and firms came to master imitation, an increasing share of R&D spending was channelled into own innovation (*TDR 1994*, Part Two, chapter one). Taking a wider geographical perspective, and looking at a

large number of countries from all developing regions, a recent empirical study (Connolly, 2003) also reveals the positive impact of technology imports from developed countries on domestic imitation and innovation in developing countries.

Third, the realization of technological improvements in developing countries is closely related both to the skill level of their labour force – which determines the amount and degree of sophistication of technology that can be adopted and efficiently used – and to managerial capabilities, which must meet the requirements to function effectively in new sectors and new markets. As such, technological upgrading in developing countries is usually associated with a painstaking and cumulative process of technological learning. Human capital formation, including through learning, is instrumental in preventing a decline in the marginal product of capital, despite the rapid growth in the capital-labour ratio generated by rapid accumulation of physical capital. It also helps prevent a decline in the marginal product of labour, despite the rise in wages that results in a higher standard of living.

The competitiveness of affiliates of foreign TNCs is likely to be significantly higher than that of domestic firms. Labour productivity in TNC affiliates tends to be higher than in their domestic counterparts, because they can combine the comparatively lower general level of labour costs in the host country<sup>6</sup> with the advanced production technology and management techniques used in their home countries, and with supplies of raw materials and intermediate production inputs from the cheapest sources.<sup>7</sup> Indeed, in the context of the concept of competitiveness, the decision of a foreign company to invest abroad is generally based on the objective to reduce unit labour costs in production. Setting aside other host country characteristics (such as income or corporate tax treatment or provision of infrastructure), this implies that for FDI to occur, the investor must expect the ratio between labour productivity and wages in the affiliate to exceed that in the parent company. In other words, if expected unit labour costs in the host country are lower than in the TNC's home country, the TNC will consider moving part of its production activities abroad.



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## 2. Competitiveness of firms at the level of the national economy

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At the level of the national economy, the decisive factor for realizing technological upgrading and productivity-driven structural change is the ability of investors to sell the products resulting from their product or process innovations without a significant change in cost conditions (i.e. to enjoy a (temporary) monopoly profit). In other words, if an economy is characterized by high domestic labour mobility and by a similar level of wages for workers with similar qualifications across the economy, its dynamic development will be driven by profit differentials, rather than wage differentials. Indeed, as noted by Keynes (1930: 141), “the departure of profits from zero is the mainspring of change in the ... modern world. ... It is by altering the rate of profits in particular directions that entrepreneurs can be induced to produce this rather than that, and it is by altering the rate of profits in general that they can be induced to modify the average of their offers of remuneration to the factors of production.”

Hence, the closer actual conditions on the labour markets get to the law of one price, the stronger will be the effects of profit differentials on the evolution of economic systems.<sup>8</sup> The observed asymmetry between uneven productivity growth and the more even growth in wage rates across enterprises or industrial sectors is frequently emphasized as providing an important source of both structural change in the domestic economy and changes in the comparative cost advantages of different countries in specific industrial sectors. Uneven productivity growth across firms, combined with more even growth in wage rates, implies that workers in industries with rela-

tively high productivity growth are not fully compensated.

Under this scenario, innovative investors may decide to leave sales prices unchanged and obtain a sizeable extra profit equal to the difference between their productivity gain and the economy-wide average growth in productivity. Alternatively, they may prefer to reduce sales prices by the amount to which their cost per unit of output falls, and thus, assuming normal price elasticities of demand, increase their market share. This will lead to a rise in their absolute level of profits in line with the rise in sold output. This potential for extra profits is the major incentive for starting the process of “creative construction” or “destruction” along Schumpeterian lines, and hence for making innovative investments. By contrast, if wages in each firm rise more in line with firm-specific productivity gains, innovative investors will obtain a much lower extra profit, which will be much less of an incentive for innovative investment.

Enterprises whose productivity gains fall short of the national average will experience shrinking profits if labour costs rise at equal rates across firms. These enterprises will therefore attempt to raise the sales prices for their goods so as not to risk a complete erosion of profits.<sup>9</sup> This implies that sectorally uneven productivity gains, combined with even labour cost increases across the entire economy, generate price pressures in non-innovative sectors. However, the net impact of this supply-side effect on price pressure depends on effects originating from the demand side. Rising labour productivity induces increases in income,

and hence consumption. If demand for innovated and non-innovated goods were to grow at the same rate, demand effects would not skew price pressure towards one or the other group of goods, thus the supply-side effect would dominate. By contrast, if demand for the innovated good were to grow faster than for the other goods, the supply-side effect would be offset, partly or completely. And if demand were biased towards goods for which productivity gains were low (such as services), the demand effect would reinforce the supply effect. This will be the case particularly when productivity gains are high in the traded sector, while domestic consumption demand is biased towards non-traded goods.

