

THE ECONOMIC INTEGRATION OF GREATER CHINA

**Real and Financial Linkages and
the Prospects for Currency Union**

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Hong Kong University Press is honoured that Xu Bing, whose art explores the complex themes of language across cultures, has written the Press's name in his Square Word Calligraphy. This signals our commitment to cross-cultural thinking and the distinctive nature of our English-language books published in China.

"At first glance, Square Word Calligraphy appears to be nothing more unusual than Chinese characters, but in fact it is a new way of rendering English words in the format of a square so they resemble Chinese characters. Chinese viewers expect to be able to read Square Word Calligraphy but cannot. Western viewers, however are surprised to find they can read it. Delight erupts when meaning is unexpectedly revealed."

— Britta Erickson, *The Art of Xu Bing*

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1

Introduction

China's program of economic reform, initiated with the 1978 National Party Congress, has had momentous implications for both its domestic economy and the international community. Indeed, the program of economic reform has generated one of the most successful economic stories in the last two decades of the twentieth century. In contrast with the former Soviet Union and most Eastern European countries that adopted the "big bang" or "shock therapy" reform strategy, China has followed an approach of gradualism, orchestrating an incremental process to transform a centrally planned economy to a market oriented one. While this gradual reform process has not been entirely problem-free, it is widely viewed as a tremendous success — especially given the experimental nature of some of the implemented policies.

The economic achievements that have followed the economic reforms are impressive. Between 1979 and 2002, the standard of living in China, measured by real *per capita* gross domestic product (GDP), increased six-fold when output is measured in Renminbi (the Chinese yuan) and increased 12-fold when purchasing power parity based output is considered. In the international arena, China has evolved from an autarkic state to an active participant in international forums and become a significant player in the global economy, through trade and financial links.

The steep ascent of China's status can be easily seen in a number of areas. For instance, Asian countries have become quite dependent on China-driven export demand for their growth since the 1997 financial crisis. In the first half of the decade, it was commonplace to identify China as one of the engines of global growth, second only to the United States. Furthermore, the sheer size of Chinese economy makes the world increasingly sensitive to both its deflationary and inflationary pressures. Its massive production capacity is

perceived as putting downward pressure on the price of manufactured goods around the world, while its appetite for basic and raw materials bids up world commodity prices.

Consequently, perceptions have been considerably altered. The boom or bust cycle in China, which used to be of little external consequence, can now have significant implications for the world economy. Indeed, Chinese premier Wen Jiabao's remark on the urgency and the determination to slow down the over-heated Chinese economy was cited as the reason for a large drop in the Chinese H-shares in Hong Kong, a greater than 100-point decline in the US Dow Jones Industrial Index, and a sharp fall in commodity prices, including those for gold and copper.¹

This enormous economic success has naturally been accompanied by a proliferation of studies on the so-called China miracle. In writing this book, we do not seek to provide yet another dissertation on the sources of phenomenon. Rather, our objective is to assess the degree of integration between China and several Pacific Rim economies with a special emphasis on Hong Kong and Taiwan.

While there has been a plethora of analyses of China's economic interactions with other economies, these studies have been mostly focused on trade issues and, more recently, on the effects of accession to the World Trade Organization.² A thorough investigation of financial and real interactions — corresponding to the many exhaustive studies of the financial and real links between developed countries and between East Asian countries — is notably lacking.³

Given the substantial implications of real and financial integration for the efficiency of resource allocation and efficacy of macroeconomic policy, we believe that a proper understanding of the current state of economic integration will help gauge the potential role of China on the global economy. This study focuses on the degree of integration between China, Hong Kong, and Taiwan, three economies often referred to in aggregate as Greater China. In addition, we offer some complementary discussion of the interactions between China and several specific Pacific Rim economies including those of Japan, Korea, Singapore, Taiwan, and the United States.

In the economics literature, there are a multitude of approaches to assessing economic integration. We present some standard measures — including trade flows, output comovements, saving and investment correlations, and consumption comovements — and emphasize the ones based on some key parity conditions in international finance. These international finance parity conditions are real interest parity, uncovered interest parity, and relative purchasing power parity. While there is no perfect empirical measure of economic integration, the theoretical relationships between

integration and these three parity conditions are well founded in the literature. Further, the three parity conditions taken as a whole constitute a unified framework that can be used to assess the degree of real and financial integration, and thus offer a convenient way to investigate the interaction between these two types of integration.

In addition to using the standard approach to analyzing economic integration, we also evaluate the prospect of a currency union among China and the selected economies. The idea of an Asian currency union has attracted considerable attention, especially in the aftermath of the 1997 financial crisis. A currency union is an extreme form of integration, and as such, it requires a strong commitment from its members to adopt a single currency (or an irrevocably fixed exchange rate arrangement) and follow a common monetary policy. Since the ideal preconditions of a currency union are rarely fulfilled, there is always a cost for a country to relinquish policy autonomy and join a currency union. It is instructive to examine these cost estimates because the willingness to form/join a currency union depends on, among other things, the cost of forming/joining one. Hence, we offer some preliminary estimates of the costs associated with these economies forming a currency. To this end, we use a canonical macro model to derive the output costs of forming a currency union.

The book begins by setting the stage. Chapter 2 offers some information about the recent Chinese economic experiences. We do not attempt to explain why the Chinese economy grew so rapidly over the last two decades. Instead, we provide some quantitative measures and enumerate several stylized facts regarding China's achievements, relative to the other economies. Since it is quite difficult to devise a perfect empirical counterpart of the concept of economic integration, Chapter 3 considers some commonly used measures of economic integration. The results from applying some of these methods to China and selected economies are also discussed in this chapter.

Chapter 4 provides a more detailed analysis of the degree of integration between China, Hong Kong, and Taiwan. The chapter provides an assessment of the relevancy of parity conditions among these economies. The cost of establishing a currency union is the subject of Chapter 5. Cost estimates, expressed in terms of output loss, are reported for several configurations of currency union membership. Chapter 6 provides some discussion of the prospects for China's continued integration with the world economy, and the implications for the setting of policy, both in Beijing as well as in the capitals around the Pacific Rim. The appendices contain some additional discussion of China's economic performance, the results pertaining to integration between China and selected Pacific Rim economies, and a record of data used in the analysis.

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Concluding Remarks

In this chapter, we highlight the main findings that we have uncovered in our analysis of Greater China and key Pacific Rim economies, and link them to broader trends and challenges in the global economy. In addition, we speculate upon the trajectory of these economies in the coming years, especially in regard to the potential upside — and downside — risks to the region's development. In particular, we relate our empirical results to ongoing policy debates and initiatives.

