Countering contagion: Does China's experience offer a blueprint?

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Introduction and summary

China did not succumb to the Asian crisis of 1997–99. In this article, we discuss why China was not swept into the crisis despite two potential sources of vulnerability, a weak financial sector and increased export competition from the Asian crisis countries. Next, we discuss the role strong external accounts and capital controls played in countering contagion. We conclude by outlining the continuing risks to China's outlook, in an attempt to assess whether China is likely to avoid future crises.

Table 1 shows China's relatively strong growth performance throughout the crisis. As shown in column 1, China's real gross domestic product (GDP) grew nearly 8 percent in 1998, a year in which the median real GDP contraction among economies in the region was 6 percent.[1] China's slowdown in growth during 1999, shown in the second column, was modest. Another indicator of China's stability amidst the Asian crisis was its success at maintaining the peg between the Chinese renminbi and the U.S. dollar.[2]

China's ability to counter contagion was very much in doubt almost from the onset of the crisis, with the question "Is China next?" being actively debated.[3] Many observers pointed to financial sector vulnerabilities as the most likely reason for the crisis to spread to China. It was generally accepted that problems with China's financial system were far worse than in other regional economies (see, for example, Lardy, 1998a, 1998b). In addition, as indicated by the third column of table 1, China's banking system was similar in size to that in the rest of Asia. In particular, the median ratio of bank loans relative to GDP was 93 percent in Malaysia, almost identical to the ratio in China.

Nevertheless, despite the large banking system and prevalence of bad loans and other institutional weaknesses, China avoided a crisis during 1997–99. Why was this the case? We argue that the reason is the absence of a "credit culture" in China. In a market-oriented system, pressures generally force rapid adjustment when institutions are, or are perceived to be, insolvent; these mechanisms do not operate fully in China. For example, banks can continue to operate regardless of balance-sheet weaknesses, because of the government's support.

A second source of vulnerability for China that was commonly mentioned was through increased export competition as a result of the sharp real depreciations of the currencies of the Asian crisis countries. However, this channel of contagion also did not prove to be very strong. The reason, in our view, is that the trade relationship between China and other Asian economies is far less adversarial than is generally assumed. Chinese exports were affected by the reduced income of Asian economies, but much less so by the relative price effects from the depreciations of other currencies. We present evidence, based on an estimation of aggregate trade equations for Asian economies, that a modest impact on China from the depreciations elsewhere in Asia is what one should have expected. By contrast, the robustness of industrial country growth over the crisis period (excluding Japan, of course) continued to anchor Chinese export growth. We also

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TABLE 1

China and other Asian economies: Selected indicators (percent)

	Real GDP growth, 1998	Real GDP growth, 1999	Bank loans/ GDP, 1996	Current account/ GDP, 1996	Total debt/ reserves, 1966	Short-term BIS bank claims/ reserves, 1996
China	7.8	7.1	92.7	0.9	130.5	25.1
Hong Kong	–5.4	3.6	162.4	–1.7	—	—
Indonesia	–13.1	0.8	55.4	–3.4	607.0	187.6
Korea	–6.5	10.9	61.5	–4.4	420.4	198.3
Malaysia	–7.3	5.7	93.4	–4.4	137.4	41.4
Philippines	–0.6	3.4	49.0	–5.4	414.7	77.1
Singapore	0.5	5.7	96.0	15.2	—	—
Taiwan	4.6	5.4	143.7	3.9	31.1	21.4
Thailand	–10.9	4.3	100.5	–7.9	322.9	121.1

Notes: The first two columns show year-over-year growth rates for 1998 and 1999. The remaining columns show indicators for 1996, and hence are not affected by the crisis itself. Debt figures for offshore banking centers (Hong Kong and Singapore) are not shown, as they are not comparable with data from other economies due to the large size of external claims and liabilities.

Sources: All GDP figures are taken from IMF *International Financial Statistics*. Bank loans data and data for foreign exchange reserves are also from IMF *International Financial Statistics*. Current account data are from FRB INTL databases. Total debt figures and short-term BIS bank claims data are from the joint BIS-IMF-OECD-World Bank *Statistics on External Debt*.

present evidence from disaggregated export data that the crisis did little to disrupt ongoing changes in China's market share in different product markets and regions.

In contrast to these two sources of vulnerability, China's external accounts looked favorable compared with the rest of Asia, as shown by columns 4 to 6 of table 1. China runs current account surpluses (about 1 percent of GDP in 1996, but closer to 3 percent in 1997 and 1998), and its total debt relative to reserves was lower than in most Asian economies. Measures of short-term debt relative to reserves looked particularly favorable for China, as shown by column 6.[4] Hence, the mainstream view was that the strength of China's external fundamentals could preclude a financial "panic" or "country run" as investors sought to pull funds out of an economy, akin to a self-fulfilling bank run.[5]

Furthermore, some argued that China's capital controls would prevent a destabilizing speculative attack on the Chinese renminbi. We share the view that external sector strength helped to counter contagion. However, we make a somewhat different argument for the potential role of China's capital controls in contributing to stability: Regardless of their other (often adverse) effects, capital controls prevented Chinese financial institutions from borrowing excessively abroad and, hence, helped keep the external fundamentals strong. In the following two sections, we spell out in greater detail our arguments for why financial sector weaknesses and increased trade competition were not as damaging to China as expected. Next, we discuss the role of external sector strength and capital controls in China's ability to avoid a crisis. Then, we provide evidence on an increased "country risk" premium for China since the crisis and discuss risks facing China over the next few years.

China's financial sector

Understanding China's resilience requires some understanding of why the crisis was so virulent elsewhere. Although the underlying cause or causes remain controversial,[6] explanations tend to fall into one of two broad categories: 1) weak fundamentals in the affected economies, or 2) a self-fulfilling financial panic (also known as multiple equilibria). In this section—and the two that follow—we argue that neither explanation would point to an imminent crisis in China. In a market-oriented system, pressures generally force rapid adjustment when institutions are, or are perceived to be, insolvent; these mechanisms do not operate fully in China. Hence, despite serious fundamental weaknesses in Chinese enterprises and financial institutions, a crisis need not develop.

