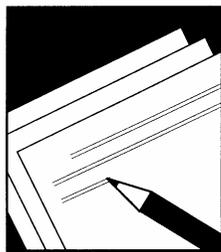


# Intraregional Trade in Emerging Asia



# IMF Policy Discussion Paper

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## IMF Policy Discussion Paper

Asia and Pacific Department

### Intraregional Trade in Emerging Asia<sup>1</sup>

Prepared by Harm Zebregs

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#### Abstract

**This Policy Discussion Paper should not be reported as representing the views of the IMF.** The views expressed in this Policy Discussion Paper are those of the author(s) and do not necessarily represent those of the IMF or IMF policy. Policy Discussion Papers describe research in progress by the author(s) and are published to elicit comments and to further debate.

The share of emerging Asia in world trade has increased sharply over the past 25 years. A large part of this increase is the result of booming intraregional trade. This paper investigates the key factors behind the rapid increase in intraregional trade among economies in emerging Asia and its implications for the dependency of economies in the region on the business cycles in the EU, Japan, and the United States. The rise in intraregional trade is largely driven by rapidly growing intra-industry trade, which is a reflection of greater vertical specialization and the dispersion of production processes across borders. This has led to a sharp rise in trade in intermediate goods among economies in emerging Asia, but the EU, Japan, and the United States remain the main export markets for final goods.

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## I. INTRODUCTION

**The outward-oriented growth strategies of many economies in emerging Asia have been reflected in high trade growth and a steady increase of their share in world trade** (Figure 1).<sup>2</sup> The share of emerging Asia in world exports more than doubled from 8 percent in 1978 to 19 percent in 2002, with a similar rise in the import share. The steady rise in emerging Asia's trade shares over the past 25 years was only interrupted by the Asian financial crisis of 1997–98. In contrast to the region's rising trade shares, the combined trade share of Asia's industrial economies (Australia, Japan, and New Zealand) was broadly stable until the mid-1990s, and has subsequently declined.

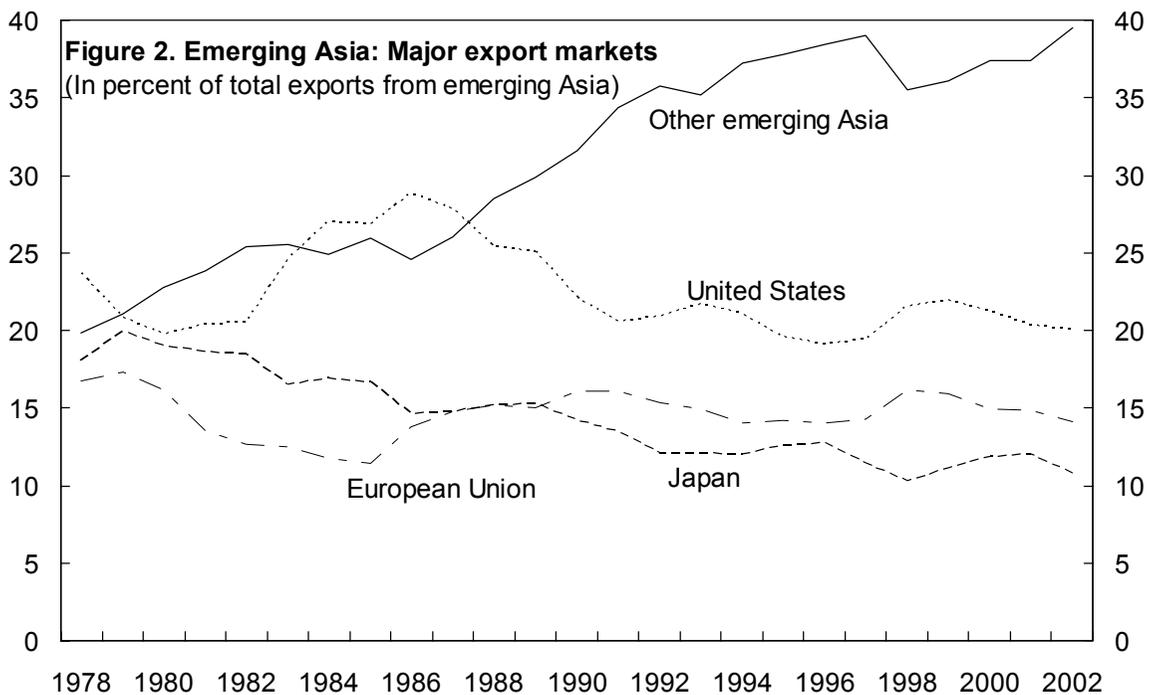


<sup>1</sup> Industrial Asia includes Australia, Japan, and New Zealand.

Sources: IMF, Direction of Trade Statistics; and staff estimates.

<sup>2</sup> Emerging Asia is defined here to include China, Hong Kong SAR, India, Indonesia, Korea, Malaysia, the Philippines, Singapore, Taiwan Province of China, and Thailand.

**In recent years, notwithstanding economic downturns in the EU, Japan, and the United States, emerging Asia's exports have continued to power ahead.** The industrial countries are still the largest export market for emerging Asia, but exports between the economies in the region have risen steadily from about 20 percent of total exports in the late 1970s to 40 percent in 2002 (Figure 2). The rise in intraregional exports accounted for a bit more than half of total export growth in emerging Asia in 1998–2002, while exports to the EU, Japan, and the United States accounted for about one-third, a continuation of a pattern that was briefly disrupted by the Asian financial crisis.<sup>3</sup> China is an important factor in the rise in intraregional trade. It absorbed 14 percent of exports of other economies in emerging Asia in



Sources: IMF, Direction of Trade Statistics; and staff estimates.