The Implications for Integration Initiatives

It is useful to first recount the results we have obtained. We have used a variety of price-based criteria to supplement data on trends along various dimensions, including flows in assets and goods and services, as well as direct measures of regulatory impediments. In the literature, there is a concern over what is the true extent of integration arising from trade agreements, because many existing or incipient trade agreements are perceived to be structured such that there is little economic dislocation, and hence little trade creation. That is why in this book, we have focused on *observable* changes in prices and other economic variables, rather than regulatory and legal developments that might or might not have had an impact upon trade flows.

Our results suggest that the degree of goods and services integration is quite high. This finding is in some ways unsurprising, given the rapid expansion in trade flows between the countries of the region. But one knows from gravity models that as these economies grew, trade would naturally expand rapidly. But the observation that there was a rapid expansion in trade

flows left unanswered the question of to what extent the markets in goods and services were being integrated. Our approach, in focusing on prices, directly addresses this question.

The value added of our approach is highlighted by our results regarding financial market integration. It is clear that financial flows to the region have also expanded rapidly over the last decade, with a pause during the 1997 Asian financial crisis. But without some sort of theoretical model or benchmark, it is not possible to assess the degree of integration — whether it was high or low. Our empirical results suggest that the degree of financial integration was somewhat lower than that for the goods markets.

We also formally assessed the desirability of a currency zone in East Asia. Numerous studies have addressed this question, from a variety of theoretical perspectives. We do not purport to have obtained the definitive results. Rather our estimates complement those that have been obtained by others.

Our conclusions are largely in accord with intuition. We find that integration has proceeded rapidly amongst the economies of Greater China. This finding implies that efforts at a program of more formal economic integration, such as a currency union, would be most successful if centered upon a core group of countries. To a lesser extent, monetary integration among the Northeast Asian countries — the People's Republic of China, South Korea and Japan — would also be a potentially successful venture.

In light of the economic and political impediments to any of these currency unions, it would be patently unrealistic to expect rapid progress towards this type of formal integration. On the other hand, it seems hasty to rule out the possibility of such a cooperation opportunity. The active interest and enthusiasm in promoting regional trade and financial integration that developed around the turn of the millennium mark a real impetus toward formalizing regional integration. For instance, discussions on the prospect and feasibility, say, of an Asian currency union, are a fixture in regional organizations' meetings.¹ In general, we anticipate the integration process will be characterized by a long period of incrementalism.

The initiatives towards regional integration can be broadly categorized into two areas. The first is trade integration, and the second is financial and monetary policy coordination.

In the first area, the pace of initiating and establishing free trade agreements has definitely accelerated in the past few years. In part, this has been a consequence of the failure to make headway in the multilateral sphere. However, even the launch of the Doha round in 2001 failed to noticeably slow the impetus toward regionalism, despite the many drawbacks of such arrangements.

In a break with its earlier stance, China has engaged in several of the recent regional trade negotiations. One prime example is its 2001 agreement with ASEAN on a framework to establish a free trade area. In 2003, China also signed a Framework Agreement with other members of the Shanghai Cooperation Organization, which was originally established to improve relationships between China and countries that share a border with China — to broaden their economic interactions and foster the investment environment. In addition to discussions with its neighboring economies, China has initiated trade talks with the South American common market, Mercosur, and in Oceania, Australia. Looking forward, there is little doubt that China is going to deepen its trade integration with the region and the world economy. Furthermore, if the Doha round fails, we are likely to witness even greater emphasis on such regional trading arrangements.

Given the economic importance of China, Japan, and Korea, economic cooperation between these three countries can have significant implications for regional and global policy coordination. While there is much talk about economic cooperation in Northeast Asia, among China, Japan and Korea, the feasibility studies and tentative investigations have been the extent of action. Thus far, trade integration, for instance, as pointed out earlier in the book, is mainly driven by market factors, instead of official actions from the three countries. Zhu Rongji's official proposal for a trilateral free trade agreement in 1999 is apparently the first governmental effort to move in this direction. After three years of initial research initiatives, the three countries engaged in a long-term joint research program in 2003 on evaluating the benefits and costs, at the country and industry levels, of forming a free trade area. An involved process is anticipated for finalizing a formal institutional framework for trade and economic cooperation between China, Japan and Korea.

One interesting, and potentially counterproductive, phenomenon is the rivalry between China and Japan in regional trade talks. Given its geographic position and political considerations, China has a clear incentive to improve its relationship with Southeast and Central Asian economies. It is natural for China to engage in the trade initiatives including the Framework Agreements with ASEAN, the Shanghai Cooperation Organisation, and the Bangkok agreement.

Japan, on the other, took a relatively low profile in regional (bilateral) trade negotiation until after China's surprise move to sign the Framework Agreement with ASEAN. Since then, Japan has, for example, signed a similar Framework Agreement with ASEAN in 2002, concluded the trade agreement

with Singapore in 2002, and actively pursued a free trade arrangement with Korea.²

Some observers question the true intent of Japan's efforts in the recent flurry of free trade arrangements, and suspect its efforts are aimed at thwarting China's foray into regional economic affairs, thus securing Japan's leading economic role in the area. If this conjecture is correct, then the (implicit) rivalry between China and Japan might significantly forestall the progress of integration in the region.

In the area of the financial and monetary coordination, China has negotiated several bilateral Swap Arrangements with member countries of ASEAN Plus Three group and participated in the ASEAN Plus Three surveillance project and Early Warning System. The integration of China's financial sector into the regional and global markets hinges on domestic factors and developments in regional and global markets. China, like other developing economies in Pacific Rim, has a relatively underdeveloped and fragile financial sector. In fact, the potential instability and risk associated with the domestic financial market is perceived as a credible threat to China's prospects for continued strong growth.

Along the balance of payments dimension, the Chinese government has been quite determined in resisting Western pressure to rapidly liberalize the capital account. The experience of the East Asian financial crisis certainly gave support to those who wished to defer convertibility. It is anticipated that, without considerable strengthening of its financial sector, China is not likely to loosen its grip on capital controls and exchange rate management. We discuss this at further length in the section below assessing future prospects. In the near future, because of China's desire to retain monetary autonomy, discussions of the desirability of monetary co-operation (separate from financial initiatives like the Chiang Mai initiative) remain just that — discussions of a primarily academic nature.

One major step in promoting regional financial and monetary cooperation is to re-structure individual economies' financial sectors and cultivate efficient regional capital markets to effectively match savings and investment opportunities. Indeed, the development of regional bond markets is advocated as a useful tool to avert future financial crisis and a major step towards monetary co-operation and the introduction of an Asian common currency in the region.³ Apparently, economies in the region including China are actively preparing for the launching of the regional bond market.⁴

Challenges and Prospects: The Domestic Arena

In previous chapters, we have documented the enormous changes in the Chinese economy, and how those changes have altered the nature and extent of linkages of China with the rest of the world. A natural instinct is to inquire as to the direction of these trends over the immediate future and over the longer term.