Perhaps the most common view is that the Asian crisis reflected fundamental macroeconomic and microeconomic weaknesses in the most affected economies. Externally, large short-term external borrowing—especially when used to finance current account deficits—left the economies vulnerable to capital flow reversals. Domestically, inadequately supervised and

capitalized banks made excessively risky loans to poorly governed firms.[7] The story is typically some variant of the following (the emphasis differs across analysts, and not all aspects of the story are relevant for every economy in Asia). Widespread moral hazard existed because financial institutions were poorly regulated and companies had little accountability to shareholders. As a result, corporations borrowed heavily to invest in risky projects, financed by loans from banks that, in turn, borrowed excessively (and unhedged) from abroad. At the same time, foreign creditors were willing to lend large amounts to banks and corporations in these economies: The region had a strong track record for economic performance, and the borrowers were often state-owned banks and corporations which, the lenders thought, had implicit or explicit sovereign guarantees. Hence, risky investments were financed through excessive leverage, and especially through excessive short-term, unhedged external borrowing.

These fundamental weaknesses left economies vulnerable to crisis from several directions. First, consider external pressures. The large short-term external borrowing—especially when used to finance current account deficits—left the economies dependent on sustained short-term capital flows. If these flows slowed or reversed for any reason (for example, because of changes in monetary policy in industrial countries, changes in perceptions of the riskiness of these loans, or a "run" on the country), then the economy and the currency were vulnerable. Reversal of inflows contributed to slower growth of the real economy as a result of the need to reduce current account deficits; the reversal also contributed to downward pressure on the exchange rate peg, which might prove to be unsustainable. A substantial depreciation, in turn, weakened banking systems because of the unhedged currency exposure.

Second, consider domestic forces. Poor supervision of banks, particularly those with inadequate capital, led to excessively risky bank lending. If the risks turn out badly, then banks might find themselves without enough capital to make new loans, or even insolvent. In addition, excessive leverage by corporations meant that if risky or speculative projects (office buildings and other real estate investments, say, or a high-tech semiconductor factory) did not pay off, then firms might not have sufficient cash flow to pay workers and suppliers, let alone to repay their creditors. If they could not repay loans, then bad loans in the banking sector again would contribute to a banking crisis.

Are these considerations relevant for China? The external considerations are probably not of great concern to China, since its external debt is relatively small in proportion to GDP. As noted earlier, China's short-term external bank debt relative to reserves is among the lowest in Asia. We return to these external considerations in the next section when we consider speculative attacks and the role of capital controls in China.

Domestically, however, it is often argued that China looks very similar to some of the frontline crisis economies, with poorly regulated banks making policy loans to inefficient, over-leveraged state enterprises.[8] China's central bank, the People's Bank of China, has undertaken a widely publicized campaign to improve financial supervision and the operations of the banking system. In the meantime, however, Chinese banks continue to operate with an enormous overhang of bad loans. In May 2001, for example, the Bank of China (one of China's largest state banks) announced that nearly 30 percent of its loan book was nonperforming, even after a large chunk of nonperforming loans had been transferred to an asset management company. Western observers generally estimate that the proportion of nonperforming loans in the banking system as a whole may be even higher.

In most Asian economies, policymakers' post-crisis concern with banking-sector health reflects not only long-run concerns about the allocation of capital, but also short-run concerns. In particular, poor bank health can lead to a "credit crunch," as banks reduce lending even to viable nonfinancial firms. This credit crunch exacerbates the real effects of the crisis. For example, banks may lose the funding base (deposits) with which to make loans; and even if they have the funding, they may not have adequate capital to make loans. In addition, creditors (depositors and foreign lenders) may lose confidence in financial institutions, leading to fund withdrawals or even bank runs.

These short-term concerns are probably not relevant for China: Banks can and will continue to lend even if loans go bad. That is, it is unlikely that in order to restore their "profitability," Chinese banks will be forced to cut back on other loans. First, it is fairly clear that the Chinese government continues to guarantee bank deposits—which are, after all, primarily held in state banks. Hence, depositors continue to have faith in the banking system, and the deposit base remains sound. Second, if a severe credit crunch begins to impinge on the real economy, Chinese authorities can in essence order the banks to lend. In the first quarter of 1998, for example, bank loans grew particularly slowly amid reports that banks were concerned about loan quality and amid reports of a credit crunch; in the second half of the year, loans grew very quickly amid

reports of new loans to state enterprises in order to maintain growth. In other words, despite substantial moves in recent years to make the banking system more competitive and commercially oriented, neither the Chinese authorities nor anyone else believes the banking system is fully commercially oriented or operates independently from the government. Hence, Chinese banks can continue to operate even with substantially negative net worth.

Trade linkages between China and the Asian crisis economies

From the onset of the crisis, fears kept surfacing in the financial press that devaluations of the Asian crisis currencies would have a substantial adverse impact on Chinese exports and, therefore, ultimately trigger a Chinese devaluation. Often, the impression given was that China was locked in mortal combat for market share with other Asian economies. However, the evidence to support such an adversarial view of trade linkages between China and the other Asian economies is hard to come by.

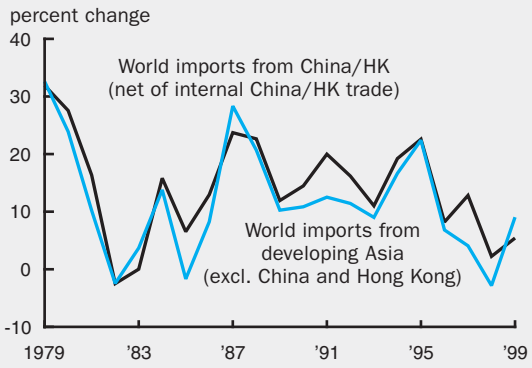
In this section, we present evidence that, over the last 20 years, changes in real exchange rates have not been the primary determinant of export growth for the major Asian exporters. Instead, the most important determinant has been demand from major trading partners (mostly the industrialized countries, particularly the United States). Industrial country demand and the effects of structural changes are likely to have outweighed exchange rate fluctuations as determinants of China's export growth.[9]

Figure 1 shows strikingly that exports by China and by other Asian economies tend to move together. The figure shows export growth (measured in dollar values) to the world from China (including Hong Kong) and from the rest of developing Asia. Both panels use trading partner statistics. Fernald (1999) argues that it makes economic sense to combine data for China and Hong Kong even in the period preceding formal unification, since many goods use Chinese labor and Hong Kong management and distribution skills. It makes statistical sense to use trading-partner statistics to avoid double-counting Chinese and Hong Kong exports.[10]

The similarity in export growth between China and other Asian economies suggests that common factors—such as growth in developed economies, movements in the world price of key exports such as semiconductors, and movements in the yen–dollar rate—were probably more important determinants of Asian exports than competition with China. Discussions of China's export performance tend to

FIGURE 1

Exports from greater China and developing Asia



Note: Exports are measured by trading partner imports.
Source: IMF, *Direction of Trade Statistics*.

emphasize factors peculiar to China, such as economic reform initiatives, rapid investment, or tax incentives. However, these discussions appear to miss the prevalence of common shocks.