<sup>3</sup> According to Ng and Yeats (2003) the average intensity of trade between East Asian economies increased between 1995 and 2001 and exceeded the prediction of a standard gravity model.

2002 (11 percent if exports from Hong Kong SAR to China are excluded) and accounted for 32 percent of export growth of other economies in emerging Asia in 1998–2002.<sup>4</sup>

**The rise in trade has fostered closer links between economies in emerging Asia and the world’s industrial economies, as well as between economies within the region.** Ng and Yeats (2003) find that economic linkages and the interdependence of East Asian economies have considerably strengthened over the last two decades.<sup>5</sup> As trade is an important channel through which economic shocks can travel from one country to an other, export-oriented growth strategies tend to make countries reliant on economic developments in the rest of the world. The rapid expansion of intraregional trade in emerging Asia could therefore suggest that the region’s reliance on the rest of the world is diminishing. However, that depends partly on how much of the rise in intraregional trade is driven by greater domestic demand that is independent from external demand from outside the region.

**This paper investigates the key factors behind the rapid increase in intraregional trade, its implications the dependency of the economies in emerging Asia on the business cycles in the EU, Japan, and the United States.** The analysis shows that intraregional trade is in large part the result of the ongoing geographical dispersion of production processes, with assembly operations migrating to relatively low-wage countries, while higher-wage countries specialize in the production of components. In recent years, companies have also begun to relocate higher-value-added production processes. Intraregional trade is to a large

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<sup>4</sup> China and Hong Kong SAR together absorbed 18 percent of the exports of other economies in emerging Asia.

<sup>5</sup> Ng and Yeats define East Asia as consisting of: emerging Asia excluding India, Brunei Darussalam, Cambodia, Lao P.D.R., Mongolia, and Vietnam.

extent dominated by trade in intermediate goods, whereas countries outside the region remain the major destination for final goods exports. Although business cycles across economies in emerging Asia have become more synchronized, the dependence of economies in the region on demand for exports from industrial economies has diminished only slightly. Although the focus of the analysis is on the region as a whole, China is discussed separately because of its special role in intraregional trade.

## II. SOURCES OF TRADE GROWTH IN EMERGING ASIA

**What are the key factors underlying the faster growth of emerging Asia's exports compared with the growth of world exports?** Most governments in emerging Asia have a tradition of actively pushing export growth by promoting a supportive macroeconomic environment and providing microeconomic incentives to selective industries. Equally important, they have also avoided imposing significant import restrictions, which would have restricted exporters' access to necessary inputs from abroad.<sup>6</sup> It seems that in emerging Asia activist trade policies helped to create an environment in which exporters did not face many bottlenecks, so that they could rapidly expand their businesses and penetrate foreign markets.

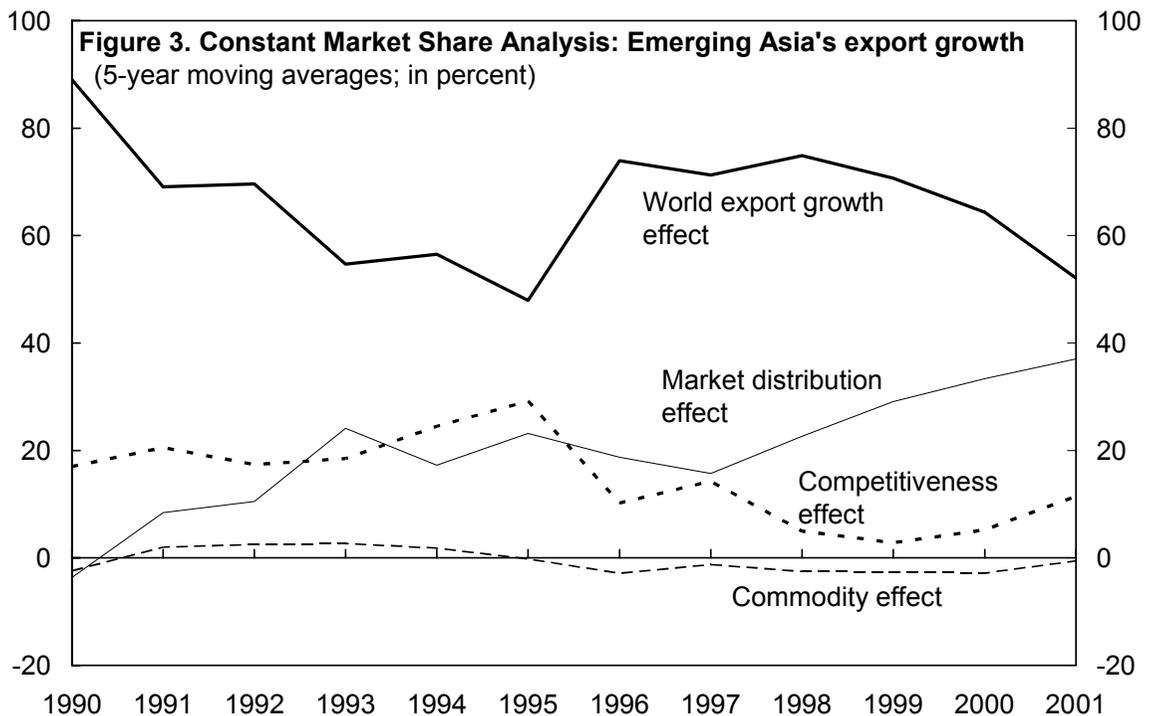
**Other factors, such as demand growth in export markets, have also played an important role in emerging Asia's trade performance.** Constant market share (CMS) analysis is a simple technique to ascribe export performance either to a country's export structure or its competitiveness. Based on this analysis, a country's exports may grow faster than "world export growth" because its main export markets are growing faster than the