To a large degree, the answers to these questions depend upon the stance of policy leaders in China, and in the capitals of the other countries in the region and the United States. On the first count, we conjecture that the leadership in the China will continue opening the economy to the rest of the world. However, this opening up will proceed upon Beijing's timetable. That is, we expect that the "Beijing Consensus" will continue to hold sway in the views of policymakers. In contrast to the "Washington Consensus" of open goods markets and privatization of state owned enterprises, the Beijing Consensus is predicated upon an extremely slow and cautious approach to these measures as well as capital account liberalization, and the accumulation of large foreign exchange reserves in order to maintain a maximum amount of policy autonomy.⁵

That being said, it is clear that an outright return to the autarkic regime of the 1970s is inconceivable. The costs in terms of FDI and associated technology transfer, export markets and economically derived political clout in the region would be too great. Indeed, it is difficult to see what politically influential sectors of the economy would benefit from a return to closed trade and financial accounts.

Despite the substantial progress in economic re-structuring and reform in the last 25 years, China still faces some challenges to maintaining the momentum of reform. The first challenge is the continual liberalization of goods markets and improvement of efficiency and productivity. It requires the government to provide a suitable environment to nurture private businesses and maintain FDI inflows by way of establishing a supportive legal, physical, and institutional environment. Among other things, the protection of intellectual rights and the system used to resolve disputes involving foreign enterprises are two crucial factors that determine the climate of foreign investment.

Labor market reform is also deemed necessary for China's continual and sustainable growth. Since the beginning of China, labor mobility has been severely restricted and leading to serious market distortions. Mobilizing labor using market conditions can result in substantial gain in efficiency and provide another impetus for economic growth. Some other related issues include the

imbalances between regional incomes and between rural and urban income, which can exert pressures on both the social and economic stability.

A more critical issue is reforming the financial and services sectors. There are both internal and external factors that demand reform in these sectors. The financial and services sectors in China are quite underdeveloped and lag behind the needs of the real economy, which is moving forward at a rapid rate. In addition to being accused of inefficiency and corruption, a particularly critical issue is the large proportion of non-performing loans in the banking system. Reforms are definitely required to contain the effect of non-performing loans, improve the accountability, enhance the capacity, and raise the efficiency of the banking sector. In general, China's financial and services will benefit from a prudential legal and regulatory framework that promotes governance and financial stability.

Given the time it will take to reform its banking and financial systems, the large contingent liabilities associated not only with the non-performing loans, but also the pensions and debts of the state owned enterprises may drag down the progress in economic growth and economic reform. While the large stocks of foreign exchange reserves provide some cushioning effects, these issues would be much more manageable if they were placed against a backdrop of rapid and sustainable economic growth. However, the authorities' intent in 2004 to cool off the over-heated economy is likely to complicate the resolution of these problems.⁶

For instance, when economic growth slows, making some of the investment redundant, it is obvious that large additional amounts of outstanding loans will become nonperforming, erasing the substantial progress that has been made in cleaning up the bank balance sheets via repeated capital injections. How serious a blow this will deal to the project of economic reform and liberalization depends in large part upon the ability of the policy makers to engineer a soft landing.⁷ If they are successful, then progress should continue with only a slight delay. However, a substantial slowdown along the line of the 1992-94 episode could have more profound implications.

What are the prospects for a soft landing? At the time of this writing, we are thus far very early in the correction phase, so our analysis must be restricted to speculation. To date, macroeconomic policy has followed historical precedent, being underpinned by administrative guidance and contractionary monetary policy. But the direct tools available to the central government have weakened considerably over the past decade as control of production has been devolved to provincial and local authorities. Indeed, to the extent that many enterprises remain unconstrained in terms of credit, the slightly higher interest rates may have little effect on aggregate demand. In addition, the Chinese

authorities recall well the 1992–24 experience and have repeatedly emphasized the need to engineer a soft-landing by avoiding an abrupt policy change that would drag down the economy.

The market liberalization mandated by the terms of accession to WTO represents another challenge to China's financial and services sectors. According to the terms of the agreement, China has to open its financial and services sectors to foreign competition in steps and completely open to foreign competition five years after joining — in other words, by the end of 2006. In the beginning of the new millennium, China started to consider investment in Chinese banks by foreign capital. In the same period, some Chinese banks were selling shares in overseas markets. The development is viewed as a policy to jump-start banking reform — to encourage transfers of technology and management know-how, enhance governance, and develop efficient operation culture. However, it is still too early to assess the effectiveness of foreign ownership in promoting the efficiency and competitiveness in the banking sector.

Given its immaturity in terms of both capitalization and management, it is hard to believe that China's financial and services sectors can withstand direct competition from established multinational financial and services corporations. In addition to developing management and business expertise, China must in quick order establish a prudential supervisory and regulatory framework to manage the effects of opening up its financial and services sectors.

Opening up the capital account and floating the Renminbi, the Chinese yuan, are two contentious and related issues. The Beijing Consensus can be viewed as a pragmatic policy choice that seeks to balance off the need to achieve various goals. One policy is to maintain control over the real value of the Renminbi on a trade-weighted basis. The combination of capital controls and the pegged exchange rate has meant that the Chinese authorities have been able to manage the value of the currency so as to avoid the 1997 East Asian financial crisis and retain access to world export markets.

On the other hand, the capital controls have also enabled the authorities to limit capital flight, and, combined with state control over the banking system, direct capital to the largely bankrupt state owned enterprise sector. Indeed, it is hard to find any disinterested parties that would support capital account liberalization under current conditions, where non-performing loans account for some 40% of outstanding loans.⁸

The recent pressure from the United States, Japan and the European Union to abandon the pegged exchange rate and open the capital account represents a difficult policy choice.⁹ As pointed out earlier, while China has undergone substantial re-structuring, it still possesses a relatively backward

financial sector. Stock and bond markets and the banking system all lack the depth and breadth to survive the financial volatility attendant with an open capital account and a floating exchange rate. So even though there are benefits of an open capital account and a floating exchange rate, the conditions do not appear ready for China to enjoy these benefits without risking a substantial disruption in its financial markets.

Another reason for being cautious is that there are examples of developing economies experiencing severe financial and economic crises as a result of opening up capital accounts and floating exchange rates too hastily. Apparently, it is prudential for China to follow a proper sequencing procedure in reforming its financial sector. For instance, before opening up its capital account and abandoning its exchange rate peg, China should devise and install an effective and prudential supervisory and regulatory framework that induces a proper and smooth operation of financial markets such that the authorities have the ability to manage market disturbances.