A closer look at the changes in Asian export growth also does little to support the adversarial view of trade linkages. Consider the U.S. market for these countries' exports. In 1989, China accounted for about one-tenth of total exports to the United States from the major Asian exporters (excluding Japan). By 1993, China's share had risen to one-quarter of all exports from these countries. However, contrary to popular perceptions, this gain in "market share" did not come about at the expense of the labor-intensive so-called ASEAN-4 economies (comprising four major economies of the Association of Southeast Asian Nations, Indonesia, Malaysia, the Philippines, and Thailand). Instead, China displaced the newly industrialized economies (NIEs—Korea, Singapore, and Taiwan) in industries—such as apparel, footwear and household products—that these more advanced economies were relinquishing. This is a healthy, rather than disturbing, development. It mimics an earlier period, when the NIEs moved into the industries relinquished by a more advanced Japan.

Even over the more recent period, 1994 to 2000, we have seen virtual stability in export shares of the three Asian groups (China, the NIEs, and the ASEAN-4), both at the aggregate level and in key industries. This stability of export shares holds in the United States, Japan, and many major European markets. To the extent that there have been small gains in China's export shares, these have continued to come largely by displacing the NIEs. The significant real

depreciations of the currencies of the Asian crisis economies have not had the dramatic impact on market shares that we would have expected if exchange rate movements were a strong factor behind export growth.

Next, we substantiate these arguments, beginning with a look at the disaggregated export data and then presenting estimates of aggregate trade equations.

Export competition in particular markets and industries

For this analysis,[11] we classified the Asian economies we consider into one of three groups: 1) China (China and Hong Kong), 2) the NIEs (Korea, Singapore, and Taiwan), and 3) the ASEAN-4 (Indonesia, Malaysia, the Philippines, and Thailand).

We begin by examining the export performance of these three groups in different geographical regions and industries for evidence of "export competition," defined as "shifts in market share" across the three groups.[12] In particular, we want to see if China's market share has increased markedly in a particular region or industry.[13]

Competition in the U.S. market

Our analysis is based on three-digit industry level data published by the U.S. Department of Commerce's Bureau of Economic Analysis (BEA). The numbers in table 2 provide the "market shares" of the three groups in the U.S. market in 1989, 1993, and 1996–2000. The total exports of these economies to the United States have been scaled up so that they add up to 100. As shown in column 1 of table 2, in 1989 China and Hong Kong together accounted for about one-quarter of total exports to the United States from the three groups. By 1993, China's share had increased to one-third. Mainland China alone nearly doubled its share of the U.S. market, helped perhaps by the real depreciation of the renminbi over this period. The ASEAN-4 group also increased its market share, but by a smaller magnitude than that for mainland China. Correspondingly, the NIEs' share of the U.S. market fell from 59 percent to 44 percent. There is, therefore, some evidence of "competition"—shifts in market share—among the three groups over the period 1989 to 1993. By contrast, the period between 1993 and 1997 is far more tranquil. The shares of China and the ASEAN-4 inch up over this period at the expense of the NIEs.

The Asian crisis, and the associated sharp real depreciations in the currencies of many Asian economies, did not lead to any dramatic changes in market shares: The relative stability that characterized the period 1993 to 1997 continued through 2000.

It may be argued that the evidence presented in table 2, which was for an aggregate of all industries, masks changes in market shares in particular industries. Our analysis of data for the 48 industries that make up the aggregate shows that is not the case. In table 3, we show examples of our analysis for two

TABLE 2

Export shares of selected Asian economies in the U.S. market

Economy	1989	1993	1996	1997	1998	1999	2000
China	**24**	**33**	**34**	**37**	**39**	**40**	**40**
China	13	25	29	32	34	35	36
HK	11	8	5	5	5	5	4
NIEs	**59**	**44**	**41**	**38**	**36**	**36**	**36**
Korea	22	14	13	12	11	13	14
Singapore	10	10	11	10	9	8	7
Taiwan	27	20	17	16	16	15	15
ASEAN-4	**17**	**23**	**25**	**25**	**25**	**24**	**24**
Indonesia	4	4	5	5	4	4	4
Malaysia	5	8	10	9	9	9	9
Philippines	3	4	4	5	6	5	5
Thailand	5	7	6	6	6	6	6
Total (China + NIEs + ASEAN-4)	**100**	**100**	**100**	**100**	**100**	**100**	**100**
Total (US$ billions)	90	126	180	199	211	234	276

Source: U.S. Department of Commerce, Bureau of Economic Analysis.

key industries, industry 213 (computers, peripherals, and semiconductors) and industry 400 (apparel, footwear, and household products).

For industry 213 (table 3, panel A), mainland China's market share rose from essentially zero in 1989 to 7 percent in 1997; however, over half of this increase appears to have come at the expense of Hong Kong. When the two are combined, their market share increases only slightly over the period. The share of the ASEAN-4 increases somewhat more substantially, with a corresponding fall in the share of the NIEs. In the period since the onset of the Asian financial crisis, both China and the ASEAN-4 have continued to gain market share at the expense of the NIEs.

The story in the case of industry 400 is a bit different (table 3, panel B). Here, China does experience a big increase in market share between 1989 and 1997, from 36 percent to 62 percent, with the bulk of this increase occurring between 1989 and 1993. The share of the ASEAN-4 also increased over the period, with the change being more substantial in the earlier part of the period than the latter. Since the onset of the crisis, there has been virtual constancy in market shares.