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<sup>6</sup> Trade policies in individual countries in East Asia are discussed in World Bank (1993, Chapter 3).

average world export market (the “market distribution effect”); it is exporting commodities for which demand is stronger than for the average export commodity (the “commodity effect”); or it has been able to improve its competitiveness (the “competitiveness effect”).<sup>7</sup>

The competitiveness effect captures the impact of changes in technology, factor endowments, and relative prices, as well as elements of trade and macroeconomic policies in the exporting country. However, activist trade policies, such as those adopted in many countries in emerging Asia, might also have an impact on a country’s export structure through the promotion of selected industries. The results of the CMS analysis for emerging Asia as a whole are shown in Figure 3. If the growth in emerging Asia’s exports was the same as the growth in world export markets, the value of “World export growth” would be 100 percent,



Sources: UN, COMTRADE database; and staff calculations.

<sup>7</sup> See Leamer and Stern (1970) for a detailed exposition of CMS analysis, and Richardson (1971a, 1971b) and Fagerberg and Sollie (1987) for a critical evaluation and refinements of the original methodology.

indicating that other factors were either small or offsetting. World export growth less than 100 percent indicates that emerging Asia's exports have increased faster than world exports.

**Starting in the early 1990s, the market distribution effect has become the dominant factor explaining the strong export performance of emerging Asia relative to world exports.** Exports by economies in the region have outperformed the world average, because their export markets—including those within the region—were growing faster than the average world export market. This suggests that the rise in intraregional trade has been a major factor contributing to relatively strong export performance of economies in emerging Asia since the 1990s.

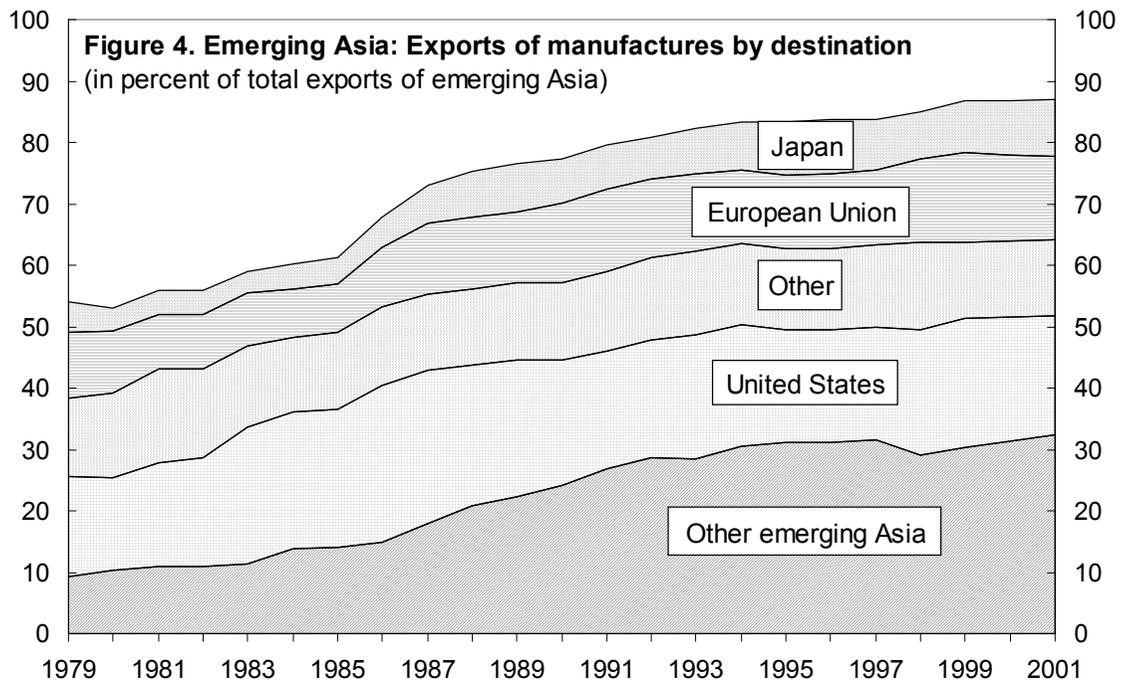
**The calculations suggest that from the mid-1980s to the mid-1990s, the competitiveness of economies in emerging Asia was also an important factor contributing to the strong export performance of the region, but became progressively less important after the mid-1990s.**<sup>8</sup> However, the competitiveness effect appears to have regained some importance in recent years. Somewhat surprisingly, commodity composition appears not to be an important factor explaining the strong export performance of emerging Asia, a result that probably reflects that it was only possible to do the analysis at a relatively modest level of disaggregation (one digit SITC level).