Of course, there is a separate question of whether these markets will ever be ready to face international forces, if they are forever protected. Hence, the call for proper sequencing should not be taken as an excuse to forego a determined program of capacity building in financial regulation and administration.

The International Response

The process of integration is not a one-sided affair. As China's manufacturing prowess has grown, the governments of the region have struggled to formulate a response. The increased productivity in China provides clear benefits to the countries of the region, and the world, although there are individual groups in each country that might be adversely affected.¹⁰ Naturally, during the integration process, there is resource re-allocation across sectors and, as a result, some will gain and some will lose. The key issue is, with integration, countries are working in common purpose with others to achieve a high level of economic growth that will lead to greater prosperity for the society overall.

Setting aside welfare considerations, it is useful to enumerate the countries that will experience increases in exports, and those that will lose export share. In our view, the threat of China to the regional exporters is overdone. As Fernald et al. (1999) have argued, the degree of substitutability between Chinese exports and the exports of the newly industrializing countries, and the other developing economies, is fairly low. In a more recent study, Ahearn

et al. (2003) find that exports from China and those of the East Asian economies appear to behave more like complements than substitutes.

Indeed, in recent years, the total share of US imports accounted by Chinese exports has risen, even as the share accounted by overall East Asian exports has remained fairly constant. Part of this effect is due to the rebound in East Asian currency values in the wake of the 1997 currency crisis. A bigger reason is the change in the regional production process. As it develops its manufacturing capacity, China increasingly participates in the regional production process, playing the role of the last leg of the production chain.

For example, in the case of electronics industry, China imports primary materials and capital goods, implements labor-intensive processing and assembly of imported (high-end) components, and exports the final products to, say, end consumers. Thus, instead of exporting directly to, say, the United States, economies in Asia export raw materials and components to China, take advantage of the low labor cost and manufacture facilities, and export their products via China. This production process results in a large surge in trade between China and the other Asian countries. As expected, China incurs large trade deficits with these countries and enjoys substantial trade surplus with, in this case, the United States. Thus, the observed China trade surplus with the United States may exaggerate the trade imbalance between these two countries.

Obviously, the change in the pattern of international production implies the countries involved in the process have to undergo some adjustment. In this case, China has to adjust its economic structure and shift resources to the labor-intensive processing and assembly industry. Other countries have to move resources out of light and assembly industries and direct them to, say, high-valued added services and high technology area. Of course, the adjustment process may not be painless for all parties. For countries that have an inflexible economic structure and face impediments to growth, the required adjustment may lead to a "hollowing out" phenomenon in which resources are forced out of the labor-intensive sector while these resources cannot be readily redeployed to other sectors.

Of course, what must be weighed against the adjustment cost, in addition to the efficiency gain in production, is the positive impact on regional economic activity due to an ever growing Chinese economy, drawing in increasing amounts of imports. Indeed, a substantial portion of the credit for the resurgent Japanese and Korean economies has been apportioned to the booming Chinese economy. As is usually the case, we believe the benefits of an increasingly outward oriented China will far outweigh the potential adjustment costs borne by other East Asian economies.

Four years after accession to the WTO, it appears that fears that Chinese exports would crowd out other regional economies' exports have not been borne out.¹¹ In fact, China has positioned itself in the regional production chain in such a way that generates trade opportunities for both itself and the other Asian economies. This is a win-win situation envisioned in a typical integration argument. However, there is a caveat — past experience provides no guarantee that in the future Chinese exports will not tend to behave as a substitute for, say, Korean and Japanese exports.

Finally, on the trade front, it is possible that China's increasing prominence in international trade could spark an international backlash. The potential for backlash is obvious, and can be traced to the presence of both gainers and losers in the process of trade integration. Even though it is widely acknowledged that trade integration brings about benefits that outweigh losses, it is not surprising to see resistance from constituencies that are hurt in the adjustment process. The ferocity of the backlash is also unsurprising, given previous experience, although the alleged deflationary impact of Chinese exports had dissipated by the time of this writing.¹²

Another concern that has arisen is the fear that a rapidly growing Chinese economy will continue to siphon foreign direct investment away from other regional economies. This concern appears to have some basis. The sheer size of the Chinese economy, combined with low labor costs, would appear to constitute a strong magnet for direct investment. Nonetheless, as pointed out in the previous chapters, a lion share of China's FDI comes from Hong Kong, Taiwan, and Macao, which are not the typically capital suppliers in the world capital market. China, apparently, is tapping into a segment of world capital market that is different from the one that provide FDI to the typical Asian economies. In fact, after accounting for the 1997 financial crisis effect, there is no evidence that there is a decline in FDI from developed countries to Asia countries.¹³

The attractiveness of investing in China depends on the rate of returns. If the rate of return from China FDI decreases because of, say, excessive FDI in China, a slowdown in Chinese growth, appreciation in the Chinese currency, or the continued failure of the authorities to rein in corruption, FDI flows to China will slow down.¹⁴ On the other hand, if investment in China yields a return higher than that in other countries, then FDI to China will continue. The bottom line appears to be, according to economic jargon, it is the profitability of capital that determines the destination of capital flows.

More fundamentally, it is probably wrong to view the world economy as one where there is a fixed amount of FDI, waiting to be apportioned between countries. Rather, the amount of FDI depends upon the relative

profitability of investments in the donor versus potential host economies. Some econometric studies have indicated that FDI flows to the region are complements, rather than substitutes (Chantasawat et al., 2003). So, instead of worrying about the threat of diversion of FDI toward China, the economic authorities of the region should be focusing on the policy measures necessary to maintain attractiveness to direct investment.

The prospect of financial integration is another important topic to consider. Given its economic power and underdeveloped financial system, improvement in China's financial sector has substantial positive impacts on its domestic economy and can generate considerable spillover to the international community. As of mid-2006, China still has a closed capital account, a rather inefficient and regulated financial market, and an exchange rate that is virtually pegged to the US dollar. There is little disagreement over the benefits of financial liberalization including a free capital account, a deregulated financial section, and a flexible exchange rate. The question is how and when to implement these policies.

Recent experience suggests that financial liberalization implemented at the wrong time can have serious adverse economic implications. With its economic prominence, the effects of disruptions in China's financial sector would be felt by the world economy. Thus, the international community has to assess the progress in China's domestic financial sector and its integration with the world market. Ideally, one way to avert the risk of integrating its financial sector is to have China to reform and strengthen its financial sector. In addition, China should implement prudential and credible policies regarding financial transactions and exchange rate management before liberalizing its financial sector. The basic idea is to ensure that China has the business culture and the statutory framework to handle the complexity and volatility of international financial activity. Without proper preparation, financial liberalization in China may lead to catastrophic economic crises, with all the attendant hazards and risks that such events pose for the world economy.

