
**POSSIBLE SHRINKAGE OF FOREIGN CAPITAL
INFLOWS**

INTRODUCTION: SOME RELEVANT BACKGROUND

China is currently the world's second largest recipient of foreign direct investment (FDI); the largest is the United States. Private capital flows into China currently represent about 40 percent of all foreign capital flows in emerging market economies.

From 1985 to 2000, FDI in China increased from an annual rate of \$2 billion in the mid-1980s to over \$40 billion in 2001. Three observations should be added:

1. The increase in FDI from 1986 to 1997 was monotonic, although the rate of increase declined in the latter part of that period.
2. Since 1998, FDI in China has slightly declined in real terms.
3. For the period from 1985 through 2000, the annual compound rate of growth in real FDI was 18.5 percent.

Table 8.1 shows China's GDP and the volume of *disbursed* FDI in China from 1985 to 2001 in then-year dollars and in constant 1995 dollars.¹

¹The figures in Table 8.1 represent disbursed FDI as contrasted with "contracted" FDI: The latter is typically higher than the former because contracted amounts sometimes do not fully materialize in the specified year nor, for that matter, even in subsequent

Table 8.1
Gross Domestic Product and Foreign Direct Investment in China,
1985–2001
(billions of current and constant 1995 dollars)

Year	GDP Current Prices (billions of RMB)	GDP Constant Prices (billions of 1995 RMB)	GDP Constant Dollar Prices (billions of 1995 US\$)	FDI (billions of US\$)	FDI (billions of constant 1995 US\$)
1984	716	1956	236		
1985	879	2273	274		
1986	1013	2475	298	2.2	2.9
1987	1178	2761	333	2.3	2.9
1988	1470	3072	370	3.2	3.9
1989	1647	3197	385	3.4	4.0
1990	1832	3320	400	3.5	4.0
1991	2128	3625	437	4.4	4.8
1992	2586	4141	499	11.0	11.7
1993	3450	4700	566	27.5	28.6
1994	4669	5295	638	33.8	34.5
1995	5851	5851	705	37.5	37.5
1996	6833	6412	773	41.7	40.9
1997	7490	6977	841	45.3	43.6
1998	7985	7521	906	45.5	43.3
1999	8205	8056	971	40.3	37.7
2000	8940	8700	1048	40.7	37.3
2001				21.6 ^a	

SOURCES: International Monetary Fund, *International Financial Statistics*, Washington, D.C., September 2001; SSB, 2001.

^aThis figure is for the first six months of 2001.

Among China specialists as well as many business and financial observers, the consensus is that (1) FDI is important for China's continued economic growth (not necessarily *more* important than several other influences, but nevertheless highly important), and (2) the amount of FDI is sensitive to domestic and international circumstances.² In this chapter, we address both aspects of this consensus:

years. Dollar figures have been converted to 1995 constant dollars using the U.S. GDP deflator.

²See Wendy Dobson and Gary C. Hufbauer, *World Capital Markets*, Institute for International Economics, Washington, D.C., 2001; Hu Angang, "The Chinese Economy in Prospect," in Shuxun Chen and Charles Wolf, Jr., eds., *China, The United States, and the Global Economy*, RAND, Santa Monica, Calif., MR-1300-RC, 2001, Chapter Six, pp.

In the next section, the focus is on the second point: namely, those influences that might cause FDI to rise or to shrink appreciably. Later we focus on the first point: the effects of a possible shrinkage in FDI on China's future economic growth.

WHAT WILL AFFECT FDI IN CHINA IN THE 2002–2010 PERIOD?

The circumstances that would tend to boost FDI in China are the same factors whose absence or deterioration would shrink it, although the magnitudes of the upward and downward effects may not be symmetric. For example, the deleterious effect of conflict in the Taiwan Strait would greatly exceed the buoyant effect of peaceful relations between the mainland and Taiwan.

A survey conducted by the authors in February 2002 among several dozen putative China experts with self-declared general familiarity with the subject yielded the following results: (1) 88 percent of those responding conjectured that the average annual rate of FDI in China would rise over the period from 2002 to 2010, while 12 percent conjectured that it would fall. (2) Of those opining that FDI would rise, 38 percent thought the increases would be "small" (i.e., less than \$3 billion³ annually), an equal proportion thought the increase would be "moderate" (greater than \$3 billion but less than \$8 billion), and 12 percent thought the increase would be "large" (greater than \$8 billion); the respondents who conjectured that FDI would fall, opined that the fall would be "small."