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<sup>8</sup> This particular result should be interpreted with caution as the competitiveness effect is a residual in the CMS analysis. However, Ng and Yeats (2003), following a similar methodology in which competitiveness is not a residual, report that improved competitiveness played a major role in the expansion of East-Asian intraregional trade since the mid-1980s.

**Emerging Asia's exports are dominated by manufactures** (Figure 4). The share of manufactures in total exports rose from about 55 percent in the early 1980s to 84 percent in 2002. Exports of electronics were a major contributor to this trend, accounting for almost half of the increase in manufacturing exports of emerging Asia between 1998 to 2001. The dominance of manufactures partly reflects the export promotion policies that governments in emerging Asia have pursued.

**A related trend is the increase in intra-industry trade in emerging Asia.**<sup>9</sup> The average share of total trade growth due to intra-industry trade growth rose from 42.5 percent in



Sources: UN, COMTRADE data base; and staff estimates.

<sup>9</sup> Ng and Yeats (1999) report on the rapid increase in trade in parts and components in East Asia in 1985–96, and note that assembly operations are tending to migrate to the relatively low wage Asian countries, while higher wage countries are specializing in the production of components.

1986–90 to 75 percent in 1996–2000,<sup>10</sup> which is high compared with other regions (34.5 percent in South America, 26.1 percent in the Middle East and North Africa, and 13 percent in Africa).<sup>11</sup> The increase in intra-industry trade in emerging Asia seems largely a reflection of greater vertical specialization, which means more trade in intermediate goods.<sup>12</sup> The share of emerging Asia’s exports of intermediates to other economies in the region has increased sharply from about 25 percent in the late 1970s to 47 percent in 2002, whereas the shares of the EU, Japan, and the United States declined over the same period (Figure 5). It



Sources: UN, COMTRADE data base; and staff estimates.

<sup>10</sup> An economy engages in intra-industry trade if it imports and exports commodities that are in the same commodity categories. This is usually measured at the SITC 2-digit level, as in this paper. When measured at the SITC 3- or 4-digit level the intra-industry trade index tends to get smaller. The contribution of intra-industry trade to total trade growth in Asia may therefore be lower than reported here, but it is clear that it has been a key contributor to trade growth, particularly in comparison with other regions.

<sup>11</sup> IMF (2002), Table 3.8.

<sup>12</sup> Trade in intermediate goods is here defined to include categories 2, 4, and 521 in the Broad Economic Categories classification of trade in WITS.

appears that the rise in intraregional trade has been broadly in line with the comparative advantages of the economies in the region. For example, Ng and Yeats (2003, p.53) conclude that East Asia's regional exports expanded along the lines consistent with comparative advantages without any significant policy induced distortions. They also report (p.5) that ASEAN appears to have played only a minor role in the expansion of intraregional trade in East Asia.

### III. THE ROLE OF CHINA IN INTRAREGIONAL TRADE

**China's integration into the world economy is having a major impact on trade flows of other economies in emerging Asia.**<sup>13</sup> Over the past 20 years, China's exports and imports have grown faster than world trade resulting in an increase in China's share in world trade from less than 1 percent in 1979 to more than 5 percent in 2002 (Figure 6). In the 1980s and

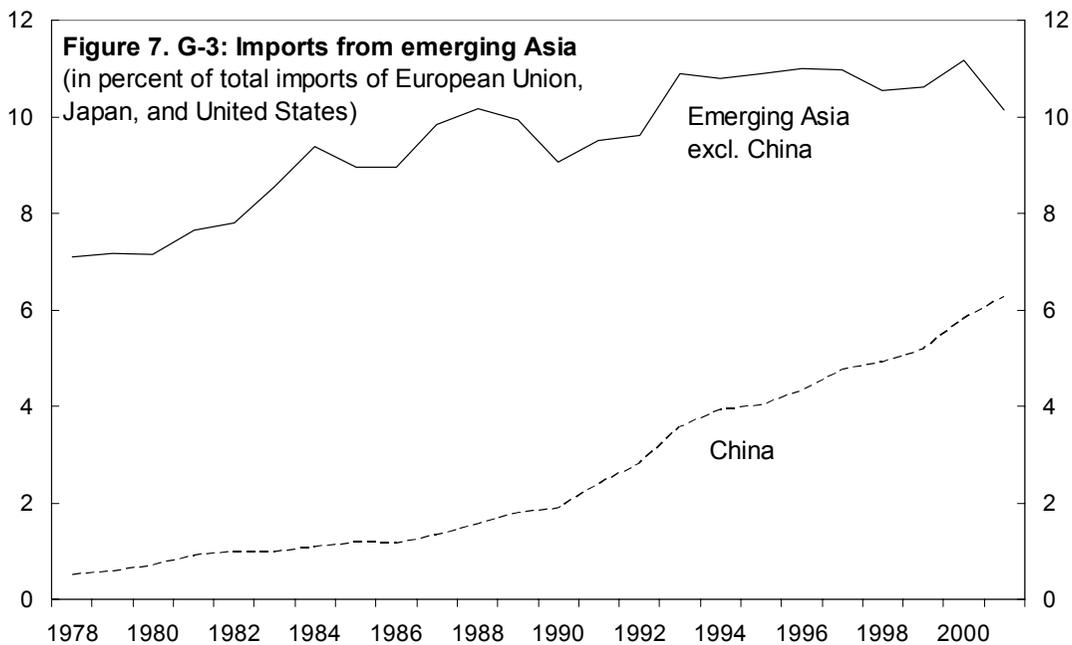


Sources: IMF, Direction of Trade Statistics; and staff estimates.