A second important condition for innovative investment to govern the evolution of the economic system is that firms should have access to reliable, adequate and cost-effective sources for financing their investments. This condition is best met when profits themselves are the main source of investment financing. Indeed, if an investment-profit nexus can be ignited, profits from innovative investments simultaneously increase the incentive for firms to invest and their capacity to finance new investments.<sup>10</sup> When enterprises are heavily dependent on borrowing to meet their needs for fixed investment and working capital, as is the case of new enterprises, the stance of domestic monetary policy is of crucial importance, because high levels of nominal and real interest rates tend to increase production costs. In addition to its adverse impact on the cost of capital, a restrictive monetary policy may bias investment decisions in favour of financial assets, or fixed investment in production activities with known cost and demand schedules over innovative production activities for which investors face uncertainty as to the volume of sales and the true costs of production.

To understand how the mechanisms discussed in this annex work in practice, it is useful to consider a two-country world comprising a developing country, with a low average level of both labour costs and labour productivity, and a developed country, with a high average level of labour costs and labour productivity. Expressed in a common currency, these levels are assumed as 5 and 10 in the developing country and 50 and 100 in the developed country (case 1 in table 4.A1). Further, assuming that in both countries the average

level of labour costs reflects the average level of labour productivity, firms in both countries face the same average level of unit labour costs (i.e. 0.5 currency units). If labour is the only internationally immobile production factor, these assumptions imply that firms from both countries are, on average, internationally competitive. Moreover, if firms set sales prices on the basis of a mark-up of 100 per cent over labour costs, the absolute level of profits in the developed country will be 10 times higher than in the developing country.<sup>11</sup>

Case 2 in the table introduces the effects of innovative investment by assuming that productivity increases by 20 per cent in innovative firms of both countries. If the weight of these firms in their domestic economies is too small for these productivity gains to have a marked impact on the economy-wide average level of productivity, nominal labour costs will remain unchanged, and unit labour costs in the innovative firms will decline by 20 per cent. Profits per unit of output will also remain unchanged if the innovative firms reduce their sales prices in line with the decline of their unit labour costs. This implies that the innovative firms from both countries will experience an increase in both their export-market shares and their absolute level of profits. By contrast, non-innovative firms will suffer a decline in export-market shares and in profit levels due to the increase in their sales prices relative to those of the innovative firms.

Case 3 in the table shows that affiliates of TNCs can gain considerable advantages in international competitiveness by combining developed-country technology with developing-country labour costs. The level of the affiliate's unit labour costs will be substantially lower than that of either its parent company in the developed country or of domestic firms in the developing country. While it is unlikely that the relatively less educated workers in the developing country can match the productivity level of workers in the developed country, it is probable that the TNC will experience a strong reduction of its unit labour costs by moving its labour-intensive production activities to a low-wage country.

Changes in the nominal exchange rate that are caused by "autonomous" capital flows (i.e. that are unrelated to the flow of goods) can offset the

Table 4.A1

	Case 1		Case 2				Case 3
	No innovative investment		Innovative firm average <sup>a</sup>		Non-innovative firm average		TNC affiliate investing in developing-country export-oriented production
	Developing country	Developed country	Developing country	Developed country	Developing country	Developed country	
Productivity	10	100	12	120	10	100	120 > productivity > 10
Nominal labour costs	5	50	5	50	5	50	5
Unit labour costs	0.5	0.5	0.4	0.4	0.5	0.5	0.5 > ULC > 0.04
Profits per unit of output	5	50	5	50	5	50	115 > profits > 5
Price	1	1	1-x	1-y	1+x	1+y	1-z
<b>1. Unchanged nominal exchange rate</b>							
Export market share	unchanged	unchanged	up	up	down	down	up
<b>2. Nominal exchange rate<sup>b</sup> appreciation by more than 20 per cent</b>							
Export market share	down	up	down <sup>c</sup>	up <sup>c</sup>	down <sup>c</sup>	up <sup>c</sup>	up
<b>3. Nominal exchange rate<sup>b</sup> depreciation by more than 20 per cent</b>							
Export market share	up	down	up <sup>c</sup>	down <sup>c</sup>	up <sup>c</sup>	down <sup>c</sup>	up

**Source:** UNCTAD secretariat calculations.

**Note:** x and y are the shares of the innovative investors' products in the total consumption of their respective economies. z is the share of the multinational firm's reimported product in the total consumption of the economy of the parent company.