The magnitude of FDI in China will be influenced by both *internal* and *external* circumstances.

The Internal Political and Economic Environment

Just as a smooth *leadership succession*, in which Hu Jintao and associates harmoniously replace Jiang Zemin as China's president along with Jiang's associates, would reassure and encourage foreign in-

99–146; and Angus Maddison, *Chinese Economic Performance in the Long-Run*, OECD, Paris, 1998.

³All dollar amounts are in U.S. dollars.

vestment, so too would an uneven, dissonant, and frictional succession discourage it. The precise tonality of the succession process may not be evident during the initial transitional period in which apparent tranquillity might conceal subsurface frictions, or at least ripples. Such an uncertain transition, let alone a manifestly unstable one, would enhance uncertainty and discourage direct investment.

Intensified *political and social unrest*—reflected perhaps in large-scale public demonstrations, vandalism, or violence—might ensue in China either in relation to a conflicted leadership transition or, indeed, independent of it. For example, unrest might be a widespread reaction to the imposition of fees or other arbitrary exactions imposed by cadres and local officials, or as a result of seriously rising unemployment especially in urban areas, or as a consequence of public revulsion against corrupt practices among political elites.⁴ Whatever its source, such unrest would make the environment for foreign investment less hospitable, resulting in a big increase in the risk premium for FDI, and a shrinkage in its volume.

Another source of potential impedance of foreign investment is a possible further deterioration in China's *internal financial system*. China's largest financial institutions are the Bank of China and the three other state-owned banks for industry, construction, and agriculture. The balance sheets of these institutions are riddled with nonperforming loans that have accumulated in large volume through years of "policy lending" to perennially loss-incurring SOEs.⁵ As a result, the solvency of these institutions is precarious, as it has been for some time. While China's huge annual savings (over 35 percent of GDP) provide an ample flow of deposits, it is by no means implausible that a run on these banks might ensue, creating a financial panic throughout the economy. The resulting adverse effect on foreign investment could be both large and persistent, even if the initial period of panic were limited in duration.

Separate from, although not entirely unrelated to, the precarious balance sheets of the state-owned banks is the recurrence of *financial scandals*, such as that associated with the Bank of China, which

⁴See Chapter Two, above.

⁵See Chapter Seven, above.

is the most internationally oriented of China's large banks. This scandal and others that may be in the pipeline would have a further depressing effect on foreign direct investment.

In the Bank of China case, a two-year investigation by the U.S. Treasury's Controller of the Currency, with the cooperation of Chinese regulators, exposed a record of fraudulent loans, preferential lending terms extended to favored borrowers, and other corrupt practices.⁶ The subsequent removal of the BOC president from his position, and the evident cooperation provided by Chinese regulators in the investigation and in the levying of the \$20 million penalty on the BOC, may have a partially redemptive effect on the environment for future investment. Such a damage-limiting effect will depend, of course, on whether these developments signal that more rigorous oversight and preventive measures will be applied in the future. However, this mitigating effect may not be sufficient to allay the fears of potential foreign investors lest they become squeezed by corrupt practices if and when they acquire illiquid assets in China, resulting in a serious deterrent to future foreign investments.

The recent BOC scandal is one example among many of the limited reach of the rule of the law whose effect is to render the economic environment less predictable, less appealing, and more risky to foreign investors.

One experienced observer has referred to the congeries of institutions that contribute to effective markets and facilitate economic transactions as a "nation's economic infrastructure . . . [which] is no less important than the system of highways, railways, etc. which make up the transportation infrastructure."⁷ China's shortcomings in this domain are a major impediment to foreign investment, which may in the future cause it to shrink.

A country's *economic infrastructure* includes enforcement of contracts and other aspects of property rights; probity and predictability

⁶See Matt Pottinger, "Bank of China Reaches Deal with the U.S.," WSJ, January 18, 2002; and Matt Pottinger, "Banker's Fall Symbolizes China's Flaws," WSJ, January 21, 2002.