That being said, there is some urgency to the development of the requisite institutions and infrastructure. In recent years, large global imbalances have arisen, with the United States drawing in vast amounts of capital, and China in the peculiar position of sending capital abroad. Newly installed Fed Chairman Bernanke (2005) has ascribed a central role to China in this "global saving glut" hypothesis.¹⁵ With burgeoning foreign exchange reserves and a widening bilateral trade imbalance with the United States, the enterprise of integrating China into the global economy is threatened by trade and investment protectionism. And while we believe attributing the US trade deficit solely to Chinese behavior is misguided, we do agree that China's

tendency to export capital only buttresses the case that China needs to devote much greater attention to developing the institutions — legal and otherwise — that will ensure sustained economic growth and prosperity.¹⁶

China's Role in Historical Context

In returning to a historical perspective on China's role in the regional and world economy, we have come full circle. Hopefully, we have conveyed our perspective that, rather than a completely unique event, the re-emergence of the Chinese economy represents a natural progression.

The integration of Japan into the global market economy began the process, as the country most tightly held within the power of the Allied forces. The withdrawal of China from the global economy meant that the economies that had been on the periphery of the global market economy — the newly industrializing economies — were next to develop under the strategic umbrella of the United States.

While the Chinese economy was gradually re-introduced to the global economy during the 1980s and 1990s, roughly at the same time that the economies of South East Asia were becoming the new darlings of the international investment community, China only became an important export platform toward the end of the century. These events should not be viewed as isolated events, but as part of a larger process of developing a new economic nexus, with a center of gravity based in East Asia.

In this context, one should not view the re-emergence of the Chinese economy as a threat, but rather an opportunity that must be carefully managed in order to maximize the benefits to the international community. There is no doubt that China's export performance and attractiveness to foreign investment will have a negative impact upon certain sectors and segments within various economies around the world; but history has demonstrated time and time again that growth and rising prosperity in one country, against a backdrop of a peaceful international relations, can only serve to raise income and living standards elsewhere.

Notes

Chapter 1

- 1 Wen made the remark during an exclusive interview with Reuters on April 28, 2004.
- 2 For example, see Chang et al. (2001), Fernald et al. (1999), Ma (2001), Noland et al. (1998), Poncet (2003), Wang (2001), and Wei et al. (2000).
- 3 On financial/monetary issues, see Cheung, Cheung and Ng (forthcoming), Cheung and Yuen (2002), Cheung, He and Ng (1994), Chinn and Frankel (1994, 1995), De Brouwer (1999), Glick and Hutchison (1990), and Keil et al. (2004). In terms of real exchange rates, see most recently Cheung and Lai (1998), Chinn (2000), Fujii (2002), and Fukuda and Kano (1997). Ha and Fan (2002) and Shellekens (2002) study the interactions of prices in the China and Hong Kong. Cheung and Yuen (2005) and Tsang (2002) examine issues related to currency unions comprising China, Hong Kong and Taiwan. Other studies on intra-China linkages include Cheung, Chinn, and Fujii (2003a, 2005), Sung (1997) and Zhang (2005).

Chapter 2

- 1 See, for example, Maddison (1998, p. 25 and p. 40).
- 2 See Sakakibara and Yamakawa (2003a, b) and the references cited there.
- 3 Officially, the policy change was adopted in the 1978 National Party Congress. See Rosen (1999) and OECD (2005) offer accounts of the open door policy and its implications.
- 4 For example, see Jones, King, and Klein (1992), Das Gupta (1997), International Monetary Fund (2004, Chapter 2), and Prasad (2004).
- 5 See Chow (2002), Cox and Koo (2003) and Maddison (1998). One assumption

- underlying the claim is that China has an average growth rate of 8% while the US has 3%. Chow and Li (2002), for example, forecasted China's economic growth up to 2010. The conclusions also depend crucially on the units of comparison (GDP at market or PPP adjusted terms).
- 6 See, for example, Cabinet Office, Government of Japan (2002, Chapter 3), Hu et al. (2002), and Pritchard (2001).
 - 7 See, for example, Adams, Gangnes and Shachmurove (2004), Eichengreen, Rhee, and Tong (2004), Gaulier, Lemoine, Ünal-Kesenci (2005), Lemoine and Ünal-Kesenci (2002).
 - 8 Cheung (2002) offered an empirical analysis of the Hong Kong output dynamics.
 - 9 The average *per capita* growth rate was lower when measuring output in local currency but it was still much higher than those of, say, Japan and the US.
 - 10 Hu and Khan (1997).
 - 11 Recent studies on inter-provincial growth/income inequality include Aziz and Duenwald (2001), Démurger et al. (2002), Fujita and Hu (2001), Jian et al. (1996), Jones et al. (2003), Pedroni and Yao (2005), and Unel and Zebregs (2006).
 - 12 China's performance in trade is quite spectacular though not unprecedented. See Appendix A for a brief comparison of China and Japan during their respective phases of development.
 - 13 See, for example, Poncet (2002).
 - 14 The trade data in Table 2.6, as those in the other tables, are based on Chinese sources. It is well known trade data from different national sources differ from each other. However, our discussion is not qualitatively affected by these differences.
 - 15 In July 2003, Greater China overtook the US as Korea's largest export destination.
 - 16 United Nations (2003). Interestingly, China only took the number two spot and Luxembourg, somewhat unexpectedly, is the number one FDI recipient. Some studies on FDI to China are Tseng and Zebregs (2002) and Prasad and Wei (2005).
 - 17 The change in the lead of foreign direct investment may be illusive. While the flow to China climbed steadily from 40.8 billion in 2000 to 52.7 billion in 2002, the flow to the US dropped more than 90% from 314 billion in 2000 to 30 billion in 2002.
 - 18 Similar to reservations about the reliability of Chinese official output statistics, there are concerns about the accuracy of Chinese official FDI data. For instance, OECD (2003) shows that the Chinese official data on FDI from OECD countries are larger than those reported by these countries themselves.
 - 19 See, for example, Sung (1997) and Chantasawat et al. (2003, 2004).
 - 20 A more detailed discussion on the source economies of the foreign direct investment flow to China is given in the subsequent chapters.