- a** The scenario in the table is based on the assumption that innovative investors fully transmit gains in profits per unit of output into price reductions.
- b** Developing-country currency/developed-country currency.
- c** The net effect depends on the relation between the gain in productivity and the exchange rate misalignment. The assumption for the effects noted in the table is that the misalignment is far greater than the gain in productivity.

effects discussed above. In case 1, export-market shares will move from firms of the country whose currency appreciates towards firms of the country whose currency depreciates, even though none of the firms has undertaken productivity-enhancing investments and unit labour costs, measured in domestic currency units, have not changed in any of the firms. More importantly, the innovative firms in case 2 will lose, rather than gain, export-market shares if the appreciation of the exchange rate exceeds productivity gains. For example, assuming

the currency of the developing country to appreciate by more than the productivity gains achieved by innovative firms, these firms will lose export-market shares to both the innovative and non-innovative firms of developed countries. This example shows that adverse external monetary shocks can wipe out the gains resulting from an improvement in the international competitiveness of developing-country exporters based on innovative investments and a decline in unit labour costs. ■

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## Notes

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- 1 Fagerberg, Knell and Srholec (2004) present a similar argument.
- 2 The major exception is labour productivity, which can be measured at the level of enterprises and industrial sectors, as well as at the aggregate level of the national economy. Other exceptions include firm-specific capabilities to access international markets.
- 3 In some countries, such as Germany, such rules and regulations apply at the level of industrial sectors, but developments in leading sectors have a strong impact on other sectors.
- 4 The concept of competitiveness as defined here is relevant for countries where economic success depends on investment that leads to sustained improvements in productivity. This excludes many of the poorest countries, where capital accumulation can help raise per capita income and living standards simply by allowing a fuller use of underutilized labour and natural resources without altering the efficiency with which resources are utilized.
- 5 Probably the two best-known competitiveness indices, contained in *The Global Competitiveness Report* of the World Economic Forum and in *The World Competitiveness Report* of the International Institute for Management Development, are frequently invoked in policy discussions and economic policy-making. But the way these indices combine the very wide range of individual indicators is not transparent and, more importantly, the complex theoretical issues that underlie the concept of competitiveness are insufficiently discussed. However, Lall (2001) has significantly contributed to a clarification of how these indices are actually constructed.
- 6 If labour mobility within the host country is high, the wage level will be determined by the economy-wide average level of labour productivity, rather than by marginal labour productivity.
- 7 The development effect of FDI for the host economy depends on a range of factors, including the amount of technological spillovers from affiliates to domestic enterprises, the creation of forward and backward linkages, and the effects on domestic investment. The large body of literature on this, including successive UNCTAD *World Investment Reports*, provides ambiguous findings, and shows that much depends on host-country characteristics and the way foreign affiliates operate.
- 8 Looking at developed countries, Scarpetta and Tresselt (2004) point out that in addition to wage bargaining regimes, two main aspects of labour-market policy and institutional settings are closely related to the incentives for firms to undertake investment with a view to expanding and innovating production facilities: (i) the stringency of employment protection legislation, which influences the costs of hiring and firing, and (ii) the possible interactions between this legislation and industry-specific technology characteristics. However, a discussion of the importance of these factors for developing countries is beyond the scope of this Report.
- 9 Note that this example assumes that the innovative and the non-innovative firms operate in different sectors, so that they are not in direct competition. If they operated in the same sector, an attempt to raise sales prices would make the non-innovative firm even more likely to be driven out of the market.
- 10 As argued by Akyüz and Gore (1996), the presence of such an investment-profit nexus played an important role in East Asian industrialization. The investment-profit nexus played an important role also in the growth performance of Western Europe during the three decades after the Second World War.
- 11 However, the developed country will tend to employ a higher stock of capital in production than the developing country. Thus the rate of return over capital (i.e. the absolute profit relative to the value of the capital stock) may be very similar in the two countries. In other words, the example relies on the assumption that the internationally immobile factor – labour – absorbs the entire wealth difference between the developed and the developing country, while the internationally mobile factor – capital – obeys the law of one price.

## **THE SET-UP OF ECONOMETRIC ESTIMATES OF THE IMPACT OF EXCHANGE RATE CHANGES ON TRADE PERFORMANCE**

This annex details the set-up of the econometric estimations of the impact of exchange rates on the trade performance of developing countries and CEECs. The results are discussed in section B.2.<sup>1</sup> The basic objective of these panel data estimations is to assess how changes in the competitiveness of producers in an exporting country affect the country's merchandise trade performance. The estimations refer to annual data for the period 1970–2002, based on a sample that includes 22 developing economies and six CEECs; for the latter countries data availability restricts the time period to 1994–2002. This sample of 28 countries includes the 30 leading developing-country exporters, except Nigeria (which exports virtually only crude petroleum, so that its export performance is determined mainly by supply and demand in the global oil market), and the 10 leading CEEC exporters in 2001 for which data on real effective exchange rates were available.<sup>2</sup>