⁷Jerry L. Jordan, *The U.S. Economy, Monetary Policy, and Essentials for Prosperity*, paper delivered at the Fourth Annual RAND-China Reform Forum Conference, Santa Monica, Calif., November 29-30, 2001.

of the judicial system in resolving disputes; and competence and objectivity of internal and, especially, external auditing in conformity with rigorous, explicit, and transparent accounting standards. Similarly, the quality and competence of monetary and fiscal policies and institutions, and of the central banking system, are other key aspects of the economic infrastructure to which foreign investors are sensitive.

As the recent abysmal failure of Enron in the United States demonstrates, the economic infrastructures of developed countries also sometimes fall far below the standards to which they aspire. China's infrastructural deficiencies present formidable obstacles to creating and sustaining an economic environment that is congenial to foreign investment.

The president of the Federal Reserve Bank of Cleveland, Dr. Jerry Jordan, concludes his discourse on economic infrastructure, with the following admonition:

When the institutional arrangements of a country [i.e., its economic infrastructure] are not stable and predictable, economic performance suffers as much as or more than when policies are erratic and unpredictable.⁸

To be sure, all of these ingredients are acknowledged by China's top leadership to be important elements in China's economic reform.⁹ Another important element is the modernization, regulation, and enhancement of China's hitherto dysfunctional securities markets, and the only modestly successful efforts of China's Securities and Regulatory Commission to instill improvements in corporate governance of companies listed on these markets.¹⁰ If and as these institutional reforms progress, the environment for FDI in China would become increasingly congenial. By the same token, if these efforts falter, stagnate, or are reversed—scenarios that are not entirely

⁸Ibid., p. 6.

⁹See statement by Premier Zhu Rongji, *Report on the Work of the Government*, at the opening of the Fifth Session of the Ninth National People's Congress, Beijing, March 5, 2002.

¹⁰See Charles Wolf, Jr., "Capitalism, Chinese Style," *International Economy*, Washington, D.C., Winter 2002.

implausible—the internal environment will be viewed by foreign investors as unfavorable, and perhaps hostile, to foreign investment.¹¹

If such adverse developments ensue, two consequences would follow: First, FDI would shrink perhaps precipitously; and second, such FDI as occurs would require a substantial premium in expected yields to compensate for the added risk associated with the adversities engendered by China's economic infrastructure. Further down the road, harvesting of these yields by foreign investors could generate hostile political reactions from Chinese nationalists, which, in turn, would have negative repercussions for further foreign investment.

China's *membership in the World Trade Organization* (WTO) should encourage foreign investors—especially if and when the WTO and its members embrace a planned Multilateral Agreement on Investment code to which all members subscribe. Whether and when this will actually occur is uncertain.

In completing its five-year process of qualifying for WTO membership, China concluded some 900 pages of bilateral agreements with other WTO members (among the most voluminous agreements were those with the European Union and the United States). These agreements involve pledges to lower tariffs by specified rates, as well as to provide greater access by foreign investors in financial services, insurance, legal services, and telecommunications. If these pledges are fully complied with, the effect on FDI would surely be positive. But if, as is not unlikely, *China's compliance lags* significantly—a pattern that other WTO members have demonstrated in the past—a severe shrinkage of FDI could occur.

To be sure, a slow pace of lowering tariffs and liberalizing nontariff barriers might provide a positive incentive for FDI to get inside protectionist barriers. On the other hand, if administrative restrictions confronting foreign investors—as distinct from explicit and visible tariff reductions—were to increase, the result may be to circumscribe

¹¹For a view that accords high probability, rather than just “plausibility” to such adverse developments, see Gordon Chang, *The Coming Collapse of China*, Random House, New York, 2001.

opportunities accessible to foreign investors in the services fields mentioned above, with a corresponding dampening effect on FDI.¹²

A final and major influence on foreign investment is the *convertibility and stability of China's currency*. To some extent these two attributes are in conflict with one another. China's yuan has, indeed, been the most stable of Asia's currencies in the past half-dozen years, maintaining a value of between 8.2 and 8.28 renminbi (RMB) per U.S. dollar throughout the period.