- 21 Ho and Owen (2005) examine the regional distribution of China FDI.
- 22 Obviously, the ratio of repatriated profit is a not perfect measure of returns on foreign investment — it is affected by the desire to repatriate and the willingness to reinvest. Nonetheless, we use it as a gauge in the absence of a better alternative.
- 23 United Nations (2003, p. 10).
- 24 Wei (2000a).
- 25 Two OECD studies on Chinese overseas investment (Sung, 1996; and Wall, 1997) suggested that China's FDI outflows appear to concentrate in certain economies including Hong Kong.
- 26 See, for example, Eichengreen and Tong (2005), Lin (2002), Liu, Wang and Wei (2001) and Mercereau (2005).
- 27 Macao, a former Portuguese colony that China re-gained sovereignty in 1999, is not a significant capital provider in the world market but is a main source of China's FDI. See, for example, Eichengreen and Tong (2005), Fung, Iizaka and Parker (2002), Fung, Iizaka and Siu (2003) and Fung, Lau and Lee (2004), Hsu and Liu (2004), OECD (2003), and Zhang (2005) on analyses of China FDI from various sources economies.
- 28 As discussed in Chapter 4, there is a technical issue related to whether Hong Kong's investment in China should be labeled as China's foreign investment. Nonetheless, we followed common practices and counted Hong Kong's investment in China as China's FDI. By the same token, we considered Taiwan's investment in China is China's FDI.
- 29 OCED (2005, Chapter 3). Also see Lardy (1998).
- 30 Ma (2006).
- 31 China terminated the multiple exchange rates arrangement and started current account convertibility in 1994. Officially, full current account convertibility was installed in 1996.
- 32 See, for example, Gunter (2004) and Laurenceson and Tang (2006).
- 33 There was also progress along the political front. For example, in 2002 China reached an agreement with the ASEAN countries to alleviate the tension on sovereignty issues over some disputed islands in the South China Sea. China also played an active role in the six-nation (United States, North Korea, China, Russia, Japan and South Korea) meetings over North Korea's nuclear weapons program.
- 34 The Bangkok agreement was signed in July 1975 and is documented in United Nations Economic and Social Commission for Asia and the Pacific (2003). The Framework Agreement is given in Association of Southeast Asian Nations (2002). See, for example, Rajan and Sen (2005) for a discussion of the recent free-trade agreements in Asia.
- 35 Because of the vague objectives enumerated at the inception of APEC, it was described as "four adjectives in search of a noun" by the Australian Foreign Minister of the time, Gareth Evans.

- 36 See, for example, Eichengreen (2001) and Wyplosz (2002) for discussions of these proposals and the related references.
- 37 See, for example, *People's Daily* (2000) and *Asia Times* (2003).
- 38 See, for example, Henning (2002) and Bergsten and Park (2002) for discussions on the Chiang Mai Initiative and the construction of a regional financial arrangement in East Asia.
- 39 See, for example, Eijffinger and Haan (2000) and De Grauwe (2000) for a detailed discussion of the European Union.
- 40 In 2002, China, Japan, and Korea together account 21.56% of the world PPP-based output while the US accounts for 21.10%.
- 41 See Cabinet Office (2002).
- 42 Other recent studies on China-Japan-Korea economic cooperation include Cheung and Yuen (2006), Schott and Goodrich (2001), and Scollay and Gilbert (2001). Cho (2000) offers an historical account of the trade between the three countries and other Southeast Asia countries.
- 43 See National Institute for Research Advancement of Japan (2002).
- 44 See Kim (2003). Between November 1996 and July 2003, 18 of the 23 cases investigated by China are related to Korean products.

Chapter 3

- 1 See Mussa (2000).
- 2 See Bayoumi (1997).
- 3 The discussion on International Monetary Fund related measures is drawn heavily from Appendix 3.1 of International Monetary Fund (2002a).
- 4 See International Monetary Fund (2002a). Obstfeld and Taylor (2004) observed that the degree of international integration was greater by some measures at the end of the 1800s.
- 5 See Lane (1997) and Romer (1993). The gravity model is commonly used to assess trade flows as determined by pre-assigned determinants. Also, see, for example, Kwan and Lai (2005) use the intra-industry trade index, which measures the relative importance of intra- and inter-industry trade to examine China trade data.
- 6 See, for example, Perkins and Syrquin (1989).
- 7 One source of dispute between China and the US is the bilateral trade imbalance. However, this trade deficit is particularly difficult to measure. Appendix D reviews some studies assessing the challenges in measuring the trade balance between China and the US.
- 8 See Lane and Milesi-Ferretti (2001).
- 9 See Chinn and Ito (2002).
- 10 There had also been criticism that the dichotomous measures based on the *AREAER* fail to distinguish between the types of flow that are being restricted.

- In 1997, *AREAER* started publishing the data on disaggregated components of capital controls, with the specification of thirteen categories including, for the first time, a distinction between restrictions on inflows and outflows as well as between different types of capital transactions. See Johnston and Tamarisa (1998) for a descriptive overview and statistical analysis on the disaggregated data of *AREAER*.
- 11 Specifically the unrenumerated reserve requirements (URR), that sought to discourage short-term capital inflows and hence outflows. See Edwards (1998, 1999).
 - 12 See Edwards (2001) and Klein and Olivei (2001). Edison et al. (2002) articulately reviewed and compared different methods of quantifying capital controls.
 - 13 See Mody and Murshid (2002).
 - 14 See Grilli and Milesi-Ferretti (1995).
 - 15 See Edison and Warnock (2003).
 - 16 See Clark and Wincoop (2000) and Wynne and Koo (2000).
 - 17 See Feldstein and Horioka (1980).
 - 18 See Obstfeld and Rogoff (2000).
 - 19 See, for example, Frankel (1992) and Chapter 3 of Obstfeld and Rogoff (1996).
 - 20 In the standard formulation, the correlation of consumption should exceed that of income, which is the opposite of what is observed in the data. However, this conclusion is sensitive to the assumption of a standard utility function. More exotic functional forms could reverse this set of implications. For this reason, we stress the generally low correlations, rather than the fact that the consumption correlation is lower than the income.
 - 21 See Obstfeld and Rogoff (2000).
 - 22 See, for example, Lewis (1996), Chapter 5 of Obstfeld and Rogoff (1996), and Obstfeld and Rogoff (2000).
 - 23 See Attanasio and Davis (1996) and Browning and Lusardi (1996).
 - 24 See Karolyi and Stulz (2002) for a recent review.
 - 25 See Bekaert and Harvey (1995).
 - 26 See Warnock (2002) for a re-interpretation of the data. He concluded that transactions costs are not a substantial factor of home bias.
 - 27 See Engel and Rogers (1996). Some related studies are Cheung and Fujii (forthcoming), Cheung and Lai (2006), Engel and Rogers (2000, 2001a, 2001b), Gorodnichenko, and Tesar (2005), and Parsley and Wei (2001).
 - 28 See Frankel (1991).
 - 29 One might think that it would therefore be better to directly observe the rate of return on capital. However, this is a difficult variable to measure, especially when capital is heterogeneous.
 - 30 If the price is exactly equal, then this condition is termed absolute purchasing power parity. If they are equal up to a constant, then this is termed relative purchasing power parity (in levels). Under relative purchasing power parity, the inflation differential is offset by expected currency depreciation.