Competitiveness is measured by the exporting country's real effective exchange rate (*REER*) based, in most cases, on relative consumer prices.<sup>3</sup> One of the advantages of using real-exchange-rate indices based on relative consumer prices is the ready availability of data. On the other hand, consumer price indices include not only domestically produced traded goods, but also non-traded domestic as well as imported goods. An alternative measure of REERs is based on relative unit labour costs of different countries, defined as the

ratio of employee compensation (including non-wage labour costs) per employee and the volume of output (value added at constant prices) per employee expressed in a common currency. Thus relative unit labour costs depend on relative labour costs per worker, relative labour productivity and the exchange rate. As such, a 10-per-cent slower rise in nominal labour costs, a 10-per-cent depreciation in the exchange rate or a 10-per-cent faster increase in labour productivity all have an identical impact on measured relative unit labour costs. Moreover, the real exchange rate based on relative unit labour costs allows for the decomposing of changes in international competitiveness into the relative impact of changes that emanate from the domestic economy (i.e. productivity gains and nominal wage changes) and those that have their origin in international relations (nominal exchange rate changes).<sup>4</sup>

The above implies that, conceptually, real-exchange-rate indices based on relative unit labour costs are the preferred measure of competitiveness, in particular for economies with a well-established industrial base and strong backward linkages. However, they tend to overestimate the impact of exchange rate changes on the competitiveness of domestic exporters to the extent that exports rely on imported intermediate inputs. A relatively high import content of exports offsets, to a considerable degree, the competitive edge provided by nominal currency depreciations.

Moreover, comprehensive data required to calculate relative unit labour costs are not available. This explains why empirical assessments of changes in real exchange rates usually rely on changes in relative consumer prices.<sup>5</sup>

The exchange rate data used for the estimations are taken from JP Morgan (2003), which cover both a wider range of countries and, for most countries, except for China, the Czech Republic, Hungary, Poland and Slovakia, a longer time period than the IMF's *International Financial Statistics*.<sup>6</sup> Trade performance is measured by four variables: (i) the merchandise trade balance (*MB*) expressed as the ratio of exports to imports; (ii) total merchandise exports as a percentage of nominal income (*EX*); (iii) total merchandise imports as a percentage of nominal income (*IM*); and (iv) a country's market share in total world manufactured exports (*SHARE*). The current account balance, expressed as the ratio of exports to imports, is included as a fifth dependent variable. Given that cross-country variation in the rate of real income growth is likely also to influence countries' trade flows, the estimated equation also includes real world income expressed in dollars

(*WORLD*), and the exporting country's real income expressed in domestic currency (*GDP*). All trade and income data are taken from the UNCTAD *Handbook of Statistics*; current account data are from the IMF's *International Financial Statistics*. The equation is estimated as changes in underlying values in order to eliminate statistical problems, such as non-stationarity, and to allow interpreting the estimated coefficients as elasticities. It can be expressed as follows:

$$d(\ln TRADE_{it}) = \alpha + \beta d(\ln REER_{it}) + \delta d(\ln GDP_{it}) + \gamma d(\ln WORLD_t) + \varepsilon_{it}$$

where *TRADE* represents the four trade performance variables, *i* and *t* denote exporting countries and time periods, and  $\varepsilon$  is an error term. All variables are expressed as logarithms. All estimations were done with both the generalized least square method (GLS) in its simple form (i.e. a common intercept for all countries) with cross-section weights, and GLS with fixed effects (i.e. allowing intercepts to vary across countries). Since tests revealed the presence of fixed effects, only the results of fixed-effect estimations are reported.<sup>7</sup> ■

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## Notes

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- 1 This framework is partly based on Wollmershäuser (2004) who also presents a more comprehensive discussion of this relationship.
- 2 The 22 developing economies are Argentina, Brazil, Chile, China, Colombia, Egypt, Hong Kong (China), India, Indonesia, Malaysia, Mexico, Morocco, Pakistan, the Philippines, the Republic of Korea, Saudi Arabia, Singapore, South Africa, Taiwan Province of China, Thailand, Turkey and Venezuela; and the six CEECs are the Czech Republic, Hungary, Poland, the Russian Federation, Slovakia and Slovenia. For some countries, the first year for which exchange rate data are available is after 1970, namely China (1980), the Czech Republic (1990), Egypt (1994), Hungary (1980), Poland (1980), the Russian Federation (1994), Slovakia (1990), Slovenia (1994) and Turkey (1994).
- 3 See JP Morgan (2003: 20) for a list of which price index was used for which country.
- 4 Some analysts, such as Boltho (1996), have argued that using the real exchange rate as an indicator for competitiveness reflects short-term macroeconomic management concerns. However, when countries are subject to frequent external shocks, such as significant volatility in the nominal exchange rate or in commodity prices – that have an adverse effect on the country's terms of trade – or lasting exchange rate misalignments, concerns about the level of the real exchange rate also reflect long-term development objectives.
- 5 However, Turner and Golub (1997) show that, for most countries for which comprehensive data are available, there is a substantial positive correlation between the two measures of real exchange rates, even though large differences between the two measures occur over the medium term, in particular for developed countries.
- 6 For the 16 countries included in the sample for which data are available from both sources, the correlation coefficient between IMF and JP Morgan data exceeds 0.95 for 11 and averages 0.75 for the remaining 5 countries.
- 7 Tests showed that correction for autocorrelation is not necessary. Heteroskedasticity was corrected by using White's covariance estimator.