However, while the RMB is convertible at this rate on current account, it is nonconvertible on capital account. This is plainly a disincentive for particular types of foreign investment: namely, those targeted on production and sales for China's potentially huge domestic market. Such investments aim at net revenues over costs in RMB. Hence, uncertainty as to whether and on what terms RMB profits will be convertible into dollars or other foreign currencies can be a significant impediment to investment in sectors and industries focused on domestic sales within China.

In sum, a wide range of plausible internal developments in China could seriously vitiate the environment for foreign investment: friction in the transition from China's old to its new leadership, civil unrest perhaps triggered by increased unemployment, financial crisis resulting from the large and growing volume of nonperforming loans on the balance sheets of China's main banks, financial and other scandals in the Chinese business and financial environment, failure to develop the legal and financial infrastructure on which foreign investment especially depends, noncompliance with WTO commitments, and inconvertibility of RMB earnings. While any of these developments would influence the risk premium associated with FDI and, hence, would affect its volume, a clustering of several of them could plausibly lead to a major shrinkage of FDI, perhaps by as much as one-half or two-thirds of the recent flow, e.g., over \$42 billion in 2001. In light of the legacy of Asia's financial crisis of 1997–1998, this

¹²There have been some indications that China may be embarking on such restrictive regulations. For example, foreign financial institutions in China are required to maintain 60 percent of their registered capital in local currency at local branches, thereby disbursing capital and probably boosting operating costs. Law firms will also be required to wait a year before they can demonstrate a "need for establishing" a physical office presence in China. See WSJ, February 5, 2002.

conjecture about the elasticity of FDI with respect to these clustered changes is as likely to be too low as too high.

External Influences on FDI in China

International capital markets have been important, as well as highly volatile, elements in the global economy in the past five centuries, since the Portuguese, Dutch, British, French, and Spanish colonial ventures in Asia, the Middle East, and the Americas.¹³ The markets have in recent decades become increasingly integrated, open, and competitive, except for occasional interruptions by periodic financial crises, such as those occurring in Asia in 1997–1998, Russia in 1999, and Brazil in 2000. Nevertheless, according to some metrics, the degree of integration in global capital markets was actually *greater* at the end of the 19th century and prior to World War I than in recent years.¹⁴

Because of the increased integration of global capital markets, FDI in China will be determined by the risk-adjusted, after-tax rate of return on assets accessible to acquisition by foreign investors in China, compared with similar rates of return on assets in the rest of the world—notably, in emerging markets in East Asia, India, Southwest Asia, the Middle East, Russia, Eastern Europe, and Latin America, as well as in Western Europe and the United States. Notwithstanding the storied lure of China’s potentially enormous market (note that India’s is potentially of near equal size), FDI in China will rise if and as the risks of investment fall and rates of return rise in China relative to those elsewhere, including the competitive risk-adjusted rates of return *within* the capital exporting countries themselves.

Equivalently, FDI in China would fall—perhaps deeply and perhaps abruptly—if and as the risk-adjusted rates of return on assets accessible to foreign investors in China fall relative to the opportunities available, or in the process of becoming available, elsewhere.

¹³See Wendy Dobson and Gary C. Hufbauer, *World Capital Markets*, Institute for International Economics, Washington, D.C., 2001; and Kevin O’Rourke and Jeffrey Williamson, *Globalization and History*, MIT Press, Cambridge, Mass., 1999.

¹⁴See Charles Wolf, Jr., “Globalization: Meaning and Measurement,” *Critical Review*, April 2001.

The factors within China that could drive a relative decline of FDI were summarized in the preceding section. In the *rest of the world*, especially in other emerging markets, factors similar to those cited in the previous section could enhance confidence in and returns from FDI in these other areas. *Competitive efforts in other developing countries* to create and/or strengthen their legal or financial infrastructure, their practices of corporate governance, and their political and social stability and predictability could enhance their drawing power for foreign investment compared to that of China. *New resource discoveries* in other areas—such as may impend in the central Asian republics—are another wild card in the competitive game for mobile and global capital.