- 31 See Summers and Heston (1991).
- 32 See Roll (1979). Frankel (1991), for example, suggests that violation of *ex ante* relative purchasing power parity is associated with incomplete integration of goods markets.

Chapter 4

- 1 Harding (1993) provided a succinct account of the origins and various interpretations of usage of Greater China. Naughton (1997) adopted the term “China circle”. “The Chinese economic area” was used in Jones, King and Klein (1992). Some may have an uneasy feeling with the term “Greater China” due to its similarity with the proposed “Greater East Asia Co-Prosperity Sphere” put forth by Japan during World War II.
- 2 See, for example, Jones, King and Klein (1992), Naughton (1997), Das Gupta (1997), and Maddison, (1998).
- 3 Ha and Fan (2002) and Shellekens et al. (2002) studied the interactions of prices in China and Hong Kong and the deflationary effect on Hong Kong. A more general study on China as the sources of downward pressures on global prices is given by Kanun, Marazzi and Schindler (2004).
- 4 Because of trade restrictions and other political reasons, the official data from China, Taiwan and Hong Kong on trade between China and Taiwan are usually perceived to be incomplete. For instance, the value (in billions of US dollars) of total trade between China and Taiwan was 5.8 in 1991 and 10.5 in 2001, according to Hong Kong customs (re-export) data, 0.6 in 1991 and 10.6 in 2001 according to Taiwanese customs data, and 4.2 in 1991 and 32.4 according to Chinese customs data.
- 5 See The Economist Intelligence Unit (2003, p. 41) and Ma, Zhu and Kwok (2002).
- 6 See General Agreement on Tariffs and Trade (1994) and International Monetary Fund (1995), and an un-circulated internal document.
- 7 See The Hong Kong Census and Statistics Department (2005) press release. Specially, the values of offshore trade in 2002 and 2003 amounted to US\$187 and US\$214 billion, respectively. For volume of re-exports trade (which accounts for more than 90% of Hong Kong exports) was US\$183 billion in 2002 and US\$208 billion in 2003. China and the United States are two main contributors — they combined to account for over one-half of Hong Kong offshore trade. Cheung (2005) offers an empirical analysis of Hong Kong export performance before 2002.
- 8 Apparently, steps have been taken to provide accurate China trade data. For instance, Taiwan authorities, despite its official ban on direct trade with China, have been asking exporters to report the final destination of their shipments, even if it is China.

- 9 Given the trend of the Taiwanese authorities to lift restrictions on imports from China, it is anticipated that there will be an increase of Chinese goods and merchandise in Taiwan and China's trade deficit situation may improve.
- 10 See the Almanac of China's Foreign Economic Relations and Trade, various issues, and the CEIC database.
- 11 See Chiu (2004), Hsu and Lui (2004) and Zhang (2005).
- 12 One early exception is Wei and Frankel (1994), that provides an assessment of whether a Greater China trade bloc exists.
- 13 See, for example, Duo (2002).
- 14 There is a separate question of whether the one-month rate is representative of other short-term interest rates, including the commercial paper and repo rates. Li and Peng (2002) argue that in recent years the segmentation in these short-term instruments has largely disappeared.
- 15 Technically speaking, the sample means of these real interest differential series are not statistically different from zero. This result and some other more technical results are reported in Appendix F.
- 16 The constant associated with, say, the real interest parity deviation, if presence, can be interpreted as a time-invariant difference in the default risk or liquidity attributes of the money market instruments that have been assumed away in the discussion.
- 17 A 1997 crisis dummy was required to make the Hong Kong/China uncovered interest differentials stationary. Hence, the evidence suggested that, after allowing for the 1997 crisis effect, uncovered interest parity in this region holds in the long run.
- 18 An alternative possibility is that authorities in these economies pursued policies to reduce deviations from parities. However, we do not have information to validate this alternative interpretation.
- 19 Because the price data are available for a longer period, the relative purchasing power parity result was based on the sample from 1983 to 2003.
- 20 Note that we are equating real integration with relative purchasing power parity holding. Given the difficulties in comparing widely differing consumption baskets, we do not rely upon the concept of absolute purchasing power parity in levels to measure goods market integration.
- 21 Another caveat is that observed data were used to evaluate the parity conditions, which were derived based on expectation arguments. Thus, a highly variable expectational error can lead to a large variance of the differential series.
- 22 Recall that, for the period of 1996-2003, China and Hong Kong enjoyed a relatively stable exchange rate because both economies effectively pegged their currencies to the US dollar.

Chapter 5

- 1 See Goldstein (2005a, 2005b). See Cheung, Chinn and Fujii (forthcoming) for an alternative view.
- 2 The ASEAN plus 3 countries are Indonesia, Thailand, Singapore, Malaysia, the Philippines, Brunei, Vietnam, Laos, Burma, and Cambodia, plus China, Japan, and South Korea.
- 3 The Chiang Mai Initiative is a regional financing network introduced by the ASEAN Plus Three countries in May 2002. Technically, the initiative is an expansion of the ASEAN swap arrangement to include the three newcomers.
- 4 For instance, see the studies by Bayoumi and Mauro (1999), Eichengreen and Bayoumi (1999), Lee, Park and Shin (2002), McKinnon and Schnabl (2003), Ng (2002), and Tsang (2002). Rajan and Sen (2005) offered an useful discussion of the recent free-trade agreements in Asia.
- 5 Mundell (1961) and McKinnon (1963) are two of the pioneering studies in optimal currency areas. Mundell (1973) offered a view that is different from Mundell (1961). See McKinnon (2001) for a discussion of these two different Mundell views on optimal currency areas. Recent surveys on the subject include Lafrance and St-Amant (1999) and Mongelli (2002).
- 6 See, for example, Bayoumi and Eichengreen (1994), Bayoumi and Mauro (1999), Cheung and Yuen (2005, 2006), Eichengreen and Bayoumi (1999), McKinnon and Schnabl (2003), Schott and Goodrich (2001), and Scollay and Gilbert (2001).
- 7 The macro model and the resulting output loss function are derived in Appendix G. See Ghosh and Wolf (1994) for a detailed discussion of the model, interpretations, and caveats.
- 8 The Hodrick-Prescott filter is an algorithm commonly used to derive the permanent and transitory components of an output series and is available in standard econometric packages.
- 9 In her recent study, Harrison (2002) provided labor share estimates for a large number of economies. We adopted her 1993–1996 labor share figures and assumed China is a member of Harrison's "bottom-middle" income group, and Hong Kong and Taiwan are members of the "upper middle" income group.
- 10 For instance, incentives similar to the China–Hong Kong Closer Economic Partnership Arrangement that offers an early access of the huge Chinese market can provide a strong incentive for Hong Kong to join a Greater China currency union.
- 11 Cheung and Yuen (2005, 2006), for example, showed that use of a vector error correction model of the Blanchard and Quah (1989) method may lead to different choices of a preferred currency union shock.
- 12 See, for example, Corsetti and Pesenti (2002), Fränkel and Rose (1998) and Engel and Rose (2002).