<sup>13</sup> This section draws on Rumbaugh and Blancher (2004).

most of the 1990s, China's exports were concentrated in clothing, footwear, and other low value-added manufactured goods. As its share in world trade rose, China diversified its export base and rapidly increased its market share in office machinery and telecommunications (including electronics), as well as in furniture, travel goods, and industrial supplies. As China's market share increased that of some other countries in the region (including Japan) declined or stopped growing (Figure 7), but this has been accompanied by a sharp increase in exports to China from the region. China is now among the most important export destinations of other economies in emerging Asia.

**China is playing a central role in the rise in intra-industry trade.** According to Rumbaugh and Blancher (2004) about half of China's imports are for processing and re-exporting.<sup>14</sup> Large firms in the region, many of them from Korea and Taiwan Province of

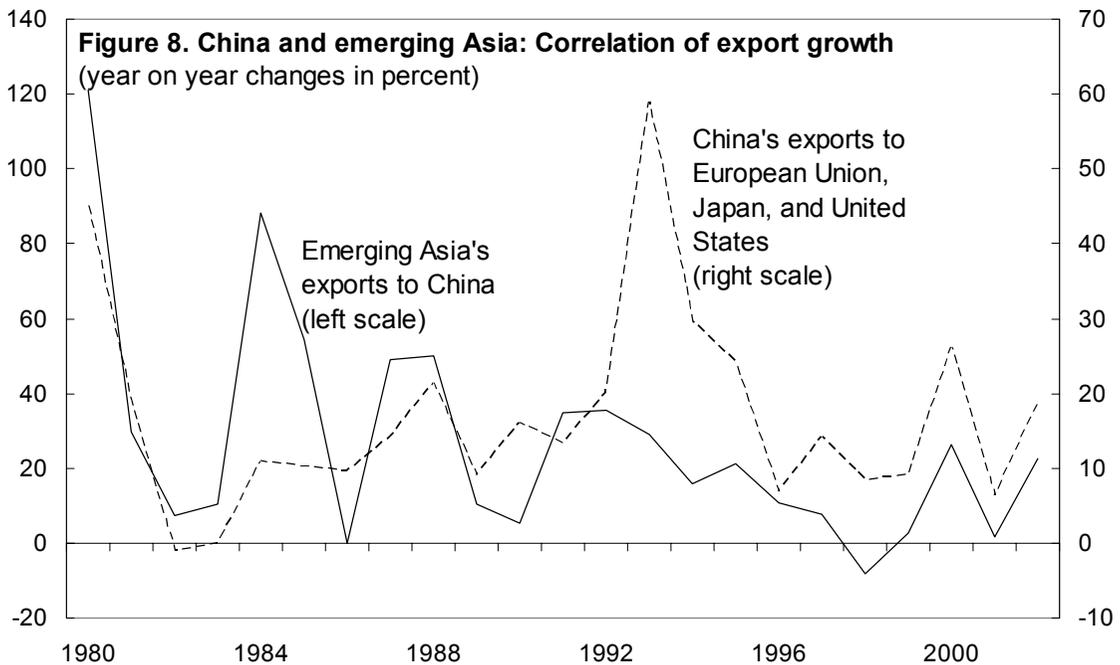


Sources: IMF, Direction of Trade Statistics; and staff estimates.

<sup>14</sup> Goldman Sachs (2003) report close to 80 percent of intraregional exports to China are intermediate and capital goods and raw materials, with the remainder directly for domestic consumption.

China, are increasingly moving parts of their production process to China. In particular, labor intensive assembly operations are being relocated to take advantage of China's low labor costs. The reorganization of production processes across borders has contributed to more intraregional trade and FDI as well as a growing share of Chinese exports in international markets. It has also resulted in a high correlation of 0.8 of intraregional exports to China and China's exports to the EU, Japan, and the United States over the past ten years (Figure 8).

**China's expanding trade is both a challenge and an opportunity for other economies in the region.**<sup>15</sup> The trade structures of Hong Kong SAR, Korea, and Taiwan Province of China are complementary to that of China, and these economies are directly benefiting from China's rapidly growing exports. China, together with the ASEAN-4 countries, has moved



Sources: IMF, Direction of Trade Statistics; and staff estimates.

<sup>15</sup> See Ahearne et al. (2003) for a more detailed discussion of the implications of China's expanding trade for emerging Asia. Their results suggest that in international trade China and the rest of the region are both comrades and competitors.

into the product space that has been vacated by the newly industrialized economies (NIEs) that are now focusing on higher-value added production and have become important exporters of intermediates to China.<sup>16</sup> Countries that compete with China, especially in labor-intensive commodities, may face difficult adjustments as resources are relocated away from sectors in which China has a comparative advantage. But this does not mean these countries are bound to be net losers, particularly in the medium to long run, as other sectors in their economies might benefit. The NIEs will also have to be prepared, for they may face stiffer competition in future as China's exports move up the value added chain. China's accession into the WTO will reinforce these trends, but has the potential to result ultimately in a more efficient allocation of resources across the region if macroeconomic and trade policies encourage trade to expand in line with comparative advantages.<sup>17</sup>

**Flexible economies will help to maximize the benefits and minimize the cost of China's expanding trade.** In particular, flexible factor markets will help economies to adjust to changing trade patterns by allowing resources to move quickly out of declining sectors and into expanding sectors. In addition, further trade reforms that allow producers access to inputs at world market prices are crucial to support export expansion and boost the development of new export sectors.