Finally, adverse changes in *China's relations with its neighbors* (including Taiwan, and with ethnic Chinese in Southeast Asia), as well as with the United States, Japan, the European Union, and India, would also shrink FDI in China over the 2002–2010 period. At the upper end of this spectrum of possible adversities, and also at the intersection of external and internal drivers of FDI in China, would be a serious confrontation in the Taiwan Strait. If the Taiwan situation were to escalate from the present relatively quiescent position to hostile rhetoric, to serious tension, to embargoes in the strait, and to direct military confrontation, FDI could be expected to decline along with, but probably more abruptly than, movement to each successive rung in this escalation ladder.

For example, the effects of a missile-imposed embargo on trade in the strait would so sharply boost insurance premiums for cargo shipping that incentives for foreign investment in China would sharply decline, as would the volume of trade transactions with China. The resulting chill this would impart to foreign investors could be short- or long-lived, more probably the latter. Even if the near-term effect were intended to be once and for all, it is extremely doubtful this intention would encourage some investors more than it would discourage others.

Just as *conflict in the Taiwan Strait* would have a seriously depressant effect on FDI in China, so would *conflicts elsewhere in Asia*—for example, on the Korean peninsula—tend to discourage foreign investment in China, although the repercussions would be less severe

than those resulting from contingencies arising in and over the Taiwan Strait.

EFFECTS OF FDI ON CHINA'S ECONOMIC GROWTH

Two Mechanisms

While economists within and outside China generally agree that FDI is important for China's economic growth,¹⁵ there are two different views of the mechanisms that drive FDI's contribution to growth.

The more widely prevalent view is that FDI's special role derives from its unique combination of capital together with technology, management, and marketing skills and linkages—in the latter case relating especially to the promotion of exports to the countries from which foreign investment originates.¹⁶

A minority view, but one increasingly supported by evidence presented by Professor Yasheng Huang, is that the special importance of FDI derives from quite different sources: namely, imperfect capital mobility within China, resulting from internal barriers to the flow of savings and capital across province lines, as well as tax advantages provided to foreign investors.¹⁷ For example, in the special economic zones on China's east coast, applicable tax rates are less for foreign investors than for domestic investors, although this advantage may be ending as a consequence of China's admission to the WTO and the implicit obligation to apply national treatment to all investors, domestic as well as foreign. This unusual effect might result because application of the national-treatment rule—assuming this applies no

¹⁵See section above, Introduction: Some Relevant Background.

¹⁶See Dobson and Hufbauer, 2001, op. cit. A recent study of five East Asian countries (Indonesia, Korea, Malaysia, the Philippines, and Thailand) found that companies with a "substantial foreign ownership share have markedly higher productivity than those that are domestically owned," Mary Hallward-Driemeier, Giuseppe Iarossi, and Kenneth Sôkoloff, *Exports and Manufacturing Productivity in East Asia: A Comparative Analysis of Firm-Level Data*, National Bureau of Economic Research Working Paper, No. 8894, Cambridge, Mass., 2002.

¹⁷See Yasheng Huang, "The Role of Foreign-Invested Enterprises in the Chinese Economy: An Institutional Approach," in Shuxun Chen and Charles Wolf, Jr., eds., *China, The United States, and the Global Economy*, RAND, Santa Monica, Calif., MR-1300-RC, 2001, pp. 147–191.

less to the Multilateral Agreement on Investment that WTO is formulating than it does to trade transactions—will help encourage domestic investment, which has been disfavored, rather than foreign investment, which has been favored in the past.

One effect of the favorable treatment accorded to foreign investment has been the phenomenon of “round tripping,” in which domestic Chinese capital has temporarily migrated abroad in order to acquire the special benefits conferred on “foreign” investors when capital is repatriated.

Although the two views are different, and have different implications, both may be valid. However, the effects of a curtailment of FDI on China's economic growth would differ depending on which of the views one adopts or emphasizes. Suppose one adopts the first view about the link between FDI, technology, management, and marketing. In this case, shrinkage of FDI—whether for exogenous reasons, such as the emergence of more attractive investment opportunities elsewhere in the world economy, or for endogenous reasons, such as increasing corruption in China or further deterioration in the rule of law—would mean that China not only would lose the benefit of the reduced foreign capital itself, but would be deprived of the associated benefits of technology, management, and marketing, as well.

If, on the other hand, one adopts the second view—and if in the course of China's further economic reform, internal barriers to capital flows are reduced or eliminated and preferential treatment of foreign investors is removed—then the effect on China's economic growth of diminished FDI might be offset in whole or in part by an increase in the quantity or productivity of domestic investment.