Chapter 6

- 1 For instance, the issue of a single currency for East Asia was discussed in the 37th Annual Meeting of the Asian Development Bank recently (2004) held in Jeju, Korea.
- 2 Japan and Korea started the free trade arrangement discussion in 1998. The talk is at standstill as of 2006. One complication is on the opening of agriculture markets. Some observers believed that Japan's relationships with some East Asian countries are strained because of Japan's interpretation of history — especially, the role of Japan during the two World War periods and the Japanese Prime Minister Junichiro Koizumi's repeated visits to the war-related Yasukuni Shrine.
- 3 See, for example, Kuroda (2003) and Ito (2003).
- 4 See, for example, discussions in the 37th Asian Development Bank Annual Meeting in Jeju, Korea and Bank for International Settlements (2006).
- 5 See Ramo (2004) for a brief summary. The large hoard of foreign exchange reserves allows consideration policy flexibility including, for example, the injection of capital to the non-performing loans loaded banking sector and the finance of developing the western region.
- 6 There are reasons why this combination of expansionary fiscal and monetary policy was adopted. First and foremost was the desire to stave off the contractionary impact of the East Asian financial crisis, and relatedly, to spur growth sufficient to absorb the flow of labor into the urban sector. The urgency of this mission was heightened by restructuring of the state owned enterprise sector that added to the pool of unemployed.
- 7 See Bradsher (2004), Kynge (2004), and Setser (2006) for recent accounts.
- 8 While we believe the capital controls have been somewhat effective in preventing wholesale capital flight, it is less clear how much the financial inflows have been impeded. For instance, one can see the vast surge in capital inflows in 2002–2003 arose because of the convergence in US and Chinese interest rates, as US interest rates fell. Gunter (2004) and Laurenceson and Tang (2006), for example, suggested that the China *de facto* capital mobility is quite high.
- 9 In July 2005, the Chinese authorities announced a long-anticipated revision to their exchange rate regime. The move was warmly, albeit cautiously, welcomed. The wariness arises from the uncertainty surrounding the exact nature of the new exchange rate regime, and how rapidly the Chinese authorities are willing to allow Renminbi to rise in value. In most occasions, China stated that full exchange rate flexibility is a per-determined long-term policy objective but China will determine its own pace towards full flexibility.
- 10 For instance, one possible reason for South Korea's reluctance to conclude a free trade agreement with China is the concern about the possible adverse impacts of such an agreement with a fast growing manufacturing counterpart on domestic industries (Choi, 2006).

- 11 An exception to this statement pertains to international textile trade, which was managed under the Multi-fibre Arrangement until the end of 2004.
- 12 The deflationary effect of Chinese exports, in a world characterized by floating rates, was always in doubt. In particular, the effect on Japan was always viewed unlikely, given the fact that the yuan was not pegged against the yen. On the impact on the United States and world economies, see Kamin et al. (2004). They found that there was little evidence of a substantial impact. Admittedly, if the Chinese economy were to enter a slump, then excess capacity in sectors such as steel could again put downward pressure on certain sectoral prices.
- 13 See Chantasawat *et al.* (2004). They find that levels of FDI to East Asian and Southeast Asian countries have not declined, while shares have.
- 14 Wei (2000b) suggests that China underperforms with respect to FDI, given the market size, and other characteristics. He attributes this phenomenon to corruption.
- 15 See Dooley, Folkerts-Landau and Garber (2003, 2004) for an alternative viewpoint.
- 16 See Chinn and Ito (2005) for a quantitative assessment of how much these institutional factors matter.

Appendices

- 1 Statistics Bureau, Government of Japan (2003).
- 2 Ibid.
- 3 The Japan PPP-based GDP data were taken from the Penn World Table.
- 4 New York Times (2004).
- 5 See Faust, Rogers and Wright (2000) for output revisions in the G-7 countries.
- 6 See Rawski (2001, 2002).
- 7 Wang and Meng (2001).
- 8 Ibid.
- 9 See Heston (2001).
- 10 Klein and Ozmucur (2003).
- 11 The ICP was a joint venture of the United Nations and Comparisons Unit of the University of Pennsylvania. Other sources of PPP data are the OECD and PWT 6.
- 12 This list is compiled with the help of a pre-survey, and in the case of the ICP, the whole process takes about 1 year.
- 13 Both the OECD and the ICP use this method to calculate PPPs.
- 14 Sometimes, the Country Product Dummy (CPD) method is also used to calculate unweighted PPPs at the basic heading level.
- 15 The OECD utilizes the SNA (System of National Accounts) to break up their national expenditures.
- 16 World Bank (2003).

- 17 IMF, Direction of Trade Statistics, June 2002.
- 18 Feenstra et al. (1998).
- 19 Ibid.
- 20 Fung and Lau (2001). The same problem occurs on the import-side, since Chinese Customs has only been partially successful in differentiating between goods that are imported from Hong Kong and those that were re-exported from the US via Hong Kong.
- 21 Ibid. The markup charged by the Hong Kong middlemen on US exports to China is about 6%. See also Feenstra and Hanson (2004) for a detailed treatment of Hong Kong's re-exports of Chinese goods.
- 22 Ibid.
- 23 However, there are still other sources for the discrepancies, such as transfer pricing and smuggling, which, unfortunately, cannot be accurately adjusted for (Fung and Lau, 2001; Feenstra et al., 1998).
- 24 We assume that the interest rate instruments are highly liquid and have identical default risk characteristics. Hence, we do not address default risk premia in our discussion.
- 25 We have only incomplete data on forward rates, and do not observe expected exchange rate changes. In Chinn and Frankel (1994), expectations are proxied with survey based data, which are unavailable to us for most currencies under consideration.
- 26 See, for example, Chetung and Lai (2000), Froot and Rogoff (1995), and Rogoff (1996).
- 27 In other words, we are equating the subjective market expectations with the conditional mathematical expectations, viz., $x'_{i,t} = E(x_{i,t} | I_t)$, in a steady state such that $x_{i,t} - E(x_{i,t} | I_t) = \xi_{i,t}$ where $\xi_{i,t}$ is a true innovation.
- 28 There is a subtlety involved in using parity conditions to evaluate integration. When a parity condition is rejected, then enlargements and diminutions of deviations may be due either to greater economic integration, greater convergence of economic policies, or both.
- 29 The year 2003 is excluded because we have only 6 observations for that year.