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<sup>16</sup> The NIEs are Hong Kong SAR, Korea, Singapore, Taiwan Province of China.

<sup>17</sup> The impact of China's WTO accession is not limited to economies in emerging Asia. Countries such as Mexico, a large exporter of textiles, will also face more intense competition in international markets. Japan is experiencing strong competition from Chinese exporters in some sectors, but is also benefiting from rapidly rising exports to China in other sectors.

#### IV. INCREASED INTRAREGIONAL TRADE AND THE BUSINESS CYCLES OF ECONOMIES IN EMERGING ASIA

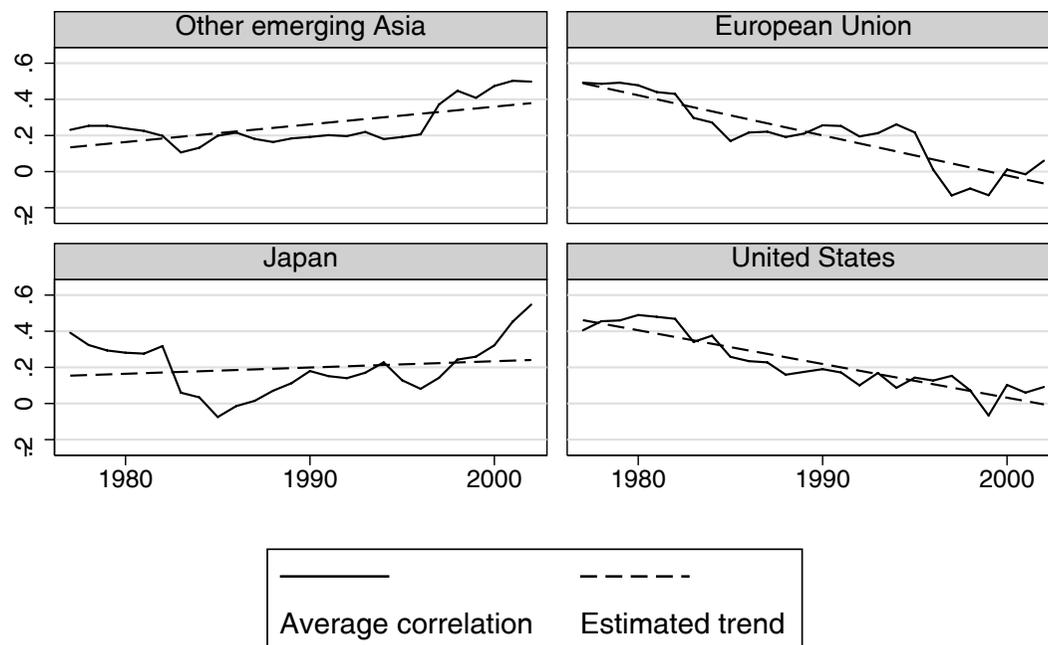
**The increase in intraregional trade has been accompanied by greater business cycle correlations across countries in the region** (Figure 9). The impact of increased trade integration on the correlation of business cycles between two countries depends on whether trade is predominantly inter-industry or intra-industry. Greater inter-industry trade tends to reduce business cycle correlations between the trading partners, whereas greater intra-industry trade tends to increase business cycle correlations.<sup>18</sup> Hence, we would expect that the increase in intraregional trade among the economies in emerging Asia, which is largely the result of more intra-industry trade (Figure 10), has led to an increase in the correlation of business cycles between economies across the region.<sup>19</sup> This is indeed the case. At the same time, the business cycles of the economies in the region have become less synchronized with those in the EU and the United States. Correlations of business cycles in Japan and emerging Asia on the other hand, have increased since the mid-1980s. These results are consistent with the findings of other studies in showing that an increase in trade intensity between two countries contributes to a greater correlation of their business cycles (Frankel and Rose, 1998; Imbs, 2003; and Shin and Wang, 2003).

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<sup>18</sup> With greater inter-industry trade the industrial structures of trading partners are more disparate, implying that shocks, especially industry-specific shocks, will have differing effects; whereas greater intra-industry trade implies that shocks would have similar effects.

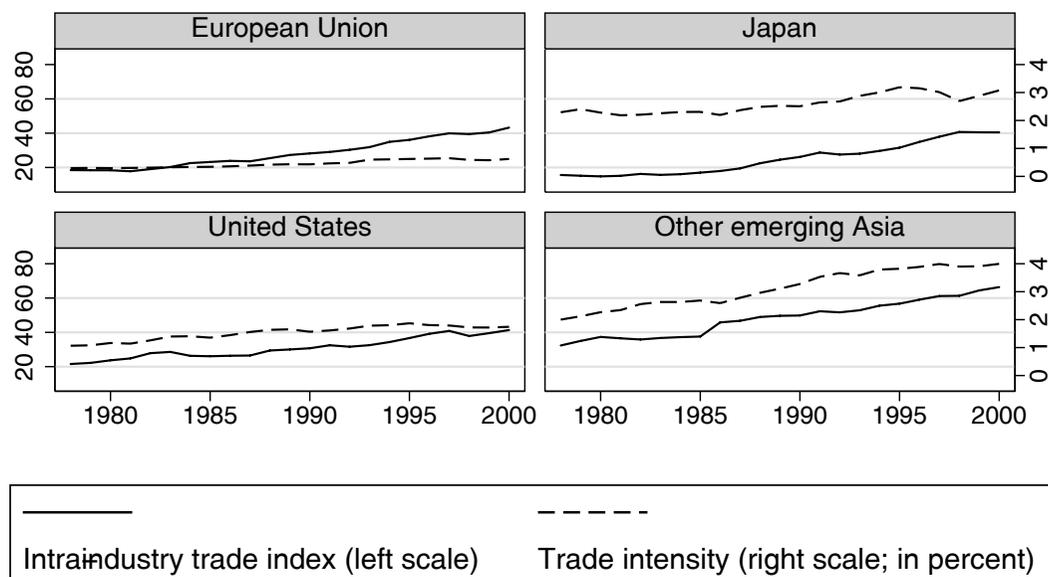
<sup>19</sup> Business cycles are calculated by band-pass filtering annual GDP series (Baxter and King, 1999).