In summary, our analysis of competition in the U.S. market leads to three conclusions:[14]

- Over the period 1989 to 1993, China did gain market share in many markets. In contrast, the period 1993 to 1997 is characterized by relative stability in market shares across the three groups.
- China's gains have come largely at the expense of the NIEs rather than the ASEAN-4.
- The Asian crisis has not led to any dramatic changes in market shares across the three groups.

Aggregate export equations

We also estimated standard aggregate export equations for the nine Asian economies, that is, equations expressing real export growth as a function of real income growth of the major trading partners and real exchange rate changes. The estimates show the dominance of income effects over relative price effects. This suggests that Chinese export growth should not have been expected to slow dramatically as long as overall growth among its trading partners remained robust, despite the price effects from the depreciations of the Asian crisis currencies.

The data used in the estimation are annual, and extend from 1973 to 1996. To obtain sufficient degrees of freedom, we pool the data for all economies and run a *panel vector autoregression* (VAR) with three variables: real export growth, real income growth among major trading partners, and real exchange rate growth. We include country fixed effects in all regressions. We also conducted a test of whether China could be pooled with the other economies and could not reject the hypothesis that it could.

Since our sample period has been characterized by many structural changes (for example, the "opening up" of China's economy) and changes in exchange rate regimes, there may be concern that the parameters of the export equations may not be stable over time. We reestimated the equation over two subsample periods, 1973 to 1985 and 1986 to 1996, and found the conclusions to be fairly similar to those for the full sample period.

Figure 2 shows the estimated response of export growth to standard-sized (one standard deviation) increases in each of the three sources of shocks in the panel VAR, going out four years after the shock.[15] As expected, an increase in income growth among trading partners leads to an increase in a "representative" Asian economy's export growth. There is a strong contemporaneous, and statistically significant, impact, which dissipates over the next few years. A depreciation in the currencies of major trading partners has the predicted adverse impact on export growth in the representative economy; however, the impact is weak. Table 4 presents the variance decomposition of real export growth. As shown, income effects account for a much larger percentage of the variance than relative price effects. For instance, at the one-year horizon, income growth accounts for 20 percent of the variance, compared with 2 percent for real exchange rate changes. (Not surprisingly, shocks to exports themselves show the largest dynamic response in figure 2 and account for the largest share of the variance.)

In sum, since in the case of China, overall demand remained high (with strength in the United States and Europe countering weakness among Asian partners), export growth remained quite robust despite the drag from the depreciation of many Asian currencies.

External sector strength and capital controls

One view of the Asian crisis, most clearly associated with Sachs and Radalet (1998), is that the Asian crisis reflects financial panic, akin to self-fulfilling bank runs on the affected economies. However, China's external fundamentals were more favorable than in most Asian economies, making it plausible that China would not have been subject to such a run. At the end of 1998, China had about $150 billion in total reserves less gold. This compared with gross nominal external debt of $146 billion at the end of 1998, of which less than $32 billion was short-term debt to foreign banks. Given China's reserves, its sizable external debt remained manageable.

TABLE 3

Export shares for Asian economies in the U.S. market, selected industries

A. Industry 213 (computers, peripherals, and semiconductors)

Economy	1989	1993	1996	1997	1998	1999	2000
China	**7**	**7**	**8**	**10**	**12**	**14**	**15**
China	0	3	5	7	9	12	13
HK	7	4	3	3	2	2	2
NIEs	**72**	**68**	**65**	**60**	**55**	**53**	**52**
Korea	21	16	18	16	13	17	18
Singapore	31	29	28	24	22	18	16
Taiwan	20	23	19	20	20	18	18
ASEAN-4	**21**	**25**	**27**	**29**	**33**	**33**	**33**
Indonesia	0	0	1	1	1	1	1
Malaysia	12	15	15	15	16	17	17
Philippines	5	6	5	8	10	10	10
Thailand	4	4	6	5	6	5	5
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**

B. Industry 400 (apparel, footwear, and household products)

Economy	1989	1993	1996	1997	1998	1999	2000
China	**36**	**55**	**60**	**62**	**62**	**63**	**64**
China	18	41	47	50	49	51	52
HK	18	14	13	12	13	12	12
NIEs	**52**	**26**	**17**	**15**	**15**	**15**	**15**
Korea	27	13	7	6	7	7	7
Singapore	3	2	1	1	1	1	1
Taiwan	22	11	9	8	7	7	7
ASEAN-4	**12**	**19**	**23**	**23**	**23**	**22**	**21**
Indonesia	3	6	8	8	8	8	8
Malaysia	2	3	4	4	4	3	2
Philippines	3	5	5	5	5	5	5
Thailand	4	5	6	6	6	6	6
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**

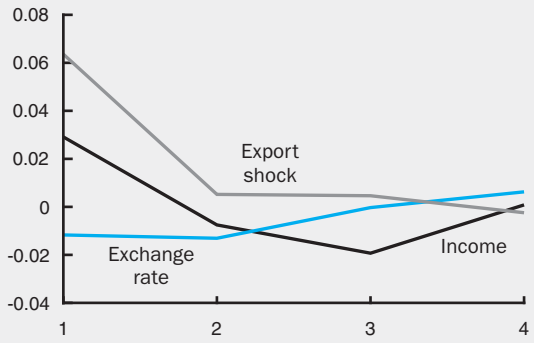
Source: U.S. Department of Commerce, Bureau of Economic Analysis.

China is often cited as an example of a country using capital controls successfully and avoiding a destabilizing currency attack.[16] China's controls take various forms, including restrictions on foreign borrowing by Chinese entities, restrictions on portfolio outflows by Chinese citizens and inflows by foreigners, and a ban on futures trading in the renminbi. (Note that a major reversal in capital flows—an apparent panic—need not reflect a situation of multiple equilibria. It may reflect an informational revelation: The fundamentals of these economies are in bad shape.)