Effects on Growth

In the informal survey of several knowledgeable China experts referred to earlier,¹⁸ opinions were solicited on a multiple-choice basis concerning the conjectured effects of possible changes in FDI on China's economic growth in the 2002–2010 period. Sixty-two percent of the respondents thought that the effects would be “small” (less

¹⁸See above section, What Will Affect FDI in China in the 2002–2010 Period?

than 0.5 percent per year), and 38 percent thought the effects would be “moderate” (between 0.5 and 1 percent per year); none thought the effects would be large (greater than 0.5 percent annually).

Attempting to quantify the effects of changes in foreign direct investment in China on subsequent economic growth is difficult. One difficulty is that, theoretically, the FDI variable we should be looking at is the *stock* of FDI, rather than its annual flow. Information on the accumulated FDI stock is unreliable, for many reasons, including because data are not available on the appropriate depreciation rate to apply to the original FDI, and because it is unknown how to attribute the net FDI stock to its true market value. Estimating these parameters would be arbitrary. Moreover, the extent to which some parts of the accumulated stock of FDI may have been liquidated—for example, by overvaluation of imports, or undervaluation of exports—would be particularly elusive.

Furthermore, numerous other covariates, occurring contemporaneously with FDI, also affect economic performance, thereby confounding the effects that might be attributable to FDI in influencing China’s economic growth. Among these covariates are domestic private and public investment; government fiscal, monetary, and regulatory policies; exports and imports; changes in visible or administrative barriers to capital mobility within China; and so on. While some of these confounding variables might be allowed by using suitable dummy variables, or in some cases (i.e., for domestic investment, exports, and imports) by using available data, limitations of both time and budget have precluded our undertaking the more comprehensive model-building that this would require. In any event, the results from doing this would probably still be mired in uncertainty, because of the data problems previously mentioned.

Recognizing these problems, we base our calculations on linear regressions of GDP growth on annual flows of FDI for the period from 1986 through 2001, and, alternatively, on FDI as a fraction of GDP, in both cases with a time variable to allow separately for time trends.¹⁹

¹⁹Both specifications have been used in other work that explores the relation between FDI and economic growth in developing countries. For example, see Dobson and Hufbauer (2001, *op. cit.*) and E. Borensztein, J. DeGregorio, and J.-W. Lee, “How Does

$$\text{GDP growth rate} = a_1 (\text{FDI}_t) + a_2 T + \text{constant} \quad (1)$$

$$\text{GDP growth rate} = b_1 (\text{FDI}_t/\text{GDP}_t) + b_2 T + \text{constant} \quad (2)$$

where t refers to annual values for GDP and FDI from 1985 through 2001, and T refers to the individual years.

The regression coefficients in Equation 1 for a_1 are 0.0016 (SE = 0.0011), and for a_2 , -0.006 (SE = 0.0045), $R^2 = 0.13$. The coefficients in Equation 2 for b_1 are 1.0046 (SE = 0.7670), and for b_2 , -0.0039 (SE = 0.0032), $R^2 = 0.15$.

It is worth noting that several of the possibly “confounding” variables mentioned above that might be expected to affect GDP growth but have been omitted from these equations—for example, exports, regulatory policies, and protection of property rights—may have evolved steadily over time; consequently, they may be plausibly proxied by the time variable, T , in these equations.

These estimates must be treated with caution because of the uncertainties they entail, as indicated by the high standard errors and the relatively small proportion (13–15 percent) of the variance in GDP growth that they explain. Nevertheless, the results are suggestive and are roughly consistent with other attempts using similarly simple models to make quantitative estimates of the effects of foreign direct investments on economic performance in other developing countries.²⁰

While recognizing the uncertainties of the coefficients, it can be conjectured from Equation 1 that a reduction of \$1 billion in FDI inflow would reduce annual GDP growth by 0.16 percent, and a reduction of FDI by \$10 billion would lower the annual GDP growth rate by 1.6 percent. Correspondingly, a reduction of the FDI/GDP ratio by 1 percent according to Equation 2 would lower the GDP growth rate by 1.0046 percent. This result is generally consistent with

Foreign Direct Investment Affect Economic Growth?” *Journal of International Economics*, Vol. 45, 1998.