## REFERENCES – PART TWO

- Agosin M and Tussie D (1993). An Overview. In: Agosin M and Tussie D, eds., *Trade and Growth – New Dilemmas in Trade Policy*. New York, St. Martin's Press.
- Akyüz Y (2004). The rationale for multilateral lending: A critical assessment. Mimeo, 2 July. Paper prepared for the UNDP Project “Public Finance in a Globalizing World”.
- Akyüz Y and Gore C (1996). The profit-investment nexus in East Asian industrialization. *World Development*, 24(3).
- Amsden A (2001). *The Rise of the Rest: Challenges to the West From Late-Industrializing Economies*. Oxford, Oxford University Press.
- Athukorala P and Menon J (1994). Pricing to market behaviour and exchange rate pass-through in Japanese exports. *Economic Journal*, 104: 271–281.
- Auboin M and Meier-Ewert M (2003). Improving the availability of trade finance during financial crises. *Discussion Paper*, 2. Geneva, World Trade Organization.
- Baig T and Goldfajn I (1998). Financial market contagion in the Asian crisis. *Working Paper*, 98/155. Washington, DC, International Monetary Fund.
- Bairoch P (1993). *Economics and World History: Myths and Paradoxes*. Chicago, University of Chicago Press.
- Barth M and Dinmore T (1999). Trade prices and volumes in East Asia through the crisis. *International Finance Discussion Papers*, 643. Washington, DC, United States Board of Governors of the Federal Reserve System.
- Baumol W (1986). Productivity growth, convergence and welfare: What the long-run data show. *American Economic Review*, 76(5): 1072–1085.
- Baumol WJ (2002). *The Free-Market Innovation Machine*. Princeton and Oxford, Princeton University Press.
- Bayen JW (1954). *Money in a Maelstrom*. London, Macmillan Press.
- Bayly C (2003). *The Birth of the Modern World 1780–1914*. Oxford, Blackwell Publishing.
- Blattman C, Hwang J and Williamson J (2003). The terms of trade and economic growth in the periphery, 1870–1983. *NBER Working Paper*, 9940. Cambridge, MA, National Bureau of Economic Research.
- Boltho A (1996). The assessment: International competitiveness. *Oxford Review of Economic Policy*, 12 (3):1–16.
- Burstein A, Neves JC and Rebelo S (2004). Investment prices and exchange rates: Some basic facts. *NBER Working Paper*, 10238. Cambridge, MA, National Bureau of Economic Research.
- Calvo GA (1999). On dollarization. University of Maryland, VA. Available at: <http://www.bsos.umd.edu/econ/ciecpn5.pdf>.
- Camdessus M (1995). The IMF in a globalized world economy – The tasks ahead. Address given at the Third Annual Sylvia Ostry Lecture, Ottawa, 7 June 1995. Washington, DC, International Monetary Fund.
- Campa JM and Goldberg LS (1999). Investment pass-through, and exchange rates: A cross-country comparison. *International Economic Review*, 40(1): 287–314.
- Caramazza F, Ricci L and Salgado R (2004). International financial contagion in currency crises. *Journal of International Money and Finance*, 23: 51–70.
- Chang HJ (2002). *Kicking Away the Ladder – Development Strategy in Historical Perspective*. London, Anthem Press.
- Choi N and Kang D (2000). A study on the crisis, recovery and industrial upgrading in the Republic of Korea, Chapter 11. In: Dwor-Frécaut D, Colaço F and Hallward-Driemeier M, eds., *Asian Corporate Recovery. Findings from Firm-Level Surveys in Five Countries*. Washington DC, World Bank.