As already noted, China does not have a market-oriented financial system; the government uses controls of various sorts, including capital controls, to limit the ability of market forces to operate.[17] Because of their role in China's repressed financial system, capital controls probably did play a role in limiting China's vulnerability. Without capital controls, for example, it seems likely that many investors would have tried to invest abroad for precautionary reasons, removing resources from the state banks.[18] In addition, without a freely accessible onshore futures market,[19]

FIGURE 2

Impulse responses of exports to various shocks



Note: Lines show responses over time of Chinese exports to shocks to income of their trading partner, their trade-weighted real exchange rate, and exports themselves.

it is difficult to speculate against the future value of the renminbi, and controls on outflows make it harder for Chinese investors to convert their renminbi if they expect the currency to weaken.

But China's financial system is not a system that other countries would want to emulate in order to avoid crisis. Just as a tourniquet on a bleeding arm is no substitute for proper medical care, controls—even if they have contributed to China's stability—have serious costs. First, controls are often leaky. They may work well enough to prevent financial crisis for a time, but people always have an incentive to find ways around the rules. Moreover, this evasion potentially contributes to further problems in the form of corruption and fraud, such as capital flight through underreporting exports or overreporting imports. Second, the controls may work too well, placing unacceptable limits on a country's opportunities for growth and prosperity. For example, Eichengreen (1999, p. 6) points out that "North Korea's financial system is immune from crises because it is subject to such draconian controls." However, these harsh controls also help explain the country's extreme poverty.

Fortunately for China, as noted earlier, capital and other controls are not the whole story behind its resilience. China's financial system may be weak, but many of the economy's fundamentals look far stronger than in the front-line crisis economies. In particular, China has relatively low external debt relative to GDP, large foreign-exchange reserves, a current-account surplus, and continuing sizable inflows of foreign direct investment (FDI). And much of the non-state sector remains vibrant.

Nevertheless, there is an indirect channel by which capital controls could well have contributed to financial stability, by helping to keep China's fundamentals strong. Chinese financial institutions suffer moral hazard problems that are at least as severe as those in other countries: Financial institutions are inadequately regulated and supervised, and they bear little responsibility for losses. Had they been allowed full access to international capital markets, they would have sought to borrow far more from abroad than was optimal from a social perspective. (Until the October 1998 default of the Guangdong International Trust and Investment Corp., foreign lenders generally considered Chinese borrowers to have implicit or explicit guarantees from the state and were therefore willing to lend large amounts at favorable rates.) Thus, regardless of their other effects, capital controls could have helped keep China's external fundamentals sound, thereby helping to ward off the worst aspects of the crisis.

Risks to China

That China successfully dodged the bullet is not to say that foreign financial market participants were unconcerned about China's vulnerability during the crisis. In the first part of this section, we assess indicators of foreign perceptions of China. The evidence suggests that the risk premium attached to China by foreign investors did indeed increase during the crisis. Since then, China's risk premium appears to have returned to near pre-crisis levels, partly reflecting the Chinese government's efforts to step up the pace of structural reforms. In the second part of this section, we present some conjectures on the outlook for China. Several measures showed an increased China risk premium during 1997 and 1998.

Stock prices

The top panel of figure 3 shows stock indices in Shanghai and Hong Kong.[20] After stock exchanges opened in Shanghai and Shenzhen in the early 1990s, China maintained separate classes of shares for domestic residents (so-called A shares) and foreigners (B or H shares). Foreigners could not buy the domestic-only shares; domestic residents could neither purchase the foreign-only shares, nor, given China's capital

TABLE 4

Variance decomposition of Asian export growth

Step	Income	Exchange	Exports rate
1	20	2	78
2	20	5	75
3	25	5	70

account restrictions, generally invest legally in assets abroad.[21] The Shanghai foreign shares have sometimes tracked the domestic shares, sometimes Hong Kong's Hang Seng index, and sometimes neither. From late 1996 until October 1997, the foreign and domestic Shanghai shares (the black and gray lines) generally tended to move together. (Although not shown, domestic and foreign share prices in Shenzhen generally move similarly to their counterparts in Shanghai.)

Following sharp declines in the Hong Kong stock market in October 1997, Shanghai foreign share prices followed the Hang Seng down. Indeed, in the second half of 1998, Shanghai foreign shares underperformed relative to the Hang Seng. Domestic share prices, by contrast, remained largely unaffected by the crisis and, as of early 1999, were close to their October 1997 levels. Since the dividend stream is the same for the foreign and domestic classes of shares, the most plausible interpretation for the divergence is an increase in the return required by foreign investors. This increase in returns could reflect an increase in the risk-free real rate, an increase in the risk premium, or both.

An even more striking way to see this divergence is to look at the average relative price paid by foreigners in the three markets, shown in the bottom panel of figure 3. Although at times there have been wide differences across markets—for example, Hong Kong shares in 1994 and 1995 traded near parity—by mid-1998, foreigners in all three markets typically paid less than *one-fifth* the price paid by Chinese residents for the corresponding share. Thus, China is unlike most markets with investment restrictions, where foreigners typically pay a premium.

The most plausible reason for the pricing difference is that Chinese investors have lower required rates of return, reflecting their lack of access to alternative investments. Their main alternative is bank deposits, since financial markets remain poorly developed, and Chinese capital controls make it difficult to invest overseas. Bank deposits tend to pay interest rates below world levels. In addition, Chinese investors may have a low equity premium because stocks offer one of the few opportunities available to diversify their investments.

As noted earlier, the Asian financial crisis appeared to raise the risk premium demanded by foreign investors. Fernald and Rogers (2001) estimate how much required returns must have widened, given data on earnings–price ratios (the inverse of typically quoted price–earnings ratios) and dividend–payout ratios in China. In particular, they calibrate the standard Gordon (1962) pricing formula, which says that $P = D/(r - g)$, where P is the price, D is the current dividend, r is the investor's expected return, and g is the growth rate of dividends. Everything except r is the same for foreign and domestic investors.

Fernald and Rogers rearrange this formula to show that the difference in expected returns is:

$$r_{Foreign} - r_{Domestic} = \left(\frac{D}{E}\right)\left[\left(\frac{E}{P}\right)_{Foreign} - \left(\frac{E}{P}\right)_{Domestic}\right].$$

The dividend-payout rate D/E for listed stocks averaged about 0.5 from 1993 to 1997. The 1997 peak in relative prices was around one-half (larger in Hong Kong, smaller in Shanghai). With earnings–price ratios of about 0.05 for foreign shares and 0.025 for domestic shares, this equation implies that

FIGURE 3

Foreign and domestic equity prices in China

Notes: Average prices for foreign-only shares relative to prices for corresponding domestic-only shares, using capitalization (domestic plus foreign shares) weights. In Shanghai and Shenzhen, foreign and domestic shares trade on the same exchange. For Hong Kong H shares, the corresponding domestic share trades in Shanghai. Foreign prices are converted into Chinese renminbi.