²⁰Borensztein, DeGregorio, and Lee, 1998, found that for 69 developing countries during the period from 1970 to 1989, regressions with similar specifications to those used above resulted in a coefficient for the FDI inflow ratio to GDP of 0.0066, with a standard error of 0.0046.

the previously cited result from Equation 1: China's GDP is approximately \$1,200 billion; hence, a \$10 billion reduction in FDI would represent 0.83 percent of GDP, and according to Equation 2 would reduce expected GDP annual growth by $(0.83) (1.0046) = 0.0834$ percent.

Thus, Equation 1 suggests that a \$10 billion reduction in FDI would lower annual GDP growth by 1.6 percent, while Equation 2 suggests a \$10 billion reduction in FDI would lower GDP growth by 0.83 percent. If FDI were to shrink by \$30 billion, the implied reduction in annual GDP growth might vary between -2.5 percent and -4.8 percent—figures that seem on the face of it to be much too high, so the underlying assumption of linearity is probably faulty.

Another approach to estimating the effects of FDI and its possible shrinkage on China's economic performance is to consider the effects of foreign investment on total factor productivity (TFP) in a standard Solow-Cobb Douglas aggregate production function model, which has been used in other RAND work by the authors.²¹ In this prior work, we roughly estimated China's annual rate of growth in TFP to be between 1.0 and 1.5 percent annually. Perhaps, two-thirds of this upper estimate of TFP growth might be attributed to the effects of cumulative FDI flows.²² From this assumption, we might infer that a substantial shrinkage of FDI, say, perhaps by \$10 billion to \$20 billion annually might reduce TFP growth by 0.75 percent per year, a rough, subjective estimate that is not widely different from the regression estimates.

A third approach—no less crude than the other two—is to infer from the qualitative survey mentioned earlier an estimate of the effects of possible FDI shrinkage. Combining the survey responses by the proportions expressing them—nearly two-thirds of respondents judged

²¹See Wolf et al., 2000, Appendix A, pp. 81–85. See also Edward M. Graham and Erika Wada, "Foreign Direct Investment in China: Effects on Growth and Economic Performance," in Peter Drysdale, ed., *Achieving High Growth: Experience of Transitional Economies in East Asia*, Oxford, 2001. Graham and Wada use the TFP model to estimate differences in growth rates among China's regions and provinces, in accordance with assumptions about their relative inflows of foreign direct investment.

²²Support for this arguable judgment is provided by the first mechanism cited earlier through which FDI exercises a significant influence on technological progress, see above subsection, Two Mechanisms.

that FDI changes would have “small” effects on GDP growth—suggests that a shrinkage of FDI by, say, 20 percent (i.e., by \$10 billion) would reduce annual expected GDP growth by about 0.6 percent.²³

CONCLUSIONS

Our main conclusions can be summarized as follows:

- Between 1985 and 2001, FDI in China grew from \$2.2 billion annually to over \$42 billion. In constant 1995 dollars, FDI grew monotonically throughout this period until 1998, experiencing modest declines thereafter through 2001. Averaging over the 16-year period, the compound annual growth rate of FDI was 18.5 percent.
- There are numerous and plausible internal as well as external circumstances that could severely worsen the environment for foreign investment (and, of course, by the same token there are internal as well as external circumstances that could enhance the environment for foreign investment).
- If the adverse circumstances were to occur separately, and more especially if they were to occur collectively or in clusters, they could cause a severe decline in foreign investment.
- In turn, substantial decreases in FDI could have serious negative effects on China's economic performance.
- Our several, admittedly uncertain, estimates suggest that a \$10 billion reduction in annual FDI might lower China's annual GDP growth by somewhere between 0.06 and 1.6 percent.

²³Derived by assuming that (a) the judgment of “small” effects of FDI changes can be approximated as 0.025 percent annually (62 percent of respondents), and (b) the judgment of “moderate” effects can be approximated as 0.075 percent annually. Hence, the effects of a \$10 billion FDI shrinkage would be $[0.025(0.62) + 0.075(0.38)]/2 = 0.0275/5 \approx 0.0055$.