- Connolly M (2003). The dual nature of trade: measuring its impact on imitation and growth. *Journal of Development Economics*, 72: 31–55.
- Cornford A (2004). Variable geometry for the WTO: Concept and precedents. *UNCTAD Discussion Paper*, 171. Geneva, United Nations Conference on Trade and Development.
- Crucini M and Kahn J (1996). Tariffs and aggregate economic activity: Lessons from the Great Depression. *Journal of Monetary Economics*, 38.
- Dunning J (1981). *International Production and the Multinational Enterprise*. London, Allen and Unwin.
- Duttagupta R and Spilimbergo A (2004). What happened to Asian exports during the crisis? *IMF Staff Papers*, 51(1): 72–95.
- Eatwell J and Taylor L (2000). *Global Finance at Risk: The Case for International Regulation*. New York, The New Press.
- ECE (1990). *Economic Survey of Europe*. New York and Geneva, United Nations Economic Commission for Europe.
- ECLA (1965). *External Financing in Latin America*. New York and Santiago, United Nations Economic Commission for Latin America.
- ECLAC (2001). *CEPAL Review*, 75, December. New York and Santiago, United Nations Economic Commission for Latin America and the Caribbean.
- ECLAC (2002). *Globalization and Development (LC/G.2157(SES.29/3) 15 April 2002)*. New York and Santiago, United Nations Economic Commission for Latin America and the Caribbean.
- Eichengreen B (1996). *Globalizing Capital: A History of the International Monetary System*. Princeton, NJ, Princeton University Press.
- Eichengreen B (2004). Global imbalances and the lessons of Bretton Woods. *NBER Working Paper*, 10497. Cambridge, MA, National Bureau of Economic Research.
- Eichengreen B and Bordo M (2002). Crises now and then: What lessons from the last era of financial globalization? *NBER Working Paper*, 8716. Cambridge, MA, National Bureau of Economic Research.
- Fagerberg J, Knell M and Srholec (2004). The competitiveness of nations: Economic growth in the ECE region. Mimeo. Blindern, NO, University of Oslo.
- Faruqee H (2004). Exchange-rate pass-through in the Euro area: The role of asymmetric pricing behaviour. *Working Paper* 04/14. Washington, DC, International Monetary Fund, January.
- Felix D (1996). Financial globalization versus free trade: The case for the Tobin Tax. In: UNCTAD Review (UNCTAD/SGO/10). United Nations publication, sales no. E.97.II.D.2, New York and Geneva.
- Felix D (2001). Why international capital mobility should be curbed, and how it could be done. Mimeo, February. St. Louis, MO, Washington University in St. Louis.
- Fischer S (2001). Exchange rate regimes: Is the bipolar view correct? Speech delivered at the meeting of the American Economic Association, New Orleans, 6 January. Available at: <http://www.imf.org/external/np/speeches/2001/010601a.htm>.
- Forbes KJ (2002a). Cheap labor meets costly capital: The impact of devaluations on commodity firms. *Journal of Development Economics*, 69: 335–365.
- Forbes KJ (2002b). Are trade linkages important determinants of country vulnerability to crisis? In: Edwards S and Frankel JA, eds., *Preventing currency crises in emerging markets*. Chicago, University of Chicago Press.
- Forbes KJ (2002c). How do large depreciations affect firm performance? *IMF Staff Papers*, 49: 214–238.
- Freeman R (2003). Trade wars: The exaggerated impact of trade in economic debate. *NBER Working Paper*, 10000. Cambridge, MA, National Bureau of Economic Research.
- Friedman M (1953). The case for flexible exchange rates. In: Friedman M, *Essays in Positive Economics*. Chicago, University of Chicago Press.
- Ghei N and Pritchett L (1999). The three pessimisms: real exchange rates and trade flows in developing countries. In: Hinkle L and Montiel P, eds., *Exchange Rate Misalignment: Concept and Measurement for Developing Countries*. New York, Oxford University Press.
- Glick R and Rose AK (1999). Contagion and trade. Why are currency crises regional? *Journal of International Money and Finance*, 18: 603–617.
- Goldberg PK and Knetter MM (1997). Goods prices and exchange rates: What have we learned? *Journal of Economic Literature*, 35: 1243–1272.
- Gomory R and Baumol W (2000). *Global Trade and Conflicting National Interests*. Cambridge, MA, MIT Press.
- Gordon RJ (2003). Exploding productivity growth: Context, causes, and implications. *Brookings Papers on Economic Activity*, 2: 2003: 207–298.
- Gourinchas P and Jeanne O (2004). The elusive gains from international financial integration. *Working Paper*, 04/74. Washington, DC, International Monetary Fund, May.
- Hadass Y and Williamson J (2001). Terms of trade shocks and economic performance, 1870–1914: Prebisch and Singer revisited. *NBER Working Paper*, 8188. Cambridge, MA, National Bureau of Economic Research.
- Hymer S (1976). *The International Operations of National Firms: A Study of Foreign Direct Investment*. Cambridge, MA, MIT Press.
- ILO (2004). *A Fair Globalization: Creating Opportunities for All*. Geneva, International Labour Organization.
- IMF (2002). Three essays on how financial markets affect real activity. *World Economic Outlook*. Washington, DC, International Monetary Fund, April.