Source: Fernald and Rogers (2001).

the difference in expected returns was only about 1.25 percent. By mid-1998, the earnings–price ratios had risen to about 0.1 for foreign shares and 0.025 for domestic shares, implying a difference in expected returns of 3.75 percent. Hence, the Asian crisis widened the difference in expected returns by about 2.5 percentage points.

This equation does not tell us whether domestic required returns fell or foreign required returns rose. However, domestic share prices changed little, while foreign share prices fell sharply. Hence, much of the movement presumably reflected an increase in the return required by foreign investors.

Other financial market evidence

The top panel of figure 4 shows the forward price of renminbi from the offshore nondeliverable forward market. This market offers one direct (though somewhat illiquid and, hence, imperfect) way to hedge renminbi exposure, and prices may reflect either expected currency depreciation or a currency risk premium. Until Hong Kong's stock market crashed in late October 1997, the forward market priced in little change in the value of the renminbi at all horizons. After late 1997, however, the forward price rose sharply, pricing in a considerable likelihood of devaluation; the forward price remained high, on balance, until early 2000, as sluggish exports and reduced capital inflows led many foreign investors to conjecture that China might devalue the renminbi. Since then, strong export growth, a pickup in inflows of foreign portfolio equity capital, and an increase in the value of FDI contracts have contributed to a narrowing of the premium.[22]

Finally, the bottom panel of figure 4 shows the widening of the yield spread between Chinese sovereign debt and U.S. Treasuries during the crisis, using a dollar-denominated Chinese government bond due in 2006. The spread widened from under 100 basis points to a high of around 400 basis points in September 1998. In early 1999, spreads stood at around 250 basis points, but declined to roughly 150 basis points in the latter half of 1999 and remained at these levels through much of 2000. Spreads narrowed even further in 2001, as government measures to restructure the economy seemingly boosted foreign investors' confidence in China.

Given the higher value of FDI contracts signed in 2000, increased capital inflows seem likely. Of course, China does not rely on foreign capital in a macroeconomic sense. That is, China has a current-account surplus and, hence, is a net exporter of capital (taking the form, especially, of central bank purchases of U.S. Treasuries and other foreign exchange assets). Therefore, even if foreign investment were to decline, China could in principle offset the direct effect on domestic investment by reducing its investments abroad (for example, by converting its investments in U.S. Treasury bonds into investments in, say, factories in China).

Nevertheless, FDI has played an important role in improving China's economy. One direct benefit of FDI is that foreign firms provide new products, improved technology, and examples of a "reengineered" employer–employee relationship (see Rosen, 1999). A second, indirect benefit of FDI is the support it provides to the dynamic non-state sector (see Fernald and Babson, 1999). Gross inflows of foreign capital allow the non-state sector to bypass domestic intermediated channels, and hence allow profitable investments that otherwise would not be made. As a result, increased FDI would tend to make enterprise restructuring less difficult. Downsizing state-owned enterprises requires destroying existing jobs and laying off workers, which is socially and politically much easier if new jobs are being created.

Outlook for China

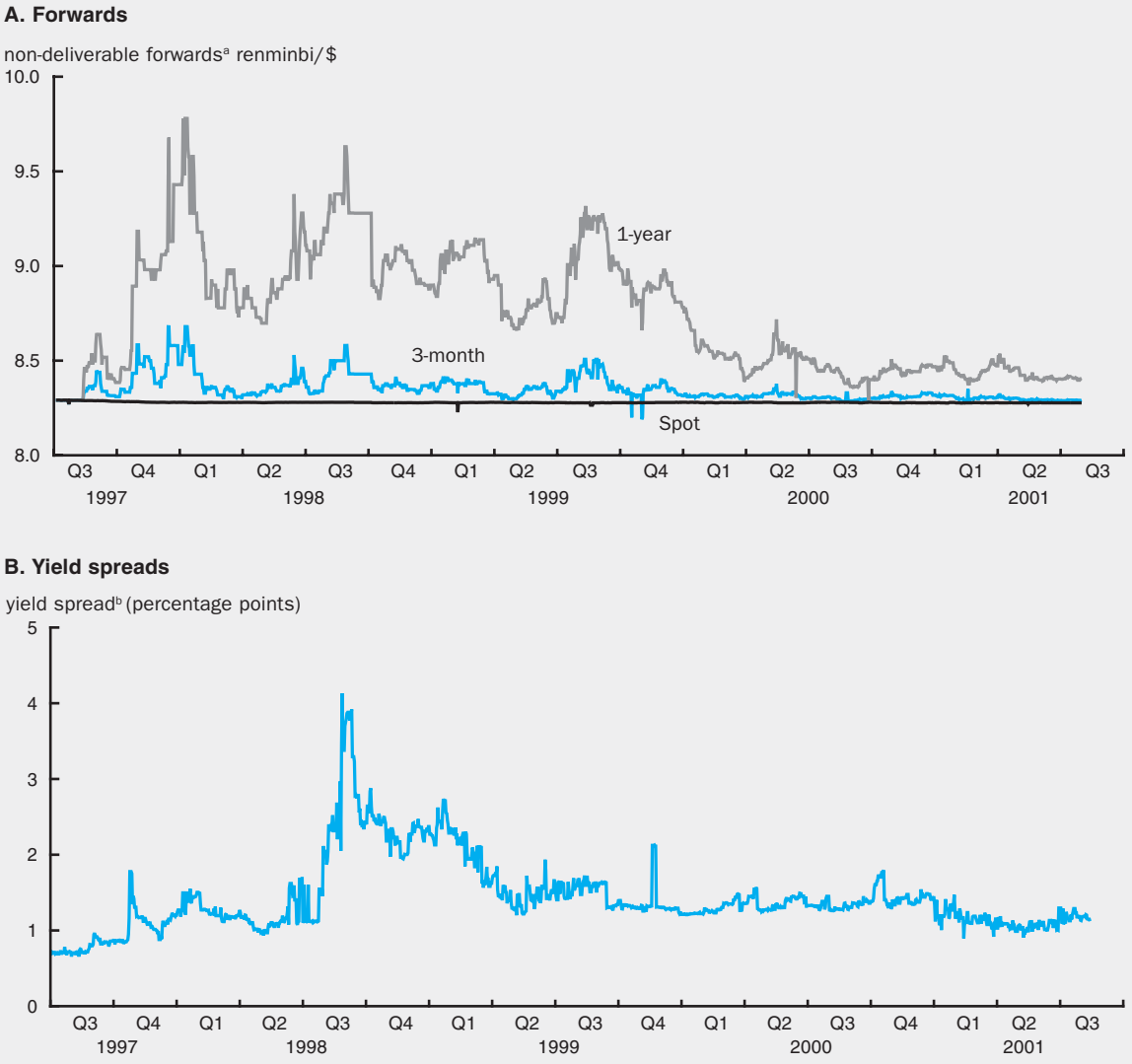
We argued above that the acceleration of economic reform in China since the crisis has contributed to improved foreign-investor sentiment toward China. In part, the reform program has been stepped up in order to prepare the economy to meet the challenges of international competition following China's entry to the World Trade Organization (WTO). Now, we briefly discuss these reforms, including government efforts to restructure China's financial and state-owned enterprise sectors, and outline risks to the outlook for China. Many of these risks stem from factors that threaten to slow the pace of economic reforms, which in turn would likely depress inflows of foreign capital.