Figure 9. Emerging Asia: Business cycle correlations with trading partners



Note: Bilateral correlations of trend deviations in real GDP were measured over 10-year periods and averaged across countries in emerging Asia by trading partner.  
Sources: Staff calculations.

Figure 10. Emerging Asia: Trade integration with trading partners (simple averages)



Notes: Calculation of intra-industry trade index follows Grubel and Lloyd (1975);  
Trade intensity is defined as the sum of imports and exports between two trading partners divided by their total trade.  
Sources: UN, COMTRADE database; and staff calculations.

Cross country correlations only capture the contemporaneous dimension of business cycle correlations. A deeper understanding can be obtained through unobserved factor analysis. Unobserved factor models allow to decompose business cycle fluctuations into a common factor (common across all economies in emerging Asia) and a country-specific factor.<sup>20</sup> The results show that for most economies in emerging Asia—with the exception of China, Taiwan Province of China, and perhaps Singapore—the common factor explains a large part of their business cycles (Table 1).<sup>21</sup> In addition, for many countries the common factor has gained importance in determining individual business cycles, which implies that business cycles in emerging Asia have become more synchronized. The results also show that the business cycle in Japan is strongly correlated with the common factor in business cycles in

Table 1. Correlations of individual business cycles with common factor<sup>1</sup>

	1978-90	1990-02	1990-96	1996-02
China	0.339	-0.077	0.077	-0.153
Hong Kong SAR	0.850	0.938	0.985	0.949
India	0.816	0.709	0.588	0.751
Indonesia	0.659	0.646	0.677	0.866
Korea	0.275	0.920	0.856	0.938
Malaysia	0.311	0.612	0.266	0.917
Philippines	0.456	0.927	0.918	0.942
Singapore	0.268	0.334	0.751	0.324
Thailand	0.531	0.831	0.254	0.922
Taiwan Province of China	0.549	0.044	0.077	-0.126
Japan	0.675	0.963	0.903	0.990
United States	-0.263	0.084	0.116	0.483
European Union	0.522	0.189	-0.065	0.215

<sup>1</sup> Here the common factor is the common element in the business cycles of the economies in emerging Asia.

Source: Staff calculations.

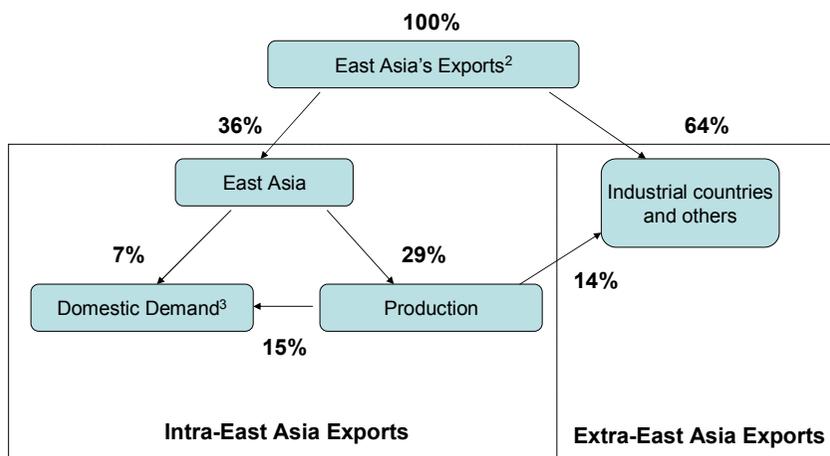
<sup>20</sup> The estimation of the unobserved factor model follows Otrok and Whiteman (1998).

<sup>21</sup> This analysis cannot distinguish between a region-specific factor and a world factor. In a 60-country sample covering seven regions in the world, Kose, Otrok, and Whiteman (2003) find that a common world factor is an important source of GDP volatility in most countries, whereas region-specific factors play only a minor role.

emerging Asia, whereas business cycles in the EU and the United States are only weakly correlated with the common factor. The closer correlation between the business cycles in Japan and emerging Asia may be a reflection of differences in bilateral trade intensities. Trade intensity is higher between emerging Asia and Japan than between emerging Asia and the EU and the United States.