- IMF (2003). *Trade Finance in Financial Crisis: Assessment of Key Issues*. Washington, DC, International Monetary Fund.
- IMF (2004). *Exchange Rate Volatility and Trade Flows – Some New Evidence*. Washington, DC, International Monetary Fund.
- James H (2000). *The End of Globalization: Lesson from the Great Depression*. Cambridge, MA, Harvard University Press.
- Johnson H (1967). *Economic Policies Towards Less Developed Countries*. Washington, DC, The Brookings Institution.
- JP Morgan (2003). JP Morgan effective exchange rates: revised and modernized. *Economic Research Note*, 30: 17–20. Available at: <http://www2.jpmorgan.com/MarketDataInd/Forex/currIndex.html>.
- Kaldor N (1978). *Further Essays on Applied Economics*. London, Duckworth.
- Kenwood A and Lougheed A (1994). *The Growth of the International Economy, 1820–1990*, 3<sup>rd</sup> ed. London, Routledge.
- Keynes JM (1930). A Treatise on Money – The Pure Theory of Money. In: *The Collected Writings of John Maynard Keynes*, V. London and Basingstoke, Macmillan Press, 1973.
- Kindleberger C (1975). *Manias, Panics and Crashes: A History of Financial Crises*. New York, Basic Books.
- Kindleberger C (1986). International public goods without international government. *American Economic Review*, 76, March.
- Kindleberger C (1987). *The World in Depression, 1929–1939*. Harmondsworth, Pelican Books.
- King R and Levine R (1993). Finance, entrepreneurship and growth: Theory and evidence. *Journal of Monetary Economics*, 32.
- Kozul-Wright R and Rayment P (2004). Globalization reloaded: An UNCTAD perspective. *UNCTAD Discussion Paper*, 167. Geneva, United Nations Conference on Trade and Development.
- Kregel J (1994). Capital flows: Globalization of production and financing development. *UNCTAD Review*. United Nations publication, sales no. E.94.II.D.19, New York and Geneva.
- Kregel J (1996a). Germany and the creation of Universal Banks. Chapter 5 of *Origini e sviluppi dei mercati finanziari*. Arezzo, Banca Popolare dell'Etruria e del Lazio – studi e ricerche.
- Kregel J (1996b). Some risks and implications of financial globalization for national policy autonomy. *UNCTAD Review*. United Nations publication, sales no. E.97.II.D.2, New York and Geneva.
- Kregel J (2004). External financing for development and international financial instability. Research paper for the International Group of Twenty-Four on International Monetary Affairs, XVIII G-24 Technical Group Meeting, 8–9 March. Geneva, United Nations Conference on Trade and Development and Intergovernmental Group of Twenty-Four.
- Kreinin ME (1977). The effect of exchange rate changes on the prices and volume of foreign trade. *IMF Staff Papers*, 24: 297–329.
- Krugman P (1987). Is free trade passé? *Journal of Economic Perspectives*, 1(2).
- Krugman P (1994). *Peddling Prosperity*. New York, W.W. Norton & Company.
- Krugman P (1996). Making sense of the competitiveness debate. *Oxford Review of Economic Policy*. 2(3): 17–25.
- Lall S (2001). Competitiveness indices and developing countries: An economic evaluation of the Global Competitiveness Report. *World Development*, 29(9): 1501–1525.
- Laursen S and Metzler LA (1950). Flexible exchange rates and the theory of employment. In: Metzler LA, ed., *Collected Papers*. Cambridge MA, Harvard University Press, 1978.
- Maddison A (1982). *Phases of Capitalist Development*. Oxford and New York, Oxford University Press.
- Moore B (1966). *Social Origins of Dictatorship and Democracy: Lord and Peasant in the Making of the Modern World*. Boston, MA, Beacon Press.
- Mundell RA (1961). A theory of optimum currency areas. *American Economic Review*, 51: 657–665, September.
- Mussa M (1997). IMF Surveillance. *American Economic Review Papers and Proceedings*, May.
- Mussa M, Masson P, Swoboda A, Jadresic E, Mauro P and Berg Y (2000). Exchange rate regimes in an increasingly integrated world economy. *Occasional Paper*, 193. Washington, DC, International Monetary Fund.
- Nurkse R (1944). *International Currency Experience: Lessons of the Inter-War Period*. Geneva, League of Nations (United Nations Office at Geneva).
- Nurkse R (1959). *Patterns of Trade and Development*. Wicksell Lectures, Stockholm.
- O'Rourke K (2002). Europe and the causes of globalization, 1790–2000. In: Kierskowski H, ed., *From Europe and Globalization*. Basingstoke, Palgrave.
- Palma G (1989). Structuralism. In: Eatwell J et al., *Economic Development*. London, Macmillan Press.
- Panic M (1995). The Bretton Woods System: Concept and Practice. In: Michie J and Grieve Smith J, eds., *Managing the Global Economy*. Oxford, Oxford University Press.
- Pauly L (1997). *Who Elected the Bankers?* Ithaca, NY, Cornell University Press.
- Pesenti P and Tille C (2000). The economics of currency crises and contagion: An introduction. *Federal Reserve Bank of New York Economic Policy Review*, 6(3): 3–16.
- Polanyi K (1944). *The Great Transformation*. Boston, MA, Beacon Press.
- Prasad E, Rogoff K, Shang-Jin Wei and Aykhan Kose M (2003). *Effects of Financial Globalization on Devel-*