Since the crisis, the Chinese government has intensified efforts to reform the major state-owned commercial banks that dominate the banking system. These efforts include cleaning up Chinese banks' mountains of bad loans—in large part a legacy of directed lending under central planning—by transferring about $170 billion of bad loans to asset management companies. These entities, in turn, are expected to write off about one-third of the transferred bad loans through debt–equity exchanges. The assets underlying the remainder of the bad loans will eventually be sold via auction.[23]

China has also made some progress in reforming the state enterprise sector. Many small firms have been privatized or shut down, while larger firms have shed some surplus labor. However, reform has been hindered by concerns about possible social unrest. The

FIGURE 4

Financial market evidence of China's risk



[a]Rates from offshore forward market, where all transactions are settled in U.S. dollars based on the value of the renminbi.
[b]Government bonds relative to U.S. Treasuries.
Source: Reuters.

development of a functioning social welfare system to provide laid-off workers with unemployment benefits, pensions, and health insurance is still in its early stages.

The problem of surplus labor is even more acute in rural areas. Increased pressures on the agriculture sector following WTO entry may exacerbate the already large differential between urban and rural incomes. The threat of resulting massive rural-to-urban migration may cause China's leadership to slow the reform process, not least because mass urbanization will require massive fiscal spending. The fiscal costs of resolving the banks' bad loans, reforming the state enterprises, and financing a new social welfare system also raise concerns about whether the reform process is fiscally sustainable.

In addition, if restructuring proves too painful, less reform-minded policymakers may come to power and reverse the reform agenda, perhaps as early as 2002, when the current set of leaders step down. Another risk is that reform may be slowed by China's inadequate infrastructure for commercial transactions, especially its accounting and legal systems, including the lack of a suitable framework for corporate bankruptcy.

Another concern raised by observers is that imports to China might surge following WTO entry as China reduces trade barriers, possibly leading to pressure on the currency and balance of payments. Our view is that the tariff reductions promised in China's protocol of accession to the WTO are unlikely to lead to a substantial rise in the overall level of imports, because China's average tariff rates are already relatively low, after having been cut sharply during the 1990s. Likewise, the overall incidence of non-tariff barriers fell significantly during the 1990s. In certain highly protected sectors, however, notably agriculture and automobiles, barriers are set to fall steeply, and competitive pressures in these sectors are likely to increase substantially as a result of WTO accession.

Observers have also questioned whether massive capital flight could put pressure on the currency and balance of payments, given evidence that China's capital controls can be easily evaded. Errors and omissions are, indeed, large, averaging a $16 billion outflow from 1995 to 2000. However, this is roughly an order of magnitude smaller than international reserves. With continuing current account surpluses and inflows of FDI, outflows would have to rise very sharply before foreign exchange reserves would begin to fall substantially and there would be irresistible pressure on the currency.

Given the weakness of China's banking system, observers have expressed concern about Chinese banks' ability to compete with foreign banks following China's WTO entry.[24] If depositors were to shift large amounts of funds from domestic banks to foreign banks, many domestic banks might face a liquidity crisis. If the government is then called upon to rescue these banks with central bank funds, it may face the undesirable choice of seeing an increase in inflation or a substantial slowdown in growth (as banks are unable to extend new loans and are forced to call in outstanding ones).

Conclusion

China avoided the emerging market crisis of 1997–99 but, given the risks to the outlook, how likely is it that China will avoid future crises? Chinese authorities appear aware of the risks, but the problems are inherently difficult. China is attempting to balance conflicting concerns—a desire for short-run stability and growth (which tends to slow reforms) versus a need for long-run improvements in the allocation of resources (which requires that reforms keep moving forward).

Would Chinese banks operate more soundly if they had adequate capital? The U.S. savings and loan problem highlighted the moral hazard problems of financial institutions with low net worth and access to deposit insurance. In 1998, Chinese authorities announced a 270 billion renminbi ($33 billion) program to recapitalize the banks.

However, before Chinese banks can operate on a fully commercial basis. China needs to reduce the need to make policy loans (through enterprise reform), provide banks with experience and skill in assessing loans on commercial grounds, and ensure that banks are transparent and accountable. These are necessary—but obviously difficult—steps before Chinese policymakers can successfully recapitalize the banks or otherwise try to solve the underlying problems of inherited bad loans of the banking system. Chinese authorities certainly appear to recognize the need for these steps and have made substantial progress in recent years in training bankers and examiners and in increasing the accountability of banks.