**Although intraregional trade has risen sharply, Asian exports remain dependent on final demand from industrial countries.** Estimates based on the 1995 East Asian (emerging Asia excluding India) input-output table indicate that about 36 percent of East Asian exports go to the region, but 14 percent are intermediate goods that are eventually exported to countries outside the region (Figure 11).<sup>22</sup> The other 22 percent (7 plus 15) are ultimately consumed in the region. If Japan had been included in the East Asia group, the chart would have shown more intraregional trade and a smaller dependency on industrial countries. The

**Figure 11. East Asia: Export shares<sup>1</sup>**



<sup>1</sup> Export shares are based on the 1995 Asian Input-Output tables adjusted with 2001 data for East Asia's exports within and outside the region.  
<sup>2</sup> East Asia includes the countries in non-industrial Asia excluding India.  
<sup>3</sup> Domestic demand refers to private consumption, government consumption, gross domestic fixed capital formation and increase in stocks.  
Source: Monetary Authority of Singapore.

<sup>22</sup> Monetary Authority of Singapore (2003).

two sources of demand for exports of final goods from economies in emerging Asia are domestic demand in other economies in the region and demand from countries outside the region. Domestic demand growth in emerging Asia has been strong in recent years, but the market size of the economies in the region seems too small to account for the boom in intraregional trade. Even China, the biggest and fastest growing economy in the region, is estimated to have contributed only 0.8 percentage points to growth of final goods exports of other economies in emerging Asia during 1998–2001, compared with 3.4 percentage points for the EU, Japan, and the United States. Demand from outside the region is much larger, but it has been growing at a slower pace than intraregional trade. It, therefore seems that the rise in intraregional trade primarily reflects a shift in trade and production patterns rather than a change in the sources of demand for exports of final goods. Hence, the dependence of emerging Asia on external demand from Japan, and to a somewhat lesser extent the EU and the United States, does not appear to have diminished very much, if at all. An econometric analysis by Ahearne et al. (2003) arrives at a similar conclusion that, while intra-regional trade is becoming more important, the export performance of emerging Asia is still heavily dependent on income growth in the EU, Japan, and United States.

## V. IMPLICATIONS FOR GROWTH AND ECONOMIC POLICY

**The rise in trade is good for GDP growth in emerging Asia, as it is in other economies.**<sup>23</sup>

The share of trade in GDP in emerging Asia increased by about 42 percentage points during 1978–2002. Using a gravity model, Frankel and Romer (1999) estimate that a 1 percentage point increase in the trade to GDP ratio raises income per person by at least 0.5 percent. This

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<sup>23</sup> Berg and Krueger (2003) provide a survey of the literature on the relation between trade and growth.

suggests that the rise in intraregional trade has added about 21 percent to per capita income in emerging Asia between 1978 and 2002. As Frankel and Romer (1999) note, their results are not very precise and policy-induced increases in the trade to GDP ratio may not have the same impact on income as an increase based on differences in geographical factors. In any event, the increase in trade is likely to have contributed significantly to GDP growth in emerging Asia.

**Globalization, including China's accession into the WTO, has led to a freer flow of goods and factors of production across borders in the region.** This has given companies greater freedom in moving production processes to the most cost efficient locations, which has been reflected in increased vertical specialization and a rise in intra-industry trade. The rise in intra-industry trade will, in many theoretical models, have a positive effect on economic growth through increased productivity (Krugman, 1979). Lederman and Maloney (2003) find that intra-industry trade indeed has a positive effect on growth in a sample of 65 advanced and developing countries, but do not find conclusive evidence that intra-industry trade contributes to growth through increased productivity. It seems, however, that further trade integration could help sustain the region's high rates of GDP growth by promoting greater efficiency and productivity growth, while reducing the traditional emphasis on capital deepening as the main source of growth.

**Increased trade integration has resulted in closer links between economies in emerging Asia, but industrial countries remain an important source of demand for exports.**

Greater interdependencies and linkages between economies in emerging Asia place an increasing and shared interest on the part of all countries in the region to pursue sound

macroeconomic policies, as macroeconomic conditions in trading partners have an impact on growth in the short run as well as in the long run.<sup>24</sup> To the extent that this shared interest will lead to greater policy cooperation at the regional level, it will be important to ensure that this cooperation builds on the region's close integration with the rest of the world given that the global environment continues to be very important to emerging Asia. In this context, it is important that future regional trade agreements ensure that Asia remains as closely integrated into the global economy as it is today.

**Emerging Asia's increasing openness to trade with the rest of the world calls for a high degree of economic flexibility to minimize the impact of external shocks.** It is easier to deal with external shocks in a stable macroeconomic environment of low inflation, prudent fiscal balances, and modest levels of debt. In such an environment policy makers have room to maneuver when they need to take counter-cyclical policy measures in case of an external shock. The ongoing relocation of production across borders also underlines the need for flexibility of factor markets. It is therefore important that the economies in the region make further progress with structural reforms, particularly in the corporate and financial sectors, and take other steps to create a good investment climate. This will also help attract FDI.

**China's growing trade will contribute to regional growth, even though exporters of labor-intensive commodities will face adjustment costs in the near term.** The comparative advantages of economies in emerging Asia may change as China plays a larger role in the world economy, but this will ultimately contribute to higher growth provided

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<sup>24</sup> Arora and Vamvakidis (2004) show empirically that economic growth is influenced by economic conditions in a country's trading partners.

resources are allocated more efficiently. In addition, future trade agreements, if well designed, could help economies in emerging Asia to adjust to the challenges posed by China and help them to exploit their comparative advantages.

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