- oping Countries: Some Empirical Evidence*. Washington DC, International Monetary Fund, March.
- Rayment P (1983). Intra-industry specialization and the foreign trade of industrial countries. In: Frowen F, ed., *Controlling Industrial Economies*. London, Macmillan Press.
- Reinert E (1999). Increasing poverty in a globalised world: Marshall Plans and Morgenthau Plans as mechanisms of polarization of world incomes. Mimeo. Norway, The Other Canon Foundation.
- Rodrik D (2002). Feasible Globalizations. *NBER Working Paper*, 9129. Cambridge, MA, National Bureau of Economic Research.
- Rodrik D (2003). Growth strategies. Mimeo. Forthcoming in the Handbook of Economic Growth. Available at: <http://ksghome.harvard.edu/~drodrik.academic.ksgh/papers.html>.
- Ros J (2002). *Development Theory and the Economics of Growth*. Ann Arbor, MI, University of Michigan Press.
- Rosenthal G (2003). ECLAC: A commitment to a Latin American Way. In: Berthelot Y, ed., *Unity and Diversity in Development Idea*. Bloomington, IN, Indiana University Press.
- Rowthorn R and Chang HJ, eds. (1993). *The State and Economic Change*. Cambridge, Cambridge University Press.
- Scarpetta S and Tresselt T (2004). Boosting productivity via innovation and adoption of new technologies: Any role for labor market institutions? *Working Paper* 3273. Washington, DC, World Bank, April.
- Schumpeter JA (1911). *The Theory of Economic Development*. Cambridge, MA, Harvard University Press (English translation 1936).
- Schumpeter JA (1939). *Business cycles. A theoretical, historical, and statistical analysis of the capitalist process*. New York and London, McGraw Hill.
- Spraos J (1980). The statistical debate on the net barter terms of trade between primary commodities and manufactures. *Economic Journal*, 90.
- Stiglitz J (2003). Globalization and the logic of international collective action: Re-examining the Bretton Woods Institutions. In: Nayyar D, ed., *Governing Globalization: Issues and Institutions*. Oxford, Oxford University Press, Chapter 9.
- Taylor JB (1993). Discretion versus policy rules in practice. *Carnegie-Rochester Conference Series on Public Policy*, 39: 195–214.
- Turner AG and Golub SS (1997). Towards a system of multilateral unit labor cost-based competitiveness indicators for advanced, developing, and transition countries. *Working Paper* 97/151. Washington, DC, International Monetary Fund, November.
- Twomey M (2000). *A Century of Foreign Direct Investment in the Third World*. London, Routledge.
- UNCTAD (1964). Towards a New Trade Policy for Development: Report by the Secretary-General of the United Nations Conference on Trade and Development. United Nations, New York and Geneva.
- UNCTAD (2001). *Economic Development in Africa: Performance, Prospects and Policy Issues* (UNCTAD/GDS/AFRICA/1). United Nations publication, New York and Geneva.
- UNCTAD (2002). *The Least Developed Countries Report, 2002*. United Nations publication, sales no. E.02.II.D.13, New York and Geneva.
- UNCTAD (various issues). *Trade and Development Report*. United Nations publication, New York and Geneva.
- UNDP (1999). *Human Development Report, 1999*. United Nations publication, New York.
- UN-HABITAT (2003). *The Challenge of the Slums: Global Report on Human Settlements 2003*. New York and Nairobi, United Nations Human Settlement Programme.
- van Rijckeghem C and Weder B (2001). Sources of contagion: is it finance or trade? *Journal of International Economics*, 54: 293–308.
- van Wincoop E and Yi KM (2000). Asia crisis postmortem: Where did the money go and did the United States benefit? *Federal Reserve Bank of New York Economic Policy Review*, 6(3): 51–70.
- Williamson J (1983). *The Exchange Rate System*. Washington, DC, Institute for International Economics.
- Winters A (2001). Coherence with no “here”: WTO cooperation with the World Bank and the IMF. Mimeo. Murphy Institute Conference on the Political Economy of Policy Reform. New Orleans, LA, Tulane University, 9–10 November.
- Winters A (2004). Trade liberalization and economic performance: An overview. *Economic Journal*, 114.
- Wolf M (2004). *Why Globalization Works*. New Haven, CT, Yale University Press.
- Wollmershäuser T (2004). Exchange rate changes and trade flows: Evidence from emerging market economies. Mimeo. Background paper prepared for the UNCTAD *Trade and Development Report, 2004*. Geneva, United Nations Conference on Trade and Development.
- World Bank (1999). *Global Development Finance*. Washington, DC.
- World Bank (2002). *Globalization, Growth and Poverty: Building an Inclusive Global Economy*. New York, World Bank/Oxford University Press.
- World Bank (2004). *Global Development Finance*. Washington, DC.
- WTO (1998). *Annual Report, Special Topic: Globalization and Trade*. Geneva, World Trade Organization.
- Young A (1928). Increasing returns and economic progress. *The Economic Journal*, 38: 527–542.