But progress is slow. Suppose, for example, that Chinese banks were successfully recapitalized, so that they would meet capital adequacy standards under the best of accounting systems. Major state-owned employers would still need loans to pay wages and pensions. In principle, the government could move these quasi-fiscal operations onto the official budget. However, financial instruments (including taxes but also bond markets) remain underdeveloped, so such a move is likely to happen later rather than sooner. In addition, inherent incentive problems could remain. In the United States, there were clear incentives for the *owners* of poorly capitalized savings and loans to engage in risky behavior; more capital would have mitigated these incentives. For Chinese banks, however, the issue is the incentives faced by bank *managers* (rather than owners). Individual managers may continue to have incentives to make loans to, say, friends or powerful politicians.[25]

In sum, China now faces the very difficult task of sequencing, that is, of trying to move from a non-commercial banking system where market mechanisms do not fully work to a viable commercial banking system where incentives are appropriate. The transitional stage—where controls have been lifted but incentives remain inappropriate—holds significant dangers, as was evident in the Asian crisis economies.

NOTES

[1]The strong output performance was surprising and appears in part to have reflected substantial increases in investment in infrastructure and by state enterprises (including strong inventory investment), the latter apparently financed by substantially faster lending by the four major banks. Hence, the increase in growth may have been at the expense of previously announced enterprise and bank reform. Numerous observers have also questioned the reliability of the output data, particularly given the clear political commitment at that time to an 8 percent growth target. Given long-noted problems with Chinese statistics (see Borensztein and Ostry, 1996, for instance), most analysts tend to interpret Chinese statistics as indicating trends, even if levels, or even exact growth rates, are uncertain. The concern is that the "biases" in the statistics are not constant, so that the economy might have weakened in 1998 despite the reported growth.

[2]The terms renminbi and yuan are often used interchangeably to refer to China's currency. (Technically, the renminbi is the currency; the yuan is the unit of account.) We use the term renminbi throughout this article.

[3]See, for instance, Dornbusch (1998), Manning (1999), and Butler and Palmer (1997).

[4]To obtain consistent data across economies, we measure short-term debt from creditor data, using short-term bank claims by BIS reporting banks.

[5]See the discussion in Sachs and Radelet (1998), p. 5.

[6]See Kochhar, Loungani, and Stone (1998) and Berg (1999).

[7]See, for example, IMF (1998), Goldstein (1998), and Krugman (1998).

[8]See, for example, Lardy (1998a, 1998b), McGraw-Hill Companies, *Business Week* (1998), Rennie (1998), and Harding (1998).

[9]Chinese export growth has also been helped by structural reforms of the exchange and trade system, as detailed in Cerra and Dayal-Gulati (1999). Examples include allowing local governments and exporting enterprises to retain a proportion of foreign exchange receipts, eliminating mandatory export and import planning, and opening up the economy to foreign direct investment. Despite occasional reversals, the overall trend has been to reduce the role of central planning in China's foreign trade.

[10]See Arora and Kochhar (1995) for a comprehensive discussion of size and source discrepancies in bilateral trade statistics between China and its main industrial-country trading partners.

[11]Some of the analysis here is an updated version of section 3 in Fernald, Edison, and Loungani (1999).

[12]See Leamer and Stern (1970, Chapter 7) for a good discussion of export share analysis. The effects of export competition can be reflected not just in changes in export shares but also in export prices or profit margins. We intend to explore these other effects in future work.

[13]Note that by focusing on shares in particular markets, we are stacking the deck in favor of the export-competition view. A country may have its share in a particular market decline without necessarily experiencing a decline in the level of its exports to that market. It may also be losing market share in one market but gaining it in another. Furthermore, some changes in shares may be deliberate. Several Asian economies have shifted production toward components that are then assembled in China for export. These shifts tend to increase China's export shares and decrease the shares of other economies, without having an adverse effect on these other economies. These shifts were most pronounced in Hong Kong (whose statistics we have combined with China's) and Taiwan, but to some extent affected the statistics of other Asian economies as well.

[14]A less detailed examination of the data for the European and Japanese markets suggests broadly similar conclusions.

[15]The results were not sensitive to the ordering of the VAR.

[16]See, for example, Lardy (1998a) and Stiglitz (1998).

[17]See Gordon and Li (2001) for a discussion of financial repression in China.

[18]Of course, that capital account liberalization improves opportunities for risk diversification is one of its important benefits. Eichengreen et al. (1998) provide a comprehensive review of the benefits and potential costs of capital account liberalization, arguing that "... with appropriate safeguards, orderly and properly sequenced capital account liberalization and the broader financial liberalization of which it is part are not only inevitable but clearly beneficial."

[19]As discussed below, there is an offshore nondeliverable forwards (NDF) market in Hong Kong, where all transactions take place in U.S. dollars, based on the underlying value of the renminbi. Given the nonconvertibility of the underlying currency, the existence of the NDF market does not bring much pressure onto the renminbi.

[20]This material draws heavily on Fernald and Rogers (2001). See Fernald and Rogers for an expanded discussion of the market and additional references.

[21]In February 2001, China announced and began to implement plans to allow domestic Chinese residents to legally purchase the (much cheaper) "foreign" shares. The discussion here concerns the period before that date, although it should be noted that many Chinese investors were illegally purchasing B shares. The spike in B-share prices in 2001 reflects the opening of the market to domestic investors.

[22]According to press reports, China raised about $21 billion on foreign equity markets in 2000 by selling off parts of the country's largest state enterprises. This figure is roughly double the amount raised in each of the preceding three years. Contracted FDI inflows soared roughly 50 percent in 2000 compared with a year earlier, although actual FDI inflows rose only 1 percent.

[23]For discussions of how to deal with the bad loans of the banking system, see Lardy (1998b) and Bonin and Huang (2001).

[24]At present, foreign banks are not allowed to conduct local-currency business with domestic Chinese entities. Under the anticipated terms of China's WTO accession agreement, however, these restrictions will be lifted. In particular, following WTO accession, foreign banks will be allowed to conduct local-currency business with Chinese firms after two years and with retail customers after five years.

[25]China has undertaken a high-publicity anti-corruption campaign. One feature of this campaign is its focus on the financial sector, evidenced by the arrest of several high-profile business and bank executives. See, for example, Dow Jones (1999a, 1999b) and Faison (1999).

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